DATALOGIC

SENSORS
VISION SENSORS
SAFETY
MEASUREMENT



GENERAL CATALOGUE

Photoelectric Sensors
Vision Sensors
Safety & Measurement Devices



DATALOGIC AUTOMATION FOR FACTORY AUTOMATION

Datalogic Automation is one of the worldwide leading producers of automatic identification, detection and marking solutions for industrial automation. The ideal partner for companies that aim at developing a real competitive advantage through product traceability and automation of manufacturing processes in industrial and logistics fields. Its portfolio includes:

- IDENTIFICATION (LASER, IMAGERS)
- SENSORS (PHOTOELECTRIC SENSORS, PROXIMITY SWITCHES, MEASUREMENT DEVICES)
- SAFETY
- VISION
- LASER MARKING (FIBER, CO2, DPSSL)

that guarantee product focalization aimed at satisfying specific customer applications as well as offering a very wide and complete product range for Factory Automation, particularly in the following sectors:

- AUTOMOTIVE
- HEALTHCARE - PHARMACEUTICAL
- FOOD - BEVERAGE - TOBACCO
- ELECTRONICS & SOLAR
- GENERAL MANUFACTURING
- TRANSPORTATION & LOGISTICS

Identification

The automatic identification products have been developed in order to supply compact and extremely functional solutions. Datalogic Automation offers all the technologies available today: state-of –the-art laser scanners and imagers for bar code reading (traditional and 2D). The wide range of accessories available together with the particular attention placed on connectivity in industrial environments (Fieldbus), increases the ease and flexibility of use of the Bar Code readers.

Sensor

Datalogic Automation is specialized in the development and manufacturing of photoelectric, luminescence and contrast sensors, slot sensors for label detection, fiber optic amplifiers, area sensors, inductive sensors and temperature controllers. Datalogic Automation also supplies a wide range of measurement sensors, commonly used in level and position control, as well as in the precise and accurate detection of the material dimensions during working.

Safety

Datalogic Automation offers a complete range of safety light curtains. Extremely reliable and flexible, these light curtains protect operators that pass, stay near or operate directly with dangerous automatic machines.

Vision

The Vision Product Group includes vision sensors for inspection and 2D readers for identification based on the state-of-the-art technology, that however remain easy to use.

Laser Marking

Datalogic Automation supplies a wide array of solutions able to suit all marking needs: CO2, Fiber and DPSS laser technology. The DPSS technology is available in two different versions (infra-red laser), with harmonic duplication (green laser) and harmonic triplication (UV laser). The complete range of technologies available satisfy all laser marking applications on a wide spectrum of materials: metal alloys – such as steel, titanium and aluminum – plastic materials, as well as organic materials such as paper, cardboard or fabric, leather, wood, glass, silicon and rare earth elements.

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DATALOGIC
TL46-WLF
DATALOGIC
S300-PR-5-F00-DC-SG-ST4
DATALOGIC
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DATALOGIC
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DATALOGIC
S8-PH-5-M63-PP

Tubular





			S5	S10
OPERATING DISTANCES	SERIES			
	Through beam		0...12 m	0...18 m
	Retroreflex (on R2 reflector)		0.1...4 m	0.1...4 m
	Polarised retroreflex (on R2 reflector)		0.1...3 m	0.1...3 m
	Retroreflex for transparents (on R2 reflector)		0.1...0.8 m	0.1...0.8 m
	Diffuse proximity		1...10 cm 1...35 cm 0...60 cm	1...10 cm 1...35 cm 0...60 cm
	Fixed focus proximity		15 mm 50 mm	14 mm
	Background suppression			
	Foreground suppression			
	Distance sensor			
	Through beam with fibre optic		0...85 mm	
	Diffuse proximity with fibre optic		0...22 mm	
TECHNICAL DATA	Power supply	Vdc	10...30	10...30 II3
		Vac	15...264	
		Vac/dc		
	Output	PNP	•	•
		NPN	•	•
		NPN/PNP	•	
		relay (SCR)	(•)	
		other		
	Connection	cable	•	
		connector	•	•
		pig-tail		
	Approximate dimensions (mm)		M18 x 55/68	M18 x 55/67
	Housing material		ABS	NI plated brass AISI-316L stainless steel
	Mechanical protection		IP67	IP69K



S15
0…20 m
0.1…4 m
0.1…3 m
1…10 cm 1…35 cm
12…30 VDC II3
•
•
•
•
M18 x 40
ABS
IP69K

Tubular



			S50	S51
OPERATING DISTANCES	SERIES			
	Through beam		0…20 m 0…60 m cl.1	0…20 m
	Retroreflex (on R2 reflector)		0.1…4 m	0.1…4 m
	Polarised retroreflex (on R2 reflector)		0.1…4 m 0.1…16 m cl.1	0.1…3 m
	Retroreflex for transparents (on R2 reflector)		0.1…1.3 m	
	Diffuse proximity		0…10 cm 0…40 cm 0…70 cm 0…35 cm cl.1	0…10 cm 1…45 cm
	Fixed focus proximity		10 cm	
	Background suppression		5…10 cm	
	Foreground suppression			
	Distance sensor			
	Through beam with fibre optic		0…100 mm	
	Diffuse proximity with fibre optic		0…30 mm	
TECHNICAL DATA	Power supply	Vdc	10…30 UL cULus Ex II3DG	10…30 UL cULus Ex II3DG
		Vac		
		Vac/dc		
	Output	PNP	•	•
		NPN	•	•
		NPN/PNP		
		relay (SCR)		
		other	0…10 V	
	Connection	cable	•	•
		connector	•	•
		terminal block		
	Approximate dimensions (mm)		M18 x 55/68	M18 x 55/68
	Housing material		PBT Nl plated brass	PBT Nl plated brass
	Mechanical protection		IP67	IP67





SDS	SL5
	0…60 m cl.1
	0.03…12 m cl.1
	0…35 cm cl.1
2…10 cm 4…12 cm	
10…30	10…30
•	•
•	
•	
•	•
M18 x 100 (SDS5) M18 x 80 (SDS10)	M18 x 66
ABS (SDS5) NI plated brass (SDS10)	ABS
IP67	IP67

UNIVERSAL PHOTOELECTRIC SENSORS

Miniature and fiber optic





		SERIES	SM123	SMa//
OPERATING DISTANCES		Through beam	0...1.2 m	0...2 m
		Retroreflex (on R2 reflector)		5...150 cm
		Polarised retroreflex (on R2 reflector)	0...50 m (on R20)	10...100 cm
		Retroreflex for transparents (on R2 reflector)		
		Diffuse proximity	3...170 mm	
		Fixed focus proximity	3...20 mm	3...15 mm 3...20 mm 3...30 mm 3...50 mm
		Background suppression		
		Foreground suppression		
		Distance sensor		
		Through beam with fibre optic		
		Diffuse proximity with fibre optic		
TECHNICAL DATA		Power supply	Vdc	10...30	10...30
			Vac		
			Vac/dc		
		Output	PNP	•	•
			NPN	•	•
			NPN/PNP		
			relay		
			other		
		Connection	cable	•	•
			connector		
			terminal block		
		Approximate dimensions (mm)		SM1: 8X26X12 SM2: 12X25X4 SM3: 9X26X15	8 x 23 x 12
		Housing material		ABS	polycarbonate
		Mechanical protection		IP67	IP67





S40	S41
0.1...6 m	0.1...6 m
0.1...3 m	
0.1...2.5 m 0.1...6 m	0.1...2.5 m
0.1...0.7 m	0.1...0.7 m
0.5...30 cm 4...15 cm cl.2	0.2...35 cm
	110 mm
1.5...10 cm 2...6 cm	
10...30	10...30
•	•
•	•
•	•
•	•
12 x 32 x 20	12 x 32 x 20
ABS	ABS
IP67	IP67

UNIVERSAL PHOTOELECTRIC SENSORS

Miniature and fiber optic





			S3Z	S3
OPERATING DISTANCES	SERIES			
	Through beam		0...15 m	0...5 m
	Retroreflex (on R2 reflector)			0.1...2.5 m
	Polarised retroreflex (on R2 reflector)		0.05...4 m	0.1...2 m
	Retroreflex for transparents (on R2 reflector)		0...2 m	0.2...0.8 m
	Diffuse proximity		0...70 cm 5...15 cm	0...10 cm 0...50 cm
	Fixed focus proximity			12 mm
	Background suppression		5...25 cm	
	Foreground suppression			
	Distance sensor			
	Through beam with fibre optic			0...110 mm
	Diffuse proximity with fibre optic			0...33 mm
TECHNICAL DATA	Power supply	Vdc	10...30	10...30
		Vac		
		Vac/dc		
	Output	PNP	•	•
		NPN	•	
		NPN/PNP		•
		relay		
		other		
	Connection	cable	•	•
		connector	•	•
		terminal block		
	Approximate dimensions (mm)		11 x 31 x 19	13 x 42 x 29
	Housing material		PC/PBT	ABS
	Mechanical protection		IP67	IP66





S8	S7
0…10 m cl.2 0.1…5 m	
0…0.8 m 0…2 m	
0…50 cm	
2...20 cm cl.2 5…30 cm	
	0...300 mm 0...150 mm 0...75 mm
	0...100 mm 0...50 mm 0...25 mm
12…30 cULus cULus Ex II3DG	12...24 cULus cULus
•	•
•	•
	•
•	•
•	
14 x 42 x 25	10 x 40 x 65
ABS	ABS
IP67	IP65 IP50 (trimmer vers.)

UNIVERSAL PHOTOELECTRIC SENSORS

Compact





			S6	S60
OPERATING DISTANCES	SERIES			
	Through beam		0…20 m	0…20 m 0…60 m cl.1
	Retroreflex (on R2 reflector)		0.1…6 m	
	Polarised retroreflex (on R2 reflector)		0.1…5 m	0…3.2 m (coaxial) 0.1…6.5 m 0.1…20 m cl.1
	Retroreflex for transparents (on R2 reflector)		0.1…1 m	0…1.7 m (coaxial)
	Diffuse proximity		1…90 cm 5…200 cm	1…100 cm 5…200 cm 0…60 cm cl.1
	Fixed focus proximity			
	Background suppression		0.1…10 cm 3…25 cm 10…50 cm	7…20 cm 5…10 cm cl.1
	Foreground suppression			
	Distance sensor			5…15 cm
	Through beam with fibre optic			
	Diffuse proximity with fibre optic			
TECHNICAL DATA	Power supply	Vdc	10…30	10…30
		Vac		
		Vac/dc	15…264 cm	
	Output	PNP	•	•
		NPN		•
		NPN/PNP	•	
		relay	•	
		other		0…10 V
	Connection	cable	•	•
		connector	•	•
		terminal block		
	Approximate dimensions (mm)		18 x 50 x 50	15 x 50 x 50
	Housing material		ABS	ABS
	Mechanical protection		IP65	IP67





S62	S90
	0…20 m 0…60 m cl.1
0.5…8.5 m 0.3…20 m cl.2	0…3.2 m (coaxial) 0.1…6.5 m 0.1…20 m cl.1
	0…1.7 m (coaxial)
	1…100 cm 5…200 cm 0…60 cm cl.1
30…300 mm 60…600 mm 60…1200 mm 200…2000 mm 30…150 mm cl.2 50…350 mm cl.2	7…20 cm 5…10 cm cl.1
	7…20 cm
10…30	10…30
•	•
•	•
•	
•	•
18 x 50 x 50	15 x 50 x 41
ABS	zama
IP67	IP67

UNIVERSAL PHOTOELECTRIC SENSORS

Maxi





	SERIES		S2	S20
OPERATING DISTANCES	Through beam		0…10 m 0…50 m	0.1…50 m
	Retroreflex (on R2 reflector)		0.1…5 m	
	Polarised retroreflex (on R2 reflector)		0.1…3 m	0.1…8 m
	Retroreflex for transparents (on R2 reflector)			
	Diffuse proximity		1…90 cm 1…200 cm	0.1…2 m
	Fixed focus proximity			
	Background suppression			10…50 cm
	Foreground suppression			
	Distance sensor			
	Through beam with fibre optic			
	Diffuse proximity with fibre optic			
TECHNICAL DATA	Power supply	Vdc	10…30	10…30
		Vac		
		Vac/dc	15…264	
	Output	PNP		•
		NPN		•
		NPN/PNP	•	
		relay	•	
		other		
	Connection	cable		
		connector		•
		terminal block	•	
	Approximate dimensions (mm)		26 x 58 x 85	26 x 65 x 55
	Housing material		PBT	ABS
	Mechanical protection		IP66	IP66



S300
0…60 m
0.1…22 m
0…5 m
40…250 cm
10…30 VDC II3DG
24 ... 240 / 12...240
•
•
•
•
•
28 x 85 x 70
polycarbonate
IP67

Slot sensors





OPERATING DISTANCES

SERIES		SR21	SR22
Slot width		2 mm	2 mm
Slot depth		50 mm	40 mm
Switching frequency		25 kHz	10 kHz
Light emission		IR LED red / green LED	IR LED
Setting		AUTO-SET push-button	trimmer

TECHNICAL DATA

Power supply	Vdc	10...30	24 ± 15%
	Vac		
	Vac/dc		
Output	PNP	•	•
	NPN	•	•
	NPN/PNP		
	relay		
	other		
Connection	cable		
	connector	•	•
	terminal block		
Approximate dimensions (mm)		20 x 90 x 26	14 x 68 x 37
Housing material		zama	aluminium
Mechanical protection		IP65	IP60



SR31
30 mm
42 mm
10 kHz
IR LED
Multi-turn sensitivity trimmer
10...30
•
•
•
•
•
13 x 50 x 70
zama
IP60

Slot sensors





OPERATING DISTANCES

SERIES		SRF-30	SRF-50
Slot width		30 mm	50 mm
Slot depth		34 mm	54 mm
Switching frequency		1.5 kHz 3 kHz	1.5 kHz 3 kHz
Light emission		red LED red Laser cl.2	red LED red Laser cl.2
Setting		trimmer	trimmer

TECHNICAL DATA

Power supply	Vdc	10...30	10...30
	Vac		
	Vac/dc		
Output	PNP	•	•
	NPN	•	•
	NPN/PNP		
	relay		
	other		
Connection	cable		
	connector	•	•
	terminal block		
Approximate dimensions (mm)		10 x 50 x 59	10 x 70 x 79
Housing material		aluminium	aluminium
Mechanical protection		IP65	IP65





SRF-80	SRF-120
80 mm	120 mm
54 mm	54 mm
1.5 kHz 3 kHz cl.2	1.5 kHz 3 kHz cl.2
red LED red Laser cl.2	red LED red Laser cl.2
trimmer	trimmer
10...30	10...30
•	•
•	•
•	•
10 x 100 x 79	10 x140 x 84
aluminium	aluminium
IP65	IP65

Contrast and colour sensors





OPERATING DISTANCES	SERIES		TLμ	TL46
	Contrast sensor		6...60 mm	6...60 mm
	Contrast sensor with fibre optic		0...3 mm 0...10 mm	
	Colour sensor			
	Switching frequency		10 kHz 20 kHz	15 kHz 20 kHz 30 kHz
	Light emission		red / green LED white LED	RGB LED
	Serial interface			+/- SET push-buttons
	Setting		MARK and BACKGROUND push-buttons	
TECHNICAL DATA	Power supply	Vdc	10...30	10...30 II3DG
		Vac		
		Vac/dc		
	Output	PNP	•	
		NPN	•	
		NPN/PNP		•
		relay		
		other	0...5 V	0...5 V
	Connection	cable	•	•
		connector	•	•
		pig-tail		
	Approximate dimensions (mm)		31 x 81 x 58	31 x 81 x 58
	Housing material		zama	aluminium
	Mechanical protection		IP67	IP67






TL50	S65-W	S8-W	S65-V
9 mm	12…20 mm	10 mm	
			5…45 mm
15 kHz	30 kHz	10 kHz	1.5 kHz (V09 vers.) 500 Hz (V19 vers.)
RGB LED	white LED	RGB LED	white LED
	RS485		RS485
MARK/BKGD push-buttons	+/- SET push-buttons	Teach-in	SET and SEL push-buttons
10…30 UL c Ex II3DG	10…30 UL c	12…30 UL c	10…30 UL c
	•	•	•
	•	•	•
•			
	0…5 V		
•	•	•	•
		•	
31 x 81 x 53	50 x 50 x 25	14 x 42 x 25	50 x 50 x 25
ABS	ABS	ABS	ABS
IP67	IP67	IP67	IP67

Luminescence sensors





OPERATING DISTANCES

SERIES		LDμ	LD46
Luminescence sensor		10…100 mm	10…100 mm
Luminescence sensor with fibre optic		0...30 mm	0...30 mm
Switching frequency		2 kHz	2 kHz
Light emission		UV LED	UV-HP LED
Setting		MARK and BACKGROUND push-buttons	+/- SET push-buttons

TECHNICAL DATA

Power supply	Vdc	10…30	15…30 II3DG
	Vac		
	Vac/dc		
Output	PNP	•	
	NPN	•	
	NPN/PNP		•
	relay		
	other	0…7 V	0…5 V
Connection	cable	•	•
	connector	•	•
	terminal block		
Approximate dimensions (mm)		31 x 81 x 58	31 x 81 x 58
Housing material		zama	aluminium
Mechanical protection		IP67	IP67







S90-U	S60-U	S50-U
0…40 mm	0…40 mm	8…20 mm
2 kHz	2 kHz	1 kHz
UV LED	UV LED	UV LED
SET push-button	SET push-button	SET push-button
10…30	10…30	10…30
•	•	•
•	•	•
	•	•
•	•	•
15 x 50 x 41	15 x 50 x 50	M18 x 55/68
zama	ABS	PBT Nl plated brass
IP67	IP67	IP67

Area sensors



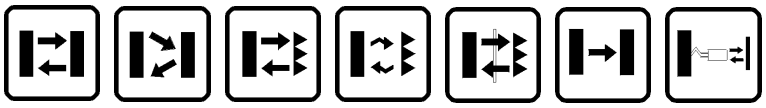
			AS1-HR	AS1-SR
OPERATING DISTANCES	SERIES			
	Area sensor		100 mm	100 mm
	Line sensor			
	Precision			
	Resolution		0.2 x 75 mm Ø 6 mm	0.2 x 200 mm Ø18 mm
	Switching frequency		500 Hz	500 Hz
	Light emission		IR LED	IR LED
	Serial interface			
	Operating distance		0.3...1.9 m 0.8...3 m	0.3...1.9 m 0.8...3 m
TECHNICAL DATA	Power supply	Vdc	10...30	10...30
		Vac		
		Vac/dc		
	Output	PNP	•	•
		NPN		
		NPN/PNP		
		relay		
		other		
	Connection	cable		
		connector	•	•
		terminal block		
	Approximate dimensions (mm)		20 x 41 x 150	20 x 41 x 150
	Housing material		aluminium	aluminium
	Mechanical protection		IP67	IP67


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TL46-WLF
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S5 SERIES

The **S5** series offers a range of plastic tubular M18 photoelectric sensors.
The most varied optic functions can be chosen amongst the fixed focus or diffuse proximity models with short, medium or long operating distances reaching 60 cm; the 4 m retroreflex, 3 m polarised retroreflex and 1 m for detection of transparent materials; the 12 m through beam and models with fibre-optic connection.
Different versions with either axial or radial optics are available. The series offers connector or cable connection, 3 wire Vac versions or 4 wire Vdc versions with complete configuration of the NPN/PNP output and dark/light mode.
A red LED indicating the output status is visible on the bottom side of the sensor. The versions with trimmer adjustment present also a green LED signalling the switching stability according to the received signal's intensity.
The rugged ABS housing always guarantees IP67 protection.



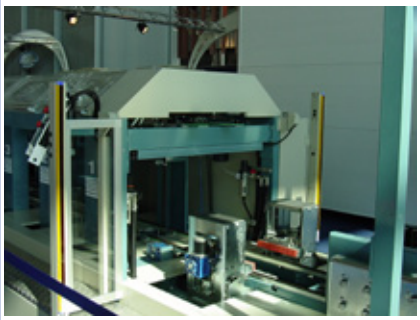


HIGHLIGHTS

- Wide versatility of optic functions and connections
- High operating distances for all functions
- Models with trimmer adjustment and stability LED
- Rugged and impermeable plastic housing

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines

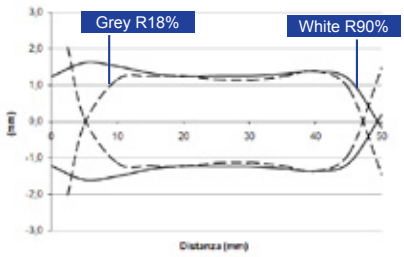


TECHNICAL DATA

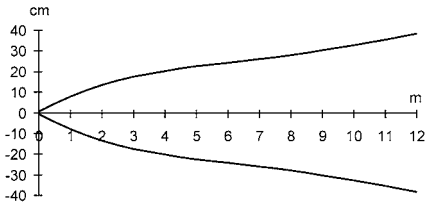
Power supply:	10 ... 30 VDC (D.C. VERS.), REVERSE POLARITY PROTECTION
	15 ... 264 Vac (a.c. vers.)
Consumption:	30 mA max. (d.c. vers.)
	10 mA max. (a.c. vers.)
Light emission:	infrared LED 880 nm
	red LED 660 nm (B, E1 vers.)
Diffuse proximity operating distance:	1 ... 10 cm (C10 vers.), 1 ... 8 cm (C8 vers.)
	1 ... 35 cm (C35 vers.), 1 ... 30 cm (C30 vers.)
	1 ... 60 cm (C60 vers.)
Fixed focus operating distance:	15 mm with 1 mm spot (D15 vers.)
	50 mm with 2 mm spot (D50 vers.)
Retroreflex operating distance:	0.1 ... 4 m (on R2)
Polarised retroreflex operating distance:	0.1 ... 3 m (on R2)
Retroreflex for transparents op. distance:	0.1 ... 0.8 m (on R2)
Through beam operating distance:	0 ... 12 m (F/G12 vers.), 0 ... 8 cm (F/G8 vers.)
Operating distance with fibre-optics:	22 mm proximity (with OF-18-ST)
	85 mm through beam (with OF-19-ST)
	refer to OF series for other fibres
Setting:	sensitivity trimmer
	(A4, C8, C10, D15, D50, G vers. excluded)
Indicators:	red OUTPUT LED
	green STABILITY LED (d.c. vers.)
	red POWER LED (G vers.)
Output type:	NPN or PNP configurable (d.c. vers.)
	SCR + bridge rectifier (a.c. vers.)
Saturation voltage:	2.5 V max. (vers. d.c.)
Output current:	150 mA max.(vers. d.c.), short-circuit prot.
	100 mA max.(vers. a.c.)
Response time:	500 µs (D50 vers.)
	1 ms max.
	2 ms (F vers. in d.c.)
	20 ms max. (a.c. vers.)
Switching frequency:	1KHz (D50 vers.)
	500 Hz max.
	250 Hz max. (F vers. in d.c.)
	25 Hz max. (a.c. vers.)
Operating mode:	dark/light (configurable in 4 wires d.c. vers.)
Auxiliary functions:	'test +' and 'test -' inputs (G vers. in d.c.)
Connection:	4-pole M12 connector or 2 m Ø 5 mm cable
Electrical protection:	class 1 (a.c. vers.); class 2 (d.c. vers.)
Mechanical protection:	IP67
Housing material:	ABS
Lens material:	PMMA plastic
Weight:	25 g max. (connector vers.); 100 g max. (cable vers.)
Operating temperature:	-25 ... +55°C
Storage temperature:	-25 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	(CE cULus vers.d.c.)

The operating distances indicate the detection distance with excess gain 2.

S5-5-D50-92

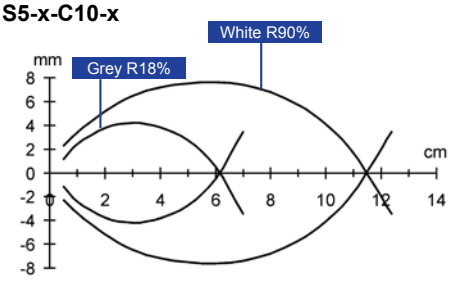


S5-x-F/G-x

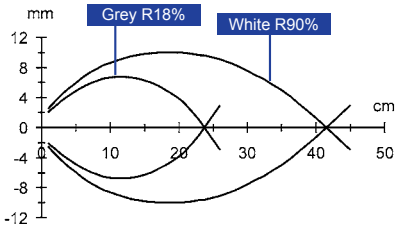


DETECTION DIAGRAMS

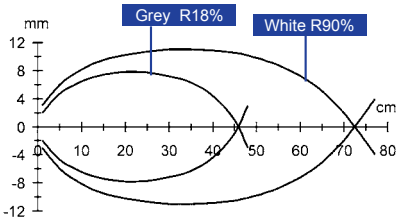
S5-x-C10-x



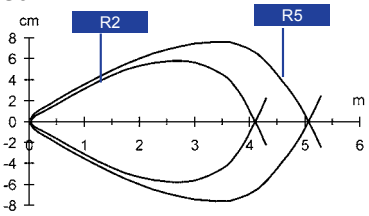
S5-x-C35-x



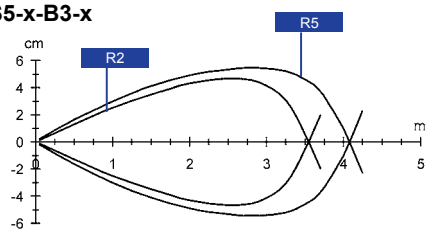
S5-x-C60-x



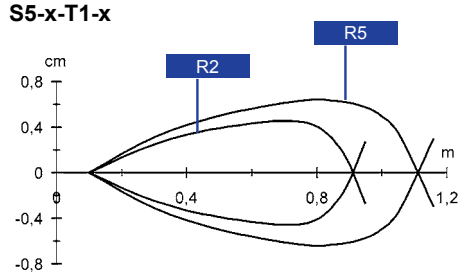
S5-x-A4-x



S5-x-B3-x

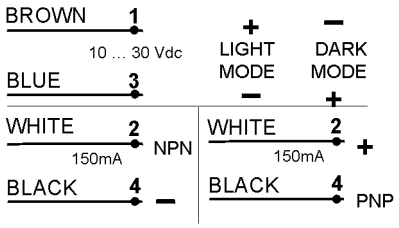


S5-x-T1-x

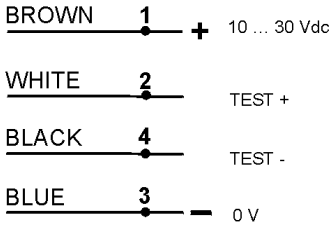


The detection diagrams indicate the typical operating distance with excess gain 1.

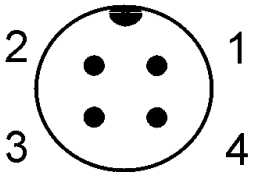
CONNECTIONS



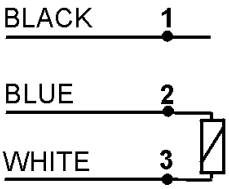
S5-5-x (4 wires)



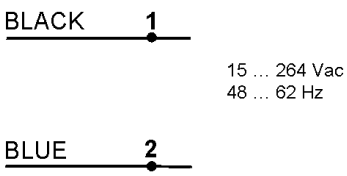
S5-5-G8/G12 (4 wires)



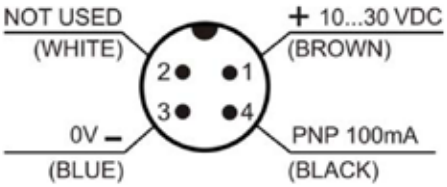
M12 CONNECTOR



S5-1-x



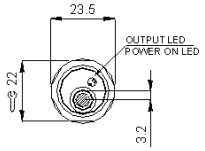
S5-1-G8



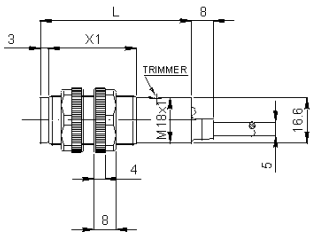
D50 model

DIMENSIONS

AC AXIAL VERSION

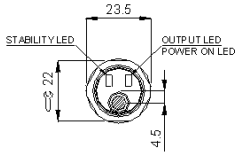


	MODELS	
	with trimmer	without trimmer
X1	52	42
L	75	65

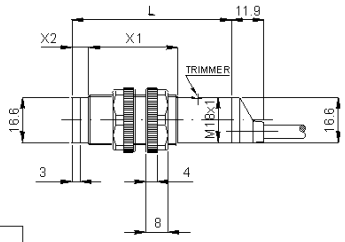


M12 CONNECTOR

DC AXIAL VERSION

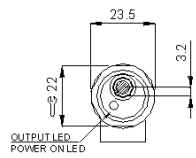


	MODELS		
	without trimmer	with trimmer (except mod. B)	mod. B
L	55	65	68
X1	32	42	42
X2	3	3	6

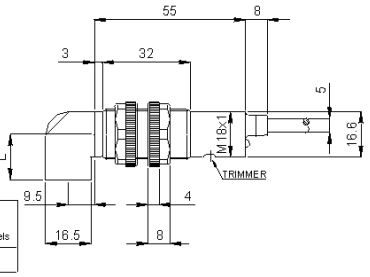


M12 CONNECTOR

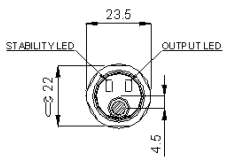
RADIAL VERSION

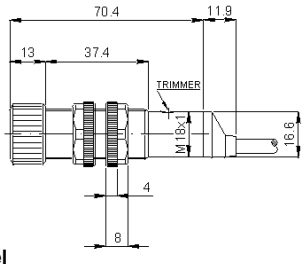


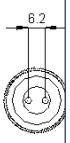
	MODELS		
	mod. B	mod. F/G	other models
L	19.5	20.5	16.5



FIBRE OPTIC VERSION

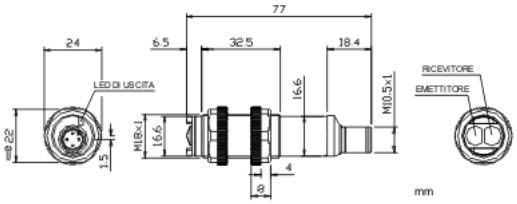






mm

D50 Model



MODEL SELCTION AND ORDER INFORMATION

	AXIAL OPTIC VERSIONS		RADIAL OPTIC VERSIONS	
4 WIRE CONNECTION 10-30Vdc	**4 POLE CABLE**	**M12 CONN.**	**4 POLE CABLE**	**M12 CONN.**
Short distance diffuse proximity	S5-5-C10-30 (G5210530)	S5-5-C10-32 (G5210532)	S5-5-C10-35 (G5210535)	S5-5-C10-37 (G5210537)
Medium distance diffuse proximity	S5-5-C35-30 (G5210630)	S5-5-C35-32 (G5210632)	S5-5-C35-35 (G5210635)	S5-5-C35-37 (G5210637)
Long distance diffuse proximity	S5-5-C60-30 (952051640)	S5-5-C60-32 (952051650)	--	--
Fixed focus proximity	S5-5-D15-30 (G5210430)	S5-5-D15-32 (G5210432)	S5-5-D15-35 (G5210435)	S5-5-D15-37 (G5210437)
Retroreflex	S5-5-A4-30 (G5210230)	S5-5-A4-32 (G5210232)	--	--
Polarised retroreflex	S5-5-B3-30 (G5210730)	S5-5-B3-32 (G5210732)	S5-5-B3-35 (G5210735)	S5-5-B3-37 (G5210737)
Retroreflex for transparents	S5-5-T1-30 (952051680)	S5-5-T1-32 (952051690)	--	--
Through beam receiver	S5-5-F12-30 (G5210130)	S5-5-F12-32 (G5210132)	S5-5-F8-35 (G5210135)	S5-5-F8-37 (G5210137)
Through beam emitter	S5-5-G12-00 (G5210000)	S5-5-G12-02 (G5210002)	S5-5-G8-05 (G5210005)	S5-5-G8-07 (G5210007)
Fibre-optic amplifier	S5-5-E1-30 (G5210830)	S5-5-E1-32 (G5210832)	--	--
3 WIRE CONNECTION 10-30Vdc	**4 POLE CABLE**	**M12 CONN.**	**4 POLE CABLE**	**M12 CONN.**
Fixed focus proximity	--	S5-5-D50-92 (952051940)	--	--
3 WIRE CONNECTION 15 - 264 Vac	**CABLE - dark mode**	**CABLE - light mode**	**CABLE - dark mode**	**CABLE - light mode**
Short distance diffuse proximity	S5-1-C8-10 (G5110510)	S5-1-C8-20 (G5110520)	S5-1-C8-15 (G5110515)	S5-1-C8-25 (G5110525)
Medium distance diffuse proximity	S5-1-C30-10 (G5110610)	S5-1-C30-20 (G5110620)	S5-1-C30-15 (G5110615)	S5-1-C30-25 (G5110625)
Fixed focus proximity	S5-1-D15-10 (G5110410)	S5-1-D15-20 (G5110420)	--	--
Retroreflex	S5-1-A2-10 (G5110210)	S5-1-A2-20 (G5110220)	S5-1-A2-15 (G5110215)	S5-1-A2-25 (G5110225)
Through beam receiver	S5-1-F8-10 (G5110110)	S5-1-F8-20 (G5110120)	--	--
Through beam emitter	S5-1-G8-00 (G5110000)		S5-1-G8-05 (G5110005)	

ACCESSORY SELCTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
SP-40	fixed support for tubular M18 sensors	95ACC1370
SWING-18	adjustable support for plastic tubular M18 sensors	895000006

Please refer also to **Sensor Accessories**

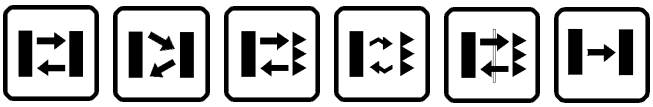
The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S10 SERIES

The **S10** series, in a practical and sturdy tubular M18 metal housing, suits the more difficult applications in the mechanical or food industries.
The IP69K mechanical protection guarantees resistance to washdown with water jets at high temperatures reaching 80°C and pressure reaching 100 bar.
Moreover, AISI-316L stainless steel versions are available for a major resistance towards chemical agents and aggressive detergents as well as to acid corrosion.
The lens in PMMA plastic offers the possibility of mounting a glass MEK-proof protection. A reflector with IP69K mechanical protection is available for the retroreflex versions.
The **S10** series includes adjustable proximity versions reaching 10, 35 or 60 cm and 14 mm fixed focus proximity, 4 m retroreflex and 3 m polarised retroreflex, 0.8 m retroreflex for transparents as well as 18 m through beam models.
The M12 connection requires only 3 wires for power supply and NPN or PNP output.





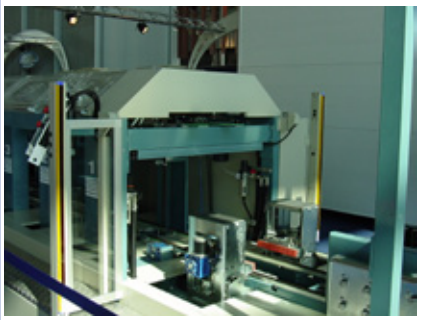


HIGHLIGHTS

- High excess-gain and operating distances
- IP69K mechanical protection
- AISI-316L stainless steel versions
- Standard 3 wire configuration output

APPLICATIONS

Ceramics



Transportation lines



Beverage & Bottling



Packaging lines for Food & Pharma

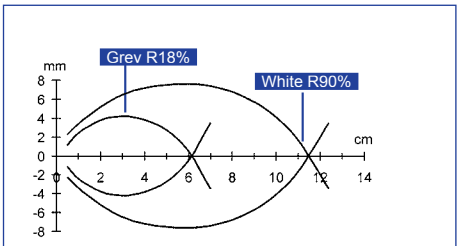


TECHNICAL DATA

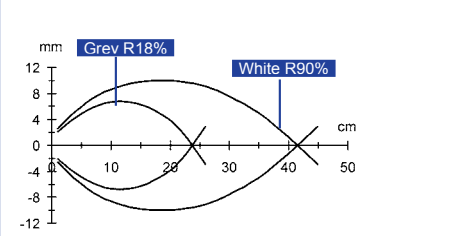
Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	30 mA max.
Light emission:	infrared LED 880 nm
	red LED 660 nm (B, D, T vers.)
Diffuse proximity operating distance:	1 ... 10 cm (C01), 1 ... 35 cm (C11), 1 ... 60 cm (C21)
Fixed focus operating distance:	14 mm with 1.5 mm spot
Retroreflex operating distance:	0.1 ... 4 m (on R2)
Polarised retroreflex operating distance:	0.1 ... 3 m (on R2)
RRX for transparents operating distance:	0.1 ... 0.8 m (on R2)
Through beam operating distance:	0 ... 18 m
Setting:	sensitivity trimmer
Indicators:	yellow OUTPUT LED
	green STABILITY LED
	green POWER LED (G vers.)
Output type:	NPN or PNP, open collector
Saturation voltage:	1 V max.
Output current:	150 mA max., short-circuit protection
Response time:	1 ms max.
	2 ms max. (F vers.)
Switching frequency:	500 Hz max.
	250 Hz max. (F vers.)
Emitter Test input:	Test + (XE vers.)
	Test - (XF vers.)
Connection:	M12 4-pole connector
Electrical protection:	class 1
Mechanical protection: .	IP69K
Housing material:	nickel-plated brass (S10-MA vers.)
	AISI 316L stainless steel (S10-NA vers.)
Lens material:	PMMA plastic
Weight:	50 g max.
Operating temperature:	-25 ... +55°C
Storage temperature:	-25 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	CE cULus Ex II3DG

The operating distances indicate the detection distance with excess gain 2.

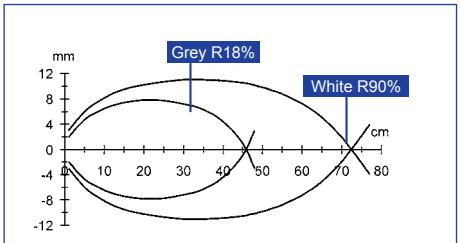
DETECTION DIAGRAMS



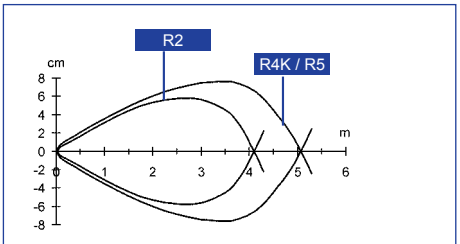
1 ... 10 cm proximity (C01 vers.)



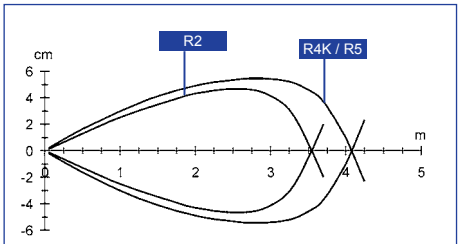
1 ... 35 cm proximity (C11 vers.)



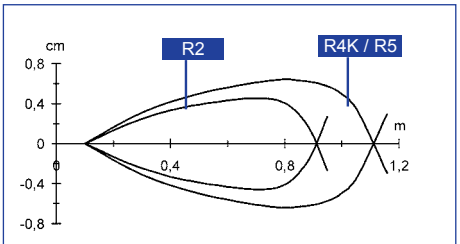
1 ... 60 cm proximity (C21 vers.)



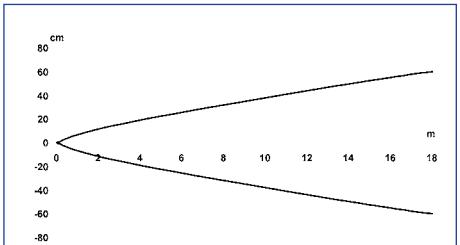
0.1 ... 4 m retroreflex (A01 vers.)



0.1 ... 3 m polarised retroreflex (B01 vers.)



0.1 ... 0.8 m RRX for transparents (T01 vers.)

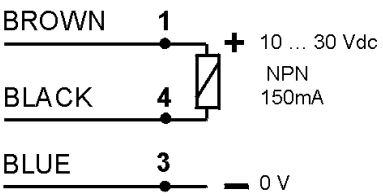


0 ... 18 m through beam (F01 vers.)

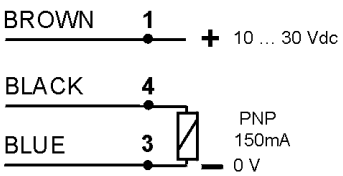
The detection diagrams indicate the typical operating distance with excess gain 1..

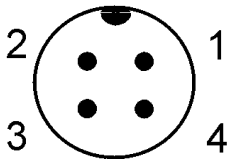
CONNECTIONS

NPN OUTPUT



PNP OUTPUT

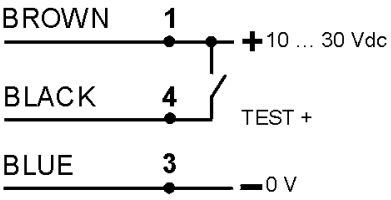




M12 CONNECTOR

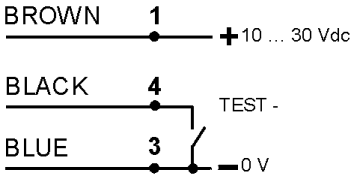
S10-XX-5-A / B / C / D / F / T

TEST +



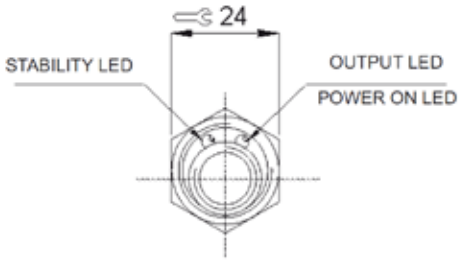
S10-XX-5-G00-XE

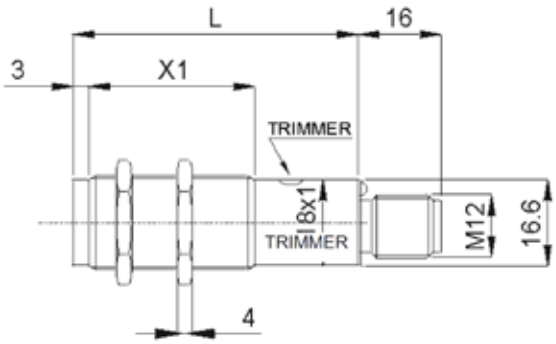
TEST -



S10-XX-5-G00-XF

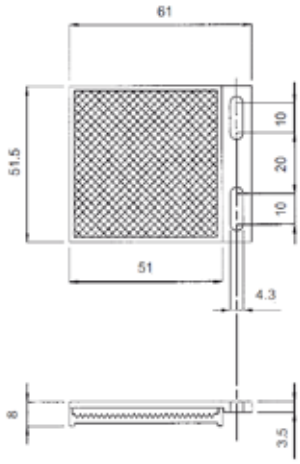
DIMENSIONS



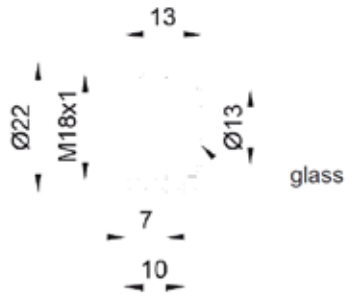


	MODELS		
	A01/C01/C11/C21/D14/F01/T01	B01	G00
L	65.1	67.4	55.1
X1	41.3	43.6	31.3

R4K REFLECTOR



MEK PROOF



mm

MODEL SELECTION AND ORDER INFORMATION

Model	Optic Function	Housing	Out (In)	Order N°
S10-MA-5-A01-ND	retroreflex	nickel plated brass	NPN, dark	952101100
S10-MA-5-A01-NL	retroreflex	nickel plated brass	NPN, light	952101110
S10-MA-5-A01-PD	retroreflex	nickel plated brass	PNP, dark	952101120
S10-MA-5-A01-PL	retroreflex	nickel plated brass	PNP, light	952101130
S10-NA-5-A01-ND	retroreflex	AISI 316L stainless steel	NPN, dark	952101420
S10-NA-5-A01-PD	retroreflex	AISI 316L stainless steel	PNP, dark	952101440
S10-MA-5-B01-ND	polarised retroreflex	nickel plated brass	NPN, dark	952101140
S10-MA-5-B01-NL	polarised retroreflex	nickel plated brass	NPN, light	952101150
S10-MA-5-B01-PD	polarised retroreflex	nickel plated brass	PNP, dark	952101160
S10-MA-5-B01-PL	polarised retroreflex	nickel plated brass	PNP, light	952101170
S10-NA-5-B01-ND	polarised retroreflex	AISI 316L stainless steel	NPN, dark	952101460
S10-NA-5-B01-PD	polarised retroreflex	AISI 316L stainless steel	PNP, dark	952101480
S10-MA-5-T01-ND	retroreflex for transparents	nickel plated brass	NPN, dark	952101180
S10-MA-5-T01-NL	retroreflex for transparents	nickel plated brass	NPN, light	952101190
S10-MA-5-T01-PD	retroreflex for transparents	nickel plated brass	PNP, dark	952101200
S10-MA-5-T01-PL	retroreflex for transparents	nickel plated brass	PNP, light	952101210
S10-NA-5-T01-ND	retroreflex for transparents	AISI 316L stainless steel	NPN, dark	952101500
S10-NA-5-T01-PD	retroreflex for transparents	AISI 316L stainless steel	PNP, dark	952101520
S10-MA-5-C01-PD	short distance proximity	nickel plated brass	PNP, dark	952101240
S10-MA-5-C01-PL	short distance proximity	nickel plated brass	PNP, light	952101250
S10-MA-5-C01-ND	short distance proximity	nickel plated brass	NPN, dark	952101220
S10-MA-5-C01-NL	short distance proximity	nickel plated brass	NPN, light	952101230
S10-NA-5-C01-NL	short distance proximity	AISI 316L stainless steel	NPN, light	952101550
S10-NA-5-C01-PL	short distance proximity	AISI 316L stainless steel	PNP, light	952101570
S10-MA-5-C11-ND	medium distance proximity	nickel plated brass	NPN, dark	952101260
S10-MA-5-C11-NL	medium distance proximity	nickel plated brass	NPN, light	952101270

MODEL SELECTION AND ORDER INFORMATION

Model	Optic Function	Housing	Out (In)	Order N°
S10-MA-5-C11-PD	medium distance proximity	nickel plated brass	PNP, dark	952101280
S10-MA-5-C11-PL	medium distance proximity	nickel plated brass	PNP, light	952101290
S10-NA-5-C11-NL	medium distance proximity	AISI 316L stainless steel	NPN, light	952101590
S10-NA-5-C11-PL	medium distance proximity	AISI 316L stainless steel	PNP, light	952101610
S10-MA-5-C21-NL	long distance proximity	nickel plated brass	NPN, light	952101310
S10-MA-5-C21-PL	long distance proximity	nickel plated brass	PNP, light	952101330
S10-NA-5-C21-NL	long distance proximity	AISI 316L stainless steel	NPN, light	952101630
S10-NA-5-C21-PL	long distance proximity	AISI 316L stainless steel	PNP, light	952101650
S10-MA-5-D01-NL	fixed focus proximity	nickel plated brass	NPN, dark	952101340
S10-MA-5-D01-PL	fixed focus proximity	nickel plated brass	PNP, light	952101350
S10-NA-5-D01-NL	fixed focus proximity	AISI 316L stainless steel	NPN, light	952101660
S10-NA-5-D01-PL	fixed focus proximity	AISI 316L stainless steel	PNP, light	952101670
S10-MA-5-F01-ND	receiver	nickel plated brass	NPN, dark	952101360
S10-MA-5-F01-NL	receiver	nickel plated brass	NPN, light	952101370
S10-MA-5-F01-PD	receiver	nickel plated brass	PNP, dark	952101380
S10-MA-5-F01-PL	receiver	nickel plated brass	PNP, light	952101390
S10-NA-5-F01-ND	receiver	AISI 316L stainless steel	NPN, dark	952101680
S10-NA-5-F01-PD	receiver	AISI 316L stainless steel	PNP, dark	952101700
S10-MA-5-G00-XF	emitter	nickel plated brass	(Test -)	952101400
S10-MA-5-G00-XE	emitter	nickel plated brass	(Test +)	952101410
S10-NA-5-G00-XF	emitter	AISI 316L stainless steel	(Test -)	952101720
S10-NA-5-G00-XE	emitter	AISI 316L stainless steel	(Test +)	952101730

ACCESSORY SELECTION AND ORDER INFORMATION

Model	Description	Code N°
R4K	IP69K plastic reflector 51 x 61 mm	95A151220
MEK-proof	front protection	G5000001
SP-40	fixed support for tubular M18 sensors	95ACC1370

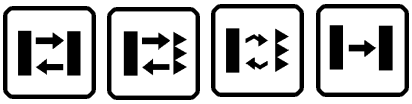
Please refer also to **Sensor Accessories.**

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S15 SERIES

The main characteristic of the M18 tubular **S15** sensors is the housing length of only 40 mm, especially suitable for applications with reduced space.
The **S15** series is available with cable output, in order to maximise the concept of 'reduced dimensions' as well as to offer contemporaneously the best installation flexibility.
The **S15** series is supplied without the sensitivity adjustment trimmer to ease and speedup installation.
This feature drastically reduces the possibility of allowing the operator to modify the sensor's performances and so guaranteeing major reliability and productivity.
The main optic functions used in the industrial market are available, polarised retroreflex, non-polarised retroreflex, diffuse proximity and through beam.
These sensors are ideal for the most critical applications with harsh environmental conditions thanks to the IP69K mechanical protection.



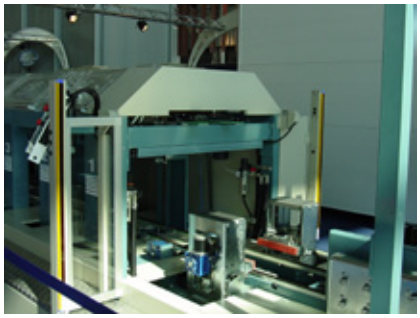


HIGHLIGHTS

- Small housing of only 40 mm
- Cable or pig-tail versions
- No sensitivity adjustment trimmer
- IP69K mechanical protection

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines



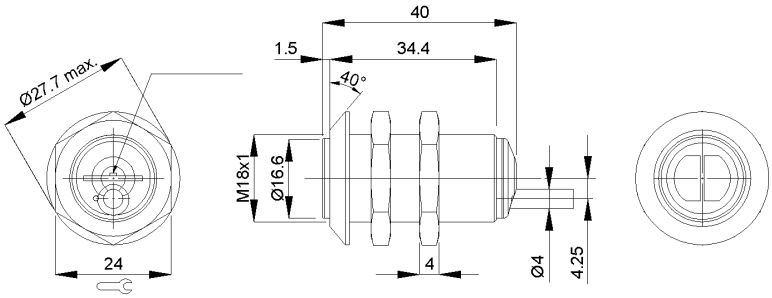
INSTALLATION

The sensor can be ixed by means of the M18x1 threaded body using CH.24 nuts (1.5 Nm maximum tightening torque) or low-profile flared nut provided specifically supplied for.
Various orientable fixing brackets are available to ease sensor positioning (please refer to the accessories listed in the general catalogue).
The operating distance is measured from the front surface of the sensor lens.
C models: the object has to be moved closer or further away from the front surface of the sensor lens to improve detection.
In case of lateral translation, the object must move as indicated in the figure.

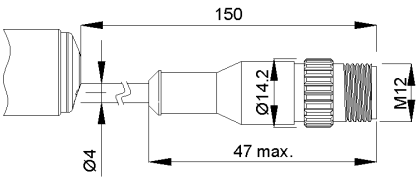


DIMENSIONS

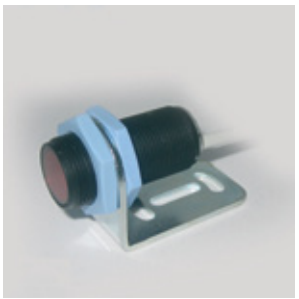
CABLE VERSION

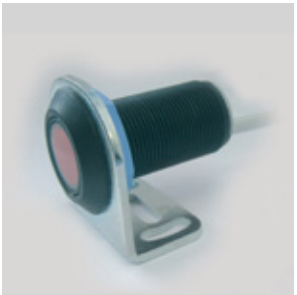


PIG-TAIL VERSION











ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section.

Refer also to **Connectors** and **Reflectors** of the **General Catalogue.**

CONNECTIONS

S15-…A00/B00/C00/C10/F00

BROWN	1	+	12 … 30 Vdc
WHITE	2		DARK- / LIGHT+*
BLACK	4		OUTPUT
BLUE	3	–	0 V

S15-…G00

BROWN	1	+	12 … 30 Vdc
WHITE	2		TEST +
BLACK	4		TEST -
BLUE	3	–	0 V

TECHNICAL DATA

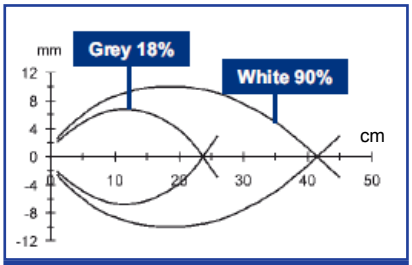
		S15-PA-X-A00	S15-PA-X-B00	S15-PA-X-C00	S15-PA-X-C10	S15-PA-X-F00	S15-PA-X-G00
Long diffuse proximity operating distance:	1 ... 35 cm			●			
Short diffuse proximity operating distance:	1 ... 10 cm				●		
Retroreflex operating distance:	0,1…4 m on R2	●					
Polarised retroreflx operating distance:	0,1…3 m on R2		●				
Through beam operating distance:	0…20 m					●	●
Power supply:	12 ... 30 Vdc[1]	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●
Consumption:	≤ 30 mA	●	●	●	●	●	●
Light emission[2]:	infrared LED 880 nm	●		●	●	●	●
	red LED 660 nm		●				
Indicators:	yellow OUTPUT LED	●	●	●	●	●	
	green POWER LED						●
Output type:	PNP(-PP suffix)	●	●	●	●	●	●
	NPN (-NN suffix)	●	●	●	●	●	●
Output current:	≤ 100 mA	●	●	●	●	●	
Saturation voltage:	≤ 2 V	●	●	●	●	●	
Response time:	1 ms	●	●	●	●		
	4 ms					●	
Switching frequency:	≤ 500 Hz	●	●	●	●		
	≤ 120 Hz					●	
Operating mode:	selectable dark/light[3]	●	●	●	●	●	
Auxiliary functions:	Test + and Test -						●
Electrical protection:	class 2	●	●	●	●	●	●
Mechanical protection:	IP69K	●	●	●	●	●	●
Protection devices:	A, B[4]	●	●	●	●	●	●
Housing material:	PBT	●	●	●	●	●	●
Lens material:	plastic PMMA	●	●	●	●	●	●
Weight:	75 g max.	●	●	●	●	●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●
Reference:	EN 60947-5-2, UL 508	●	●	●	●	●	●

TECHNICAL NOTE

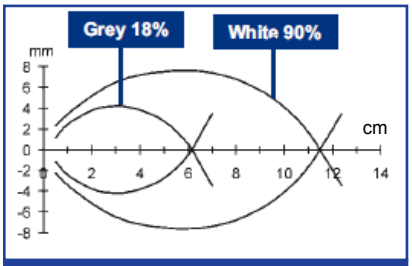
[1]Limit values
[2] Average life of 100.000 h with TA = +25 °C
[3] With L/D input not connected the proximity models function in the light mode and the retroreflex and through beam models in the dark mode; the light mode can be selected connecting the L/D input to +Vdc, the dark mode connecting it to 0Vdc
[4] A - reverse polarity protection
B - overload and short-circuit protection
X = 2, 2 m Ø 4 mm cable version (PVC, 4 x 0,14 mm2)
X = 3, pig-tail version (150 mm cable + M12 4-pole connector)

II3DG

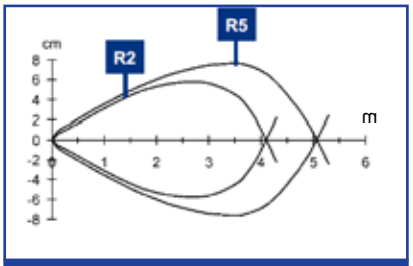
DETECTION DIAGRAM



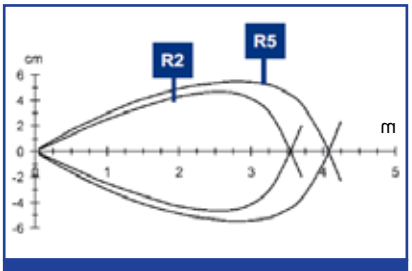
C00 - LONG DIFFUSE PROXIMITY



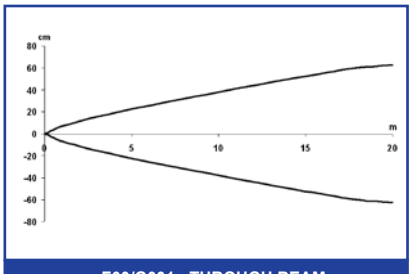
C10 - SHORT DIFFUSE PROXIMITY



A00 - RETROREFLEX



B00 - POLARISED RETROREFLEX



F00/G001 - THROUGH BEAM

MODEL SELECTION AND ORDER INFORMATION

MODEL	OPTIC FUNCTION	CONNECTION	OUTPUT	ORDER N°.
S15-PA-2-A00-PK	retroreflex	2 m cable	PNP	952301000
S15-PA-2-B00-PK	polarised retroreflex	2 m cable	PNP	952301010
S15-PA-2-C10-PK	short diffuse proximity	2 m cable	PNP	952301020
S15-PA-2-C00-PK	long diffuse proximity	2 m cable	PNP	952301030
S15-PA-2-F00-PK	receiver	2 m cable	PNP	952301040
S15-PA-2-A00-NK	retroreflex	2 m cable	NPN	952301050
S15-PA-2-B00-NK	polarised retroreflex	2 m cable	NPN	952301060
S15-PA-2-C10-NK	short diffuse proximity	2 m cable	NPN	952301070
S15-PA-2-C00-NK	long diffuse proximity	2 m cable	NPN	952301080
S15-PA-2-F00-NK	receiver	2 m cable	NPN	952301090
S15-PA-2-G00-XG	emitter	2 m cable	-	952301100
S15-PA-3-A00-PK	retroreflex	pig-tail *	PNP	952301110
S15-PA-3-B00-PK	polarised retroreflex	pig-tail *	PNP	952301120
S15-PA-3-C10-PK	short diffuse proximity	pig-tail *	PNP	952301130
S15-PA-3-C00-PK	long diffuse proximity	pig-tail *	PNP	952301140
S15-PA-3-F00-PK	receiver	pig-tail *	PNP	952301150
S15-PA-3-A00-NK	retroreflex	pig-tail *	NPN	952301160
S15-PA-3-B00-NK	polarised retroreflex	pig-tail *	NPN	952301170
S15-PA-3-C10-NK	short diffuse proximity	pig-tail *	NPN	952301180
S15-PA-3-C00-NK	long diffuse proximity	pig-tail *	NPN	952301190
S15-PA-3-F00-NK	receiver	pig-tail *	NPN	952301200
S15-PA-3-G00-XG	emitter	pig-tail *	-	952301210

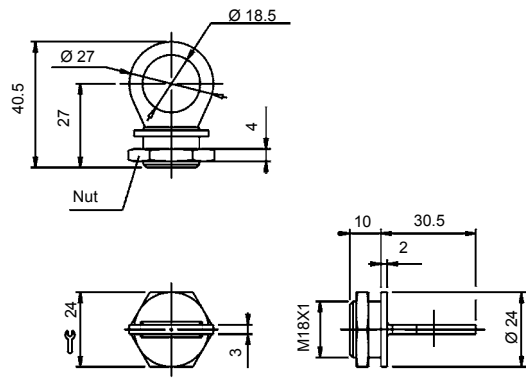
* Pig-tails versions (150 mm cable + 4-pole M12 connector)

ACCESSORY SELECTION AND ORDER INFORMATION

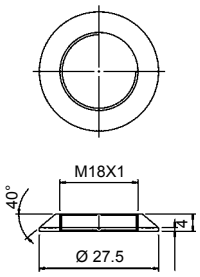
MODEL	DESCRIPTION	ORDER N°
PLASTIC NUTS	flared fixing nut	95ACC2630
ST-5011	M18 fixing bracket	95ACC5240
ST-5012	M18 fixing bracket	95ACC5250
ST-5013	round-18	95ACC5260
ST-5017	M18 fixing bracket	95ACC5270
MICRO-18	support with micrometric regulation for tubular M18 sensors	95ACC1380
SP-40	fixed support for tubular M18 sensors	95ACC1370

ACCESSORY

ST-5013



PLASTIC NUT



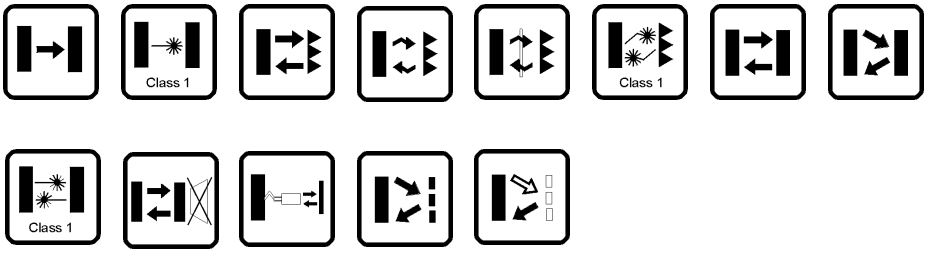
mm

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S50 SERIES

The **S50** series offers all optical functions within a M18 housing.
With the universal sensing functions of proximity, polarised retroreflex and through beam, which are also available with class 1 laser emission, as well as the more advanced functions of background suppression, contrast and luminescence, the S50 really is one housing for all applications.
The S50 setting is carried out-by either by potentiometer, which is sealed to IP67, or using the patented EASYtouch™ push-button teach system, which gives rapid and precise automatic setting of the switching points.
The S50 series is available both in flat plastic format ideal for M18 nut or screw mounting through the sensor body, as well as a cylindrical metal housing. Axial or radial optics are available in both housings with integral cable or M12 connection conforming to EN 60947-5-2, the European wiring standard. The performance, versatility and extensive optical sensing options, positions the S50 series as the new bench mark for customers focused on the evolution of technology and development of standards.



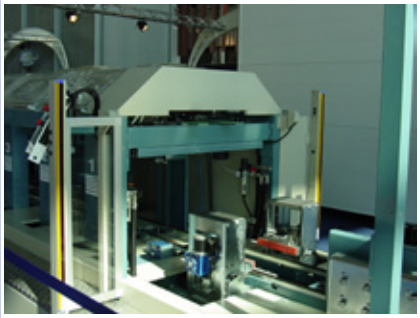


HIGHLIGHTS

- Complete range of optic functions, universal, application and laser class 1
- Flat plastic tubular housing for improved versatility or metal cylindrical housing
- Versions with axial or radial optics, with fixed, trimmer or EASYtouch™ teach-in adjustment
- Cable or M12 connection with EN standard NPN or PNP NO-NC configuration

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines



G/F INFRARED EMISSION

Longer operating distances can be obtained utilising separate emitter and receiver units. The infrared emission is modulated to avoid interference with other light sources and the emitter is fitted with test inputs for remote system interrogation.

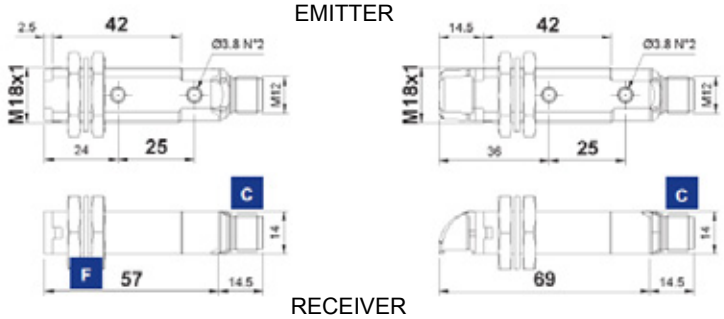


RADIAL OPTICS

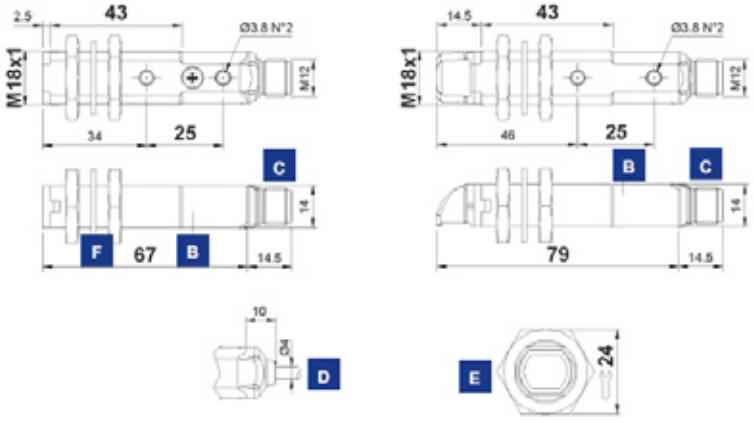


DIMENSIONS

EMITTER



RECEIVER



INDICATORS AND SETTINGS



Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

- A OUTPUT status and stability LEDs (receiver); power on LED (emitter)
- B Adjustment trimmer (receiver)
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

ACCESSORIES

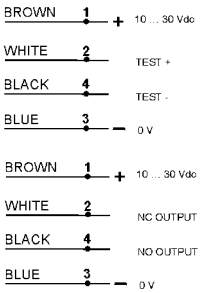
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



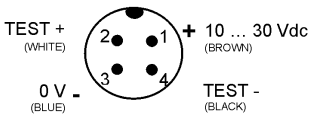
S50-PA/PR-2



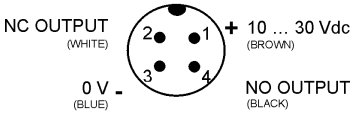
EMITTER



S50-PA/PR-5



RECEIVER



Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES
[1] Limit values
[2] Average life of 100.000 h with TA = +25 °C
[3] 270° single-turn trimmer
[4] Emitter off with Test+ on Vdc and Test- on 0 V
[5] PVC, 4 x 0.14 mm²
[6] Compatible with quick connection systems
[7] A - reverse polarity protection
B - overload and short-circuit protection on receiver outputs

		S50-PA-2-F01-NN	S50-PA-2-F01-PP	S50-PA-2-G00-XG	S50-PR-2-F01-NN	S50-PR-2-F01-PP	S50-PR-2-G00-XG	S50-PA-5-F01-NN	S50-PA-5-F01-PP	S50-PA-5-G00-XG	S50-PR-5-F01-NN	S50-PR-5-F01-PP	S50-PR-5-G00-XG
Operating distance:													
axial optics	0 ... 30 m	•	•	•				•	•	•			
radial optics	0 ... 25 m				•	•	•				•	•	•
Power supply:	10 ... 30 Vdc[1]	•	•	•	•	•	•	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•	•	•	•	•	•	•
Consumption:													
emitter	≤ 35 mA			•			•			•			•
receiver	≤ 30 mA	•	•		•	•		•	•		•	•	
Light emission:	infrared LED 880 nm[2]			•			•			•			•
Spot dimension:													
axial optics	approx. 500 mm at 15 m			•						•			
radial optics	approx. 470 mm at 10 m						•						•
Setting:	sensitivity trimmer[3]	•	•		•	•		•	•		•	•	
Indicators:	yellow OUTPUT LED	•	•		•	•		•	•		•	•	
	green STABILITY LED	•	•		•	•		•	•		•	•	
	green POWER ON LED			•			•			•			•
Output type:	PNP, NO and NC		•			•			•			•	
	NPN, NO and NC	•			•			•			•		
Output current:	≤ 100 mA	•	•		•	•		•	•		•	•	
Saturation voltage:	≤ 2 V	•	•		•	•		•	•		•	•	
Response time:	2 ms	•	•		•	•		•	•		•	•	
Switching frequency:	250 Hz	•	•		•	•		•	•		•	•	
Operating mode:	dark on NO / light on NC	•	•		•	•		•	•		•	•	
Auxiliary functions:	Test + and Test -[4]			•			•			•			•
Connection:	2 m Ø 4 mm cable[5]	•	•	•	•	•	•						
	M12 4-pole connector[6]							•	•	•	•	•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•	•	•	•	•
Protection devices:	A, B[7]	•	•	•	•	•	•	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•	•	•	•	•	•	•	•	•
Lens material:	PMMA	•	•	•	•	•	•	•	•	•	•	•	•
Weight:	75 g max.	•	•	•	•	•	•						
	25 g max.							•	•	•	•	•	•
Operating temperature:	-25 ... +55°C	•	•	•	•	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•	•	•	•	•	•	•	•	•

SELECTION TABLE

receiver - axial optics - 2 m cable		
S50-PA-2-F01-NN	952001660	NPN
S50-PA-2-F01-PP	952001150	PNP

emitter - axial optics - 2 m cable		
S50-PA-2-G00-XG	952001190	

receiver - radial optics - 2 m cable		
S50-PR-2-F01-NN	952001820	NPN
S50-PR-2-F01-PP	952001170	PNP

emitter - radial optics - 2 m cable		
S50-PR-2-G00-XG	952001210	

receiver - axial optics - M12 connector		
S50-PA-5-F01-NN	952001550	NPN
S50-PA-5-F01-PP	952001160	PNP

emitter - axial optics - M12 connector		
S50-PA-5-G00-XG	952001200	

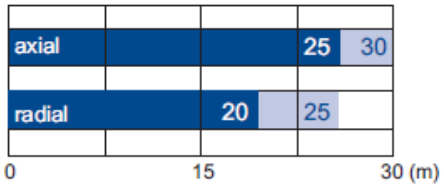
receiver - radial optics - M12 connector		
S50-PR-5-F01-NN	952001760	NPN
S50-PR-5-F01-PP	952001180	PNP

emitter - radial optics - M12 connector		
S50-PR-5-G00-XG	952001220	

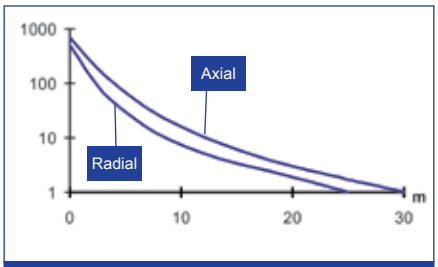
All the ordering codes and information are summarised in the last pages of this catalogue.

II3DG*
*Only on axial optic models

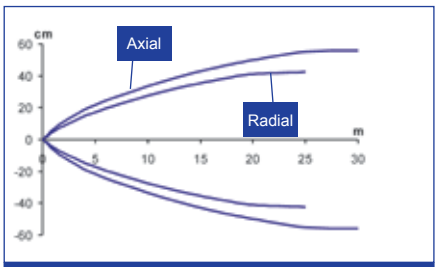
DETECTION DIAGRAMS



Recommended operating distance
Maximum operating distance



Excess gain



Detection area

G/F INFRARED EMISSION

Longer operating distances can be obtained utilising separate emitter and receiver units. The infrared emission is modulated to avoid interference with other light sources and the emitter is fitted with test inputs for remote system interrogation.



RADIAL OPTICS

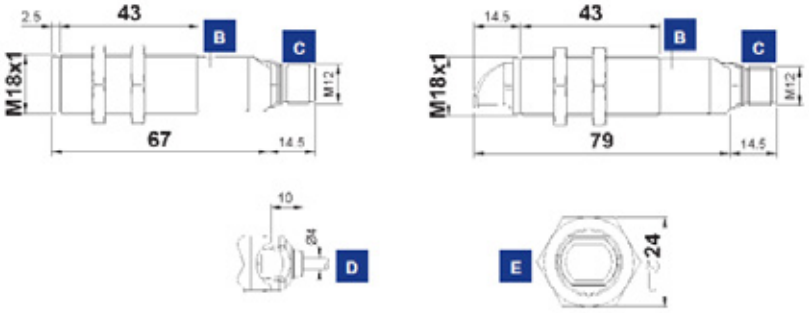


DIMENSIONS

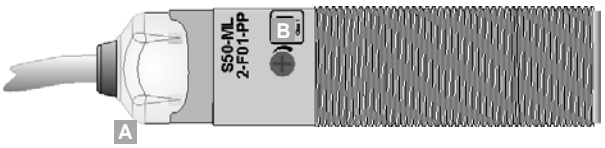
EMITTER



RECEIVER



INDICATORS AND SETTINGS



- **A** OUTPUT status and stability LEDs (receiver); power on LED (emitter)
- **B** Adjustment trimmer (receiver)
- **C** M12 connector output
- **D** Cable output
- **E** Fixing nuts

Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

ACCESSORIES

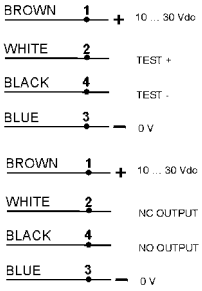
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



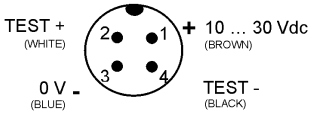
S50-MA/MR-2



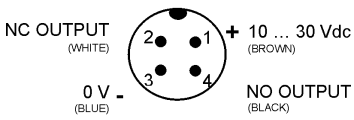
EMITTER



S50-MA/MR-5



RECEIVER



Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]270° single-turn trimmer [4]Emitter off with Test+ on Vdc and Test- on 0 V [5]PVC, 4 x 0.14 mm² [6]Compatible with quick connection systems [7]A - reverse polarity protection B - overload and short-circuit protection on receiver outputs		S50-MA-2-F01-NN	S50-MA-2-F01-PP	S50-MA-2-G00-XG	S50-MR-2-F01-NN	S50-MR-2-F01-PP	S50-MR-2-G00-XG	S50-MA-5-F01-NN	S50-MA-5-F01-PP	S50-MA-5-G00-XG	S50-MR-5-F01-NN	S50-MR-5-F01-PP	S50-MR-5-G00-XG
Operating distance:													
axial optics	0 ... 20 m	•	•	•				•	•	•			
radial optics	0 ... 15 m				•	•	•				•	•	•
Power supply:	10 ... 30 Vdc[1]	•	•	•	•	•	•	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•	•	•	•	•	•	•
Consumption:													
emitter	≤35 mA			•			•			•			•
receiver	≤ 30 mA	•	•		•	•		•	•		•	•	
Light emission:	infrared LED 880 nm[2]			•			•			•			•
Spot dimension:													
axial optics	approx. 500 mm at 15 m			•						•			
radial optics	approx. 470 mm at 10 m						•						•
Setting:	sensitivity trimmer[3]	•	•		•	•		•	•		•	•	
Indicators:	yellow OUTPUT LED	•	•		•	•		•	•		•	•	
	green STABILITY LED	•	•		•	•		•	•		•	•	
	green POWER ON LED			•			•			•			•
Output type:	PNP, NO and NC		•			•			•			•	
	NPN, NO and NC	•			•			•			•		
Output current:	≤ 100 mA	•	•		•	•		•	•		•	•	
Saturation voltage:	≤ 2 V	•	•		•	•		•	•		•	•	
Response time:	2 ms	•	•		•	•		•	•		•	•	
Switching frequency:	250 Hz	•	•		•	•		•	•		•	•	
Operating mode:	dark on NO / light on NC	•	•		•	•		•	•		•	•	
Auxiliary functions:	Test + and Test -[4]			•			•			•			•
Connection:	2 m Ø 4 mm cable[5]	•	•	•	•	•	•						
	M12 4-pole connector[6]							•	•	•	•	•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•	•	•	•	•
Protection devices:	A, B[7]	•	•	•	•	•	•	•	•	•	•	•	•
Housing material:	nickel plated brass	•	•	•	•	•	•	•	•	•	•	•	•
Lens material:	PMMA	•	•	•	•	•	•	•	•	•	•	•	•
Weight:	110 g max.	•	•	•	•	•	•						
	60 g max.							•	•	•	•	•	•
Operating temperature:	-25 ... +55°C	•	•	•	•	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•	•	•	•	•	•	•	•	•

SELECTION TABLE

receiver - axial optics - 2 m cable		
S50-MA-2-F01-NN	952021700	NPN
S50-MA-2-F01-PP	952021250	PNP

emitter - axial optics - 2 m cable		
S50-MA-2-G00-XG	952021060	

receiver - radial optics - 2 m cable		
S50-MR-2-F01-NN	952021640	NPN
S50-MR-2-F01-PP	952021170	PNP

emitter - radial optics - 2 m cable		
S50-MR-2-G00-XG	952021180	

receiver - axial optics - M12 connector		
S50-MA-5-F01-NN	952021700	NPN
S50-MA-5-F01-PP	952021250	PNP

emitter - axial optics - M12 connector		
S50-MA-5-G00-XG	952021260	

receiver - radial optics - M12 connector		
S50-MR-5-F01-NN	952021800	NPN
S50-MR-5-F01-PP	952021370	PNP

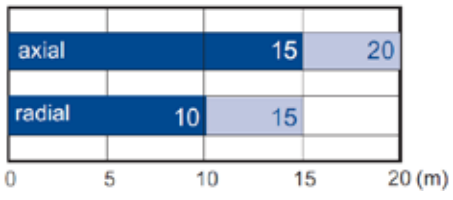
emitter - radial optics - M12 connector		
S50-MR-5-G00-XG	952021380	

All the ordering codes and information are summarised in the last pages of this catalogue.

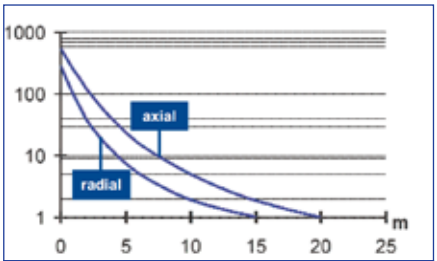
II3DG*

*Only on axial optic models

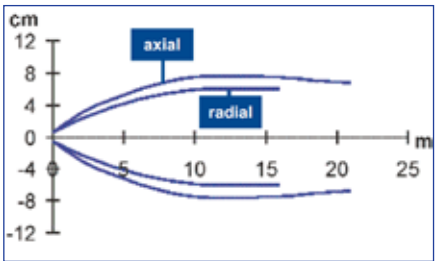
DETECTION DIAGRAMS



Recommended operating distance
Maximum operating distance



Excess gain



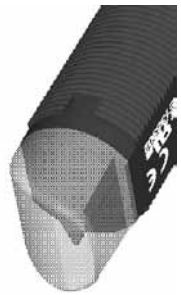
Detection area

G/F LASER RED EMISSION

The high operating distance typical of emitter and receiver pairs is notably increased thanks to the use of visible red laser emission. The laser beam can be easily aligned and offers excellent detection resolution of even small objects. The class 1 laser emission guarantees maximum safety for the operators in all applications.



RADIAL OPTICS



ACCESSORIES

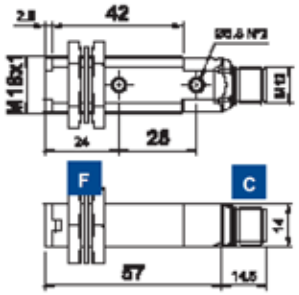
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

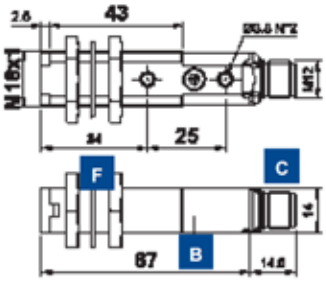
DIMENSIONS

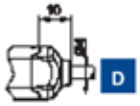
PLASTIC HOUSING

EMITTER



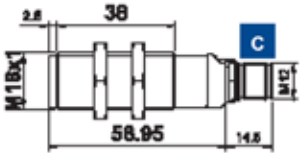
RECEIVER



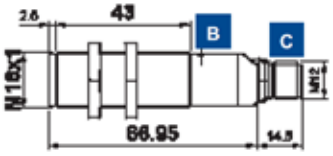


METAL HOUSING

EMITTER



RECEIVER





INDICATORS AND SETTINGS



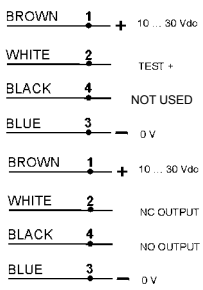
- **A** OUTPUT status and stability LEDs (receiver); power on LED (emitter)
- **B** Adjustment trimmer (receiver)
- **C** M12 connector output
- **D** Cable output
- **E** Fixing nuts
- **F** Fixing gasket

Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance. Decrease sensitivity to increase resolution.

CONNECTIONS



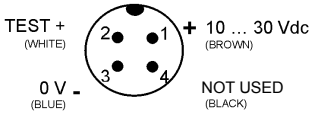
S50-PL/PH-2



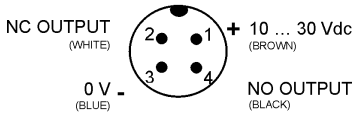
EMITTER



S50-PL/PH-5



RECEIVER



Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES
[1] Limit values
[2] Average life of 100.000 h with T_A = +25 °C
[3] 270° single-turn trimmer
[4] Emitter off with Test+ connected to +Vcc; Emitter on with Test+ not connected or connected to 0V
[5] PVC, 4 x 0.14 mm²
[6] Compatible with quick connection systems
[7] A - reverse polarity protection
B - overload and short-circuit protection on receiver outputs

		S50-PL-2-G00-XG	S50-PL-2-F01-NN	S50-PL-2-F01-PP	S50-PL-5-G00-XG	S50-PL-5-F01-NN	S50-PL-5-F01-PP	S50-PH-2-G00-XG	S50-PH-2-F01-NN	S50-PH-2-F01-PP	S50-PH-5-G00-XG	S50-PH-5-F01-NN	S50-PH-5-F01-PP
Operating distance:													
axial optics	0 ... 60 m	•	•	•	•	•	•						
radial optics	0 ... 50 m							•	•	•	•	•	•
Power supply:	10 ... 30 Vdc[1]	•	•	•	•	•	•	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•	•	•	•	•	•	•
Consumption:													
emitter	≤ 35 mA	•			•			•			•		
receiver	≤ 30 mA		•	•		•	•		•	•		•	•
Light emission:	red Laser 650 nm[2]	•			•			•			•		
	class 1 EN 60825-1												
	class II CDRH21 CFR .104010												
Resolution:	approx. 2.5 mm at 5 m		•	•		•	•		•	•		•	•
	approx. 5 mm at 10 m		•	•		•	•		•	•		•	•
	approx. 10 mm over 20 m		•	•		•	•		•	•		•	•
Setting:	sensitivity trimmer [3]		•	•		•	•		•	•		•	•
Indicators:	yellow OUTPUT LED		•	•		•	•		•	•		•	•
	green POWER ON LED	•	•	•	•	•	•	•	•	•	•	•	•
Output type:	PNP, NO and NC			•			•			•			•
	NPN, NO and NC		•			•			•			•	
Output current:	≤ 100 mA		•	•		•	•		•	•		•	•
Saturation voltage:	≤ 2 V		•	•		•	•		•	•		•	•
Response time:	333 µs		•	•		•	•		•	•		•	•
Switching frequency:	1.5 kHz		•	•		•	•		•	•		•	•
Operating mode:	dark on NO / light on NC		•	•		•	•		•	•		•	•
Auxiliary functions:	Test +[4]	•			•			•			•		
Connection:	2 m Ø 4 mm cable[5]	•	•	•				•	•	•			
	M12 4-pole connector[6]				•	•	•				•	•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•	•	•	•	•
Protection devices:	A, B[7]	•	•	•	•	•	•	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•	•	•						
	Nickel plated brass							•	•	•	•	•	•
Lens material:	PMMA / glass	•	•	•	•	•	•	•	•	•	•	•	•
Weight:	75 g max.	•	•	•				•	•	•			
	25 g max.				•	•	•				•	•	•
Operating temperature:	-10 ... +50°C	•	•	•	•	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2,	•	•	•	•	•	•	•	•	•	•	•	•
	EN 60825-1, CDRH21 CFR 1040.10	•			•			•			•		

SELECTION TABLE

emitter - axial optics - 2 m cable		
S50-PL-2-G00-XG	952001420	

receiver - axial optics - 2 m cable		
S50-PL-2-F01-NN	952021890	NPN
S50-PL-2-F01-PP	952021400	PNP

emitter - radial optics - 2 m cable		
S50-ML-2-G00-XG	952002060	

receiver - axial optics - 2 m cable		
S50-ML-2-F01-NN	952002030	NPN
S50-ML-2-F01-PP	952002020	PNP

emitter -axial optics - M12 connector		
S50-PL-5-G00-XG	952001430	

receiver - axial optics - M12 connector		
S50-PL-5-F01-NN	952001860	NPN
S50-PL-5-F01-PP	952001410	PNP

emitter - radial optics - M12 connector		
S50-ML-5-G00-XG	952022070	

receiver - axial optics - M12 connector		
S50-ML-5-F01-NN	952002050	NPN
S50-ML-5-F01-PP	952002040	PNP

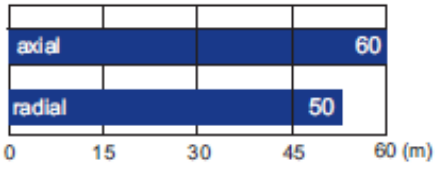
All the ordering codes and information are summarised in the last pages of this catalogue.

The use of the MICRO-18 fixing bracket (cod. 95ACC1380) is recommended for the correct optic axis alignment of the laser emission.

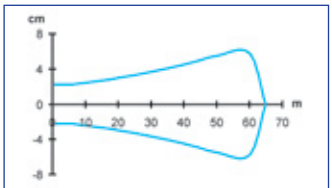
c UL us LISTED Ex II3DG*

*Only on axial optic models

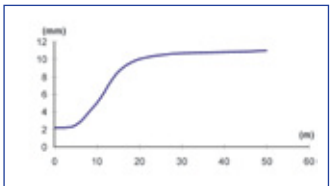
DETECTION DIAGRAMS



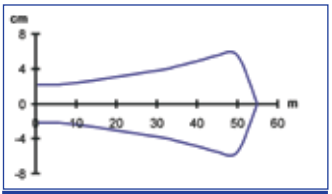
Operating distance



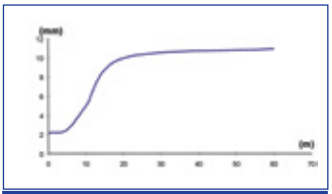
Detection area - axial



Resolution - axial



Detection area - radial



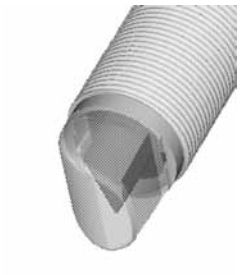
Resolution - radial

G/F LASER RED EMISSION

The high operating distance typical of emitter and receiver pairs is notably increased thanks to the use of visible red laser emission. The laser beam can be easily aligned and offers excellent detection resolution of even small objects. The class 1 laser emission guarantees maximum safety for the operators in all applications.

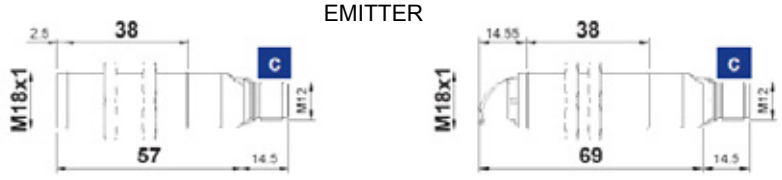


RADIAL OPTICS

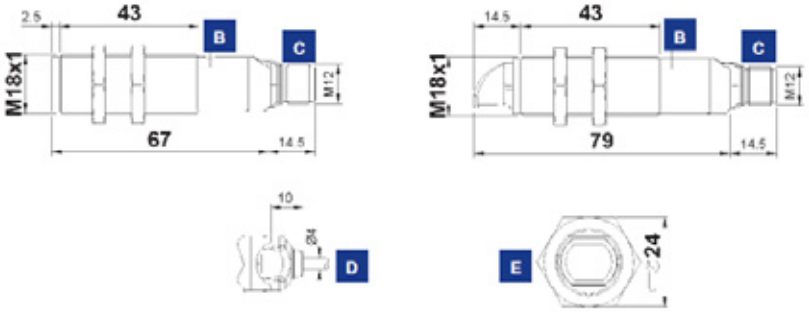


DIMENSIONS

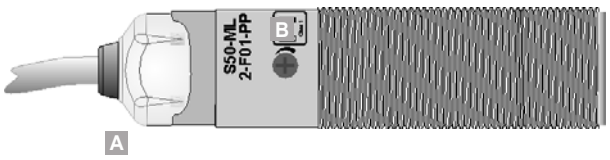
EMITTER



RECEIVER



INDICATORS AND SETTINGS



- A OUTPUT status and power on LED
- B Adjustment trimmer (receiver)
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

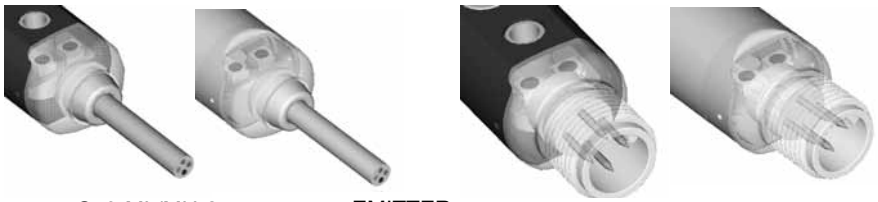
Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance. Decrease sensitivity to increase resolution.

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

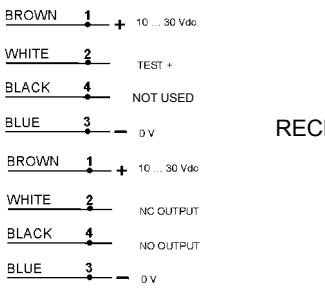
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



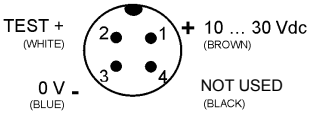
S50-ML/MH-2

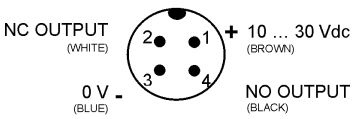
EMITTER



RECEIVER

S50-ML/MH-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES
[1] Limit values
[2] Average life of 50.000 h with T_A = +25 °C
[3] 270° single-turn trimmer
[4] Emitter off with Test+ connected to +Vcc; Emitter on with Test+ not connected or connected to 0V
[5] PVC, 4 x 0.14 mm²
[6] Compatible with quick connection systems
[7] A - reverse polarity protection
B - overload and short-circuit protection on receiver outputs

		S50-ML-2-G00-XG	S50-ML-2-F01-NN	S50-ML-2-F01-PP	S50-ML-5-G00-XG	S50-ML-5-F01-NN	S50-ML-5-F01-PP	S50-MH-2-G00-XG	S50-MH-2-F01-NN	S50-MH-2-F01-PP	S50-MH-5-G00-XG	S50-MH-5-F01-NN	S50-MH-5-F01-PP
Operating distance:													
axial optics	0 ... 60 m	●	●	●	●	●	●						
radial optics	0 ... 50 m							●	●	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:													
emitter	≤ 35 mA	●			●			●			●		
receiver	≤ 30 mA		●	●		●	●		●	●		●	●
Light emission:	red Laser 650 nm [2]	●			●			●			●		
	class 1 EN 60825-1												
	class II CDRH21 CFR .1040.10												
Resolution:	approx. 2.5 mm at 5 m		●	●		●	●		●	●		●	●
	approx. 5 mm at 10 m		●	●		●	●		●	●		●	●
	approx. 10 mm over 20 m		●	●		●	●		●	●		●	●
Setting:	sensitivity trimmer [3]		●	●		●	●		●	●		●	●
Indicators:	yellow OUTPUT LED		●	●		●	●		●	●		●	●
	green POWER ON LED	●	●	●	●	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC			●			●			●			●
	NPN, NO and NC		●			●			●			●	
Output current:	≤ 100 mA		●	●		●	●		●	●		●	●
Saturation voltage:	≤ 2 V		●	●		●	●		●	●		●	●
Response time:	333 µs		●	●		●	●		●	●		●	●
Switching frequency:	1.5 kHz		●	●		●	●		●	●		●	●
Operating mode:	dark on NO / light on NC		●	●		●	●		●	●		●	●
Auxiliary functions:	Test + [4]	●			●			●			●		
Connection:	2 m Ø 4 mm cable [5]	●	●	●				●	●	●			
	M12 4-pole connector [6]				●	●	●				●	●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B [7]	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	Nichel plated brass	●	●	●	●	●	●	●	●	●	●	●	●
Lens material:	PMMA / glass	●	●	●	●	●	●	●	●	●	●	●	●
Weight:	75 g max.	●	●	●				●	●	●			
	25 g max.				●	●	●				●	●	●
Operating temperature:	-10 ... +50°C	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2,	●	●	●	●	●	●	●	●	●	●	●	●
	EN 60825-1, CDRH21 CFR 1040.10	●			●			●			●		

SELECTION TABLE

emitter - axial optics - 2 m cable		
S50-ML-2-G00-XG	952021430	

receiver - axial optics - 2 m cable		
S50-ML-2-F01-NN	952021840	NPN
S50-ML-2-F01-PP	952021420	PNP

emitter - radial optics - 2 m cable		
S50-MH-2-G00-XG	952022060	

receiver - radial optics - 2 m cable		
S50-MH-2-F01-NN	952022030	NPN
S50-MH-2-F01-PP	952022020	PNP

emitter - axial optics - M12 connector		
S50-ML-5-G00-XG	952021470	

receiver - axial optics - M12 connector		
S50-ML-5-F01-NN	952021870	NPN
S50-ML-5-F01-PP	952021460	PNP

emitter - radial optics - M12 connector		
S50-MH-5-G00-XG	952022070	

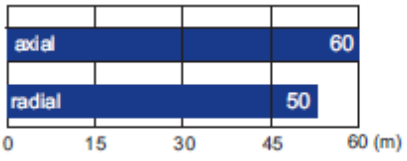
receiver - radial optics - M12 connector		
S50-MH-5-F01-NN	952022050	NPN
S50-MH-5-F01-PP	952022040	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

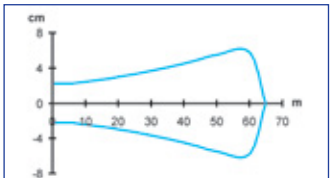
The use of the MICRO-18 fixing bracket (cod. 95ACC1380) is recommended for the correct optic axis alignment of the laser emission.

II3DG*
*Only on axial optic models

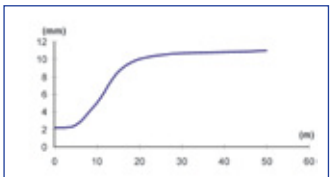
DETECTION DIAGRAMS



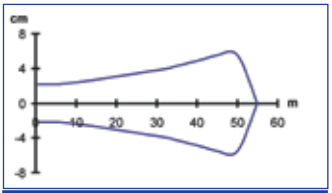
Operating distance



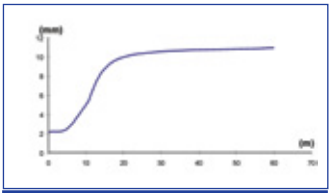
Detection area - axial



Resolution - axial



Detection area - radial



Resolution - radial

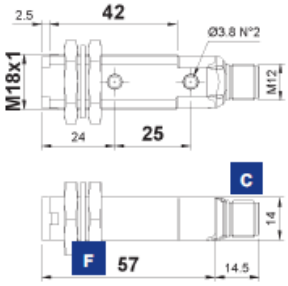
A INFRARED EMISSION

With retroreflex sensors the object is detected when it interrupts the light beam generated between the sensor and its associated prismatic reflector. This retroreflex system, created between the sensor and the reflector, offers the advantage of electrically connecting one single unit instead of two, as in the emitter-receiver system.

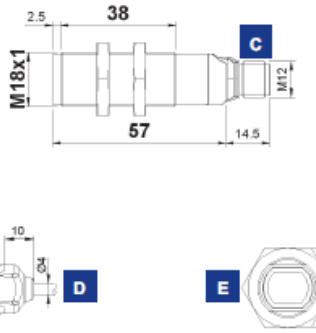


DIMENSIONS

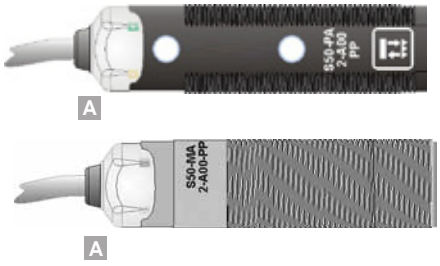
PLASTIC HOUSING



METAL HOUSING



INDICATORS AND SETTINGS



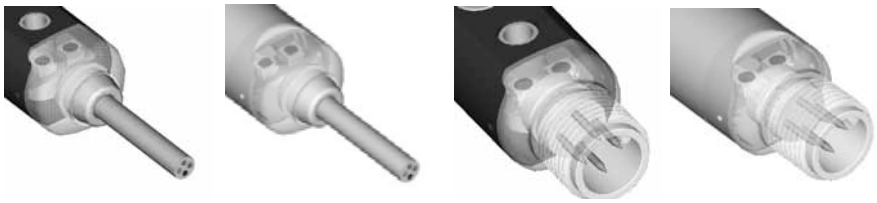
- A OUTPUT status LED
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

ACCESSORIES

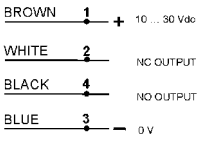
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

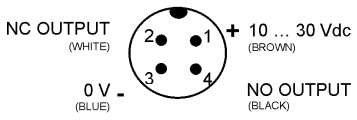
CONNECTIONS



S50-XX-2



S50-XX-5



Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]PVC, 4 x 0.14 mm² [4]Compatible with quick connection systems [5]A - reverse polarity protection B - overload and short-circuit protection on receiver outputs		S50-PA-2-A00-NN	S50-PA-2-A00-PP	S50-PA-5-A00-NN	S50-PA-5-A00-PP	S50-MA-2-A00-NN	S50-MA-2-A00-PP	S50-MA-5-A00-NN	S50-MA-5-A00-PP
Operating distance:	0.1 ... 5 m	•	•	•	•	•	•	•	•
Power supply:	10 ... 30 Vdc [1]	•	•	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•	•	•
Consumption:	≤ 35 mA	•	•	•	•	•	•	•	•
Light emission:	infrared LED 880 nm [2]	•	•	•	•	•	•	•	•
Spot dimension:	approx. 100 mm at 2 m	•	•	•	•	•	•	•	•
Indicators:	yellow OUTPUT LED	•	•	•	•	•	•	•	•
Output type:	PNP, NO and NC		•		•		•		•
	NPN, NO and NC	•		•		•		•	
Output current:	≤100 mA	•	•	•	•	•	•	•	•
Saturation voltage:	≤2 V	•	•	•	•	•	•	•	•
Response time:	0.5 ms	•	•	•	•	•	•	•	•
Switching frequency:	1 kHz	•	•	•	•	•	•	•	•
Operating mode:	dark on NO / light on NC	•	•	•	•	•	•	•	•
Connection:	2 m Ø 4 mm cable [3]	•	•			•	•		
	M12 4-pole connector [4]			•	•			•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•
Protection devices:	A, B [5]	•	•	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•				
	nickel plated brass					•	•	•	•
Lens material:	PMMA	•	•	•	•	•	•	•	•
Weight:	75 g max.	•	•						
	25 g max.			•	•				
	110 g max.					•	•		
	60 g max.							•	•
Operating temperature:	-25 ... +55°C	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•	•	•	•	•

II3DG

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-A00-NN	952002090	NPN
S50-PA-2-A00-PP	952002080	PNP

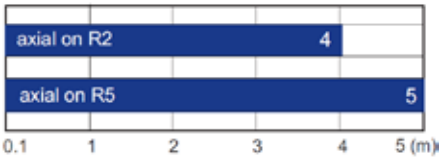
metal - axial optics - 2 m cable		
S50-MA-2-A00-NN	952022090	NPN
S50-MA-2-A00-PP	952022080	PNP

plastic - axial optics - M12 connector		
S50-PA-5-A00-NN	952002110	NPN
S50-PA-5-A00-PP	952002100	PNP

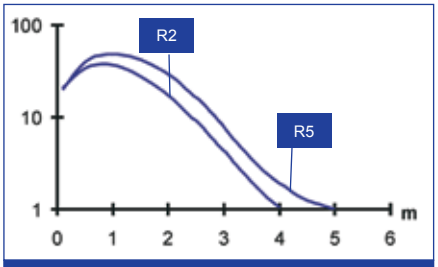
metal - axial optics - M12 connector		
S50-MA-5-A00-NN	952022110	NPN
S50-MA-5-A00-PP	952022100	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

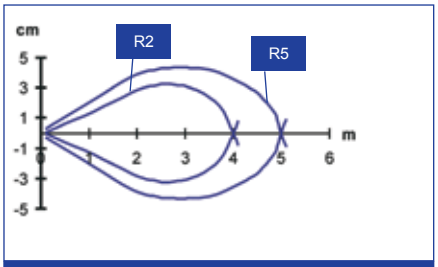
DETECTION DIAGRAMS



Operating distance



Excess gain



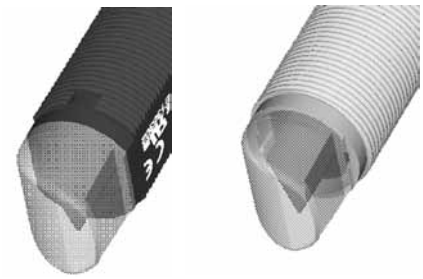
Detection area

B INFRARED EMISSION

With retroreflex sensors the object is detected when it interrupts the light beam generated between the sensor and its associated prismatic reflector. Highpolarisation optic filters also allow reliable detection of very reflective objects, such as mirrored surfaces that, differently from the prismatic reflector, reflect the light beam without rotating the polarisation plane.

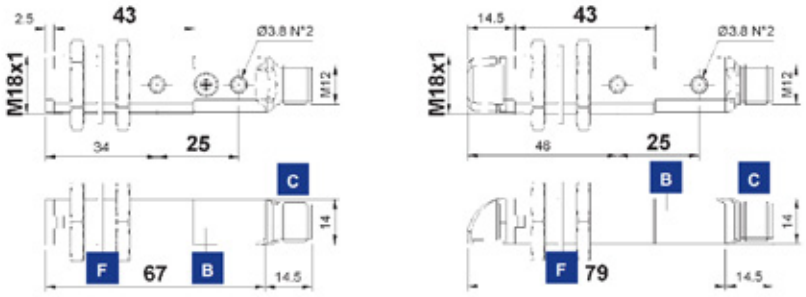


RADIAL OPTICS

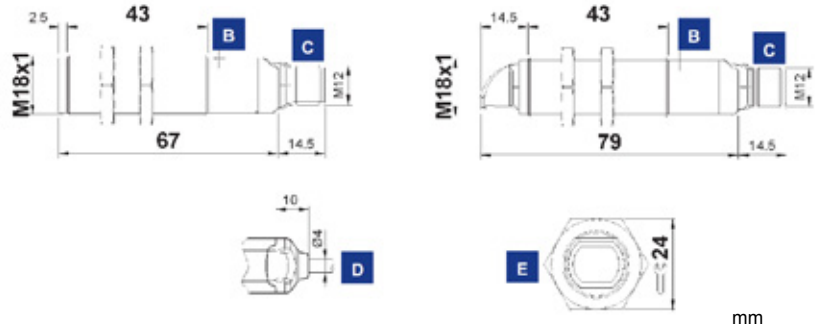


DIMENSIONS

PLASTIC HOUSING

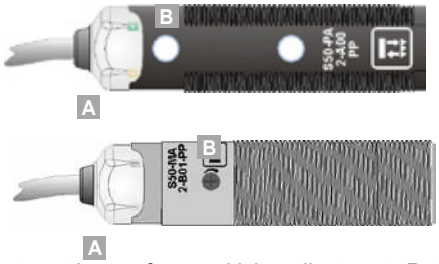


METAL HOUSING



mm

INDICATORS AND SETTINGS



Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

- A OUTPUT status and stability LEDs
- B Adjustment trimmer
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

ACCESSORIES

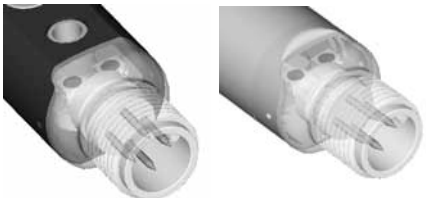
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Reflectors (A.01), Connectors (A.03)** and **Fixing brackets (A.04)** of the General Catalogue.

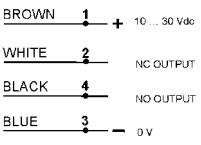
CONNECTIONS

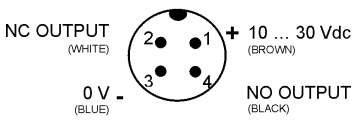


S50-XX-2



S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES		S50-PA-2-B01-NN	S50-PA-2-B01-PP	S50-PA-5-B01-NN	S50-PA-5-B01-PP	S50-PR-2-B01-NN	S50-PR-2-B01-PP	S50-PR-5-B01-NN	S50-PR-5-B01-PP	S50-MA-2-B01-NN	S50-MA-2-B01-PP	S50-MA-5-B01-NN	S50-MA-5-B01-PP	S50-MR-2-B01-NN	S50-MR-2-B01-PP	S50-MR-5-B01-NN	S50-MR-5-B01-PP
[1] Limit values [2] Average life of 100.000 h with T_A = +25 °C [3] 270° single-turn trimmer [4] PVC, 4 x 0.14 mm² [5] Compatible with quick connection systems [6] A - reverse polarity protection B - overload and short-circuit protection on receiver outputs																	
Operating distance:																	
axial optics	0.1 ... 4.5 m	●	●	●	●					●	●	●	●				
radial optics	0.1 ... 3 m					●	●	●	●					●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	≤35 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Light emission:	red LED 660 nm [2]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Spot dimension:																	
axial optics	approx. 45 mm at 1 m	●	●	●	●					●	●	●	●				
radial optics	approx. 60 mm at 2 m					●	●	●	●					●	●	●	●
Setting:	sensitivity trimmer [3]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	green STABILITY LED	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC		●		●		●		●		●		●		●		●
	NPN, NO and NC	●		●		●		●		●		●		●		●	
Output current:	≤100 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Response time:	0.5 ms	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Connection:	2 m Ø 4 mm cable [4]	●	●			●	●			●	●			●	●		
	M12 4-pole connector [5]			●	●			●	●			●	●			●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B [6]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	PBT	●	●	●	●	●	●	●	●								
	nickel plated brass									●	●	●	●	●	●	●	●
Lens material:	PMMA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Weight:	75 g max.	●	●			●	●										
	25 g max.			●	●			●	●								
	110 g max.									●	●			●	●		
	60 g max.											●	●			●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

c UL us LISTED Ex II3DG*

*Only on axial optic models

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-B01-NN	952001610	NPN
S50-PA-2-B01-PP	952001010	PNP

metal - axial optics - 2 m cable		
S50-MA-2-B01-NN	952021500	NPN
S50-MA-2-B01-PP	952021000	PNP

plastic - axial optics - M12 connector		
S50-PA-5-B01-NN	952001500	NPN
S50-PA-5-B01-PP	952001020	PNP

metal - axial optics - M12 connector		
S50-MA-5-B01-NN	952021660	NPN
S50-MA-5-B01-PP	952021200	PNP

plastic - radial optics - 2 m cable		
S50-PR-2-B01-NN	952001780	NPN
S50-PR-2-B01-PP	952001030	PNP

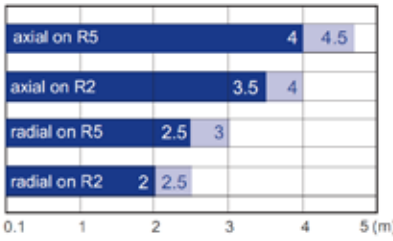
metal - radial optics - 2 m cable		
S50-MR-2-B01-NN	952021600	NPN
S50-MR-2-B01-PP	952021140	PNP

plastic - radial optics - M12 connector		
S50-PR-5-B01-NN	952001720	NPN
S50-PR-5-B01-PP	952001040	PNP

metal - radial optics - M12 connector		
S50-MR-5-B01-NN	952021760	NPN
S50-MR-5-B01-PP	952021340	PNP

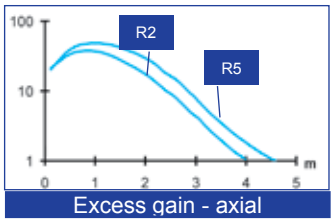
All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS

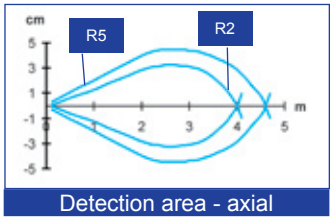


Recommended operating distance
Maximum operating distance

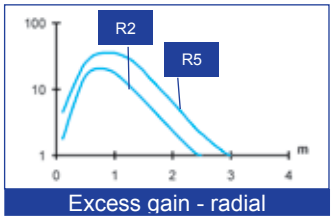
High efficiency reflectors can be used to obtain larger operating distances. Refer to **Reflectors** (A.01) of the **General Catalogue.**



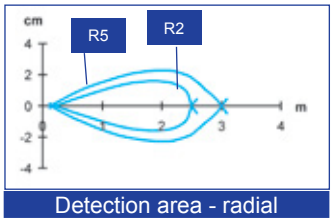
Excess gain - axial



Detection area - axial



Excess gain - radial



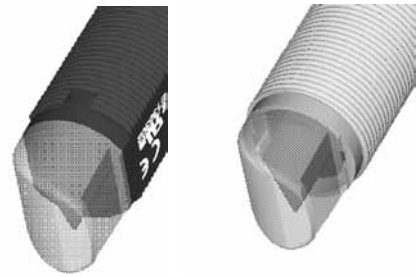
Detection area - radial

B LASER RED EMISSION

The visible red laser emission increases the operating distance and resolution of the polarised retroreflex sensor. Specific R7 or R8 reflectors with 0.8 mm microprisms are available for highresolution detection of small objects. The class 1 laser emission guarantees maximum safety for the operators in all applications.

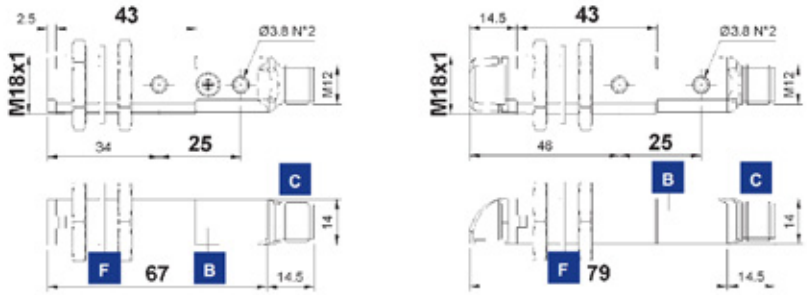


RADIAL OPTICS

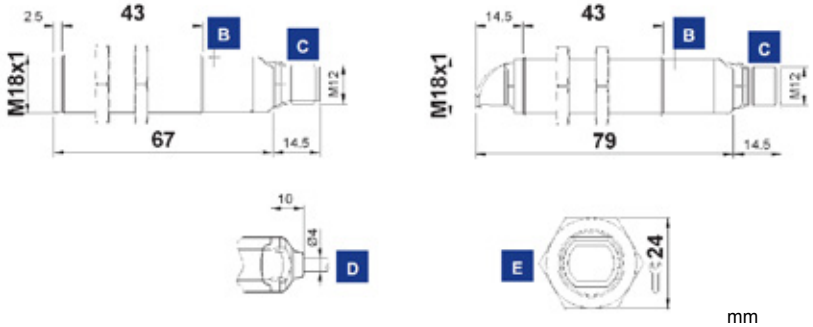


DIMENSIONS

PLASTIC HOUSING

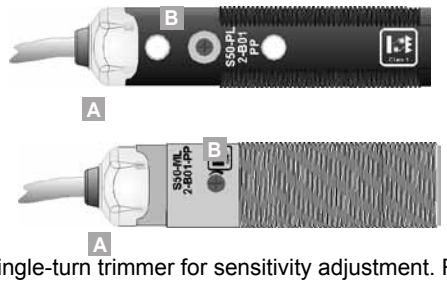


METAL HOUSING



mm

INDICATORS AND SETTINGS



Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

- **A** OUTPUT status and stability LEDs
- **B** Adjustment trimmer
- **C** M12 connector output
- **D** Cable output
- **E** Fixing nuts
- **F** Fixing gasket

ACCESSORIES

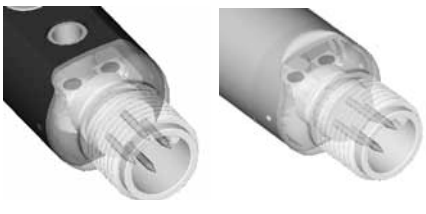
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Reflectors (A.01), Connectors (A.03)** and **Fixing brackets (A.04)** of the General Catalogue**.**

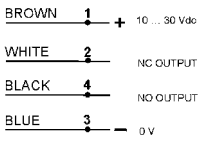
CONNECTIONS

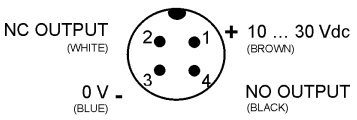


S50-XX-2



S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES
[1]Limit values
[2]Average life of 100.000 h with T_A = +25 °C
[3]270° single-turn trimmer
[4] PVC, 4 x 0.14 mm²
[5] Compatible with quick connection systems
[6]A - reverse polarity protection
B - overload and short-circuit protection on receiver outputs

		S50-PA-2-B01-NN	S50-PA-2-B01-PP	S50-PA-5-B01-NN	S50-PA-5-B01-PP	S50-PR-2-B01-NN	S50-PR-2-B01-PP	S50-PR-5-B01-NN	S50-PR-5-B01-PP	S50-MA-2-B01-NN	S50-MA-2-B01-PP	S50-MA-5-B01-NN	S50-MA-5-B01-PP	S50-MR-2-B01-NN	S50-MR-2-B01-PP	S50-MR-5-B01-NN	S50-MR-5-B01-PP
Operating distance:																	
axial optics	0.1 ... 16 m	•	•	•	•					•	•	•	•				
radial optics	0.1 ... 9 m					•	•	•	•					•	•	•	•
Power supply:	10 ... 30 Vdc[1]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Consumption:	≤ 35 mA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Light emission:	red Laser 650 nm[2]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	class 1 EN 60825-1																
	class II CDRH21 CFR 1040.10																
Resolution:	2 mm max. at 3 m (on R7)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	5 mm max. over 7 m (on R2)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Setting:	sensitivity trimmer [3]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Indicators:	yellow OUTPUT LED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	green STABILITY LED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Output type:	PNP, NO and NC		•		•		•		•		•		•		•		•
	NPN, NO and NC	•		•		•		•		•		•		•		•	
Output current:	≤ 100 mA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Saturation voltage:	≤ 2 V	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Response time:	333 ms	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Switching frequency:	1.5 kHz	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Operating mode:	dark on NO / light on NC	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Connection:	2 m Ø 4 mm cable[4]	•	•			•	•			•	•			•	•		
	M12 4-pole connector[5]			•	•			•	•			•	•			•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Protection devices:	A, B[6]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•	•	•	•	•								
	nickel plated brass									•	•	•	•	•	•	•	•
Lens material:	PMMA / glass	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Weight:	75 g max.	•	•	•	•					•	•			•	•		
	25 g max.					•	•	•	•			•	•			•	•
	110 g max.									•	•	•	•				
	60 g max.													•	•	•	•
Operating temperature:	-10 ... +50°C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2, EN 60825-1,	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	CDRH21 CFR 1040.10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PL-2-B01-NN	952001870	NPN
S50-PL-2-B01-PP	952001360	PNP

plastic - radial optics - 2 m cable		
S50-PH-2-B01-NN	952001950	NPN
S50-PH-2-B01-PP	952001940	PNP

metal - axial optics - 2 m cable		
S50-ML-2-B01-NN	952021820	NPN
S50-ML-2-B01-PP	952021400	PNP

metal - radial optics - 2 m cable		
S50-MH-2-B01-NN	952021950	NPN
S50-MH-2-B01-PP	952021940	PNP

plastic -axial optics - M12 connector		
S50-PL-5-B01-NN	952001840	NPN
S50-PL-5-B01-PP	952001370	PNP

plastic -radial optics - M12 connector		
S50-PH-5-B01-NN	952001970	NPN
S50-PH-5-B01-PP	952001960	PNP

metal - axial optics - M12 connector		
S50-ML-5-B01-NN	952021850	NPN
S50-ML-5-B01-PP	952021440	PNP

metal - radial optics - M12 connector		
S50-MH-5-B01-NN	952021970	NPN
S50-MH-5-B01-PP	952021960	PNP

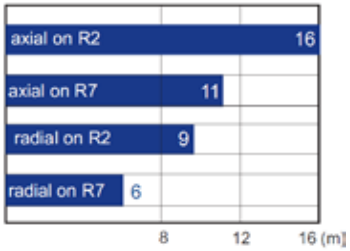
All the ordering codes and information are summarised in the last pages of this catalogue.

The use of the MICRO-18 fixing bracket (cod. 95ACC1380) is recommended for the correct optic axis alignment of the laser emission.

II3DG*

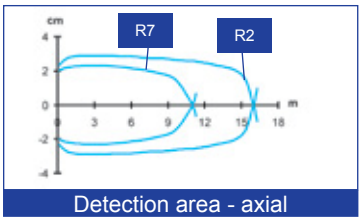
*Only on axial optic models

DETECTION DIAGRAMS

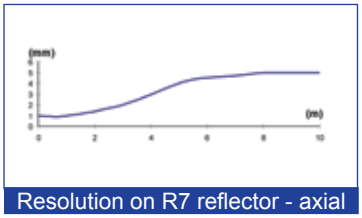


Operating distance

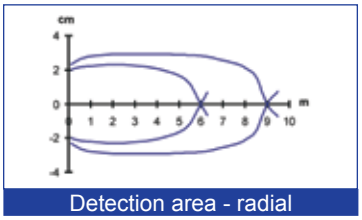
High efficiency reflectors can be used to obtain larger operating distances. Refer to **Reflectors** (A.01) of the **General Catalogue.**



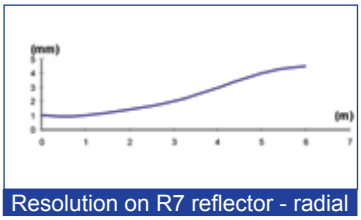
Detection area - axial



Resolution on R7 reflector - axial



Detection area - radial



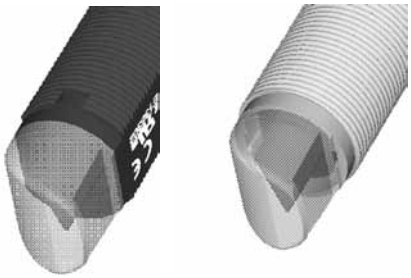
Resolution on R7 reflector - radial

T RED EMISSION

With high sensitivity and reduced hysteresis this retroreflex sensor allows the detection of even a small variation of the light emission received by the sensor, typically created by the presence of transparent objects such as glass or PET containers or plastic film sheets for packaging. The presence of polarising filters avoids false switching on shiny surfaces.

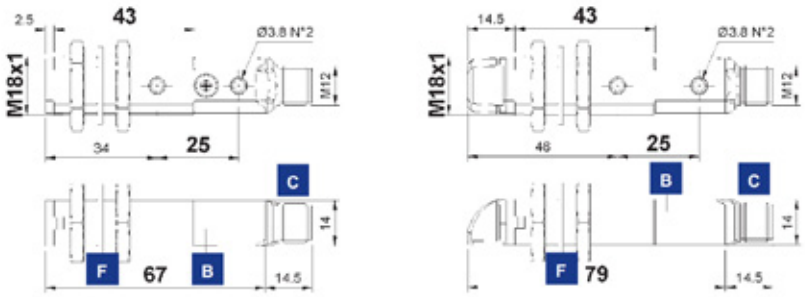


RADIAL OPTICS

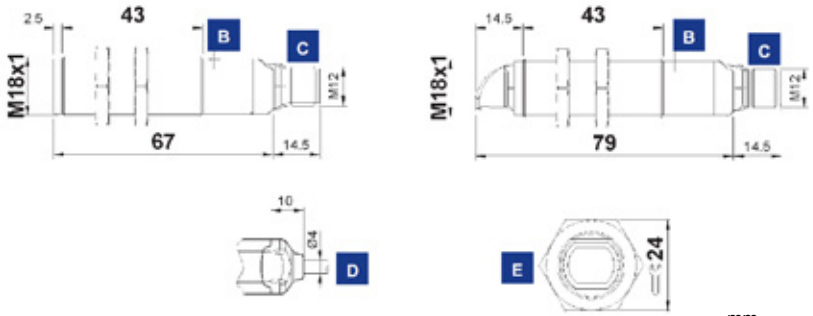


DIMENSIONS

PLASTIC HOUSING

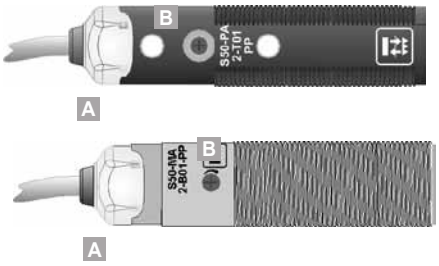


METAL HOUSING



mm

INDICATORS AND SETTINGS



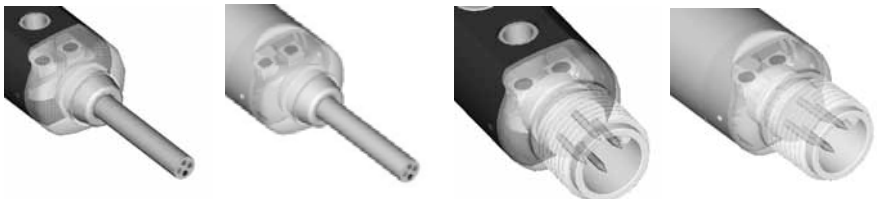
- A OUTPUT status LEDs
- B Adjustment trimmer
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

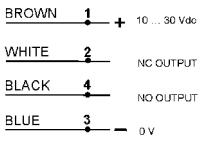
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

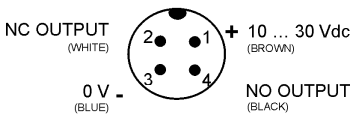
CONNECTIONS



S50-XX-2

S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES
[1] Limit values
[2] Average life of 100.000 h with T_A = +25 °C
[3] 270° single-turn trimmer
[4] PVC, 4 x 0.14 mm²
[5] Compatible with quick connection systems
[6] A - reverse polarity protection
B - overload and short-circuit protection on receiver outputs

		S50-PA-2-T01-NN	S50-PA-2-T01-PP	S50-PA-5-T01-NN	S50-PA-5-T01-PP	S50-PR-2-T01-NN	S50-PR-2-T01-PP	S50-PR-5-T01-NN	S50-PR-5-T01-PP	S50-MA-2-T01-NN	S50-MA-2-T01-PP	S50-MA-5-T01-NN	S50-MA-5-T01-PP	S50-MR-2-T01-NN	S50-MR-2-T01-PP	S50-MR-5-T01-NN	S50-MR-5-T01-PP
Operating distance:																	
axial optics	0.1 ... 1.7 m	●	●	●	●					●	●	●	●				
radial optics	0.1 ... 1.7 m					●	●	●	●					●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	≤ 35 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Light emission:	red LED 660 nm [2]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Spot dimension:																	
axial optics	approx. 45 mm at 1 m	●	●	●	●					●	●	●	●				
radial optics	approx. 60 mm at 1 m					●	●	●	●					●	●	●	●
Setting:	sensitivity trimmer [3]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC		●		●		●		●		●		●		●		●
	NPN, NO and NC	●		●		●		●		●		●		●		●	
Output current:	≤ 100 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Response time:	0.5 ms	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Connection:	2 m Ø 4 mm cable [4]	●	●			●	●			●	●			●	●		
	M12 4-pole connector [5]			●	●			●	●			●	●			●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B [6]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	PBT	●	●	●	●	●	●	●	●								
	nickel plated brass									●	●	●	●	●	●	●	●
Lens material:	PMMA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Weight:	75 g max.	●	●			●	●										
	25 g max.			●	●			●	●								
	110 g max.									●	●			●	●		
	60 g max.											●	●			●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-T01-NN	952001690	NPN
S50-PA-2-T01-PP	952001260	PNP

metal - axial optics - 2 m cable		
S50-MA-2-T01-NN	952021570	NPN
S50-MA-2-T01-PP	952021090	PNP

plastic - axial optics - M12 connector		
S50-PA-5-T01-NN	952001580	NPN
S50-PA-5-T01-PP	952001270	PNP

metal - axial optics - M12 connector		
S50-MA-5-T01-NN	952021730	NPN
S50-MA-5-T01-PP	952021290	PNP

plastic - radial optics - 2 m cable		
S50-PR-2-T01-NN	952001830	NPN
S50-PR-2-T01-PP	952001280	PNP

metal - radial optics - 2 m cable		
S50-MR-2-T01-NN	952021650	NPN
S50-MR-2-T01-PP	952021190	PNP

plastic - radial optics - M12 connector		
S50-PR-5-T01-NN	952001770	NPN
S50-PR-5-T01-PP	952001290	PNP

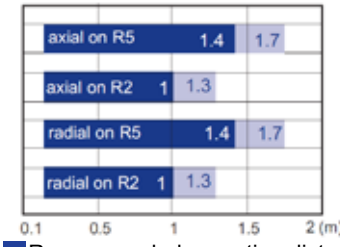
metal - radial optics - M12 connector		
S50-MR-5-T01-NN	952021810	NPN
S50-MR-5-T01-PP	952021390	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

c UL us LISTED Ex II3DG*

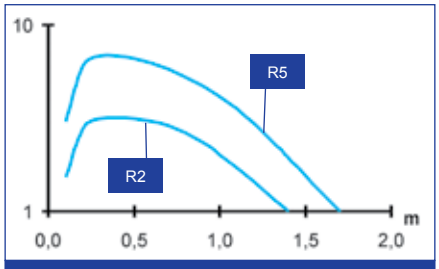
*Only on axial optic models

DETECTION DIAGRAMS

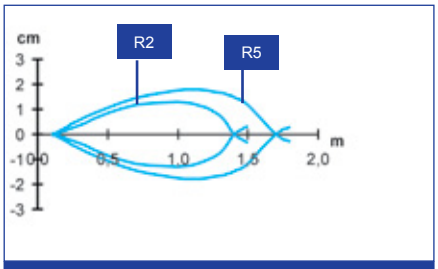


Recommended operating distance
Maximum operating distance

High efficiency reflectors can be used to obtain larger operating distances.
Refer to **Reflectors** of the **General Catalogue.**



Excess gain



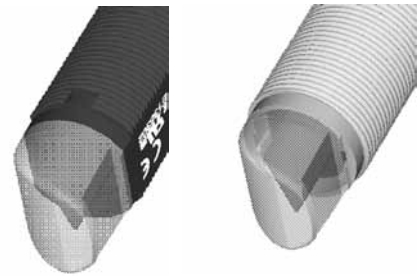
Detection area

C SHORT INFRARED EMISSION

This diffuse proximity sensor represents a reliable, simple and cost-effective solution for the direct detection of any object inside the fixed operating distance.
Its particularly compact dimensions permit the installation in very small spaces.

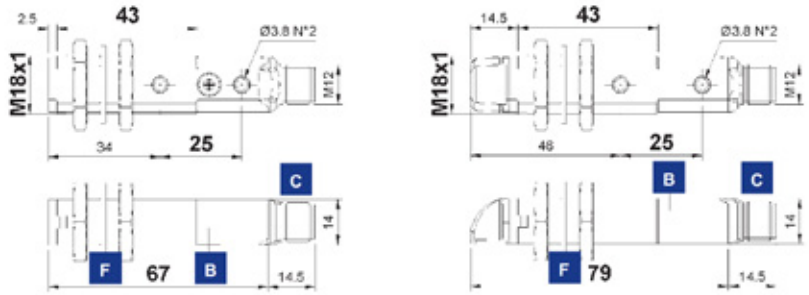


RADIAL OPTICS

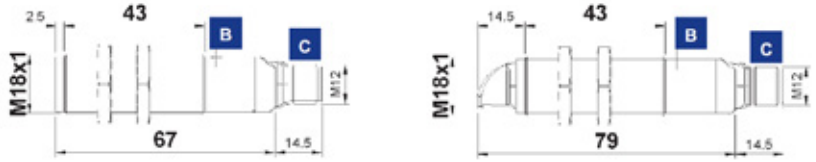


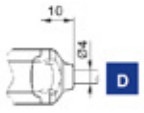
DIMENSIONS

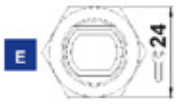
PLASTIC HOUSING



METAL HOUSING

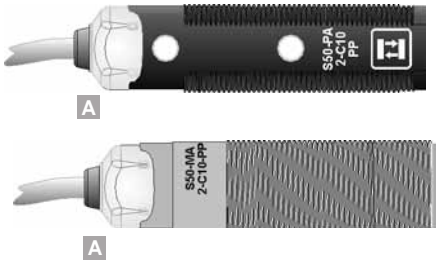






mm

INDICATORS AND SETTINGS



- A OUTPUT status LEDs
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

ACCESSORIES

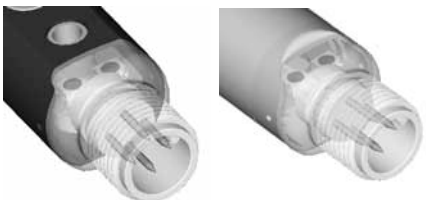
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

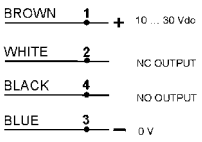
CONNECTIONS

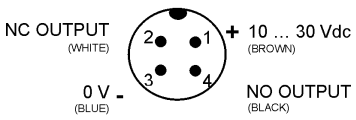


S50-XX-2



S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES
[1] Limit values
[2] Average life of 100.000 h with T_A = +25 °C
[3] PVC, 4 x 0.14 mm²
[4] Compatible with quick connection systems
[5] A - reverse polarity protection
B - overload and short-circuit protection on receiver outputs

		S50-PA-2-C10-NN	S50-PA-2-C10-PP	S50-PA-5-C10-NN	S50-PA-5-C10-PP	S50-PR-2-C10-NN	S50-PR-2-C10-PP	S50-PR-5-C10-NN	S50-PR-5-C10-PP	S50-MA-2-C10-NN	S50-MA-2-C10-PP	S50-MA-5-C10-NN	S50-MA-5-C10-PP	S50-MR-2-C10-NN	S50-MR-2-C10-PP	S50-MR-5-C10-NN	S50-MR-5-C10-PPx
Operating distance:																	
axial optics	0 ... 10 cm	•	•	•	•					•	•	•	•				
radial optics	0 ... 8 cm					•	•	•	•					•	•	•	•
Power supply:	10 ... 30 Vdc [1]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Consumption:	≤ 35 mA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Light emission:	infrared LED 880 nm²	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Spot dimension:																	
axial optics	approx. 80 mm at 10 cm	•	•	•	•					•	•	•	•				
radial optics	approx. 55 mm at 10 cm					•	•	•	•					•	•	•	•
Indicators:	yellow OUTPUT LED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Output type:	PNP, NO and NC		•		•		•		•		•		•		•		•
	NPN, NO and NC	•		•		•		•		•		•		•		•	•
Output current:	≤ 100 mA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Saturation voltage:	≤ 2 V	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Response time:	0.5 ms	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Switching frequency:	1 kHz	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Operating mode:	dark on NO / light on NC	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Connection:	2 m Ø 4 mm cable[3]	•	•			•	•			•	•			•	•		
	M12 4-pole connector[4]			•	•			•	•			•	•			•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Protection devices:	A, B[5]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•	•	•	•	•								
	nickel plated brass									•	•	•	•	•	•	•	•
Lens material:	PMMA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Weight:	75 g max.	•	•			•	•			•	•	•	•	•	•	•	•
	25 g max.			•	•			•	•								
	110 g max.									•	•			•	•		
	60 g max.											•	•			•	•
Operating temperature:	-25 ... +55°C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

II3DG*

*Only on axial optic models

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-C10-NN	952001630	NPN
S50-PA-2-C10-PP	952001240	PNP

metal - axial optics - 2 m cable		
S50-MA-2-C10-NN	952021520	NPN
S50-MA-2-C10-PP	952021020	PNP

plastic - axial optics - M12 connector		
S50-PA-5-C10-NN	952001520	NPN
S50-PA-5-C10-PP	952001250	PNP

metal - axial optics - M12 connector		
S50-MA-5-C10-NN	952021680	NPN
S50-MA-5-C10-PP	952021220	PNP

plastic - radial optics - 2 m cable		
S50-PR-2-C10-NN	952001800	NPN
S50-PR-2-C10-PP	952001490	PNP

metal - radial optics - 2 m cable		
S50-MR-2-C10-NN	952021620	NPN
S50-MR-2-C10-PP	952021490	PNP

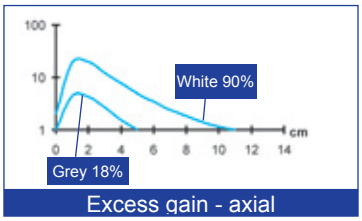
plastic - radial optics - M12 connector		
S50-PR-5-C10-NN	952001740	NPN
S50-PR-5-C10-PP	952001480	PNP
metal - radial optics - M12 connector		
S50-MR-5-C10-NN	952021780	NPN
S50-MR-5-C10-PP	952021480	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

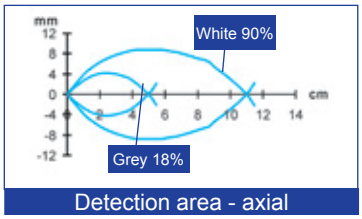
DETECTION DIAGRAMS



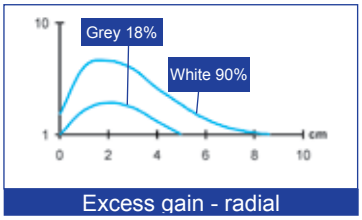
Recommended operating distance
Maximum operating distance



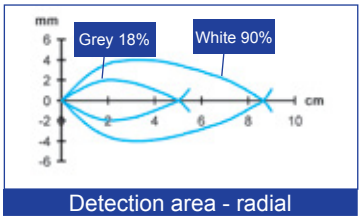
Excess gain - axial



Detection area - axial



Excess gain - radial



Detection area - radial

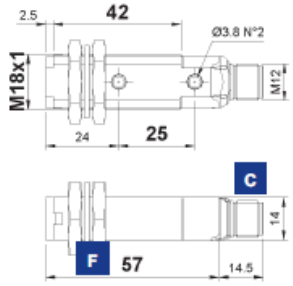
C MID INFRARED EMISSION

This version of diffuse proximity sensor has a detection distance that can be set using the sensitivity adjustment trimmer. The green stability LED indicates whether the received signal is above to the minimum signal for stable output switching.

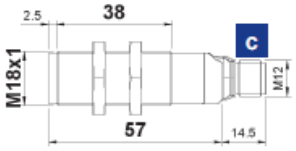


DIMENSIONS

PLASTIC HOUSING

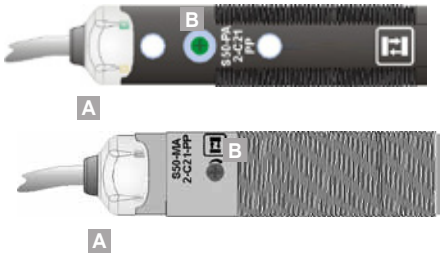


METAL HOUSING





INDICATORS AND SETTINGS



- A OUTPUT status and stability LEDs
- B Adjustment trimmer
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

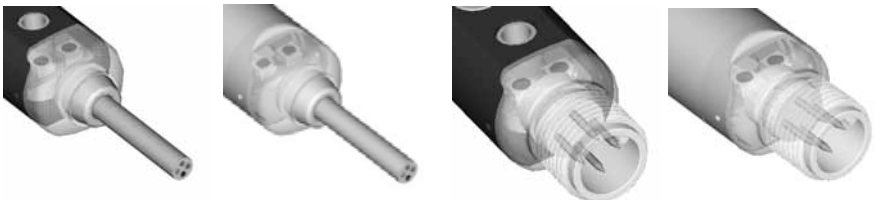
Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

ACCESSORIES

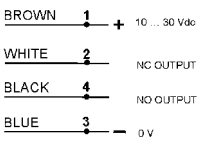
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

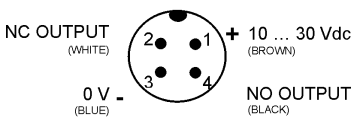
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



S50-XX-2 S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES [1] Limit values [2] Average life of 100.000 h with TA = +25 °C [3] 270° single-turn trimmer [4] PVC, 4 x 0.14 mm² [5] Compatible with quick connection systems [6] A - reverse polarity protection B - overload and short-circuit protection on receiver outputs		S50-PA-2-C21-NN	S50-PA-2-C21-PP	S50-PA-5-C21-NN	S50-PA-5-C21-PP	S50-MA-2-C21-NN	S50-MA-2-C21-PP	S50-MA-5-C21-NN	S50-MA-5-C21-PP
Operating distance:	0 ... 40 cm	•	•	•	•	•	•	•	•
Power supply:	10 ... 30 Vdc [1]	•	•	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•	•	•
Consumption:	≤ 35 mA	•	•	•	•	•	•	•	•
Light emission:	infrared LED 880 nm [2]	•	•	•	•	•	•	•	•
Spot dimension:	approx. 100 mm at 300 cm	•	•	•	•	•	•	•	•
Setting:	sensitivity trimmer [3]	•	•	•	•	•	•	•	•
Indicators:	yellow OUTPUT LED	•	•	•	•	•	•	•	•
	green STABILITY LED	•	•	•	•	•	•	•	•
Output type:	PNP, NO and NC		•		•		•		•
	NPN, NO and NC	•		•		•		•	
Output current:	≤ 100 mA	•	•	•	•	•	•	•	•
Saturation voltage:	≤ 2 V	•	•	•	•	•	•	•	•
Response time:	0.5 ms	•	•	•	•	•	•	•	•
Switching frequency:	1 kHz	•	•	•	•	•	•	•	•
Operating mode:	light on NO / dark on NC	•	•	•	•	•	•	•	•
Connection:	2 m Ø 4 mm cable [4]	•	•			•	•		
	M12 4-pole connector [5]			•	•			•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•
Protection devices:	A, B [6]	•	•	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•				
	nickel plated brass					•	•	•	•
Lens material:	PMMA	•	•	•	•	•	•	•	•
Weight:	75 g max.	•	•						
	25 g max.			•	•				
	110 g max.					•	•		
	60 g max.							•	•
Operating temperature:	-25 ... +55°C	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•	•	•	•	•

c UL US LISTED Ex II3DG

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-C21-NN	952002170	NPN
S50-PA-2-C21-PP	952002160	PNP

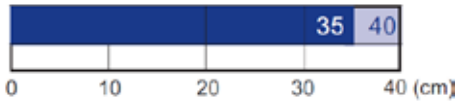
metal - axial optics - 2 m cable		
S50-MA-2-C21-NN	952022130	NPN
S50-MA-2-C21-PP	952022120	PNP

plastic - axial optics - M12 connector		
S50-PA-5-C21-NN	952002190	NPN
S50-PA-5-C21-PP	952002180	PNP

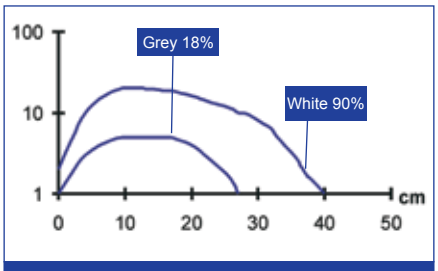
metal - axial optics - M12 connector		
S50-MA-5-C21-NN	952022150	NPN
S50-MA-5-C21-PP	952022140	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

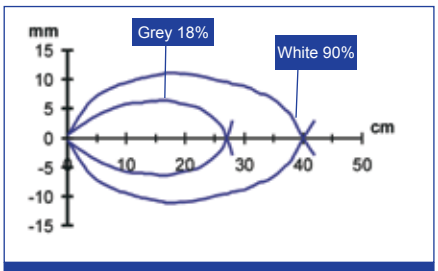
DETECTION DIAGRAMS



Recommended operating distance
Maximum operating distance



Excess gain



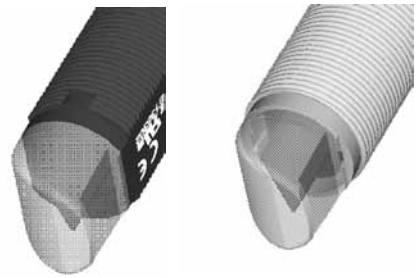
Detection area

C LONG INFRARED EMISSION

This version of diffuse proximity sensor has a detection distance that can be set using the sensitivity adjustment trimmer. The green stability LED indicates whether the received signal is above to the minimum signal for stable output switching.

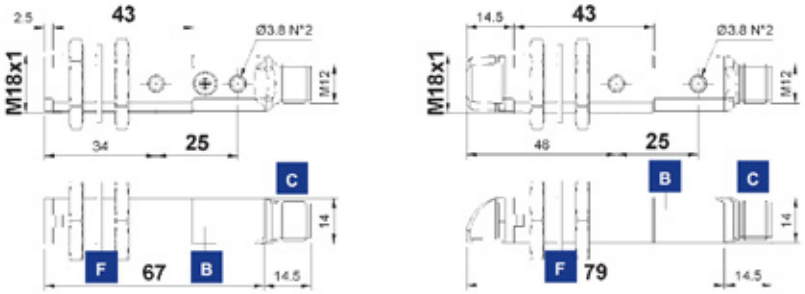


RADIAL OPTICS

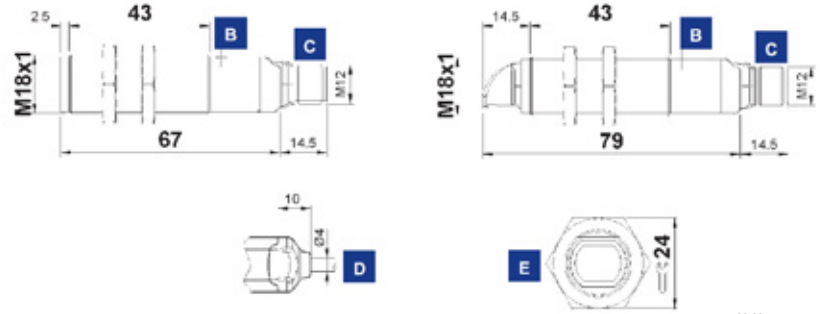


DIMENSIONS

PLASTIC HOUSING

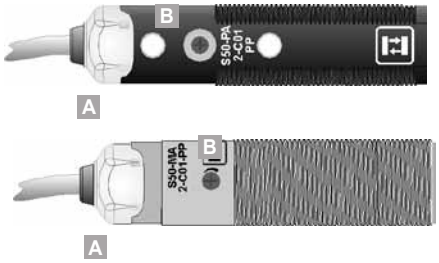


METAL HOUSING



mm

INDICATORS AND SETTINGS



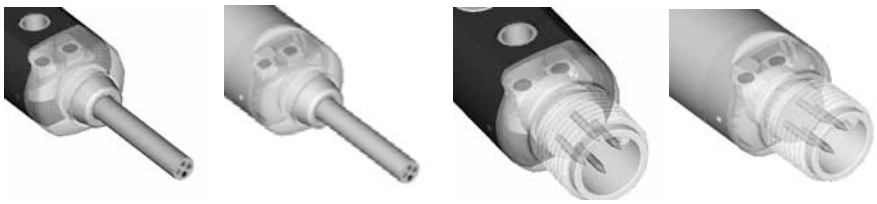
- A OUTPUT status and STABILITY LEDs
- B Adjustment trimmer
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

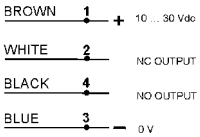
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

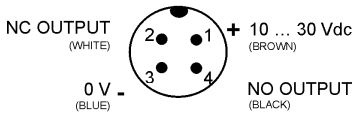
CONNECTIONS



S50-XX-2

S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES
[1] Limit values
[2] Average life of 100.000 h with T_A = +25 °C
[3] 270° single-turn trimmer
[4] PVC, 4 x 0.14 mm²
[5] Compatible with quick connection systems
[6] A - reverse polarity protection
B - overload and short-circuit protection on receiver outputs

		S50-PA-2-C01-NN	S50-PA-2-C01-PP	S50-PA-5-C01-NN	S50-PA-5-C01-PP	S50-PR-2-C01-NN	S50-PR-2-C01-PP	S50-PR-5-C01-NN	S50-PR-5-C01-PP	S50-MA-2-C01-NN	S50-MA-2-C01-PP	S50-MA-5-C01-NN	S50-MA-5-C01-PP	S50-MR-2-C01-NN	S50-MR-2-C01-PP	S50-MR-5-C01-NN	S50-MR-5-C01-PP
Operating distance:																	
axial optics	0 ... 70 cm	●	●	●	●					●	●	●	●				
radial optics	0 ... 40 cm					●	●	●	●					●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ripple:	≤2 Vpp	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	≤ 35 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Light emission:	infrared LED 880 nm [2]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Spot dimension:																	
axial optics	approx.200 mm at 60 cm	●	●	●	●					●	●	●	●				
radial optics	approx.35 mm at 40 cm					●	●	●	●					●	●	●	●
Setting:	sensitivity trimmer [3]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	green STABILITY LED	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC		●		●		●		●		●		●		●		●
	NPN, NO and NC	●		●		●		●		●		●		●		●	
Output current:	≤ 100 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Response time:	0.5 ms	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Connection:	2 m Ø 4 mm cable[4]	●	●			●	●			●	●			●	●		
	M12 4-pole connector[5]			●	●			●	●			●	●			●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B[6]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	PBT	●	●	●	●	●	●	●	●								
	nickel plated brass									●	●	●	●	●	●	●	●
Lens material:	PMMA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Weight:	75 g max.	●	●			●	●										
	25 g max.			●	●			●	●								
	110 g max.									●	●			●	●		
	60 g max.											●	●			●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-C01-NN	952001620	NPN
S50-PA-2-C01-PP	952001050	PNP

metal - axial optics - 2 m cable		
S50-MA-2-C01-NN	952021510	NPN
S50-MA-2-C01-PP	952021010	PNP

plastic - axial optics - M12 connector		
S50-PA-5-C01-NN	952001510	NPN
S50-PA-5-C01-PP	952001060	PNP

metal - axial optics - M12 connector		
S50-MA-5-C01-NN	952021670	NPN
S50-MA-5-C01-PP	952021210	PNP

plastic - radial optics - 2 m cable		
S50-PR-2-C01-NN	952001790	NPN
S50-PR-2-C01-PP	952001070	PNP

metal - radial optics - 2 m cable		
S50-MR-2-C01-NN	952021610	NPN
S50-MR-2-C01-PP	952021150	PNP

plastic - radial optics - M12 connector		
S50-PR-5-C01-NN	952001730	NPN
S50-PR-5-C01-PP	952001080	PNP

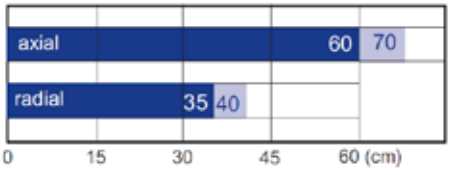
metal - radial optics - M12 connector		
S50-MR-5-C01-NN	952021770	NPN
S50-MR-5-C01-PP	952021350	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

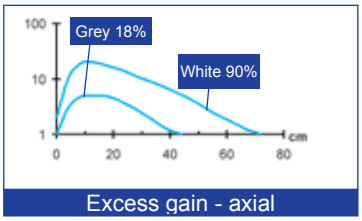
II3DG*

*Only on axial optic models

DETECTION DIAGRAMS



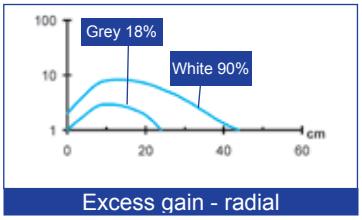
Recommended operating distance
Maximum operating distance



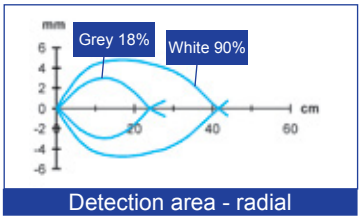
Excess gain - axial



Detection area - axial



Excess gain - radial



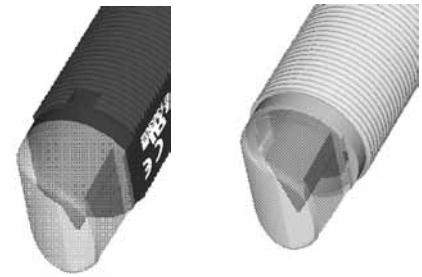
Detection area - radial

D RED EMISSION

The fixed focus proximity sensor offers a simple fixed background suppression distance beyond which no object is detected. The fixed triangulation of the optics greatly reduces the detection distance of reflective objects. The visible red emission facilitates sensor installation.

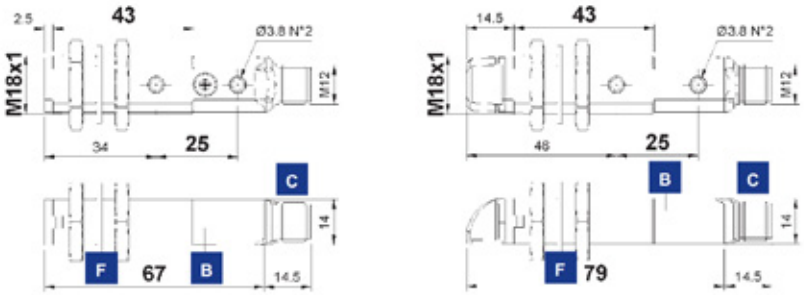


RADIAL OPTICS

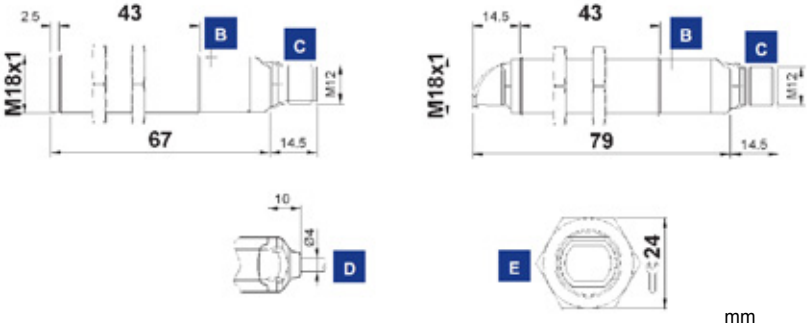


DIMENSIONS

PLASTIC HOUSING

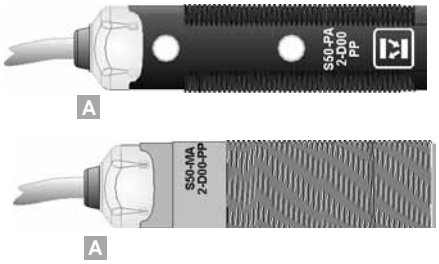


METAL HOUSING



mm

INDICATORS AND SETTINGS



- A OUTPUT status LED
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

ACCESSORIES

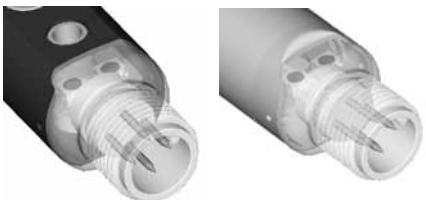
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

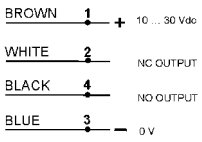
CONNECTIONS

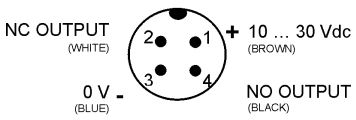


S50-XX-2



S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES		S50-PA-2-D00-NN	S50-PA-2-D00-PP	S50-PA-5-D00-NN	S50-PA-5-D00-PP	S50-PR-2-D00-NN	S50-PR-2-D00-PP	S50-PR-5-D00-NN	S50-PR-5-D00-PP	S50-MA-2-D00-NN	S50-MA-2-D00-PP	S50-MA-5-D00-NN	S50-MA-5-D00-PP	S50-MR-2-D00-NN	S50-MR-2-D00-PP	S50-MR-5-D00-NN	S50-MR-5-D00-PP
[1]Limit values [2]Average life of 100.000 h with T_A = +25 °C [3]PVC, 4 x 0.14 mm² [4]Compatible with quick connection systems [5]A - reverse polarity protection B - overload and short-circuit protection on receiver outputs																	
Operating distance:																	
axial optics	0.5 ... 10 cm	●	●	●	●					●	●	●	●				
radial optics	0 ... 8 cm					●	●	●	●					●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	≤ 35 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Light emission:	red LED 630 nm [2]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Spot dimension:																	
axial optics	approx. 20 mm at 10 cm	●	●	●	●					●	●	●	●				
radial optics	approx. 25 mm at 8 cm					●	●	●	●					●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC		●		●		●		●		●		●		●		●
	NPN, NO and NC	●		●		●		●		●		●		●		●	
Output current:	≤ 100 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Response time:	0.5 ms	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Connection:	2 m Ø 4 mm cable	●	●			●	●			●	●			●	●		
	M12 4-pole connector			●	●			●	●			●	●			●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B[5]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	PBT	●	●	●	●	●	●	●	●								
	nickel plated brass									●	●	●	●	●	●	●	●
Lens material:	PMMA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Weight:	75 g max.	●	●			●	●										
	25 g max.			●	●			●	●								
	110 g max.									●	●			●	●		
	60 g max.											●	●			●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

II3DG*

*Only on axial optic models

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-D00-NN	952001640	NPN
S50-PA-2-D00-PP	952001090	PNP

metal - axial optics - 2 m cable		
S50-MA-2-D00-NN	952021530	NPN
S50-MA-2-D00-PP	952021030	PNP

plastic - axial optics - M12 connector		
S50-PA-5-D00-NN	952001530	NPN
S50-PA-5-D00-PP	952001100	PNP

metal - axial optics - M12 connector		
S50-MA-5-D00-NN	952021690	NPN
S50-MA-5-D00-PP	952021230	PNP

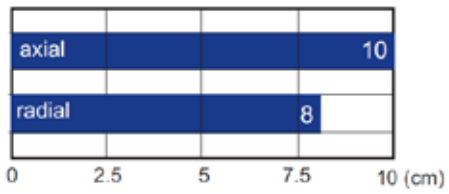
plastic - radial optics - 2 m cable		
S50-PR-2-D00-NN	952001810	NPN
S50-PR-2-D00-PP	952001110	PNP

metal - radial optics - 2 m cable		
S50-MR-2-D00-NN	952021630	NPN
S50-MR-2-D00-PP	952021160	PNP

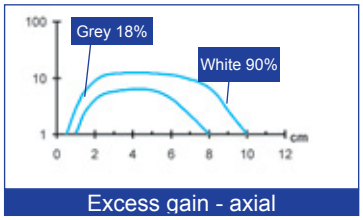
plastic - radial optics - M12 connector		
S50-PR-5-D00-NN	952001750	NPN
S50-PR-5-D00-PP	952001120	PNP
metal - radial optics - M12 connector		
S50-MR-5-D00-NN	952021790	NPN
S50-MR-5-D00-PP	952021360	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

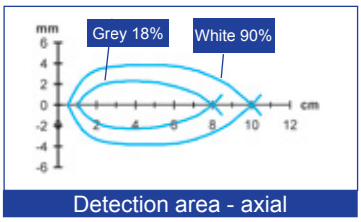
DETECTION DIAGRAMS



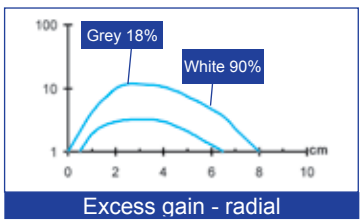
Operating distance



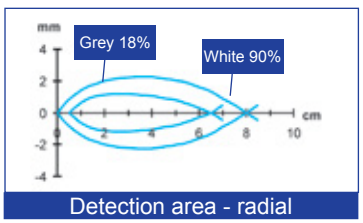
Excess gain - axial



Detection area - axial



Excess gain - radial



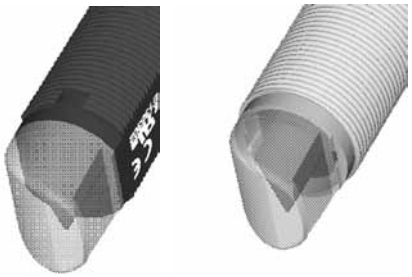
Detection area - radial

C LASER RED EMISSION

The visible red laser emission allows the accurate detection of very small objects. The sensors operate as a proximity device up to 35 cm and can be used as a contrast sensor for high contrast mark detection. The class 1 laser emission guarantees maximum safety for the operators in all applications.

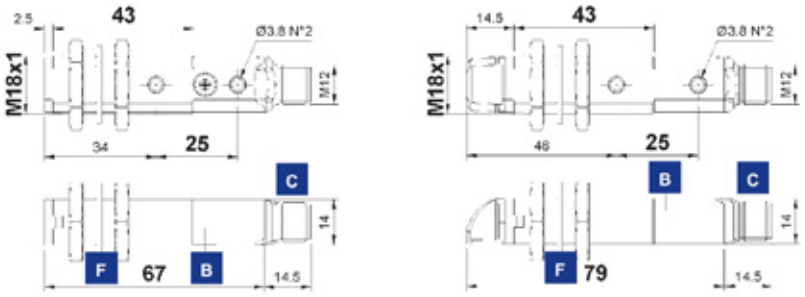


RADIAL OPTICS

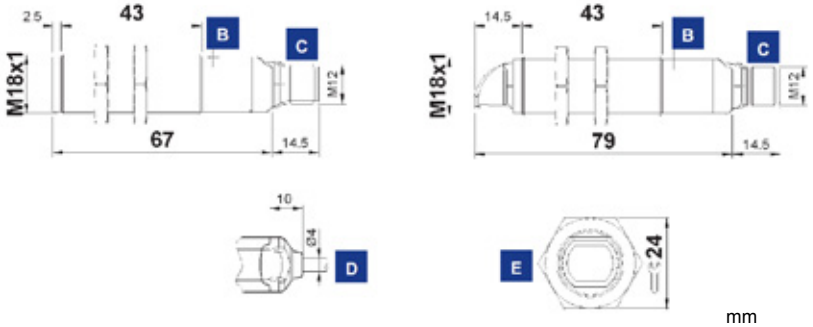


DIMENSIONS

PLASTIC HOUSING

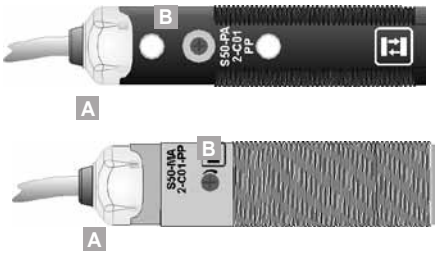


METAL HOUSING



mm

INDICATORS AND SETTINGS



- A OUTPUT status and stability LEDs
- B Adjustment trimmer
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

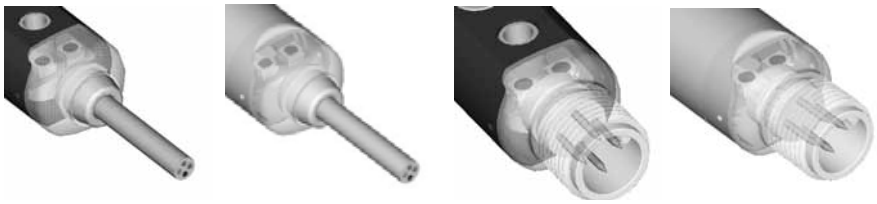
Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

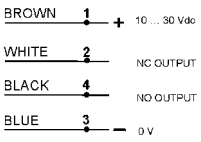
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

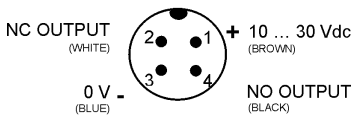
CONNECTIONS



S50-XX-2

S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES
[1] Limit values
[2] Average life of 100.000 h with T_A = +25 °C
[3] 270° single-turn trimmer
[4] PVC, 4 x 0.14 mm²
[5] Compatible with quick connection systems
[6] A - reverse polarity protection
B - overload and short-circuit protection on receiver outputs

		S50-PL-2-C01-NN	S50-PL-2-C01-PP	S50-PH-2-C01-NN	S50-PH-2-C01-PP	S50-PL-5-C01-NN	S50-PL-5-C01-PP	S50-PH-5-C01-NN	S50-PH-5-C01-PP	S50-ML-2-C01-NN	S50-ML-2-C01-PP	S50-MH-2-C01-NN	S50-MH-2-C01-PP	S50-ML-5-C01-NN	S50-ML-5-C01-PP	S50-MH-5-C01-NN	S50-MH-5-C01-PP
Operating distance:																	
axial optics	0 ... 35 cm	•	•			•	•			•	•			•	•		
radial optics	0 ... 25 cm			•	•			•	•			•	•			•	•
Power supply:	10 ... 30 Vdc [1]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Ripple:	≤2 Vpp	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Consumption:	≤35 mA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Light emission:	red Laser 650 nm [2]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	class 1 EN 60825-1																
	class II CDRH21 CFR 1040.10																
Resolution:	approx. 0.3 mm at 5 cm	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	approx. 0.3 mm at 10 cm	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	approx. 0.5 mm at 20 cm	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	approx. 2 mm at 30 cm	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Setting:	sensitivity trimmer	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Indicators:	yellow OUTPUT LED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	green STABILITY LED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Output type:	PNP, NO and NC		•		•		•		•		•		•		•		•
	NPN, NO and NC	•		•		•		•		•		•		•		•	
Output current:	≤ 100 mA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Saturation voltage:	≤2 V	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Response time:	333 ms	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Switching frequency:	1.5 kHz	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Operating mode:	light on NO / dark on NC	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Connection:	2 m Ø 4 mm cable [4]	•	•			•	•			•	•			•	•		
	M12 4-pole connector [5]			•	•			•	•			•	•			•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Protection devices:	A, B [6]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•	•	•	•	•	•	•			•	•		
	nickel plated brass									•	•	•	•	•	•	•	•
Lens material:	PMMA / glass	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Weight:	75 g max.	•	•	•	•												
	25 g max.					•	•	•	•								
	110 g max.									•	•	•	•				
	60 g max.													•	•	•	•
Operating temperature:	-10 ... +50°C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2, EN 60825-1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	CDRH21 CFR 1040.10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PL-2-C01-NN	952001880	NPN
S50-PL-2-C01-PP	952001380	PNP

plastic - radial optics - 2 m cable		
S50-PH-2-C01-NN	952001990	NPN
S50-PH-2-C01-PP	952001980	PNP

metal - axial optics - 2 m cable		
S50-ML-2-C01-NN	952021830	NPN
S50-ML-2-C01-PP	952021410	PNP

metal - radial optics - 2 m cable		
S50-MH-2-C01-NN	952021990	NPN
S50-MH-2-C01-PP	952021980	PNP

plastic - axial optics - M12 connector		
S50-PL-5-C01-NN	952001850	NPN
S50-PL-5-C01-PP	952001390	PNP

plastic - radial optics - M12 connector		
S50-PH-5-C01-NN	952002010	NPN
S50-PH-5-C01-PP	952002000	PNP

metal - axial optics - M12 connector		
S50-ML-5-C01-NN	952021860	NPN
S50-ML-5-C01-PP	952021450	PNP

metal - radial optics - M12 connector		
S50-MH-5-C01-NN	952022010	NPN
S50-MH-5-C01-PP	952022000	PNP

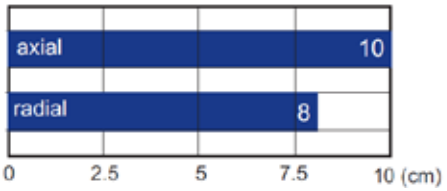
All the ordering codes and information are summarised in the last pages of this catalogue.

The use of the MICRO-18 fixing bracket (cod. 95ACC1380) is recommended for the correct optic axis alignment of the laser emission.

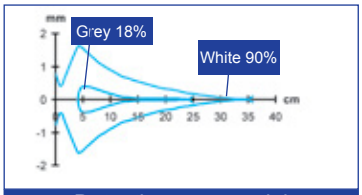
II3DG*

*Only on axial optic models

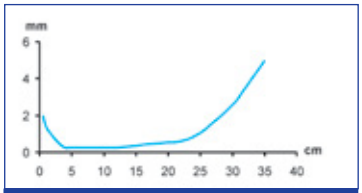
DETECTION DIAGRAMS



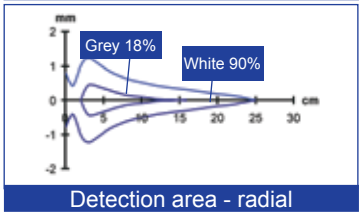
Operating distance



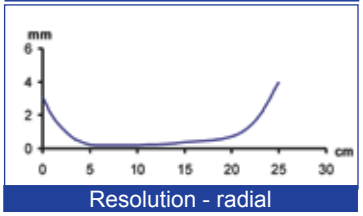
Detection area - axial



Resolution - axial



Detection area - radial



Resolution - radial

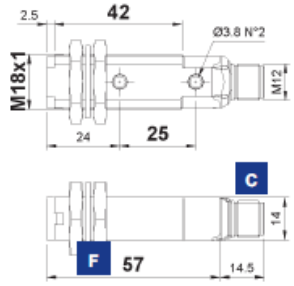
M AXIAL RED EMISSION

Background suppression proximity allows to precisely adjust the distance over which the object is not detected, with the minimum difference between reflective objects. The EASYtouchTM setting procedure fixes automatically the best detection conditions, simply pressing once the teach-in push-button, in presence of the reference to detect.

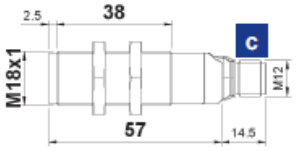


DIMENSIONS

PLASTIC HOUSING



METAL HOUSING





INDICATORS AND SETTINGS





Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine, both obtained by pressing the push-button only once. Please refer to instructions manual for operating details.

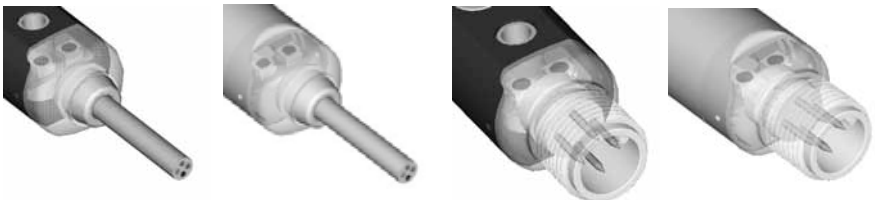
- A OUTPUT status and READY/ ERROR LEDs
- B Teach-in push-button
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

ACCESSORIES

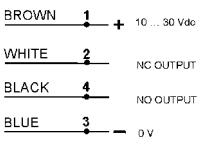
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

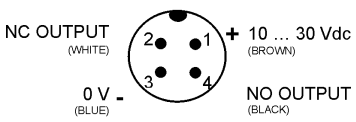
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



S50-XX-2 S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]PVC, 4 x 0.14 mm² [4]Compatible with quick connection systems [5]A - reverse polarity protection B - overload and short-circuit protection on receiver outputs		S50-PA-2-M03-NN	S50-PA-2-M03-PP	S50-PA-5-M03-NN	S50-PA-5-M03-PP	S50-MA-2-M03-NN	S50-MA-2-M03-PP	S50-MA-5-M03-NN	S50-MA-5-M03-PP
Operating distance:	5 ... 10 cm	●	●	●	●	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●
Consumption:	≤30 mA	●	●	●	●	●	●	●	●
Light emission:	red LED 630 nm²	●	●	●	●	●	●	●	●
Spot dimension:	teach-in push-button	●	●	●	●	●	●	●	●
Setting:	teach-in EASYtouch™	●	●	●	●	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●
	green / red READY / ERROR LED	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC		●		●		●		●
	NPN, NO and NC	●		●		●		●	
Output current:	≤100 mA	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●
Response time:	1 ms	●	●	●	●	●	●	●	●
Switching frequency:	500 Hz	●	●	●	●	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●	●	●	●	●
Connection:	2 m Ø 4 mm cable[3]	●	●			●	●		
	M12 4-pole connector[4]			●	●			●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●
Protection devices:	A, B[5]	●	●	●	●	●	●	●	●
Housing material:	PBT / PVC	●	●	●	●				
	nickel plated brass					●	●	●	●
Lens material:	glass	●	●	●	●	●	●	●	●
Weight:	90 g max.	●	●						
	40 g max.			●	●				
	125 g max.					●	●		
	75 g max.							●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-M03-NN	952001670	NPN
S50-PA-2-M03-PP	952001230	PNP

metal - axial optics - 2 m cable		
S50-MA-2-M03-NN	952021550	NPN
S50-MA-2-M03-PP	952021070	PNP

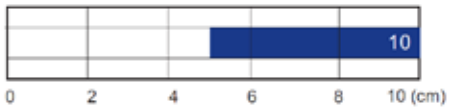
plastic - axial optics - M12 connector		
S50-PA-5-M03-NN	952001560	NPN
S50-PA-5-M03-PP	952001000	PNP

metal - axial optics - M12 connector		
S50-MA-5-M03-NN	952021710	NPN
S50-MA-5-M03-PP	952021270	PNP

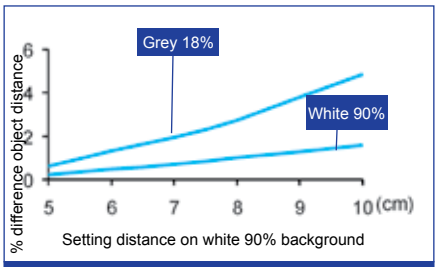
All the ordering codes and information are summarised in the last pages of this catalogue.

II3DG

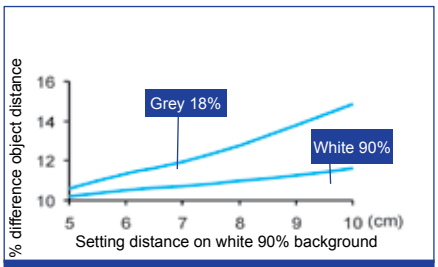
DETECTION DIAGRAMS



Operating distance



Detection difference with EASYtouch™ acquisition



Detection difference with fine acquisition

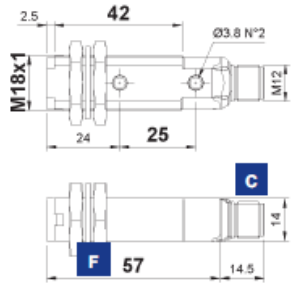
M RADIAL RED EMISSION

This version of diffuse proximity sensor has a detection distance that can be set using the sensitivity adjustment trimmer. The green stability LED indicates whether the received signal is above to the minimum signal for stable output switching.

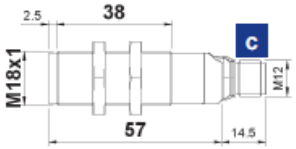


DIMENSIONS

PLASTIC HOUSING

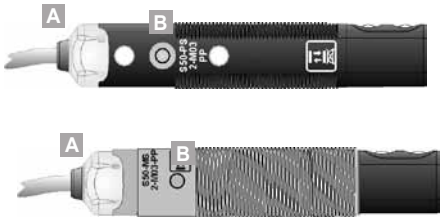


METAL HOUSING





INDICATORS AND SETTINGS



- A OUTPUT status and READY/ ERROR LEDs
- B Teach-in push-button
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

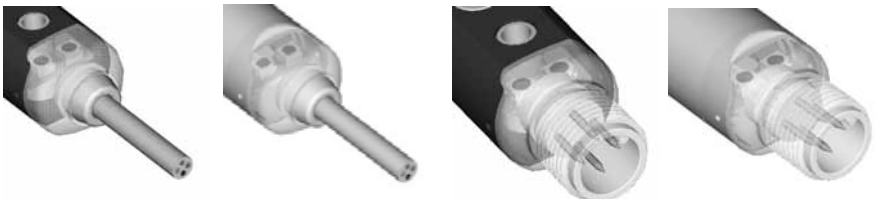
Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine, both obtained by pressing the push-button only once. Please refer to instructions manual for operating details.

ACCESSORIES

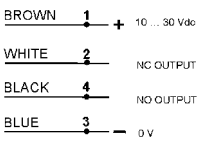
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

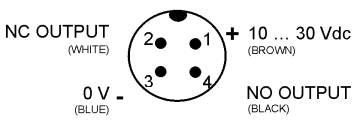
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



S50-XX-2 S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]PVC, 4 x 0.14 mm² [4]Compatible with quick connection systems [5]A - reverse polarity protection B - overload and short-circuit protection on receiver outputs		S50-PS-2-M03-NN	S50-PS-2-M03-PP	S50-PS-5-M03-NN	S50-PS-5-M03-PP	S50-MS-2-M03-NN	S50-MS-2-M03-PP	S50-MS-5-M03-NN	S50-MS-5-M03-PP
Operating distance:	5 ... 10 cm	●	●	●	●	●	●	●	●
Power supply:	10 ... 30 Vdc[1]	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●
Consumption:	≤30 mA	●	●	●	●	●	●	●	●
Light emission:	red LED 630 nm[2]	●	●	●	●	●	●	●	●
Spot dimension:	approx. 10 mm at 10 cm	●	●	●	●	●	●	●	●
Setting:	teach-in push-button	●	●	●	●	●	●	●	●
Setting procedure:	teach-in EASYtouchTM	●	●	●	●	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●
	green / red READY / ERROR LED	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC		●		●		●		●
	NPN, NO and NC	●		●		●		●	
Output current:	≤100 mA	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●
Response time:	1 ms	●	●	●	●	●	●	●	●
Switching frequency:	500 Hz	●	●	●	●	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●	●	●	●	●
Connection:	2 m Ø 4 mm cable[3]	●	●			●	●		
	M12 4-pole connector[4]			●	●			●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●
Protection devices:	A, B[5]	●	●	●	●	●	●	●	●
Housing material:	PBT / PVC	●	●	●	●				
	nickel plated brass					●	●	●	●
Lens material:	glass	●	●	●	●	●	●	●	●
Weight:	90 g max.	●	●						
	40 g max.			●	●				
	125 g max.					●	●		
	75 g max.							●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●

SELECTION TABLE

plastic - 2 m cable		
S50-PS-2-M03-NN	952001900	NPN
S50-PS-2-M03-PP	952001910	PNP

metal - 2 m cable		
S50-MS-2-M03-NN	952021900	NPN
S50-MS-2-M03-PP	952021910	PNP

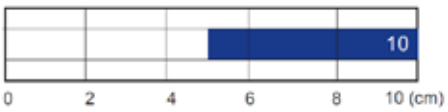
plastic - M12 connector		
S50-PS-5-M03-NN	952001920	NPN
S50-PS-5-M03-PP	952001930	PNP

metal - M12 connector		
S50-MS-5-M03-NN	952021920	NPN
S50-MS-5-M03-PP	952021930	PNP

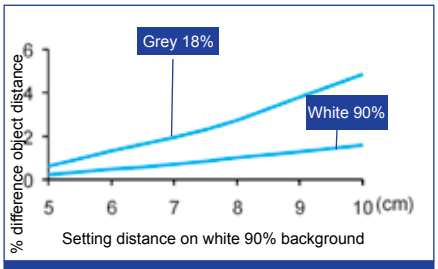
All the ordering codes and information are summarised in the last pages of this catalogue.

CE cULus LISTED

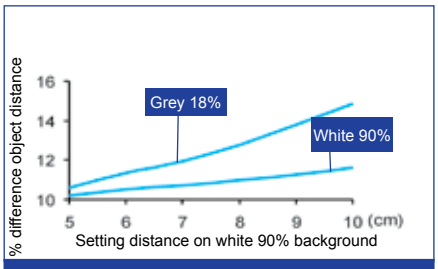
DETECTION DIAGRAMS



Operating distance



Detection difference with EASYtouch™ acquisition



Detection difference with fine acquisition

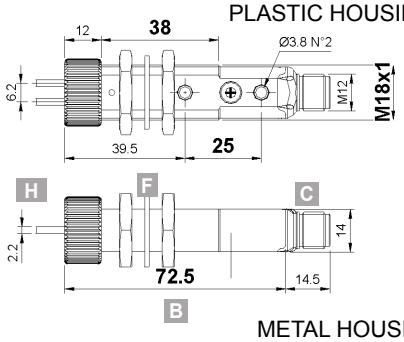
E RED EMISSION

The amplifier is built to accept any standard 2.2 mm Ø fibre-optic which can be for either diffused or through beam operation. A locking ring when tightened holds the fibres firmly in position. The sensitivity is adjusted by an IP67 rated trimmer. The proximity or through beam fibres are mainly used in applications where space is of a premium and for detection of small objects. Special fibres are also available for high temperature and high wear applications. For further information on the extensive range of fibre-optic accessories please see the OF datasheet.

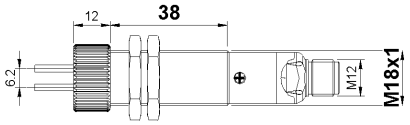


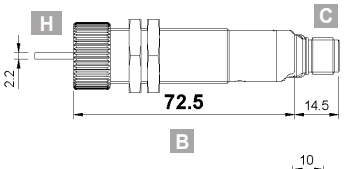
DIMENSIONS

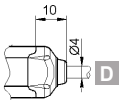
PLASTIC HOUSING

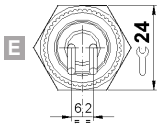


METAL HOUSING

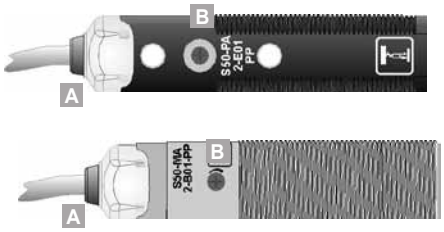








INDICATORS AND SETTINGS



- A OUTPUT status and STABILITY LEDs
- B Adjstument trimmer
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket
- H Fibre fixing nut

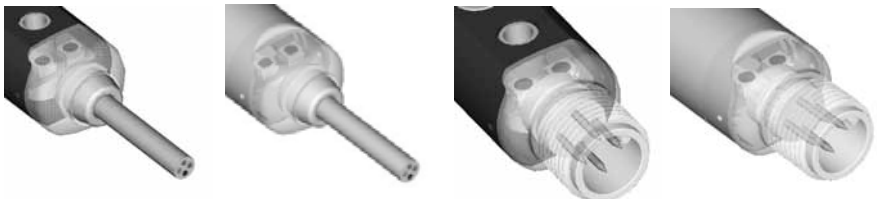
Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

ACCESSORIES

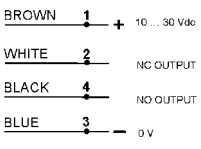
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

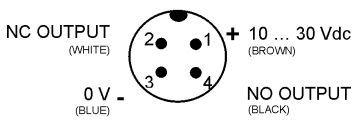
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



S50-XX-2 S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with T_A = +25 °C [3]270° single-turn trimmer [4] PVC, 4 x 0.14 mm² [5] Compatible with quick connection systems [6]A - reverse polarity protection B - overload and short-circuit protection on receiver outputs		S50-PA-2-E01-NN	S50-PA-2-E01-PP	S50-PA-5-E01-NN	S50-PA-5-E01-PP	S50-MA-2-E01-NN	S50-MA-2-E01-PP	S50-MA-5-E01-NN	S50-MA-5-E01-PP
Operating distance:									
proximity	3 cm (OF-42-ST-20 standard fibres)	●	●	●	●	●	●	●	●
through beam	10 cm (OF-43-ST-20 standard fibres)	●	●	●	●	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●
Consumption:	≤ 35 mA	●	●	●	●	●	●	●	●
Light emission:	red LED 660 nm²	●	●	●	●	●	●	●	●
Setting:	sensitivity trimmer [3]	●	●	●	●	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●
	green STABILITY	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC		●		●		●		●
	NPN, NO and NC	●		●		●		●	
Output current:	≤ 100 mA	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●
Response time:	0.5 ms	●	●	●	●	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●	●	●	●	●
Connection:	2 m Ø 4 mm cable[4]	●	●			●	●		
	M12 4-pole connector[5]			●	●			●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●
Protection devices:	A, B[6]	●	●	●	●	●	●	●	●
Housing material:	PBT	●	●	●	●				
	nickel plated brass					●	●	●	●
Fibre fixing nut material:	ABS	●	●	●	●	●	●	●	●
Weight:	75 g max.	●	●						
	25 g max.			●	●				
	110 g max.					●	●		
	60 g max.							●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-E01-NN	952001650	NPN
S50-PA-2-E01-PP	952001130	PNP

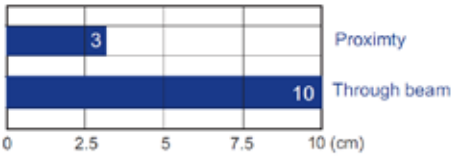
metal - axial optics - 2 m cable		
S50-MA-2-E01-NN	952021880	NPN
S50-MA-2-E01-PP	952021040	PNP

plastic - axial optics - M12 connector		
S50-PA-5-E01-NN	952001540	NPN
S50-PA-5-E01-PP	952001140	PNP

metal - axial optics - M12 connector		
S50-MA-5-E01-NN	952021890	NPN
S50-MA-5-E01-PP	952021240	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

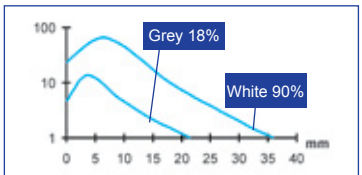
DETECTION DIAGRAMS



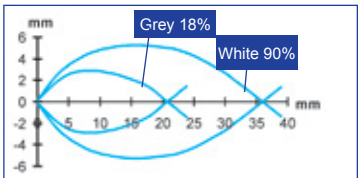
Operating distance with standard fibres

Standard fibre-optics:
OF-42-ST-20 proximity
OF-43-ST-20 through beam

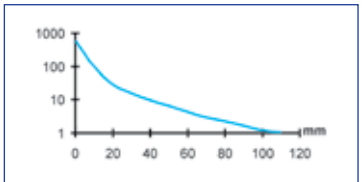
High efficiency fibre-optics or accessory lenses can be used to obtain larger operating distances. Refer to **Fibre-optics** of the **General Catalogue**



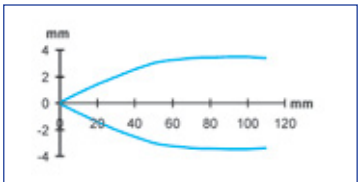
Excess gain - proximity *



Detection area - proximity *



Excess gain - through beam *



Detection area - through beam *

* standard fibre-optics

W WHITE EMISSION

The white light LED emission is designed for the detection of a large number of coloured or grey-scale contrasts, in order to detect print registration marks or similar. The EASYtouch™ setting procedures automatically selects the best detection conditions, simply by pressing the teach-in push-button once, in the presence of a reference mark. By pressing the teach-in push-button and holding it down until the green light on the rear of the sensor flashes, in the presence of the reference mark and then pressing the button again in the presence of the contrast you wish to ignore, a higher level of accuracy is obtained.



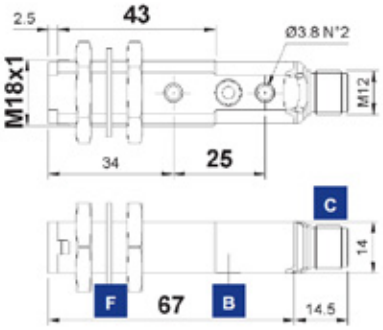
ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

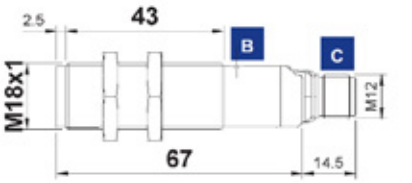
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

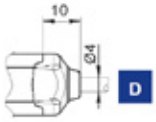
DIMENSIONS

PLASTIC HOUSING



METAL HOUSING

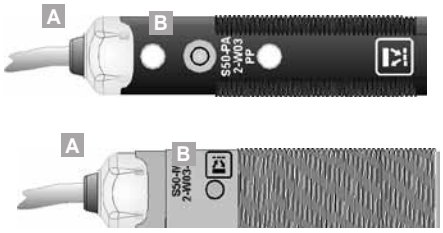






mm

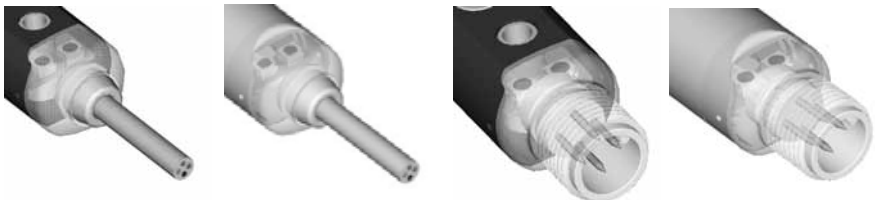
INDICATORS AND SETTINGS



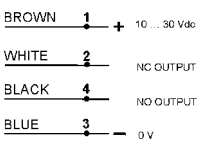
- A OUTPUT status and READY/ ERROR LEDs
- B Teach-in push-button
- C M12 connector output
- D Cable output
- E Fixing nuts
- F Fixing gasket

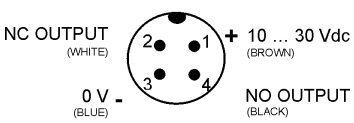
Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine, both obtained by pressing the push-button only once. Please refer to instructions manual for operating details.

CONNECTIONS



S50-XX-2 S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]PVC, 4 x 0.14 mm² [4]Compatible with quick connection systems [5]A - reverse polarity protection B - overload and short-circuit protection on receiver outputs		S50-PA-2-W03-NN	S50-PA-2-W03-PP	S50-PA-5-W03-NN	S50-PA-5-W03-PP	S50-MA-2-W03-NN	S50-MA-2-W03-PP	S50-MA-5-W03-NN	S50-MA-5-W03-PP
Operating distance:	10 mm	•	•	•	•	•	•	•	•
Depth of field (max.):	± 2 mm	•	•	•	•	•	•	•	•
Power supply:	10 ... 30 Vdc [1]	•	•	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•	•	•
Consumption:	≤ 25 mA	•	•	•	•	•	•	•	•
Light emission:	white LED 400 - 700 nm²	•	•	•	•	•	•	•	•
Spot dimension:	approx. 4.5 mm at 10 mm	•	•	•	•	•	•	•	•
Minimum detectable object:	0.5 mm	•	•	•	•	•	•	•	•
Setting:	teach-in push-button	•	•	•	•	•	•	•	•
Setting procedure:	teach-in EASYtouch™		•		•		•		•
Indicators:	yellow OUTPUT LED	•		•		•		•	
	green / red READY / ERROR LED	•	•	•	•	•	•	•	•
Output type:	PNP, NO and NC	•	•	•	•	•	•	•	•
	NPN, NO and NC	•	•	•	•	•	•	•	•
Output current:	≤ 100 mA	•	•	•	•	•	•	•	•
Saturation voltage:	≤ 2 V	•	•	•	•	•	•	•	•
Response time:	100 ms	•	•	•	•	•	•	•	•
Switching frequency:	5 kHz	•	•	•	•	•	•	•	•
Operating mode:	dark with EASYtouch™	•	•	•	•	•	•	•	•
	automatic dark / light with fine acq.	•	•	•	•	•	•	•	•
Connection:	2 m Ø 4 mm cable[3]	•	•			•	•		
	M12 4-pole connector[4]			•	•			•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•
Protection devices:	A, B	•	•	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•				
	nickel plated brass					•	•	•	•
Lens material:	PMMA	•	•	•	•	•	•	•	•
Weight:	75 g max.	•	•						
	25 g max.			•	•				
	110 g max.					•	•		
	60 g max.							•	•
Operating temperature:	-25 ... +55°C	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•	•	•	•	•

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-W03-NN	952001710	NPN
S50-PA-2-W03-PP	952001320	PNP

metal - axial optics - 2 m cable		
S50-MA-2-W03-NN	952021590	NPN
S50-MA-2-W03-PP	952021110	PNP

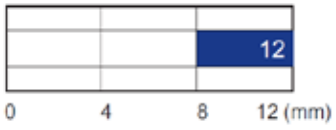
plastic - axial optics - M12 connector		
S50-PA-5-W03-NN	952001600	NPN
S50-PA-5-W03-PP	952001330	PNP

metal - axial optics - M12 connector		
S50-MA-5-W03-NN	952021750	NPN
S50-MA-5-W03-PP	952021310	PNP

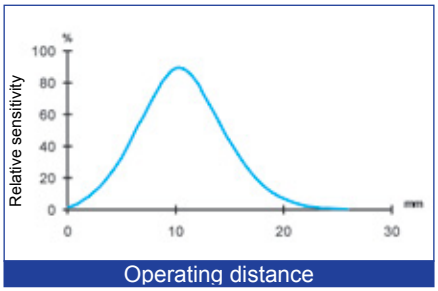
All the ordering codes and information are summarised in the last pages of this catalogue.

II3DG

DETECTION DIAGRAMS



Operating distance



Operating distance

U UV EMISSION

The UV light LED emission detects any luminescent reference, even on very reflective surfaces, such as ceramics, metal or mirrored glass. The EASYtouchTM setting procedures fixes automatically the best detection conditions, simply by pressing the teach-in push-button once, with the luminescent object present. By pressing the teach-in push-button and holding it down until the green light on the rear of the sensor flashes, with the luminescent object present and then pressing the button again in the presence of a luminescent reference you wish to ignore, a higher level of accuracy is obtained.



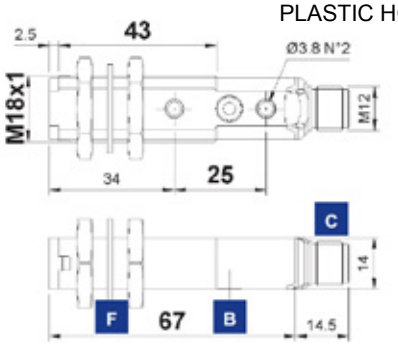
ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

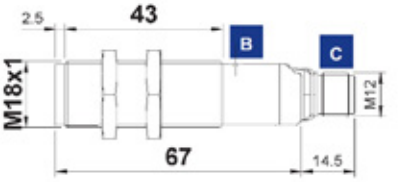
Refer also to **Connectors and Fixing brackets of the General Catalogue.**

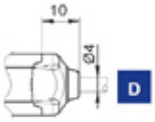
DIMENSIONS

PLASTIC HOUSING



METAL HOUSING

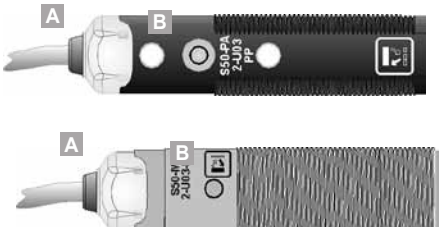






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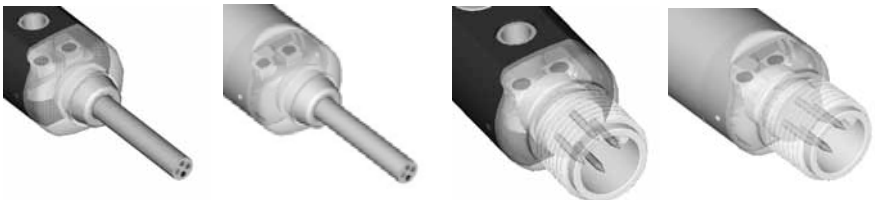
INDICATORS AND SETTINGS



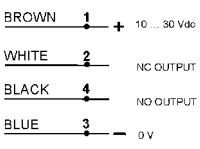
- **A** OUTPUT status and READY/ ERROR LEDs
- **B** Teach-in push-button
- **C** M12 connector output
- **D** Cable output
- **E** Fixing nuts
- **F** Fixing gasket

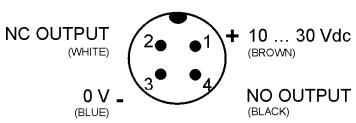
Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine, both obtained by pressing the push-button only once. Please refer to instructions manual for operating details.

CONNECTIONS



S50-XX-2 S50-XX-5





Versions and options: refer to **MODEL ALPHABETICAL INDEX** of this catalogue.

TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]PVC, 4 x 0.14 mm² [4]Compatible with quick connection systems [5]A - reverse polarity protection B - overload and short-circuit protection on receiver outputs		S50-PA-2-U03-NN	S50-PA-2-U03-PP	S50-PA-5-U03-NN	S50-PA-5-U03-PP	S50-MA-2-U03-NN	S50-MA-2-U03-PP	S50-MA-5-U03-NN	S50-MA-5-U03-PP
Operating distance:	8 ... 20 mm	●	●	●	●	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●
Consumption:	≤ 25 mA	●	●	●	●	●	●	●	●
Light emission:	UV LED 370 nm [2]	●	●	●	●	●	●	●	●
Spot dimension:	approx. 3 mm at 20 mm	●	●	●	●	●	●	●	●
Minimum detectable object:	0.5 mm	●	●	●	●	●	●	●	●
Setting:	teach-in push-button	●	●	●	●	●	●	●	●
Setting procedure:	teach-in EASYtouch™	●	●	●	●	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●
	green / red READY / ERROR LED	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC		●		●		●		●
	NPN, NO and NC	●		●		●		●	
Output current:	≤ 100 mA	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●
Response time:	500 ms	●	●	●	●	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●	●	●	●	●
Operating mode:	dark with EASYtouch™	●	●	●	●	●	●	●	●
	automatic dark / light with fine acq.	●	●	●	●	●	●	●	●
Connection:	2 m Ø 4 mm cable [3]	●	●			●	●		
	M12 4-pole connector [4]			●	●			●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●
Protection devices:	A, B [5]	●	●	●	●	●	●	●	●
Housing material:	PBT	●	●	●	●				
	nickel plated brass					●	●	●	●
Lens material:	PMMA	●	●	●	●	●	●	●	●
Weight:	75 g max.	●	●						
	25 g max.			●	●				
	110 g max.					●	●		
	60 g max.							●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●

SELECTION TABLE

plastic - axial optics - 2 m cable		
S50-PA-2-U03-NN	952001700	NPN
S50-PA-2-U03-PP	952001300	PNP

metal - axial optics - 2 m cable		
S50-MA-2-U03-NN	952021580	NPN
S50-MA-2-U03-PP	952021100	PNP

plastic - axial optics - M12 connector		
S50-PA-5-U03-NN	952001590	NPN
S50-PA-5-U03-PP	952001310	PNP

metal - axial optics - M12 connector		
S50-MA-5-U03-NN	952021740	NPN
S50-MA-5-U03-PP	952021300	PNP

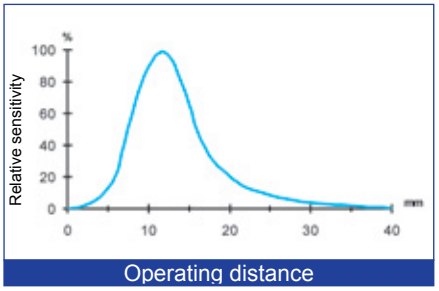
All the ordering codes and information are summarised in the last pages of this catalogue.

II3DG

DETECTION DIAGRAMS

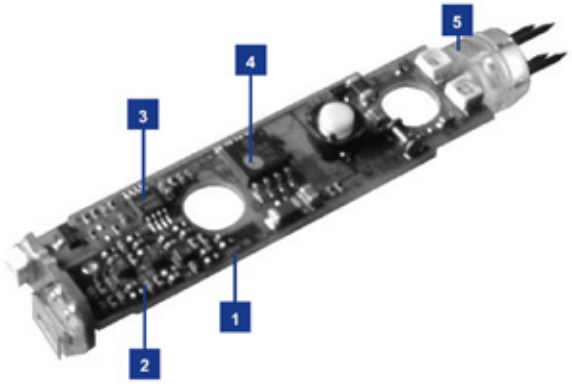


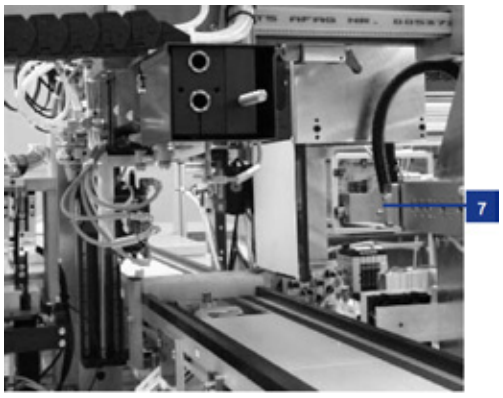
Operating distance



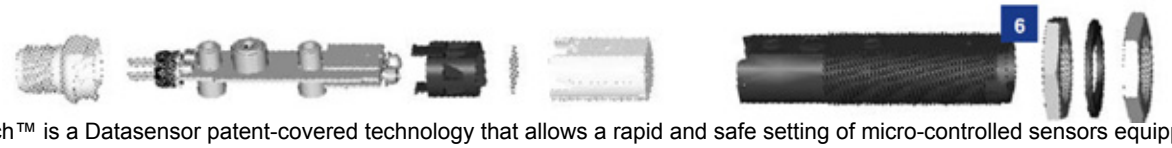
Operating distance

TECHNOLOGY





1. Multi-layer fine-line PCB
2. Chip-size components, integrated circuits in 8 bumps flip-chip
3. Analogue digital ASIC
4. Power ASIC for antivalent outputs
5. M12 custom connector compatible with quick connection systems. The four terminals are cone-shaped to facilitate the direct insertion in the cable conductors (4 x 0,5 mm^2)
6. Housing and fixing nuts in indeformable plastic providing excellent resistance against hostile environments. Indelible laser marking
7. A modular product developed for the automation of the assembling and testing process necessary to guarantee intrinsic quality, repeatability and reliability. One-piece-flow management for improved service



EASYtouch™ is a Datasensor patent-covered technology that allows a rapid and safe setting of micro-controlled sensors equipped with a teach-in push-button. A pressure longer than two seconds of the push-button allows a good adjustment of the sensitivity threshold. EASYtouch™ is the easiest and fastest calibration procedure available on the market. The instructions on how to best use EASYtouch™ are given in the product's instruction manual.

ACCESSORIES

The series is compatible with all the **Datalogic Automation** accessories already developed for tubular sensors.
In the **General Catalogue** refer to:
- **CS** connectors
- **R** reflectors
- **OF** fibre-optics
- **ST** fixing brackets





New accessories dedicated to the **S50** series have been developed to cover all the fixing requirements and to improve the functioning. In particular **EASYin™** is an innovative fixing system that can be used only for the plastic flat version, that allows a fast and safe positioning of the sensor, facilitating the adjustment as well as the locking and unlocking.

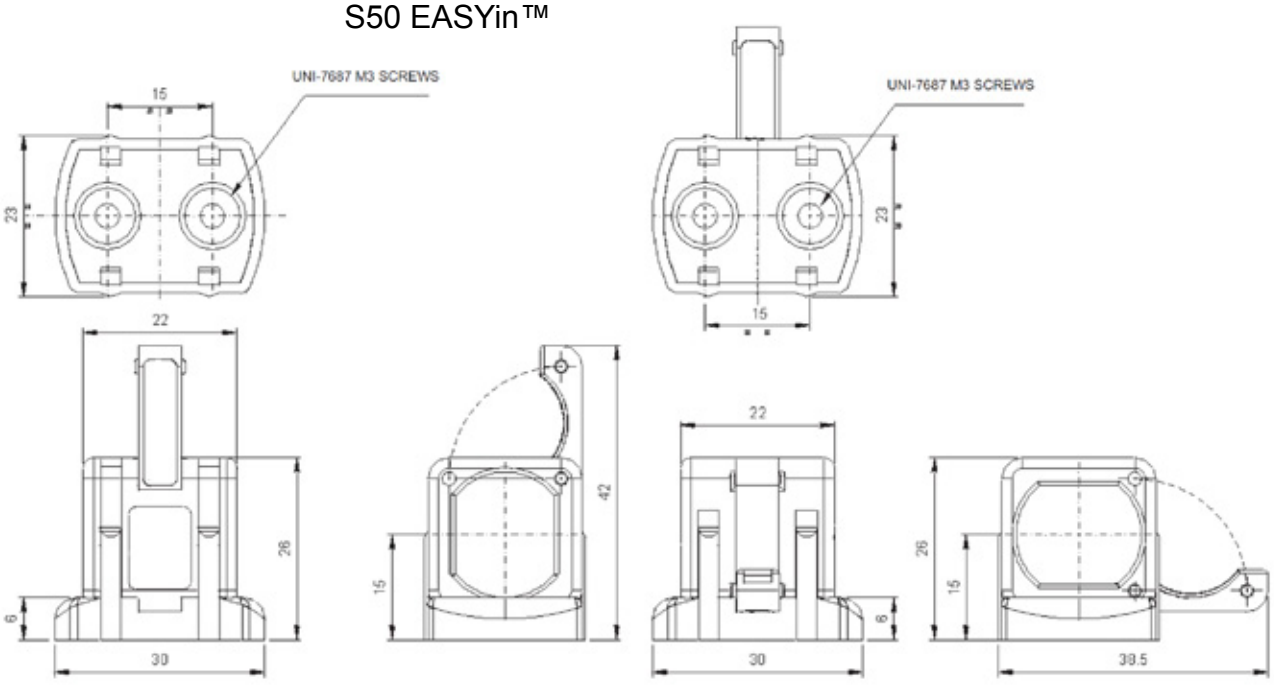
ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5010	M18/14 fixing bracket	95ACC5230
ST-5011	M18 fixing bracket	95ACC5240
ST-5012	M18 fixing bracket	95ACC5250
ST-5017	M18 fixing bracket	95ACC5270
S50 EASY-IN	M18/14 EASYin™ adjustable fixing support	95ACC5300
JOINT-18	M18 jointed support	95ACC5220
SWING-18	adjustable support for plastic tubular M18 sensors	895000006
MICRO-18	support with micrometric regulation for tubular M18 sensors	95ACC1380
SP-40	fixed support for tubular M18 sensors	95ACC1370
MEK-PROOF	front protection	G5000001

Refer also to **Accessories** for Sensors of the **General Catalogue**

DIMENSION ACCESSORIES

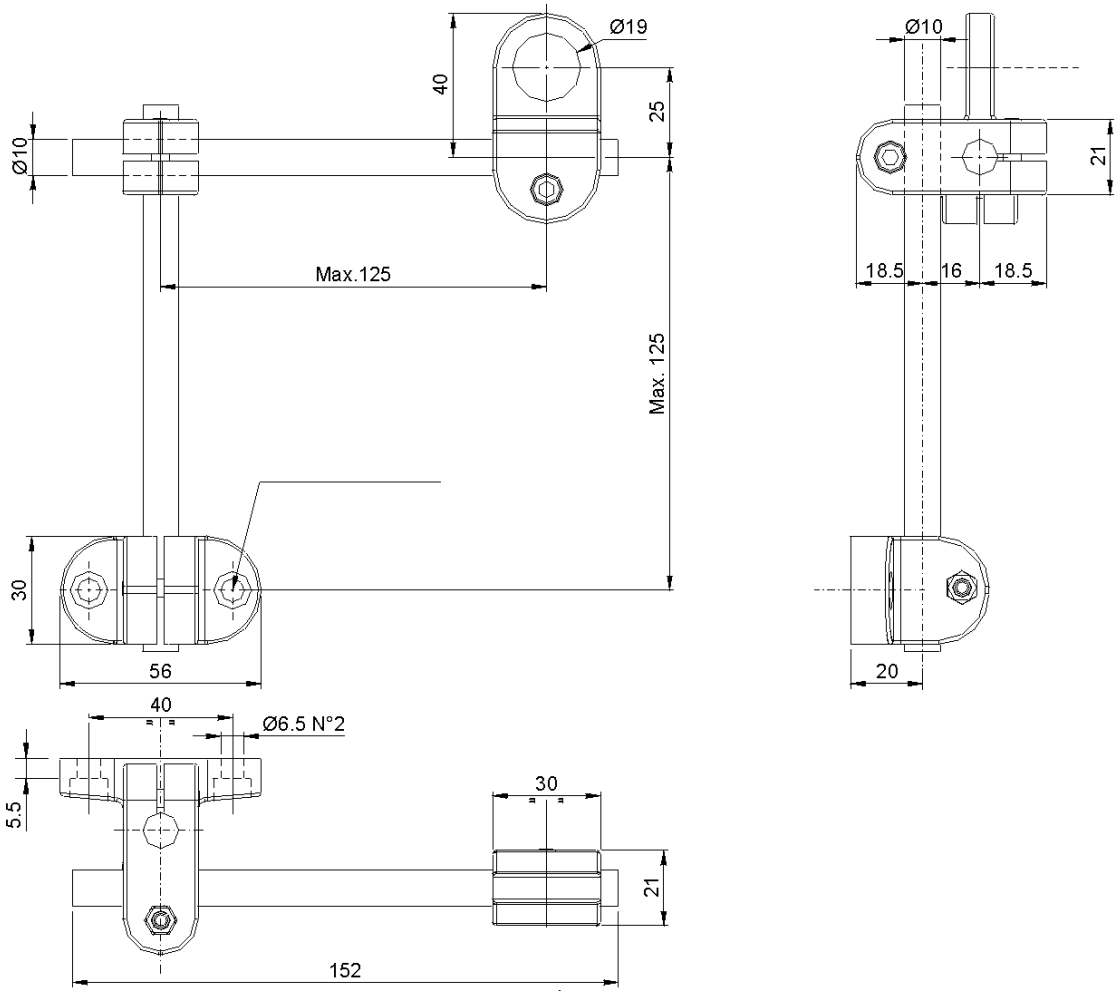
S50 EASYin™



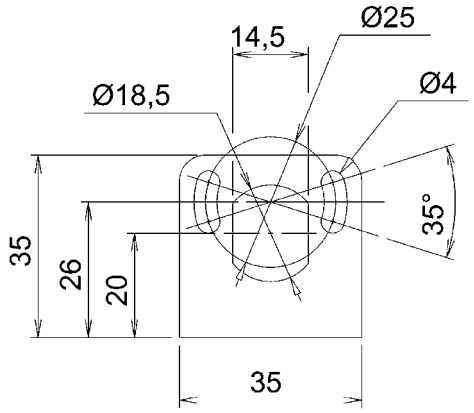
VERTICAL OPTIC AXIS

HORIZONTAL OPTIC AXIS

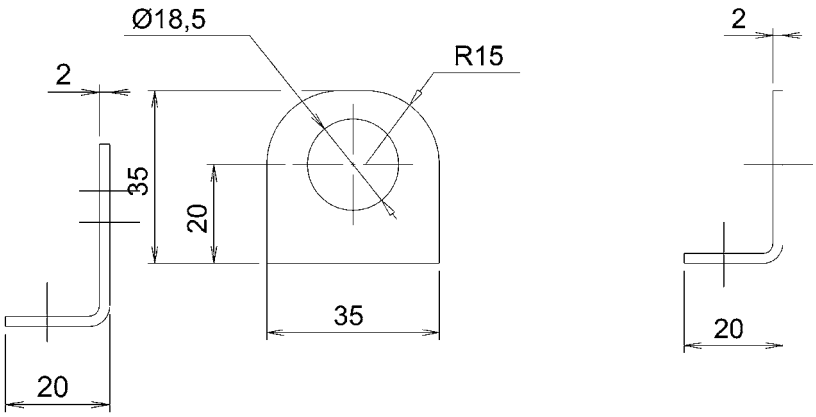
JOINT-18

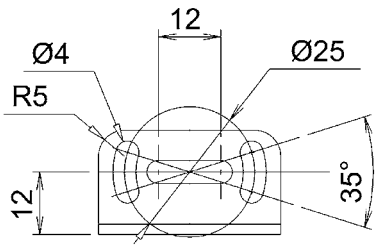


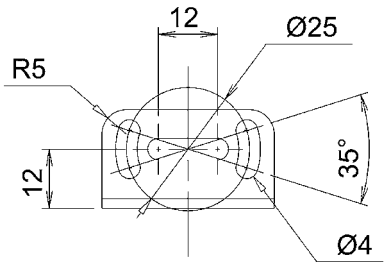
ST-5010



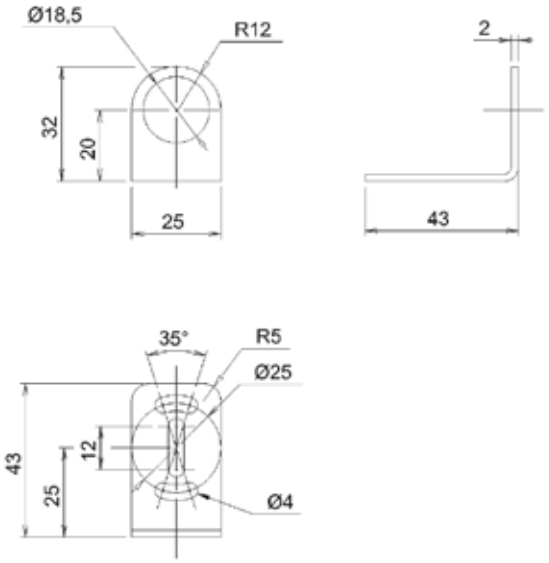
ST-5011



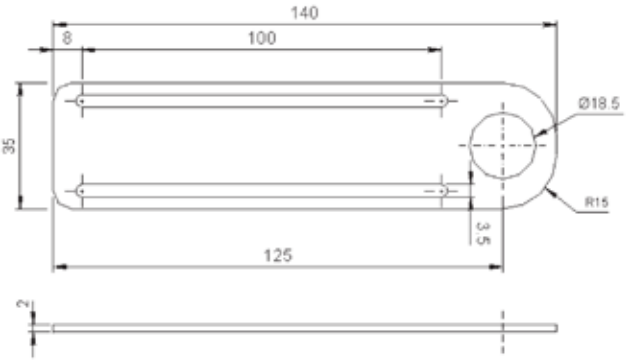




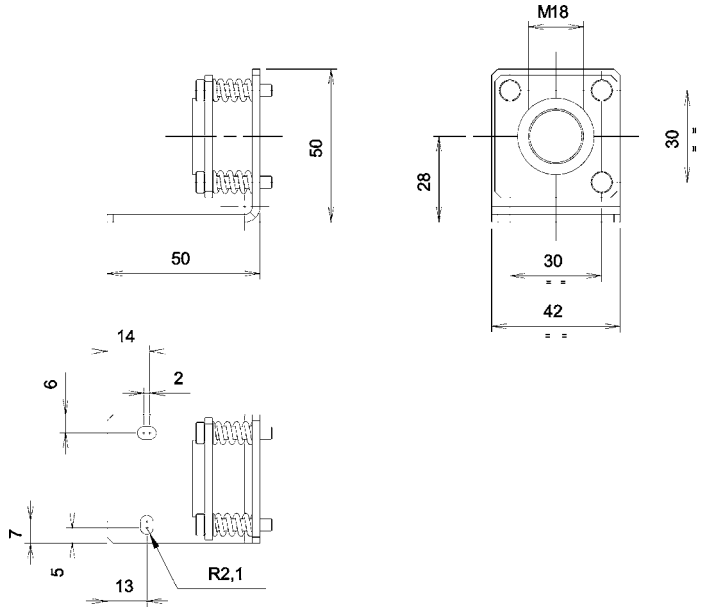
ST-5012



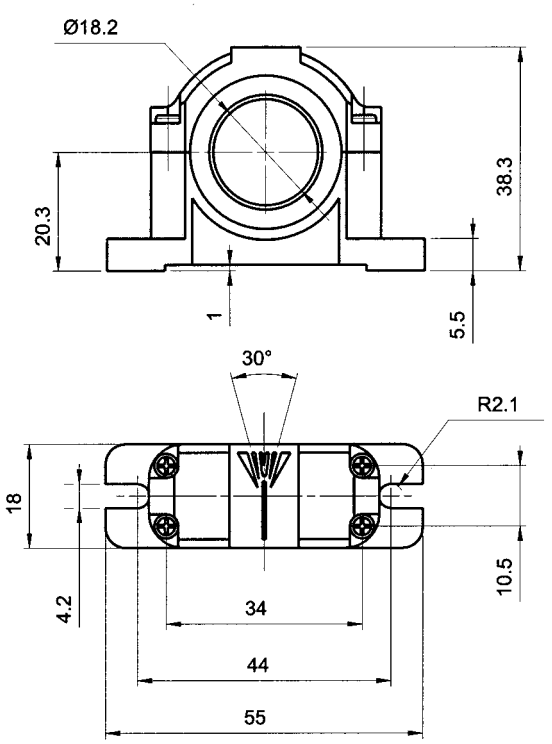
ST-5017



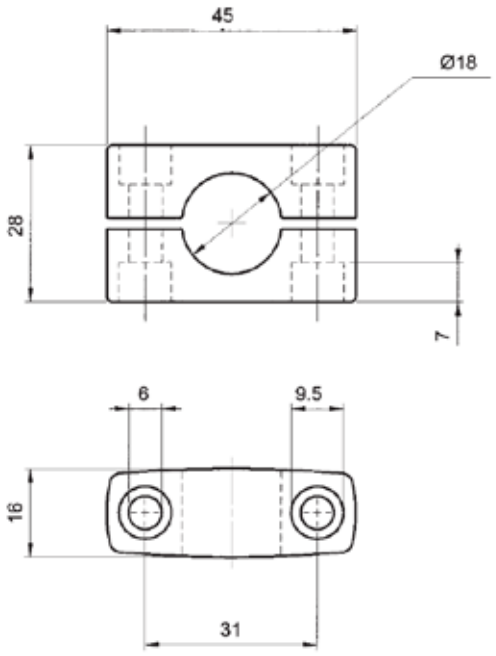
MICRO-18



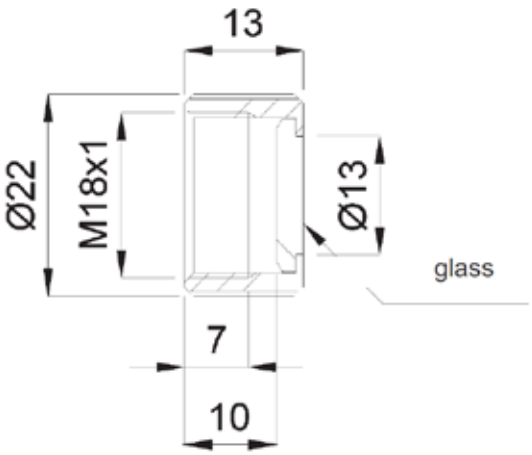
SWING-18



SP-40



MEK PROOF



MODEL SELECTION AND ORDER INFORMATION

PLASTIC FLAT HOUSING WITH AXIAL OPTICS

MODEL	CODE N°	OPTIC FUNCTION	PAGE
S50-PA-2-A00-NN	952002090	retroreflex	10
S50-PA-2-A00-PP	952002080	retroreflex	10
S50-PA-2-B01-NN	952001610	polarised retroreflex	12
S50-PA-2-B01-PP	952001010	polarised retroreflex	12
S50-PA-2-C01-NN	952001620	long diffuse proximity	22
S50-PA-2-C01-PP	952001050	long diffuse proximity	22
S50-PA-2-C10-NN	952001630	short diffuse proximity	18
S50-PA-2-C10-PP	952001240	short diffuse proximity	18
S50-PA-2-C21-NN	952002170	midi diffuse proximity	20
S50-PA-2-C21-PP	952002160	midi diffuse proximity	20
S50-PA-2-D00-NN	952001640	fixed focus proximity	24
S50-PA-2-D00-PP	952001090	fixed focus proximity	24
S50-PA-2-E01-NN	952001650	fibre-optic amplifier	34
S50-PA-2-E01-PP	952001130	fibre-optic amplifier	34
S50-PA-2-F01-NN	952001660	receiver	2
S50-PA-2-F01-PP	952001150	receiver	2
S50-PA-2-G00-XG	952001190	emitter	2
S50-PA-2-M03-NN	952001670	background suppression	28
S50-PA-2-M03-PP	952001230	background suppression	28
S50-PA-2-T01-NN	952001690	retroreflex for transparents	16
S50-PA-2-T01-PP	952001260	retroreflex for transparents	16
S50-PA-2-U03-NN	952001700	luminescence sensor	38
S50-PA-2-U03-PP	952001300	luminescence sensor	38
S50-PA-2-W03-NN	952001710	contrast sensor	36
S50-PA-2-W03-PP	952001320	contrast sensor	36
S50-PA-5-A00-NN	952002110	retroreflex	10
S50-PA-5-A00-PP	952002100	retroreflex	10
S50-PA-5-B01-NN	952001500	polarised retroreflex	12
S50-PA-5-B01-PP	952001020	polarised retroreflex	12
S50-PA-5-C01-NN	952001510	long diffuse proximity	22
S50-PA-5-C01-PP	952001060	long diffuse proximity	22
S50-PA-5-C10-NN	952001520	short diffuse proximity	18
S50-PA-5-C10-PP	952001250	short diffuse proximity	18
S50-PA-5-C21-NN	952002190	midi diffuse proximity	20
S50-PA-5-C21-PP	952002180	midi diffuse proximity	20
S50-PA-5-D00-NN	952001530	fixed focus proximity	24
S50-PA-5-D00-PP	952001100	fixed focus proximity	24
S50-PA-5-E01-NN	952001540	fibre-optic amplifier	34
S50-PA-5-E01-PP	952001140	fibre-optic amplifier	34
S50-PA-5-F01-NN	952001550	receiver	2
S50-PA-5-F01-PP	952001160	receiver	2
S50-PA-5-G00-XG	952001200	emitter	2
S50-PA-5-M03-NN	952001560	background suppression	28
S50-PA-5-M03-PP	952001000	background suppression	28
S50-PA-5-T01-NN	952001580	retroreflex for transparents	16
S50-PA-5-T01-PP	952001270	retroreflex for transparents	16
S50-PA-5-U03-NN	952001590	luminescence sensor	38

PLASTIC FLAT HOUSING WITH AXIAL OPTICS			
MODEL	CODE N°	OPTIC FUNCTION	PAGE
S50-PA-5-U03-PP	952001310	luminescence sensor	38
S50-PA-5-W03-NN	952001600	contrast sensor	36
S50-PA-5-W03-PP	952001330	contrast sensor	36

PLASTIC FLAT HOUSING WITH RADIAL OPTICS			
S50-PR-2-B01-NN	952001780	polarised retroreflex	12
S50-PR-2-B01-PP	952001030	polarised retroreflex	12
S50-PR-2-C01-NN	952001790	long diffuse proximity	22
S50-PR-2-C01-PP	952001070	long diffuse proximity	22
S50-PR-2-C10-NN	952001800	short diffuse proximity	18
S50-PR-2-C10-PP	952001490	short diffuse proximity	18
S50-PR-2-D00-NN	952001810	fixed focus proximity	24
S50-PR-2-D00-PP	952001110	fixed focus proximity	24
S50-PR-2-F01-NN	952001820	receiver	2
S50-PR-2-F01-PP	952001170	receiver	2
S50-PR-2-G00-XG	952001210	emitter	2
S50-PR-2-T01-NN	952001830	retroreflex for transparents	16
S50-PR-2-T01-PP	952001280	retroreflex for transparents	16
S50-PR-5-B01-NN	952001720	polarised retroreflex	12
S50-PR-5-B01-PP	952001040	polarised retroreflex	12
S50-PR-5-C01-NN	952001730	long diffuse proximity	22
S50-PR-5-C01-PP	952001080	long diffuse proximity	22
S50-PR-5-C10-NN	952001740	short diffuse proximity	18
S50-PR-5-C10-PP	952001480	short diffuse proximity	18
S50-PR-5-D00-NN	952001750	fixed focus proximity	24
S50-PR-5-D00-PP	952001120	fixed focus proximity	24
S50-PR-5-F01-NN	952001760	receiver	2
S50-PR-5-F01-PP	952001180	receiver	2
S50-PR-5-G00-XG	952001220	emitter	2
S50-PR-5-T01-NN	952001770	retroreflex for transparents	16
S50-PR-5-T01-PP	952001290	retroreflex for transparents	16

PLASTIC FLAT HOUSING WITH LATERAL OPTICS			
S50-PS-2-M03-NN	952001900	background suppression	30
S50-PS-2-M03-PP	952001910	background suppression	30
S50-PS-5-M03-NN	952001920	background suppression	30
S50-PS-5-M03-PP	952001930	background suppression	30

PLASTIC FLAT HOUSING WITH LASER AXIAL OPTICS			
S50-PL-2-B01-NN	952001870	laser retroreflex	14
S50-PL-2-B01-PP	952001360	laser retroreflex	14
S50-PL-2-C01-NN	952001880	laser proximity	26
S50-PL-2-C01-PP	952001380	laser proximity	26
S50-PL-2-F01-NN	952001890	laser receiver	6
S50-PL-2-F01-PP	952001400	laser receiver	6
S50-PL-2 G00-XG	952001420	laser emitter	6
S50-PL-5-B01-NN	952001840	laser retroreflex	14
S50-PL-5-B01-PP	952001370	laser retroreflex	14
S50-PL-5-C01-NN	952001850	laser proximity	26
S50-PL-5-C01-PP	952001390	laser proximity	26
S50-PL-5-F01-NN	952001860	laser receiver	6
S50-PL-5-F01-PP	952001410	laser receiver	6
S50-PL-5-G00-XG	952001430	laser emitter	6

MODEL SELECTION AND ORDER INFORMATION

PLASTIC FLAT HOUSING WITH LASER RADIAL OPTICS

MODEL	CODE N°	OPTIC FUNCTION	PAGE
S50-PH-2-B01-NN	952001950	laser retroreflex	14
S50-PH-2-B01-PP	952001940	laser retroreflex	14
S50-PH-2-C01-NN	952001990	laser proximity	26
S50-PH-2-C01-PP	952001980	laser proximity	26
S50-PH-2-F01-NN	952002030	laser receiver	6
S50-PH-2-F01-PP	952002020	laser receiver	6
S50-PH-2 G00-XG	952002060	laser emitter	6
S50-PH-5-B01-NN	952001970	laser retroreflex	14
S50-PH-5-B01-PP	952001960	laser retroreflex	14
S50-PH-5-C01-NN	952002010	laser proximity	26
S50-PH-5-C01-PP	952002000	laser proximity	26
S50-PH-5-F01-NN	952002050	laser receiver	6
S50-PH-5-F01-PP	952002040	laser receiver	6
S50-PH-5-G00-XG	952002070	laser emitter	6

METAL CYLINDRICAL HOUSING WITH AXIAL OPTICS

S50-MA-2-A00-NN	952022090	retroreflex	10
S50-MA-2-A00-PP	952022080	retroreflex	10
S50-MA-2-B01-NN	952021500	polarised retroreflex	12
S50-MA-2-B01-PP	952021000	polarised retroreflex	12
S50-MA-2-C01-NN	952021510	long diffuse proximity	22
S50-MA-2-C01-PP	952021010	long diffuse proximity	22
S50-MA-2-C10-NN	952021520	short diffuse proximity	18
S50-MA-2-C10-PP	952021020	short diffuse proximity	18
S50-MA-2-C21-NN	952022130	midi diffuse proximity	20
S50-MA-2-C21-PP	952022120	midi diffuse proximity	20
S50-MA-2-D00-NN	952021530	fixed focus proximity	24
S50-MA-2-D00-PP	952021030	fixed focus proximity	24
S50-MA-2-E01-NN	952021880	fibre-optic amplifier	34
S50-MA-2-E01-PP	952021040	fibre-optic amplifier	34
S50-MA-2-F01-NN	952021540	receiver	4
S50-MA-2-F01-PP	952021050	receiver	4
S50-MA-2-G00-XG	952021060	emitter	4
S50-MA-2-M03-NN	952021550	background suppression	28
S50-MA-2-M03-PP	952021070	background suppression	28
S50-MA-2-T01-NN	952021570	retroreflex for transparents	16
S50-MA-2-T01-PP	952021090	retroreflex for transparents	16
S50-MA-2-U03-NN	952021580	luminescence sensor	38
S50-MA-2-U03-PP	952021100	luminescence sensor	38
S50-MA-2-W03-NN	952021590	contrast sensor	36
S50-MA-2-W03-PP	952021110	contrast sensor	36
S50-MA-5-A00-NN	952022110	retroreflex	10
S50-MA-5-A00-PP	952022100	retroreflex	10
S50-MA-5-B01-NN	952021660	polarised retroreflex	12
S50-MA-5-B01-PP	952021200	polarised retroreflex	12
S50-MA-5-C01-NN	952021670	long diffuse proximity	22
S50-MA-5-C01-PP	952021210	long diffuse proximity	22
S50-MA-5-C10-NN	952021680	short diffuse proximity	18
S50-MA-5-C10-PP	952021220	short diffuse proximity	18

METAL CYLINDRICAL HOUSING WITH AXIAL OPTICS

MODEL	CODE N°	OPTIC FUNCTION	PAGE
S50-MA-5-C21-NN	952022150	midi diffuse proximity	20
S50-MA-5-C21-PP	952022140	midi diffuse proximity	20
S50-MA-5-D00-NN	952021690	fixed focus proximity	24
S50-MA-5-D00-PP	952021230	fixed focus proximity	24
S50-MA-5-E01-NN	952021890	fibre-optic amplifier	34
S50-MA-5-E01-PP	952021240	fibre-optic amplifier	34
S50-MA-5-F01-NN	952021700	receiver	4
S50-MA-5-F01-PP	952021250	receiver	4
S50-MA-5-G00-XG	952021260	emitter	4
S50-MA-5-M03-NN	952021710	background suppression	28
S50-MA-5-M03-PP	952021270	background suppression	28
S50-MA-5-T01-NN	952021730	retroreflex for transparents	16
S50-MA-5-T01-PP	952021290	retroreflex for transparents	16
S50-MA-5-U03-NN	952021740	luminescence sensor	38
S50-MA-5-U03-PP	952021300	luminescence sensor	38
S50-MA-5-W03-NN	952021750	contrast sensor	36
S50-MA-5-W03-PP	952021310	contrast sensor	36

METAL CYLINDRICAL HOUSING WITH RADIAL OPTICS

S50-MR-2-B01-NN	952021600	polarised retroreflex	12
S50-MR-2-B01-PP	952021140	polarised retroreflex	12
S50-MR-2-C01-NN	952021610	long diffuse proximity	22
S50-MR-2-C01-PP	952021150	long diffuse proximity	22
S50-MR-2-C10-NN	952021620	short diffuse proximity	18
S50-MR-2-C10-PP	952021490	short diffuse proximity	18
S50-MR-2-D00-NN	952021630	fixed focus proximity	24
S50-MR-2-D00-PP	952021160	fixed focus proximity	24
S50-MR-2-F01-NN	952021640	receiver	4
S50-MR-2-F01-PP	952021170	receiver	4
S50-MR-2-G00-XG	952021180	emitter	4
S50-MR-2-T01-NN	952021650	retroreflex for transparents	16
S50-MR-2-T01-PP	952021190	retroreflex for transparents	16
S50-MR-5-B01-NN	952021760	polarised retroreflex	12
S50-MR-5-B01-PP	952021340	polarised retroreflex	12
S50-MR-5-C01-NN	952021770	long diffuse proximity	22
S50-MR-5-C01-PP	952021350	long diffuse proximity	22
S50-MR-5-C10-NN	952021780	short diffuse proximity	18
S50-MR-5-C10-PP	952021480	short diffuse proximity	18
S50-MR-5-D00-NN	952021790	fixed focus proximity	24
S50-MR-5-D00-PP	952021360	fixed focus proximity	24
S50-MR-5-F01-NN	952021800	receiver	4
S50-MR-5-F01-PP	952021370	receiver	4
S50-MR-5-G00-XG	952021380	emitter	4
S50-MR-5-T01-NN	952021810	retroreflex for transparents	16
S50-MR-5-T01-PP	952021390	retroreflex for transparents	16

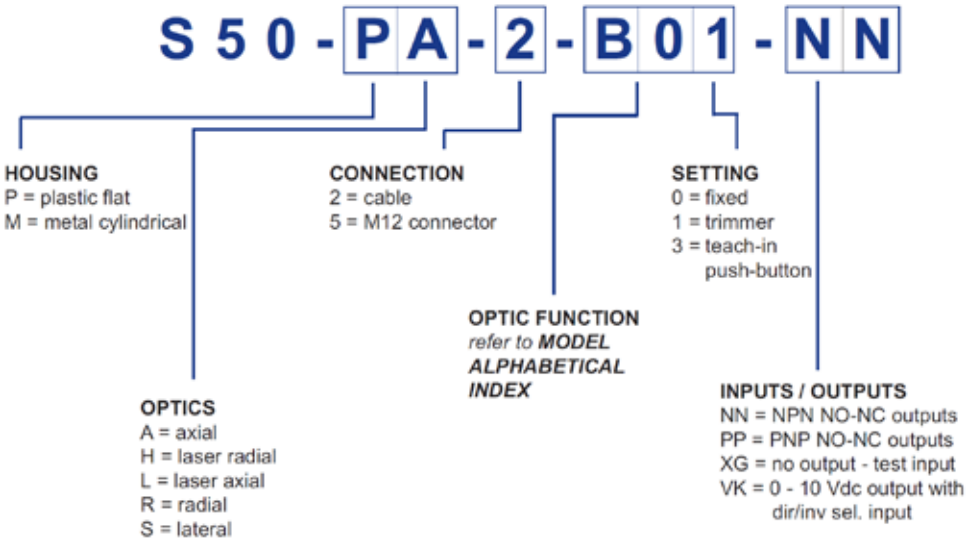
MODEL SELECTION AND ORDER INFORMATION

METAL CYLINDRICAL HOUSING WITH LATERAL OPTICS			
MODEL	CODE N°	OPTIC FUNCTION	PAGE
S50-MS-2-M03-NN	952021900	background suppression	30
S50-MS-2-M03-PP	952021910	background suppression	30
S50-MS-5-M03-NN	952021920	background suppression	30
S50-MS-5-M03-PP	952021930	background suppression	30

METAL CYLINDRICAL HOUSING WITH LASER AXIAL OPTICS			
S50-ML-2-B01-NN	952021820	laser retroreflex	14
S50-ML-2-B01-PP	952021400	laser retroreflex	14
S50-ML-2-C01-NN	952021830	laser proximity	26
S50-ML-2-C01-PP	952021410	laser proximity	26
S50-ML-2-F01-NN	952021840	laser receiver	8
S50-ML-2-F01-PP	952021420	laser receiver	8
S50-ML-2-G00-XG	952021430	laser emitter	8
S50-ML-5-B01-NN	952021850	laser retroreflex	14
S50-ML-5-B01-PP	952021440	laser retroreflex	14
S50-ML-5-C01-NN	952021860	laser proximity	26
S50-ML-5-C01-PP	952021450	laser proximity	26
S50-ML-5-F01-NN	952021870	laser receiver	8
S50-ML-5-F01-PP	952021460	laser receiver	8
S50-ML-5-G00-XG	952021470	laser emitter	8

METAL CYLINDRICAL HOUSING WITH LASER RADIAL OPTICS			
MODEL	CODE N°	OPTIC FUNCTION	PAGE
S50-MH-2-B01-NN	952021940	laser retroreflex	14
S50-MH-2-B01-PP	952021950	laser retroreflex	14
S50-MH-2-C01-NN	952021990	laser proximity	26
S50-MH-2-C01-PP	952021980	laser proximity	26
S50-MH-2-F01-NN	952022030	laser receiver	8
S50-MH-2-F01-PP	952022020	laser receiver	8
S50-MH-2-G00-XG	952022060	laser emitter	8
S50-MH-5-B01-NN	952021970	laser retroreflex	14
S50-MH-5-B01-PP	952021960	laser retroreflex	14
S50-MH-5-C01-NN	952022010	laser proximity	26
S50-MH-5-C01-PP	952022000	laser proximity	26
S50-MH-5-F01-NN	952022050	laser receiver	8
S50-MH-5-F01-PP	952022040	laser receiver	8
S50-MH-5-G00-XG	952022070	laser emitter	8

MODEL CODING TABLE



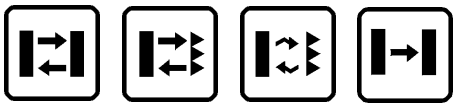
Note: Not all code combinations are available. Please refer to alphabetical model index for the list of available models.

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S51 SERIES

The **S51** series offers the most cost-effective solution in M18 photoelectric sensors which is today improved thanks to the increase of the operating distances. The range includes the tubular metal housing as well as a brand news flat plastic housing which make installation. The tubular plastic and metal models are both available with either axial or radial optics; in both cases the optic head and lenses do not protrude beyond the external 18 mm diameter of the sensor housing. The diffuse proximity model presents a 10 cm fixed operating distance with wide emission spectrum and the another model with 1 - 40 cm trimmer-adjustable operating distance. Standard retroreflective models have an operating distance up to 4 m whilst the polarised retroreflective models used for reliable detection of reflective objects are fitted with sensitivity adjustment and have a 3.5 m operating distance. The emitter and receiver models, used for longer operating distances, reach 18 meters. The sensors of the **S51** series, with cable or M12 connector and PNP or NPN output, provide a 3 wire connection configuration in compliance with the EN60947-5-2 standard.



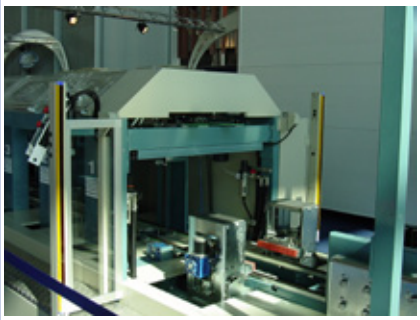


HIGHLIGHTS

- Flat plastic or cylindrical metal housing
- Versions with axial or radial optics
- Cable or M12 connection with NPN or PNP output
- Standard 3 wire connection configuration
- Selectable dark or light output

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



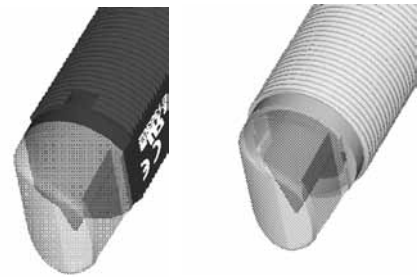
Packaging lines



M18 STANDARD



RADIAL OPTICS



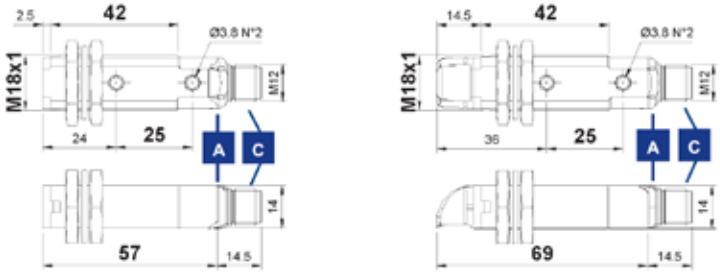
ACCESSORIES

Refer also to **Reflector, Connectors and Fixing brackets** of the **General Catalogue.**

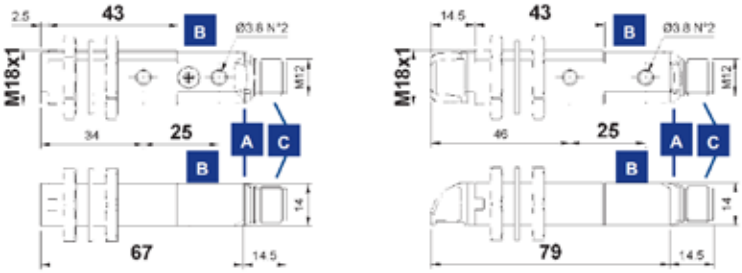
DIMENSIONS

PLASTIC HOUSING

A00/C10/G00 MODELS

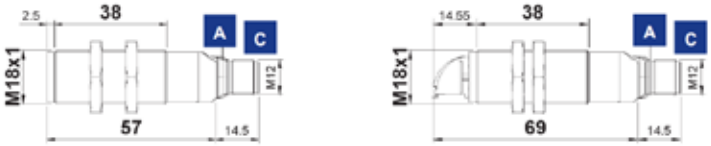


B01/C01/F00 MODELS

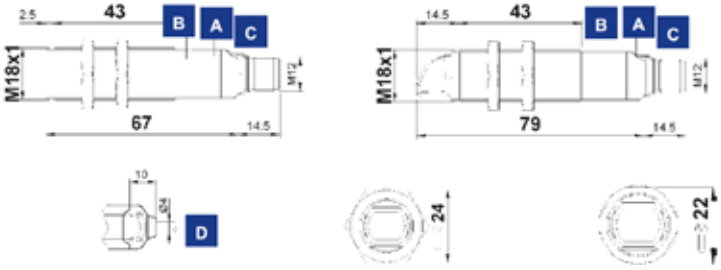


METAL HOUSING

A00/C10/C20/G00 MODELS

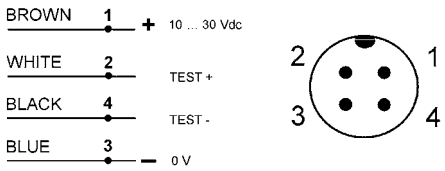


B01/C01/F00 MODELS

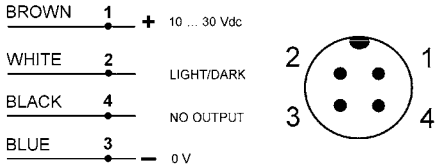


CONNECTIONS

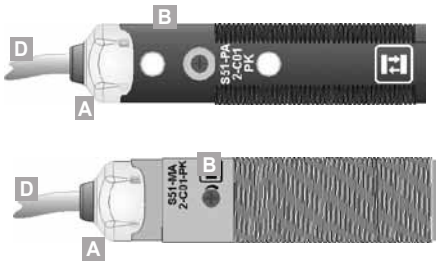
G00 MODEL



A00/B01/C01/C10/C20/F00 MODELS



INDICATORS AND SETTINGS



- **A** OUTPUT status LED; POWER ON LED on G00 model
- **B** Adjustment trimmer (B01, C01 models)
- **C** M12 connector
- **D** Cable connection

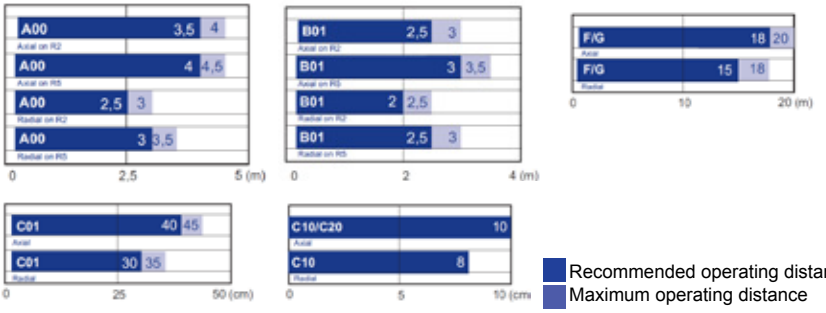
Trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

TECHNICAL DATA

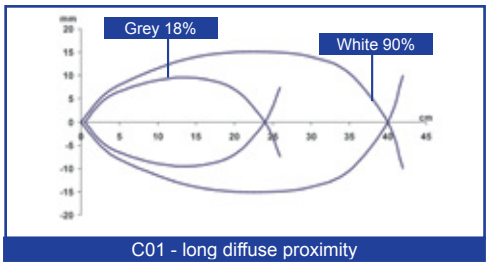
Long diffuse proximity operating dist.:	1 ... 40 cm (radial version 30 cm)
Short diffuse proximity operating dist.:	0 ... 10 cm (radial version 8 cm)
Narrow beam proximity operating dist.:	0.2…10 cm
Retroreflex operating distance:	0.1…4 m (radial version 3 m) on R5
Polarised retroreflx operating distance:	0.1…3 m (radial version 2.5 m) on R5
Through beam operating distance:	0…20 m (radial version 18 m)
Power supply:	10 ... 30 Vdc[1]
Ripple:	≤2 Vpp
Consumption:	≤35 mA
Light emission[2] :	infrared LED 880 nm
	red LED 650 nm (B01 mod.)
Setting:	sensitivity trimmer (B01, C01 mod.)[3]
Indicators:	yellow OUTPUT LED (excl. G00 mod.)
	green POWER LED (G00 mod.)
Output type:	NPN vers. or PNP vers.
Output current:	≤100 mA
Saturation voltage:	≤2 V
Response time:	1 ms
	4 ms (F00 mod.)
Switching frequency:	≤500 Hz
	≤120 Hz (F00 mod.)
Operating mode:	dark/light selectable[4]
Auxiliary functions:	Test + and Test - (G00 mod.)[5]
Connection:	2 m Ø 4 mm cable[6]
	M12 4-pole connector[7]
Electrical protection:	class 2
Mechanical protection:	IP67
Protection devices:	A, B[8]
Housing material:	PBT (S51-P vers.)
	nickel-plated brass (S51-M vers.)
Lens material:	PMMA
Weight:	25 g max. (S51-PA/PR-5 vers.)
	75 g max. (S51-PA-/PR-2 vers.)
	60 g max. (S51-MA/MR-5 vers.)
	100 g max. (S51-MA/MR-2 vers.)
Operating temperature:	-25 ... +55°C
Storage temperature:	-25 ... +70°C
Reference standard:	EN 60947-5-2, UL 508

TECHNICAL NOTES

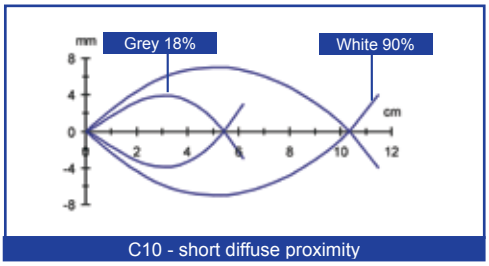
[1]Limit values
[2]Average life of 100.000 h with TA = +25 °C
[3]270° single-turn trimmer
[4]With L/D input not connected the proximity models function in the light mode and the retroreflex and through beam models in the dark mode; the light mode can be selected connecting the L/D input to +Vdc, the dark mode connecting it to 0Vdc
[5]Emitter off with Test+ connected to +Vdc and Test- to 0 Vdc
[6]PVC, 4 x 0.14 mm2
[7]M12 connector compatible with quick connection systems
[8]A - reverse polarity protection
B - overload and short-circuit protection



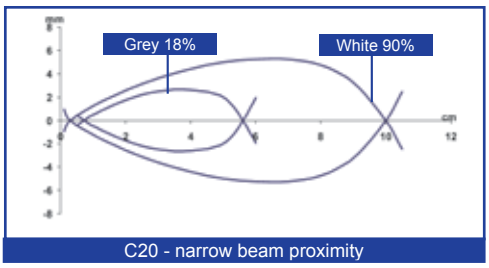
DETECTION DIAGRAMS



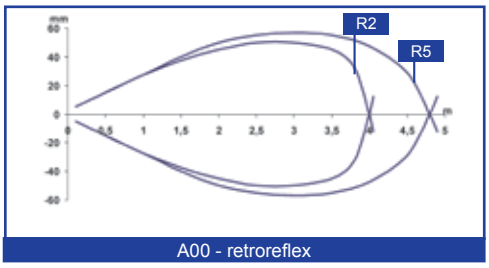
C01 - long diffuse proximity



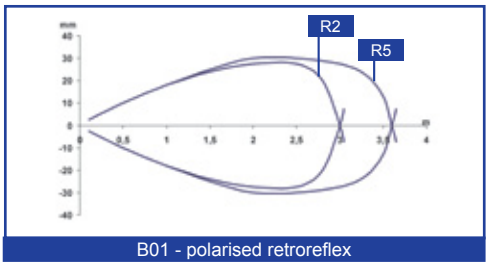
C10 - short diffuse proximity



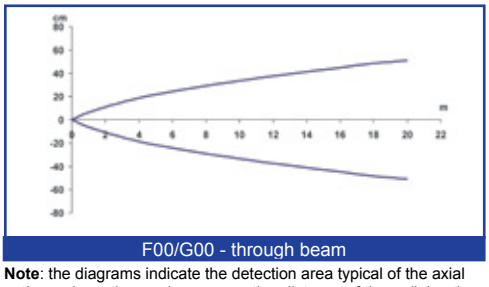
C20 - narrow beam proximity



A00 - retroreflex



B01 - polarised retroreflex


F00/G00 - through beam

Note: the diagrams indicate the detection area typical of the axial optic versions; the maximum operating distance of the radial optic versions decreases as indicated in the tables given below

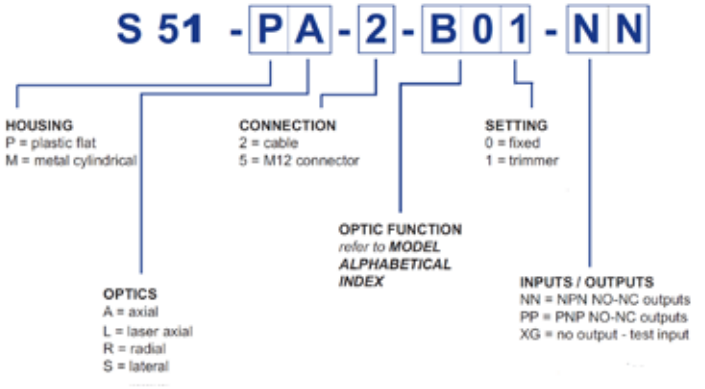
II3DG*

*Only on axial optic models

MODEL SELECTION AND ORDER INFORMATION

MODEL	OPTIC FUNCTION	ORDER N°
S51-PA-2-A00-PK	retroreflex	952701001
S51-PA-2-A00-NK	retroreflex	952701071
S51-PA-5-A00-PK	retroreflex	952701261
S51-PA-5-A00-NK	retroreflex	952701331
S51-PA-2-B01-PK	polarised retroreflex	952701011
S51-PA-2-B01-NK	polarised retroreflex	952701081
S51-PA-5-B01-PK	polarised retroreflex	952701271
S51-PA-5-B01-NK	polarised retroreflex	952701341
S51-PA-2-C01-PK	long diffuse proximity	952701021
S51-PA-2-C01-NK	long diffuse proximity	952701091
S51-PA-5-C01-PK	long diffuse proximity	952701281
S51-PA-5-C01-NK	long diffuse proximity	952701351
S51-PA-2-C10-PK	short diffuse proximity	952701031
S51-PA-2-C10-NK	short diffuse proximity	952701101
S51-PA-5-C10-PK	short diffuse proximity	952701291
S51-PA-5-C10-NK	short diffuse proximity	952701361
S51-PA-2-F00-PK	receiver	952701051
S51-PA-2-F00-NK	receiver	952701121
S51-PA-5-F00-PK	receiver	952701311
S51-PA-5-F00-NK	receiver	952701381
S51-PA-2-G00-XG	emitter	952701061
S51-PA-5-G00-XG	emitter	952701321
S51-PR-2-A00-PK	retroreflex	952701131
S51-PR-2-A00-NK	retroreflex	952701201
S51-PR-5-A00-PK	retroreflex	952701391
S51-PR-5-A00-NK	retroreflex	952701461
S51-PR-2-B01-PK	polarised retroreflex	952701141
S51-PR-2-B01-NK	polarised retroreflex	952701211
S51-PR-5-B01-PK	polarised retroreflex	952701401
S51-PR-5-B01-NK	polarised retroreflex	952701471
S51-PR-2-C01-PK	long diffuse proximity	952701151
S51-PR-2-C01-NK	long diffuse proximity	952701221
S51-PR-5-C01-PK	long diffuse proximity	952701411
S51-PR-5-C01-NK	long diffuse proximity	952701481
S51-PR-2-C10-PK	short diffuse proximity	952701161
S51-PR-2-C10-NK	short diffuse proximity	952701231
S51-PR-5-C10-PK	short diffuse proximity	952701421
S51-PR-5-C10-NK	short diffuse proximity	952701491
S51-PR-2-F00-PK	receiver	952701181
S51-PR-2-F00-NK	receiver	952701251
S51-PR-5-F00-PK	receiver	952701441
S51-PR-5-F00-NK	receiver	952701511
S51-PR-2-G00-XG	emitter	952701191
S51-PR-5-G00-XG	emitter	952701451
S51-MA-2-A00-PK	retroreflex	952701541
S51-MA-2-A00-NK	retroreflex	952701601
S51-MA-5-A00-PK	retroreflex	952701531
S51-MA-5-A00-NK	retroreflex	952701801
S51-MA-2-B01-PK	polarised retroreflex	952701551
S51-MA-2-B01-NK	polarised retroreflex	952701611
S51-MA-5-B01-PK	polarised retroreflex	952701761
S51-MA-5-B01-NK	polarised retroreflex	952701811
S51-MA-2-C01-PK	long diffuse proximity	952701561
S51-MA-2-C01-NK	long diffuse proximity	952701621
S51-MA-5-C01-PK	long diffuse proximity	952701771
S51-MA-5-C01-NK	long diffuse proximity	952701821
S51-MA-2-C10-PK	short diffuse proximity	952701571
S51-MA-2-C10-NK	short diffuse proximity	952701631
S51-MA-5-C10-PK	short diffuse proximity	952701521
S51-MA-5-C10-NK	short diffuse proximity	952701831
S51-MA-5-C20-PK	narrow beam proximity	952701961
S51-MA-2-F00-PK	receiver	952701581
S51-MA-2-F00-NK	receiver	952701641
S51-MA-5-F00-PK	receiver	952701781
S51-MA-5-F00-NK	receiver	952701841
S51-MA-2-G00-XG	emitter	952701591
S51-MA-5-G00-XG	emitter	952701791
S51-MR-2-A00-PK	retroreflex	952701651
S51-MR-2-A00-NK	retroreflex	952701711
S51-MR-5-A00-PK	retroreflex	952701851
S51-MR-5-A00-NK	retroreflex	952701911
S51-MR-2-B01-PK	polarised retroreflex	952701661
S51-MR-2-B01-NK	polarised retroreflex	952701721
S51-MR-5-B01-PK	polarised retroreflex	952701861
S51-MR-5-B01-NK	polarised retroreflex	952701921
S51-MR-2-C01-PK	long diffuse proximity	952701671
S51-MR-2-C01-NK	long diffuse proximity	952701731
S51-MR-5-C01-PK	long diffuse proximity	952701871
S51-MR-5-C01-NK	long diffuse proximity	952701931
S51-MR-2-C10-PK	short diffuse proximity	952701681
S51-MR-2-C10-NK	short diffuse proximity	952701741
S51-MR-5-C10-PK	short diffuse proximity	952701881
S51-MR-5-C10-NK	short diffuse proximity	952701941
S51-MR-2-F00-PK	receiver	952701691
S51-MR-2-F00-NK	receiver	952701751
S51-MR-5-F00-PK	receiver	952701891
S51-MR-5-F00-NK	receiver	952701951
S51-MR-2-G00-XG	emitter	952701701
S51-MR-5-G00-XG	emitter	952701901

MODEL CODING TABLE



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SDS SERIES

The M18 tubular sensors of the **SDS** series, thanks to the background suppression proximity optic system, precisely detect all objects inside the set operating distance, independently from colour and rear fixed or moving objects.
The photoemitter is a red light LED that generates a visible circular spot; the receiver is a PSD (Position Sensitive Device) photoelement sensitive to the incident light's position.
A good vibration immunity and a low detection difference between lighter or darker objects are obtained as there are no moving parts for the optic triangulation.
The background suppression distance setting is precisely obtained by means of a multi-turn trimmer.
Normally open and normally closed outputs are both present with standard configuration.



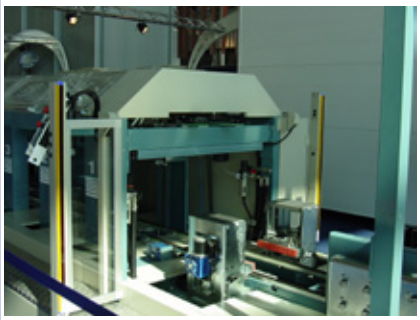


HIGHLIGHTS

- Adjustable background suppression reaching 12 cm
- Axial or radial optics
- Plastic or metal M18x1 housing
- Double NO-NC standard output

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines

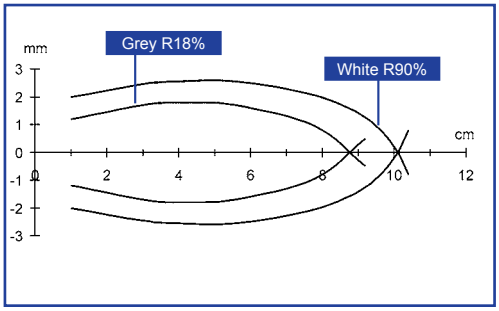


TECHNICAL DATA

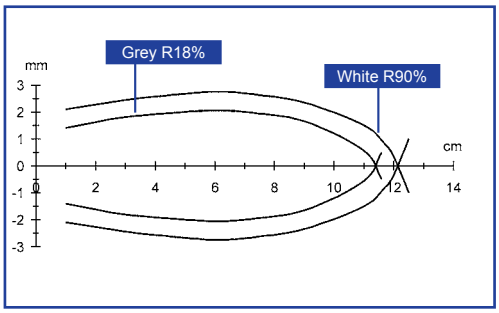
Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	30 mA max.
Light emission:	red LED 660 nm
Spot dimension:	Ø 10 mm at 100 mm
	Ø 15 mm at 100 mm (SDS5 radial vers.)
Background suppression operating distance:	2 ... 10 cm (SDS5 vers.)
	4 ... 12 cm (SDS10 vers.)
Setting:	multi-turn trimmer
Indicators:	yellow OUTPUT LED
	green STABILITY LED (SDS5 vers.)
Output type:	NO-NC PNP or NPN, open collector
Saturation voltage:	2 V max. (SDS5 PNPvers.)
	1 V max. (SDS5 NPN vers.)
	2.4 V max. (SDS10 vers.)
Output current:	100 mA max. (SDS5 vers.)
	200 mA max. (SDS10 vers.)
	short-circuit protection
Response time:	2.5 ms max. (SDS5 vers.)
	1 ms max. (SDS10 vers.)
Switching frequency:	200 Hz max. (SDS5 vers.)
	600 Hz max. (SDS10 vers.)
Operating mode:	light (NO)
	dark (NC)
Connection:	M12 4-pole connector
	3 m Ø 5 mm cable (SDS10 vers.)
Electrical protection:	class 2
Mechanical protection:	IP67
Housing material:	ABS (SDS5 vers.)
	nickel-plated brass (SDS10 vers.)
Lens material:	glass
Weight:	30 g max. (SDS5 vers.)
	100 g max. (SDS10 cable vers.)
	30 g max. (SDS10 connector vers.)
Operating temperature:	-25 ... +55°C
Storage temperature:	-25 ... +70°C
Reference normative:	EN 60947-5-2
Certifications:	CE

DETECTION DIAGRAMS

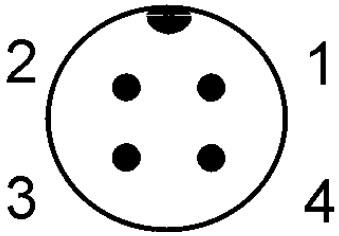
SDS5-x-M



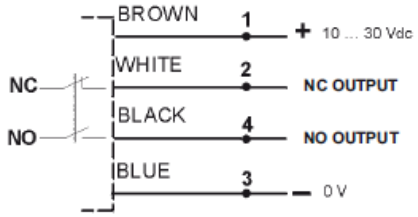
SDS10-x-M



CONNECTIONS

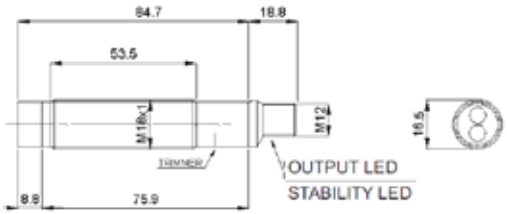


M12 CONNECTOR

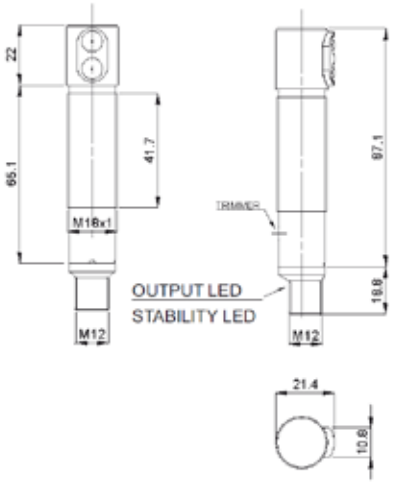


DIMENSIONS

SDS5 VERSIONS

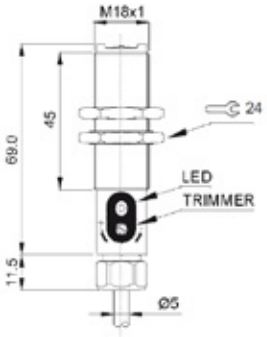


AXIAL

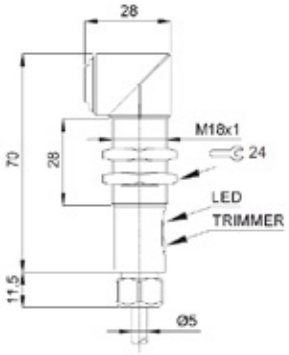


RADIAL

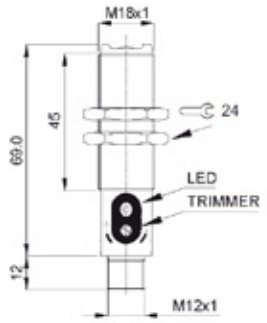
SDS10 VERSIONS



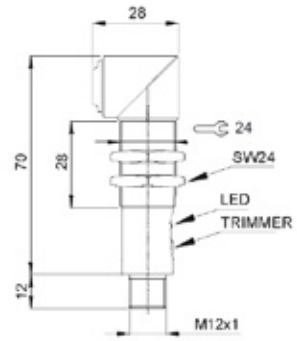
SDS10-5-M12-30



SDS10-5-M12-35



SDS10-5-M12-32



SDS10-5-M12-37

mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	HOUSING	OPTICS	CONNECTION	OUTPUT	ORDER N°
SDS5-5-M10-77	plastic	radial	M12 connector	NPN	952201420
SDS5-5-M10-97	plastic	radial	M12 connector	PNP	952201430
SDS5-5-M10-72	plastic	axial	M12 connector	NPN	952201460
SDS5-5-M10-92	plastic	axial	M12 connector	PNP	952201470
SDS10-5-M12-30	metal	axial	2 m cable	PNP	962411000
SDS10-5-M12-32	metal	axial	M12 connector	PNP	962411010
SDS10-5-M12-35	metal	radial	2 m cable	PNP	962411020
SDS10-5-M12-37	metal	radial	M12 connector	PNP	962411030

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
SP-40	fixed support for tubular M18 sensors	95ACC1370
SWING-18	adjustable support for tubular M18 sensors	895000006

Please refer also to **Sensor Accessories.**

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

SL5 SERIES

The **SL5** sensors, thanks to the laser emission concentrated in a thin light beam, represent the ideal solution for the detection of very small objects or to reach very long operating distances.
Precise detections with decimillimetre resolutions can be obtained with the proximity model at an operating distance ranging from 0 to 35 cm.
High operating distances can be reached with the 12 m polarised retroreflex model, or with the 60 m through beam model; high-resolution detections at shorter distances can be effected also.
The visible red emission is generated by a Class 1 laser according to the EN 60825-1, guaranteeing the maximum safety in all applications.
The sensitivity adjustment trimmer and the LEDs indicating the output status and switching stability are positioned on the sturdy ABS tubular M18 housing with IP67 protection.









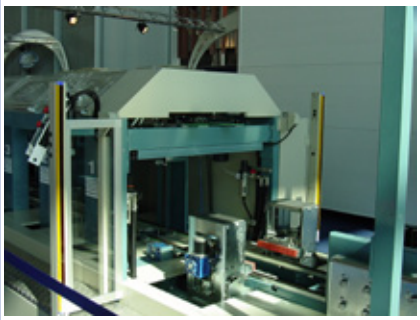


HIGHLIGHTS

- Visible red class 1 laser emission
- Proximity models for high-resolution detections
- Retroreflex and through beam versions for long operating distances
- Trimmer sensitivity adjustment and stability LED

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines

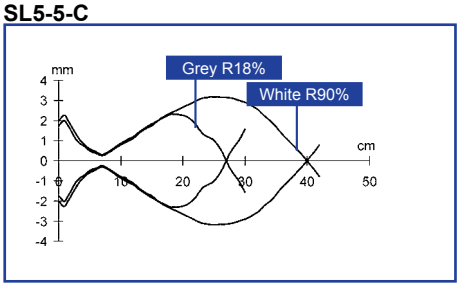


TECHNICAL DATA

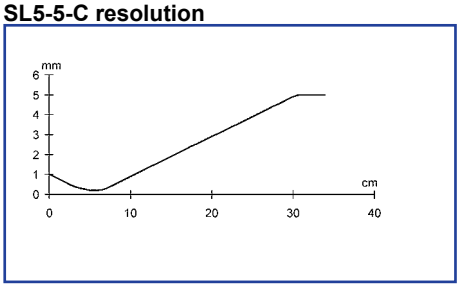
Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	35 mA max.
Light emission:	red laser 650 nm
	safety class 1 according to EN 60825-1
Diffuse proximity operating distance:	0 ... 35 cm
Diffuse proximity resolution:	0.2 mm at a distance of 5 cm
	1 mm at a distance of 10 cm
	3 mm at a distance of 20 cm
	5 mm at distances over 30 cm
Polarised retroreflex operating distance:	0.03 ... 12 m (on R2)
	0.3 ... 7 m (on R7)
Polarised retroreflex resolution:	1 mm at a distance of 1 m (on R7/r8)
	2 mm at a distance of 3 m (on R7/r8)
	4 mm at a distance of 5 m (on R7)
	5 mm at distances over 7 m (on R2)
Through beam operating distance:	0 ... 60 m
Through beam resolution:	2.5 mm at a distance of 5 m
	5 mm at a distance of 10 m
	10 mm at distances over 20 m
Setting:	sensitivity trimmer
Indicators:	yellow OUTPUT LED
	green POWER LED (G. vers.)
	green STABILITY LED
Output type:	PNP, open collector
Saturation voltage:	2 V max.
Output current:	100 mA max., short-circuit protection
Response time:	333 ms max.
Switching frequency:	1.5 kHz max
Operating mode:	light or dark
Auxiliary functions:	'test +' input (G vers.)
Connection:	4-pole M12 connector
Electrical protection:	class 2
Mechanical protection:	IP67
Housing material:	ABS
Lens material:	PMMA plastic
Weight:	30 g max.
Operating temperature:	-10 ... +50°C
Storage temperature:	-25 ... +70°C
Reference standard:	EN 60947-5-2, EN 60825-1
Certifications:	CE

DETECTION DIAGRAMS

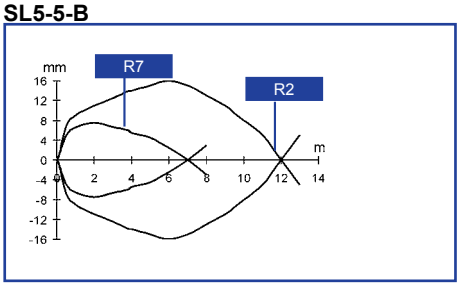
SL5-5-C



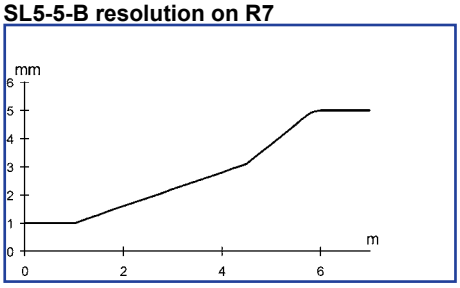
SL5-5-C resolution



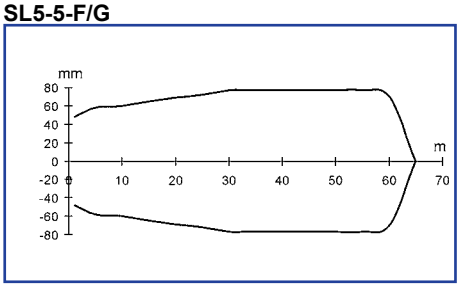
SL5-5-B



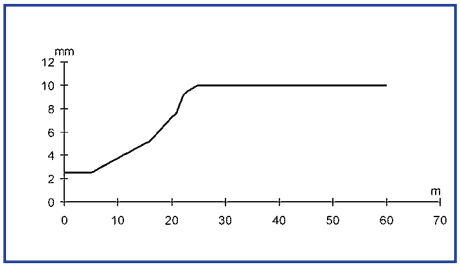
SL5-5-B resolution on R7



SL5-5-F/G

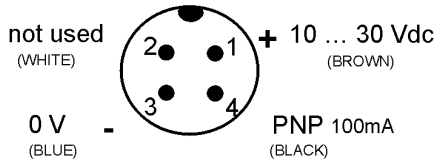


SL5-5-F/G resolution

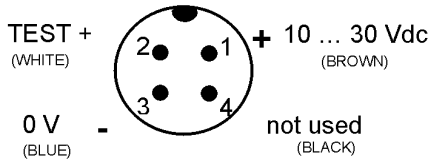


The detection diagrams indicate the typical operating distance with excess gain 1. The operating distances indicate the detection distance with excess gain 2.

CONNECTIONS

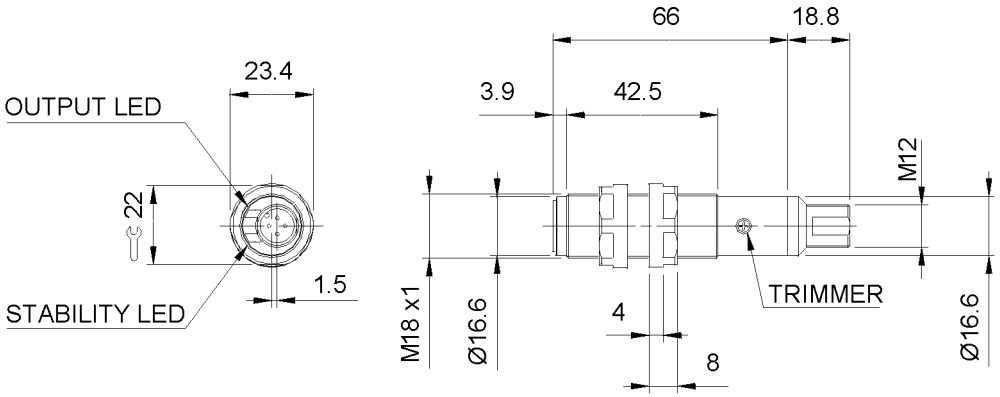


SL5-5-B/C/F



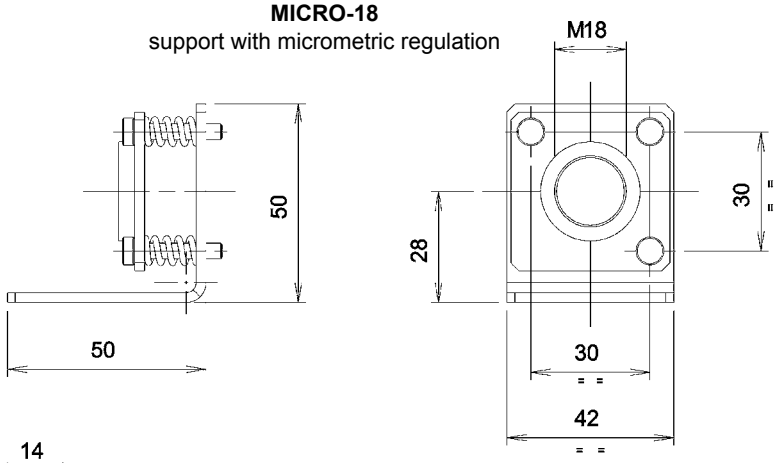
SL5-5-G

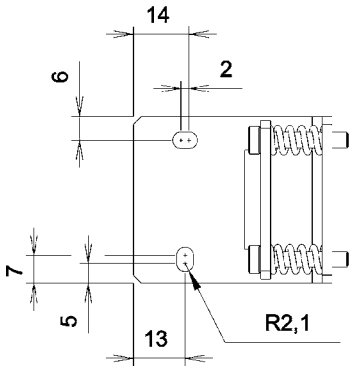
DIMENSIONS



mm

MICRO-18
support with micrometric regulation





mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	CONNECTION	OUTPUT	CODE N°
SL5-5-B-82	polarised retroreflex	M12 connector	PNP-dark	952501010
SL5-5-B-92	polarised retroreflex	M12 connector	PNP-light	952501080
SL5-5-C-82	diffuse proximity	M12 connector	PNP-dark	952501090
SL5-5-C-92	diffuse proximity	M12 connector	PNP-light	952501000
SL5-5-F-82	receiver	M12 connector	PNP-dark	952501020
SL5-5-F-92	receiver	M12 connector	PNP-light	952501050
SL5-5-G-82	emitter	M12 connector	-	952501030

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
R1	Ø 23 mm prismatic reflector with Ø 31 mm support	S940700023
R2	Ø 48 mm prismatic reflector with Ø 63 mm support	S940700048
R3	18 x 54 mm prismatic reflector with 22 x 82 mm support	S940700972
R4	47 x 47 mm prismatic reflector with 51.5 x 61 mm support	95A151010
R5	Ø 75 mm prismatic reflector with Ø 82 mm support	S940700075
R6	36 x 55 mm prismatic reflector with 40.5 x 60 mm support	95A151020
R7	38 x 40 mm microprism reflector with 51 x 60.7 mm support	95A151050
R8	9.7 x 19 mm microprism reflector with 13.8 x 23 mm support	95A151060
S12	Ø 48 mm prismatic reflector with CH.52 mm hexagon support	S940710048
SP-40	fixed support for tubular M18 sensors	95ACC1370
SWING-18	adjustable support for tubular M18 sensors	895000006
MICRO-18	support with micrometric regulation for tubular M18 sensors	95ACC1380

Please refer also to **Sensor Accessories.**

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SM123 SERIES

The new **SM123** series offers a complete line of subminiature amplified photoelectric sensors, ideal for mounting in reduced spaces or in presence of particular mechanical obstacles. The extremely compact dimensions do not limit the detection performances, that suit most of the applications on automatic machinery for packaging, assembling, printing and so on, such as in automatic distribution and vending machines. The **SM1** models are 20 mm fixed focus proximity that, thanks to the thin housing with side optics, represent a valid alternative to fibre-optic systems. The **SM2** models present instead an ultra-flat format with a thickness inferior to 5 mm and offer a 170 mm diffuse proximity, as well as a through beam with an operating distance reaching 1.2 m. The **SM3** models also present a thin housing with lateral optics, but offer a 50 cm coaxial polarised retroreflex or a 1.2 m through beam optic function. All the subminiature sensors of the **SM123** series have visibile red emission and are available in the NPN or PNP versions, both with 3 wires 2 m cable connection. The plastic ABS housing guarantees an IP67 protection degree.





HIGHLIGHTS

- 20 and 170 mm proximity, 50 cm polarised retroreflex and 1.2 m through beam
- Thin housing with side optics or ultra-flat format
- Visible red emission on all models for easy alignment
- Amplified NPN or PNP output with 3-wire connection

APPLICATIONS

Automotive



Beverage & Bottling



Packaging lines





SM1: a complete sensor with fibre-optic dimensions

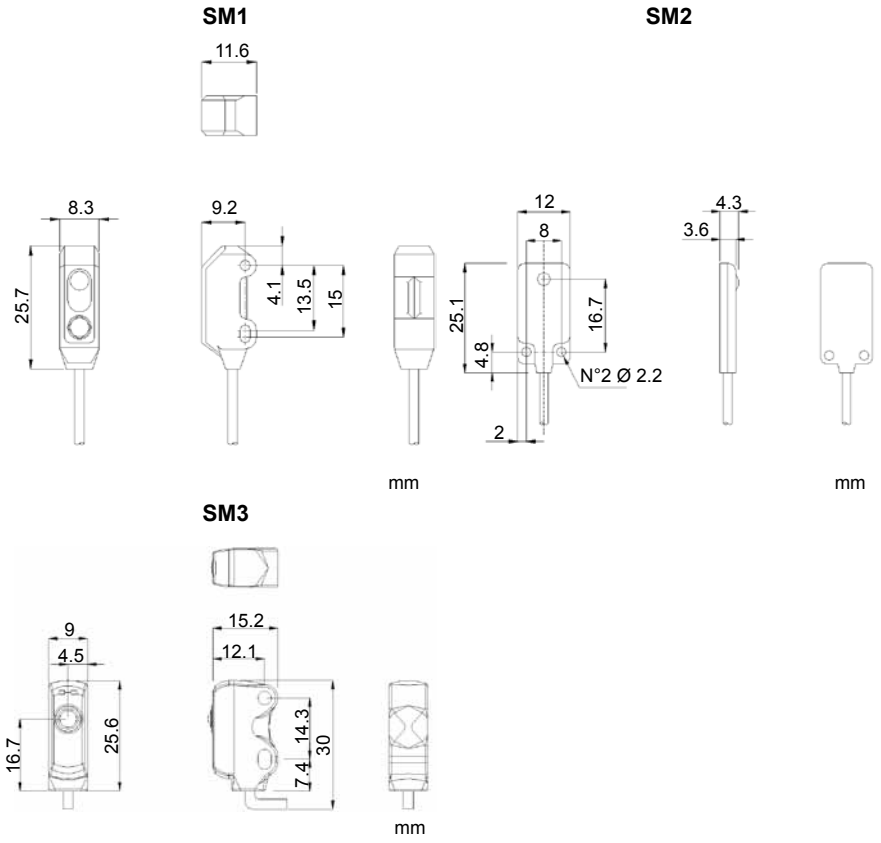


SM2: a complete sensor with stamp dimensions



SM3: coaxial polarised retroreflex and through beam sensors in a subminiature format for high-resolution detection

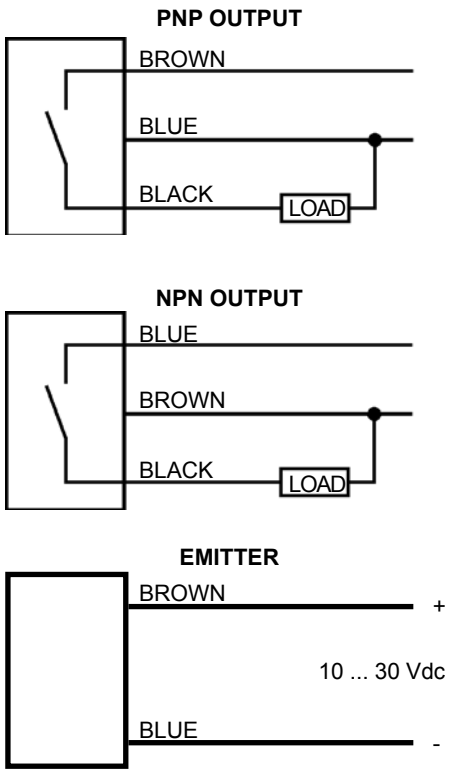
DIMENSIONS



ACCESSORIES

For dedicated accessories refer to the ACCESSORIES section of this catalogue.

CONNECTIONS



Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

		SM1-PR-2-D00-PL	SM1-PR-2-D00-NL	SM2-PR-2-FG00-PD	SM2-PR-2-FG00-ND	SM2-PR-2-D00-PL	SM2-PR-2-D00-NL	SM3-PR-2-FG00-PD	SM3-PR-2-FG00-ND	SM3-PR-2-B00-PL	SM3-PR-2-B00-NL	SM3-PR-2-B00-PD	SM3-PR-2-B00-ND
Power supply:	10 ... 30 Vdc	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	25 mA max.	●	●	●	●	●	●	●	●	●	●	●	●
Light emission:	630 nm	●	●										
	660 nm			●	●	●	●	●	●				
	680 nm									●	●	●	●
Fixed focus proximity operating distance:	3 ... 20 mm	●	●										
Diffuse proximity operating distance:	3 ... 170 mm					●	●						
Polarised retroreflex operating distance:	0 ... 50 cm (on R20)									●	●	●	●
Through beam operating distance:	0 ... 1.2 m				●	●		●	●				
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●	●	●	●	●
	yellow STABILITY LED	●	●	●	●			●	●				
	green POWER/ERROR LED	●	●	●	●	●	●	●	●	●	●	●	●
Output type:	PNP	●		●		●		●		●		●	
	NPN		●		●		●		●		●		●
Operating mode:	dark			●	●			●	●			●	●
	light	●	●			●	●			●	●		
Saturation voltage:	< 0.5 V at 50 mA	●	●	●	●	●	●	●	●	●	●	●	●
Output current:	50 mA max.	●	●	●	●	●	●	●	●	●	●	●	●
Response time:	1 ms	●	●	●	●	●	●	●	●	●	●	●	●
Switching frequency:	500 Hz	●	●	●	●	●	●	●	●	●	●	●	●
Connection:	2 m cable	●	●	●	●	●	●	●	●	●	●	●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	ABS	●	●	●	●	●	●	●	●	●	●	●	●
Lens material:	PMMA	●	●	●	●	●	●	●	●				
	glass									●	●	●	●
Weight:	16 g	●	●			●	●						
	18 g									●	●	●	●
	33 g			●	●			●	●				
Operating temperature:	-20 ... +55°C	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●	●

CE

SELECTION TABLE

fixed focus proximity		
SM1-PR-2-D00-PL	PNP - light	95B000100
SM1-PR-2-D00-NL	NPN - light	95B000110

diffuse proximity		
SM2-PR-2-D00-PL	PNP - light	95B000220
SM2-PR-2-D00-NL	NPN - light	95B000230

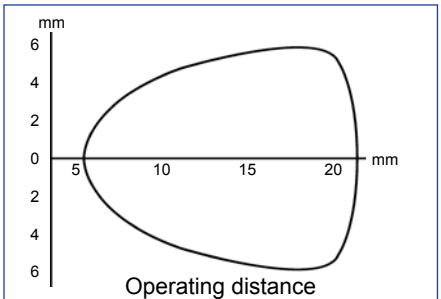
through beam		
SM2-PR-2-FG00-PD	PNP - dark	95B000200
SM2-PR-2-FG00-ND	NPN - dark	95B000210
SM3-PR-2-FG00-PD	PNP - dark	95B000300
SM3-PR-2-FG00-ND	NPN - dark	95B000310

coaxial polarised retroreflex		
SM3-PR-2-B00-PL	PNP - light	95B000320
SM3-PR-2-B00-NL	NPN - light	95B000330
SM3-PR-2-B00-PD	PNP - dark	95B000340
SM3-PR-2-B00-ND	NPN - dark	95B000350

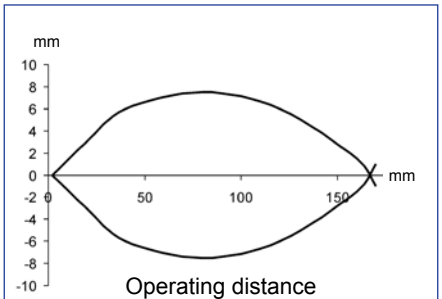
TECHNICAL NOTES

1. On white 90 % target
2. Limit value
3. Micro-prismatic reflectors have to be used with the polarised retroflex with coaxial optics; the operating distance is reduced to 30 cm using R7 and R8 reflectors. The coaxial optics eliminates the 'blind' area at a close distance
4. A - reverse polarity protection
   B - overload and short-circuit protection

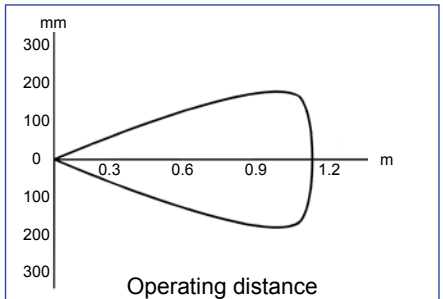
DETECTION DIAGRAMS



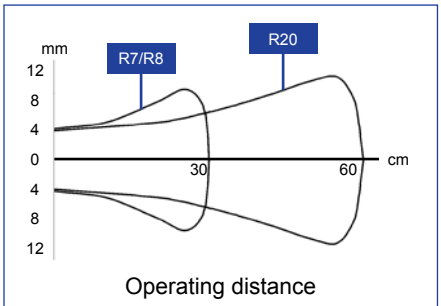
SM1 - fixed focus proximity



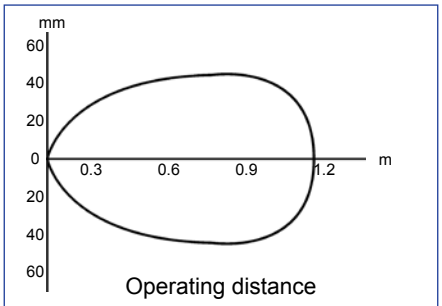
SM2 - diffused proximity



SM2 - through beam



SM3 - polarised retroreflex



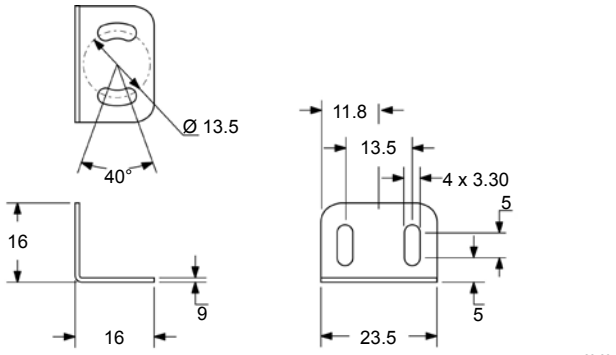
SM3 - through beam

MODEL SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	OUTPUT	ORDER N°
SM1-PR-2-D00-PL	20 mm fixed focus proximity	PNP - light	95B000100
SM1-PR-2-D00-NL	20 mm fixed focus proximity	NPN - light	95B000110
SM2-PR-2-FG00-PD	1.2 m through beam	PNP - dark	95B000200
SM2-PR-2-FG00-ND	1.2 m through beam	NPN - dark	95B000210
SM2-PR-2-D00-PL	170 mm diffuse proximity	PNP - light	95B000220
SM2-PR-2-D00-NL	170 mm diffuse proximity	NPN - light	95B000230
SM3-PR-2-FG00-PD	1.2 m through beam	PNP - dark	95B000300
SM3-PR-2-FG00-ND	1.2 m through beam	NPN - dark	95B000310
SM3-PR-2-B00-PL	50 cm coaxial polarised retroreflex	PNP - light	95B000320
SM3-PR-2-B00-NL	50 cm coaxial polarised retroreflex	NPN - light	95B000330
SM3-PR-2-B00-PD	50 cm coaxial polarised retroreflex	PNP - dark	95B000340
SM3-PR-2-B00-ND	50 cm coaxial polarised retroreflex	NPN - dark	95B000350

DIMENSIONS

ST-5036



ACCESSORY SELECTION

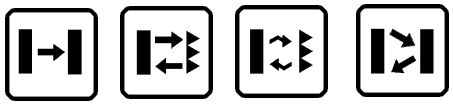
MODEL	DESCRIPTION	ORDER N°
ST-5036	L-shaped fixing bracket for SM1 and SM3	95ACC5720

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

SM*ALL* SERIES

The new **SM*all*** series offers a complete line of subminiature amplified photoelectric sensors, ideal for mounting in reduced spaces or in presence of particular mechanical obstacles.
The extremely compact dimensions and wide detection field of all modes suit most of the applications on automatic machinery for packaging, assembling, printing as well as in automatic distribution and vending machines.
The series offers many different optic functions including 1.5 m retroreflex, 1 m polarised retroreflex, and 2 m through beam. The 15 mm, 20 mm, 30 mm and 50 mm fixed focus proximity models represent a valid alternative to fibre-optic systems and can be used to detect objects with small profiles and poorly reflective materials.
All models of the subminiature **SM*all*** series have visible red emission facilitating alignment, cable connection and are available in the NPN or PNP versions with NO-NC double output.
The plastic housing guarantees an IP67 protection degree.





HIGHLIGHTS

- 15 mm, 20 mm, 30 mm and 50 mm fixed focus proximity
- 1.5 m retroreflex and 1 m polarised retroreflex
- 2 m through beam models
- Amplified NPN or PNP output with NO-NC double output

APPLICATIONS

Automotive



Beverage & Bottling

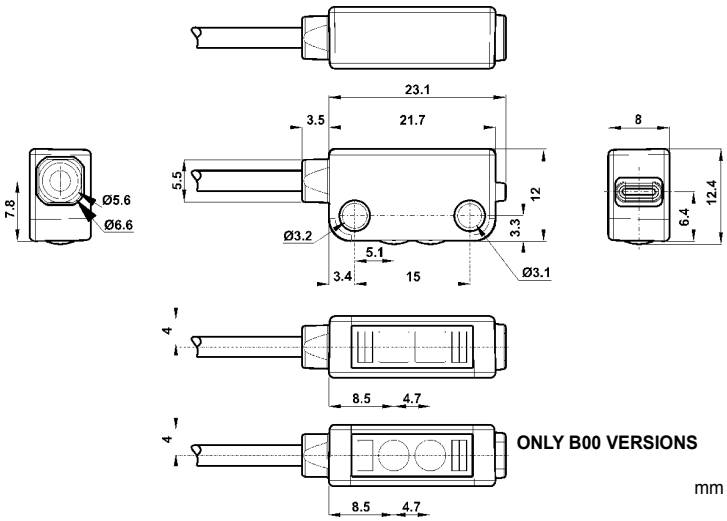


Packaging lines



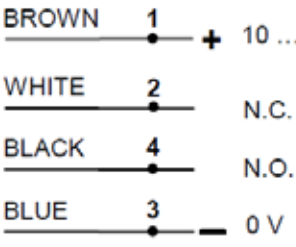
The range offers versions with PNP or NPN output and each are available with a normally open and normally closed output.
The sensor functions in the light mode if the normally open output is used and is activated, like the output LED, in presence of light. The opposite effect is obtained when the sensor functions in dark mode and the normally closed output is used.
In presence of short-circuit output, the green LED blinks signalling the fault.

DIMENSIONS

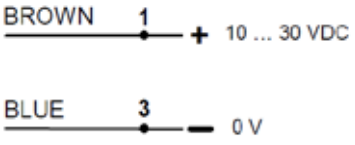


CONNECTIONS

SM-PR-2-F00/A00/B00/Dxx

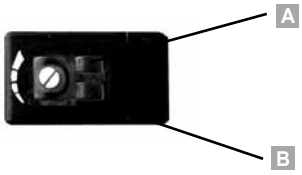


SM-PR-2-G00



Versions and options: **refer to MODEL SELECTION** TABLE

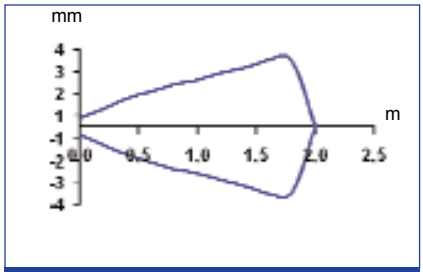
INDICATORS AND SETTINGS



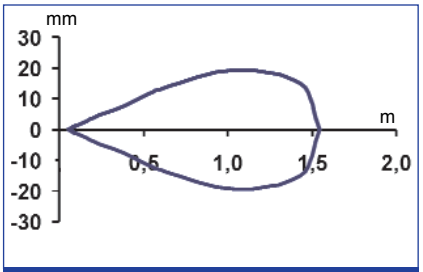
A Output status LED

B Power on LED

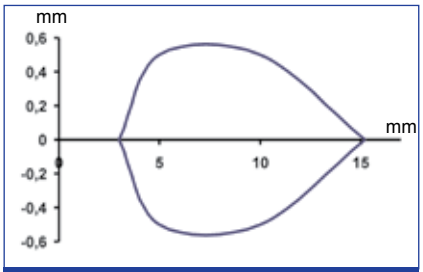
DETECTION DIAGRAMS



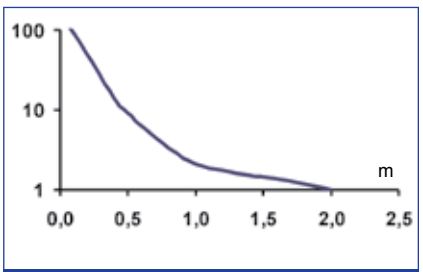
Through beam - Detection area



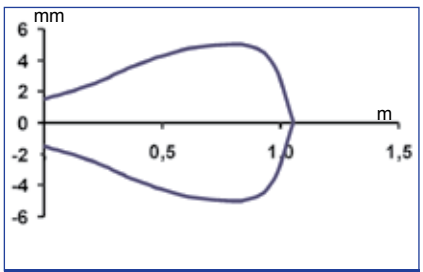
Retroreflex - Detection area



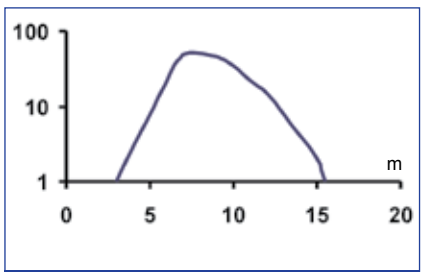
Fixed focus proximity - 15 mm - Detection area



Through beam - Excess gain



Polarised retroreflex - Detection area



Fixed focus proximity - 15 mm - Excess gain

TECHNICAL DATA

TECHNICAL NOTES
[1]On white 90 % target
[2]Limit value
[3]A - reverse polarity protection
B - overload and short-circuit protection

		SM-PR-2-G00-XG	SM-PR-2-F00-PP	SM-PR-2-F00-NN	SM-PR-2-A00-PP	SM-PR-2-A00-NN	SM-PR-2-B00-PP	SM-PR-2-B00-NN	SM-PR-2-D00-PP	SM-PR-2-D00-NN	SM-PR-2-D10-PP	SM-PR-2-D10-NN	SM-PR-2-D20-PP	SM-PR-2-D20-NN	SM-PR-2-D30-PP	SM-PR-2-D30-NN
Power supply:	10 ... 30 Vdc[2]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Consumption:	20 mA max.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Light emission:	red LED 640 nm	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Through beam operating distance:	0 ... 2 m	•	•	•												
Retroreflex operating distance:	5 ... 150 cm				•	•										
Polarised retroreflex operating distance:	10 ... 100 cm						•	•								
Fixed focus operating distance:	3 ... 15 mm[1]								•	•						
	3 ... 20 mm										•	•				
	3 ... 30 mm												•	•		
	3 ... 50 mm														•	•
Indicators:	yellow OUTPUT LED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	green POWER LED	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Output type:	PNP, NO-NC		•		•		•		•		•		•		•	
	NPN, NO-NC			•		•		•		•		•		•		•
Operating mode:	light on NO, dark on NC		•	•	•	•	•	•	•	•	•	•	•	•	•	•
Saturation voltage:	1.45 V max. at 50 mA	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Output current:	50 mA max.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Response time:	0.7 ms				•	•	•	•	•	•	•	•	•	•	•	•
	1.3 ms	•	•	•												
Switching frequency:	700 Hz				•	•	•	•	•	•	•	•	•	•	•	•
	385 Hz	•	•	•												
Connection:	2 m cable, Ø 2.5 mm	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Protection devices:	A, B[3]	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Housing material:	Polycarbonate	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Lens material:	PMMA	•	•	•	•	•			•	•	•	•	•	•	•	•
	glass						•	•								
Weight:	22 g	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Operating temperature:	-20 ... +55°C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Storage temperature:	-30 ... +75°C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

SELECTION TABLE

through beam		
SM-PR-2-G00-XG		95B000160
SM-PR-2-F00-PP	PNP	95B000120
SM-PR-2-F00-NN	NPN	95B000130

retroreflex		
SM-PR-2-A00-PP	PNP	95B000060
SM-PR-2-A00-NN	NPN	95B000070

polarised retroreflex		
SM-PR-2-B00-PP	PNP	95B000080
SM-PR-2-B00-NN	NPN	95B000090

fixed focus proximity - 15 mm		
SM-PR-2-D00-PP	PNP	95B000020
SM-PR-2-D00-NN	NPN	95B000030

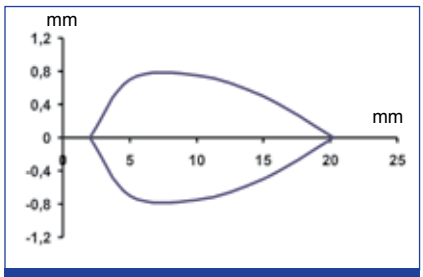
fixed focus proximity - 20 mm		
SM-PR-2-D10-PP	PNP	95B000140
SM-PR-2-D10-NN	NPN	95B000150

fixed focus proximity - 30 mm		
SM-PR-2-D20-PP	PNP	95B000040
SM-PR-2-D20-NN	NPN	95B000050

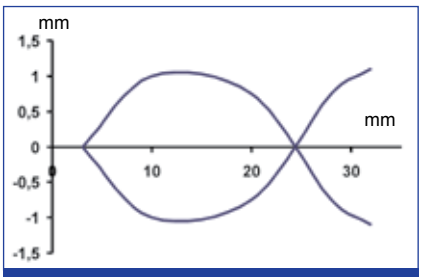
fixed focus proximity - 50 mm		
SM-PR-2-D30-PP	PNP	95B000000
SM-PR-2-D30-NN	NPN	95B000010

CE

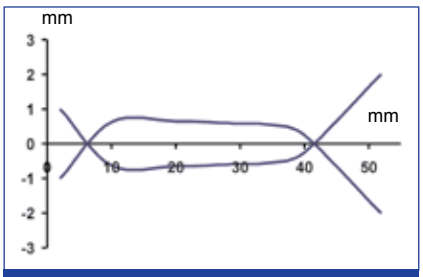
DETECTION DIAGRAMS



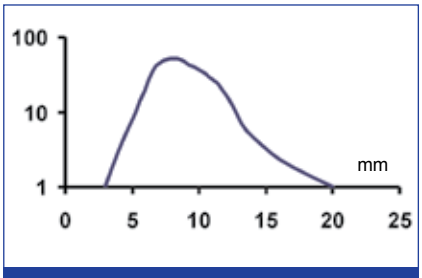
Fixed focus proximity - 20 mm - Detection area



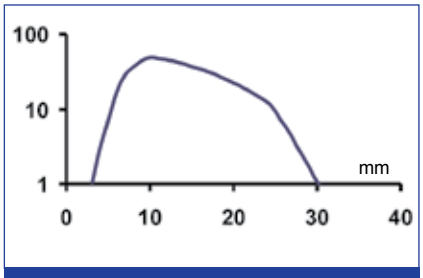
Fixed focus proximity - 30 mm - Detection area



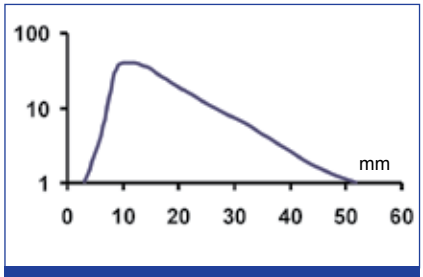
Fixed focus proximity - 50 mm - Detection area



Fixed focus proximity - 20 mm - Excess gain



Fixed focus proximity - 30 mm - Excess gain



Fixed focus proximity - 50 mm - Excess gain

MODEL SELECTION AND ORDER INFORMATION

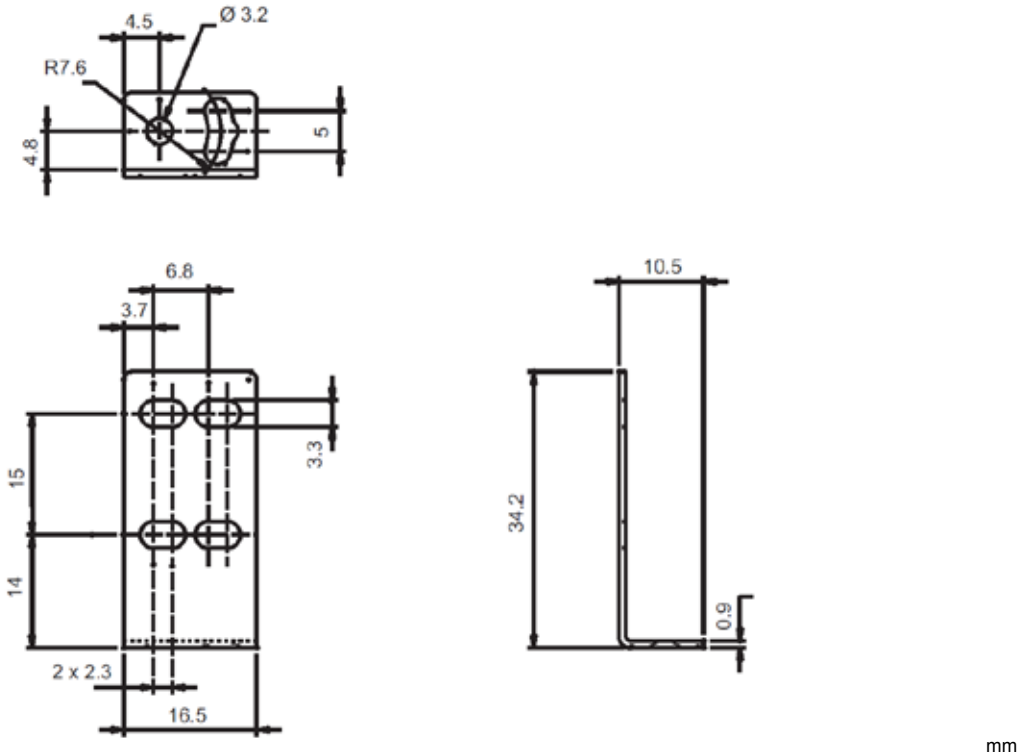
MODEL	FUNCTION	OUTPUT	ORDER N°
SM-PR-2-G00-XG	emitter	-	95B000160
SM-PR-2-F00-PP	receiver	PNP	95B000120
SM-PR-2-F00-NN	receiver	NPN	95B000130
SM-PR-2-A00-PP	retroreflex	PNP	95B000060
SM-PR-2-A00-NN	retroreflex	NPN	95B000070
SM-PR-2-B00-PP	polarised retroreflex	PNP	95B000080
SM-PR-2-B00-NN	polarised retroreflex	NPN	95B000090
SM-PR-2-D00-PP	15 mm fixed focus proximity	PNP	95B000020
SM-PR-2-D00-NN	15 mm fixed focus proximity	NPN	95B000030
SM-PR-2-D10-PP	20 mm fixed focus proximity	PNP	95B000140
SM-PR-2-D10-NN	20 mm fixed focus proximity	NPN	95B000150
SM-PR-2-D20-PP	30 mm fixed focus proximity	PNP	95B000040
SM-PR-2-D20-NN	30 mm fixed focus proximity	NPN	95B000050
SM-PR-2-D30-PP	50 mm fixed focus proximity	PNP	95B000000
SM-PR-2-D30-NN	50 mm fixed focus proximity	NPN	95B000010

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	ORDER N°
ST-5049	L-shaped fixing bracket	95ACC6650

ACCESSORY DIMENSIONS

ST-5049



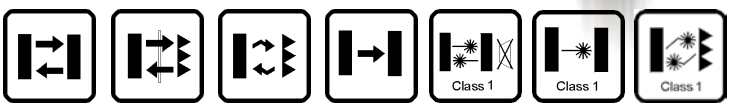
mm

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S3Z SERIES

The high operating distances and cost-effective price, makes the S3Z series in the miniature format with dimensions and standard fixing affirmed in the market, in particular in Far-East. Different models are available: 15m through beam, 4m polarised retroreflex, 2m polarized for transparent, 70 cm diffuse proximity, narrow beam from 50 to 150mm and 5 to 30cm background suppression model with multi-turn mechanical trimmer setting. Also available LASER models class I: 30m through beam, 10m polarised retroreflex and 40 to 300mm background suppression. Versions with NPN or PNP output, with dark or light operating mode and with cable or M8 connection are available. The plastic housing is completely overprinted, guaranteeing maximum mechanical protection also in presence of frequent washing.





HIGHLIGHTS

- Complete range of optic function LED or LASER emission
- 2m polarized for transparent detection
- 40-300 mm background suppression with both LASER or LED technology emission
- 1m long diffused, 15 cm diffused narrow beam
- 4 m polarised retroreflex or 10m LASER model
- 15 m through beam or 30m Laser model
- Standard 3 wire output configuration
- IP67 mechanical protection
- Interference prevention allows two units to be mounted side by side

APPLICATIONS

Automotive



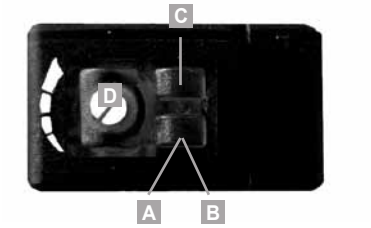
Beverage & Bottling



Packaging lines



INDICATORS AND SETTING

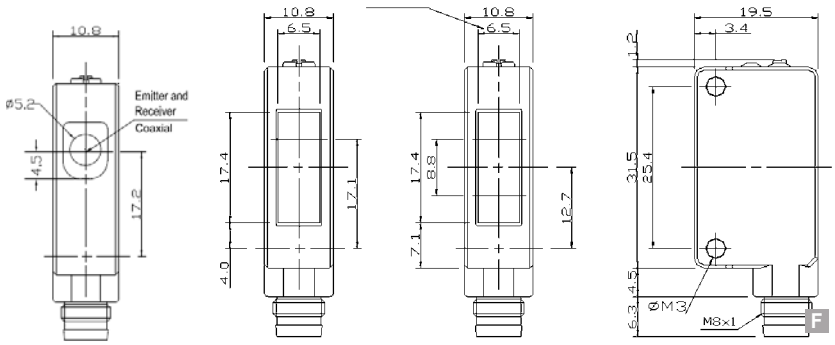


- A Output status LED
- B Power on LED (S3Z ... G00)
- C Stability LED
- D Sensitivity trimmer
- E Cable output
- F M8 connector output

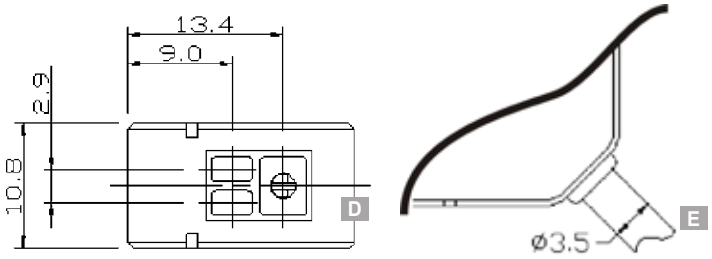




DIMENSIONS



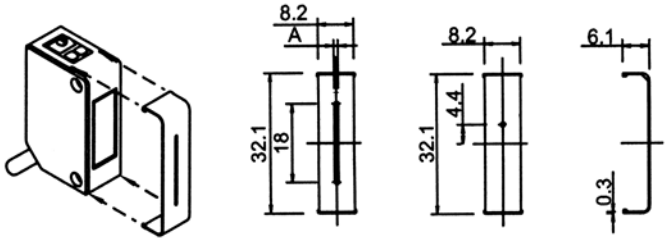
S3Z ... T51 S3Z ... F01/G00 S3Z ... B01/C01/C11/M01



SLIT

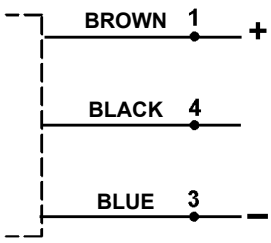
Two different slit models, with rectangular or circular slot, can be easily mounted on the front side of the through beam sensors to reduce the emission beam.
The resolution and the minimum object detectable can be improved with the slit positioned on the receiver (S3Z...F01). The installation of the two aligned sensor couples is eased by mounting the slit also on the emitter (S3Z...G00), avoiding reciprocal interference.
The slit reduces the operating distance as shown in the following table.

Slit		Operating distance		Minimum object detectable (mm)	
Model	Width (mm)	Used on F01	Used on F01 and G00	Used on F01	Used on F01 and G00
S3Z-SLIT1	Ø 0.5	0.8	0.08	5	0.3
S3Z-SLIT2	Ø 1	1.5	0.3	5	0.6
S3Z-SLIT3	Ø 2	2.5	1.2	5	1.5
S3Z-SLIT4	0.5x18	2.5	1	7	0.5
S3Z-SLIT5	1x18	3.5	1.5	7	1
S3Z-SLIT6	2x18	6	3.5	7	2

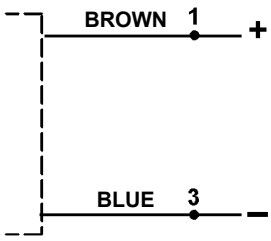


CONNECTIONS LED MODELS

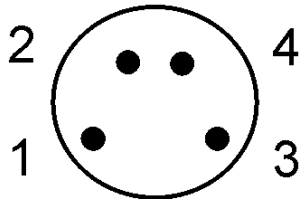
S3Z ... B01/C01/C11/M01/T51



S3Z ... G00



M8 CONNECTOR

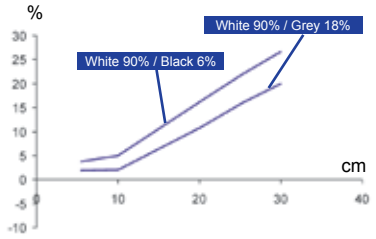


TECHNICAL DATA - BASIC LINE

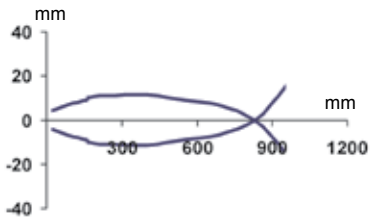
TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with T_A=+25°C [3]A - reverse polarity protection B - overload and short-circuit protection (B01/C01/C11/F01 VERS.)		S3Z-PR-2-B01	S3Z-PR-2-C01	S3Z-PR-2-C11	S3Z-PR-2-F01	S3Z-PR-2-G00	S3Z-PR-2-M01	S3Z-PR-2-T51	S3Z-PR-5-B01	S3Z-PR-5-C01	S3Z-PR-5-C11	S3Z-PR-5-F01	S3Z-PR-5-G00	S3Z-PR-5-M01	S3Z-PR-5-T51
Narrow beam proximity operating distance:	50 ... 150 mm		●							●					
Diffuse proximity operating distance:	0 ... 70 cm			●							●				
Polarized retroreflex operating distance:	0.05 ... 4 m (on R5)	●							●						
Polarized for transparent	0... 2 m (on R2)							●							●
Through beam operating distance:	0 ... 15 m				●	●						●	●		
Background suppression distance:	50 ... 300 mm						●							●	
Power supply:	10 ... 30 Vdc[1]	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	30 mA max.	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Light emission[2]:	red LED 665 nm	●	●				●	●	●	●				●	●
	infrared LED 870 nm			●		●					●		●		
Setting:	sensitivity trimmer	●	●	●	●		●	●	●	●	●	●		●	●
Indicators:	yellow OUTPUT LED	●	●	●	●		●	●	●	●	●	●		●	●
	green STABILITY LED	●	●	●	●		●	●	●	●	●	●		●	●
	green POWER ON LED					●							●		
Output type:	PNP or NPN (refer to table)	●	●	●	●		●	●	●	●	●	●		●	●
Operating mode:	dark or light (refer to table)	●	●	●	●		●	●	●	●	●	●		●	●
Saturation voltage:	≤2 V	●	●	●	●		●	●	●	●	●	●		●	●
Response time:	1 ms			●	●		●	●	●	●	●	●		●	●
Switching frequency:	500 Hz	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Output current:	≤100 mA	●	●	●	●		●	●	●	●	●	●		●	●
Connection:	2 m cable, Ø 3.5 mm	●	●	●	●	●	●	●							
	4-pole M8 connector								●	●	●	●	●	●	●
Mechnaical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B[3]	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	PC / PBT	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Lens material:	PMMA	●					●	●	●					●	●
	PC		●	●	●	●	●			●	●	●	●	●	
Weight:	10 g								●	●	●	●	●	●	●
	50 g	●	●	●	●	●	●	●							
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Standard reference:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●

DIAGRAMS LED MODELS

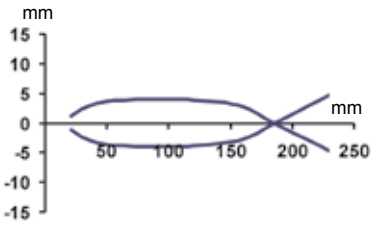
DETECTION AREA - BACKGROUND SUPPRESSION



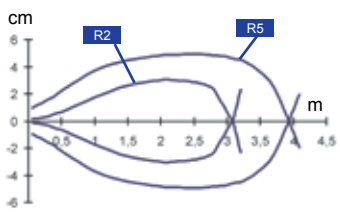
DETECTION AREA - DIFFUSE PROXIMITY



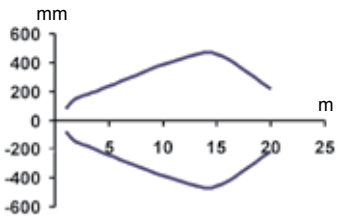
DETECTION AREA-NARROW BEAM PROXIMITY



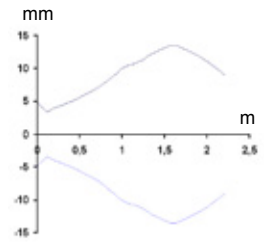
DETECTION AREA - POLARISED RETROREFLEX



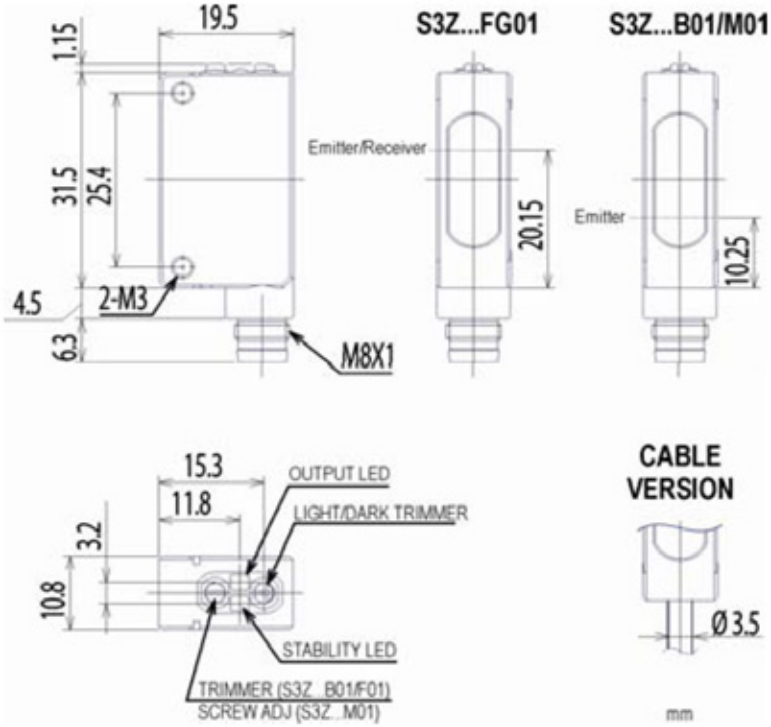
DETECTION AREA - THROUGH BEAM



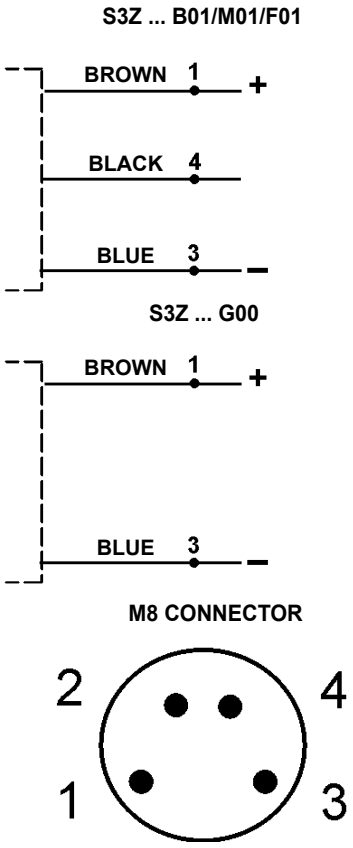
DETECTION AREA - FOR TRANSPARENT



DIMENSION LASER MODELS

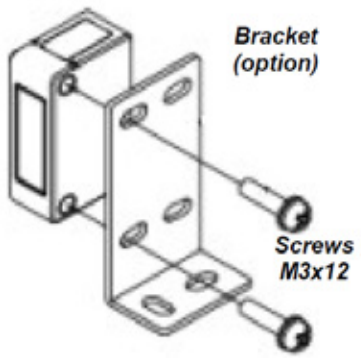


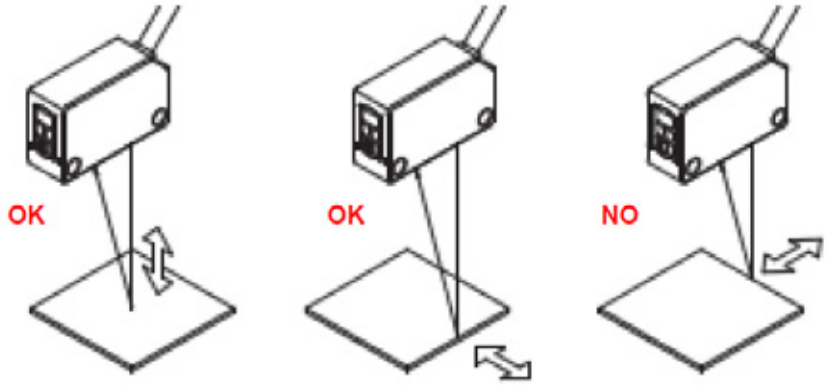
CONNECTIONS LASER MODELS



INSTALLATION

- Do not apply excessive impact on the sensor during the installation process, so as to prevent damage or deterioration in the degree of protection.
- To install the sensor, tighten the mounting screws to a torque of 0.5 Nm or less.
- Install the Background suppression type sensor head perpendicular to the object transfer as shown below to minimize sensing errors.



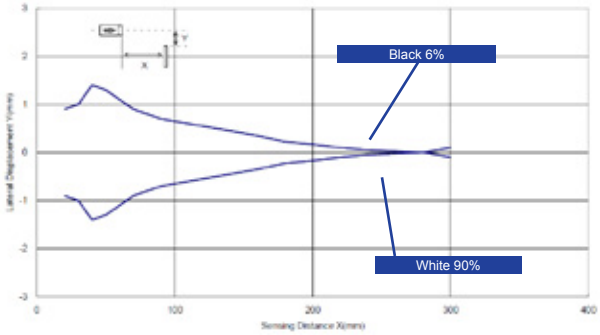


TECHNICAL DATA - LASER LINE

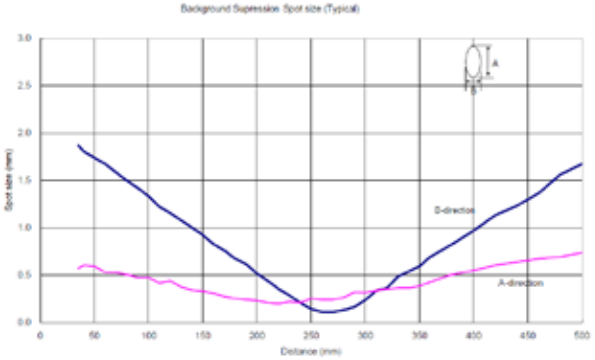
TECHNICAL NOTES [1]Limit values [2]Class I CDRH 21 CFR PART 1040.10, max power ≤7 mW, 650 nm [3]A - reverse polarity protection B - overload and short-circuit protection (B01/M01/F01 VERS.)		S3Z-PH-2-B01	S3Z-PH-2-F01	S3Z-PH-2-G00	S3Z-PH-2-M01	S3Z-PH-5-B01	S3Z-PH-5-F01	S3Z-PH-5-G00	S3Z-PH-5-M01
Polarized retroreflex operating distance:	0.3 ... 10 m (on R2)	●				●			
Through beam operating distance:	0 ... 30 m		●	●			●	●	
Background suppression distance:	40 ... 300 mm				●				●
Background suppression grey/white difference:	10%				●				●
Spot dimension polarized:	Ø 5 mm, @ 3 m	●				●			
Spot dimension through beam:	Ø 5 mm, @ 3 m		●	●			●	●	
Spot dimension background:	Ø 0.5 mm, @ 170 mm				●				●
Power supply:	12 ... 24 Vdc[1]	●	●	●	●	●	●	●	●
Consumption:	35 mA max.	●	●	●	●	●	●	●	●
Light emission[2]:	red LASER class 1 EN 60825-1	●		●	●	●		●	●
Setting:	sensitivity trimmer	●	●		●	●	●		●
	D/L trimmer selection	●	●		●	●	●		●
Indicators:	yellow OUTPUT LED	●	●		●	●	●		●
	green STABILITY LED	●	●			●	●		
	green POWER ON LED			●				●	
Output type:	PNP or NPN (refer to table)	●	●	●	●	●	●	●	●
Operating mode:	dark or light (selectable by trimmer)	●	●	●	●	●	●	●	●
Saturation voltage:	≤1,5 V	●	●	●	●	●	●	●	●
Response time:	250 us	●	●	●	●	●	●	●	●
Switching frequency:	2 KHz	●	●	●	●	●	●	●	●
Output current:	≤100 mA	●	●	●	●	●	●	●	●
Connection:	2 m cable, Ø 3.5 mm	●	●	●	●				
	4-pole M8 connector					●	●	●	●
Mechnaical protection:	IP67	●	●	●	●	●	●	●	●
Protection devices:	A, B[3]	●	●	●	●	●	●	●	●
Housing material:	PC (cover) / PBT (body)	●	●	●	●	●	●	●	●
Lens material:	PMMA	●	●	●	●	●	●	●	●
Weight:	10 g					●	●	●	●
	50 g	●	●	●	●				
Operating temperature:	-10 ... +55°C	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●
Standard reference:	EN 60947-5-2	●	●	●	●	●	●	●	●

DIAGRAMS LASER MODELS

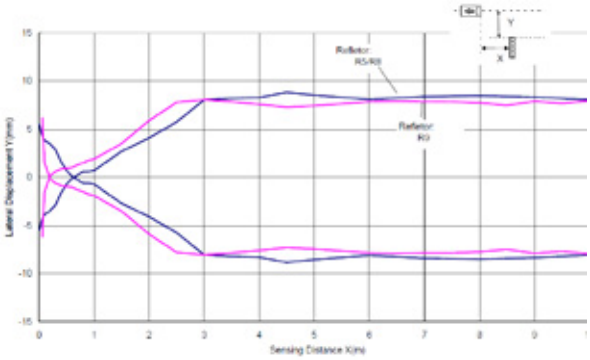
DETECTION AREA - BACKGROUND SUPPRESSION



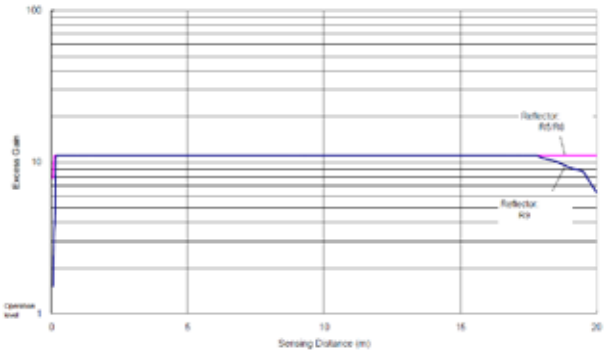
SPOT DIMENSION - BACKGROUND SUPPRESSION



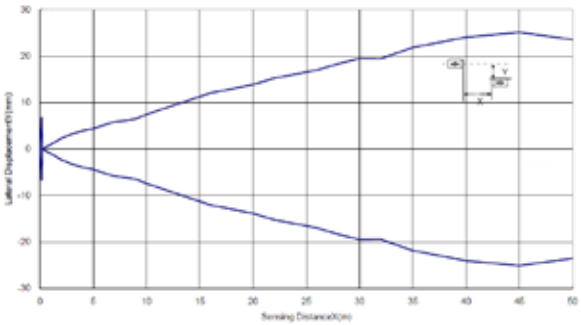
DETECTION AREA - POLARISED RETROREFLEX



EXCESS GAIN - POLARISED RETROREFLEX



DETECTION AREA - THROUGH BEAM



EXCESS GAIN - THROUGH BEAM



MODEL SELECTION TABLE

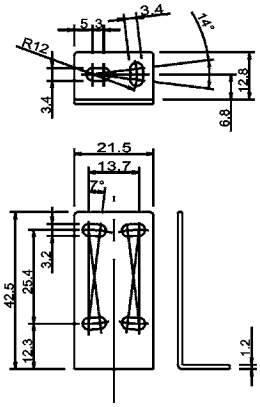
MODEL	FUNCTION	CONNECTION	OUTPUT	ORDER NO.
S3Z-PR-2-C01-PL	narrow beam	cable	PNP - light	95B010040
S3Z-PR-5-C01-PL	narrow beam	M8 connector	PNP - light	95B010050
S3Z-PR-2-C01-PD	narrow beam	cable	PNP - dark	95B010060
S3Z-PR-5-C01-PD	narrow beam	M8 connector	PNP - dark	95B010070
S3Z-PR-2-C01-NL	narrow beam	cable	NPN - light	95B010200
S3Z-PR-5-C01-NL	narrow beam	M8 connector	NPN - light	95B010210
S3Z-PR-2-C01-ND	narrow beam	cable	NPN - dark	95B010220
S3Z-PR-5-C01-ND	narrow beam	M8 connector	NPN - dark	95B010230
S3Z-PR-2-C11-PL	diffuse	cable	PNP - light	95B010000
S3Z-PR-5-C11-PL	diffuse	M8 connector	PNP - light	95B010010
S3Z-PR-2-C11-PD	diffuse	cable	PNP - dark	95B010020
S3Z-PR-5-C11-PD	diffuse	M8 connector	PNP - dark	95B010030
S3Z-PR-2-C11-NL	diffuse	cable	NPN - light	95B010160
S3Z-PR-5-C11-NL	diffuse	M8 connector	NPN - light	95B010170
S3Z-PR-2-C11-ND	diffuse	cable	NPN - dark	95B010180
S3Z-PR-5-C11-ND	diffuse	M8 connector	NPN - dark	95B010190
S3Z-PR-2-B01-PL	polarized retroreflex	cable	PNP - light	95B010080
S3Z-PR-5-B01-PL	polarized retroreflex	M8 connector	PNP - light	95B010090
S3Z-PR-2-B01-PD	polarized retroreflex	cable	PNP - dark	95B010100
S3Z-PR-5-B01-PD	polarized retroreflex	M8 connector	PNP - dark	95B010110
S3Z-PR-2-B01-NL	polarized retroreflex	cable	NPN - light	95B010240
S3Z-PR-5-B01-NL	polarized retroreflex	M8 connector	NPN - light	95B010250
S3Z-PR-2-B01-ND	polarized retroreflex	cable	NPN - dark	95B010260
S3Z-PR-5-B01-ND	polarized retroreflex	M8 connector	NPN - dark	95B010270
S3Z-PR-2-FG01-PL	through beam	cable	PNP - light	95B010120
S3Z-PR-5-FG01-PL	through beam	M8 connector	PNP - light	95B010130
S3Z-PR-2-FG01-PD	through beam	cable	PNP - dark	95B010140
S3Z-PR-5-FG01-PD	through beam	M8 connector	PNP - dark	95B010150
S3Z-PR-2-FG01-NL	through beam	cable	NPN - light	95B010280
S3Z-PR-5-FG01-NL	through beam	M8 connector	NPN - light	95B010290
S3Z-PR-2-FG01-ND	through beam	cable	NPN - dark	95B010300
S3Z-PR-5-FG01-ND	through beam	M8 connector	NPN - dark	95B010310
S3Z-PR-2-M01-PL	background suppression	cable	PNP - light	95B010330
S3Z-PR-5-M01-PL	background suppression	M8 connector	PNP - light	95B010350
S3Z-PR-2-M01-NL	background suppression	cable	NPN - light	95B010320
S3Z-PR-5-M01-NL	background suppression	M8 connector	NPN - light	95B010340
S3Z-PR-2-T51-ND	transparent polarized	cable	NPN - dark	95B010390
S3Z-PR-2-T51-PD	transparent polarized	cable	PNP - dark	95B010380
S3Z-PR-5-T51-ND	transparent polarized	M8 connector	NPN - dark	95B010370
S3Z-PR-5-T51-PD	transparent polarized	M8 connector	PNP - dark	95B010360
S3Z-PH-2-B01-PP	polarized laser	cable	PNP - dark/light	95B010440
S3Z-PH-5-B01-PP	polarized laser	M8 connector	PNP - dark/light	95B010460
S3Z-PH-2-B01-NN	polarized laser	cable	NPN - dark/light	95B010450
S3Z-PH-5-B01-NN	polarized laser	M8 connector	NPN - dark/light	95B010470
S3Z-PH-2-M01-PP	background suppression laser	cable	PNP - dark/light	95B010480
S3Z-PH-5-M01-PP	background suppression laser	M8 connector	PNP - dark/light	95B010500
S3Z-PH-2-M01-NN	background suppression laser	cable	NPN - dark/light	95B010490
S3Z-PH-5-M01-NN	background suppression laser	M8 connector	NPN - dark/light	95B010510
S3Z-PH-2-FG01-PP	through beam laser	cable	PNP - dark/light	95B010520
S3Z-PH-5-FG01-PP	through beam laser	M8 connector	PNP - dark/light	95B010540
S3Z-PH-2-FG01-NN	through beam laser	cable	NPN - dark/light	95B010530
S3Z-PH-5-FG01-NN	through beam laser	M8 connector	NPN - dark/light	95B010550

ACCESSORY SELECTION TABLE

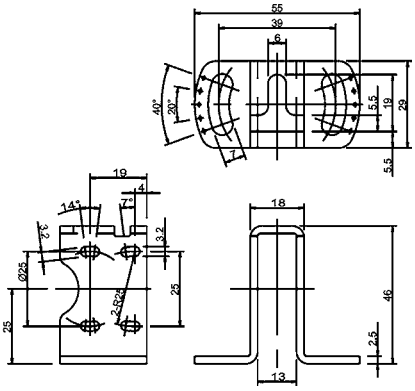
MODEL	DESCRIPTION	ORDER NO.
ST-5039	L-shaped fixing bracket	95ACC2270
ST-5040	protection bracket with vertical fixing (only for cable versions)	95ACC2280
ST-5046	protection bracket with horizontal fixing	95ACC2370
S3Z-SLIT1	Ø 0,5 mm slit for through beam	95ACC2470
S3Z-SLIT2	Ø 1 mm slit for through beam	95ACC2480
S3Z-SLIT3	Ø 2 mm slit for through beam	95ACC2490
S3Z-SLIT4	0,5x18 mm slit for through beam	95ACC2500
S3Z-SLIT5	1x18 mm slit for through beam	95ACC2510
S3Z-SLIT6	2x18 mm slit for through beam	95ACC2520

ACCESSORY

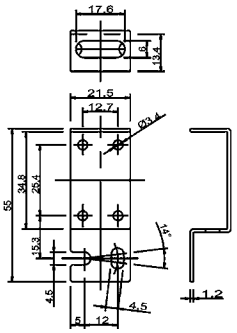
ST-5039



ST-5046



ST-5040



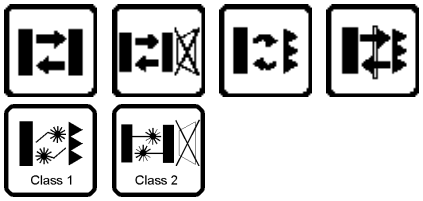
The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S40 SERIES

The photoelectric sensors of the **S40** series, in the innovative miniature housing, offer all the main optic functions with the advantages of microprocessor control and automatic Teach-in and Remote setting with EASYtouch™ procedure.
The series includes different models: 30 cm diffuse proximity and 10 cm background suppression, 4 m retroreflex, 3 m polarised retroreflex, or 0.7 m version for the detection of transparent glass or PET objects, 6 m through beam models, all with visible red emission.
The laser emission is available for retroreflex, proximity and background suppression, offering very high resolution detection.
The sensitivity and operating distance setting are obtained by simply pressing the button, or by cable to allow remote control and the mounting in small or difficult to reach areas.







HIGHLIGHTS

- EASYtouch™ microprocessor Teach-in and Remote setting
- Laser retroreflex, proximity and background suppression
- Cable or M8 connection, NPN or PNP
- ABS housing with IP67 protection

APPLICATIONS

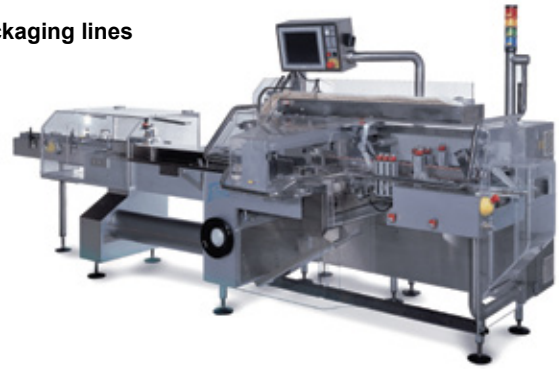
Automotive



Beverage & Bottling



Packaging lines

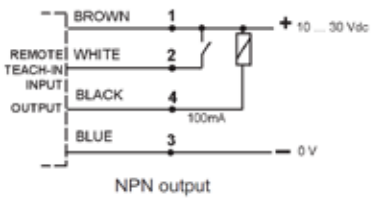


TECHNICAL DATA

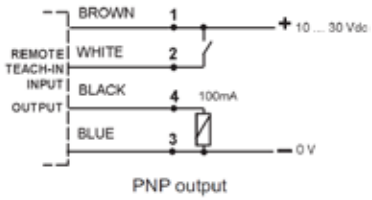
Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	35 mA max.
Light emission:	red LED 660 nm, red laser 650 nm
Diffuse proximity operating distance:	0.5 ... 30 cm
Laser diffuse proximity op. distance:	4 ... 15 cm
Laser proximity resolution:	0.2 mm (on focus point)
Background suppression op. distance:	15 ... 100 mm
Laser background suppr. op. distance:	20 ... 60 mm
Laser background suppr. resolution:	0.2 mm (on focus point)
Background suppr. white/grey diff.:	7%
Polarised retroreflex operating distance:	0.1 ... 2.5 m (on R2)
Laser polarised retroreflex op. distance:	0.1 ... 6 m (on R2)
Laser retroreflex resolution:	1 mm (on focus point)
Retroreflex transparents op. distance:	0.1 ... 0.7 m (on R2)
Setting:	SET push-button
	Remote by cable
Indicators:	yellow OUTPUT LED
	green POWER LED (G vers.)
	green READY/ERROR LED
Output type:	NPN or PNP, Rpull-down/up 22 kW
Saturation voltage:	2.4 V max.
Output current:	100 mA max, short-circuit protection
Response time:	0.5 ms
	125 µs (laser B03 and C03 versions)
Switching frequency:	1 kHz max.
	4 kHz (laser B03 and C03 versions)
Operating mode:	dark/light programmable
Connection:	4-pole M8 connector
	2 m Ø 3.5 mm cable
Laser safety class:	class II
Electrical protection:	class 2
Mechanical protection:	IP67
Housing material:	ABS
Lens material:	PMMA plastic
Weight:	10 g max. (connector vers.)
	40 g max. (cable vers.)
Operating temperature:	-20 ... +60°C
Storage temperature:	-20 ... +80°C
Reference standard:	EN 60947-5-2, EN 60825-1
Certifications:	CE

The operating distances indicate the detection distance with excess gain 2.

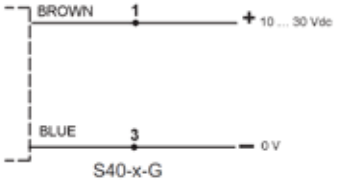
CONNECTIONS



NPN output



PNP output

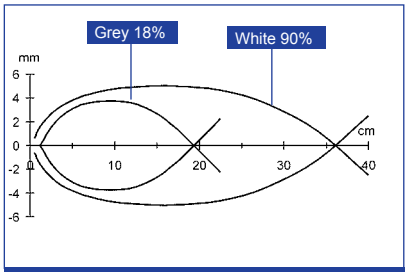


S40-x-G

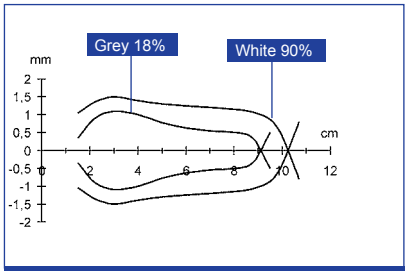


M8 CONNECTOR

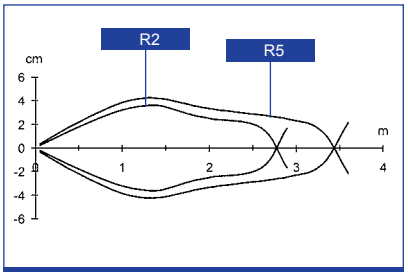
DETECTION DIAGRAMS



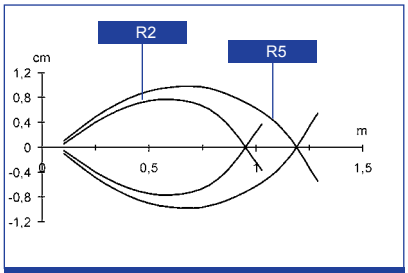
S40-PR-x-C-x



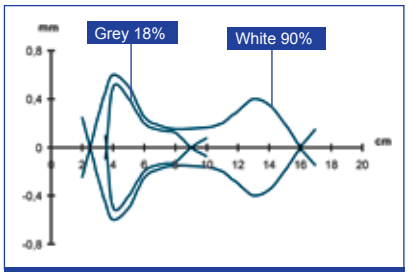
S40-PR-x-M-x



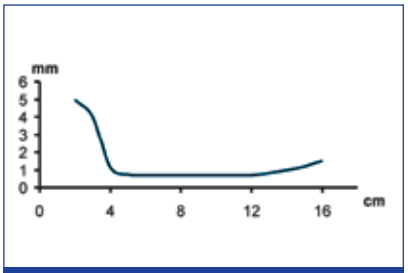
S40-PR-x-B-x



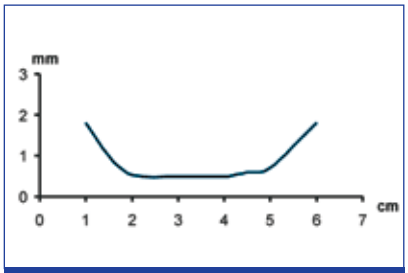
S40-PR-x-T-x



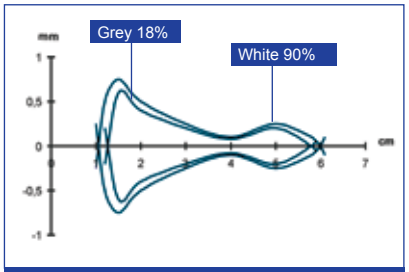
S40-PH-x-C-x



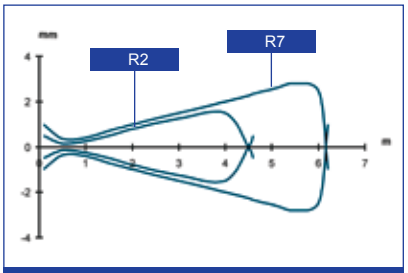
S40-PH-x-C-x resolution



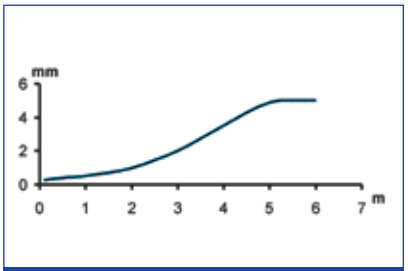
S40-PH-x-M-x resolution



S40-PH-x-M-x



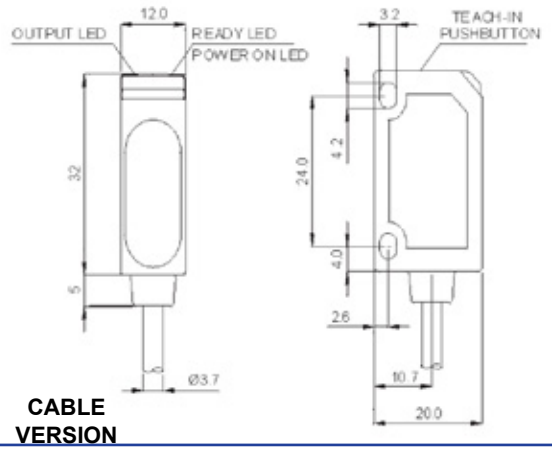
S40-PH-x-B-x



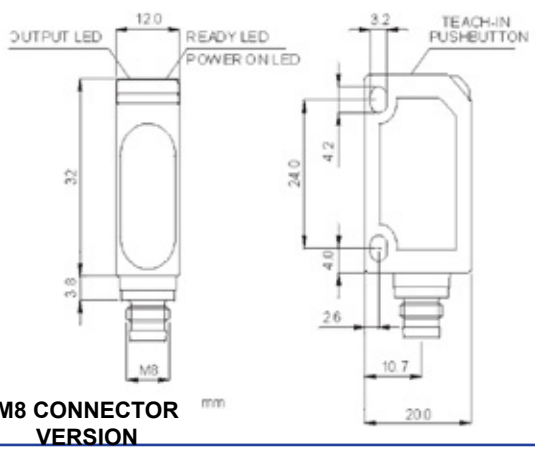
S40-PH-x-B-x resolution on R7

The detection diagrams indicate the typical operating distance with excess gain 1.

DIMENSIONS



CABLE VERSION



M8 CONNECTOR VERSION

MODEL SELECTION AND ORDER INFORMATION

MODEL	OPTIC FUNCTION	CONNECTION	OUTPUT	CODE N°
S40-PR-2-B03-NH	polarised retroreflex	2 m cable	NPN	950401360
S40-PR-2-B03-PH	polarised retroreflex	2 m cable	PNP	950401300
S40-PR-2-C03-NH	diffuse proximity	2 m cable	NPN	950401370
S40-PR-2-C03-PH	diffuse proximity	2 m cable	PNP	950401310
S40-PR-2-M03-NH	background suppression	2 m cable	NPN	950401380
S40-PR-2-M03-PH	background suppression	2 m cable	PNP	950401320
S40-PR-2-T03-NH	retroreflex for transparents	2 m cable	NPN	950401410
S40-PR-2-T03-PH	retroreflex for transparents	2 m cable	PNP	950401350
S40-PR-5-B03-NH	polarised retroreflex	M8 connector	NPN	950401480
S40-PR-5-B03-PH	polarised retroreflex	M8 connector	PNP	950401420
S40-PR-5-C03-NH	diffuse proximity	M8 connector	NPN	950401490
S40-PR-5-C03-PH	diffuse proximity	M8 connector	PNP	950401430
S40-PR-5-M03-NH	background suppression	M8 connector	NPN	950401500
S40-PR-5-M03-PH	background suppression	M8 connector	PNP	950401440
S40-PR-5-T03-NH	retroreflex for transparents	M8 connector	NPN	950401530
S40-PR-5-T03-PH	retroreflex for transparents	M8 connector	PNP	950401470
S40-PH-5-B03-NH	laser polarised retroreflex	M8 connector	NPN	950401240
S40-PH-5-B03-PH	laser polarised retroreflex	M8 connector	PNP	950401250
S40-PH-5-C03-NH	laser diffuse proximity	M8 connector	NPN	950401260
S40-PH-5-C03-PH	laser diffuse proximity	M8 connector	PNP	950401270
S40-PH-5-M03-NH	laser background suppression	M8 connector	NPN	950401280
S40-PH-5-M03-PH	laser background suppression	M8 connector	PNP	950401290

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-505	1 pc fixing bracket	95ACC2800

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S41 SERIES

The **S41** series offers a basic line of photoelectric sensors in a miniature housing, ideal for applications that require reduced dimensions and costs. The optic functions include a diffuse proximity adjustable from 0 to 35 cm and a 11 cm fixed focus proximity suitable for background suppression; 2.5 m polarised retroreflex, 1 m retroreflex for transparents and 6 m through beam are available for longer operating distances; the latter is also available in a narrow beam emitter version that allows to place sensors side by side without interferences. The LED emission is red for the fixed focus proximity and infrared for the other models. Two LED indicators are visible on the sensors: a yellow output LED and a green switching stability LED; the diffuse proximity models and a polarised retroreflex version also present a sensitivity adjustment trimmer. The normally open and normally closed outputs are both present on different poles; cable or M8 connection is offered according to the model chosen.







HIGHLIGHTS

- Diffuse or fixed focus proximity for background suppression
- Polarised retroreflex and emitter-receiver with narrow beam
- Models with trimmer setting
- Double NO-NC NPN or PNP output

APPLICATIONS

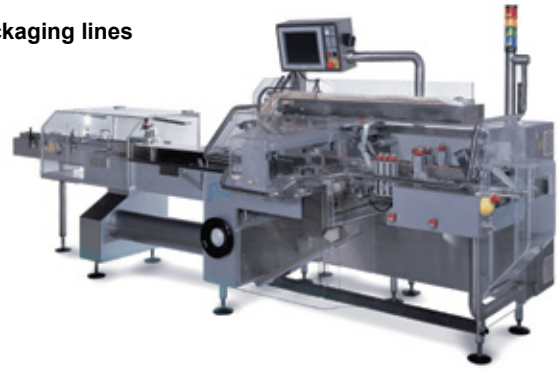
Automotive



Beverage & Bottling



Packaging lines

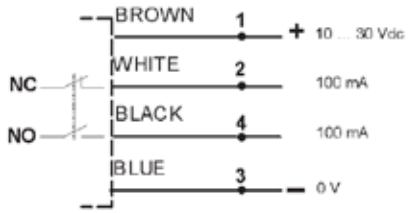


TECHNICAL DATA

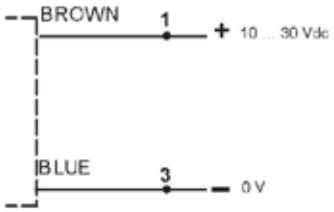
Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	35 mA max.
Light emission:	red LED 660 nm (B, D, P, T vers.)
	infrared LED 880 nm (C, G, H vers.)
Diffuse proximity operating distance:	0.2 ... 35 cm (C vers.)
Fixed focus operating distance:	11 cm ± 10 % (D vers.)
Polarised retroreflex operating distance:	0.1 ... 2.5 m (on R2)
Retroreflex transparents op. distance:	0.1 ... 0.7 m (on R2)
Through beam operating distance:	0.1 ... 6 m (G vers.), 0.1 ... 1.5 m (H vers.)
Setting:	sensitivity trimmer (B, C, T vers.)
Indicators:	yellow OUTPUT LED
	green POWER LED (G, H vers.)
	green STABILITY LED (B, C, D, F, P vers.)
Output type:	NC-NO NPN or PNP
Saturation voltage:	2 V max.
Output current:	100 mA max., short-circuit protection
Response time:	1 ms max.
Switching frequency:	500 Hz max.
Connection:	M8 4-pole connector
	2 m Ø 3.5 mm cable
Electrical protection:	class 2
Mechanical protection:	IP67 (P, D, F, G, H vers.)
	IP66 (B, C, T vers.)
Housing material:	ABS
Lens material:	PMMA plastic
Weight:	10 g max. (connector vers.)
	40 g max. (cable vers.)
Operating temperature:	-25 ... +55°C
Storage temperature:	-25 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	CE

The operating distances indicate the detection distance with excess gain 2.

CONNECTIONS



S41-5-B/C/D/F/P/T

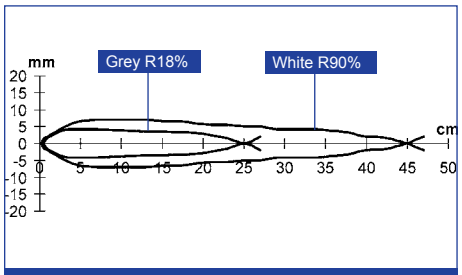


S41-5-G/H

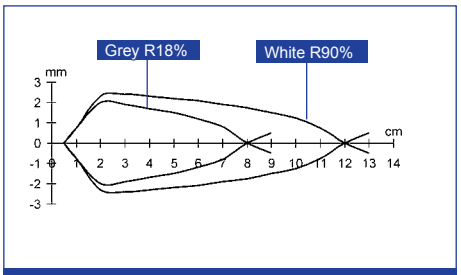


M8 CONNECTOR

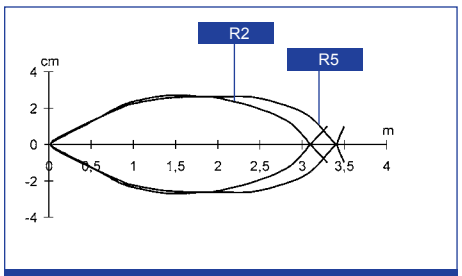
DETECTION DIAGRAMS



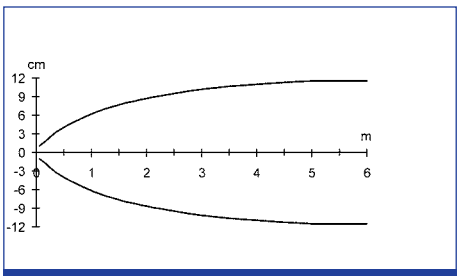
S41-x-C-x



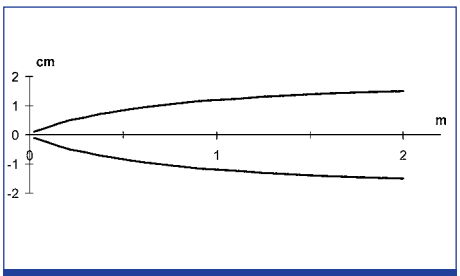
S41-x-D-x



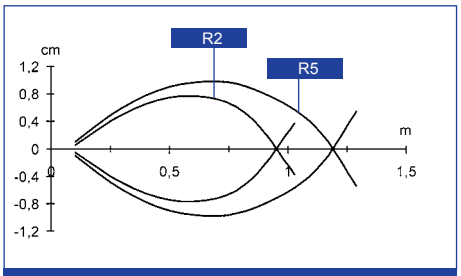
S41-x-B/P-x



S41-x-F/G-x



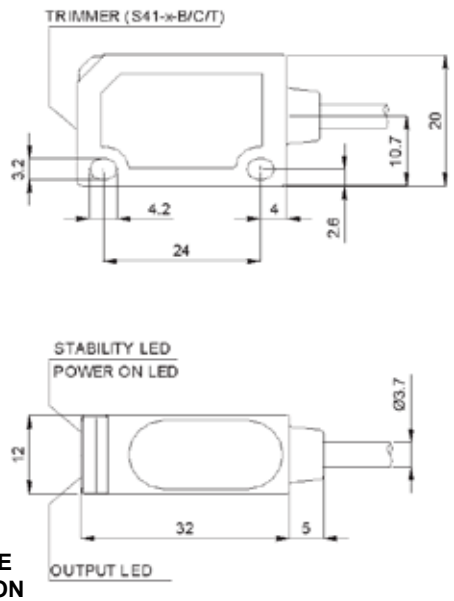
S41-x-F/H-x



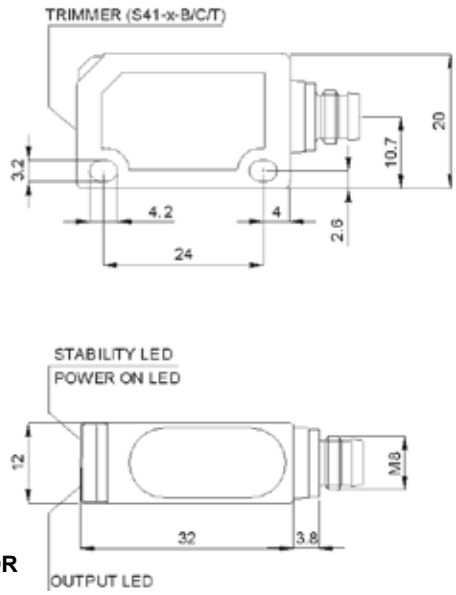
S41-x-T-x

The detection diagrams indicate the typical operating distance with excess gain 1.

DIMENSIONS



CABLE VERSION



M8 CONNECTOR VERSION

mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	OPTIC FUNCTION	TRIMMER	CONNECTION	OUTPUT	CODE N°
S41-2-B-P	polarised retroreflex	present	2 m cable	PNP	950701000
S41-2-C-P	diffuse proximity	present	2 m cable	PNP	950701010
S41-2-D-P	fixed focus proximity	absent	2 m cable	PNP	950701020
S41-2-F-P	receiver	absent	2 m cable	PNP	950701030
S41-2-G	emitter	absent	2 m cable	-	950701040
S41-2-H	emitter with narrow beam	absent	2 m cable	-	950701045
S41-2-P-P	polarised retroreflex	absent	2 m cable	PNP	950701100
S41-2-T-P	retroreflex for transparents	present	2 m cable	PNP	950701130
S41-5-B-P	polarised retroreflex	present	M8 connector	PNP	950701050
S41-5-C-P	diffuse proximity	present	M8 connector	PNP	950701060
S41-5-D-P	fixed focus proximity	absent	M8 connector	PNP	950701070
S41-5-F-P	receiver	absent	M8 connector	PNP	950701080
S41-5-G	emitter	absent	M8 connector	-	950701090
S41-5-H	emitter with narrow beam	absent	M8 connector	-	950701095
S41-5-P-P	polarised retroreflex	absent	M8 connector	PNP	950701110
S41-5-T-P	retroreflex for transparents	present	M8 connector	PNP	950701140
S41-2-B-N	polarised retroreflex	present	2 m cable	NPN	950701150
S41-2-C-N	diffuse proximity	present	2 m cable	NPN	950701160
S41-2-D-N	fixed focus proximity	absent	2 m cable	NPN	950701170
S41-2-F-N	receiver	absent	2 m cable	NPN	950701180
S41-2-P-N	polarised retroreflex	absent	2 m cable	NPN	950701190
S41-2-T-N	retroreflex for transparents	present	2 m cable	NPN	950701200
S41-5-B-N	polarised retroreflex	present	M8 connector	NPN	950701210
S41-5-C-N	diffuse proximity	present	M8 connector	NPN	950701120
S41-5-D-N	fixed focus proximity	absent	M8 connector	NPN	950701230
S41-5-F-N	receiver	absent	M8 connector	NPN	950701240
S41-5-P-N	polarised retroreflex	absent	M8 connector	NPN	950701250
S41-5-T-N	retroreflex for transparents	present	M8 connector	NPN	950701260

ACCESSORY SELECTION AND ORDER INFORMATION

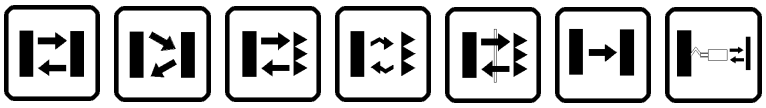
MODEL	DESCRIPTION	CODE N°
R1	Ø 23 mm reflector with Ø 31 mm support	S940700023
R2	Ø 48 mm reflector with Ø 63 mm support	S940700048
R3	18 x 54 mm reflector with 22.5 x 82 mm support	S940700972
R4	47 x 47 mm reflector with 51.5 x 61 mm support	95A151340
R5	Ø 75 mm reflector with Ø 82 mm support	S940700075
R6	36 x 55 mm reflector with 40.5 x 60 mm support	95A151350
ST-505	1 pc fixing bracket	95ACC2800

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S3 SERIES

The photoelectric sensors of the **S3** series are characterised by particularly compact dimensions still offering excellent performances and a wide variety of models.
The wide range of optic functions include diffuse proximity with distance adjustable up to 10 cm or 50 cm, or 12 mm fixed focus proximity. The retroreflex versions reach 3 m and are also available in the polarised version suitable for detecting shiny objects, or low hysteresis models to detect transparent objects. The 5 m through beam models complete the series, together with versions for the different fibre-optics available as accessories.
All models offer trimmer sensitivity adjustment and LED stability indicator; the axial and lateral optics guarantee the same performances. Maximum installation versatility and use are obtained thanks to the configurable output and miniature housing.



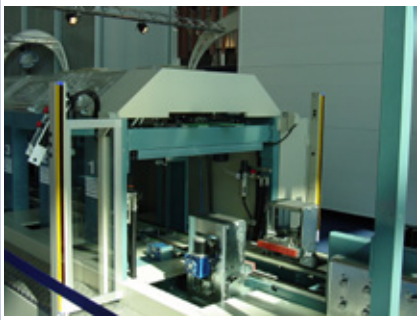


HIGHLIGHTS

- Miniature housing with axial or lateral optics
- Wide range of optic functions including fibre versions
- Sensitivity adjustment and stability LED
- NPN/PNP and dark/light configurable output

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines



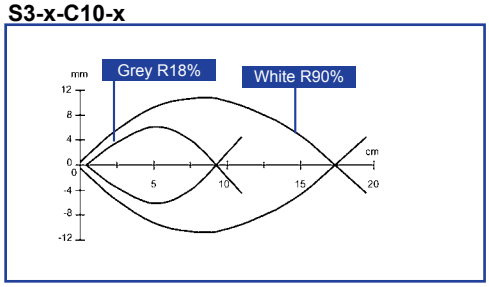
TECHNICAL DATA

Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	30 mA max.
Light emission:	infrared 880 nm LED
	red 660 nm LED (B2, D12, E1 vers.)
Diffuse proximity operating distance:	0 ... 10 cm (C10 vers.)
	0 ... 50 cm (C50 vers.)
Fixed focus operating distance:	12 mm with 1 mm spot (D12 vers.)
Retroreflex operating distance:	0.1 ... 2.5 m (on R2)
Polarised retroreflex operating distance:	0.1 ... 2 m (on R2)
Retroreflex for transparents op. distance:	0.2 ... 0.8 m (on R2)
Through beam operating distance:	0 ... 5 m
Operating distance with fibre-optics:	33 mm proximity (with OF-18-ST)
	110 mm through beam (with OF-19-ST)
	refer to OF series for other fibres
Setting:	sensitivity trimmer
Indicators:	red OUTPUT LED
	green STABILITY LED
	red POWER LED (G5 vers.)
Output type:	PNP (connector vers.)
	NPN/PNP configurable (cable vers.)
Saturation voltage:	1.5 V max.
Output current:	100 mA max., short-circuit protection
Response time:	1 ms max.
	2 ms (F vers.)
Switching frequency:	500 Hz max.
	250 Hz max. (F vers.)
Operating mode:	dark/light configurable
Auxiliary functions:	'test +' and 'test -' inputs (G vers.)
Connection:	M8 4-pole connector
	2 m Ø 5 mm cable
Electrical protection:	class 2
Mechanical protection:	IP66
Housing material:	ABS
Lens material:	PMMA plastic
Weight:	20 g max. (connector vers.)
	90 g max. (cable vers.)
Operating temperature:	-25 ... +55°C
Storage temperature:	-25 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	CE

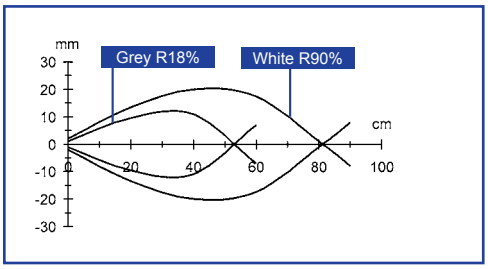
The operating distances indicate the detection distance with excess gain 2.

DETECTION DIAGRAMS

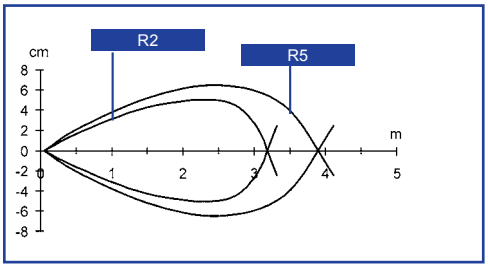
S3-x-C10-x



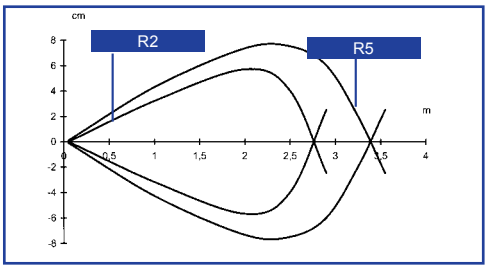
S3-x-C50-x



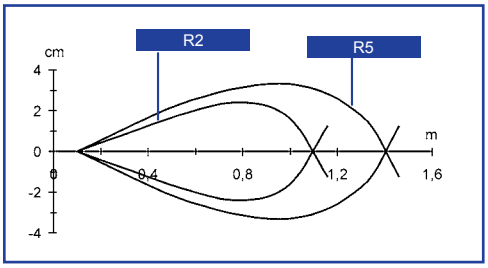
S3-x-A2.5-x



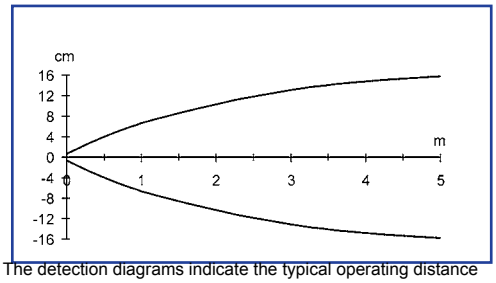
S3-x-B2-x



S3-x-T0.8-x

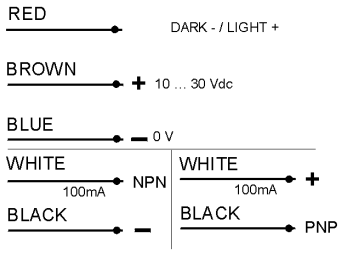


S3-x-F/G-x

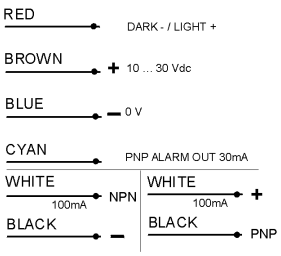


The detection diagrams indicate the typical operating distance with excess gain 1.

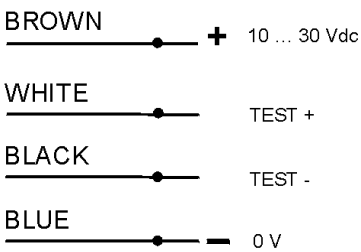
CONNECTIONS



S3-5-A/B/C/D/E/T

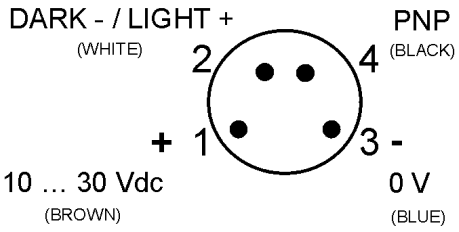


S3-5-F

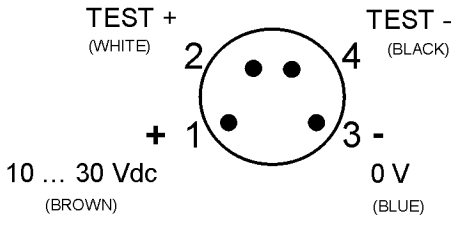


S3-5-G

M8 CONNECTOR



S3T-x-A/B/C/D/E/T/F

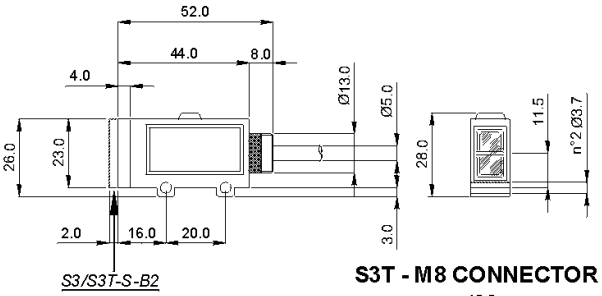


S3T-x-G

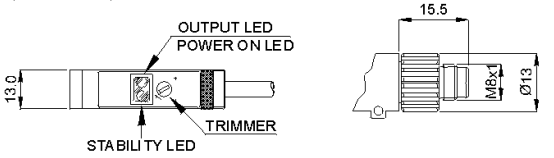
DIMENSIONS

AXIAL OPTIC VERSIONS

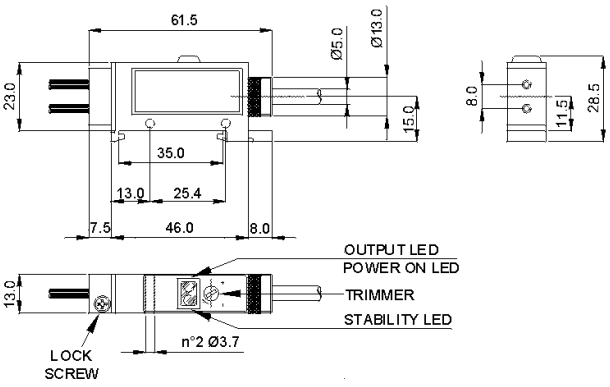
S3-S-A2.5/B2/C10/C50/D12/F5/G5/T0.8



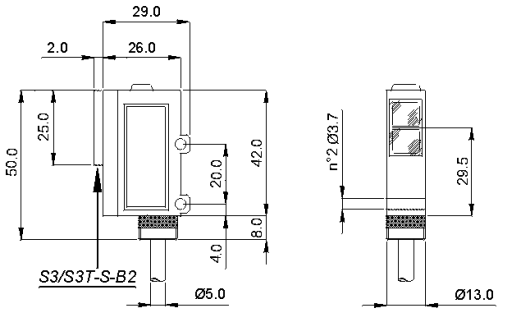
S3T - M8 CONNECTOR



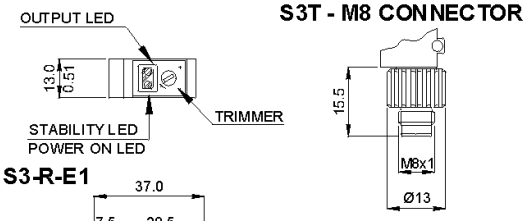
S3-S-E1



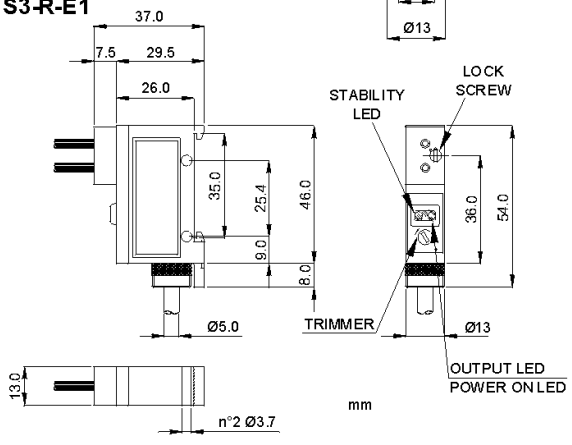
S3-R-A2.5/B2/C10/C50/D12/F5/G5/T0.8



S3T - M8 CONNECTOR



S3-R-E1



MODEL SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	OPTICS	CONNECTION	OUTPUT	CODE N°
S3-R-C10	diffuse proximity	lateral	cable	NPN/PNP	S936530005
S3T-R-C10-P	diffuse proximity	lateral	M8 connector	PNP	S939730201
S3-S-C10	diffuse proximity	axial	cable	NPN/PNP	S936530004
S3T-S-C10-P	diffuse proximity	axial	M8 connector	PNP	S939730200
S3-R-C50	diffuse proximity	lateral	cable	NPN/PNP	S936530001
S3T-R-C50-P	diffuse proximity	lateral	M8 connector	PNP	S939530201
S3-S-C50	diffuse proximity	axial	cable	NPN/PNP	S936530000
S3T-S-C50-P	diffuse proximity	axial	M8 connector	PNP	S939530200
S3-R-D12	fixed focus proximity	lateral	cable	NPN/PNP	S936620001
S3T-R-D12-P	fixed focus proximity	lateral	M8 connector	PNP	S939620201
S3-S-D12	fixed focus proximity	axial	cable	NPN/PNP	S936620000
S3T-S-D12-P	fixed focus proximity	axial	M8 connector	PNP	S939620200
S3-R-A2,5	retroreflex	lateral	cable	NPN/PNP	S936330001
S3T-R-A2,5-P	retroreflex	lateral	M8 connector	PNP	S939330201
S3-S-A2,5	retroreflex	axial	cable	NPN/PNP	S936330000
S3T-S-A2,5-P	retroreflex	axial	M8 connector	PNP	S939330200
S3-R-B2	polarised retroreflex	lateral	cable	NPN/PNP	S936420001
S3T-R-B2-P	polarised retroreflex	lateral	M8 connector	PNP	S939420201
S3-S-B2	polarised retroreflex	axial	cable	NPN/PNP	S936420000
S3T-S-B2-P	polarised retroreflex	axial	M8 connector	PNP	S939420200
S3-R-T0,8	retroreflex for transp.	lateral	cable	NPN/PNP	S936330009
S3T-R-T0,8-P	retroreflex for transp.	lateral	M8 connector	PNP	S939330209
S3-S-T0,8	retroreflex for transp.	axial	cable	NPN/PNP	S936330008
S3T-S-T0,8-P	retroreflex for transp.	axial	M8 connector	PNP	S939330208
S3-R-E1	fibre-optic conn.	lateral	cable	NPN/PNP	S936820001
S3T-R-E1-P	fibre-optic conn.	lateral	M8 connector	PNP	S939820201
S3-S-E1	fibre-optic conn.	axial	cable	NPN/PNP	S936820000
S3T-S-E1-P	fibre-optic conn.	axial	M8 connector	PNP	S939820200
S3-R-F5	receiver	lateral	cable	NPN/PNP	S936200001
S3T-R-F5-P	receiver	lateral	M8 connector	PNP	S939200201
S3-S-F5	receiver	axial	cable	NPN/PNP	S936200000
S3T-S-F5-P	receiver	axial	M8 connector	PNP	S939200200
S3-R-G5	emitter	lateral	cable	-	S936130001
S3T-R-G5	emitter	lateral	M8 connector	-	S939130901
S3-S-G5	emitter	axial	cable	-	S936130000
S3T-S-G5	emitter	axial	M8 connector	-	S939130900

ACCESSORY SELECTION AND ORDER INFORMATION

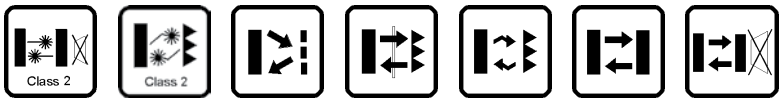
MODEL	DESCRIPTION	CODE N°
R1	Ø 23 mm reflector with Ø 31 mm support	S940700023
R2	Ø 48 mm reflector with Ø 63 mm support	S940700048
R3	18 x 54 mm reflector with 22.5 x 82 mm support	S940700972
R4	47 x 47 mm reflector with 51.5 x 61 mm support	95A151340
R5	Ø 75 mm reflector with Ø 82 mm support	S940700075
R6	36 x 55 mm reflector with 40.5 x 60 mm support	95A151350
ST-505	1 pc fixing bracket	95ACC2800

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S8 SERIES

The new **S8** series of compact sensors offers excellent detection performances, usually associated with sensors that have larger dimensions and a higher price. The **S8** series is able to solve the most critical sensor applications. A solution for packaging lines, food and beverage industries, automotive, test and assembling machines and electronic plants. Laser models with coaxial polarized retroreflex and background suppression are available. Base models with LED emission are also offered featuring polarized retroreflex, diffuse proximity, background suppression, coaxial polarized retroreflex for transparents and contrast sensors. The Laser versions present extremely focused spot lower than to 1 mm and switching frequencies that are amongst the highest on the market reaching 10 kHz. The contrast sensor is the most compact sensor available today with RGB emission and coaxial optics. Connector M8 or M12 'pig-tail' versions are available.





HIGHLIGHTS

- Compact dimensions (14x42x25 mm)
- Up to 10 kHz switching frequency
- Extremely focussed spot,under 1 mm (Laser vers.)
- Very high resolutions
- Coaxial versions

APPLICATIONS

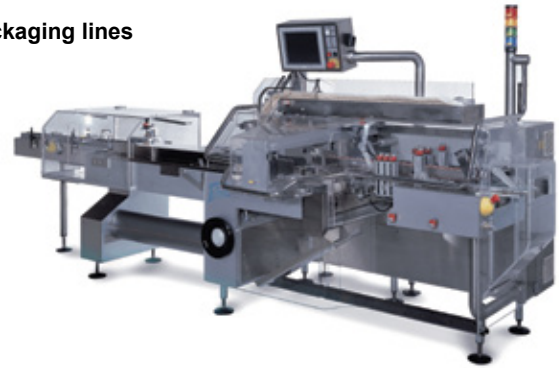
Automotive



Beverage & Bottling

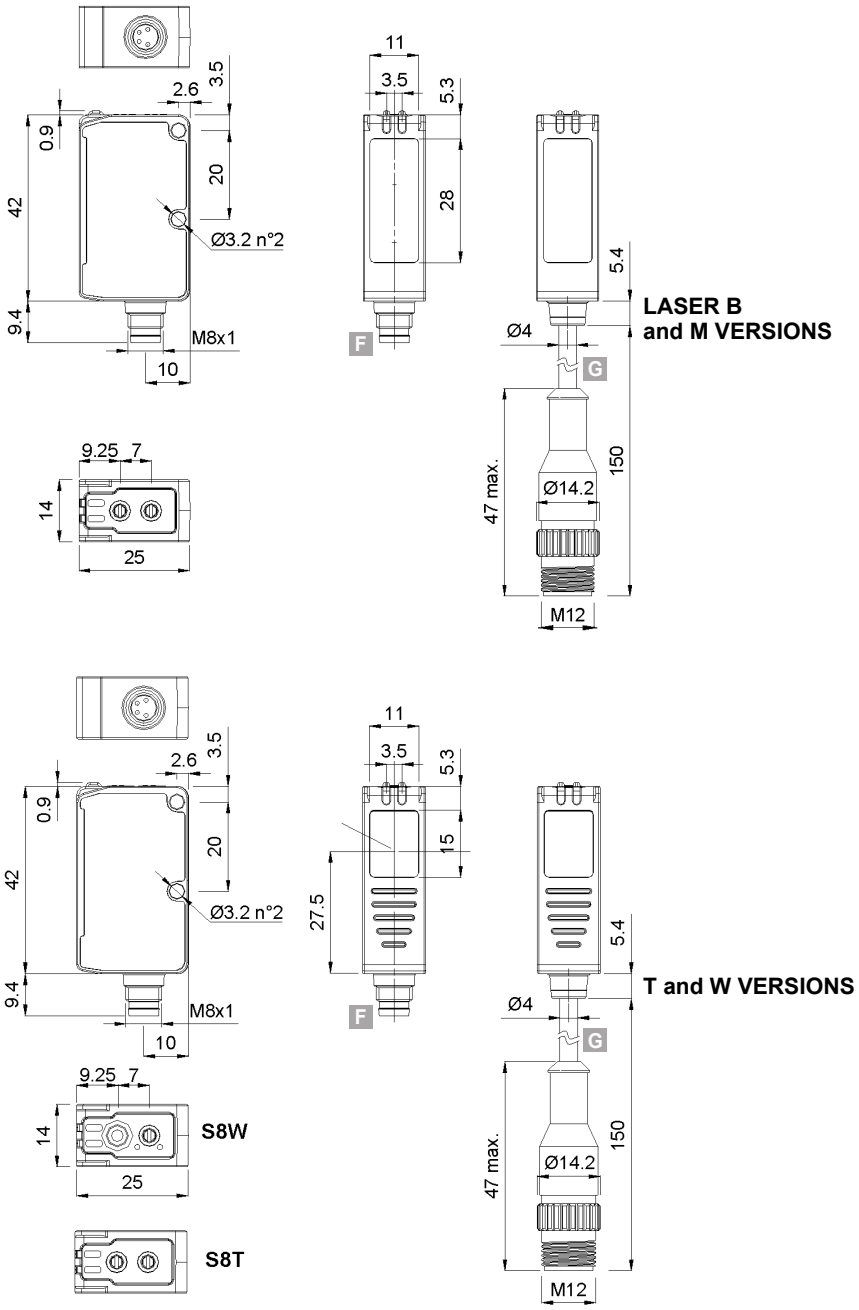


Packaging lines



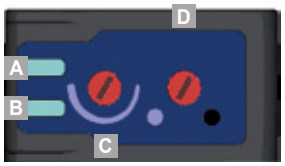
The Laser versions present extremly focused spot inferior to 1 mm and switching frequencies that are amongst the highest on the market reaching 10 kHz. Offering excellent reading repeatability, and the object can be 'detected' always in the same position!
The coaxial retroreflex version with LED emission guaranteeing an excellent resolution in detecting transparent objects that, associated to a 2 kHz frequency and ALARM output for dirty lenses, offer great reliability and plant productivity.
The contrast sensor is the mostcompact sensor with RGB emissionand coaxial optics available today onthe market, offering excellent detection resolution and field of depth typical of sensors with a higherprice/dimension ratio.
The retrorelex modes offer anadditional alarm signal for received signal problems or dirty lenses.

DIMENSIONS

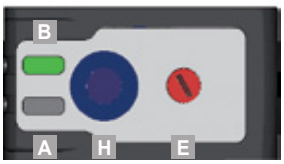


INDICATORS AND SETTINGS

S8...M / B / C / T01



S8...W / T53

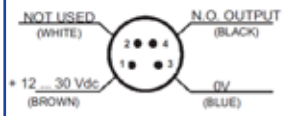


- A Output status LED
- B Ready LED or Power ON LED
- C Sensitivity adjustment trimmer
- D Dark/light trimmer
- E Delay trimmer
- F M8 connector
- G M12 pig-tail connector
- H SET push-button

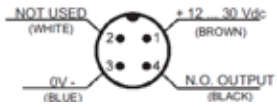
CONNECTIONS

S8...M/C

M8 connector

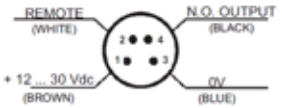


M12 connector

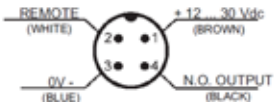


S8...W/T53

M8 connector

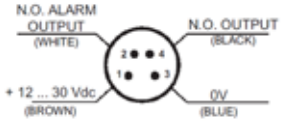


M12 connector

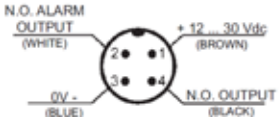


S8...T01/B01 / S8B-Laser

M8 connector

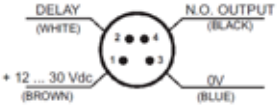


M12 connector

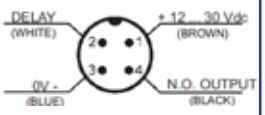


S8M-Laser

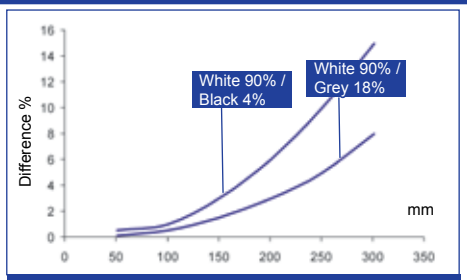
M8 connector



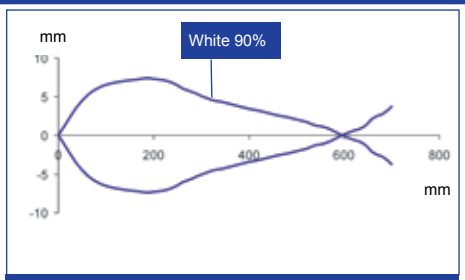
M12 connector



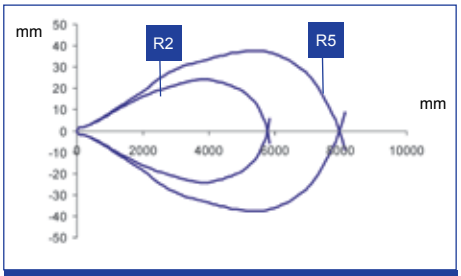
DETECTION DIAGRAMS



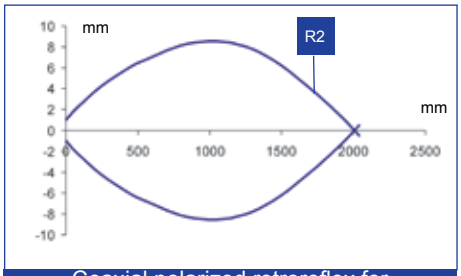
Background suppression



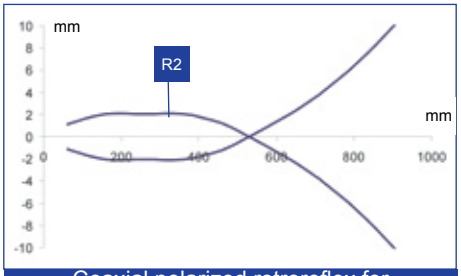
Diffuse proximity



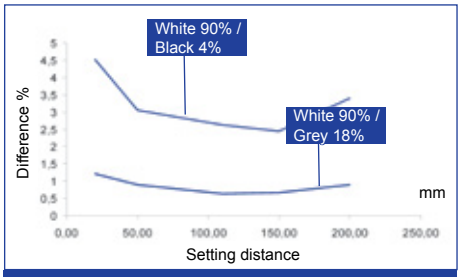
Polarized retroreflex



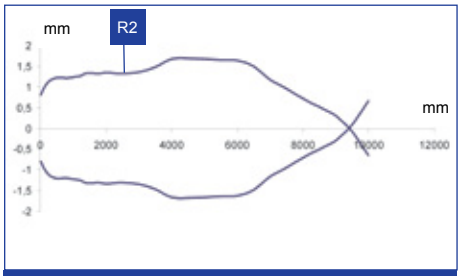
Coaxial polarized retroreflex for transparents - T53



Coaxial polarized retroreflex for transparents - T01



Laser background suppression



Laser coaxial polarized retroreflex

TECHNICAL DATA OF MODELS WITH LED EMISSION

		S8-PR-5-B01-xx	S8-PR-3-B01-xx	S8-PR-5-M01-xx	S8-PR-3-M01-xx	S8-PR-5-C01-xx	S8-PR-3-C01-xx	S8-PR-5-T51-xx	S8-PR-3-T51-xx	S8-PR-5-T53-xx	S8-PR-5-W03-xx	S8-PR-3-W03-xx
Polarized retroreflex operating distance:	0 ... 5 m (on R2)	●	●									
Background suppression op. distance:	50 ... 300 mm			●	●							
Difuse proximity operating distance:	0 ... 500 mm					●	●					
RRX for transparents op. distance:	50 ... 800 mm							●	●			
	0 ... 2000 mm									●		
Constrast sensor operating distance:	9 ± 3 mm										●	●
Power supply:	12 ... 30 Vdc	●	●	●	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●	●	●	●
Consumption:	15 mA max.							●	●			
	30 mA max.	●	●	●	●	●	●			●	●	●
Light emission:	red LED 660 nm	●	●	●	●	●	●	●	●	●		
	blue LED 465nm/green LED 520nm/red LED 630nm										●	●
Spot dimension:	3 x 1 mm²										●	●
	refer to diagrams for the other models	●	●	●	●	●	●	●	●	●		
Setting:	monoturn trimmer for dark/light selection	●	●	●	●	●	●	●	●	●		
	monoturn trimmer for delay OFF 20msec. sel.										●	●
	monoturn sensitivity adjustment trimmer	●	●			●	●	●	●			
	multiturn trimmer (8 turns)			●	●							
	SET push-button									●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●	●	●	●
	green READY LED									●	●	●
	green POWER ON LED	●	●	●	●	●	●	●	●			
Output type:	PNP or NPN, N.O./N.C.	●	●	●	●	●	●	●	●	●	●	●
	ALARM OUTPUT (PNP/NPN)	●	●					●	●			
Output current:	≤ 100 mA	●	●	●	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●	●	●	●
Response time:	50 µs										●	●
	250 µs							●	●	●		
	500 µs	●	●			●	●					
	1 ms			●	●							
Max. switching frequency:	10 kHz										●	●
	2 kHz							●	●	●		
	1 kHz	●	●			●	●					
	500 Hz			●	●							
Operating mode:	selectable dark/light	●	●	●	●	●	●	●	●	●	●	●
Connection:	M8 4-pole connector	●		●		●		●		●	●	
	M12 4-pole, Ø 4 mm, pig-tail		●		●		●		●			●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B	●	●	●	●	●	●	●	●	●	●	●
Housing material:	ABS	●	●	●	●	●	●	●	●	●	●	●
Lens material:	window in glass							●	●	●	●	●
	lenses in PC	●	●	●	●	●	●				●	●
	lens in glass							●	●	●		
Weight:	12 g max. connector version	●		●		●		●		●	●	
	50 g max. pig-tail version		●		●		●		●			●
Operating temperature:	-10 ... +55°C	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-20 ... +70°C	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●

TECHNICAL NOTES

[1] Average life of 100.000 h with TA = +25 °C
[2] A - reverse polarity protection
B - overload and short-circuit protection

TECHNICAL DATA OF MODELS WITH LASER EMISSION

		S8-PH-5-B51-xx	S8-PH-3-B51-xx	S8-PH-5-M01-xx	S8-PH-3-M01-xx
Coaxial retroreflex operating distance:	0 ... 10 m (su R2)	●	●		
Background suppression operative distance:	20 ... 200 mm			●	●
Power supply:	12 ... 30 Vdc	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	≤ 30 mA	●	●	●	●
Light emission:	red Laser 645...665 nm	●	●	●	●
	class II EN 60825-1	●	●	●	●
	class II CDRH21 CFR 1040.10	●	●	●	●
Spot dimension:	≤ 0.2 mm at 110 mm			●	●
	≤ 0.5 mm at 400 mm	●	●		
Focussing point:	110 mm			●	●
	400 mm	●	●		
Setting:	monoturn sensitivity adjustment trimmer	●	●		
	multi-turn sensitivity adjustment trimmer			●	●
	monoturn trimmer for dark/light selection	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green POWER ON LED	●	●	●	●
Output type:	PNP or NPN, N.O./N.C.	●	●	●	●
	ALARM OUTPUT (PNP/NPN)	●	●		
Output current:	≤ 100 mA	●	●	●	●
Saturation current:	≤ 2 V	●	●	●	●
Response time:	50 µs	●	●		
	100 µs			●	●
Max. switching frequency:	5 kHz			●	●
	10 kHz	●	●		
Operating mode:	selectable dark/light	●	●	●	●
Connection:	M8 4-pole connector	●		●	
	M12 4-pole, Ø 4 mm, pig-tail		●		●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in PMMA	●	●	●	●
	lenses in PC	●	●	●	●
Weight:	12 g max. connector version	●		●	
	50 g max. pig-tail version		●		●
Operating temperature::	-10 ... +55°C	●	●	●	●
Storage temperature:	-20 ... +70°C	●	●	●	●
Reference standard:	EN 60947-5-2,	●	●	●	●
	EN 60825-1, CDRH21 CFR 1040.10	●	●	●	●

TECHNICAL NOTES

[1] Average life of 50.000 h with TA = +25 °C
[2] A - reverse polarity protection
B - overload and short-circuit protection

MODEL SELECTION AND ORDER INFORMATION

MODELS WITH LED EMISSION				
MODEL	**FUNCTION**	**CONNECTION**	**OUTPUT**	**ORDER N°**
S8-PR-5-B01-PP	Polarized retroreflex 5 m	M8	PNP	950801160
S8-PR-5-B01-NN	Polarized retroreflex 5 m	M8	NPN	950801170
S8-PR-5-M01-PP	Background suppression 30 cm	M8	PNP	950801200
S8-PR-5-M01-NN	Background suppression 30 cm	M8	NPN	950801210
S8-PR-5-C01-PP	Difuse proximity 50 cm	M8	PNP	950801240
S8-PR-5-C01-NN	Difuse proximity 50 cm	M8	NPN	950801260
S8-PR-5-T51-PP	Retroreflex for transparents 0,8 m	M8	PNP	950801040
S8-PR-5-T51-NN	Retroreflex for transparents 0,8 m	M8	NPN	950801050
S8-PR-5-T53-PP	Retroreflex for transparents 2 m	M8	PNP	950801280
S8-PR-5-T53-NN	Retroreflex for transparents 2 m	M8	NPN	950801290
S8-PR-5-W03-PP	Contrast sensor, RGB	M8	PNP	950801060
S8-PR-5-W03-NN	Contrast sensor, RGB	M8	NPN	950801070
S8-PR-3-B01-PP	Polarized retroreflex 5 m	M12 pig-tail	PNP	950801180
S8-PR-3-B01-NN	Polarized retroreflex 5 m	M12 pig-tail	NPN	950801190
S8-PR-3-M01-PP	Background suppression 30 cm	M12 pig-tail	PNP	950801220
S8-PR-3-M01-NN	Background suppression 30 cm	M12 pig-tail	NPN	950801230
S8-PR-3-C01-PP	Difuse proximity 50 cm	M12 pig-tail	PNP	950801250
S8-PR-3-C01-NN	Difuse proximity 50 cm	M12 pig-tail	NPN	950801270
S8-PR-3-T51-PP	Retroreflex for transparents 0,8 m	M12 pig-tail	PNP	950801120
S8-PR-3-T51-NN	Retroreflex for transparents 0,8 m	M12 pig-tail	NPN	950801130
S8-PR-3-W03-PP	Contrast sensor, RGB	M12 pig-tail	PNP	950801140
S8-PR-3-W03-NN	Contrast sensor, RGB	M12 pig-tail	NPN	950801150

MODELS WITH LED EMISSION				
MODEL	**FUNCTION**	**CONNECTION**	**OUTPUT**	**ORDER N°**
S8-PH-5-B51-PP	Laser coaxial retroreflex 10 m	M8	PNP	950801000
S8-PH-5-B51-NN	Laser coaxial retroreflex 10 m	M8	NPN	950801010
S8-PH-5-M01-PP	Laser background suppression 20 cm	M8	PNP	950801020
S8-PH-5-M01-NN	Laser background suppression 20 cm	M8	NPN	950801030
S8-PH-3-B51-PP	Laser coaxial retroreflex 10 m	M12 pig-tail	PNP	950801080
S8-PH-3-B51-NN	Laser coaxial retroreflex 10 m	M12 pig-tail	NPN	950801090
S8-PH-3-M01-PP	Laser background suppression 20 cm	M12 pig-tail	PNP	950801100
S8-PH-3-M01-NN	Laser background suppression 20 cm	M12 pig-tail	NPN	950801110

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5072	fixing bracket	95ACC1470

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S8 SHINY

The NEW S8 sensor known as the SHINY has a new patented technology which means it is able to detect transparent objects using a form of laser based background suppression.
Glass or clear plastic objects such as bottles, vials, packaging films, etc. can be easily detected directly even in the presence of shiny or reflective backgrounds.
This breakthrough technology offers many improvements with respect to previous systems based on polarized retro-reflex photoelectric or even ultrasonic sensors:

- No prismatic reflector: there is no need to have the clear object passing between sensor and reflector so reducing installation time and cost.
- Less mechanical constraints: the detection can be made from either the side or from the above with no need to screen or modify any metal parts of the machine.
- Highest depth of field: the clear object can move or float in any position between its background and the sensor without any need to adjust the detection threshold.



Class 2

HIGHLIGHTS

- 50 to 150mm operating range with fine mechanical adjustment
- High resolution
- Bright visible red Laser light emission with 5mm spot at maximum distance
- Fast response time: 1ms with a switching frequency of 500Hz.

APPLICATIONS

Food & Pharma



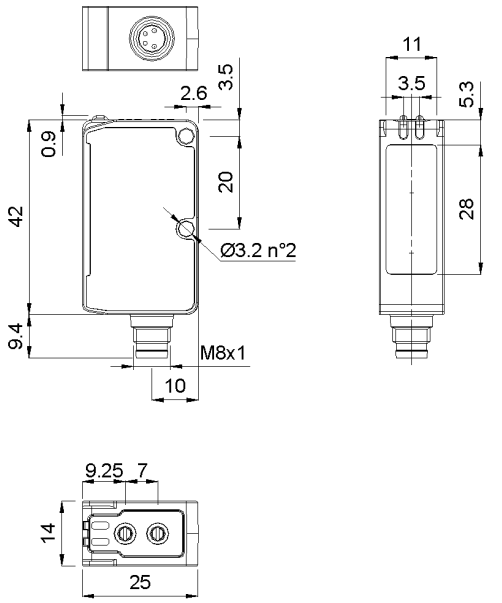
Beverage & Bottling



Packaging lines



DIMENSION



mm

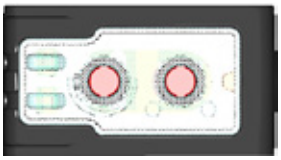
SETTING

SUPPRESSION DISTANCE AND BACKGROUND ACQUISITION SETTING

The S8-PH…M53 sensor which provides background suppression for shiny objects, enables the detection of clear objects without false or multiple triggering typical of other background suppression sensors. To function correctly it is necessary to perform the Background Acquisition Setting procedure described below.

1.Start Setting and Background Acquisition

Rotate the TEACH-IN trimmer fully counter-clockwise. If the trimmer is already in the counter-clockwise position, rotate it to the clockwise position and then back to the counter-clockwise position. The N.O. Output signal (black wire) is set to OFF and the yellow LED indicates the status in the same way as a standard background suppression sensor.



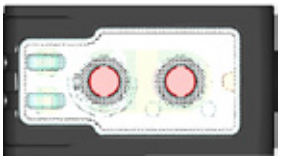
2.Background Exclusion

Position the sensor in front of the background. Rotate the DISTANCE ADJUSTMENT trimmer clockwise until the yellow LED turns ON: condition where background is detected.
Rotate counter-clockwise the trimmer until the yellow LED turns OFF: condition where background is out of the field of view.



3.Background Acquisition

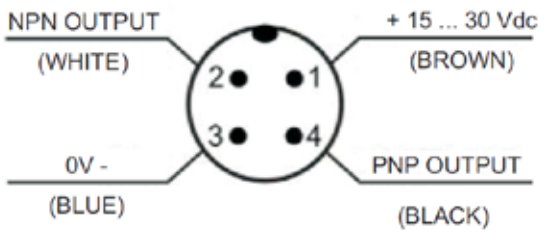
Rotate the TEACH-IN trimmer fully clockwise. The sensor acquires the background characteristics and is ready to detect any object that passes in the Detection Area. If the yellow LED blinks, the background acquisition procedure has failed. Rotate the TEACH-IN trimmer fully counter-clockwise and repeat the procedure from step 2.



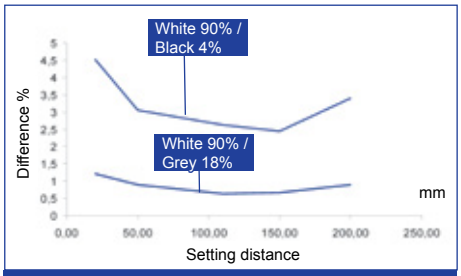
BACKGROUND AUTO-ADJUSTMENT FUNCTION

The sensor provides a background auto-adjustment function. If the background deteriorates and the received signal changes, after one minute the sensor automatically adjusts the background to compensate for this change therefore avoiding the need to continually acquire the background through manual setting.

CONNECTIONS



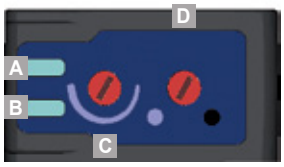
DETECTION DIAGRAM



Laser background suppression

INDICATORS AND SETTINGS

S8...M53



- A Output status LED
- B Ready LED or Power ON LED
- C Distance adjustment trimmer
- D Background setting trimmer

TECHNICAL DATA OF MODELS WITH LASER EMISSION

Background suppression operative distance:	50 ... 150 mm
Power supply:	12 ... 30 Vdc
Ripple:	≤ 2 Vpp
Consumption:	≤ 30 mA
Light emission:	red Laser 645...665 nm
	class II EN 60825-1
	class II CDRH21 CFR 1040.10
Spot dimension:	5 mm x 1 mm @ 110 mm
Focussing point:	110 mm
Setting:	multi-turn distance adjustment trimmer
	monoturn trimmer background setting
Indicators:	yellow OUTPUT LED
	green POWER ON LED
Output type:	PNP N.O./N.C.
Output current:	≤ 100 mA
Saturation current:	≤ 2 V
Response time:	1 ms
Max. switching frequency:	500 Hz
Operating mode:	selectable dark/light by wire
Connection:	M8 4-pole connector
Mechanical protection:	IP67
Protection devices:	A, B
Housing material:	ABS
Lens material:	window in PMMA
	lenses in PC
Weight:	12 g max. connector version
Operating temperature:	-10 ... +55°C
Storage temperature:	-20 ... +70°C
Reference standard:	EN 60947-5-2,
	EN 60825-1, CDRH21 CFR 1040.10

TECHNICAL NOTES

[1] Average life of 50.000 h with TA = +25 °C
[2] A - reverse polarity protection
B - overload and short-circuit protection

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CONNECTION	OUTPUT	ORDER N°
S8-PH-5-M53-PP	Background Suppression Clear Object Detection with 150mm Range	M8	PNP	950801380

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5072	fixing bracket	95ACC1470

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S8 STAINLESS STEEL

Datalogic's latest **SENSORS** for Contrast and transparent object detection now come for the first time in a stainless steel housing continuing the ONE for ALL concept of the S8 series. The sensors have been designed for frequent wash downs with a corrosion-resistant AISI316L stainless steel case which is IP69K rated. The contrast version is the ideal solution to discriminate fine contrast differences known as print registration marks at very high speeds whilst the clear object polarized retro has been designed to resist typical detection difficulties associated with accurately detecting the position of extremely transparent objects typically seen in the FOOD and BEVERAGE and PHARMACEUTICAL industries.
One for ALL concept means one shape with standard fixing holes with models suitable for solving virtually any application, allowing both the OEM and END USER to reduce and standardize the components used giving a real advantage in the development of their automated machines and production lines.



Diversey ECOLAB

HIGHLIGHTS

W model
- Discriminates fine contrast differences with RGB emission
- High speed detection at 50µs
- Coaxial optical system design provides stable detection of moving objects to eliminate false detections
- IP69K degree of protection with AISI316L stainless steel housing resists the effects of detergents, disinfectants and high-temperature, high-pressure wash down

T model
- Detects extremely transparent materials like fine plastic films, glass or PET bottles
- Coaxial optical system design provides stable detection of moving objects to eliminate false detections
- Auto-adaptive function to improve the reliability the detection even when the sensor face or reflector is contaminated
- IP69K degree of protection with AISI316L stainless steel housing resists the effects of detergents, disinfectants and high-temperature, high-pressure wash down

APPLICATIONS

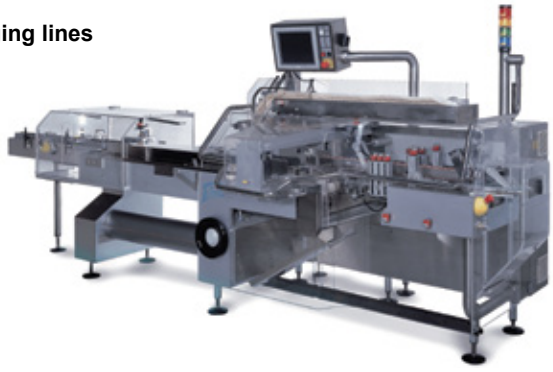
Food & Pharma



Beverage & Bottling



Packaging lines



T53 MODEL

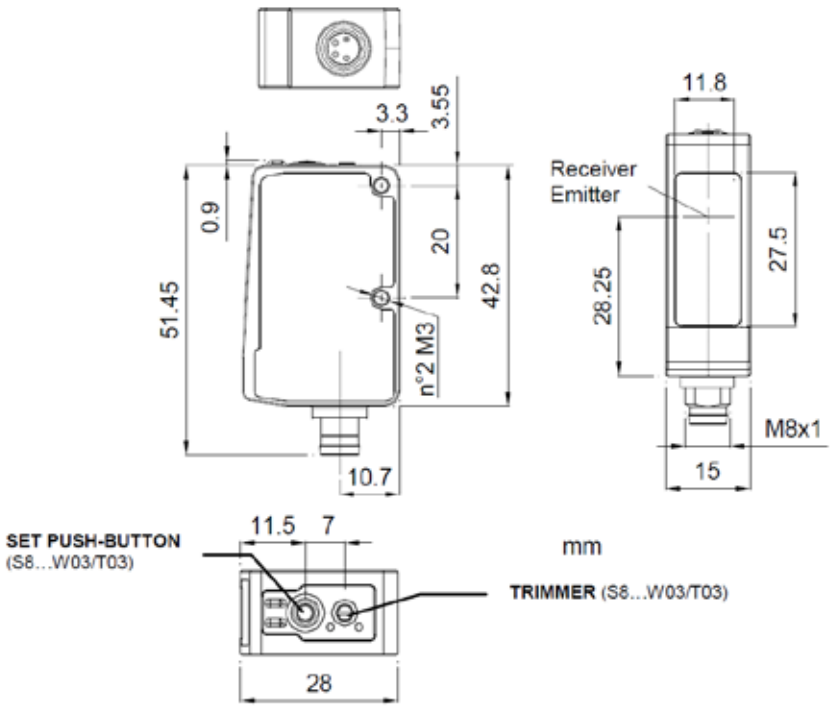
KEYLOCK FUNCTION

The KEYLOCK function (keyboard lock) enables the operator to deactivate the keyboard avoiding accidental changes in the sensor setting. If at sensor powering the REMOTE wire is connected to +DC for at least 1 second the keyboard lock function is activated and the pushbuttons are no longer active. To deactivate the keyboard lock, the sensor must be turned off and repowered with the REMOTE wire not connected or connected to GROUND.

THRESHOLD AUTO-ADJUSTMENT FUNCTION

The sensor provides threshold auto-adjustment function. If received signal decreases due to a dirty optical lens or reflector, the sensor adjusts automatically the commutation threshold to avoid continuous cleaning of optical parts (after 1 minute of low signal). If the received signal is too low to be adjusted from the sensor the output stays turned on meaning it is necessary to clean the sensor lens and reflector.

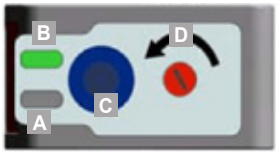
DIMENSIONS



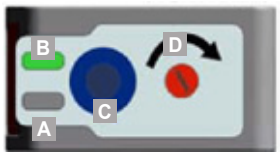
INDICATORS AND SETTINGS

PUSH BUTTON VERSION

Delay On / Light On



Delay Off / Dark On



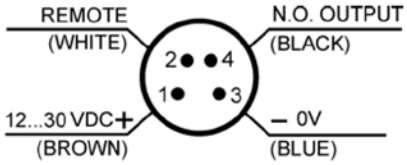
- A Output status LED
- B Ready LED
- C SET push-button
- D Delay trimmer (W)
  Light/Dark trimmer (T)

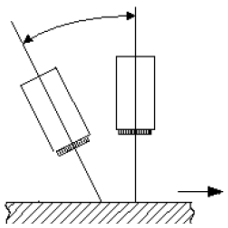
REMOTE VERSION



- A Output status LED
- B Ready LED

CONNECTIONS AND INSTALLATION





The sensor can be positioned by means of the two mounting holes using two screws (M3x18 or longer, 0.8Nm maximum tightening torque) with washers. Various adjustable fixing brackets are available to ease the mounting of the S8 (please refer to the accessories listed in the general catalogue). The operating distance is measured from the front surface of the sensor optics.
S8W - Mark detection on reflective surfaces is improved by adjusting the angle of the beam direction to between 5° and 20° from the surface axis.

TECHNICAL DATA OF MODELS WITH LED EMISSION

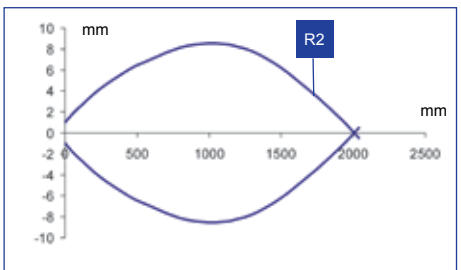
TECHNICAL NOTES

[1] Average life of 100.000 h with TA = +25 °C
[2] A - reverse polarity protection
B - overload and short-circuit protection

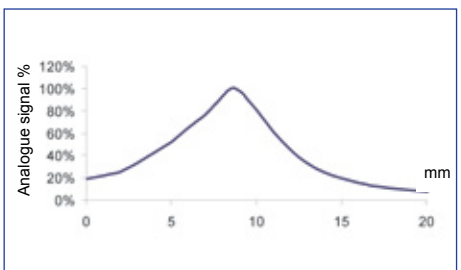
		S8-MR-5-T53-xx	S8-MR-5-T50-xx	S8-MR-5-W03-xx	S8-MR-5-W00-xx
Polarized RRX for transparent:	0 ... 2000 mm	●	●		
Constrast sensor operating distance:	9 ± 3 mm			●	●
Power supply:	12 ... 30 Vdc	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	15 mA max.	●			
	30 mA max.		●	●	●
Light emission: [1]	red LED 660 nm	●	●		
	blue LED 465nm/green LED 520nm/red LED 630nm			●	●
Spot dimension:	3 x 1 mm			●	●
	refer to diagrams	●		●	
Setting:	SET push-button	●		●	
	remote by white wire	●	●	●	●
	monoturn delay selection trimmer			●	
	monoturn dark/light selection trimmer	●			
Indicators:	yellow OUTPUT LED	●	●	●	●
	green READY LED		●	●	●
Output type:	PNP or NPN, N.O./N.C.	●	●	●	●
Output current:	≤ 100 mA	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●
Response time:	50 µs			●	●
	250 µs	●	●		
Max. switching frequency:	10 kHz			●	●
	2 kHz	●	●		
Connection:	M8 4-pole connector	●	●	●	●
Mechanical protection:	IP67, IP69K	●	●	●	●
Protection devices:	A, B[2]	●	●	●	●
Dielectric strength:	⧈ 1500 VAC 1 min. between electronics and housing	●	●	●	●
Insulating resistance:	>20 MΩ500 VDC between electronics and housing	●	●	●	●
Housing material:	INOX AISI 316L	●	●	●	●
Lens material:	window in PMMA	●	●	●	●
	lens in PC	●	●	●	●
Weight:	70 g. max.	●	●	●	●
Operating temperature:	-10 ... +55°C	●	●	●	●
Storage temperature:	-20 ... +70°C	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●

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DETECTION DIAGRAMS



Coaxial polarized retroreflex for transparents - T53



Contrast sensor

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	SETTING	OUTPUT	ORDER N°
S8-MR-5-T53-PP	Stainless Steel Polarised Retro for Clear Object Detection with M8 Connector	Push button	PNP	950801300
S8-MR-5-T53-NN	Stainless Steel Polarised Retro for Clear Object Detection with M8 Connector	Push button	NPN	950801310
S8-MR-5-T50-PH	Stainless Steel Polarised Retro for Clear Object Detection with M8 Connector	Remote wire	PNP	950801320
S8-MR-5-T50-NH	Stainless Steel Polarised Retro for Clear Object Detection with M8 Connector	Remote wire	NPN	950801330
S8-MR-5-W03-PP	Stainless Steel Contrast Sensor with RGB Emission and M8 Connector	Push button	PNP	950801340
S8-MR-5-W03-NN	Stainless Steel Contrast Sensor with RGB Emission and M8 Connector	Push button	NPN	950801350
S8-MR-5-W00-PH	Stainless Steel Contrast Sensor with RGB Emission and M8 Connector	Remote wire	PNP	950801360
S8-MR-5-W00-NH	Stainless Steel Contrast Sensor with RGB Emission and M8 Connector	Remote wire	NPN	950801370

ACCESSORY SELECTION AND ORDER INFORMATION

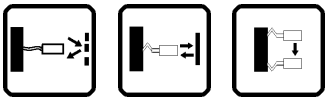
MODEL	DESCRIPTION	ORDER N°
ST-5072	fixing bracket	95ACC1470
R4K	IP69K plastic reflector 51 x 61 mm	95A151220

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S7 SERIES

The **S7** series is the first fibre optic amplifier to be manufactured in Europe that is equipped with a full 4 digit display, confirming Datasensor's technological leadership. With its slim 10mm body width, the S7 represents the ideal solution for all applications requiring high accuracy sensing combined with very compact dimensions.
The high resolution 12 bit amplifier has a response time of 50 µs for a switching frequency of 10 Khz; 4096 resolution steps make the **S7** series perfect for ultra high precision detection of small objects and low colour contrasts.
This is made easier by the integral 4 digit display, which clearly indicates the received signal, selected time delay and the adjustable set point values.
Moreover, the white light LED emission possibility enhances the contrast detection. Installing and setting the **S7** is easy and rapid, thanks to the patent-covered CLEARLOCK™ fibre fixing and EASYtouch™ adjustment system that offers remote setting, keylock and activation of the output OFF delay function. Furthermore new versions of the **S7** series are available with multiturn mechanical trimmer threshold adjustment for cost-oriented applications.





HIGHLIGHTS

- 10 bit resolution models with 500 µs response for high operating distances
- 12 bit resolution models with 50 µs response and 4 digit display for high speed
- Cost-effective models with multiturn trimmer adjustment
- EASYtouch™ push-button setting with remote control, keylock and output delay
- Ultra-thin housing with CLEARLOCK™ patented fibre fixing system

APPLICATIONS

Automotive



Beverage & Bottling

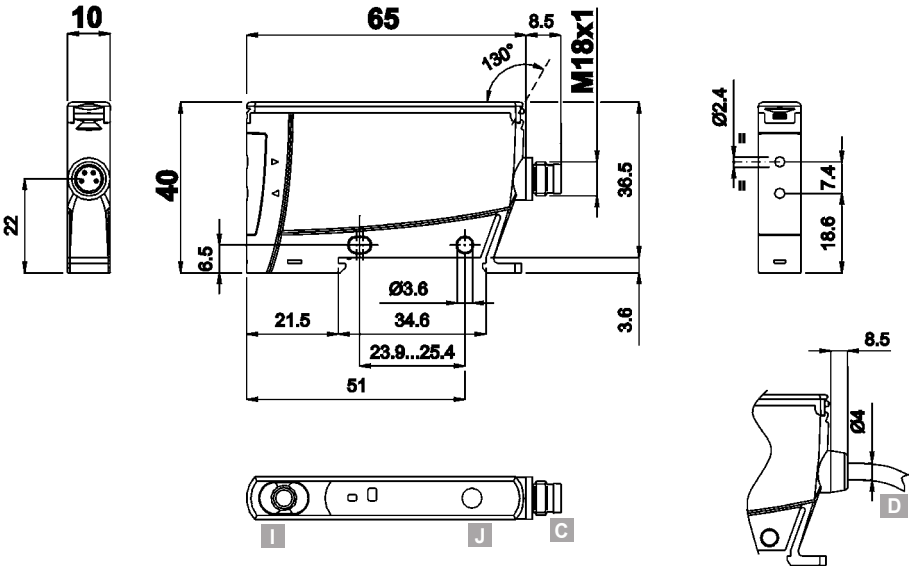


Packaging lines



The ultra-thin housing is specifically designed for side-by-side mounting on DIN rail where space is limited or mounting through two M3 clearance holes onto the side of a machine. The CLEARLOCK™ fibre-optic fixing system assists reliable insertion of standard and high performance 2.2mm Ø fibre-optics. The EASYtouch™ one touch setting procedure automatically selects the best detection conditions. For critical applications a two touch setting is provided for fine tuning. S7 benefits from remote teach, keypad lock and delay off timing functions. For further information on our extensive range accessories please see our OF and OFA fibre optic datasheet.

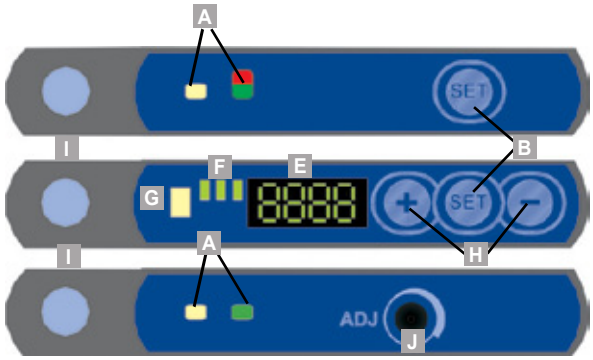
DIMENSIONS





CLEARLOCK™

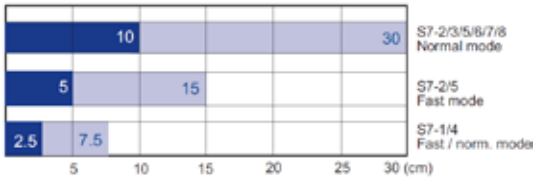
INDICATORS AND SETTINGS



Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine.
Please refer to instructions manual for operating details

- A OUTPUT status and READY/ERROR LEDs
- B Teach-in push-button
- C M8 connector output
- D Cable output
- E 4 digit display
- F STATUS signalling LEDs
- G OUTPUT status LED
- H '+' e '-' buttons
- I Fibre lock/unlock button
- J Multiturn trimmer

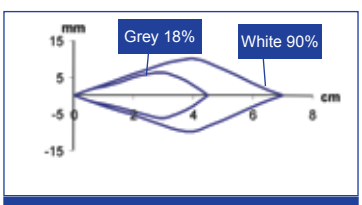
DETECTION DIAGRAM



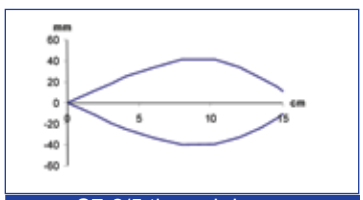
Proximity operating distance
Through beam operating distance

High efficiency fibre-optics or accessory lenses can be used to obtain larger operating distances. Refer to **Fibre-optics** (A.02) of the **General Catalogue**

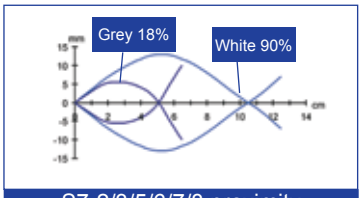
Note: the detection diagrams of the S7-1/4 models in normal and fast mode, corresponds to the values of the S7-2/5 models in fast mode, but with half the operating distance



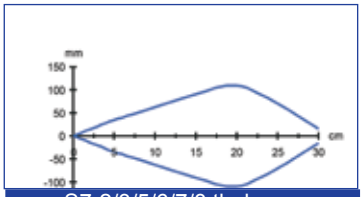
S7-2/5 proximity - Fast mode *



S7-2/5 through beam
Fast mode *



S7-2/3/5/6/7/8 proximity
Normal mode *



S7-2/3/5/6/7/8 th. beam
Normal mode*

TECHNICAL DATA

		S7-1-E	S7-2-E	S7-3-E	S7-4-E	S7-5-E	S7-6-E	S7-7-E	S7-8-E
Proximity operating distance:	0 ... 100 mm (normal mode)			•		•	•	•	•
	0 ... 50 mm (fast mode)		•			•			
	0 ... 25 mm (fast and normal mode)	•			•				
Through beam operating distance:	0 ... 300 mm (normal mode)		•	•		•	•	•	•
	0 ... 150 mm (fast mode)		•			•			
	0 ... 75 mm (fast and normal mode)	•			•				
Power supply:	12 ... 24 Vdc ± 10 %	•	•	•	•	•	•	•	•
Consumption:	≤ 50 mA	•	•	•	•	•	•	•	•
Light emission [2] :	red LED 670 nm		•	•		•	•	•	•
	white LED 460 ... 630 nm	•			•				
Setting:	teach-in SET button	•	•	•	•	•	•		
	remote via cable	•	•	•	•	•	•	•	•
	'+' e '-' buttons (ADJUST/MENU)	•	•	•	•	•	•		
	12-turn trimmer							•	•
Digital setting :	EASYtouch™ or fine	•	•	•	•	•	•		
Digital resolution:	12 bit (4096 points)	•	•		•	•			
	10 bit (1024 points)			•			•	•	•
Indicators:	yellow OUTPUT LED	•	•	•	•	•	•	•	•
	green / red READY / ERROR LED			•			•	•	•
	4 digit display, status bar	•	•		•	•			
Output type:	PNP, NO (see table)	•	•	•	•	•	•	•	•
	NPN, NO (see table)	•	•	•	•	•	•	•	•
Output current:	≤100 mA	•	•	•	•	•	•	•	•
Saturation voltage:	≤2 V	•	•	•	•	•	•	•	•
Response time:	500 ms (normal mode)	•	•	•	•	•	•	•	•
	100 ms (fast mode)		•			•			
	50 ms (fast mode)	•			•				
Switching frequency (max.):	1 kHz (normal mode)	•	•	•	•	•	•	•	•
	5 kHz (fast mode)		•			•			
	10 kHz (fast mode)	•			•				
Operating mode:	light with EASYtouch™or trimmer	•	•	•	•	•	•	•	•
	automatic dark / light with fine acq.	•	•	•	•	•	•		
Timing function:	20 ms minimum output ON	•	•	•	•	•	•		
Auxiliary functions:	remote	•	•	•	•	•	•	•	•
	keylock	•	•	•	•	•	•		
Connection:	2 m Ø 4 mm cable	•	•	•				•	
	M8 4-pole connector				•	•	•		•
Electrical protection:	class 2	•	•	•	•	•	•	•	•
Mechanical protection:	IP50							•	•
	IP65	•	•	•	•	•	•		
Electrical protection device:	A, B	•	•	•	•	•	•	•	•
Housing material:	ABS	•	•	•	•	•	•	•	•
Weight:	30 g max.	•	•	•					•
	115 g max.				•	•	•	•	
Functioning temp.:	-10 ... +55°C	•	•	•	•	•	•	•	•
Storage temp.:	-10 ... +70°C	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•	•	•	•	•

SELECTION TABLE

fibre-optic sensor with display - 2 m cable		
S7-1-E-N	950551080	NPN
S7-1-E-P	950551090	PNP
S7-2-E-N	950551000	NPN
S7-2-E-P	950551010	PNP

fibre-optic sensor without display - 2 m cable		
S7-3-E-N	950551040	NPN
S7-3-E-P	950551050	PNP

fibre-optic sensor with display - M8 connector		
S7-4-E-N	950551100	NPN
S7-4-E-P	950551110	PNP
S7-5-E-N	950551020	NPN
S7-5-E-P	950551030	PNP

fibre-optic sensor without display - M8 connector		
S7-6-E-N	950551060	NPN
S7-6-E-P	950551070	PNP

fibre optic sensor with trimmer - 2 m cable		
S7-7-E-P	950551120	PNP
S7-7-E-N	950551130	NPN

fibre optic sensor with trimmer - M8 connector		
S7-8-E-P	950551140	PNP
S7-8-E-N	950551150	NPN

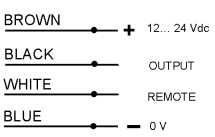
TECHNICAL NOTES

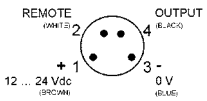
[1]Limit values
[2]Average life of 100.000 h with T_A=+25°C
[3]Connect to 0 V when remote wire not used
[4]Active with remote at +V at power on
[5]PVC, 4 x 0.14 mm2
[6]A - reverse polarity protection
B - overload and short circuit protection

CONNECTIONS









ACCESSORY

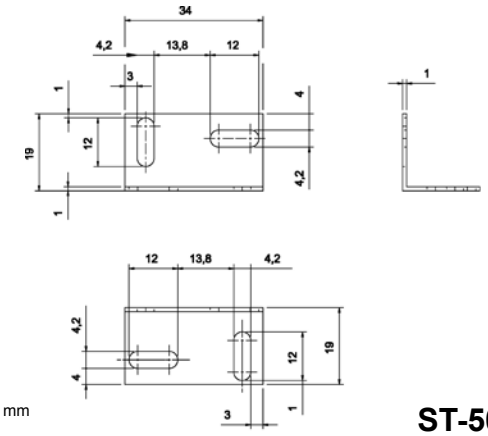
For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue

Refer also to **Fibre-Optics, Connectors** and **Fixing brackets** of the **General Catalogue**

MODEL SELECTION AND ORDER INFORMATION

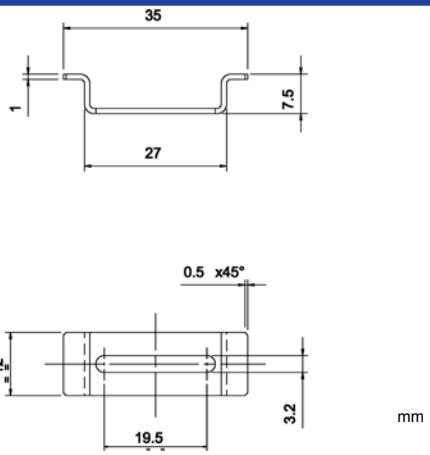
MODEL	CONNECTION	OUTPUT	DISPLAY	SETTING	EMISSION	CODE N°
S7-1-E-N	4-pole cable	NPN	yes	push-button	white LED	950551080
S7-1-E-P	4-pole cable	PNP	yes	push-button	white LED	950551090
S7-2-E-N	4-pole cable	NPN	yes	push-button	red LED	950551000
S7-2-E-P	4-pole cable	PNP	yes	push-button	red LED	950551010
S7-3-E-N	4-pole cable	NPN	no	push-button	red LED	950551040
S7-3-E-P	4-pole cable	PNP	no	push-button	red LED	950551050
S7-4-E-N	M8 4-pole connector	NPN	yes	push-button	white LED	950551100
S7-4-E-P	M8 4-pole connector	PNP	yes	push-button	white LED	950551110
S7-5-E-N	M8 4-pole connector	NPN	yes	push-button	red LED	950551020
S7-5-E-P	M8 4-pole connector	PNP	yes	push-button	red LED	950551030
S7-6-E-N	M8 4-pole connector	NPN	no	push-button	red LED	950551060
S7-6-E-P	M8 4-pole connector	PNP	no	push-button	red LED	950551070
S7-7-E-P	4-pole cable	PNP	no	trimmer	red LED	950551120
S7-7-E-N	4-pole cable	NPN	no	trimmer	red LED	950551130
S7-8-E-P	M8 4-pole connector	PNP	no	trimmer	red LED	950551140
S7-8-E-N	M8 4-pole connector	NPN	no	trimmer	red LED	950551150

ACCESSORIES



mm

ST-505



CRD-5000

mm

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
ST-505	1 pc 'L' shaped fixing bracket	95ACC2800
CRD-5000	1 pc DIN rail fixing bracket	95ACC2790
Refer also to **Accessories for Sensors** of the **General Catalogue**		

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S6 SERIES

The **S6** series, thanks to the excellent detection performances and the variety of power supply and connection possibilities, offers the most complete universal sensor range in the compact 50x50 mm housing.
The operating distance can be set to the optimal value in each model: 2 m diffuse proximity, 25 or 50 cm background suppression, 5 m polarised retroreflex, 1 m retroreflex versions for transparent objects and 20 m through beam.
Proximity models with 12 to 110 cm background suppression are available.
The free voltage versions have a relay output and cable connection.
The versions with 10-30 Vdc power supply present cable connection and NPN/PNP output or M12 connector, with either PNP output with dark/light configuration and PNP double NO-NC output complying to the EN 60947-5-2 standard.



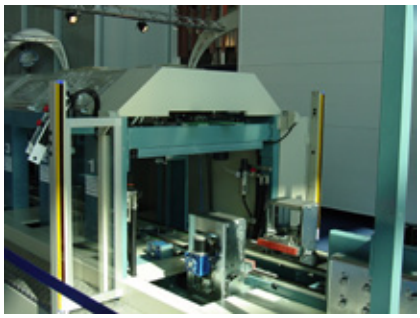


HIGHLIGHTS

- Background suppression models
- Free voltage versions with relay output
- 10-30 Vdc version with transistor output
- Standard cable or M12 connection

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines

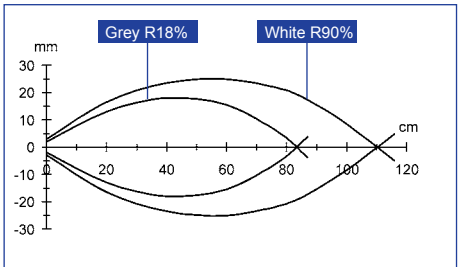


TECHNICAL DATA

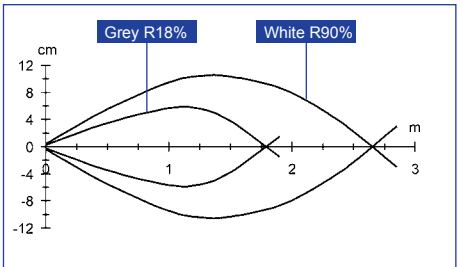
Power supply	10 ... 30 Vdc (d.c. vers.), reverse polarity protection
	15 ... 264 Vac (free voltage vers.)
Consumption	30 mA max. (d.c. vers.)
	40 mA max. (free voltage vers.)
Light emission	infrared LED 880 nm
	red LED 660 nm (B3, T1, M10 vers.)
Diffuse proximity operating distance	1 ... 90 cm (C90 vers.)
	5 ... 200 cm (C200 vers.)
Background suppression op. distance	10 ... 50 cm (M50 vers.)
	3 ... 25 cm (M25 vers.), 10 cm (M10 vers.)
Retroreflex operating distance	0.1 ... 6 m (on R2)
Polarised retroreflex operating distance	0.1 ... 5 m (on R2)
Through beam operating distance	0 ... 20 m
Setting	sensitivity trimmer (G vers. excluded)
	distance adj. screw (M25, M50, N20 vers.)
Indicators	red OUTPUT LED
	green STABILITY LED (M, N vers.)
	red POWER LED (G5 vers.)
Output type	NPN/PNP configurable (d.c. vers.)
	PNP (S6T vers.)
	PNP NO-NC (S6R vers.)
	relay SPDT 250V/3A (free voltage vers.)
Saturation tension	1.5 V max. (d.c. vers.)
Output current	100 mA max., short-circuit protection
	3 A max. resistive load (free voltage vers.)
Response time	1 ms max. (d.c. vers.), 2 ms max. (F vers.)
	30 ms max. (free voltage vers.)
Switching frequency	500 Hz max., 250 Hz max.(F/G vers. in d.c.)
	16 Hz max. (free voltage vers.)
Operating mode	dark/light configurable
Auxiliary functions	'test +' and 'test -' inputs (G vers. in d.c.)
Connection	4-pole M12 connector (S6T/S6R vers.)
	2 m Ø 6 mm cable (S6 vers.)
Electric protection	class 1 (free voltage vers.)
	class 2 (d.c. vers.)
Mechanical protection	IP65
Housing material	ABS
Lens material	PMMA plastic
Weight	40 g max. (connector vers.)
	160 g max. (cable vers.)
Operating temperature	-25 ... +55°C
Storage temperature	-25 ... +70°C
Reference standard	EN 60947-5-2
Certifications	(CE cULus d.c.vers.)

The operating distances indicate the detection distance with excess gain 2.

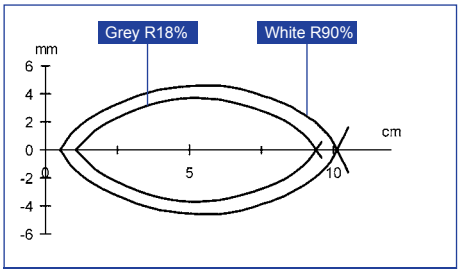
DETECTION DIAGRAMS



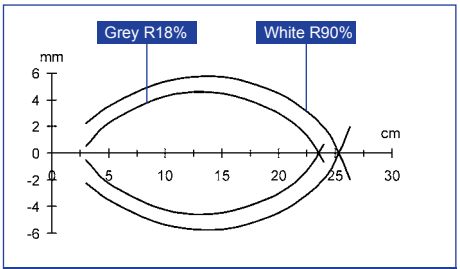
S6-x-C90-x



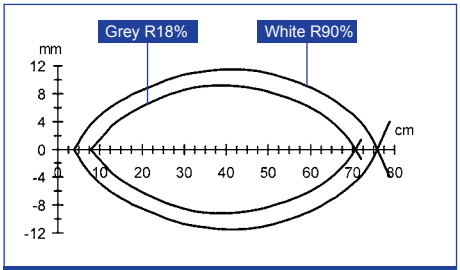
S6-x-C200-x



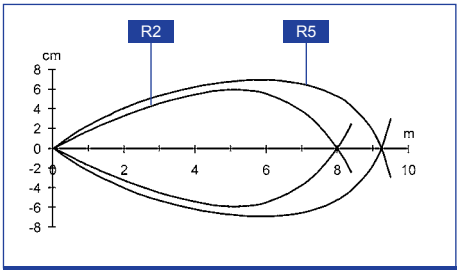
S6-x-M10-x



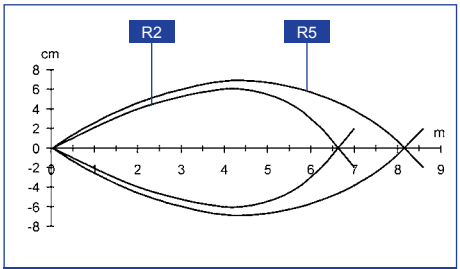
S6-x-M25-x



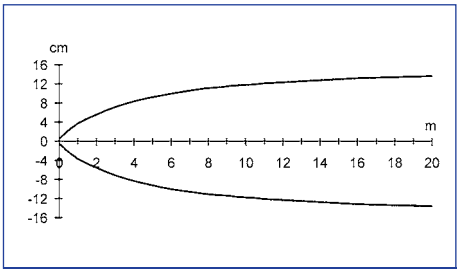
S6-x-M50-x



S6-x-A6-x



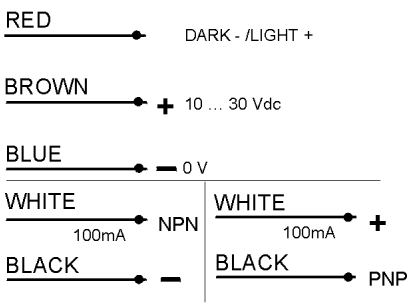
S6-x-B5-x



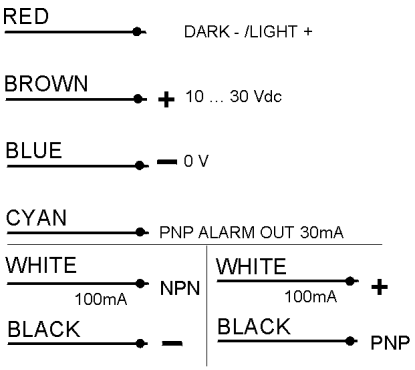
S6-x-F/G-x

The detection diagrams indicate the typical operating distance with excess gain 1.

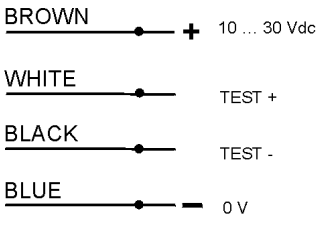
CONNECTIONS



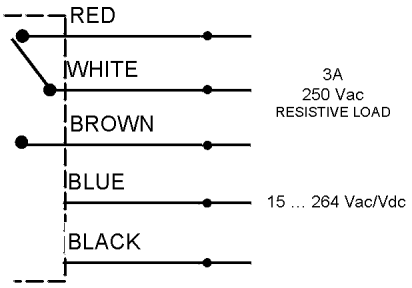
S6-5-A6/B5/C90/C200/M25



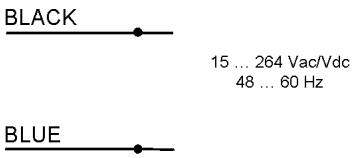
S6-5-F20



S6-5-G20

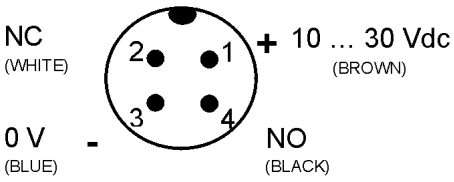


S6-1-A6/B5/C90/C200/F20

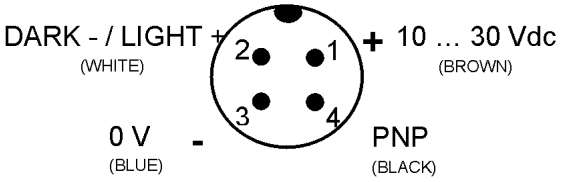


S6-1-G20

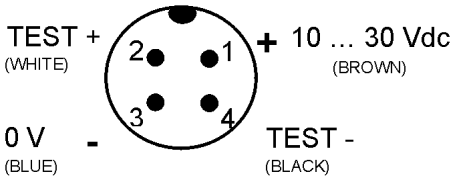
M12 CONNECTOR



S6R-5

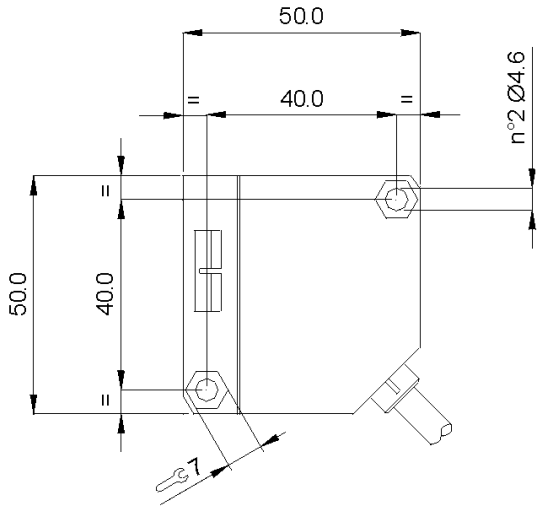


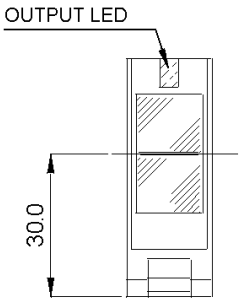
S6T-5-A6/B5/C90/C200/F20/M25/T1



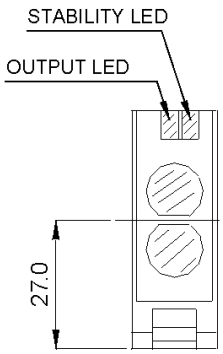
S6T-5-G20

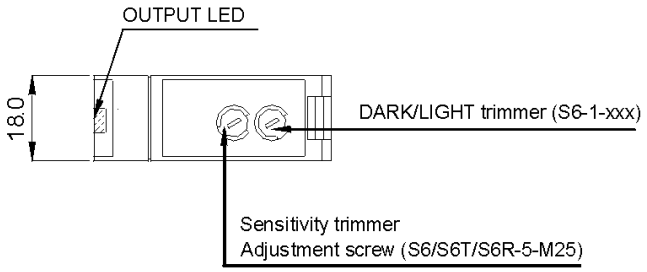
DIMENSIONS



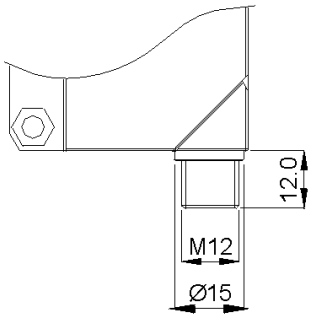


S6/S6T/S6R-5-M25





M12 CONNECTOR
S6T/S6R-5-xx



MODEL SELECTION AND ORDER INFORMATION

VERSIONS WITH 15 ... 264 Vac/Vdc POWER SUPPLY				
MODEL	**FUNCTION**	**CONNECTION**	**OUTPUT**	**CODE N°**
S6-1-C90	diffuse proximity	cable	relay	S937530090
S6-1-C200	diffuse proximity	cable	relay	950151140
S6-1-A6	retroreflex	cable	relay	S937330090
S6-1-B5	polarised retroreflex	cable	relay	S937420090
S6-1-F20	receiver	cable	relay	S937200090
S6-1-F20	emitter	cable	relay	S937130090

VERSIONS WITH 15 ... 264 Vac/Vdc POWER SUPPLY				
MODEL	**FUNCTION**	**CONNECTION**	**OUTPUT**	**CODE N°**
S6-5-C90	diffuse proximity	cable	NPN/PNP	S937530000
S6R-5-C90-P	diffuse proximity	M12 connector	PNP NO-NC	950201190
S6T-5-C90-P	diffuse proximity	M12 connector	PNP **	961031020
S6-5-C200	diffuse proximity	cable	NPN/PNP	950201150
S6R-5-C200-P	diffuse proximity	M12 connector	PNP NO-NC	950201200
S6R-5-M10-P	background suppression	M12 connector	PNP NO-NC	950201230
S6-5-M25	background suppression	cable	NPN/PNP	S937830000
S6R-5-M25-P	background suppression	M12 connector	PNP NO-NC	950201220
S6T-5-M25-P	background suppression	M12 connector	PNP **	961041000
S6R-5-M50-P	background suppression	M12 connector	PNP NO-NC	950201250
S6-5-A6	retroreflex	cable	NPN/PNP	S937330000
S6R-5-A6-P	retroreflex	M12 connector	PNP NO-NC	950201170
S6T-5-A6-P	retroreflex	M12 connector	PNP **	961031000
S6-5-B5	polarised retroreflex	cable	NPN/PNP	S937420000
S6R-5-B5-P	polarised retroreflex	M12 connector	PNP NO-NC	950201180
S6T-5-B5-P	polarised retroreflex	M12 connector	PNP **	961031010
S6-5-F20	receiver	cable	NPN/PNP	S937200010
S6R-5-F20-P	receiver *	M12 connector	PNP NO-NC	950201160
S6T-5-F20-P	receiver	M12 connector	PNP **	961211010
S6-5-G20	emitter	cable	-	S937130000
S6T-5-G20	emitter	M12 connector	-	961211000

* use with S6T-5-G20 emitter
** with dark/light configuration input

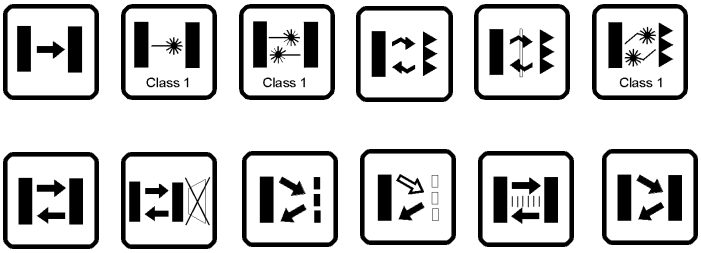
The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S60 SERIES

The **S60** series, standard 50x50x15 mm compact housing, offers all the most advanced optic functions, as well as the universal, available with safety class 1 laser emission. The series presents a complete range of models, including retroreflex with coaxial optics and polarisation filters for the detection of shiny and/or transparent objects, background suppression, contrast sensors with white light emission for the detection of coloured marks, the sensor with UV emission for the detection of luminescence references and the distance sensor with analogue output. The basic models for presence detection present trimmer sensitivity adjustment, while the models with the advanced optics are microprocessor controlled and have the patent-covered EASYtouch™ setting, which gives rapid and precise setting of the switching threshold, with the possibility of remote control, keyboard block and selection of the output delay function. The **S60** series offers versions with cable or M12 connection that can be rotated for either straight or right-angle positions. All versions have NPN or PNP output and standard configuration conforming to the EN 60947-5-2 standard.





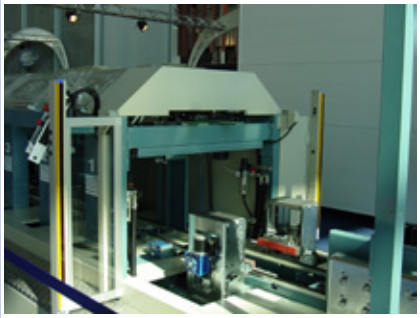


HIGHLIGHTS

- Complete range of optic functions, basic, advanced and laser class 1
- Models with coaxial optics for polarised retroreflex, contrast and luminescence sensors
- Trimmer or EASYtouch™ setting with Remote, Keylock and Delay functions
- Standard cable or M12 connection with standard NPN or PNP configuration

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines



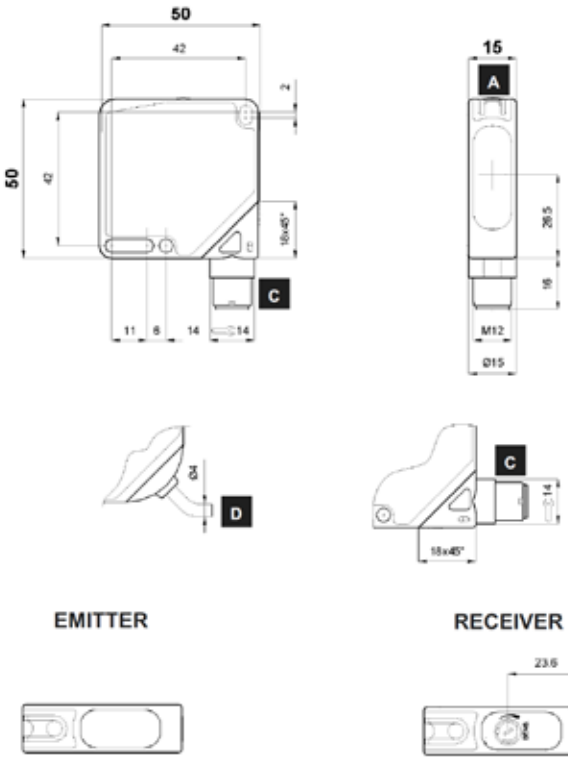
G/F INFRARED EMISSION

The detection system with two separate emitter and receiver units allows the user to reach larger operating distances. The trimmer, present on the receiver, allows to adjust sensitivity and to detect objects that obscure, even partially, the light emission. The IR emission is modulated to avoid interference with other light sources and can be turned off to test the functioning even without the object to detect.

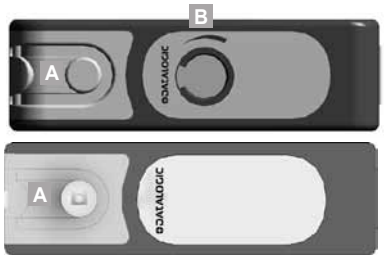




DIMENSIONS



INDICATORS AND SETTINGS



- **A** Output status and stability LEDs (receiver); power on LED (emitter)
- **B** Adjustment trimmer (receiver)
- **C** M12 connector output
- **D** Cable output

Single-turn trimmer for sensitivity adjustment. Rotate clockwise to increase the operating distance.

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

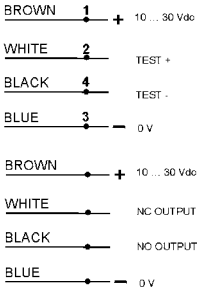
CONNECTIONS



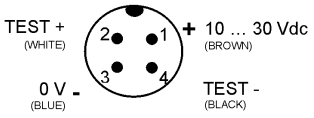


EMITTER

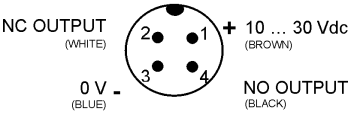
S60-PA-2



S60-PA-5



RECEIVER



TECHNICAL DATA

TECHNICAL NOTES
[1] Limit values
[2] Average life of 100.000 h with TA = +25 °C
[3] 270° trimmer
[4] Emitter off with Test+ on Vdc and Test- on 0 V
[5] PVC, 4 x 0.14 mm²
[6] Connector can be blocked on two positions
[7] A - reverse polarity protection
B - overload and short-circuit protection on receiver outputs
[8] Internal lenses in Polycarbonate

		S60-PA-2-F01-NN	S60-PA-2-F01-PP	S60-PA-2-G00-XG	S60-PA-5-F01-NN	S60-PA-5-F01-PP	S60-PA-5-G00-XG
Operating distance:	0 ... 20 m	●	●	●	●	●	●
Power supply:	10 ... 30 Vdc[1]	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●
Consumption:	≤ 35 mA	●	●	●	●	●	●
Light emission:	infrared LED 880 nm[2]			●			●
Spot dimension:	aprox. 200 mm at 4 m			●			●
Setting:	sensitivity trimmer[3]	●	●		●	●	
Indicators:	yellow OUTPUT LED	●	●		●	●	
	green STABILITY LED	●	●		●	●	
	green POWER ON LED			●			●
Output type:	PNP, NO and NC		●			●	
	NPN, NO and NC	●			●		
Output current:	≤100 mA	●	●		●	●	
Saturation voltage:	≤2 V	●	●		●	●	
Response time:	1 ms	●	●		●	●	
Switching frequency:	500 Hz	●	●		●	●	
Operating mode:	dark on NO / light on NC	●	●		●	●	
Auxiliary functions:	Test + and Test -[4]			●			●
Connection:	2 m Ø 4 mm cable[5]	●	●	●			
	M12 4-pole connector[6]				●	●	●
Electrical protection:	class 2	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●
Protection devices:	A, B[7]	●	●	●	●	●	●
Housing material:	ABS	●	●	●	●	●	●
Lens material:	window in PMMA[8]	●	●	●	●	●	●
Weight:	90 g max.	●	●	●			
	40 g max.				●	●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●

SELECTION TABLE

receiver - 2 m cable		
S60-PA-2-F01-NN	956201490	NPN
S60-PA-2-F01-PP	956201330	PNP

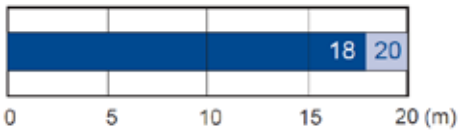
emitter - 2 m cable		
S60-PA-2-G00-XG	956201340	

receiver - M12 connector		
S60-PA-5-F01-NN	956201210	NPN
S60-PA-5-F01-PP	956201060	PNP

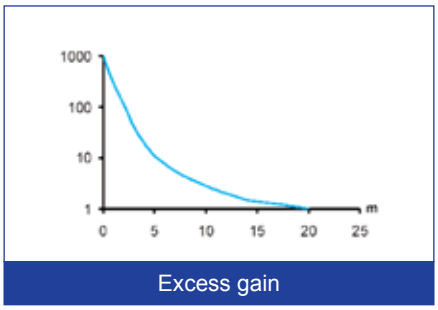
emitter - M12 connector		
S60-PA-5-G00-XG	956201070	

All the ordering codes and information are summarised in the last pages of this catalogue.

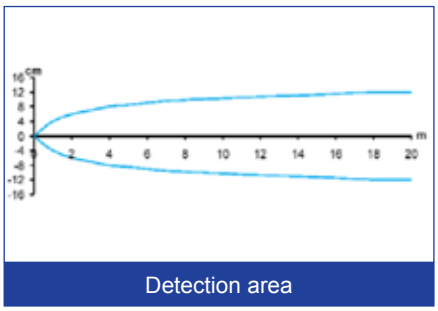
DETECTION DIAGRAMS



Recommended operating distance
Maximum operating distance



Excess gain



Detection area

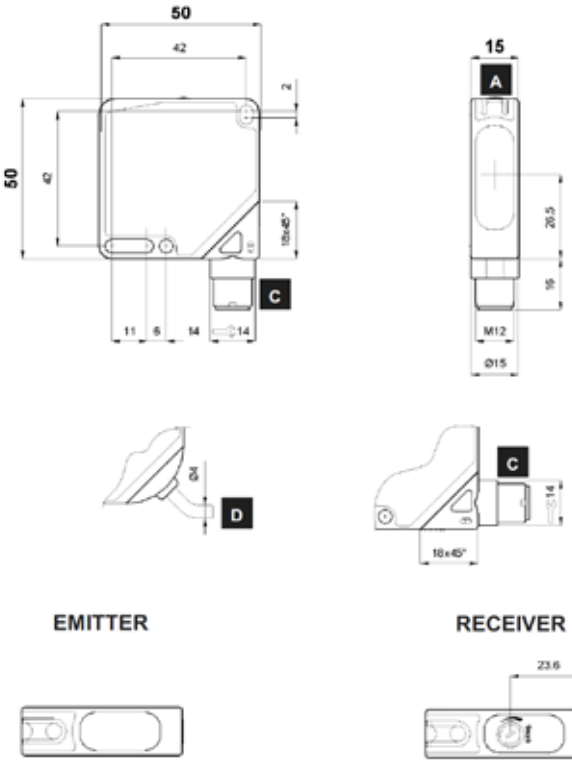
L-G/F RED EMISSION

The high operating distance, typical of the emitter and receiver system, is notably increased thanks to the use of visible red laser emission. The laser beam can be easily aligned and offers excellent detection resolution of even small objects. The class 1 laser emission, according to EN 60825-1, guarantees maximum safety for the operators in all applications.

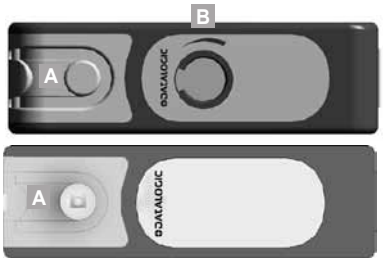




DIMENSIONS



INDICATORS AND SETTINGS



- **A** Output status and stability LEDs (receiver); power on LED (emitter)
- **B** Adjustment trimmer (receiver)
- **C** M12 connector output
- **D** Cable output

Single-turn trimmer for sensitivity adjustment. Rotate clockwise direction to increase the operating distance. Decrease sensitivity to increase resolution.

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fi**xing **brackets of the Genera**l Catal**ogue.**

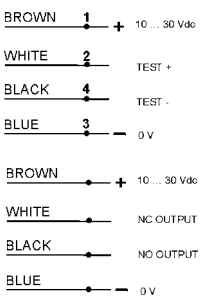
CONNECTIONS



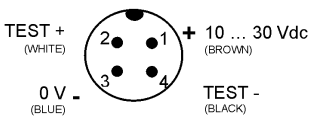


EMITTER

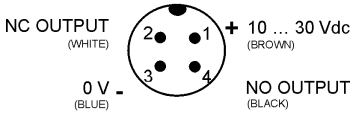
S60-PA-2



S60-PA-5



RECEIVER



TECHNICAL DATA

TECHNICAL NOTES		S60-PL-2-F01-NN	S60-PL-2-F01-PP	S60-PL-2-G00-XG	S50-PL-5-F01-NN	S50-PL-5-F01-PP	S50-PL-5-G00-XG
[1] Limit values [2] Average life of 100.000 h with TA = +25 °C [3] 270° trimmer [4] Emitter off with Test+ connected to +Vdc Emitter on with Test+ not connected or connected to 0V [5] PVC, 4 x 0.14 mm² [6] Connector can be blocked on two positions [7] A - reverse polarity protection B - overload and short-circuit protection on receiver outputs [8] Internal lenses in glass and Polycarbonate							
Operating distance:	0 ... 60 m	●	●	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●
Consumption:	≤ 35 mA	●	●	●	●	●	●
Light emission:	red Laser 650 nm [2]			●			●
	class 1 EN 60825-1						
	class II CDRH21 CFR 1040.10						
Resolution:	aprox. 6 mm a 0.5 m	●	●		●	●	
	aprox.10 mm over 2 m	●	●		●	●	
Setting:	sensitivity trimmer [3]	●	●		●	●	
Indicators:	yellow OUTPUT LED	●	●		●	●	
	green POWER ON LED	●	●	●	●	●	●
Output type:	PNP, NA and NC		●			●	
	NPN, NA and NC	●			●		
Output current:	≤ 100 mA	●	●		●	●	
Saturation voltage:	≤2 V	●	●		●	●	
Response time:	333 µs	●	●		●	●	
Switching frequency:	1.5 kHz	●	●		●	●	
Operating mode:	dark on NO / light on NC	●	●		●	●	
Auxiliary functions:	Test + [4]			●			●
Connection:	2 m Ø 4 mm cable [5]	●	●	●			
	M12 4-pole connector [6]				●	●	●
Electrical protection:	class 2	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●
Protection devices:	A, B [7]	●	●	●	●	●	●
Housing material:	ABS	●	●	●	●	●	●
Lens material:	window in PMMA [8]	●	●	●	●	●	●
Weight:	90 g max.	●	●	●			
	40 g max.				●	●	●
Operating temperature:	-10 ... +50°C	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●
Reference standard:	EN 60947-5-2,	●	●	●	●	●	●
	EN 60825-1, CDRH21 CFR 1040.10			●			●

SELECTION TABLE

receiver - 2 m cable		
S60-PL-2-F01-NN	956201570	NPN
S60-PL-2-F01-PP	956201420	PNP

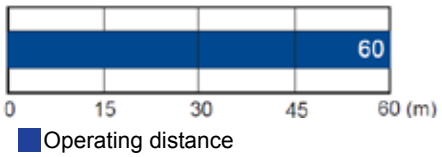
emitter - 2 m cable		
S60-PL-2-G00-XG	956201430	

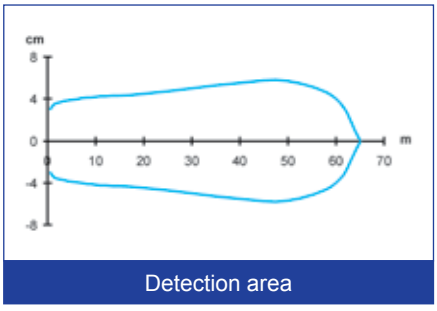
receiver - M12 connector		
S60-PL-5-F01-NN	956201270	NPN
S60-PL-5-F01-PP	956201140	PNP

emitter - M12 connector		
S60-PL-5-G00-XG	956201150	

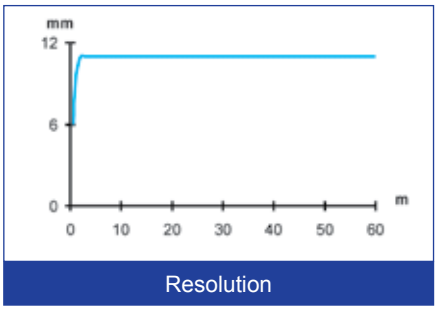
All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS





Detection area



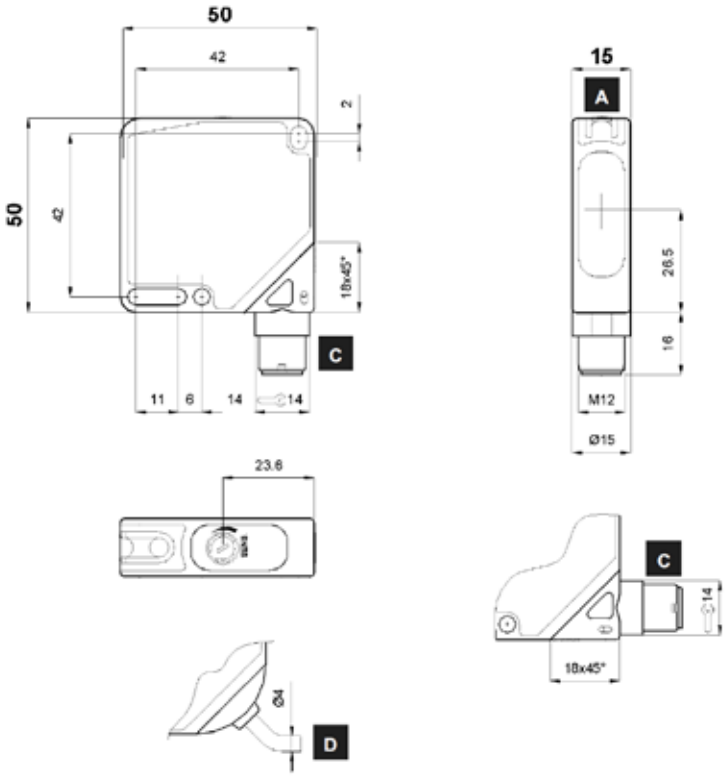
Resolution

B RED EMISSION

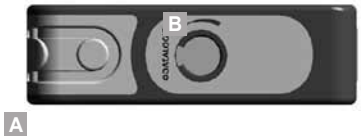
With retroreflex sensors the object is detected when it interrupts the light beam generated between the sensor and its associated prismatic reflector. High-polarisation optic filters also allow reliable detection of very reflective objects, such as mirrored surfaces that, differently from the prismatic reflector, reflect the light beam without rotating the polarisation plane.



DIMENSIONS



INDICATORS AND SETTINGS



- A Output status and stability LEDs
- B Adjustment trimmer
- C M12 connector output
- D Cable output

Single-turn trimmer for sensitivity adjustment.
Rotate clockwise to increase the operating distance.

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

Refer also to **Reflectors (A.01), Connectors (A.03)** and **Fixing Brackets (A.04)** of the **General Catalogue**

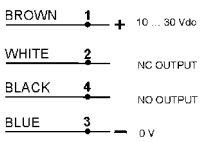
CONNECTIONS

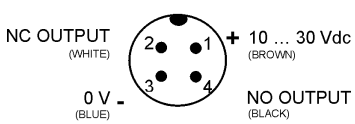


S60-PA-2



S60-PA-5





TECHNICAL DATA

TECHNICAL NOTES [1] Limit values [2] Average life of 100.000 h with TA = +25 °C [3] 270° trimmer [4] PVC, 4 x 0.14 mm² [5] Connector can be blocked on two positions [6] A - reverse polarity protection B - overload and short-circuit protection on outputs [7] Internal lenses in Polycarbonate		S60-PA-2-B01-NN	S60-PA-2-B01-PP	S60-PA-5-B01-NN	S60-PA-5-B01-PP
Operating distance:	0.1 ... 8 m (on R5)	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	≤ 40 mA	●	●	●	●
Light emission:	red LED 660 nm²	●	●	●	●
Spot dimension:	aprox. 90 mm at 3 m	●	●	●	●
Setting:	sensitivity trimmer [3]	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green STABILITY LED	●	●	●	●
Output type:	PNP, NO and NC		●		●
	NPN, NO and NC	●		●	
Output current:	≤ 100 mA	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●
Response time:	500 µs	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●
Connection:	2 m Ø 4 mm cable[4]	●	●		
	M12 4-pole connector[5]			●	●
Electrical protection:	class 2	●	●	●	●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B[6]	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in PMMA[7]	●	●	●	●
Weight:	90 g max.	●	●		
	40 g max.			●	●
Operating temperature:	-25 ... +55°C	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●

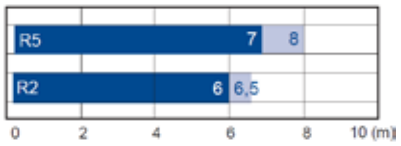
SELECTION TABLE

axial optics - 2 m cable		
S60-PA-2-B01-NN	956201460	NPN
S60-PA-2-B01-PP	956201300	PNP

axial optics - M12 connector		
S60-PA-5-B01-NN	956201180	NPN
S60-PA-5-B01-PP	956201040	PNP

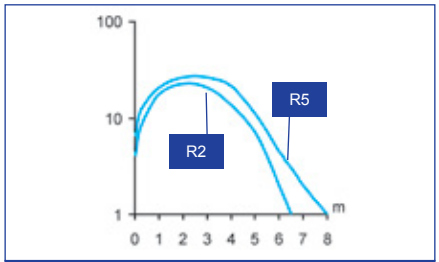
All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS

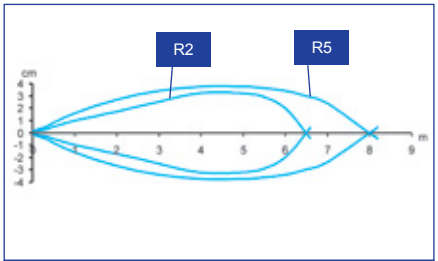


Recommended operating distance
Maximum operating distance

High efficiency reflectors can be used to obtain larger operating distances.
Refer to **Reflectors** (A.01) of the **General Catalogue.**



Excess gain



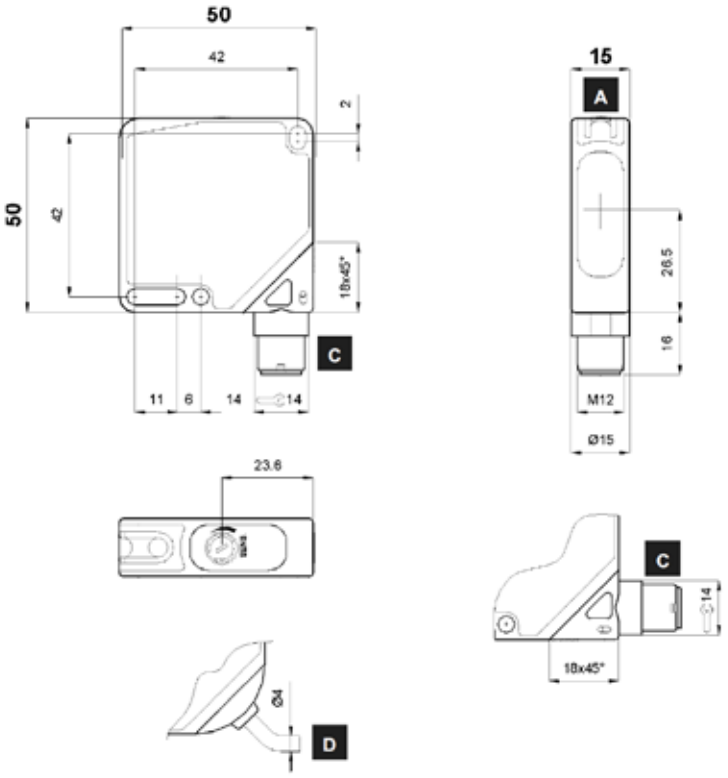
Detection area

L-B RED EMISSION

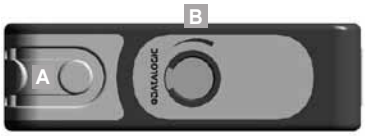
The visible red laser emission increases the operating distance and resolution of the polarised retroreflex sensor. Specific R7 or R8 reflectors with 0.8 mm micro-prisms are available for high-resolution detection of small objects. The class 1 laser emission, according to EN 60825-1, guarantees maximum safety for the operators in all applications.



DIMENSIONS



INDICATORS AND SETTINGS



- A Output status and stability LEDs
- B Adjustment trimmer
- C M12 connector output
- D Cable output

Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance. Decrease sensitivity to increase resolution.

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

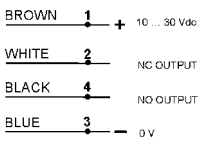
CONNECTIONS

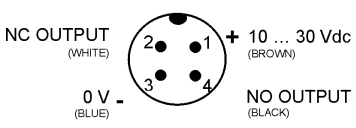


S60-PA-2



S60-PA-5





TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]270° trimmer [4]PVC, 4 x 0.14 mm² [5]Connector can be blocked on two positions [6]A - reverse polarity protection B - overload and short-circuit protection on outputs [7]Internal lenses in glass and Polycarbonate		S60-PL-2-B01-NN	S60-PL-2-B01-PP	S60-PL-5-B01-NN	S60-PL-5-B01-PP
Operating distance:	0.1 ... 20 m	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	≤ 35 mA	●	●	●	●
Light emission:	red Laser 650 nm²	●	●	●	●
	class 1 EN 60825-1	●	●	●	●
	class II CDRH21 CFR 1040.10	●	●	●	●
Resolution:	approx. 10 mm	●	●	●	●
Setting:	sensitivity trimmer[3]	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green POWER ON LED	●	●	●	●
Output type:	PNP, NO and NC		●		●
	NPN, NO and NC	●		●	
Output current:	≤ 100 mA	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●
Response time:	250 ms	●	●	●	●
Switching frequency:	2 kHz	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●
Connection:	2 m Ø 4 mm cable[4]	●	●		
	M12 4-pole connector[5]			●	●
Electrical protection:	class 2	●	●	●	●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B[6]	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in PMMA	●	●	●	●
Weight:	90 g max.	●	●		
	40 g max.			●	●
Operating temperature:	-10 ... +50°C	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●
Standard reference:	EN 60947-5-2, EN 60825-1,	●	●	●	●
	CDRH21 CFR 1040.10	●	●	●	●

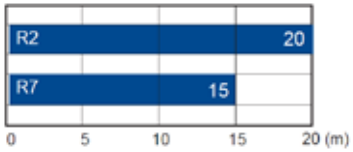
SELECTION TABLE

axial optics - 2 m cable		
S60-PL-2-B01-NN	956201560	NPN
S60-PL-2-B01-PP	956201410	PNP

axial optics - M12 connector		
S60-PL-5-B01-NN	956201260	NPN
S60-PL-5-B01-PP	956201120	PNP

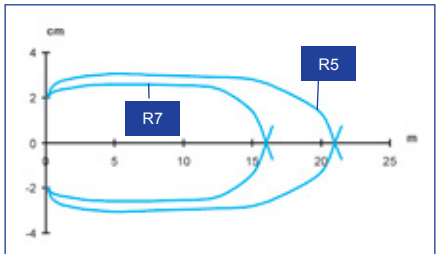
All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS

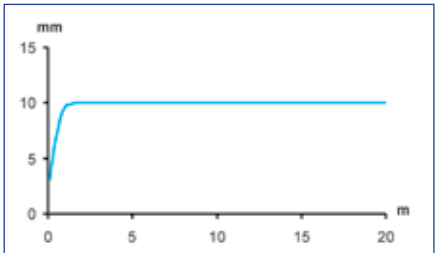


Operating distance

High efficiency reflectors can be used to obtain larger operating distances. Refer to **Reflectors** (A.01) of the **General Catalogue.**



Detection area



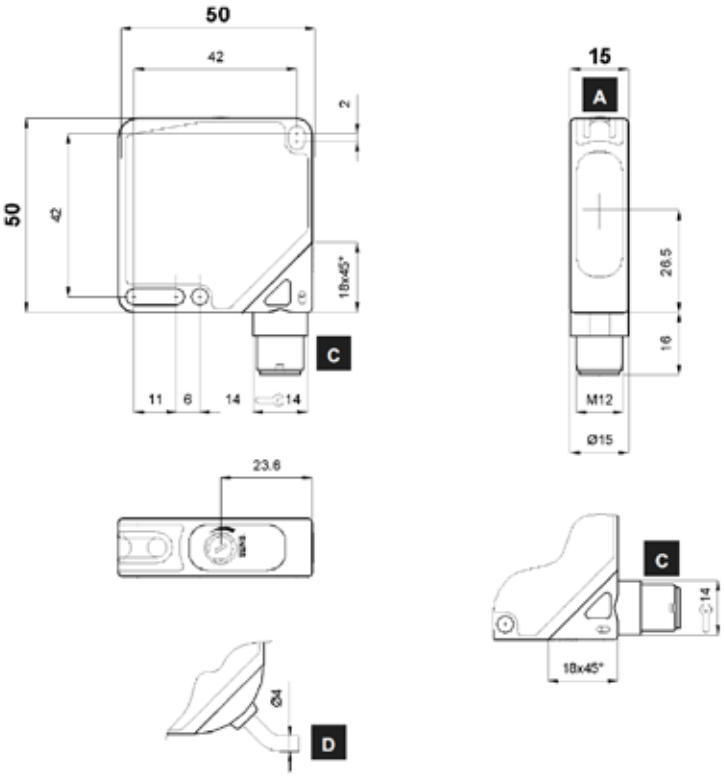
Resolution on R7 reflector

B RED EMISSION

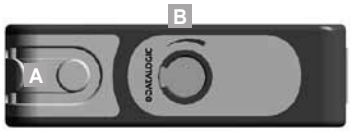
The polarised retroreflex sensor with a coaxial optics offers the best resolution of the detection point as the optic emitting axis coincides with the optic receiving axis. The coaxial system also allows to reduce drastically the sensor's blind zone and consents the detection of objects very close to the sensor's frontal lens.



DIMENSIONS



INDICATORS AND SETTINGS



- A Output status and stability LEDs
- B Adjustment trimmer
- C M12 connector output
- D Cable output

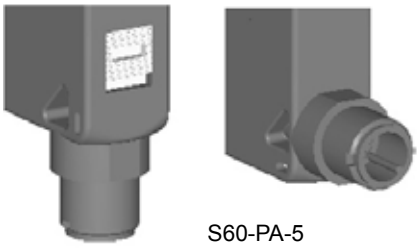
Single-turn trimmer for sensitivity adjustment. Rotate in a clockwise direction to increase the operating distance.

ACCESSORIES

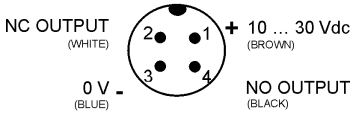
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



S60-PA-5



TECHNICAL DATA

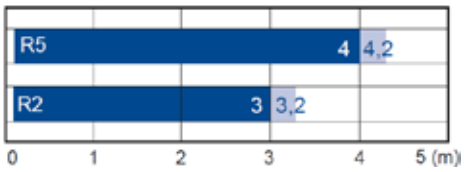
TECHNICAL NOTES [1] Limit values [2] Average life of 100.000 h with TA = +25 °C [3] 270° trimmer [4] PVC, 4 x 0.14 mm² [5] Connector can be blocked on two positions [6] A - reverse polarity protection B - overload and short-circuit protection on outputs [7] Internal lenses in Polycarbonate		S60-PA-2-B51-NN	S60-PA-2-B51-PP	S60-PA-5-B51-NN	S60-PA-5-B51-PP
Operating distance:	0 ... 4 m	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	≤ 40 mA	●	●	●	●
Light emission:	red LED 660 nm²	●	●	●	●
Spot dimension:	aprox. 50 mm at 1.5 m	●	●	●	●
Setting:	sensitivity trimmer [3]	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green STABILITY LED	●	●	●	●
Output type:	PNP, NO and NC	●	●	●	●
	NPN, NO and NC	●	●	●	●
Output current:	≤ 100 mA		●		●
Saturation voltage:	≤ 2 V	●		●	
Response time:	500 µs	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●
Connection:	2 m Ø 4 mm cable[4]	●	●	●	●
	M12 4-pole connector[5]	●	●	●	●
Electrical protection:	class 2	●	●		
Mechanical protection:	IP67			●	●
Protection devices:	A, B[6]	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in glass (tilted anti-reflection)[7]	●	●	●	●
Weight:	90 g max.	●	●	●	●
	40 g max.	●	●	●	●
Operating temperature:	-25 ... +55°C	●	●		
Storage temperature:	-25 ... +70°C			●	●
Reference standard:	EN 60947-5-2	●	●	●	●

SELECTION TABLE

coaxial optics - M12 connector		
S60-PA-5-B51-NN	956201630	NPN
S60-PA-5-B51-PP	956201620	PNP

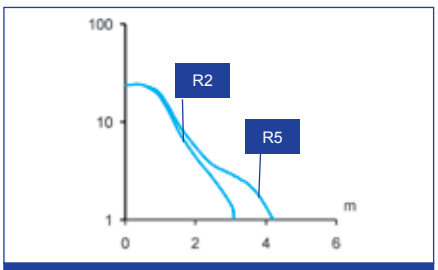
All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS

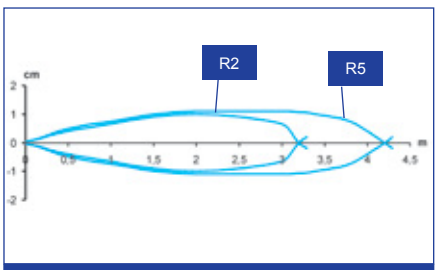


Recommended operating distance
Maximum operating distance

High efficiency reflectors can be used to obtain larger operating distances.
Refer to **Reflectors** (A.01) of the **General Catalogue.**



Excess gain



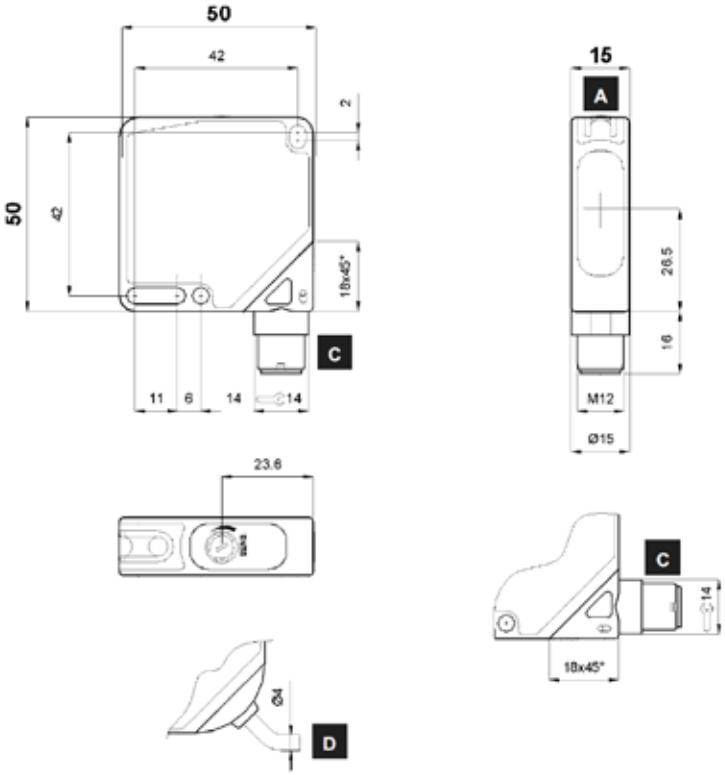
Detection area

T RETROREFLEX

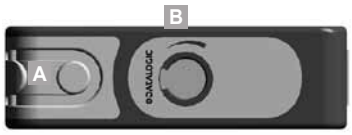
The high sensitivity and reduced hysterisis of this retroreflex sensor allow to detect even the slightest attenuation of the received light emission, caused by the presence of transparent objects, such as glass or PET bottles or plastic film sheets for packaging. The presence of polarisation filters avoids false switching on shiny surfaces and the coaxial optics improves the detection precision on the entire operating range.



DIMENSIONS



INDICATORS AND SETTINGS



- A Output status LED
- B Adjustment trimmer
- C M12 connector output
- D Cable output

Single-turn trimmer for sensitivity adjustment. Rotate clockwise direction to increase the operating distance.

ACCESSORIES

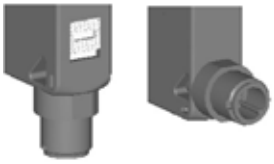
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

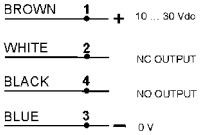
CONNECTIONS

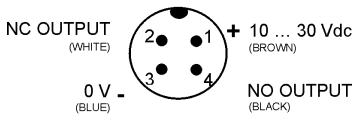


S60-PA-2



S60-PA-5





TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]270° trimmer [4]PVC, 4 x 0.14 mm² [5]Connector can be blocked on two positions [6]A - reverse polarity protection B - overload and short-circuit protection on outputs [7]Internal lenses in Polycarbonate		S60-PA-2-T51-NN	S60-PA-2-T51-PP	S60-PA-5-T51-NN	S60-PA-5-T51-PP
Operating distance:	0 ... 2 m	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	≤ 40 mA	●	●	●	●
Light emission:	red LED 660 nm[2]	●	●	●	●
Spot dimension:	aprox. 50 mm at 1.5 m	●	●	●	●
Setting:	sensitivity trimmer [3]	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
Output type:	PNP, NO and NC		●		●
	NPN, NO and NC	●		●	
Output current:	≤ 100 mA	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●
Response time:	500 µs	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●
Operating mode:	dark on NO / light on NC	●	●	●	●
Connection:	2 m Ø 4 mm cable[4]	●	●		
	M12 4-pole connector[5]			●	●
Electrical protection:	class 2	●	●	●	●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B[6]	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens materiale:	window in glass (tilted anti-reflection)[7]	●	●	●	●
Weight:	90 g max.	●	●		
	40 g max.			●	●
Operating temperature:	-25 ... +55°C	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●

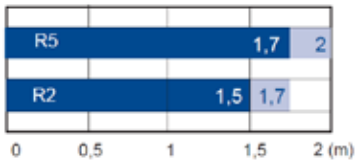
SELECTION TABLE

coaxial optics - 2 m cable		
S60-PA-2-T51-NN	956201530	NPN
S60-PA-2-T51-PP	956201380	PNP

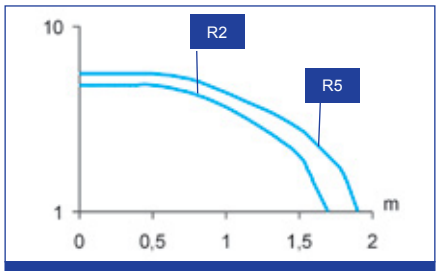
coaxial optics - M12 connector		
S60-PA-5-T51-NN	956201250	NPN
S60-PA-5-T51-PP	956201100	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

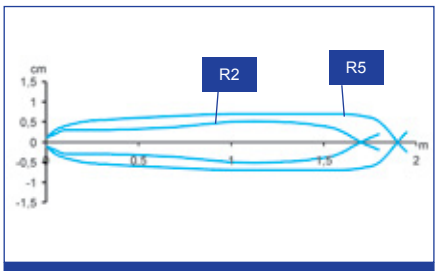
DETECTION DIAGRAMS



Recommended operating distance
Maximum operating distance



Excess gain



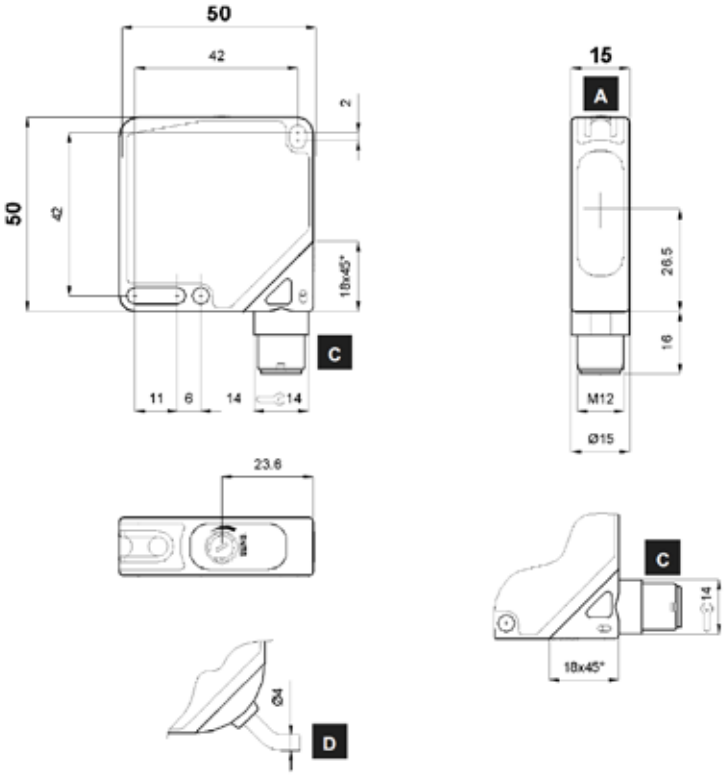
Detection area

C DIFFUSE PROXIMITY

This diffuse proximity sensor represents a reliable, simple and cost-effective solution for the direct detection of any object within the operating distance, that can be set using the sensitivity adjustment trimmer.. The visible red emission facilitates the alignment of the sensor or of the object to detect and in particular in short operating distances.



DIMENSIONS



INDICATORS AND SETTINGS



- A Output status LED
- B Adjustment trimmer
- C M12 connector output
- D Cable output

Single-turn trimmer for sensitivity adjustment. Rotate clockwise direction to increase the operating distance.

ACCESSORIES

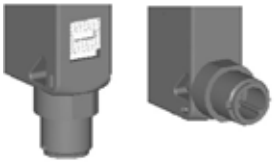
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

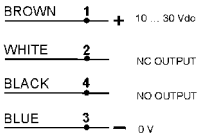
CONNECTIONS

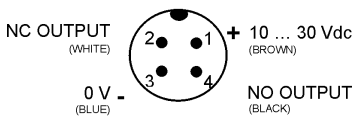


S60-PA-2



S60-PA-5





TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]270° trimmer [4]PVC, 4 x 0.14 mm² [5]Connector can be blocked on two positions [6]A - reverse polarity protection B - overload and short-circuit protection on outputs [7]Internal lenses in Polycarbonate		S60-PA-2-C01-NN	S60-PA-2-C01-PP	S60-PA-5-C01-NN	S60-PA-5-C01-PP
Operating distance:	0 ... 100 cm	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	≤40 mA	●	●	●	●
Light emission:	red LED 660 nm[2]	●	●	●	●
Spot dimension:	approx. 50 mm at 90 cm	●	●	●	●
Setting:	sensitivity trimmer[3]	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green STABILITY LED	●	●	●	●
Output type:	PNP, NO and NC		●		●
	NPN, NO and NC	●		●	
Output current:	≤100 mA	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●
Response time:	1 ms	●	●	●	●
Switching frequency:	500 Hz	●	●	●	●
Operating mode:	light on NO / dark on NC	●	●	●	●
Connection:	2 m Ø 4 mm cable[4]	●	●		
	M12 4-pole connector[5]			●	●
Electrical protection:	class 2	●	●	●	●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B[6]	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in PMMA[7]	●	●	●	●
Weight:	90 g max.	●	●		
	40 g max.			●	●
Operating temperature:	-25 ... +55°C	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●

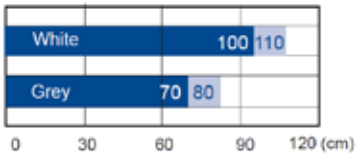
SELECTION TABLE

axial optics - 2 m cable		
S60-PA-2-C01-NN	956201470	NPN
S60-PA-2-C01-PP	956201310	PNP

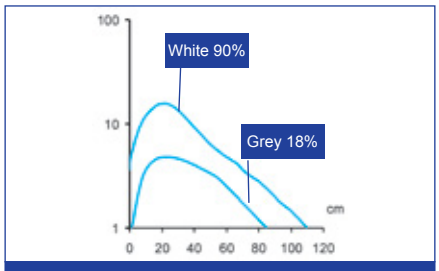
axial optics - M12 connector		
S60-PA-5-C01-NN	956201190	NPN
S60-PA-5-C01-PP	956201050	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

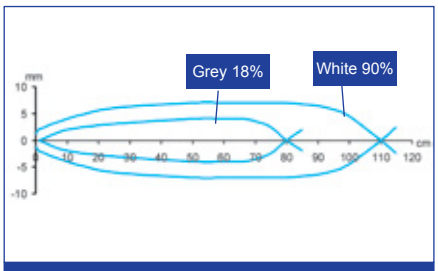
DETECTION DIAGRAMS



Recommended operating distance
Maximum operating distance



Excess gain



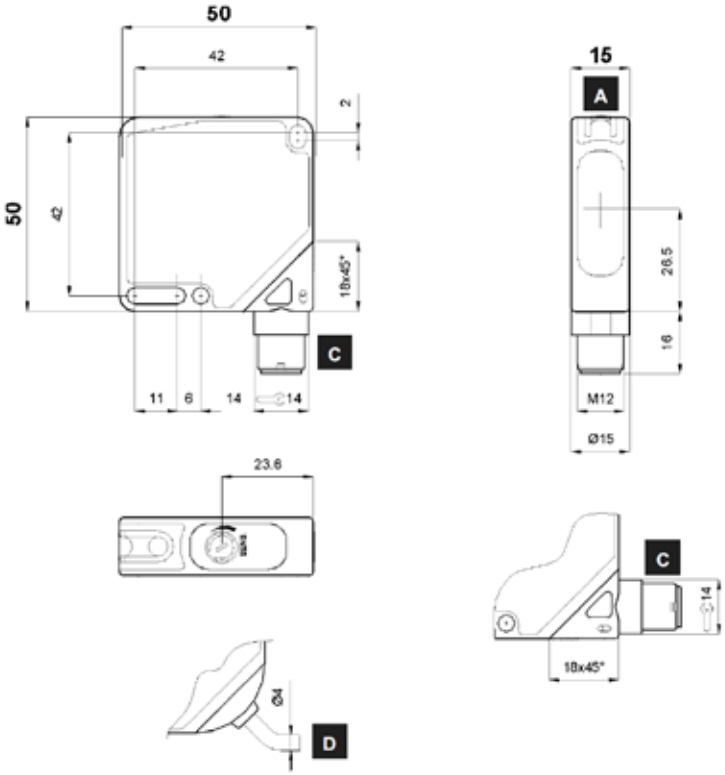
Detection area

C LONG DIFFUSE PROXIMITY

This version of diffuse proximity sensor offers the maximum operating distance for the direct detection of objects, without the use of separate reflectors or receivers. The detection distance can be set using the sensitivity adjustment trimmer. The green stability LED indicates that the received signal is higher than the minimum signal for stable output switching.



DIMENSIONS



INDICATORS AND SETTINGS



- **A** Output status and stability LED
- **B** Adjustment trimmer
- **C** M12 connector output
- **D** Cable output

Single-turn trimmer for sensitivity adjustment. Rotate clockwise direction to increase the operating distance.

ACCESSORIES

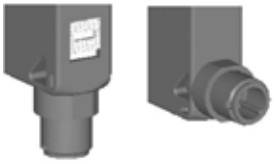
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

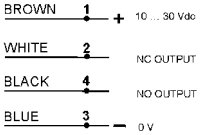
CONNECTIONS

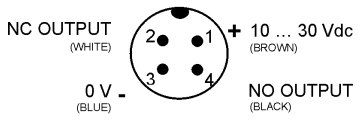


S60-PA-2



S60-PA-5





TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]270° trimmer [4]PVC, 4 x 0.14 mm² [5]Connector can be blocked on two positions [6]A - reverse polarity protection B - overload and short-circuit protection on outputs [7]Internal lenses in Polycarbonate		S60-PA-2-C01-NN	S60-PA-2-C01-PP	S60-PA-5-C01-NN	S60-PA-5-C01-PP
Operating distance:	5 ... 200 cm	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●
Ripple:	≤2 Vpp	●	●	●	●
Consumption:	≤ 40 mA	●	●	●	●
Light emission:	infrared LED 880 nm[2]	●	●	●	●
Spot dimension:	approx. 250 mm at 1 m	●	●	●	●
Setting:	sensitivity trimmer [3]	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green STABILITY LED	●	●	●	●
Output type:	PNP, NO and NC		●		●
	NPN, NO and NC	●		●	
Output current:	≤100 mA	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●
Response time:	1 ms	●	●	●	●
Switching frequency:	500 Hz	●	●	●	●
Operating mode:	light on NO / dark on NC	●	●	●	●
Connection:	2 m Ø 4 mm cable[4]	●	●		
	M12 4-pole connector[5]			●	●
Electrical protection:	class 2	●	●	●	●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B[6]	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in PMMA[7]	●	●	●	●
Weight:	90 g max.	●	●		
	40 g max.			●	●
Operating temperature:	-25 ... +55°C	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●

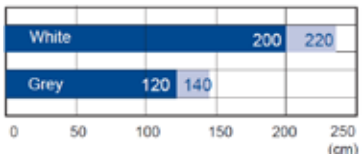
SELECTION TABLE

axial optics - 2 m cable		
S60-PA-2-C11-NN	956201480	NPN
S60-PA-2-C11-PP	956201320	PNP

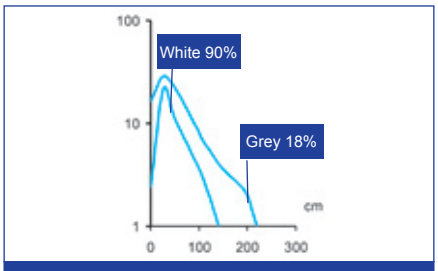
axial optics -M12 connector		
S60-PA-5-C11-NN	956201200	NPN
S60-PA-5-C11-PP	956201110	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS



Recommended operating distance
Maximum operating distance



Excess gain



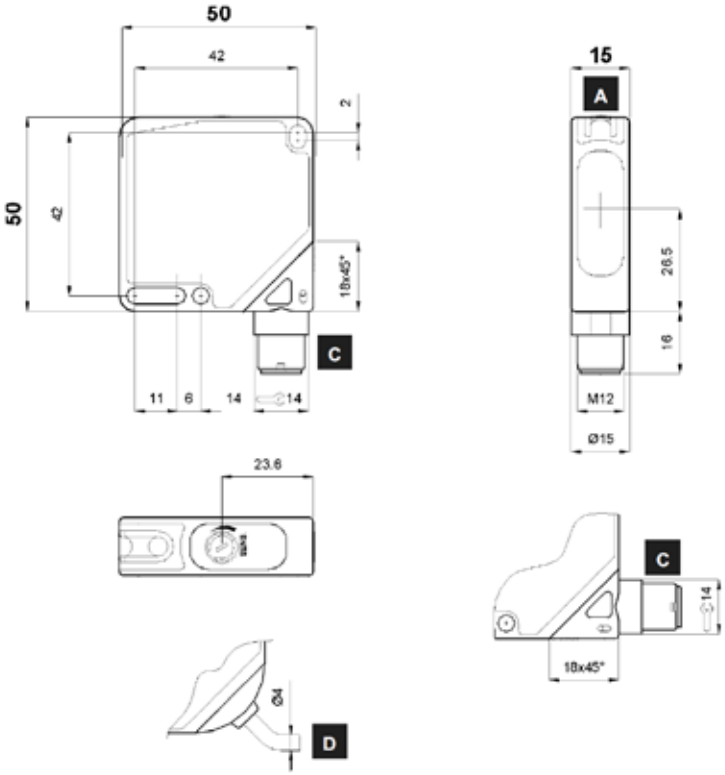
Detection area

L-C RED EMISSION

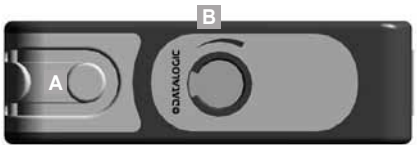
The visible red laser emission allows the accurate detection of very small objects. The sensors operate as a proximity device up to 60 cm and can be used as a contrast sensor for high contrast mark detection. The class 1 laser emission, according to EN 60825-1, guarantees maximum safety for the operators in all applications.



DIMENSIONS



INDICATORS AND SETTINGS



- **A** Output status and power on LEDs
- **B** Adjustment trimmer
- **C** M12 connector output
- **D** Cable output

Single-turn trimmer for sensitivity adjustment. Rotate clockwise direction to increase the operating distance.

ACCESSORIES

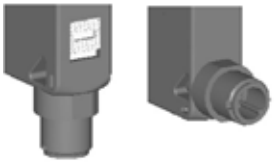
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

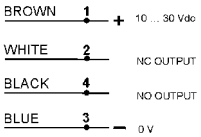
CONNECTIONS

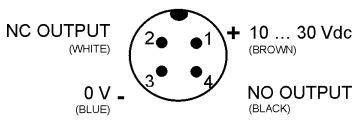


S60-PA-2



S60-PA-5





TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]270° trimmer [4]PVC, 4 x 0.14 mm² [5]Connector can be blocked on two positions [6]A - reverse polarity protection B - overload and short-circuit protection on outputs [7]Internal lenses in Polycarbonate		S60-PL-2-C01-NN	S60-PL-2-C01-PP	S60-PL-5-C01-NN	S60-PL-5-C01-PP
Operating distance:	0 ... 60 cm	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	≤ 35 mA	●	●	●	●
Light emission:	red Laser 650 nm²	●	●	●	●
	class 1 EN 60825-1	●	●	●	●
	class II CDRH21 CFR 1040.10	●	●	●	●
Resolution:	approx. 0.2 mm at 15 cm	●	●	●	●
	approx. 1 mm at 35 cm	●	●	●	●
	approx. 2 mm at 50 cm	●	●	●	●
Setting:	sensitivity trimmer [3]	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green POWER ON LED	●	●	●	●
Output type:	PNP, NO and NC		●		●
	NPN, NO and NC	●		●	
Output current:	≤ 100 mA	●	●	●	●
Saturation voltage:	≤2 V	●	●	●	●
Response time:	250 µs	●	●	●	●
Switching frequency:	2 kHz	●	●	●	●
Operating mode:	light on NO / dark on NC	●	●	●	●
Connection:	2 m Ø 4 mm cable[4]	●	●		
	M12 4-pole connector[5]			●	●
Electrical protection:	class 2	●	●	●	●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B[6]	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in PMMA[7]	●	●	●	●
Weight:	90 g max.	●	●		
	40 g max.			●	●
Operating temperature:	-10 ... +50°C	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●
Reference standard:	EN 60947-5-2, EN 60825-1,	●	●	●	●
	CDRH21 CFR 1040.10	●	●	●	●

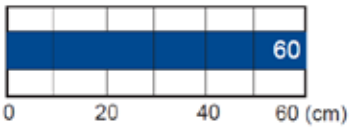
SELECTION TABLE

axial optics - 2 m cable		
S60-PL-2-C01-NN	956201640	NPN
S60-PL-2-C01-PP	956201650	PNP

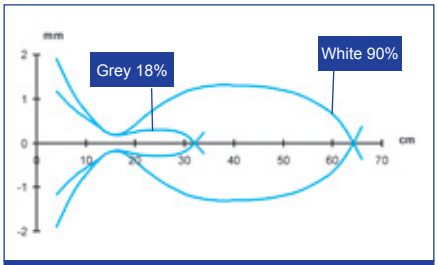
axial optics - M12 connector		
S60-PL-5-C01-NN	956201660	NPN
S60-PL-5-C01-PP	956201670	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

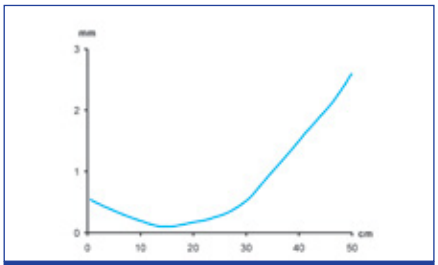
DETECTION DIAGRAMS



Operating distance



Detection area



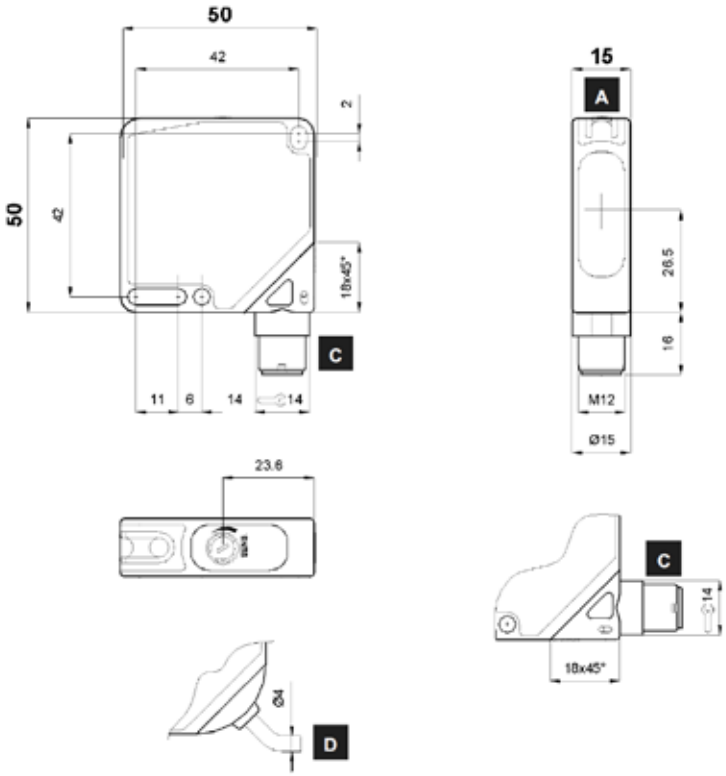
Resolution

M RED EMISSION

Background suppression proximity allows to precisely adjust the distance over which the object is not detected, with the minimum difference between different coloured objects. The EASYtouch™ setting procedure fixes automatically the best detection conditions with medium or high precision, simply pressing once the teach-in push-button, in presence of the background to suppress.



DIMENSIONS



INDICATORS AND SETTINGS



- A Output status and READY/ERROR LEDs
- B Teach-in push-button
- C M12 connector output
- D Cable output

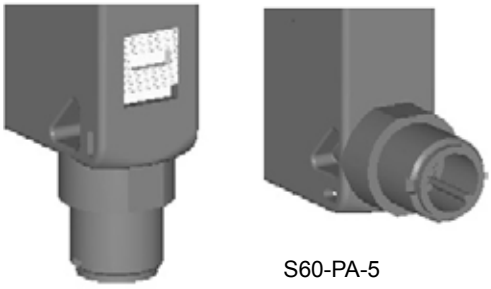
Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine.
Please refer to instructions manual for operating details.

ACCESSORIES

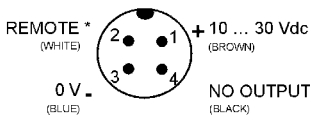
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



S60-PA-5



TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]Connect to 0 V when remote wire not used [4]270° trimmer [5]PVC, 4 x 0.14 mm² [6]Connector can be blocked on two positions [7]A - reverse polarity protection B - overload and short-circuit protection on outputs [8]Internal lenses in Polycarbonate		S60-PA-5-M08-NH	S60-PA-5-M08-PH
Operating distance:	7 ... 20 cm	•	•
Power supply:	10 ... 30 Vdc [1]	•	•
Ripple:	≤ 2 Vpp	•	•
Consumption:	≤30 mA	•	•
Light emission:	red LED 670 nm[2]	•	•
Spot dimension:	approx. 16 mm at 20 cm	•	•
Setting:	teach-in push-button	•	•
	remote on cable [3]	•	•
Setting procedure:	EASYtouch™	•	•
Indicators:	yellow OUTPUT LED	•	•
	green / red READY / ERROR LED	•	•
Output type:	PNP, NO		•
	NPN, NO	•	
Output current:	≤100 mA	•	•
Saturation voltage:	≤2 V	•	•
Response time:	500 µs	•	•
Max. switching frequency:	1 kHz	•	•
Operating mode:	light with EASYtouch™	•	•
	dark / light configurable	•	•
Timing function:	20 ms minimum output ON	•	•
Auxiliary functions:	remote	•	•
	keylock[4]	•	•
Connection:	2 m Ø 4 mm cable[5]		
	M12 4-pole connection[6]	•	•
Electrical protection:	class 2	•	•
Mechanical protection:	IP67	•	•
Protection devices:	A, B[7]	•	•
Housing material:	ABS	•	•
Lens material:	window in PMMA[8]	•	•
Weight:	90 g max.		
	40 g max.	•	•
Operating temperature:	-25 ... +55°C	•	•
Storage temperature:	-25 ... +70°C	•	•
Reference standard:	EN 60947-5-2	•	•

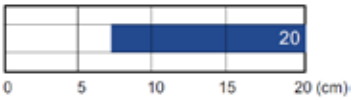
SELECTION TABLE

axial optics - M12 connector		
S60-PA-5-M08-NH	956201220	NPN
S60-PA-5-M08-PH	956201080	PNP

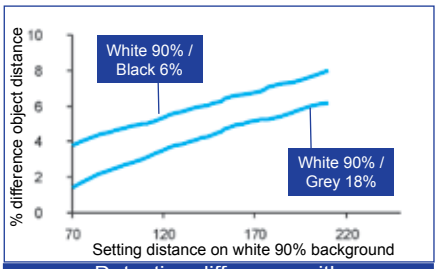
All the ordering codes and information are summarised in the last pages of this catalogue.

c UL US LISTED

DETECTION DIAGRAMS



Operating distance



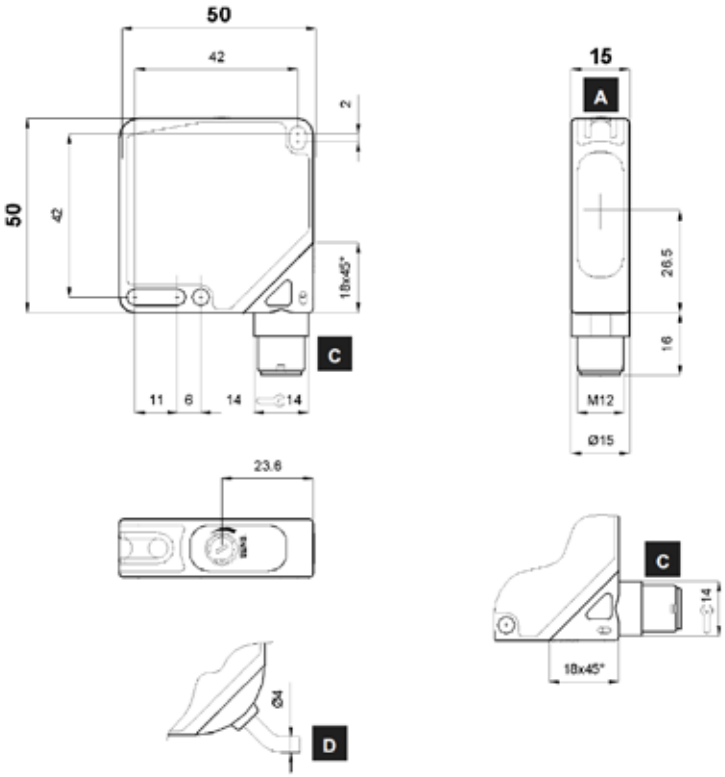
Detection difference with EASYtouch™ acquisition

L-M RED EMISSION

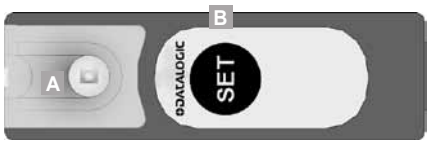
The background suppression with red laser emission offers the best precision in terms of resolution and for background suppression, over which the object is not detected.
The class 1 laser emission, according to EN 60825-1, guarantees maximum safety for the operators in all applications.



DIMENSIONS



INDICATORS AND SETTINGS



- A Output status and LASER ON S /ERROR LEDs
- B Teach-in push-button
- C M12 connector output
- D Cable output

Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine.
Please refer to instructions manual for operating details.

ACCESSORIES

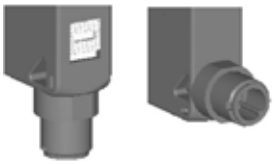
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

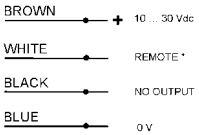
CONNECTIONS

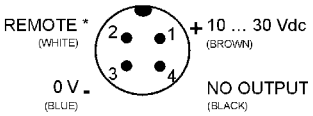


S60-PA-2



S60-PA-5





TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]Connect to 0 V when remote wire not used [4]270° trimmer [5]PVC, 4 x 0.14 mm² [6]Connector can be blocked on two positions [7]A - reverse polarity protection B - overload and short-circuit protection on outputs [8]Internal lenses in Polycarbonate		S60-PL-2-M08-NN	S60-PL-2-M08-PP	S60-PL-5-M08-NN	S60-PL-5-M08-PP
Operating distance:	5 ... 10 cm	●	●	●	●
Power supply:	10 ... 30 Vdc [1]	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●
Consumption:	≤ 60 mA	●	●	●	●
Light emissione:	red Laser 650 nm[2]	●	●	●	●
	class 1 EN 60825-1	●	●	●	●
	class II CDRH21 CFR 1040.10	●	●	●	●
Resolution:	approx. 0.5 mm at 6 cm	●	●	●	●
Setting:	teach-in push-button	●	●	●	●
	remote on cable[3]	●	●	●	●
Setting procedure:	EASYtouch™	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green / red LASER ON / ERROR LED	●	●	●	●
Output type:	PNP, NO		●		●
	NPN, NO	●		●	
Output current:	≤ 100 mA	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●
Response time:	500 µs	●	●	●	●
Switching frequency:	1 kHz	●	●	●	●
Operating mode:	light with EASYtouch™	●	●	●	●
	dark / light configurable	●	●	●	●
Timing function:	20 ms minimum output ON	●	●	●	●
Auxiliary functions:	remote	●	●	●	●
	keylock[4]	●	●	●	●
Connection:	2 m Ø 4 mm cable[5]	●	●		
	M12 4-pole connector[6]			●	●
Electrical protection:	class 2	●	●	●	●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B[7]	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in PMMA[8]	●	●	●	●
Weight:	90 g max.	●	●		
	40 g max.			●	●
Operating temperature:	-10 ... +50°C	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●
Reference standard:	EN 60947-5-2,	●	●	●	●
	EN 60825-1, CDRH21 CFR 1040.10	●	●	●	●

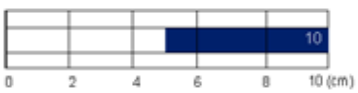
SELECTION TABLE

axial optics - 2 m cable		
S60-PL-2-M08-NH	956201580	NPN
S60-PL-2-M08-PH	956201440	PNP

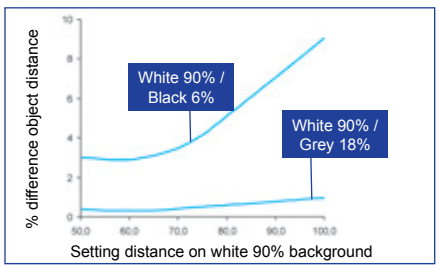
axial optics - M12 connector		
S60-PL-5-M08-NH	956201280	NPN
S60-PL-5-M08-PH	956201160	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS



Operating distance



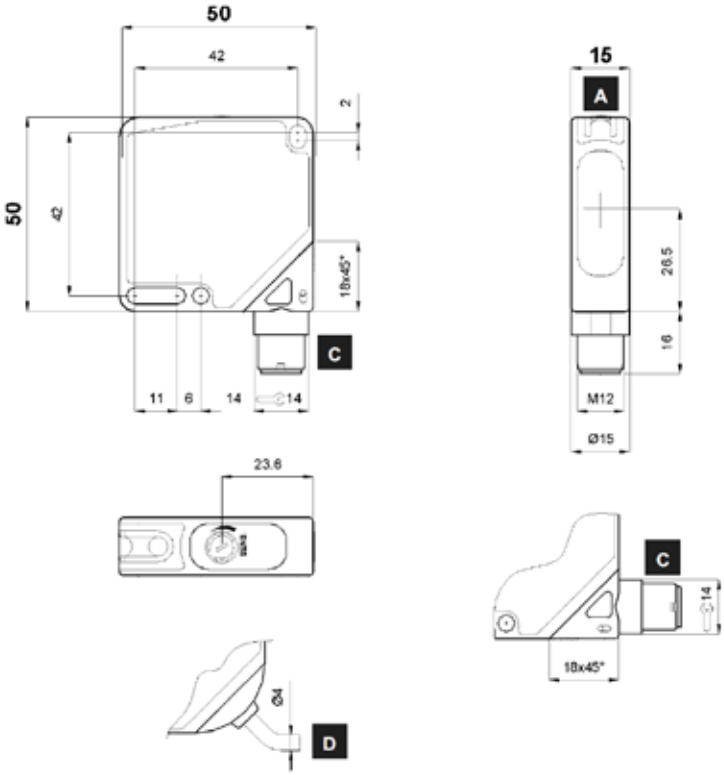
Detection difference with EASYtouch™ acquisition

W RED EMISSION

The white light LED emission is designed for the detection of a large number of coloured or grey-scale contrasts, in order to detect print registration marks or similar. The patent-covered EASYtouch^{S} setting procedures automatically selects the best detection conditions, simply by pressing the teach-in push-button once. A higher level of accuracy can be obtained or the dark/light operating mode can be inverted.



DIMENSIONS



INDICATORS AND SETTINGS



- **A** Output status and READY/ERROR LEDs
- **B** Teach-in push-button
- **C** M12 connector output orientable in two positions
- **D** Cable output

Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine.
Please refer to instructions manual for operating details.

ACCESSORIES

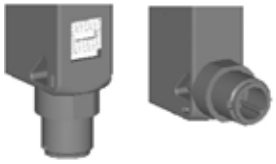
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

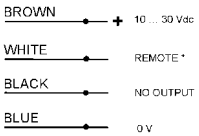
CONNECTIONS

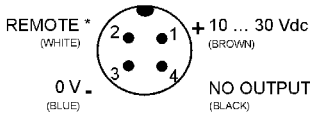


S60-PA-2



S60-PA-5





TECHNICAL DATA

TECHNICAL NOTES [1] Limit values [2] Average life of 100.000 h with TA = +25 °C [3] Connect to 0 V when remote wire not used [4] 270° trimmer [5] PVC, 4 x 0.14 mm² [6] Connector can be blocked on two positions [7] A - reverse polarity protection B - overload and short-circuit protection on outputs [8] Internal lenses in glass		S60-PA-5-W08-NH	S60-PA-5-W08-PH
Operating distance:	19 mm	•	•
Max. field of depth:	± 2 mm	•	•
Power supply:	10 ... 30 Vdc [1]	•	•
Ripple:	≤ 2 Vpp	•	•
Consumption:	≤30 mA	•	•
Light emission:	white LED 400 - 700 nm²	•	•
Spot dimension:	aprox. 3.5 mm at 19 mm	•	•
Resolution:	0.5 mm	•	•
Setting:	teach-in push-button	•	•
	remote on cable [3]	•	•
Setting procedure:	EASYtouch™	•	•
Indicators:	yellow OUTPUT LED	•	•
	green / red READY / ERROR LED	•	•
Output type:	PNP, NO		•
	NPN, NO	•	
Output current:	≤ 100 mA	•	•
Saturation voltage:	≤ 2 V	•	•
Response time:	100 µs	•	•
Max. switching frequency:	5 kHz	•	•
Operating mode:	dark with EASYtouch™	•	•
	automatic dark / light with fine acquisition	•	•
Timing function:	20 ms minimum output ON	•	•
Auxiliary functions:	remote	•	•
	keylock [4]	•	•
Connection:	2 m Ø 4 mm cable [5]		
	M12 4-pole connector [6]	•	•
Electrical protection:	class 2	•	•
Mechanical protection:	IP67	•	•
Protection devices:	A, B [7]	•	•
Housing material:	ABS	•	•
Lens materiale:	window in glass (tilted anti-reflection) [8]	•	•
Weight:	90 g max.		
	40 g max.	•	•
Operating temperature:	-25 ... +55°C	•	•
Storage temperature:	-25 ... +70°C	•	•
Reference standard:	EN 60947-5-2	•	•

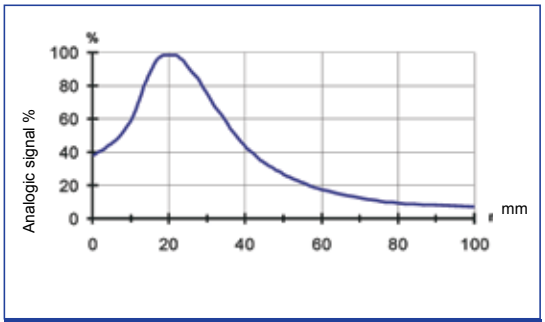
SELECTION TABLE

contrast sensor - 2 m cable		
S60-PA-2-W08-NH	956201550	NPN
S60-PA-2-W08-PH	956201400	PNP

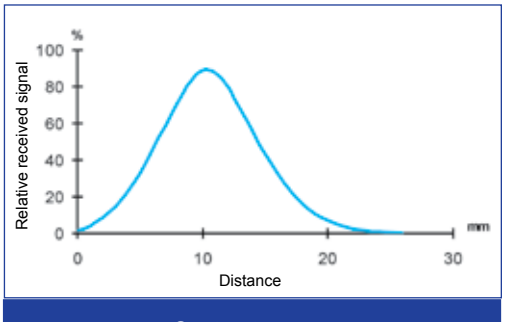
contrast sensor - M12 connector		
S60-PA-5-W08-NH	95621030	NPN
S60-PA-5-W08-PH	95621020	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS



Contrast sensor



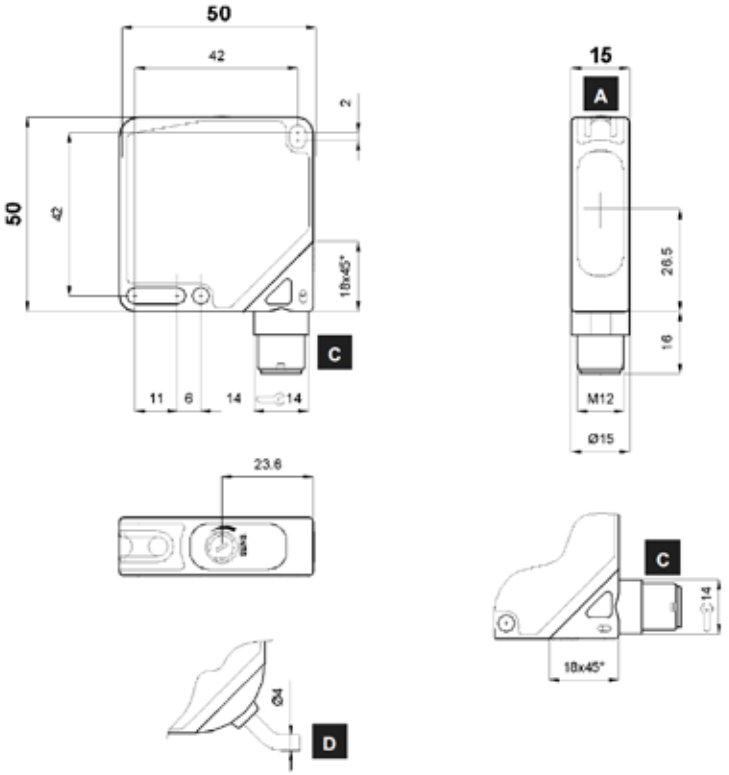
Contrast sensor

U UV EMISSION

The UV light LED emission detects any luminescent reference, even on very reflective surfaces, such as ceramics, metal or mirrored glass. The patent-covered EASYtouch™ setting procedures fixes automatically the best detection conditions, simply by pressing the teach-in push-button once, with the reference to detect. The threshold between two different luminescence degrees can be set by a second pressure of the button



DIMENSIONS



INDICATORS AND SETTINGS



- **A** Output status and READY/ERROR LEDs
- **B** Teach-in push-button
- **C** M12 connector output orientable in two positions
- **D** Cable output

Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine.
Please refer to instructions manual for operating details.

ACCESSORIES

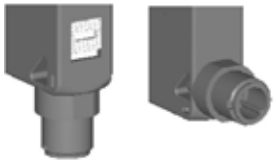
For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

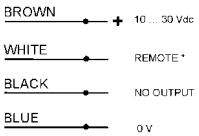
CONNECTIONS

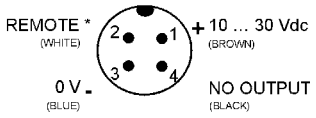


S60-PA-2



S60-PA-5





TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]Connect to 0 V when remote wire not used [4]270° trimmer [5]PVC, 4 x 0.14 mm² [6]Connector can be blocked on two positions [7]A - reverse polarity protection B - overload and short-circuit protection on outputs [8]Internal lenses in glass		S60-PA-2-U08-NH	S60-PA-2-U08-PH	S60-PA-5-U08-NH	S60-PA-5-U08-PH
Operating distance:	0 ... 40 mm	●	●	●	●
Power supply :	10 ... 30 Vdc [1]	●	●	●	●
Ripple:	≤2 Vpp	●	●	●	●
Consumption:	≤ 30 mA	●	●	●	●
Light emission:	LED UV 370 nm[2]	●	●	●	●
Spot dimension:	approx. 1.5 mm at 10 mm (max. signal)	●	●	●	●
Resolution:	0.5 mm	●	●	●	●
Setting:	teach-in push-button	●	●	●	●
	remote on cable [3]	●	●	●	●
Setting procedure:	EASYtouch™	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●
	green / red READY / ERROR LED	●	●	●	●
Output type:	PNP, NO		●		●
	NPN, NO	●		●	
Output current:	≤ 100 mA	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●
Response time:	250 µs	●	●	●	●
Max. switching frequency:	2 kHz	●	●	●	●
Operating mode:	light with EASYtouch™	●	●	●	●
	automatic dark / light with fine acquisition	●	●	●	●
Timing function:	20 ms minimum output ON	●	●	●	●
Auxiliary functions:	remote	●	●	●	●
	keylock[4]	●	●	●	●
Connection:	2 m Ø 4 mm cable[5]	●	●		
	M12 4-pole connector[6]			●	●
Electrical protection:	class 2	●	●	●	●
Mechanical protection:	IP67	●	●	●	●
Protection devices:	A, B[7]	●	●	●	●
Housing material:	ABS	●	●	●	●
Lens material:	window in glass (tilted anti-reflection)[8]	●	●	●	●
Weight:	90 g max.	●	●		
	40 g max.			●	●
Operating temperature:	-25 ... +55°C	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●

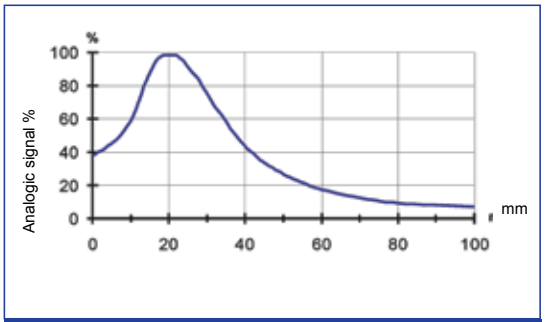
SELECTION TABLE

luminescence sensor - 2 m cable		
S60-PA-2-U08-NH	956201540	NPN
S60-PA-2-U08-PH	956201390	PNP

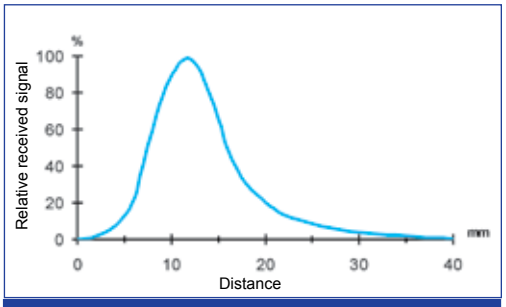
luminescence sensor - M12 connector		
S60-PA-5-U08-NH	956201010	NPN
S60-PA-5-U08-PH	956201000	PNP

All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS



Contrast sensor



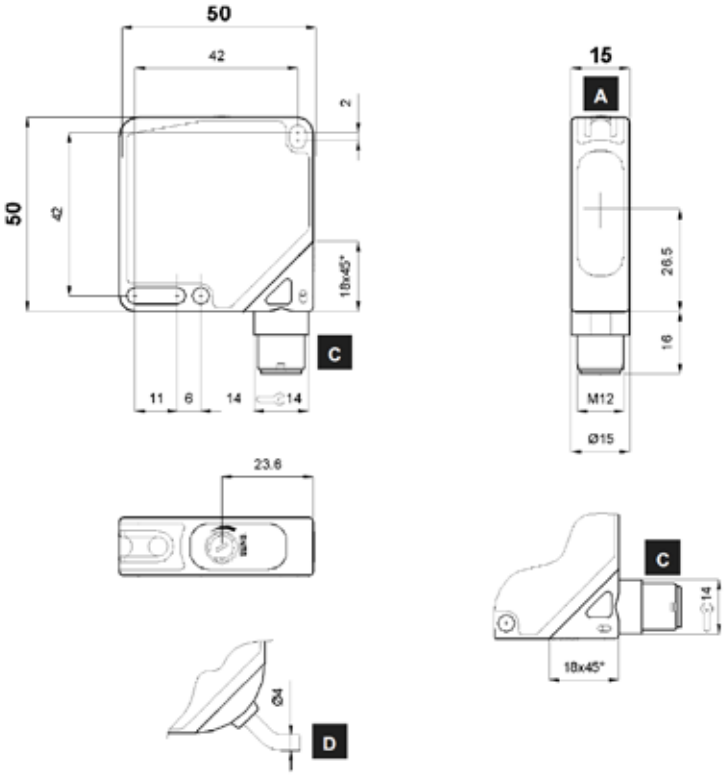
Luminescence sensor

Y RED EMISSION

This sensor gives an analogue 0-10 Vdc output proportional to the target distance in the measurement range, with the possibility of setting a threshold for the other switching output. The yellow LED indicates the activation of the output during switching while the red LED turns on when the object is outside the measurement range.



DIMENSIONS



INDICATORS AND SETTINGS



- A Output status and READY/ERROR LEDs
- B Teach-in push-button
- C M12 connector output orientable in two positions
- D Cable output

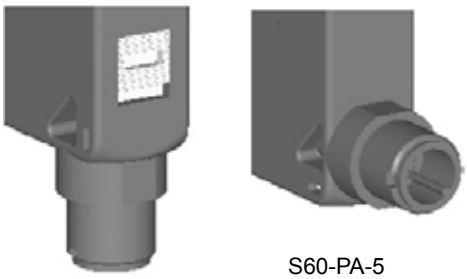
Teach-in button for setting.
EASYtouch™ provides two setting modes: standard or fine.
Please refer to instructions manual for operating details.

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors and Fixing brackets of the General Catalogue.**

CONNECTIONS



S60-PA-5



TECHNICAL DATA

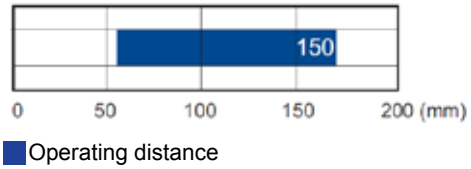
TECHNICAL NOTES [1] Measurement field can be reduced at device setting [2] Limit values [3] Average life of 100.000 h with TA = +25 °C [3] Connect to 0 V when remote wire not used [4] PVC, 4 x 0.14 mm² [5] Connector can be blocked on two positions [6] A - reverse polarity protection B - overload and short-circuit protection on outputs [7] Internal lenses in Polycarbonate		S60-PA-5-Y03-NV	S60-PA-5-Y03-PV
Operating distance:	60 ... 150 mm[1]	•	•
Power supply:	18 ... 30 Vdc[2]	•	•
Ripple:	≤2 Vpp	•	•
Consumption:	≤60 mA	•	•
Light emission:	red LED 670 nm[3]	•	•
Spot dimensions:	approx. 16 mm at 150 mm	•	•
Setting:	teach-in push-button	•	•
Setting procedure:	EASYtouch™	•	•
Indicators:	yellow OUTPUT LED	•	•
	red FIELD LED	•	•
Output type:	PNP, NO		•
	NPN, NO	•	
	analogue with 0 ... 10 V (8 bit)	•	•
Minimum resistance load:	1 KW	•	•
Output current:	≤100 mA	•	•
Saturage voltage:	≤ 2 V	•	•
Response time:	1 ms	•	•
Switching frequency:	500 Hz	•	•
Resolution:	1 mm (linearity ± 2.5 %)	•	•
Operating mode:	light with EASYtouch™	•	•
	automatic dark / light fine acquisition	•	•
	configurable direct/inverse proportionality	•	•
Switching output hysterisis:	10 % max.	•	•
Connection:	2 m Ø 4 mm cable[4]		
	M12 4-pole connector[5]	•	•
Electrical protection:	class 2	•	•
Mechanical protection:	IP67	•	•
Protection devices:	A, B[6]	•	•
Housing material:	ABS	•	•
Lens material:	window in PMMA[7]	•	•
Weight:	90 g max.		
	40 g max.	•	•
Operating temperature:	-25 ... +55°C	•	•
Storage temperature:	-25 ... +70°C	•	•
Reference standard:	EN 60947-5-2	•	•

SELECTION TABLE

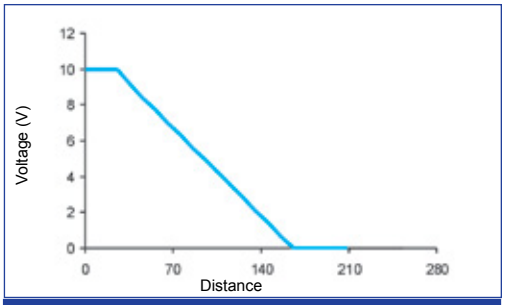
distance sensor - M12 connector		
S60-PA-5-Y03-NV	956201710	PNP
S60-PA-5-Y03-PV	956201700	NPN

All the ordering codes and information are summarised in the last pages of this catalogue.

DETECTION DIAGRAMS



Operating distance



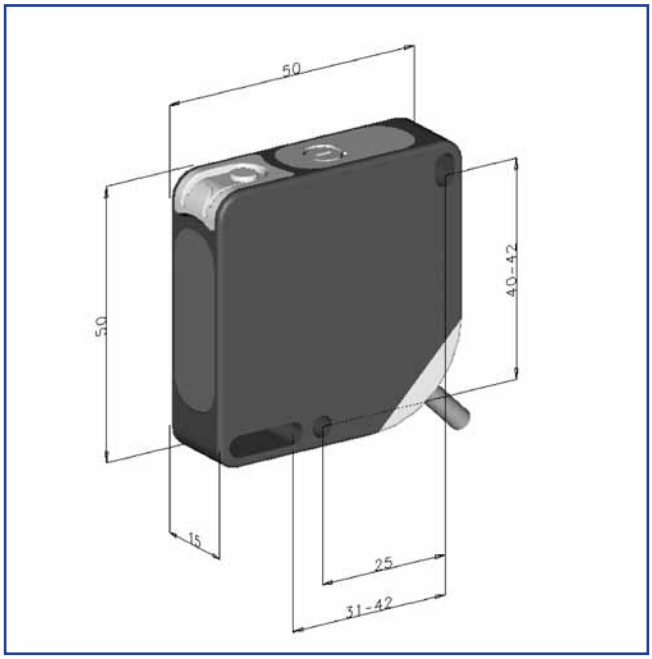
Analogue output on max. measurement range in inverse proportionality

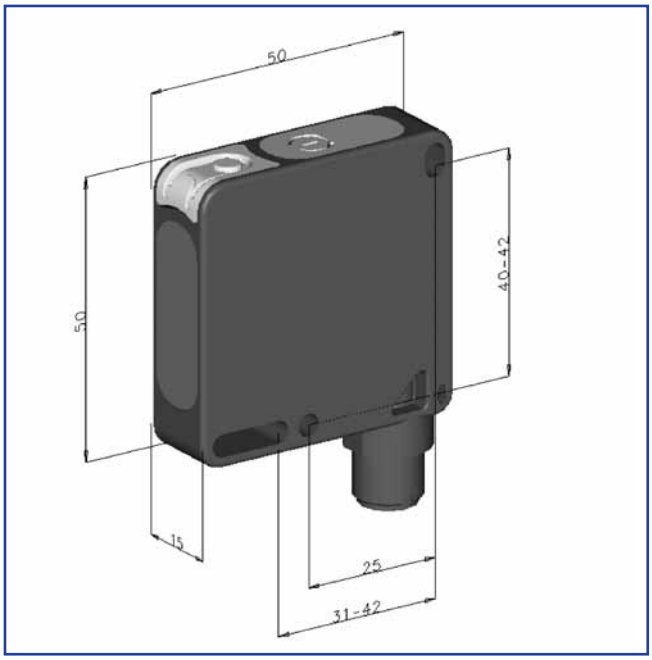
TECHNOLOGY ADVANTAGES

The S60 series establishes the new market standard in the compact 50 x 50 mm fotoelectric sensors, offering a complete family of optic functions with only 15 mm housing width.

The standard dimensions, reduced housing width and the multi-hole fixing system make the **S60** series compatible with the majority of compact sensors present on the market.

STANDARD 50 x 50 x 15 mm





COMPACT PHOTOELECTRIC SENSORS

All the models are available in cable or M12 connector versions, with NPN or PNP type static output, conforming to the EN 60947-5-2 European standard.

The M12 connector can be easily rotated to 90° and can be blocked in the straight or right-angle positions respect to the optic axis, the cable emerges at 45° and thanks to its flexibility can rotate pratically 360°. Thanks to these characteristics the sensor can be easily fixed on all sides and at all angles.

All the basic optic functions such as the through beam, polarised retroreflex, diffuse proximity and background suppression are available also in the version with visible red laser emission, with all the safety charateristics for the user in class 1 conforming to the EN 60825-1 European standard and in class II according to CDRH21 CFR Part 1040 USA standard.

Besides the evident advantages for the alignment of sensors and of the object to detect, thanks to the high spot visibility and concentration, the laser emissions offer an improved detection resolution, millimetric for the through beam and polarised retroreflex versions, or decimillimetric for the diffuse proximity and background suppression.

The polarised retroreflex model is available also in the coaxial optic version that, with the emitter optic axis coinciding with the receiver one, offers a better detection axis precision and the elimination of the blind zone near to the sensor.

TECHNOLOGY ADVANTAGES

The coaxial optics is present also in the polarised retroreflex model for the detection of transparent objects, notably increasing the performances of this optic function and its immunity to object movements inside the detection area.

The contrast sensor with white LED emission has an operating distance ranging from 17 to 21 mm and detects coloured or grey-scale marks, with a minimum dimension of 0.5 mm and an operating frequency reaching 5 kHz.

The luminescence sensor with UV LED emission has an operating distance ranging from 0 to 40 mm and detects fluorescent or luminescent targets, with a minimum dimension of 0.5 mm and an operating frequency reaching 2 kHz.

The setting of these sensors is extremely rapid and easy, thanks to the patent-covered **EASYtouch™** system that alllows to automatically fix the object detection threshold, with a single pressure of the teach-in push-button.

It is possibile to set the sensor to detect more critical differences between the mark and the background, or invert the dark or light operating mode, by pressing twice the push-button.

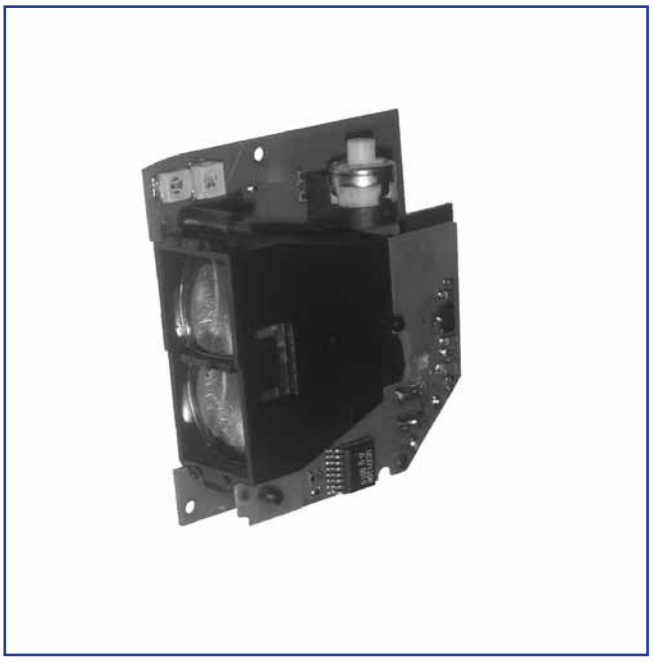
The EASYtouch™ system allows to select the 'Remote' function for the remote sensor setting through the cable or connector, the 'Keylock' function to block the keyboard, 'Delay OFF' function for the 20 ms timing of the output deactivation.

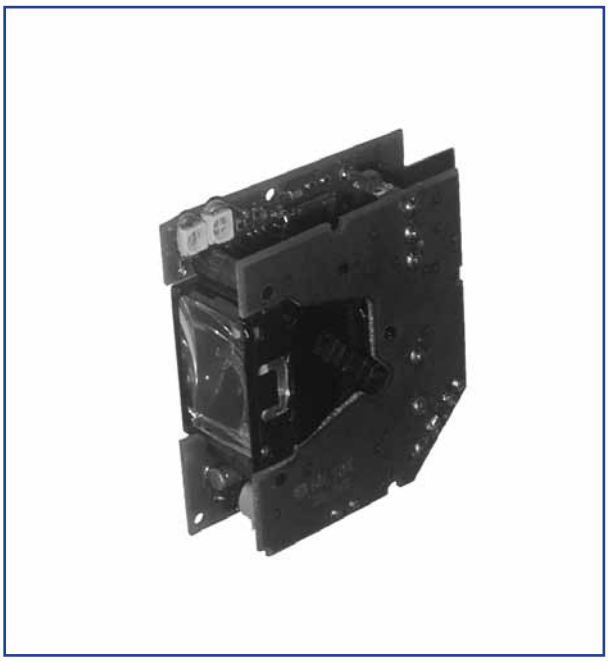
The sensor technology with background and/or foreground suppression of the **S60** series has allowed to develop also a cost-effective distance sensor with a double output: a 0 - 10 V analogue output and a digital NPN or PNP switching output.

The measurement range and the switching threshold output can be selected in the 50 - 150 mm range, with a ± 1 mm precision; the direct or inverse proportionality and the light or dark operating mode can be selected.

SMT chip-size for the electronic miniaturisation and more space for the optics

COAXIAL OPTICS





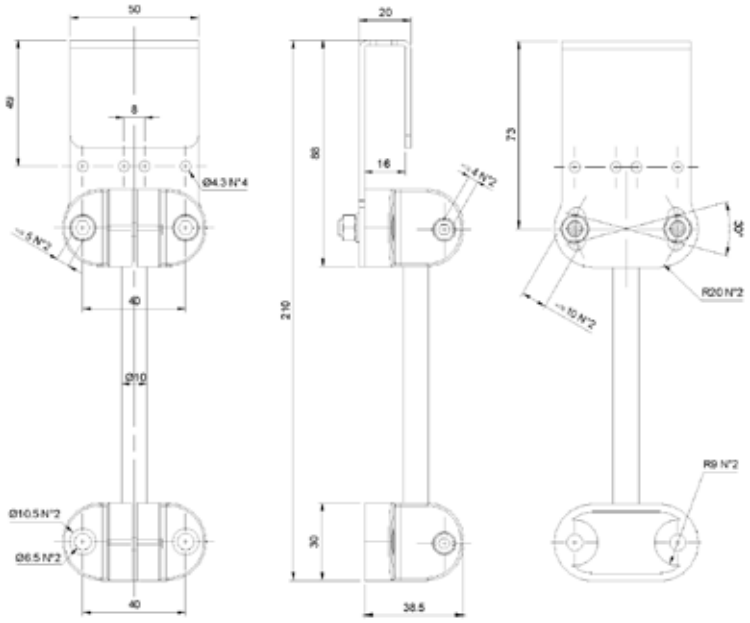
BIAXIAL OPTICS

Complete external shield for high electromagnetic compatibility

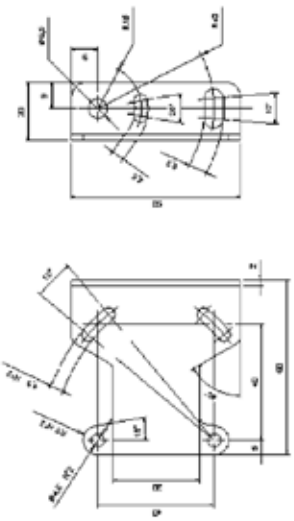
DIMENSIONS

ACCESSORIES

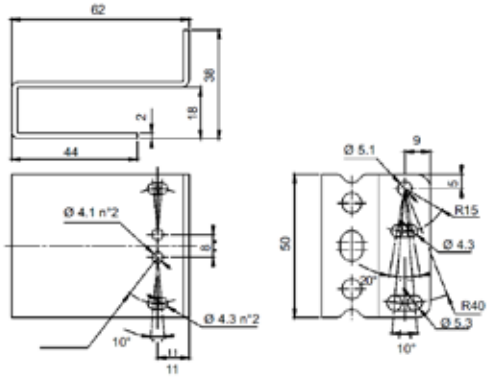
JOINT-60



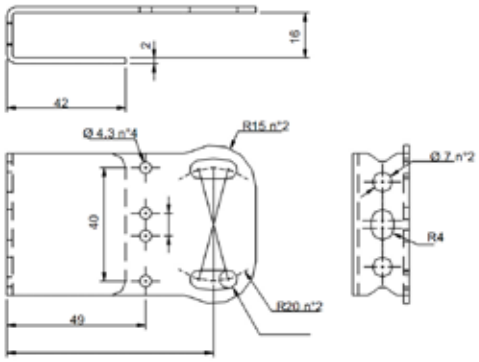
ST-504



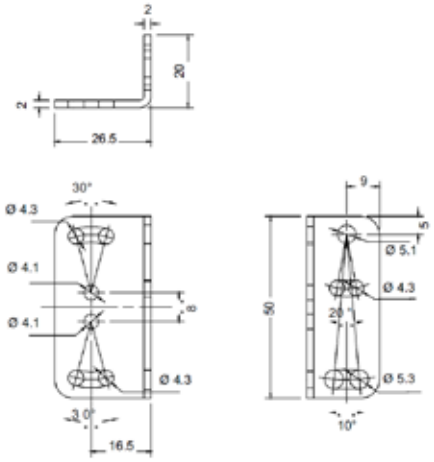
ST-5018



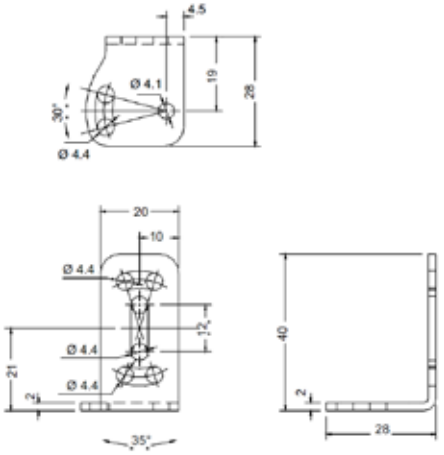
ST-5019



ST-5020



ST-5021



ACCESSORIES

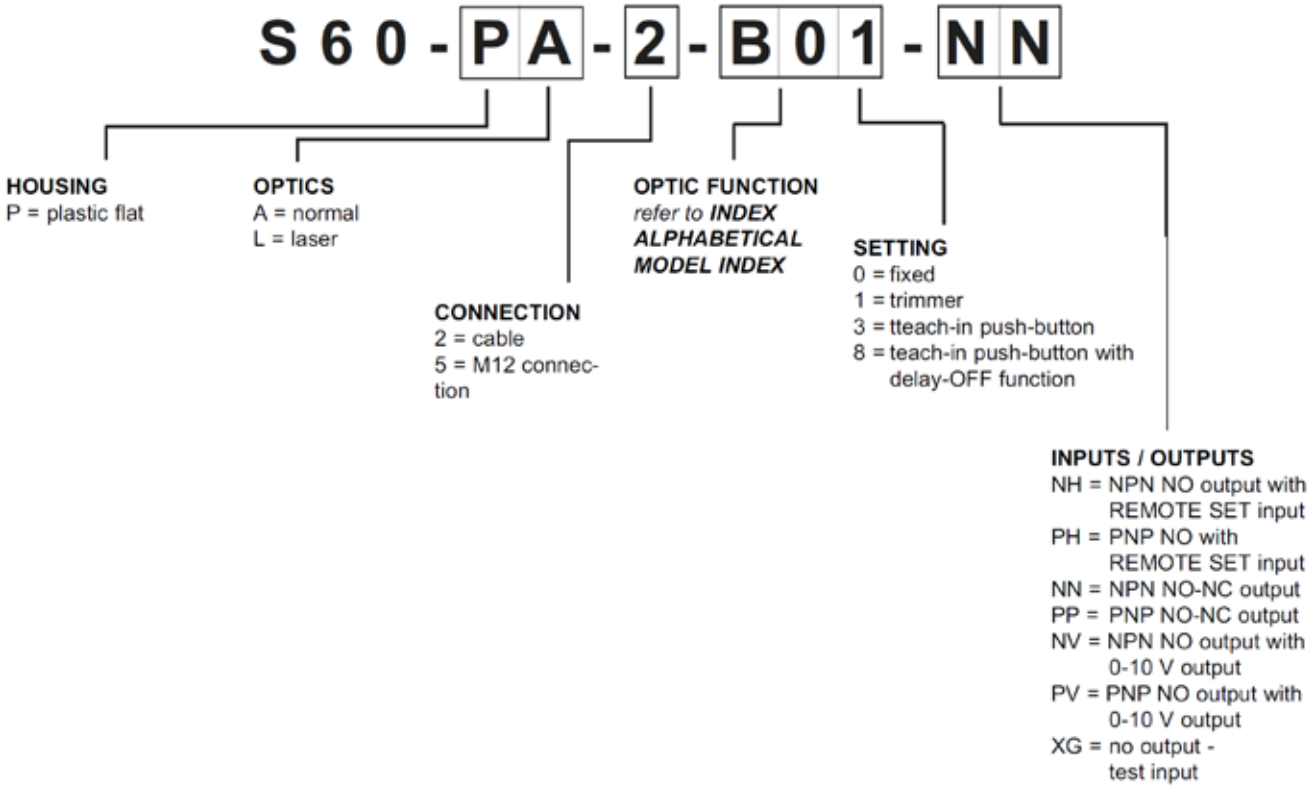
The series is compatible with the following Datalogic Automation accessories (refer **General Catalogue)**

- CS connectors
- R reflectors

New accessories dedicated to the **S60** series have been developed to cover all the fixing requirements and improve functioning.

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5018	protection bracket	95ACC5310
ST-5019	protection bracket	95ACC5320
ST-5020	fixing bracket	95ACC5330
ST-5021	fixing bracket	95ACC5340
JOINT-60	protection bracket with jointed support	95ACC5350
ST-504	S6/S60 fixing bracket	95ACC2820



Note: Not all code combinations are available. Please refer to alphabetical model index for the list of available models.

MODEL SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	N° ORDER	PAGE
S60-PA-2-B01-NN	polarised retroreflex	956201460	6
S60-PA-2-B01-PP	polarised retroreflex	956201300	6
S60-PA-2-C01-NN	diffuse proximity	956201470	14
S60-PA-2-C01-PP	diffuse proximity	956201310	14
S60-PA-2-C11-NN	long diffuse proximity	956201480	16
S60-PA-2-C11-PP	long diffuse proximity	956201320	16
S60-PA-2-F01-NN	recevier	956201490	2
S60-PA-2-F01-PP	recevier	956201330	2
S60-PA-2-G00-XG	emitter	956201340	2
S60-PA-2-T51-NN	retroreflex for transparents	956201530	12
S60-PA-2-T51-PP	retroreflex for transparents	956201380	12
S60-PA-2-U08-NH	luminescence sensor	956201540	28
S60-PA-2-U08-PH	luminescence sensor	956201390	28
S60-PA-2-W08-NH	contrast sensor	956201550	26
S60-PA-2-W08-PH	contrast sensor	956201400	26
S60-PA-5-B01-NN	polarised retroreflex	956201180	6
S60-PA-5-B01-PP	polarised retroreflex	956201040	6
S60-PA-5-B51-NN	coaxial polarised retroreflex	956201630	8
S60-PA-5-B51-PP	coaxial polarised retroreflex	956201620	8
S60-PA-5-C01-NN	diffuse proximity	956201190	14
S60-PA-5-C01-PP	diffuse proximity	956201050	14
S60-PA-5-C11-NN	long diffuse proximity	956201200	16
S60-PA-5-C11-PP	long diffuse proximity	956201110	16
S60-PA-5-F01-NN	recevier	956201210	2
S50-PA-5-F01-PP	recevier	956201060	2
S60-PA-5-G00-XG	emitter	956201070	2
S60-PA-5-M08-NH	background suppression	956201220	20
S60-PA-5-M08-PH	background suppression	956201080	20

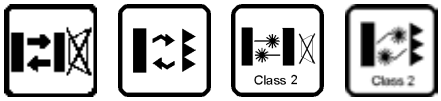
MODEL	FUNCTION	N° ORDER	PAGE
S60-PA-5-N03-NH	fore-background suppression	956201240	24
S60-PA-5-N03-PH	fore-background suppression	956201090	24
S60-PA-5-T51-NN	retroreflex for transparents	956201250	12
S60-PA-5-T51-PP	retroreflex for transparents	956201100	12
S60-PA-5-U08-NH	luminescence sensor	956201010	28
S60-PA-5-U08-PH	luminescence sensor	956201000	28
S60-PA-5-W08-NH	contrast sensor	956201030	26
S60-PA-5-W08-PH	contrast sensor	956201020	26
S60-PA-5-Y03-NV	distance sensor	956201700	30
S60-PA-5-Y03-PV	distance sensor	956201710	30
S60-PL-2-B01-NN	laser polarised retroreflex	956201560	10
S60-PL-2-B01-PP	laser polarised retroreflex	956201410	10
S60-PL-2-C01-NN	laser diffuse proximity	956201640	18
S60-PL-2-C01-PP	laser diffuse proximity	956201650	18
S60-PL-2-F01-NN	laser receiver	956201570	4
S60-PL-2-F01-PP	laser receiver	956201420	4
S60-PL-2-G00-XG	laser emitter	956201430	4
S60-PL-2-M08-NH	laser background suppression	956201580	22
S60-PL-2-M08-PH	laser background suppression	956201440	22
S60-PL-5-B01-NN	laser polarised retroreflex	956201260	10
S60-PL-5-B01-PP	laser polarised retroreflex	956201120	10
S60-PL-5-C01-NN	laser diffuse proximity	956201660	18
S60-PL-5-C01-PP	laser diffuse proximity	956201670	18
S60-PL-5-F01-NN	laser receiver	956201270	4
S50-PL-5-F01-PP	laser receiver	956201140	4
S60-PL-5-G00-XG	laser emitter	956201150	4
S60-PL-5-M08-NH	laser background suppression	956201280	22
S60-PL-5-M08-PH	laser background suppression	956201160	22

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S62 SERIES

S62 photoelectric sensor line offers compact dimensions and competitive prices for all basic and advanced models.
All universal optic functions are available at best performances in the standard 50x50x18 mm compact plastic housing with IP67 mechanical protection.
Laser emission models for high resolution detection are also available for polarized retroreflex, diffuse proximity and background suppression.
S62 allows a great versatility of installations with Vac/dc multivoltage power supply and SPDT relay output, as well as 10-30 Vdc version with NPN/PNP configurable output or NO-NC standard outputs. The connection is available with 2 m cable or M12 4-poles rotatable connector.
S62 series is the first choice when looking for a photoelectric sensor with the best price / performance ratio in a compact standard case.



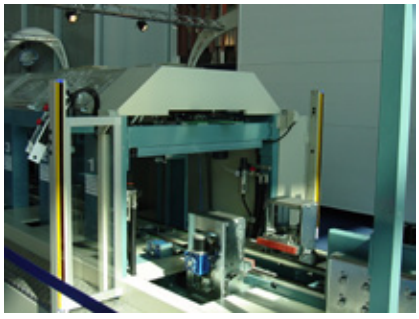


HIGHLIGHTS

- High-resolution sensors with **LED** or **LASER** emission
- High installation flexibility
- Background suppression, retroreflex polarized and diffuse proximity Laser versions
- **Vac/dc** multivoltage version
- Sensitivity/distance adjustment trimmer
- **Cable** or **M12 rotatable connector**
- PNP, NPN, PNP/NPN or SPDT Relay output

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines



The background suppression proximity can set very precisely the limit over which the object is not detected, with minimum differences also between objects with material or colour differences. The threshold switching adjustment is easier and more precise thanks to the multiturn mechanical trimmer and the gear numeric scale. The polarised retroreflex, thanks to high-polarisation optic filters, detects also very reflective objects also with mirror surfaces, that however do not rotate the polarisation plane of the reflected light, like the prismatic reflector.

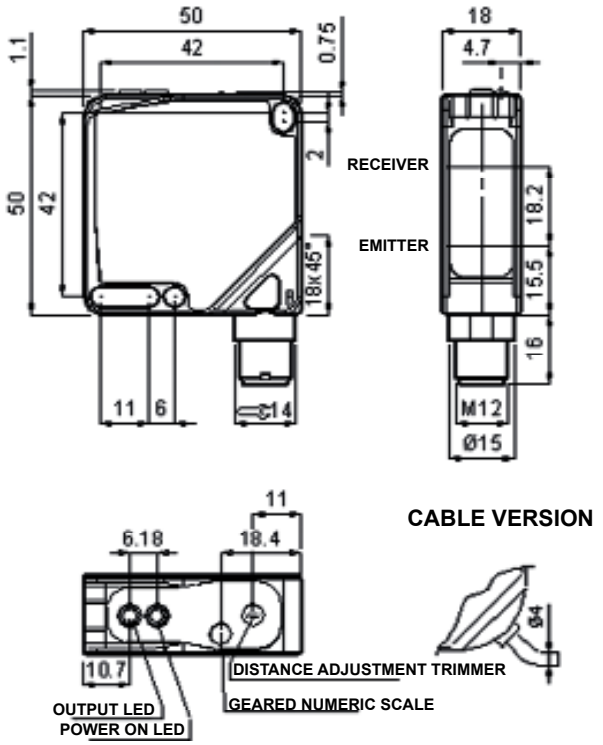


ACCESSORIES

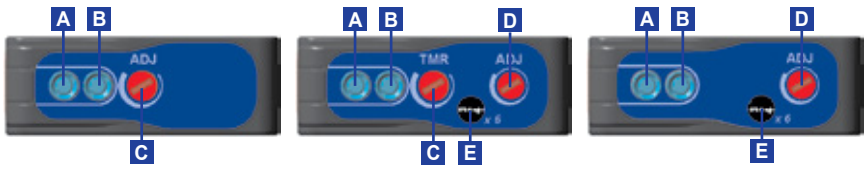
For dedicated accessories refer to the ACCESSORIES section.

Refer also to Connectors and Reflectors of the General Catalogue.

DIMENSIONS



INDICATORS AND SETTINGS



- A Output status LED
- B Stability LED or Power ON LED (laser vers.)
- C Timer adjustment trimmer
- D Distance adjustment trimmer
- E Geared numeric scale
- F M12 connector output
- G Cable output

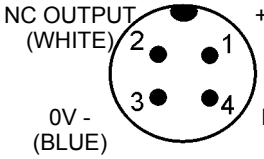
CONNECTIONS



S62-PA-2

BROWN	+	10 ... 30 Vdc
WHITE		NC OUTPUT
BLACK		NO OUTPUT
BLUE		0V -

S62-PA-5



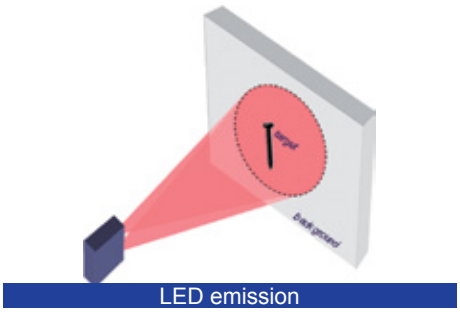
EMISSION TYPE

The very low black/white difference of background suppression sensors allows to detect a dark-coloured target presence, or absence, even onto a light-coloured very reflective background. However, if the target is much smaller than the light spot and smaller than the background area, the detection can be critical either for the low resolution and for the 'cross-eyed effect' (excessive light reflected by the background).

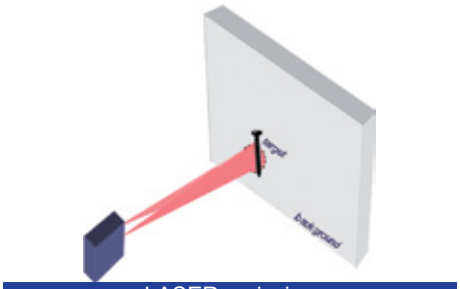
The narrow collimated light beam of the **S62** LASER background suppression sensor is the right solution able to offer the requested resolution and avoid the cross-eyed effect, thus permitting the detection of the smallest objects or their minimal movements, even in presence of large and reflective background area.

The LASER polarised retroreflex sensor of the **S62** series, as well as increasing the maximum operating distance, offers the improvement of the detection resolution thanks to the smaller dimensions of the light beam respect to the LED emission beam.

Basically, the mimumum detectable dimension corresponds to the emission beam diameter at the detection distance. The maximum resolution can be obtained only with microprismatic reflectors (0.8 mm microcubes), such as the small **R8** suitable for short distances up to 2 m, or the **R7** and **R20** models for distance up to 22 m.



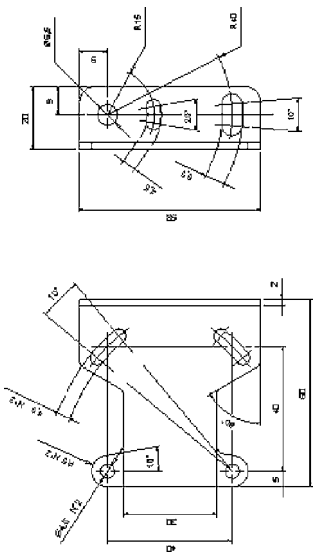
LED emission



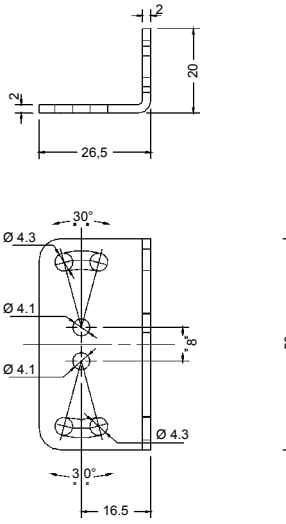
LASER emission

ACCESSORIES

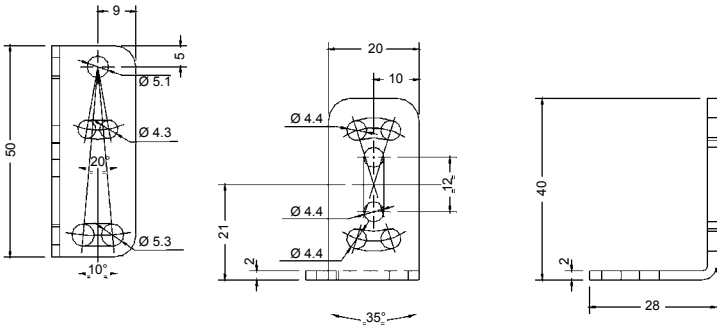
ST-504



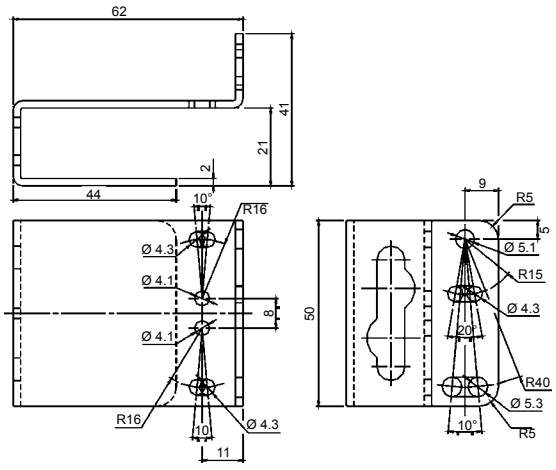
ST-5020



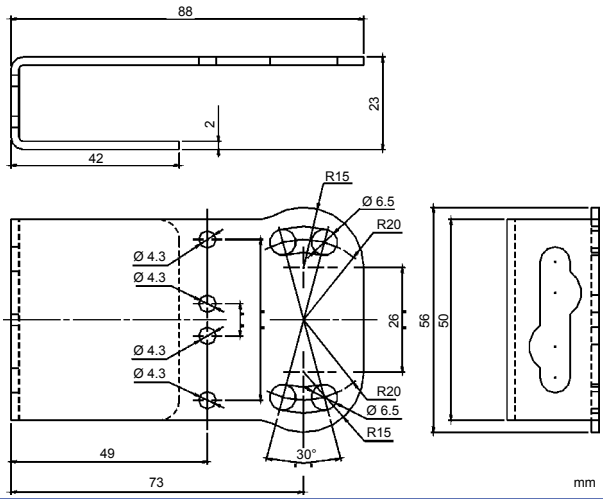
ST-5021



ST-5053



ST-5054



Joint-62: as ST-5054 with jointed support

TECHNICAL DATA OF MODELS WITH LED EMISSION

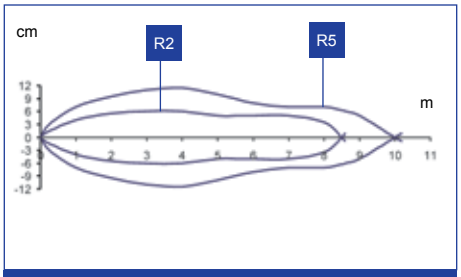
		S62-PA-2-B01	S62-PA-2-M01	S62-PA-2-M11	S62-PA-2-M21	S62-PA-2-M31	S62-PA-5-B01	S62-PA-5-M01	S62-PA-5-M05	S62-PA-5-M11	S62-PA-5-M15	S62-PA-5-M21	S62-PA-5-M25	S62-PA-5-M31	S62-PA-5-M35
Polarised retroreflex operating distance:	0 ... 10 m (on R5)	●					●								
Background suppr. operating distance:	30 ... 300 mm		●					●	●						
	60 ... 600 mm			●						●	●				
	60 ... 1200 mm				●							●	●		
	200 ... 2000 mm					●								●	●
Power supply:	10 ... 30 Vdc	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ripple:	≤ 2 Vpp	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	≤40 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Light emission [1]:	red LED 640 nm	●					●								
	red LED 660 nm		●					●	●						
	infrared LED 880 nm			●	●	●				●	●	●	●	●	●
Spot dimension:	6 x 6 mm at 200 mm		●					●	●						
	15 x 15 mm at 400 mm			●	●					●	●	●	●		
	ca. 80 mm at 3 m	●					●								
	200 x 200 at 2000 mm					●								●	●
Setting:	270° trimmer	●					●								
	6-turn trimmer		●	●	●	●		●	●	●	●	●	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	green STABILITY LED	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Output type:	PNP, NO and NC (-PP suffix)	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	NPN, NO and NC (-NN suffix)		●	●	●	●	●	●	●	●	●	●	●	●	●
Output current:	≤ 100 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Response time:	500 µs	●	●	●			●	●	●	●	●				
	1 ms				●							●	●		
	1.5 ms					●								●	●
Max. switching frequency:	330 Hz					●								●	●
	500 Hz				●							●	●		
	1 kHz	●	●	●			●	●	●	●	●				
Operating mode:	light on NO / dark on NC		●	●	●	●		●	●	●	●	●	●	●	●
	light on NC / dark on NO	●					●								
Timing function:	0 ... 1 sec.								●		●		●		●
Connection:	2 m Ø 4 mm cable [2]	●	●	●	●	●									
	M12 4-pole connector [3]						●	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B [4]	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	ABS	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Lens material:	window in PMMA	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	lenses in PC	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Weight:	90 g max.	●	●	●	●	●									
	40 g max.						●	●	●	●	●	●	●	●	●
Operating temperature:	-25 ... +55°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-20 ... +70°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●

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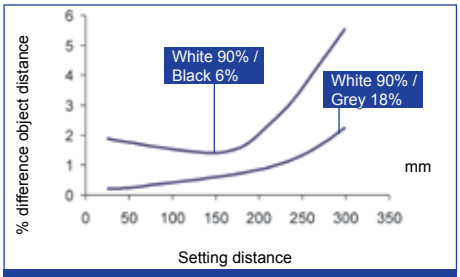
TECHNICAL NOTES

[1] Average life of 100.000 h with TA = +25 °C
[2] PVC, 4 x 0.14 mm2
[3] Connettore bloccabile in two positions
[4] A - reverse polarity protection
B - overload and short-circuit protection

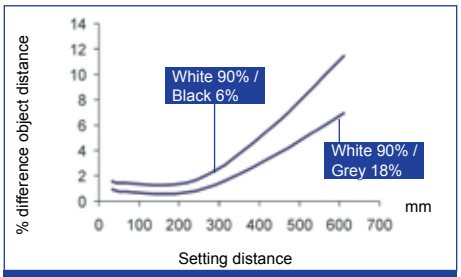
DETECTION DIAGRAMS OF MODELS WITH LED EMISSION



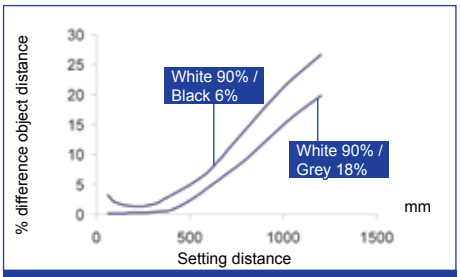
Polarised retroreflex



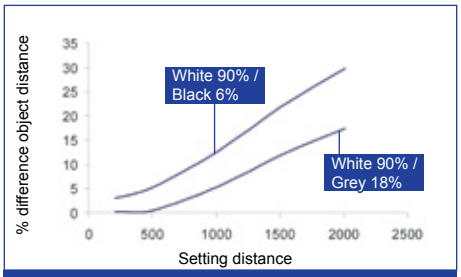
30 ... 300 mm background suppression



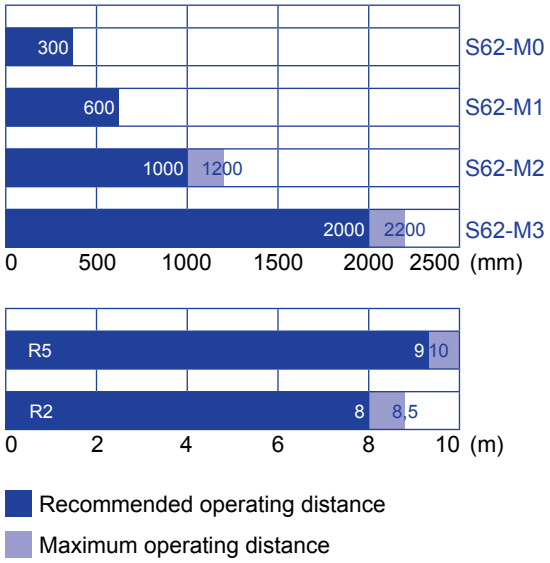
60 ... 600 mm background suppression



60 ... 1200 mm background suppression



200 ... 2000 mm background suppression



TECHNICAL DATA OF MODELS WITH LASER EMISSION

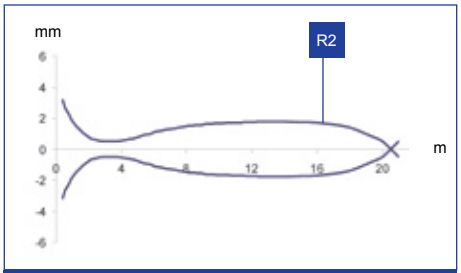
		S62-PL-5-B01	S62-PL-5-M01	S62-PL-5-M11
Polarised retroreflex operating distance:	0.3 ... 20 m (on R2, refer to table)	●		
Background suppr. operating distance:	30 ... 150 mm		●	
	50 ... 350 mm			●
Power supply:	10 ... 30 Vdc	●	●	●
Ripple:	≤ 2 Vpp	●	●	●
Consumption:	≤ 30 mA	●	●	●
Light emission[1] :	red Laser 645...665 nm	●	●	●
	classe II EN 60825-1			
	classe II CDRH21 CFR 1040.10			
Spot dimension:	0.5 mm at 0.5 m	●		
	£ 0.2 mm at 60 mm		●	
	£ 0.4 mm at 150 mm			●
Setting:	270° trimmer	●		
	4-turn trimmer		●	
	6-turn trimmer			●
Indicators:	yellow OUTPUT LED	●	●	●
	green POWER ON LED	●	●	●
Output type:	PNP, NA and NC (-PP suffix)	●	●	●
	NPN, NA and NC (-NN suffix)	●	●	●
Output current:	≤100 mA	●	●	●
Saturation voltage:	≤ 2 V	●	●	●
Response time:	140 µs		●	
	200 µs	●		●
Max. switching frequency:	2.5 kHz	●		●
	3.5 kHz		●	
Operating mode:	light on NO / dark on NC		●	●
	light on NC / dark on NO	●		
Connection:	M12 4-pole connector [2]	●	●	●
Mechanical protection:	IP67	●	●	●
Protection devices:	A, B[3]	●	●	●
Housing material:	ABS	●	●	●
Lens material:	window in PMMA	●	●	●
	lenses in PC / PMMA	●	●	●
Weight:	40 g max.	●	●	●
Operating temperature:	-10 ... +55°C	●	●	●
Storage temperature:	-20 ... +70°C	●	●	●
Reference standard:	EN 60947-5-2,	●	●	●
	EN 60825-1, CDRH21 CFR 1040.10	●	●	●

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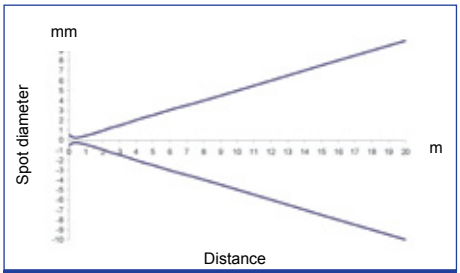
TECHNICAL NOTES

[1] Average life of 50.000 h with TA = +25 °C
[2] Connettore bloccabile in two positions
[3] A - reverse polarity protection
B - overload and short-circuit protection

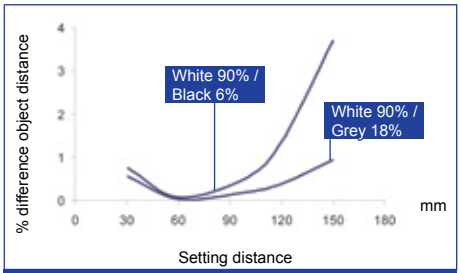
DETECTION DIAGRAMS OF MODELS WITH LASER EMISSION



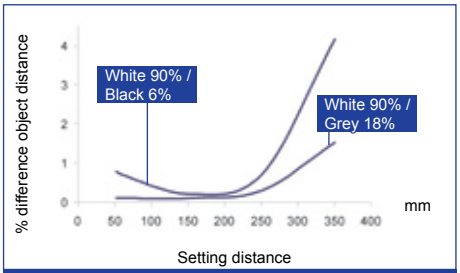
Laser polarised retroreflex



Light spot dimension - Laser polarised retroreflex

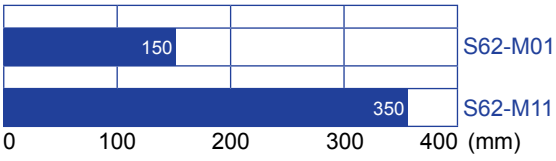


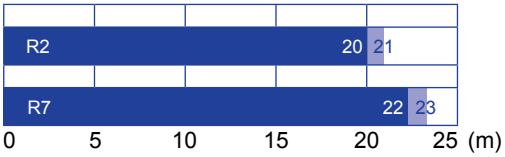
30 ... 150 mm laser background suppression



50 ... 350 mm laser background suppression

Reflector operating distances (m)				
R1	R2	R6	R7 / R20	R8
0.3 … 16	0.3 … 20	0.4 … 22	0.3 … 22	0.2 … 2
The use of the RT3970 reflecting tape is suggested.				





Recommended operating distance

Maximum operating distance

MODEL SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	CONNECTION	OUTPUT	ORDER N°
S62-PA-2-B01-PP	10 m polarised retroreflex	2 m cable	PNP	956211010
S62-PA-5-B01-PP	10 m polarised retroreflex	M12 connector	PNP	956211000
S62-PA-5-B01-NN	10 m polarised retroreflex	M12 connector	NPN	956211020
S62-PA-2-M01-PP	300 mm background suppression	2 m cable	PNP	956201840
S62-PA-5-M01-PP	300 mm background suppression	M12 connector	PNP	956201830
S62-PA-5-M01-NN	300 mm background suppression	M12 connector	NPN	956201810
S62-PA-5-M05-PP	300 mm background suppression, with timer	M12 connector	PNP	956201820
S62-PA-5-M05-NN	300 mm background suppression, with timer	M12 connector	NPN	956201800
S62-PA-2-M11-PP	600 mm background suppression	2 m cable	PNP	956201890
S62-PA-5-M11-PP	600 mm background suppression	M12 connector	PNP	956201880
S62-PA-5-M11-NN	600 mm background suppression	M12 connector	NPN	956201860
S62-PA-5-M15-PP	600 mm background suppression, with timer	M12 connector	PNP	956201870
S62-PA-5-M15-NN	600 mm background suppression, with timer	M12 connector	NPN	956201850
S62-PA-5-M21-PP	1200 mm background suppression	M12 connector	PNP	956201900
S62-PA-2-M21-PP	1200 mm background suppression	2 m cable	PNP	956201940
S62-PA-5-M21-NN	1200 mm background suppression	M12 connector	NPN	956201910
S62-PA-5-M25-PP	1200 mm background suppression, with timer	M12 connector	PNP	956201920
S62-PA-5-M25-NN	1200 mm background suppression, with timer	M12 connector	NPN	956201930
S62-PA-2-M31-PP	2000 mm background suppression	2 m cable	PNP	956211050
S62-PA-5-M31-NN	2000 mm background suppression	M12 connector	NPN	956211060
S62-PA-5-M31-PP	2000 mm background suppression	M12 connector	PNP	956211070
S62-PA-5-M35-NN	2000 mm background suppression, with timer	M12 connector	NPN	956211080
S62-PA-5-M35-PP	2000 mm background suppression, with timer	M12 connector	PNP	956211090
S62-PL-5-B01-NN	20 m laser polarised retroreflex	M12 connector	NPN	956211100
S62-PL-5-B01-PP	20 m laser polarised retroreflex	M12 connector	PNP	956211110
S62-PL-5-M01-NN	150 mm laser background suppression	M12 connector	NPN	956211120
S62-PL-5-M01-PP	150 mm laser background suppression	M12 connector	PNP	956211130
S62-PL-5-M11-NN	350 mm laser background suppression	M12 connector	NPN	956211140
S62-PL-5-M11-PP	350 mm laser background suppression	M12 connector	PNP	956211150

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
R1	Ø 23 mm prismatic reflector with Ø 31 mm support	S940700023
R2	Ø 48 mm prismatic reflector with Ø 63 mm support	S940700048
R6	36 x 55 mm prismatic reflector with 40.5 x 60 mm support	95A151350
R7	38 x 40 mm microprism reflector with 51 x 60.7 mm support	95A151360
R8	9.7 x 19 mm microprism reflector with 13.8 x 23 mm support	95A151370
R20	Ø 48 mm prismatic reflector with Ø 63 mm support	95A151090
JOINT-S62	protection bracket with jointed support	95ACC2430
ST-504	fixing bracket	95ACC2820
ST-5020	fixing bracket	95ACC5330
ST-5021	fixing bracket	95ACC5340
ST-5053	protection bracket	95ACC2410
ST-5054	protection bracket	95ACC2420

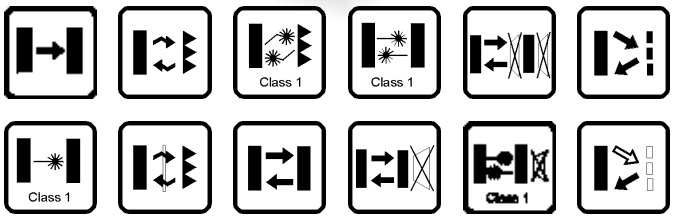
Please refer also to Datalogic Automation connectors and reflectors

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S90 SERIES

The **S90** series, in a compact 41x49x15 mm metal housing, offers all the application and universal optic functions also with safety class 1 laser emission. The series includes polarised retroreflex models with coaxial optics for the detection of reflective and transparent objects, background and foreground suppression versions, contrast sensor with white light emission for colour mark detection, ultraviolet sensor for luminescent object detection. Basic models are available with class 1 laser emission for high-resolution detection. The **S90** models with universal proximity, retroreflex and through beam optic functions have trimmer sensitivity adjustment. More sophisticated models are microprocessor controlled and offer the patent-covered EASYtouch™ setting procedure for rapid and precise automatic setting of the switching threshold, with remote control, keyboard lock and output delay activation functions.
NPN or PNP versions are available with standard M12 connector that can be rotated in 4 different positions.



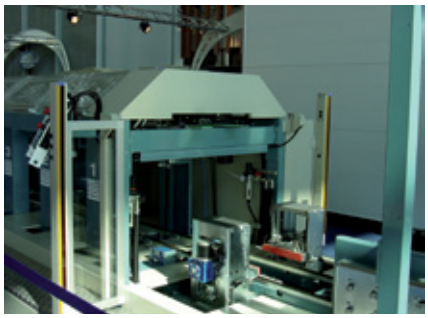


HIGHLIGHTS

- Sturdy metal housing in a compact 41x49x15 mm format
- Complete range of universal, application and laser optic functions
- Trimmer or push-button setting with EASYtouch™ function
- NPN and PNP versions standard M12 rotatable connector

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines



The polarised retroreflex model and the version for transparent object detection are available also with coaxial optics guaranteeing a more accurate axis detection as well as the elimination of the blank zone near to the sensor.
The coaxial optics is also present in the contrast sensor with white light LED emission and in the luminescence sensor with ultraviolet light LED emission, improving the precision and depth of field.
The biaxial optics which is present in the background suppression models, including laser versions, allows the triangulation for a precise detection.

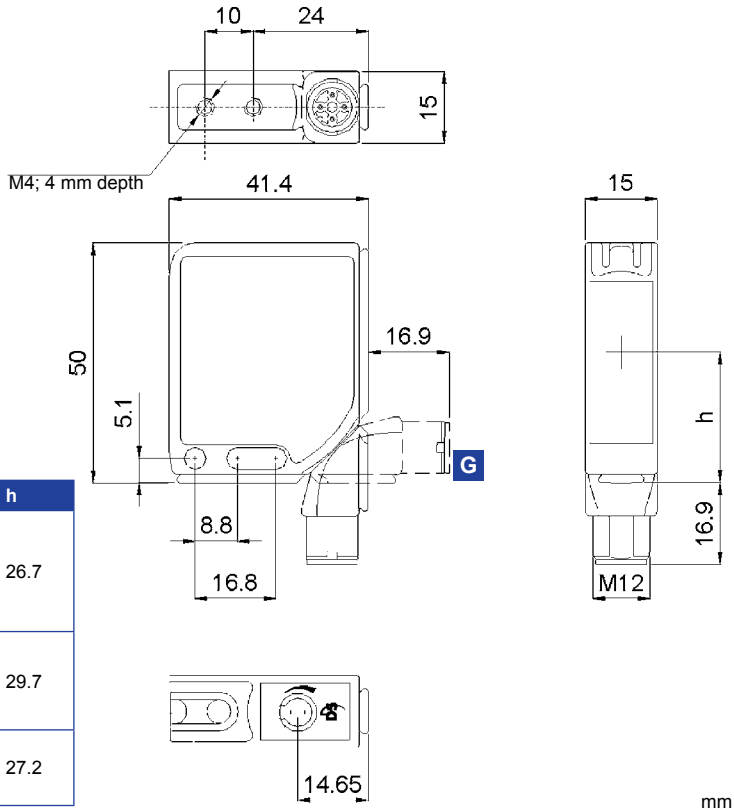


BIAXIAL OPTICS



COAXIAL OPTICS

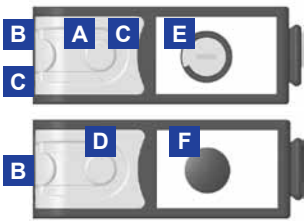
DIMENSIONS



VERSIONS	h
B01 C01 C11 F01 G00	26.7
B51 T51 U W	29.7
M N ML	27.2

mm

INDICATORS AND SETTINGS



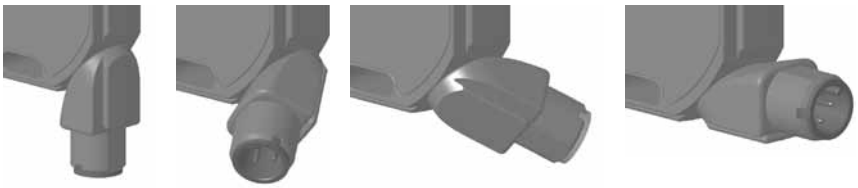
- A STABILITY LED
- B Output status LED
- C POWER ON LED
- D READY/ERROR LED
- E Trimmer
- F SET push-button *
- G M12 connector output, orientable in 4 positions

* Teach-in push-button for setting.
EASYtouch™ provides two setting modes: standard or fine.
Please refer to instructions manual for operating details.

ACCESSORIES

For dedicated accessories refer to the ACCESSORIES section of this catalogue.
Refer also to Connectors (A.03) and Fixing Brackets (A.04) of the General Catalogue.

CONNECTIONS



NC OUTPUT (WHITE)
0V - (BLUE)
+ 10 ... 30 Vdc (BROWN)
NO OUTPUT (BLACK)



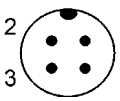
S90…B01 / B51 / C01 / C11 / F01 / T51
S90-ML ... B01 / C01 / F01

REMOTE (WHITE)
0V - (BLUE)
+ 10 ... 30 Vdc (BROWN)
NO OUTPUT (BLACK)

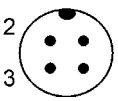


S90 ... M / N / U / W / S90-ML ... M

TEST + (WHITE)
0V - (BLUE)
+ 10 ... 30 Vdc (BROWN)
TEST - (BLACK)



TEST + (WHITE)
0V - (BLUE)
+ 10 ... 30 Vdc (BROWN)
NOT USED



Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

		S90-MA-5-F01	S90-ML-5-F01	S90-MA-5-G00	S90-ML-5-G00	S90-MA-5-B01	S90-ML-5-B01	S90-MA-5-B51	S90-MA-5-T51	S90-MA-5-C01	S90-ML-5-C01	S90-MA-5-C11	S90-MA-5-M08	S90-ML-5-M08	S90-MA-5-N03	S90-MA-5-W08	S90-MA-5-U08
Operating distance:																	
through beam	0 ... 20 m	●		●													
laser through beam	0 ... 60 m		●		●												
polarised retroreflex	0.1 ... 6 m (on R2)					●											
coaxial polarised retroreflex	0 ... 3 m (on R2)						●										
retroreflex for transparents	0 ... 1.5 m (on R2)							●									
laser polarised retroreflex	0.1 ... 20 m (on R2)						●										
medium proximity	1 ... 100 cm								●								
long proximity	5 ... 200 cm										●						
laser proximity	0 ... 60 cm									●							
background suppression	2 ... 20 cm											●					
foreground suppression	7 ... 20 cm														●		
laser background suppression	5 ... 10 cm													●			
contrast sensor	19 mm ± 2 mm															●	
luminescence sensor	0 ... 40 mm																●
Power supply:	10 ... 30 Vdc[1]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Ripple:	2 Vpp	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	30 mA max.															●	●
	35 mA max.	●	●	●	●	●	●	●	●	●	●	●					
	50 mA max.												●	●	●		
Light emission[2]:	red LED 660 nm				●		●	●	●								
	infrared LED 880 nm			●							●						
	red LED 670 nm												●		●		
	UV LED 370 nm																●
	white LED 400 - 700 nm															●	
	red LASER 650 nm				●		●				●			●			
Setting:	sensitivity trimmer[3]	●	●			●	●	●	●	●	●	●					
	SET push-button												●	●	●	●	●
Setting Procedure:	EASYtouch™												●	●	●	●	●
Indicators:	yellow OUTPUT LED[2]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	green STABILITY LED	●				●		●		●		●					
	green POWER ON LED		●	●	●		●				●						
	green/red READY/ERROR LED												●	●	●	●	●
Output type:	30 Vdc max., NPN or PNP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Output current:	£ 100 mA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Saturation voltage:	£ 2 V	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Response time:	100 ms															●	
	250 ms						●				●						●
	333 ms		●														
	500 ms					●		●	●				●	●	●		
	1 ms	●								●		●					
Switching frequency:	500 Hz	●								●		●					
	1 kHz					●		●	●				●	●	●		
	1.5 kHz		●														
	2 kHz						●				●						●
	5 kHz															●	
Connection:	M12 4-pole connector[4]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B[5]	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	Zama (Zn-Al alloy)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Lens material[6]:	window in PMMA	●	●	●	●	●	●			●	●	●	●	●	●		
	window in glass (tilted anti-reflection)							●	●							●	●
Weight:	77 g max.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Operating temperature:	-10 ... +50°C		●		●						●			●			
	-10 ... +55°C												●		●	●	●
	-25 ... +55°C	●		●		●	●	●	●	●		●					
Storage temperature:	-20 ... +70°C												●		●	●	●
	-25 ... +70°C	●	●	●		●	●	●	●	●	●	●		●			
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	EN 60825-1, CDRH21 CFR 1040.10		●		●		●							●			

SELECTION TABLE

receiver			
S90-MA-5-F01-PP	956301050	PNP	
S90-MA-5-F01-NN	956301210	NPN	
S90-ML-5-F01-PP	956301110	PNP	laser
S90-ML-5-F01-NN	956301280	NPN	laser

emitter			
S90-MA-5-G00-XG	956301060	-	
S90-ML-5-G00-XG	956301120	-	laser

polarised retroreflex			
S90-MA-5-B01-PP	956301000	PNP	
S90-MA-5-B01-NN	956301160	NPN	
S90-ML-5-B01-PP	956301090	PNP	laser
S90-ML-5-B01-NN	956301260	NPN	laser

coaxial polarised retroreflex			
S90-MA-5-B51-PP	956301030	PNP	coaxial
S90-MA-5-B51-NN	956301170	NPN	coaxial

retroreflex for transparents			
S90-MA-5-T51-PP	956301040	PNP	coaxial
S90-MA-5-T51-NN	956301180	NPN	coaxial

diffuse proximity			
S90-MA-5-C01-PP	956301010	PNP	
S90-MA-5-C01-NN	956301190	NPN	
S90-ML-5-C01-PP	956301100	PNP	laser
S90-ML-5-C01-NN	956301270	NPN	laser
S90-MA-5-C11-PP	956301020	PNP	
S90-MA-5-C11-NN	956301200	NPN	

background suppression			
S90-MA-5-M08-PH	956301070	PNP	
S90-MA-5-M08-NH	956301220	NPN	
S90-ML-5-M08-PH	956301130	PNP	laser
S90-ML-5-M08-NH	956301290	NPN	laser

foreground suppression			
S90-MA-5-N03-PH	956301080	PNP	
S90-MA-5-N03-NH	956301230	NPN	

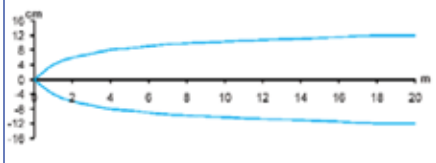
contrast sensor			
S90-MA-5-W08-PH	956301150	PNP	coaxial
S90-MA-5-W08-NH	956301250	NPN	coaxial

luminescence sensor			
S90-MA-5-U08-PH	956301140	PNP	coaxial
S90-MA-5-U08-NH	956301240	NPN	coaxial

TECHNICAL NOTES

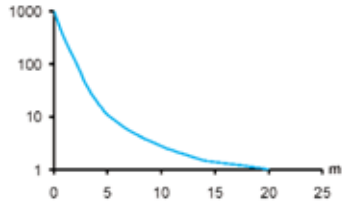
1. Limit values
2. Average life of 100.000 h with TA = +25 °C
   Average life of 50.000 in ML-B01, C01, F01, M vers.
3. 270° single-turn trimmer
4. Connector with 4 position rotation
5. A - reverse polarity protection
   B - overload and short-circuit protection
6. Internal lenses in polycarbonate
   Internal lenses in glass in B51, T51, U, W vers.
   Internal lenses in glass and PC in ML-B01, C01, F01, M vers.

DETECTION DIAGRAMS



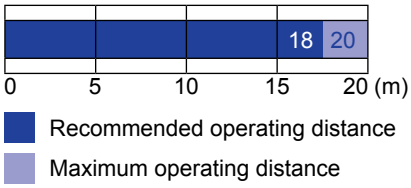
Detection area

F01, G00 models

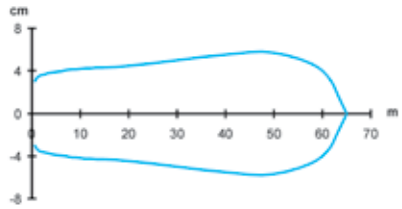


Excess gain

F01, G00 models

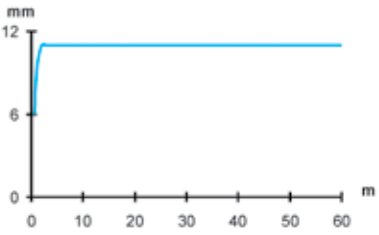


F01, G00 models



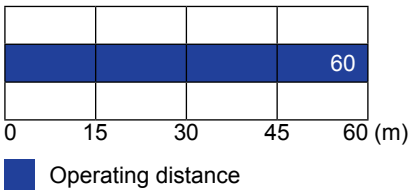
Detection area

L-F01, G00 models

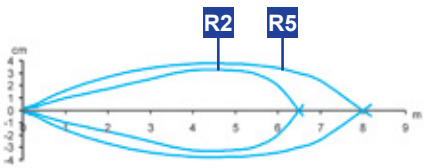


Resolution

L-F01, G00 models

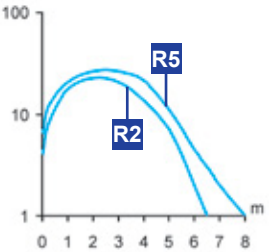


L-F01, G00 models



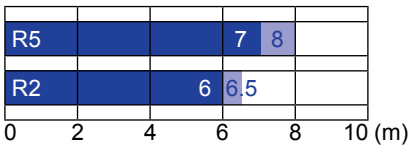
Detection area

B01 models



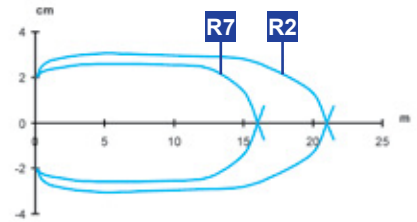
Excess gain

B01 models



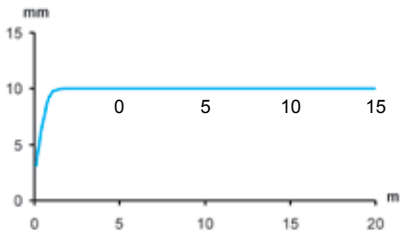
High efficiency reflectors can be used to obtain larger operating distances. Refer to **Reflectors** (A.01) of the **General Catalogue**

B01 models



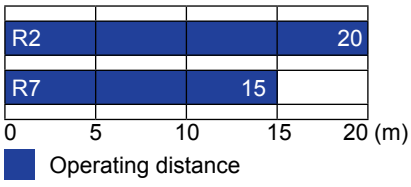
Detection area

L-B01 models



Resolution on R7

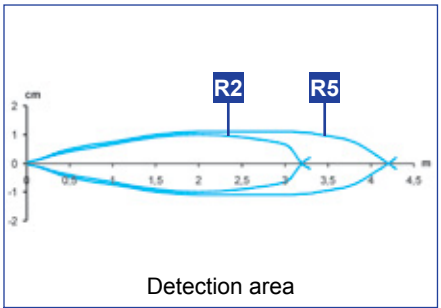
L-B01 models



High efficiency reflectors can be used to obtain larger operating distances. Refer to **Reflectors** (A.01) of the **General Catalogue**

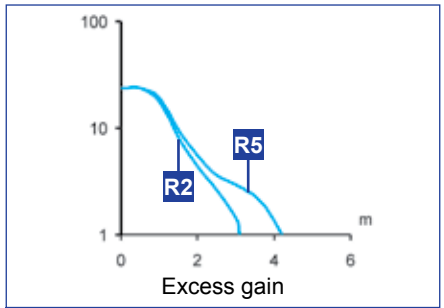
L-B01 models

DETECTION DIAGRAMS



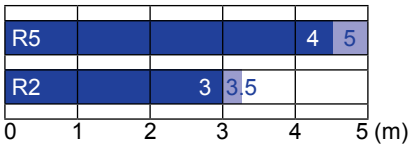
Detection area

B51 models



Excess gain

B51 models

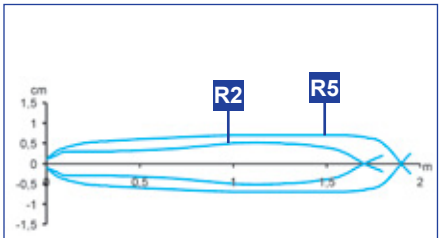


Recommended operating distance

Maximum operating distance

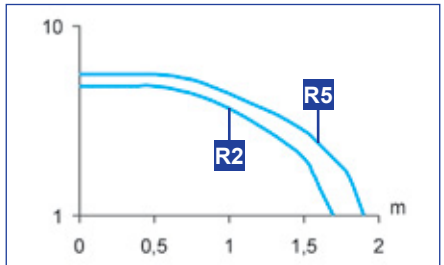
High efficiency reflectors can be used to obtain larger operating distances. Refer to **Reflectors** (A.01) of the **General Catalogue**

B51 models



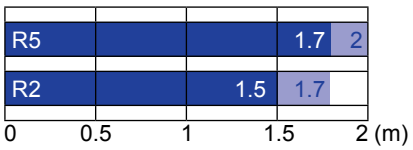
Detection area

T51 models



Excess gain

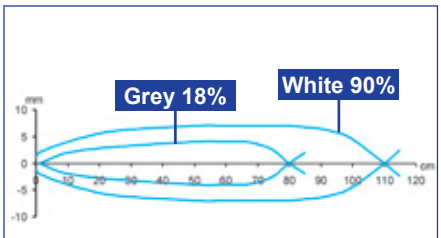
T51 models



Recommended operating distance

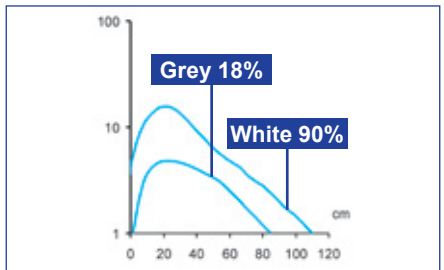
Maximum operating distance

T51 models



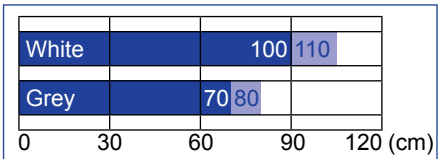
Detection area

C01 models



Excess gain

C01 models



Recommended operating distance

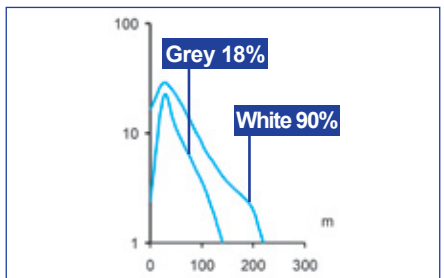
Maximum operating distance

C01 models



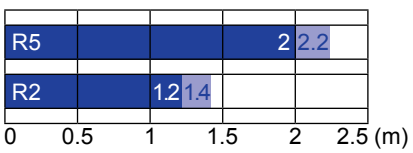
Detection area

C11 models



Excess gain

C11 models

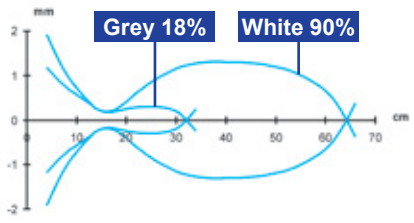


Recommended operating distance

Maximum operating distance

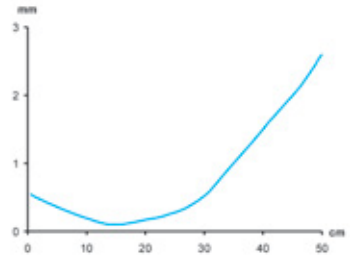
C11 models

DETECTION DIAGRAMS



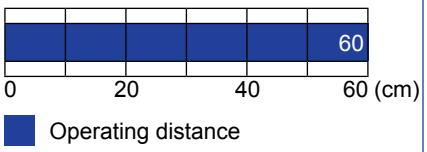
Detection area

L-C01 models



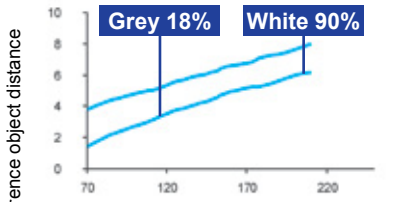
Resolution

L-C01 models



Operating distance

L-C01 models

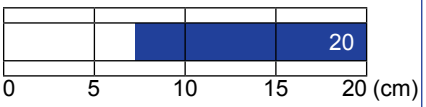


Setting distance on white 90% background

Detection difference with EASYtouch™ acquisition

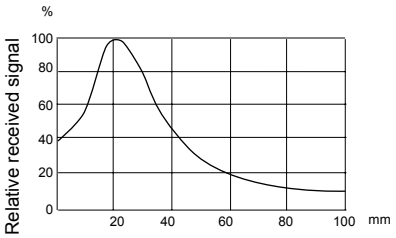
Detection area

M08 models



Operating distance

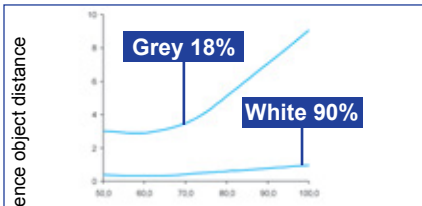
M08 models



Distance

Contrast sensor

W models

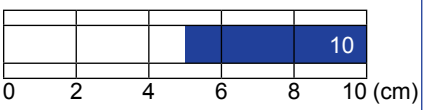


Setting distance on white 90% background

Detection difference with EASYtouch™ acquisition

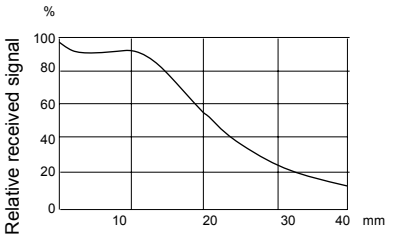
Detection area

L-M08 models



Operating distance

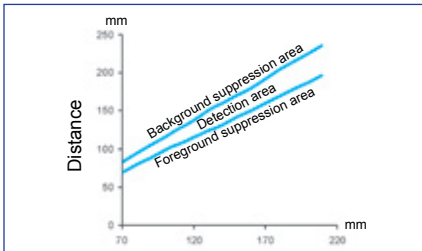
L-M08 models



Distance

Luminescence sensor

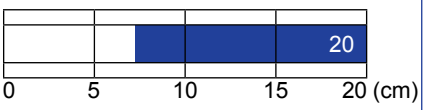
U models



Distance

Detection difference

N03 models



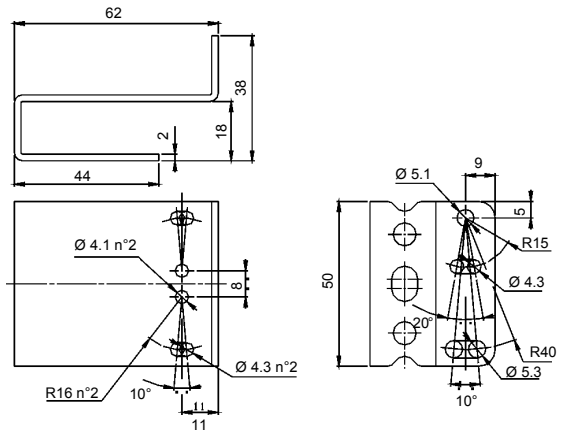
Operating distance

N03 models

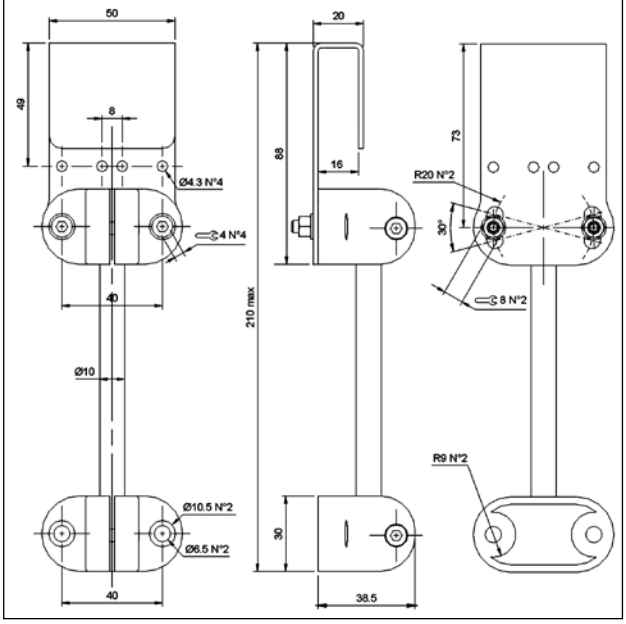
ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5018	protection bracket	95ACC5310
ST-5019	protection bracket	95ACC5320
ST-5020	fixing bracket	95ACC5330
ST-5021	fixing bracket	95ACC5340
ST-5041	short dove-tail fixing bracket	95ACC2300
ST-5042	long dove-tail fixing bracket	95ACC2310
JOINT-60	protection bracket with jointed support	95ACC5350
Refer also to Accessories for Sensors		

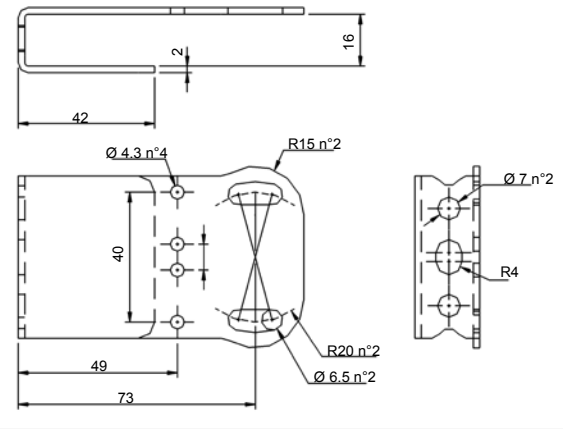
ST-5018



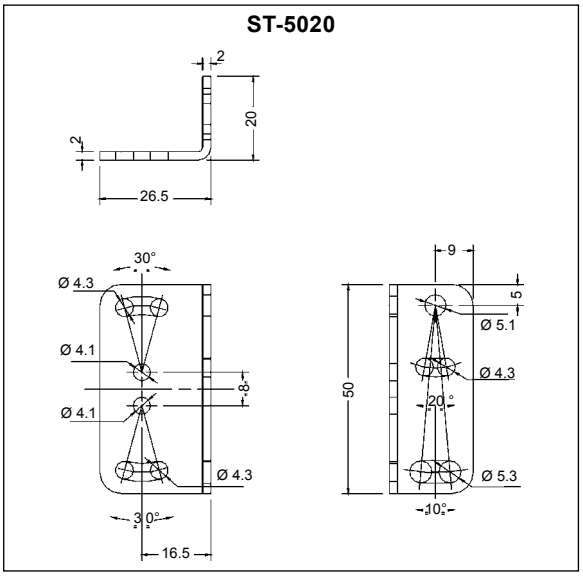
JOINT-60



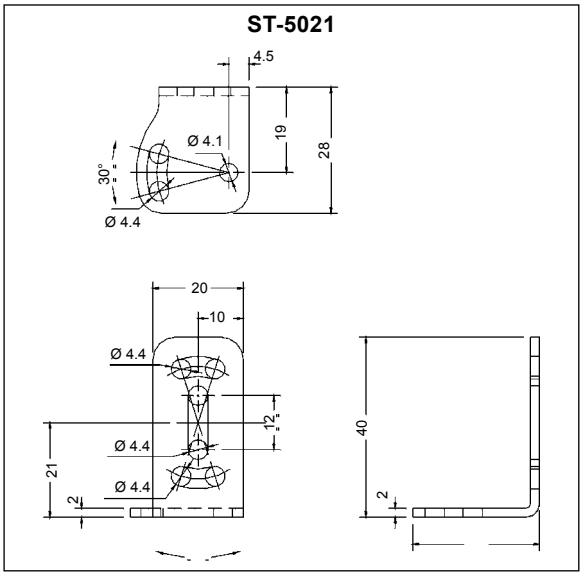
ST-5019



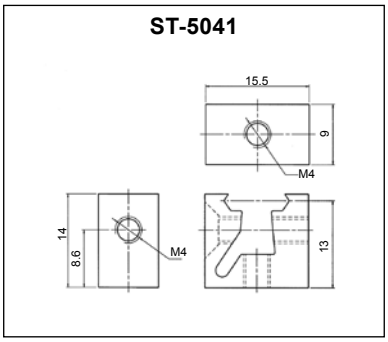
ST-5020



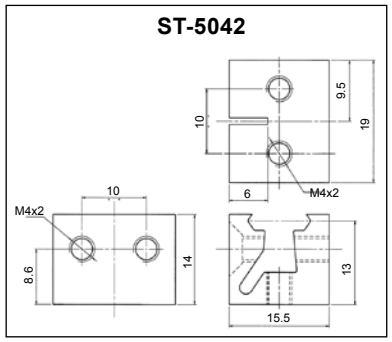
ST-5021



ST-5041



ST-5042



MODEL SELECTION AND ORDER INFORMATION

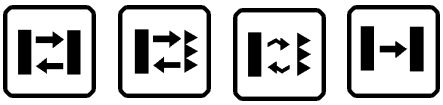
MODEL	DESCRIPTION	OUTPUT	CONNECTION	ORDER N°
S90-MA-5-F01-PP	receiver	PNP NO-NC	M12 connector	956301050
S90-MA-5-F01-NN	receiver	NPN NO-NC	M12 connector	956301210
S90-ML-5-F01-PP	laser receiver	PNP NO	M12 connector	956301110
S90-ML-5-F01-NN	laser receiver	NPN NO	M12 connector	956301280
S90-MA-5-G00-XG	emitter	-	M12 connector	956301060
S90-ML-5-G00-XG	laser emitter	-	M12 connector	956301120
S90-MA-5-B01-PP	polarised retroreflex	PNP NO-NC	M12 connector	956301000
S90-MA-5-B01-NN	polarised retroreflex	NPN NO-NC	M12 connector	956301160
S90-ML-5-B01-PP	laser polarised retroreflex	PNP NO-NC	M12 connector	956301090
S90-ML-5-B01-NN	laser polarised retroreflex	NPN NO-NC	M12 connector	956301260
S90-MA-5-B51-PP	coaxial polarised retroreflex	PNP NO-NC	M12 connector	956301030
S90-MA-5-B51-NN	coaxial polarised retroreflex	NPN NO-NC	M12 connector	956301170
S90-MA-5-T51-PP	coaxial retroreflex for transparents	PNP NO-NC	M12 connector	956301040
S90-MA-5-T51-NN	coaxial retroreflex for transparents	NPN NO-NC	M12 connector	956301180
S90-MA-5-C01-PP	diffuse proximity	PNP NO-NC	M12 connector	956301010
S90-MA-5-C01-NN	diffuse proximity	NPN NO-NC	M12 connector	956301190
S90-ML-5-C01-PP	laser diffuse proximity	PNP NO-NC	M12 connector	956301100
S90-ML-5-C01-NN	laser diffuse proximity	NPN NO-NC	M12 connector	956301270
S90-MA-5-C11-PP	diffuse proximity	PNP NO-NC	M12 connector	956301020
S90-MA-5-C11-NN	diffuse proximity	NPN NO-NC	M12 connector	956301200
S90-MA-5-M08-PH	background suppression	PNP NO	M12 connector	956301070
S90-MA-5-M08-NH	background suppression	NPN NO	M12 connector	956301220
S90-ML-5-M08-PH	laser background suppression	PNP NO	M12 connector	956301130
S90-ML-5-M08-NH	laser background suppression	NPN NO	M12 connector	956301290
S90-MA-5-N03-PH	foreground suppression	PNP NO	M12 connector	956301080
S90-MA-5-N03-NH	foreground suppression	NPN NO	M12 connector	956301230
S90-MA-5-W08-PH	coaxial contrast sensor	PNP NO	M12 connector	956301150
S90-MA-5-W08-NH	coaxial contrast sensor	NPN NO	M12 connector	956301250
S90-MA-5-U08-PH	coaxial luminescence sensor	PNP NO	M12 connector	956301140
S90-MA-5-U08-NH	coaxial luminescence sensor	NPN NO	M12 connector	956301240

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

S2 SERIES

The photoelectric sensors of the **S2** series are enclosed in sturdy plastic housings, developed to guarantee the complete protection of the control panel and connection terminals.
The free voltage versions present a relay output, while the 10-30 Vdc versions have a double NPN and PNP output, both available with 1 or 2 m proximity, 5 m polarised retroreflex, 3 m polarised retroreflex and 10 or 50 m through beam optic functions.
The red output LED and the green stability LED are visible through the IP66 hermetically-sealed cover, that also protects the terminal block and commands, such as the sensitivity adjustment trimmer and dark/light operating mode selector.
The versions with output timing present a trimmer to regulate the time up to 16 s. and a selector to set 5 different functions.





HIGHLIGHTS

- Sensitivity adjustment and Stability LED
- Free voltage power supply and relay output
- 10-30 Vdc power supply with NPN and PNP outputs
- Versions with 5 timing functions

APPLICATIONS

Automotive



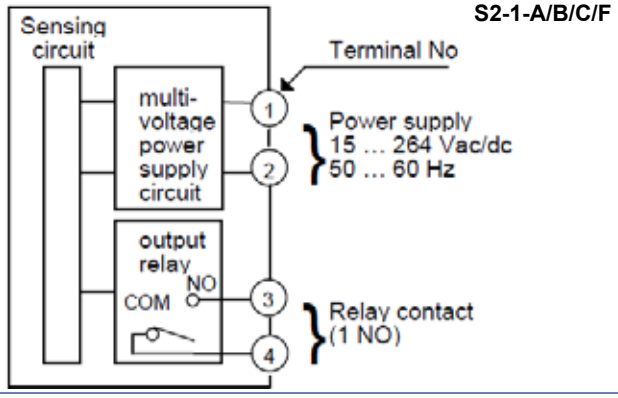
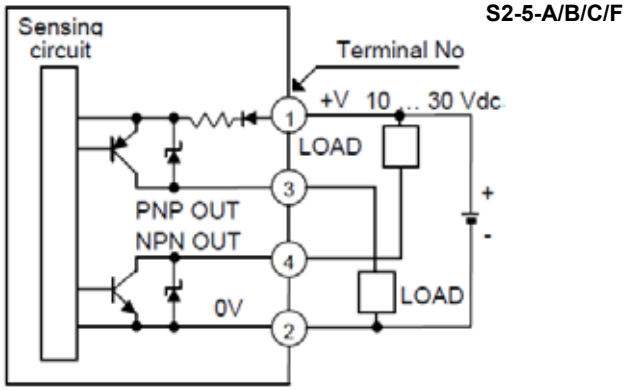
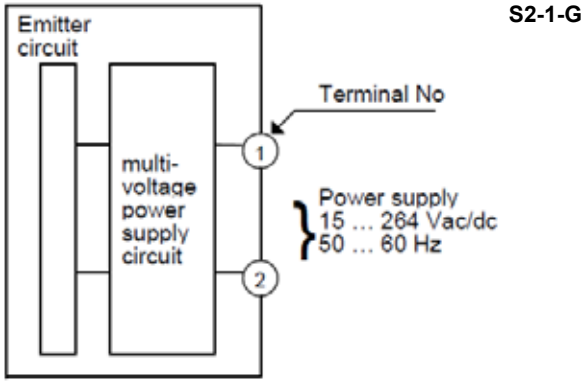
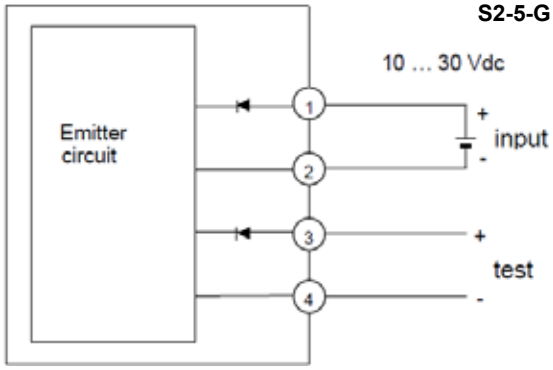
Conveyors



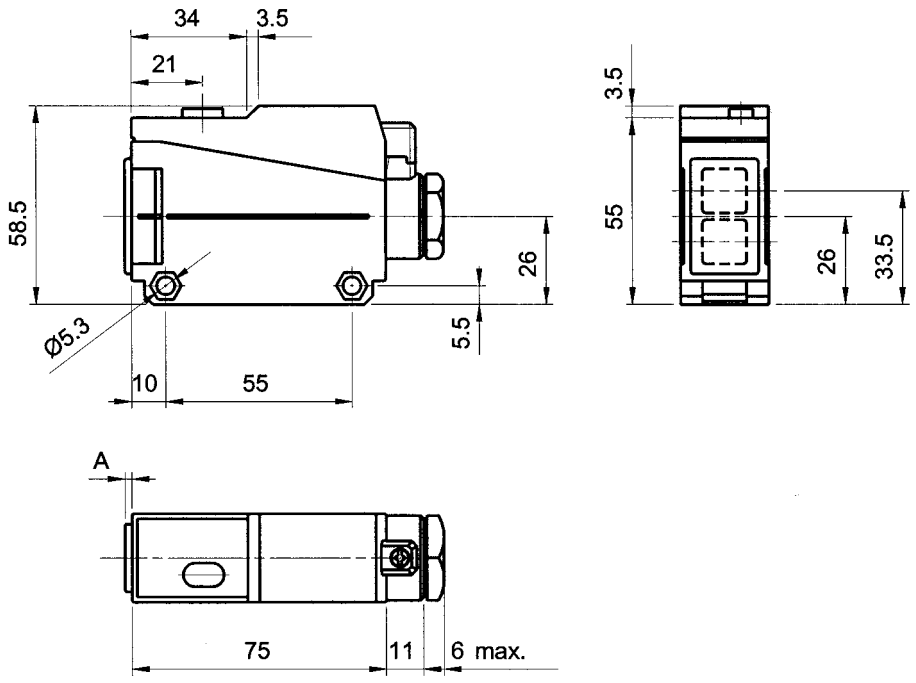
Automatic warehouse



CONNECTIONS

MULTI-VOLTAGE TYPE	DC TYPE
S2-1-A/B/C/F  	**S2-5-A/B/C/F** 
S2-1-G  	**S2-5-G** 

DIMENSIONS



mm

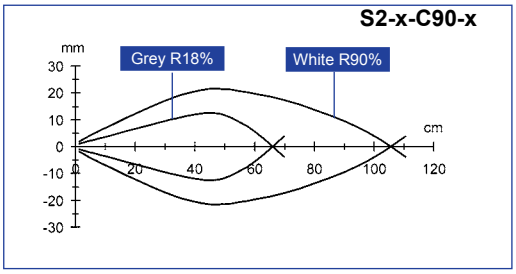
TECHNICAL DATA

Power supply:	10 ... 30 Vdc, reverse polarity protection
	15 ... 264 Vac/Vdc
Consumption:	30 mA max. (d.c. vers.)
	3 VA max. (a.c. vers.)
Light emission:	infrared LED 880 nm
	red LED 660 nm (B vers.)
Diffuse proximity operating distance:	1 ... 90 cm (C90 vers.)
	1 ... 200 cm (C200 vers.)
Retroreflex operating distance:	0.1 ... 5 m (on R2)
Polarised retroreflex operating distance:	0.15 ... 3 m (on R2)
Through beam operating distance:	0 ... 10 m (G10/F10 vers.)
	0 ... 50 m (G50/F50 vers.)
Setting:	sensitivity trimmer
Indicators:	red OUTPUT LED
	green STABILITY LED
Output type:	NPN and PNP, open collector (d.c. vers.)
	or relay 1 NO contact (a.c. vers.)
Saturation voltage:	1 V max. (NPN vers.)
	2 V max. (PNP vers.)
Output current:	100 mA max., short-circuit protection
	relay 1 A (250 Vac), resistive load
Response time:	1 ms max. (d.c. vers.)
	20 ms max. (a.c. vers.)
Switching frequency:	500 Hz max. (d.c. vers.)
	25 Hz max. (a.c. vers.)
Timing function:	normal, ON-delay, OFF-delay, ON/OFF-
	delay, one-shot all adjustable from 0.6
	to 16 sec.
Operating mode:	dark/light selectable
Connection:	terminal block with 4 screw terminals
	gland for cables with 8 to 10 mm diameter
Electrical protection:	class 1 (a.c. vers.)
	class 2 (d.c. vers.)
Mechanical protection:	IP66
Housing material:	PBT plastic
Lens material:	PMMA plastic
Weight:	100 g max.
Operating temperature:	-25 ... +55°C
Storage temperature:	-25 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	CE

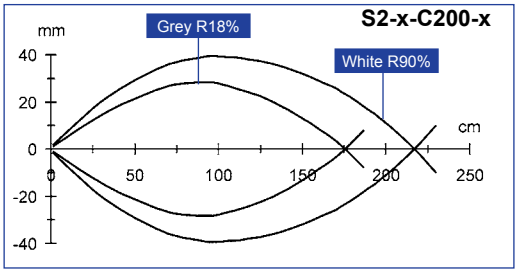
The operating distances indicate the detection distance with excess gain 2.

DETECTION DIAGRAMS

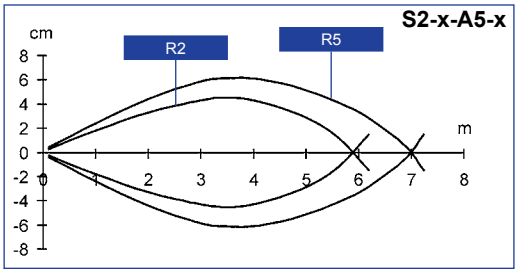
S2-x-C90-x



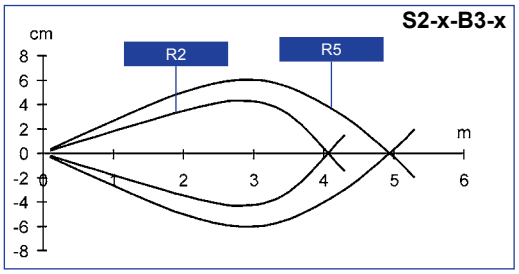
S2-x-C200-x



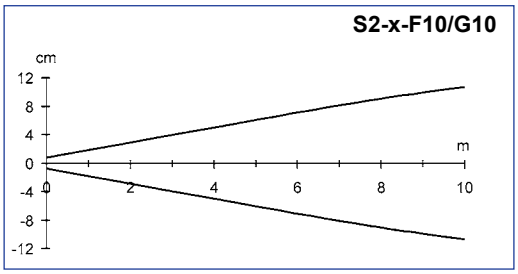
S2-x-A5-x



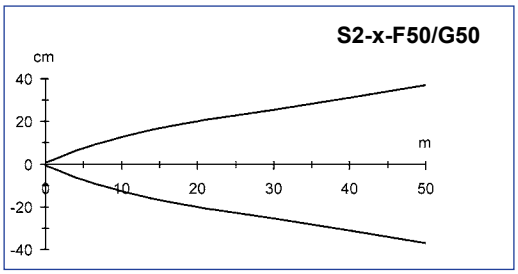
S2-x-B3-x



S2-x-F10/G10



S2-x-F50/G50



The detection diagrams indicate the typical operating distance with excess gain 1.

MODEL SELECTION AND ORDER INFORMATION

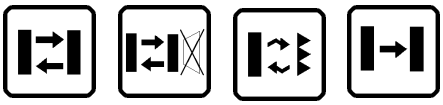
VERSIONS WITH 15 ... 264 Vac/Vdc POWER SUPPLY			
MODEL	**FUNCTION**	**OUTPUT**	**CODE N°**
S2-1-C90	proximity	relay	J950530390
S2-1-C90T	proximity	relay with timer	J950535390
S2-1-C200	proximity	relay	J950530393
S2-1-C200T	proximity	relay with timer	J950535393
S2-1-A5	retroreflex	relay	J950330390
S2-1-A5T	retroreflex	relay with timer	J950335390
S2-1-B3	polarised retroreflex	relay	J950320390
S2-1-B3T	polarised retroreflex	relay with timer	J950325390
S2-1-F10	receiver	relay	J950200390
S2-1-F10T	receiver	relay with timer	J950205390
S2-1-F50	receiver	relay	J950200394
S2-1-F50T	receiver	relay with timer	J950205394
S2-1-G10	emitter	-	J950139990
S2-1-G50	emitter	-	J950139995
VERSIONS WITH 10 ... 30 Vdc POWER SUPPLY			
MODEL	**FUNCTION**	**OUTPUT**	**CODE N°**
S2-5-C90	proximity	NPN/PNP	J950530000
S2-5-C90T	proximity	NPN/PNP with timer	J950535000
S2-5-C200	proximity	NPN/PNP	J950530003
S2-5-C200T	proximity	NPN/PNP with timer	J950535003
S2-5-A5	retroreflex	NPN/PNP	J950330000
S2-5-A5T	retroreflex	NPN/PNP with timer	J950335000
S2-5-B3	polarised retroreflex	NPN/PNP	J950320000
S2-5-B3T	polarised retroreflex	NPN/PNP with timer	J950325000
S2-5-F10	receiver	NPN/PNP	J950200000
S2-5-F10T	receiver	NPN/PNP with timer	J950205000
S2-5-F50	receiver	NPN/PNP	J950200004
S2-5-F50T	receiver	NPN/PNP with timer	J950205004
S2-5-G10	emitter	-	J950139900
S2-5-G50	emitter	-	J950139905

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S20 SERIES

The **S20** series offers all the basic optic functions at the highest operating distances. The series presents models with 50 cm background suppression with microprocessor-based Teach-in setting or, with trimmer adjustment, 10 m polarised retroreflex, 2 m diffuse proximity and 50 m emitter-receiver optic functions.
Even with particular compact dimensions, these sensors guarantee optimal performances, thanks to special aspherical lenses that take full advantage of the high-power LED emission, visible red in the background suppression and polarised retroreflex versions and infrared in all the other models.
Both NO and NC outputs are present in the NPN or PNP versions. M12 connector is available.
The connection block can be adjusted either in a straight or right angle position, in order to offer improved mounting versatility.





HIGHLIGHTS

- Enhanced emission and special lenses ideal for long operating distances
- µP Teach-in setting for background suppression
- Orientable M12 connector
- Impermeable, compact and resistance plastic housing

APPLICATIONS

Automotive



Conveyors

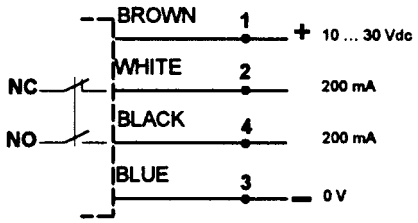


Automatic warehouse

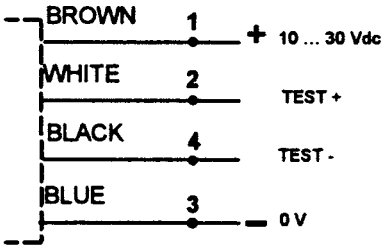


CONNECTIONS

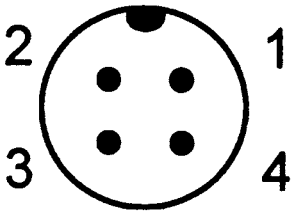
S20-x-B/C/M/F



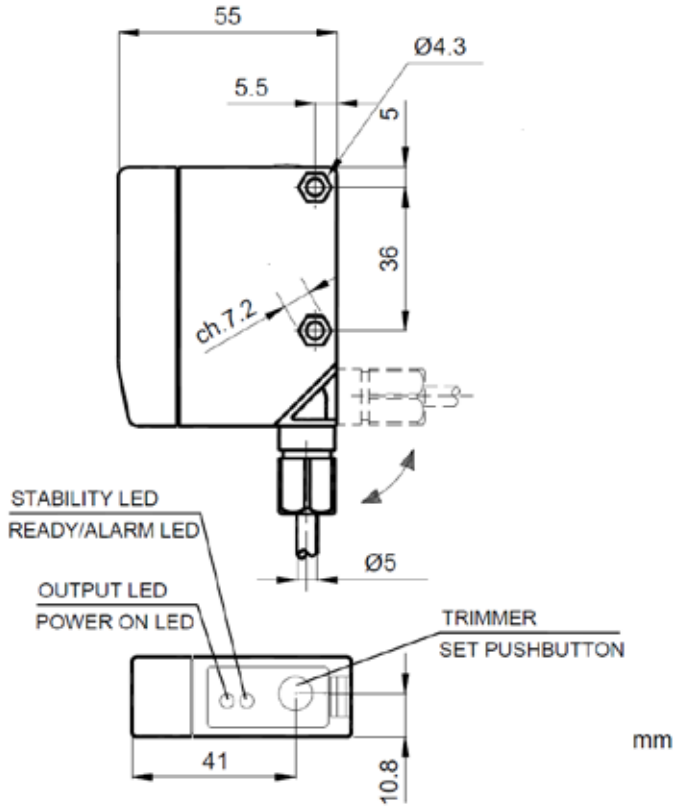
S20-x-G



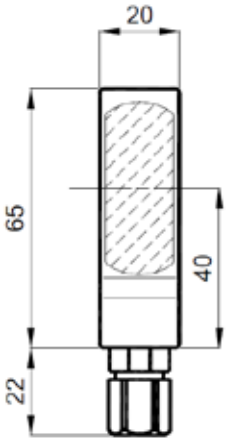
M12 CONNECTOR



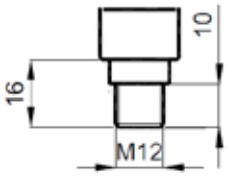
DIMENSIONS



mm



M12 CONNECTOR



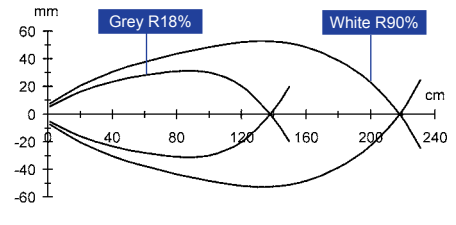
TECHNICAL DATA

Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	50 mA max.
Light emission:	red LED 660 nm (B, M vers.)
	infrared LED 880 nm (C, F/G vers.)
Diffuse proximity operating distance:	1... 200 cm
Background suppression op. distance:	10 ... 50 cm
Polarised retroreflex operating distance:	0.1 ... 7 m (on R2)
Through beam operating distance:	0.1 ... 50 m
Setting:	sensitivity trimmer (B, C, F vers.)
	SET push-button (M vers.)
Indicators:	yellow OUTPUT LED
	green STABILITY LED (B, C, F vers.)
	green READY LED (M vers.)
	red ALARM LED (M vers.)
Output type:	NO-NC NPN or PNP, open collector
Saturation voltage:	1 V max. (NPN vers.)
	2 V max. (PNP vers.)
Output current:	200 mA max., short-circuit protection
Response time:	1 ms max.
Switching frequency:	500 Hz max.
Connection:	M12 4-pole connector
Electrical protection:	class 2
Mechanical protection:	IP66
Housing material:	ABS
Lens material:	PMMA plastic
Weight:	50 g max.
Functioning temperature:	-25 ... +55°C
	-10 ... +55°C (M vers.)
Storage temperature:	-25 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	

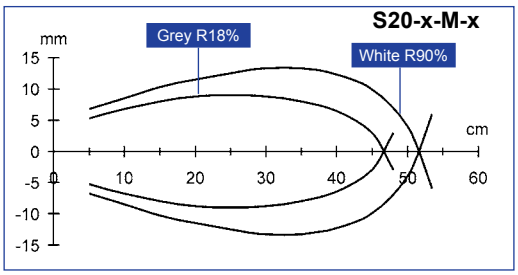
The operating distances indicate the detection distance with excess gain 2.

DETECTION DIAGRAMS

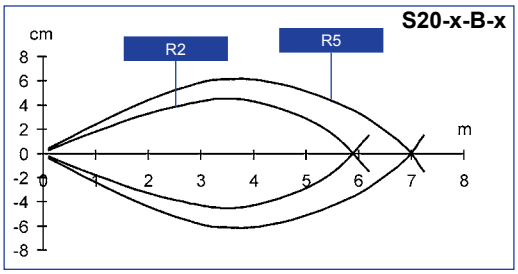
S20-x-C-x



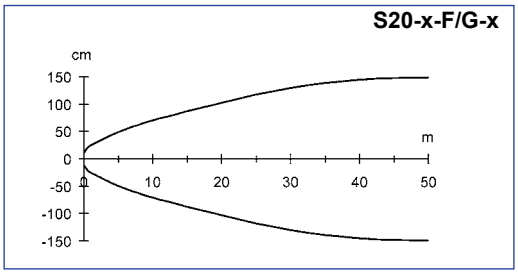
S20-x-M-x



S20-x-B-x



S20-x-F/G-x



The detection diagrams indicate the typical operating distance with excess gain 1.

MODEL SELECTION AND ORDER INFORMATION

MODEL	OPTIC FUNCTION	CONNECTION	OUTPUT	CODE N°
S20-5-C-P	diffuse proximity	M12 connector	PNP	951351110
S20-5-C-N	diffuse proximity	M12 connector	NPN	951351160
S20-5-M-P	background suppression	M12 connector	PNP	951351120
S20-5-M-N	background suppression	M12 connector	NPN	951351170
S20-5-B-P	polarised retroreflex	M12 connector	PNP	951351100
S20-5-B-N	polarised retroreflex	M12 connector	NPN	951351150
S20-5-F-P	receiver	M12 connector	PNP	951351130
S20-5-F-N	receiver	M12 connector	NPN	951351180
S20-5-G	emitter	M12 connector	-	951351140
S20-2-C-P	diffuse proximity	cable	PNP	951351010
S20-2-C-N	diffuse proximity	cable	NPN	951351060
S20-2-M-P	background suppression	cable	PNP	951351020
S20-5-G	polarised retroreflex	cable	PNP	951351000
S20-5-G	through beam	cable	-	951351040
S20-5-G	through beam	cable	PNP	951351030

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
ST-164	1 pc fixing bracket	95ACC1340

*Please refer also to **Sensor Accessories***

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S300 SERIES

The **S300** series of advanced **MAXI** photoelectric sensors represents the most suitable solution for critical applications thanks to excellent performances and resistance in harsh working conditions. The new series offers a wide range of models and functions in order to guarantee easy use and installation. The new series presents **4** different models with **through beam** optical function up to **60m, polarized retroreflex** at **22m**, **diffused proximity** at **5m** and **background suppression** at **2.5m.** All the models are available both **Vdc** from **10 to 30V** and **Vac/Vdc** free-voltage from **24 to 240V** versions. A timing function version and with both the **SPDT** relay or the bipolar transistor **NPN/ PNP** open collector outputs is offered. The **terminal block connection** simplifies and speeds-up the installation procedure, whereas the **heavy-duty plastic housing** guarantees excellent resistance under harsh use conditions.





HIGHLIGHTS

- Excellent optical performances
- Sturdy plastic housing with **IP67** mechanical protection
- Defogging system function
- Wide range of operating temperatures ranging from **-40 to 55°C**
- Double independent timing with double time scale from 0-2s and from **0-10s, ON-delay, OFF delay ONE SHOT** timing functions
- **M12 4-pole** rotatable connector for Vdc version and terminal block for Vac/Vdc free-voltage version
- Distance trimmer clutch for mechanical background suppression models

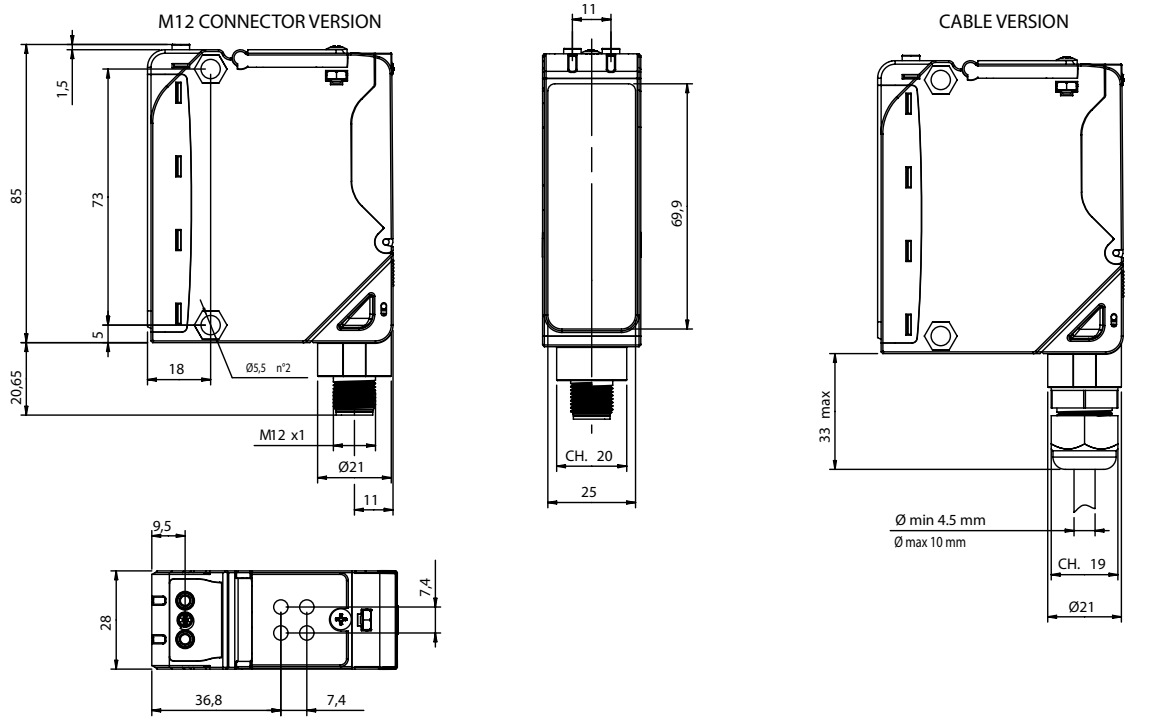
APPLICATIONS







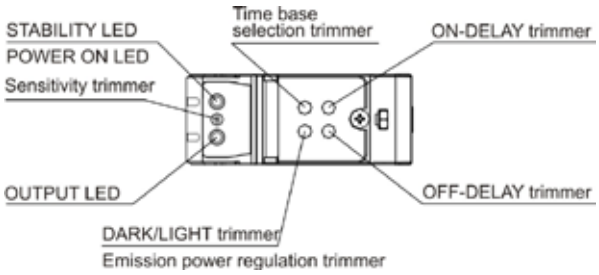
DIMENSIONS



SETTINGS

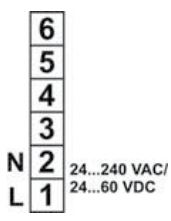
The **M** model presents a **multiturn adjustment screw** for the adjustment of the background suppression distance using a mechanical variation of the optic triangulation angle. The **other models have a mono-turn electronic trimmer** that adjusts the sensitivity and the sensor operating distance. The operating distance can be increased by rotating the screws clockwise.
Trimmers can be used to adjust the **output activation and deactivation delay time** as well as to select the functioning mode.

INDICATORS

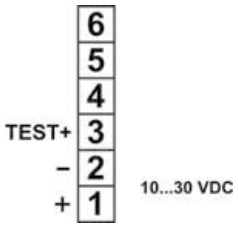


CONNECTIONS G

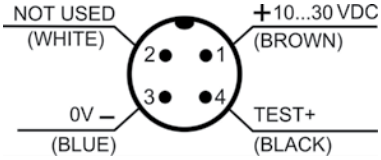
AC MODELS



DC MODELS

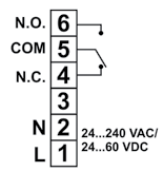


M12 CONNECTOR (only DC models)

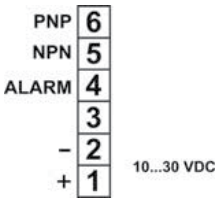


CONNECTIONS B, C, M, F

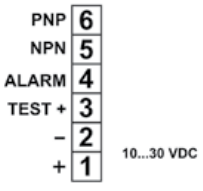
AC MODELS



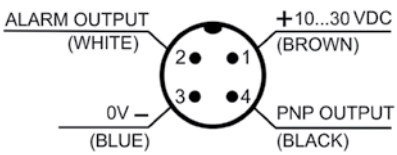
ONLY F MODELS



DC MODELS



M12 CONNECTOR (only DC models)



TECHNICAL DATA

COMMON DATA	S300-B	S300-C	S300-M	S300-F	S300-G
Emission type:	Red LED	IR LED	IR LED		IR LED
Operating distances (typical values):	22m	5m	2.5m	60m	
Setting:	Mono-turn sensitivity trimmers		Multi-turn adjustment screw	Mono-turn sensitivity trimmers	
White/Black difference (90% / 4%)	< 15%				
Indicators:	OUTPUT LED (yellow) STABILITY LED (green)			OUTPUT LED (yellow) STABILITY LED (green)	POWER ON LED (green)
Operating temperature:	-40…55°C				
Storage temperature:	-40…70°C				
Dielectric strength:	1500Vac 1 min between electronics and housing				
Insulating resistance:	>20MΩ 500Vdc between electronics and housing				
Ambient light rejection:	according to EN 60947-5-2				
Vibrations:	0.5mm width, 10 … 55Hz, for each axis (EN60068-2-6)				
Shock resistance:	11ms (30G) 6 shocks for each axis (EN60068-2-27)				
Housing material:	PBT (30% fibre-reinforced glass)				
Lens material:	PC				
Mechanical protection:	IP67 (IEC / EN60529) / NEMA TYPE 1 (For UL / c-UL)				
Connections:	Terminal block (recommended cable diameter: between 8 and 10mm)				

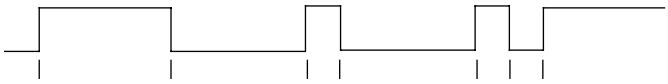
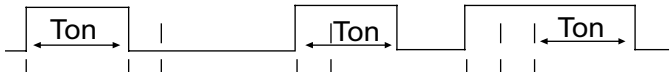
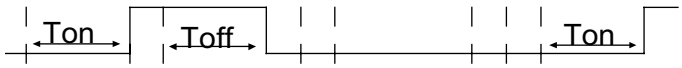
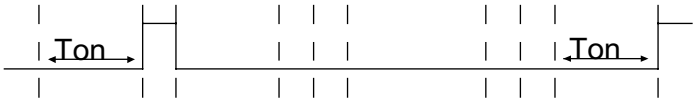
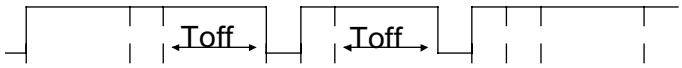
AC VOLTAGE MODELS	S300-B	S300-C	S300-M	S300-F/G
Power supply:	24…240Vac / 24…60Vdc			
Ripple:	10% max			
Consumption (output current excluded):	< 3VA			
Outputs:	SPDT electromagnetic relay: 250Vac, 30Vdc			
Output current:	3A (resistive load)			
Response time:	20ms max			
Switching frequency:	25Hz			
Weight:	150g			

DC MODELS	S300-B	S300-C	S300-M	S300-F/G
Power supply:	10…30Vdc			
Ripple:	10% max			
Consumption (output current excluded):	< 30mA			F= < 25mA G= < 20mA
Outputs:	PNP and NPN open collector			
Output current:	100mA (resistive load)			
Output saturation voltage:	2.4V max			
Response time:	1ms max		2ms max	1ms max
Switching frequency:	500Hz		250Hz	500Hz
Weight:	140gr			

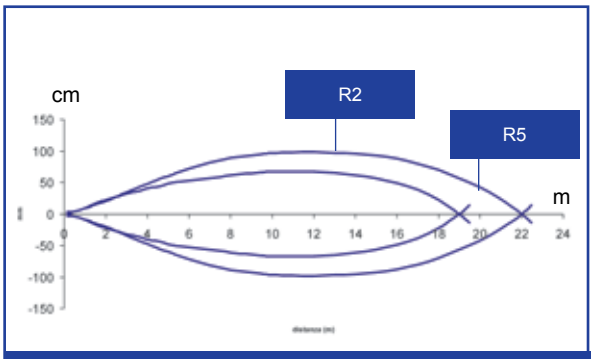
II3DG

TIMING FUNCTION DIAGRAM

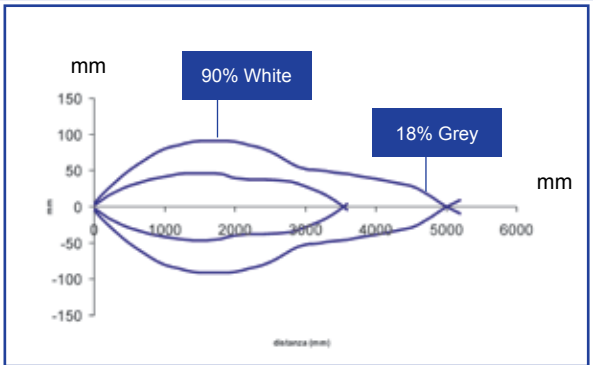
Four selectable **timing functions**: one shot, ON delay, OFF delay and normal mode. **Trimmer adjustment** of the functions is available.The timing functions can be particularly useful in applications where the output signal pulse has to be modified.

OPERATION MODE	OUTPUTS
Normal (timing disable)	
ONE SHOT (only with short time base 0…2 sec.)	
ON/OFF Delay	
ON Delay	
OFF Delay	

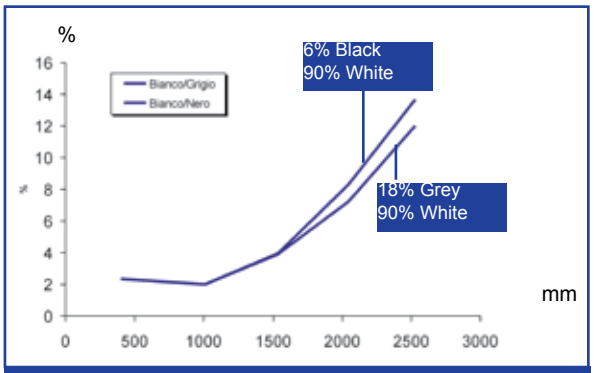
DETECTION DIAGRAMS



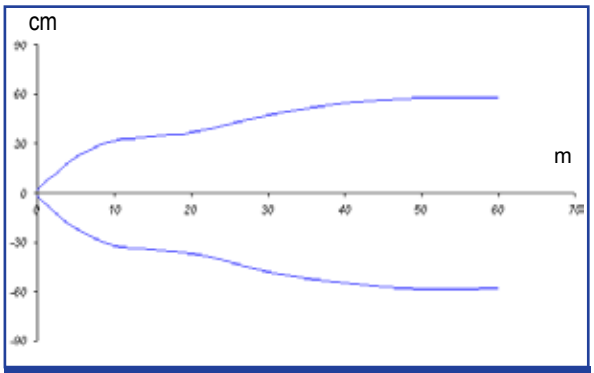
Polarized retroreflex on R2 reflector



Diffuse proximity

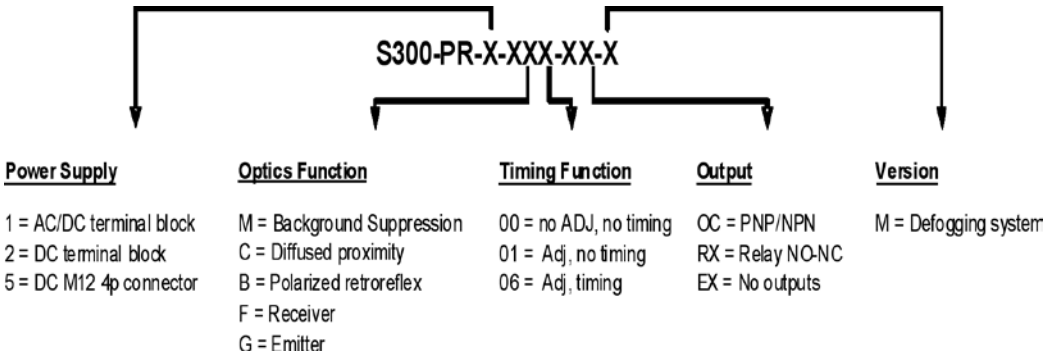


Background suppression



Trough beam

MODEL SELECTION AND ORDER INFORMATION



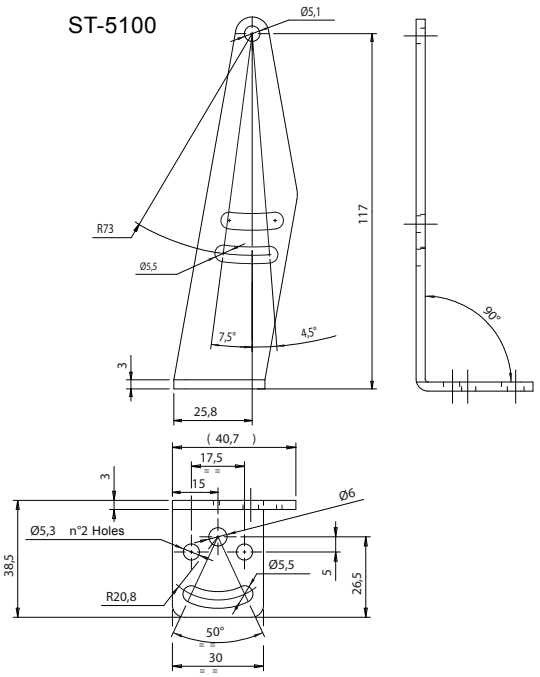
ORDER NO.	MODEL	DESCRIPTION
951451140	S300-PR-2-M01-OC	Background suppression, terminal block, DC
951451150	S300-PR-2-M06-OC	Background suppression, terminal block, DC, with timing function
951451160	S300-PR-5-M01-OC	Background suppression, M12 connector, DC
951451170	S300-PR-5-M06-OC	Background suppression, M12 connector, DC, with timing function
951451180	S300-PR-1-M01-RX	Background suppression, terminal block, AC
951451190	S300-PR-1-M06-RX	Background suppression, terminal block, AC, with timing function
951451200	S300-PR-1-M06-RX-M	Background suppression, terminal block, AC, with timing and defogging functions
951451000	S300-PR-2-B01-OC	Polarized retroreflex, terminal block, DC
951451010	S300-PR-2-B06-OC	Polarized retroreflex, terminal block, DC, with timing function
951451020	S300-PR-5-B01-OC	Polarized retroreflex, M12 connector, DC
951451030	S300-PR-5-B06-OC	Polarized retroreflex, M12 connector, DC, with timing function
951451040	S300-PR-1-B01-RX	Polarized retroreflex, terminal block, AC
951451050	S300-PR-1-B06-RX	Polarized retroreflex, terminal block, AC, with timing function
951451060	S300-PR-1-B06-RX-M	Polarized retroreflex, terminal block, AC, with timing and defogging functions
951451070	S300-PR-2-C01-OC	Proximity, terminal block, DC
951451080	S300-PR-2-C06-OC	Proximity, terminal block,DC, with timing function
951451090	S300-PR-5-C01-OC	Proximity, M12 connector, DC
951451100	S300-PR-5-C06-OC	Proximity, M12 connector, DC, with timing function
951451110	S300-PR-1-C01-RX	Proximity, terminal block, AC
951451120	S300-PR-1-C06-RX	Proximity, terminal block, AC, with timing function
951451130	S300-PR-1-C06-RX-M	Proximity, terminal block, AC, with timing and defogging functions
951451210	S300-PR-2-F01-OC	Receiver, terminal block, DC
951451220	S300-PR-2-F06-OC	Receiver, terminal block, DC, with timing function
951451230	S300-PR-5-F01-OC	Receiver, M12 connector, DC
951451240	S300-PR-5-F06-OC	Receiver, M12 connector, DC, with timing function
951451250	S300-PR-1-F01-RX	Receiver, terminal block, AC
951451260	S300-PR-1-F06-RX	Receiver, terminal block, AC, with timing function
951451270	S300-PR-1-F06-RX-M	Receiver, terminal block, AC, with timing and defogging functions
951451280	S300-PR-2-G00-EX	Emitter, terminal block, DC
951451290	S300-PR-5-G00-EX	Emitter, M12 connector, DC
951451300	S300-PR-1-G00-EX	Emitter, terminal block, AC
951451310	S300-PR-1-G00-EX-M	Emitter, terminal block, AC, with timing and defogging functions

ACCESSORY SELECTION AND ORDER INFORMATION

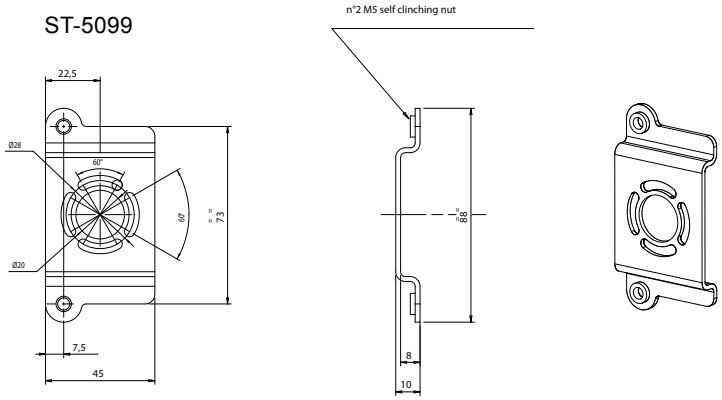
MODEL	DESCRIPTION	ORDER N°
ST-5099	FIXED BRACKET	95ACC2830
ST-5100	FIXED BRACKET	95ACC2840
DataVS-MK-01	MOUNTING KIT	95A901380

ACCESSORY DRAWINGS

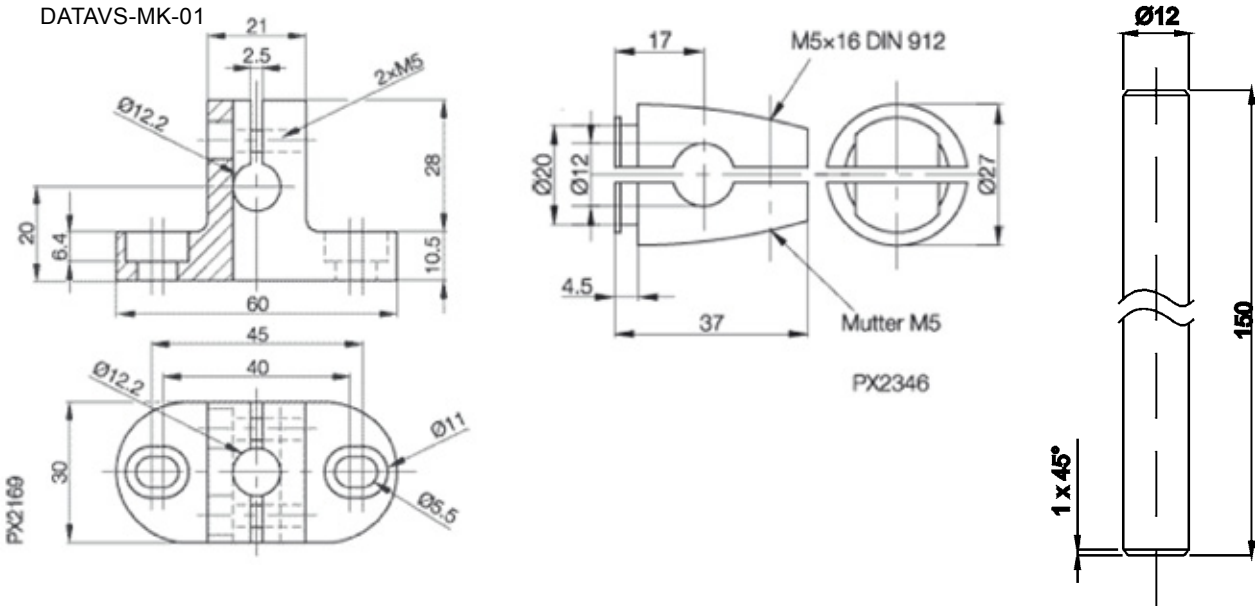
ST-5100



ST-5099



DATAVS-MK-01



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SR21 SERIES

The slot sensors of the **SR21** series, with 2 mm slot width, are characterised by a high 12 bit (4096 steps) resolution, a low 20 ms response time and a switching frequency reaching 25 kHz. The setting of the switching threshold is carried-out automatically by simply pressing a push-button, or dynamically during label (or other reference) movement.
The **SR21-IR** model with infrared emission is ideal for label or hole detection on continuous surfaces, while the **SR21-RG** model with double red or green emission suits colour print register mark detection on transparent films for automatic packaging.



HIGHLIGHTS

- High 25 kHz switching frequency
- IR or red/green light models
- Detection of semi-transparent labels
- Detection of register marks on transparents
- 4 wire antivalent NPN and PNP output

APPLICATIONS

Labelling machines



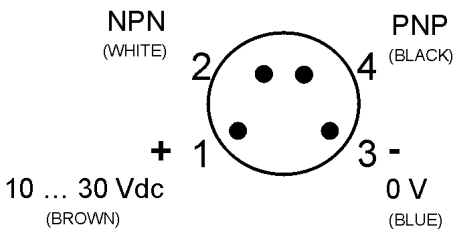
Packaging lines



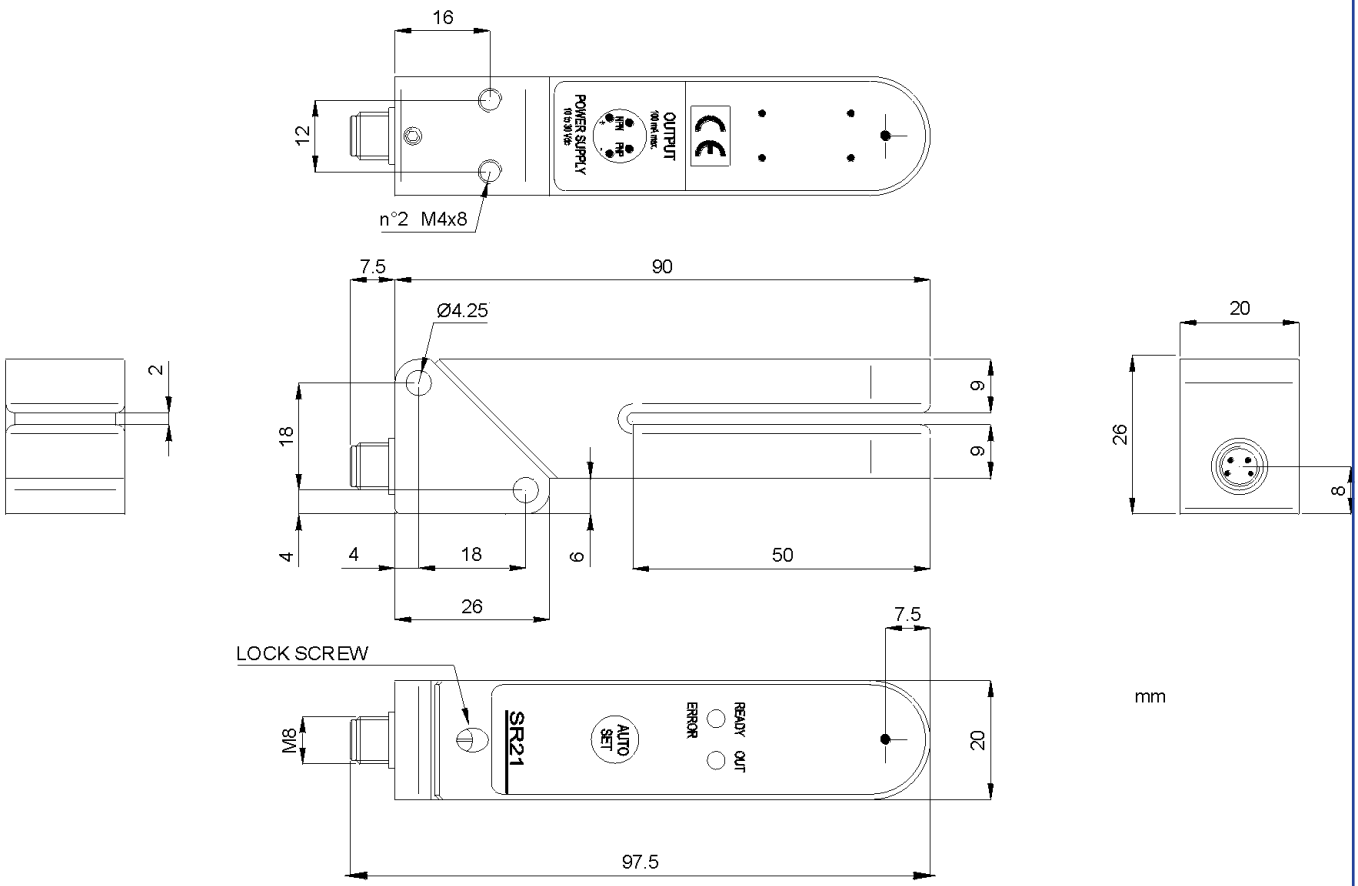
TECHNICAL DATA

Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	55 mA max.
Light emission:	infrared LED 880 nm (IR vers.)
	red 635 nm/green LED 535 nm (RG vers.)
Resolution:	0.5 mm
Slot width:	2 mm
Slot depth:	50 mm
Detection point depth:	7.5 mm
Setting:	AUTO SET push-button
Indicators:	yellow OUTPUT LED
	green/red bicolour READY/ERROR LED
Output type:	NPN and PNP, Rpull-down/up 10 kW
Saturation voltage:	2 V max.
Output current:	100 mA max., short-circuit protection
Response time:	20 µs max.
Switching frequency:	25 kHz
Operating mode:	dark/light configurable
Connection:	M8 4-pole connector
Electrical protection:	class 1
Mechanical protection:	IP65
Housing material:	ZAMA
Lens material:	glass
Weight:	120 g max.
Operating temperature:	-20 ... +60°C
Storage temperature:	-20 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	CE

CONNECTIONS



DIMENSIONS



MODEL SELECTION AND ORDER INFORMATION

MODEL	EMISSION	FREQUENCY	ORDER N°
SR21-IR	infrared	25 KHz	953151070
SR21-RG	red/green	25 KHz	953151080

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SR22 SERIES

The new **SR22** series of 2 mm slot sensors has been developed as the most cost-effective solution for label detection on reels.
The infrared LED emission allows to detect over even darker or thicker supports, while the low response time of only 100 µs allows to reach a 10 kHz switching frequency in the faster labelling processes.
The label detection sensitivity is trimmer adjustable.
The compact metal housing with 40 mm slot depth fits even the most limited spaces.
The M8 4-pole connector offers simple and fast connection.
The power supply is 24 Vdc and versions with light or dark mode, both with double NPN and PNP outputs, are available.





HIGHLIGHTS

- Fast switching frequency up to 10 kHz
- Infrared LED light emission
- Trimmer for sensibility adjustment
- 4 wire antivalent NPN and PNP outputs
- Compact metal housing with glass lenses

APPLICATIONS

Labelling machines



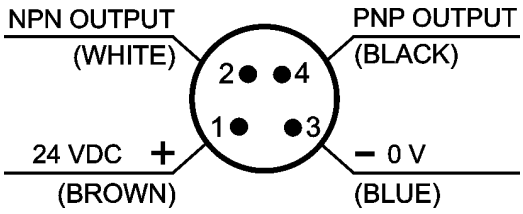
Packaging lines



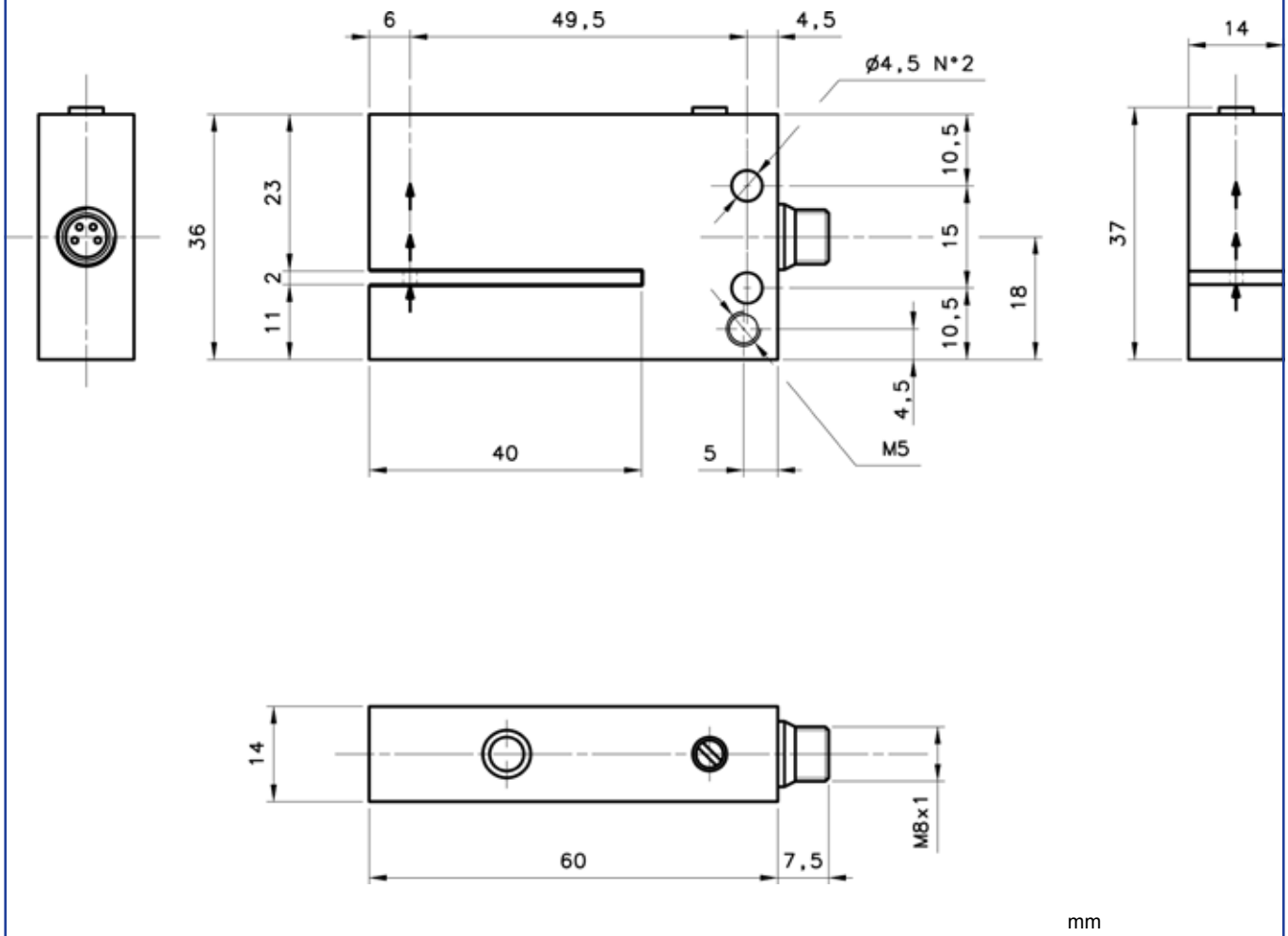
TECHNICAL DATA

Power supply:	24 Vdc ±15%
Consumption:	55 mA max.
Light emission:	infrared LED 880 nm
Resolution:	1 mm
Slot width:	2 mm
Slot depth:	40 mm
Detection point depth:	6 mm
Setting:	trimmer
Indicators:	red OUTPUT LED
Output type:	NPN and PNP
Saturation voltage:	2 V max.
Output current:	200 mA max.
Response time:	50 µs max.
Switching frequency:	10 kHz
Operating mode:	dark (SR22-5-IR-OD vers.)
	light (SR22-5-IR-OL vers.)
Connection:	M8 4-pole connector
Electrical protection:	class 1
Mechanical protection:	IP60
Housing material:	aluminium
Lens material:	glass
Weight:	100 g max.
Operating temperature:	-10 ... +60°C
Storage temperature:	-20 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	CE

CONNECTIONS



DIMENSIONS



MODEL SELECTION AND ORDER INFORMATION

MODEL	DETECTION MODE*	ORDER N°
SR22-5-IR-OD	dark	953101100
SR22-5-IR-OL	light	953101110

*In the dark detection mode the output is activated when the label enters in the detection point inside the sensor slot.
In the light detection mode, the output is activated when the label is outside the detection point inside the sensor slot.

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SR31 SERIES

The **SR31** series is composed of slot sensors with infrared LED emission, distinguished by an elevated 10 kHz switching frequency and by a sturdy and compact metal housing.
The detection sensitivity is adjusted by means of a trimmer. The dark/light operating mode is configured according to the connection.
The series includes M8 connector versions with NPN output, or PNP output; cable versions present both NPN/PNP outputs.
The **SR31** sensors have a 30 mm wide and 42 mm deep slot. These sensors are suitable for detecting opaque labels on a transparent support, to control material presence and continuity, to detect synchronism pulses on toothed or holed wheels, or as on-off edge guide.



HIGHLIGHTS

- Infrared LED emission
- Sensitivity trimmer adjustment
- Elevated switching frequency
- Metal housing with wide slot

APPLICATIONS

Labelling machines



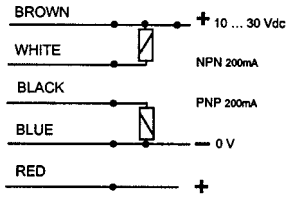
Packaging lines



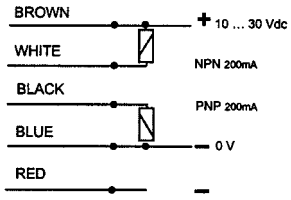
TECHNICAL DATA

Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	50 mA max.
Light emission:	infrared LED 880 nm
Resolution:	2 mm
Slot width:	30 mm
Slot depth:	42 mm
Detection point depth:	12 mm
Setting:	multi-turn sensitivity trimmer
Indicators:	red OUTPUT LED
Output type:	NPN or PNP (connector vers.)
	NPN and PNP (cable vers.)
	Rpull-down/up 10 kW
Saturation voltage:	0.8 V max. (NPN vers.)
	2 V max. (PNP vers.)
Output current:	200 mA max., short-circuit protection
Response time:	50 µs max.
Switching frequency:	10 kHz max.
Operating mode:	dark/light configurable
Connection:	4-pole M8 connector
	2 m Ø 5 mm cable
Electrical protection:	class 1
Mechanical protection:	IP60
Housing material:	ZAMA
Lens material:	glass
Weight:	100 g max.
Operating temperature:	-10 ... +60°C
Storage temperature:	-20 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	CE

CONNECTIONS

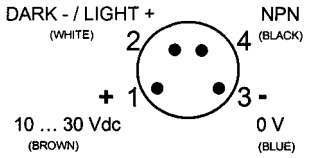


LIGHT MODE

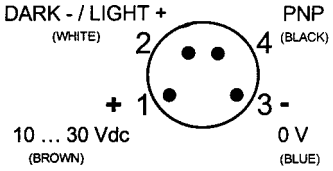


DARK MODE

M8 CONNECTOR



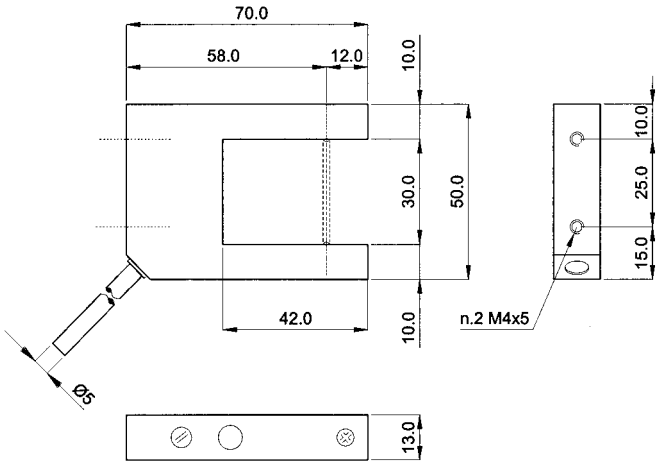
NPN OUTPUT(SR31-0)



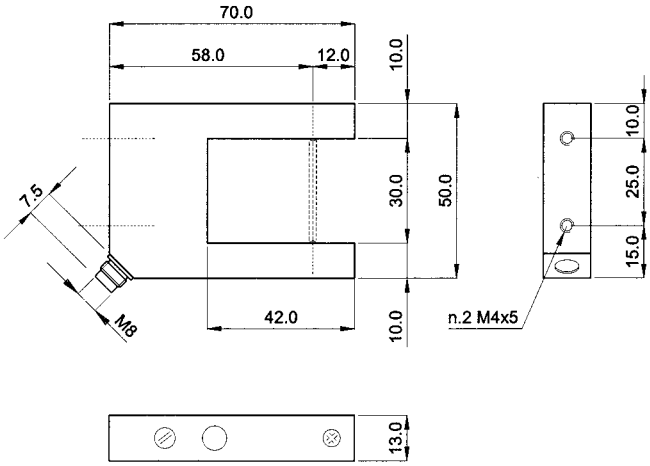
PNP OUTPUT (SR31-1)

DIMENSIONS

CABLE VERSIONS



M8 CONNECTOR VERSIONS



mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	CONNECTION	OUTPUT	CODE N°
SR31	cable	NPN/PNP	S970830000
SR31-0	M8 connector	NPN	S970830101
SR31-1	M8 connector	PNP	S970830201

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SRF SERIES

The slot sensors of the **SRF** series are photoelectric devices characterised by an excellent precision thanks to the red LED emission which offers resolutions reaching 0.3 mm or class II LASER emission for resolutions down to 0.03 mm. High precision and reading repeatability are obtained thanks to the Laser emission combined with high switching frequency.
The particular 'U' shape with opposite receiver and emitter units, together with the high resistance of the metal housing, make monitoring extremely simple and rapid, guaranteeing reliable functioning as well as shock and vibration resistance. The **SRF** series presents versions with 30, 50, 80 and 120 mm slots allowing the best adaptation to the many different applications, including opaque label detection on transparent supports, monitoring of the correct material position and dimension or object counting on conveyor belts. Sensitivity adjustment is easily accomplished thanks to the trimmer positioned on the back side of the sensor. The range offers versions with PNP or NPN output. The light/dark mode can be selected in all models.



HIGHLIGHTS

- Visible red LED emission versions
- High resolution LASER versions
- Versions with 30, 50, 80 and 120 mm slots
- Sensitivity adjustment and dark/light selectors
- Sturdy metal housing with glass lenses

APPLICATIONS

Automotive



Labelling machines



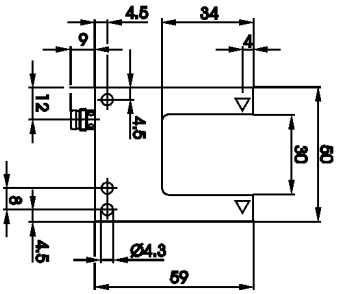
Packaging lines



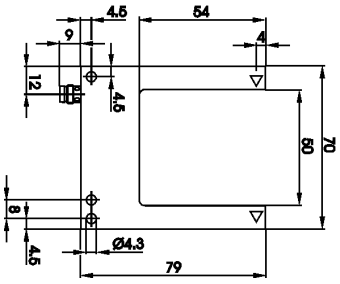
The best resolution, in terms of minimum detectable object, can be obtained rotating completely the sensitivity trimmer in a clockwise direction.
The normally closed output is selected by turning clockwise the output trimmer. The sensor, in this manner, functions in the light mode where the connector LED ON signals the absence of an object to detect.
The opposite effect is obtained rotating the trimmer in an anti-clockwise direction and the sensor functions in the dark mode with the LED ON in presence of an object.

DIMENSIONS

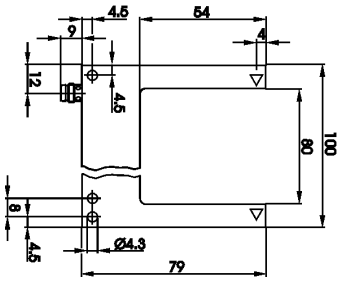
SRF-30



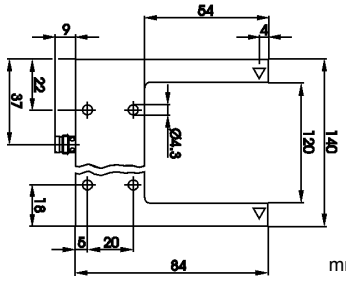
SRF-50



SRF-80

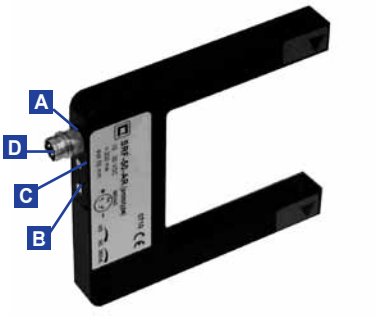


SRF-120



mm

INDICATORS AND SETTINGS

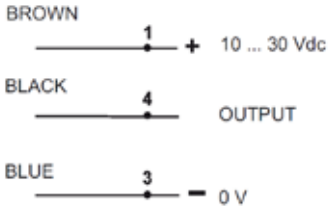


- A Output status LED
- B Sensitivity trimmer
- C Output type selector
- D M8 connector output

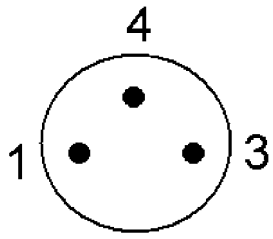
ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

CONNECTIONS



M8 CONNECTOR



Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]Class 1 EN60825-1, CDRH21 CFR 1040.10 [4]270° trimmer [5]Dark/light selector [6]A - reverse polarity protection B - overload and short-circuit protection		SRF-30-5-P	SRF-30-5-N	SRF-50-5-P	SRF-50-5-N	SRF-80-5-P	SRF-80-5-N	SRF-120-5-P	SRF-120-5-N	SRF-L-30-5-P	SRF-L-50-5-P	SRF-L-80-5-P	SRF-L-120-5-P
Power supply:	10..30 Vdc[1]	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	35 mA max	●	●	●	●	●	●	●	●	●	●	●	●
Light emission:	red LED 640 nm[2]	●	●	●	●	●	●	●	●				
	red LASER 650 nm[3]									●	●	●	●
Setting:	sensitivity trimmer[4]	●	●	●	●	●	●	●	●	●	●	●	●
Resolution:	0.06 mm									●			
	0.1 mm										●		
	0.2 mm											●	
	0.3 mm	●	●										●
	0.5 mm			●	●	●	●						
	0.8 mm							●	●				
Repeatability:	0.015 mm									●	●	●	●
	0.02 mm	●	●										
	0.04 mm			●	●								
	0.06 mm					●	●						
	0.08 mm							●	●				
Power on delay:	0.33 ms	●	●	●	●	●	●	●	●	●	●	●	●
Slot width:	30 mm	●	●							●	●		
	50 mm			●	●						●		
	80 mm					●	●					●	
	120 mm							●	●				●
Slot depth:	34 mm	●	●							●			
	54 mm			●	●	●	●	●	●		●	●	●
Detection point depth::	4 mm	●	●	●	●	●	●	●	●	●	●	●	●
Indicators:	red LED	●	●	●	●	●	●	●	●	●	●	●	●
Output type:	PNP	●		●		●		●		●	●	●	●
	NPN		●		●		●		●				
Saturation voltage:	3 V max	●	●	●	●	●	●	●	●	●	●	●	●
Output current:	200 mA, short-circuit protection	●	●	●	●	●	●	●	●	●	●	●	●
Response time:	166 µs									●	●	●	●
	333 µs	●	●	●	●	●	●	●	●				
Switching frequency:	1.5 KHz	●	●	●	●	●	●	●	●				
	3 KHz									●	●	●	●
Operating mode:	configurable light/dark[5]	●	●	●	●	●	●	●	●	●	●	●	●
Connection:	M8 3-pole connector	●	●	●	●	●	●	●	●	●	●	●	●
Electrical protection:	class 1	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP65	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A,B[6]	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	anodised aluminium	●	●	●	●	●	●	●	●	●	●	●	●
Lens material:	glass	●	●	●	●	●	●	●	●	●	●	●	●
Weight:	36 g	●	●							●			
	54 g			●	●						●		
	77 g					●	●					●	
	118 g							●	●				●
Operating temperature:	-10…+60°C	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-20…+70°C	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2,	●	●	●	●	●	●	●	●	●	●	●	●
	EN 60825-1, CDRH21 CFR 1040.10						●	●	●	●	●	●	●

CE

SELECTION TABLE

slot sensors		
model	slot	output
SRF-30-5-P	30 mm	PNP
SRF-30-5-N	30 mm	NPN
SRF-50-5-P	50 mm	PNP
SRF-50-5-N	50 mm	NPN
SRF-80-5-P	80 mm	PNP
SRF-80-5-N	80 mm	NPN
SRF-120-5-P	120 mm	PNP
SRF-120-5-N	120 mm	NPN
SRF-L-30-5-P	30 mm	PNP
SRF-L-50-5-P	50 mm	PNP
SRF-L-80-5-P	80 mm	PNP
SRF-L-120-5-P	120 mm	PNP

MODEL SELECTION AND ORDER INFORMATION

MODEL	SLOT	EMISSION TYPE	USCITA	ORDER N°
SRF-30-5-P	30 mm	red LED	PNP	95B020050
SRF-30-5-N	30 mm	red LED	NPN	95B020090
SRF-50-5-P	50 mm	red LED	PNP	95B020060
SRF-50-5-N	50 mm	red LED	NPN	95B020100
SRF-80-5-P	80 mm	red LED	PNP	95B020070
SRF-80-5-N	80 mm	red LED	NPN	95B020110
SRF-120-5-P	120 mm	red LED	PNP	95B020080
SRF-120-5-N	120 mm	red LED	NPN	95B020120
SRF-L-30-5-P	30 mm	red LASER	PNP	95B020130
SRF-L-50-5-P	50 mm	red LASER	PNP	95B020140
SRF-L-80-5-P	80 mm	red LASER	PNP	95B020150
SRF-L-120-5-P	120 mm	red LASER	PNP	95B020160

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CS-B1-01-G-03	3 m M8 3-pole axial connector	95A251490
CS-B1-01-G-05	5 m M8 3-pole axial connector	95A251510
CS-B2-01-G-03	3 m M8 3-pole radial connector	95A251500
CS-B2-01-G-05	5 m M8 3-pole radial connector	95A251520

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LDμ SERIES

The **LDμ** luminescence sensors emit ultraviolet light and detect only visible light converted and reflected from fluorescent objects or marks, independent from the background's colour and surface.
A microprocessor controls and synchronises the emission, reception and output circuits offering a completely automatic setting. The **LDμ** sensors can reach a 75 mm operating distance and a 2 kHz switching frequency, thanks to the UV High-Power emission. Focusing lenses and special fibre-optics able to replace the lens are available as accessories.
The **LDμ** sensors are used in the pharmaceutical and cosmetic industries to identify labels on glass phials or bottles; in the wood and ceramic selection lines; in automatic packaging to detect paper and fluorescent glues; in the textile industry to identify cutting guides; in the mechanical industry to verify the presence of paints or fluorescent lubricants.



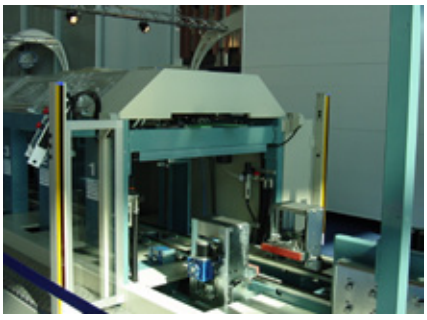


HIGHLIGHTS

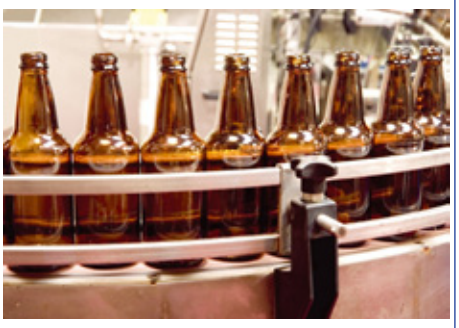
- High-Power UV LED emission
- Microprocessor-based Teach-in setting
- High switching frequency at 2 kHz
- Fibre-optic accessories and high-resolution lenses

APPLICATIONS

Ceramics



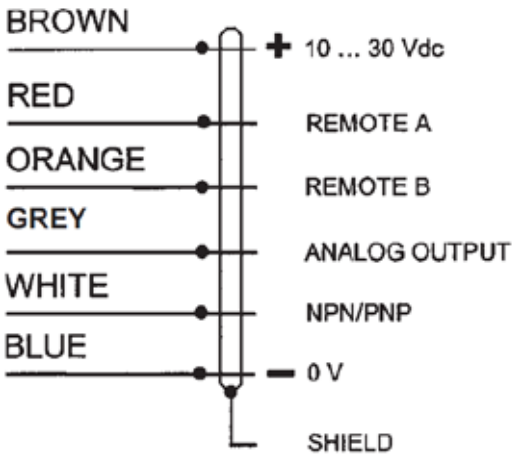
Beverage & Bottling



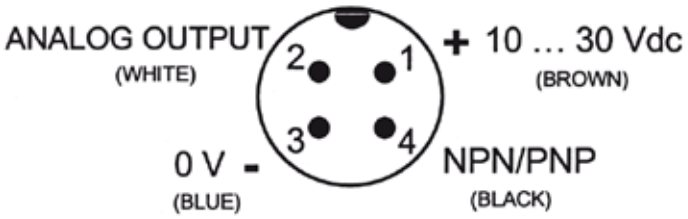
Packaging lines



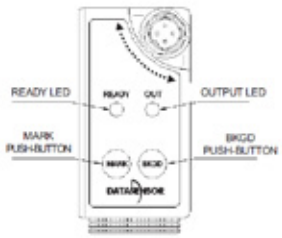
CONNECTIONS

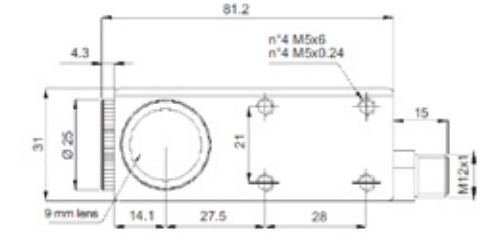


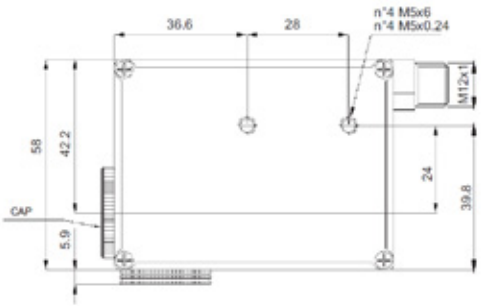
M12 CONNECTOR

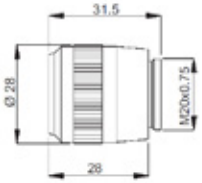


DIMENSIONS

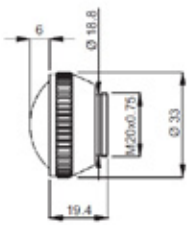






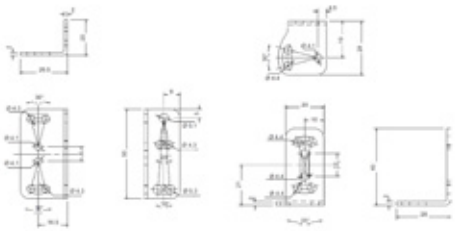


22 mm lens



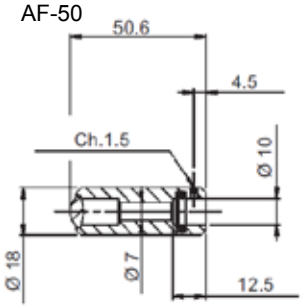
60 mm lens

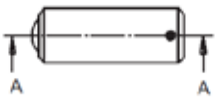
OF-50



Model	L
OF-50-5	50 cm
OF-50-10	100 cm

AF-50





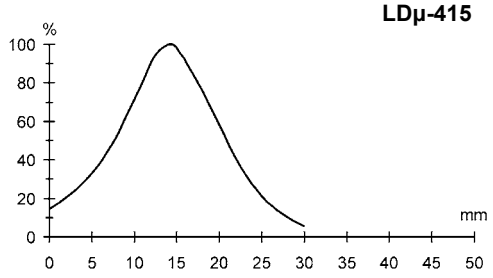
mm

TECHNICAL DATA

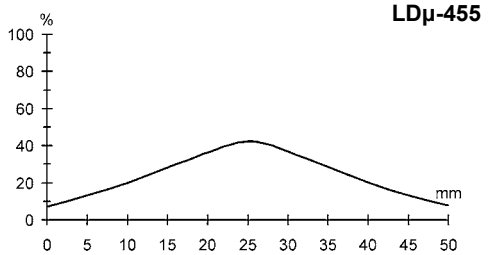
Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	80 mA max.
Light emission:	LED HP-UV 370 nm
Spot dimension:	circular Ø 5 mm max. on focal point
Diffuse proximity operating distance:	9 ... 18 mm (LDµ-415)
	20 ... 40 mm (LDµ-455)
	40 ... 75 mm (LDµ-425)
Operating distance with fibre-optics:	0 ... 30 mm
Setting:	Teach-in with 2 push-buttons
	Remote by cable
Indicators:	red OUTPUT LED
	green READY LED
Output type:	NPN or PNP, Rpull-down/up 10 kΩ
Saturation voltage:	1 V max. with NPN
	2 V max. with PNP
Output current:	200 mA max., short-circuit protection
Response time:	250 µs ms max.
Switching frequency:	2 kHz max.
Timing function:	20 ms minimum output ON
Analog output range:	0 ... 7 Vdc, 2.2 kΩ output resistance
Auxiliary functions:	deviator for setting block
Connection:	M12 4-pole connector
	3 m Ø 6.1 mm shielded cable
Electrical protection:	class 1
Mechanical protection:	IP67
Housing material:	ZAMA
Lens material:	glass
Weight:	310 g (connector vers.)
	450 g (cable vers.)
Operating temperature:	-10 ... +55°C
Storage temperature:	-20 ... +70°C
Reference standard:	EN 60947-5-2
Certifications:	CE
OF-50 fibre-optic data:	fibre in saline solution with PET sheath,
	operating temperature: -5 ... +60°C

DETECTION DIAGRAMS

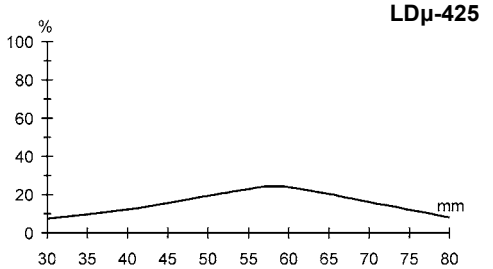
LDµ-415



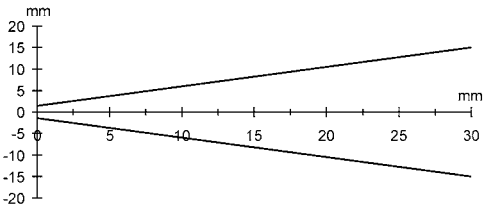
LDµ-455



LDµ-425



LDµ-xxx with OF-50 fibre



The detection diagrams indicate the typical operating distance.

MODEL SELECTION AND ORDER INFORMATION

MODEL	OPTIC	CONNECTION	CODE N°
LDµ-415	9 - 18 mm (high sensitivity)	M12 connector	955151120
LDµ-425	40 - 75 mm (high sensitivity)	M12 connector	955151110
LDµ-455	20 - 40 mm (high sensitivity)	M12 connector	955151100

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
AF-50	focusing lens for OF-50 (Ø 5 mm spot at 15 mm)	95ACC1400
Lens No.22	lens with 22 mm focus	95ACC1100
Lens No.60	lens with 60 mm focus	95ACC2740
OF-50-5	fibre-optic L50 cm - proximity op. distance 30 mm	95A201130
OF-50-10	fibre-optic L100 cm - proximity op. distance 30 mm	95A201370

Please refer also to M12 connectors of the CS series

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

LD46 SERIES

The luminescence sensors emit ultraviolet (UV) light and receive visible light reflected from luminescent surfaces. This technology allows the detection of fluorescent marks (even invisible to the human eye) on any object independently from its material, colour or distance inside the operating range. Moreover, it avoids light interferences or reflections from non-luminescent surfaces, like glass, mirrors, shiny metal surfaces, etc. Luminescence sensors can satisfy many different applications, as for example in pharmaceutical and cosmetic industries to detect labels on glass phials or bottles, or correct medicine packaging, in woodworking and ceramic tiles production to check fluorescent selection marks; in automatic packaging to detect whitened paper or fluorescent glues, in textile industry to identify fluorescent cutting guides or labels; in mechanical industry to verify fluorescent paints, lubricants, gaskets or fittings; in vending machines or cash dispensers to check banknotes and credit cards. The high power and definition of the **LD46** sensor light spot enable the detection of critical targets with a very poor or non-homogeneous or discontinued luminescent level, as for example on raw wood, corrugated carton, fabric, ceramic tiles.





HIGHLIGHTS

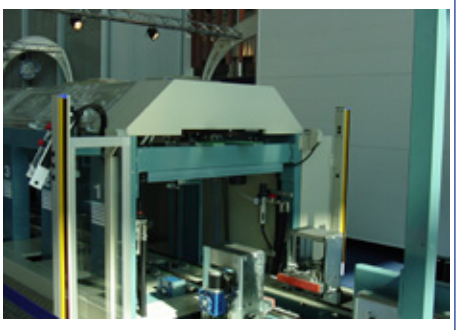
- The best solution for luminescent mark detection
- High-power UV emission for improved sensitivity
- Fast switching frequency and response time
- Easy setting and clear bargraph indicator

APPLICATION

Wood



Ceramics



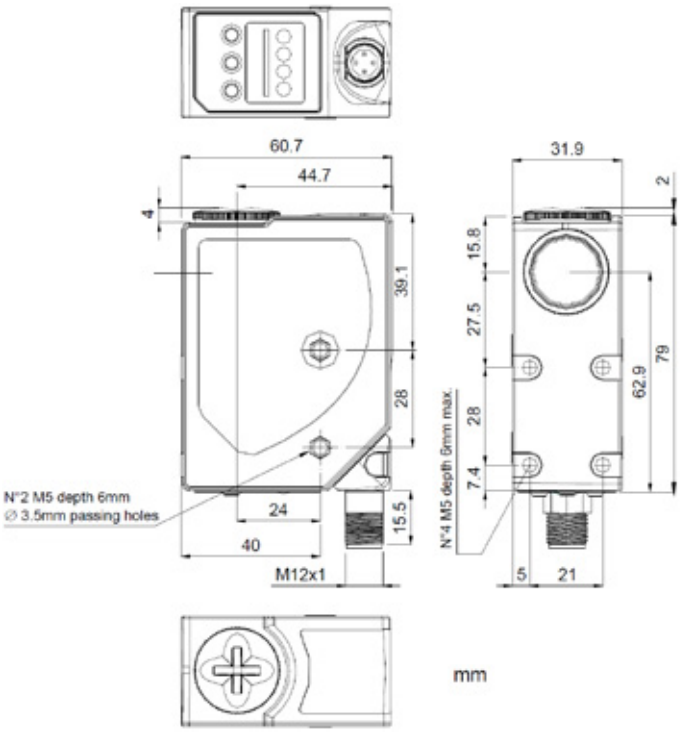
Packaging lines



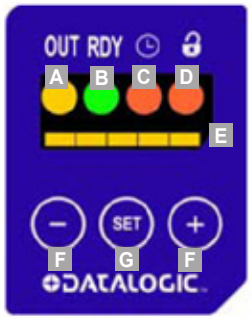
SETTING

The switching threshold setting can be easily made pressing the '+' and '-' push-buttons that increase or descrease the sensitivity level which is visualised on the bargraph indicator.
The sensor has a KEYLOCK function that deactivates the keyboard avoiding accidental sensor setting.
The keyboard is locked at the sensor powering and can be activated by pressing the SET push-button for 5 seconds until the keylock LED turns on.
The keyboard is locked again automatically if not used for 2 minutes.

DIMENSIONS



INDICATORS AND PUSH-BUTTONS



LD46-UL

- A yellow OUTPUT LED
- B green READY LED
- C orange DELAY LED
- D orange KEYLOCK LED
- E Bargraph
- F +/- push-buttons
- G SET push-button

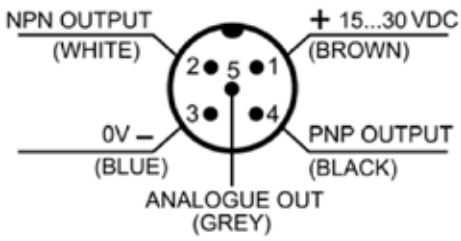
ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES section** of this catalogue.

Refer also to **Connectors** of the **General Catalogue.**

CONNECTIONS

M12 CONNECTOR

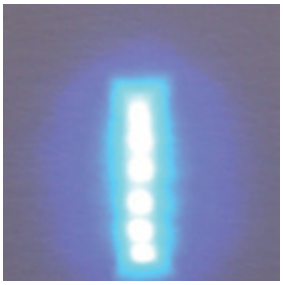


TECHNICAL DATA

TECHNICAL NOTES [1]Average life of 100.000 h with T_A = +25 °C [2]Rotatable connector block in 5 positions [3]A - reverse polarity protection B - overload and short-circuit protection		TL46-W-815	TL46-W-815L	TL46-WL-815
Power supply:	15 … 30 Vdc, reverse polarity protection	●	●	●
Consumption:	50 mA max at 24 Vdc	●	●	●
Light emission:	LED UV, 375 nm[1]	●	●	●
Spot dimension:	2 x 8 mm at 10 mm	●		
	3 x 11 mm at 24 mm			●
	4 x 15 mm at 50 mm		●	
Operating distance:	10 … 20 mm	●		
	20 … 40 mm			●
	30 … 50 mm		●	
Setting:	manual using '+', '-' and SET push-buttons	●	●	●
Indicators:	yellow OUTPUT LED	●	●	●
	green ready LED	●	●	●
	orange delay LED	●	●	●
	orange keylock LED	●	●	●
	5-segment bargraph	●	●	●
Output type:	1 NPN output	●	●	●
	1 PNP output	●	●	●
Output current:	100 mA max.	●	●	●
Saturation voltage:	≤2 V	●	●	●
Response time:	250 µs	●	●	●
Switching frequency:	2 kHz	●	●	●
Operating mode:	light	●	●	●
Analogue output:	0.75 … 5.5 V max.	●	●	●
Timing function:	20 ms selectable	●	●	●
Auxiliary functions:	keylock	●	●	●
Connections:	M12 5-pole connector[2]	●	●	●
Electrical protection:	class 2, double insulation	●	●	●
Mechanical protection:	IP67	●	●	●
Protection devices:	A, B	●	●	●
Housing material:	aluminum	●	●	●
Lens material:	glass	●	●	●
Weight:	180 g max.	●	●	●
Operating temperature:	-10…55°C	●	●	●
Storage temperature:	-20…70°C	●	●	●
Reference standard:	EN 60947-5-2	●	●	●

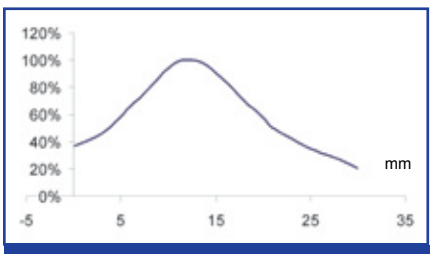
CE Ex II3DG

LIGHT SPOT

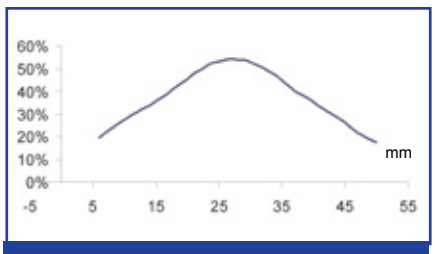


The improved UV emission power and light spot sharpness enable the detection of critical targets with a very poor or non-homogeneous luminescence level.

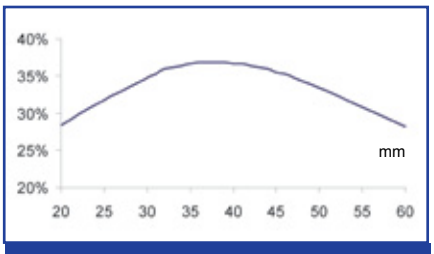
DETECTION DIAGRAMS



Standard 9 mm lens
(2 x 8 mm spot at 10 mm)



Standard 22 mm lens
(3 x 11 mm spot at 24 mm)



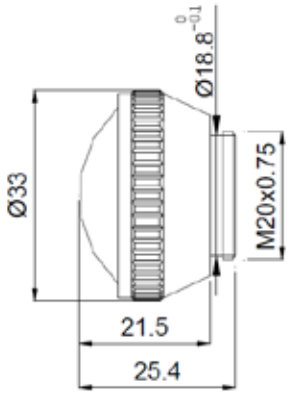
Standard 40 mm lens
(4 x 15 mm spot at 50 mm)

MODELS

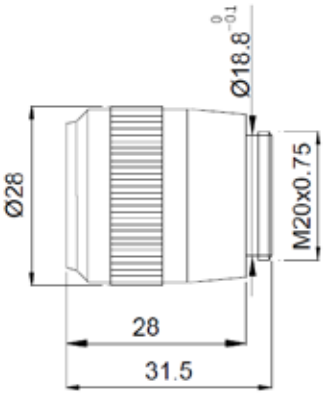
MODEL	OPERATING DISTANCE	ORDER N°
LD46-UL-715	10 - 20 mm	955201000
LD46-UL-735	30 - 50 mm	955201020
LD46-UL-755	20 - 40 mm	955201010

ACCESSORY LENSES

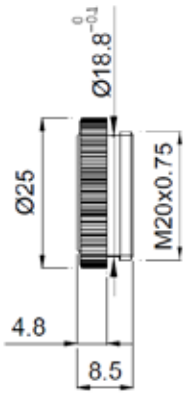
DIMENSIONS



Lens 40 mm glass



Lens 22 mm glass



Lens No.9 glass

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
Lens No.9 glass	glass lens with 9 mm focus	95ACC2670
Lens No.22 glass	glass lens with 22 mm focus	95ACC1100
Lens No.40 glass	glass lens with 40 mm focus	95ACC2740

*Please refer also to **Sensor Accessories***

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TLμSERIES

The **TLμ** series offers the most reliable and innovative solutions for all detection applications of register marks and other neutral or coloured references.
The microprocessor-based setting can be either 'Teach-in' using two push-buttons or 'Remote' by cable with the possibility of rapidly memorising and recalling 4 different formats. The setting can also be dynamic and completely automatic in the models with the 'Auto-Set' function.
The LED emission can be red/green with automatic selection, or white offering the possibility of operating on all contrasts, also amongst same-coloured objects and backgrounds, presenting different surface treatments or workings.
Models with interchangeable 9 mm or 18 mm lenses are available; 22, 28 and 50 mm lenses are supplied as accessories. Moreover many different fibre-optic models are available. The output is NPN or PNP according to the model, but is always selectable by means of an internal switch; an analog output proportional to the received light is also present.



HIGHLIGHTS

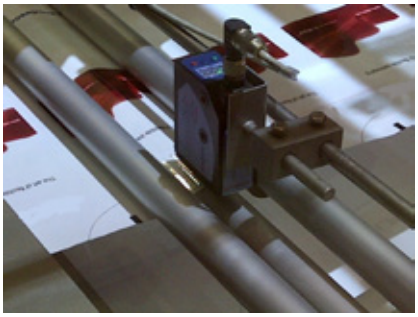
- 'Teach-in', 'Remote' setting and models with 'Auto-Set'
- Red/green or white LED emission
- Various interchangeable lenses and fibre-optic versions
- Metal housing with orientable optics and connector

APPLICATIONS

Packaging lines



Contrast reading

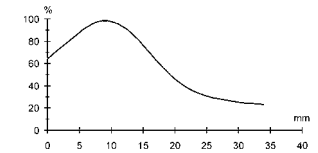


TECHNICAL DATA

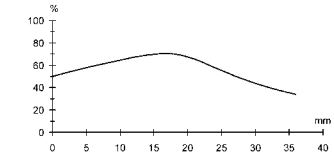
Power supply:	10 ... 30 Vdc, reverse polarity protection
Consumption:	80 mA max.
Light emission:	red 630 nm / green 526 nm LED
	white LED (TLμ-4/5xx vers.)
Spot dimension:	1.5 x 5 mm (9 mm lens)
	Ø 3 mm (9 lens - circular)
	2 x 7 mm (18 mm lens)
Operating distance:	6 ... 12 mm (9 mm lens)
	14 ... 22 mm (18 mm lens)
	22 ... 34 mm (28 mm lens)
	40 ... 60 mm (50 mm lens)
Operating distance with fibre-optics:	0 ... 3 mm proximity
	0 ... 10 mm through beam
Depth of field:	±3 mm (9 mm lens)
	±4 mm (18 mm lens)
	±6 mm (28 mm lens)
	±10 mm (50 mm lens)
Setting:	Teach-in with 2 push-buttons
	Remote with 2 wires
Indicators:	red OUTPUT LED
	green READY LED
Output type:	NPN or PNP, Rpull-down/up 10 kΩ
Saturation voltage:	1 V max. (NPN vers.)
	2 V max. (PNP vers.)
Output current:	200 mA max., short-circuit protection
Response time:	50 μs max., 25 ms max. (TLμ-4/5xx vers.)
Switching frequency:	10 kHz max., 20 kHz max. (TLμ-4/5xx vers.)
Operating mode:	automatic dark/light selection
Analog output range:	0 ... 5.5 Vdc (2 Vdc on white 90%)
	2.2 kΩ output resistance
Timing function:	20 ms minimum output ON
Connection:	M12 4-pole connector
	3m Ø 6.1 mm shielded cable
Electrical protection:	class 1
Mechanical protection:	IP67
Housing material:	ZAMA
Lens material:	glass
Fibre-optic material:	fibre in glass / sheath in metal
	fibre in PMMA / sheath in PE (OF-30)
Weight:	310 g max. (connector vers.)
	450 g max. (cable vers.)
Operating temperature:	-10 ... +55°C
Storage temperature:	-25 ... +70°C
Fibre operating temperature:	-30 ... +150°C (glass OF vers.)
	-30 ... +60°C (OF-30)
Reference standard:	EN 60947-5-2
Certifications:	CE

The detection diagrams indicate the typical detection distance.

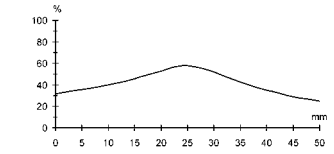
DETECTION DIAGRAMS



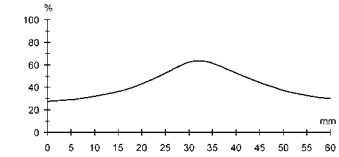
9 mm lens



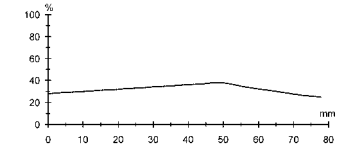
18 mm lens



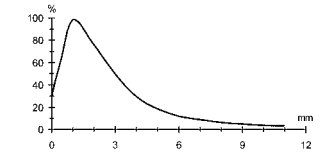
22 mm lens



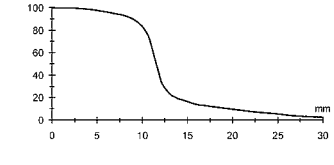
28 mm lens



50 mm lens



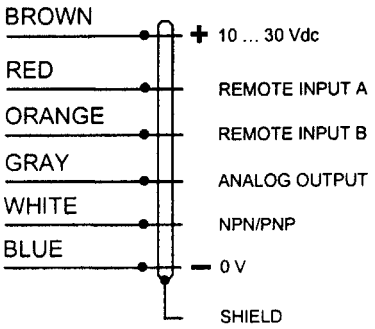
Proximity fibre-optics



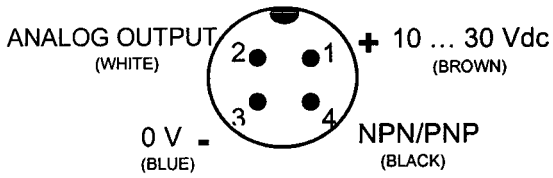
Through beam fibre-optics

The detection diagrams indicate the typical operating distance.

CONNECTIONS

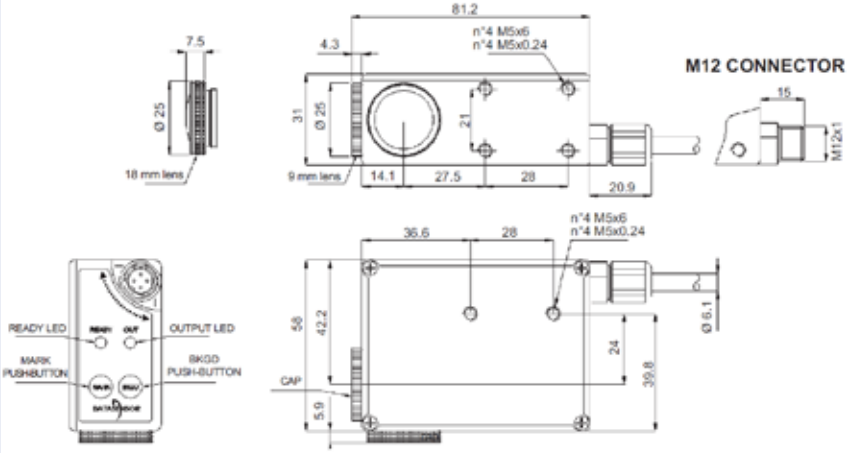


M12 COONECTOR

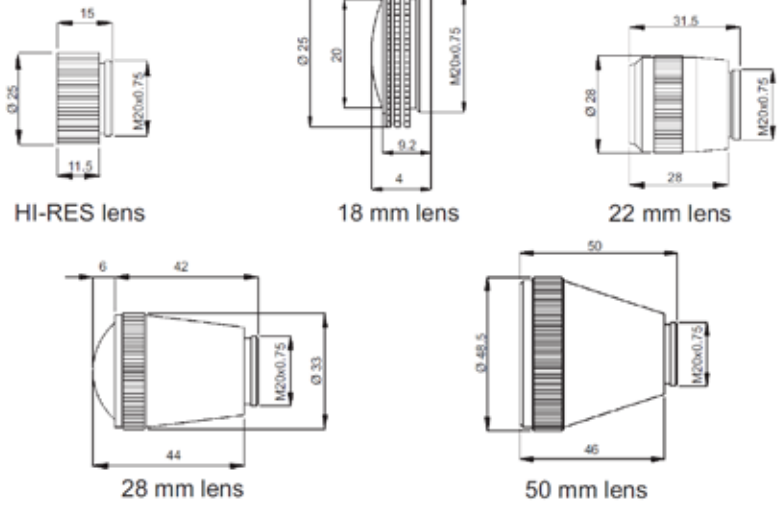


* Dark/light mode selection input for Auto-Set models

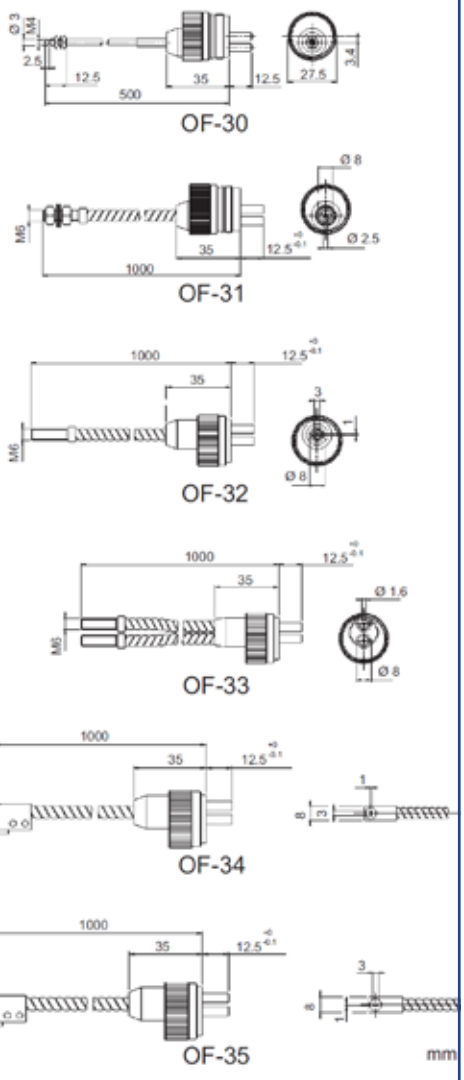
DIMENSIONS



LENSES



OPTIC FIBRES



MODEL SELECTION AND ORDER INFORMATION

MODEL	EMISSION	SPOT	OPTICS	CONNECTION	OUTPUT	CODE N°
TLμ-011	red/green	vertical	9 mm	cable	NPN	964401000
TLμ-011L	red/green	horizontal	9 mm	cable	NPN	964401010
TLμ-015	red/green	vertical	9 mm	M12 connector	NPN	964401020
TLμ-015L	red/green	horizontal	9 mm	M12 connector	NPN	964401030
TLμ-065	red/green	vertical	18 mm	M12 connector	NPN	964401060
TLμ-111	red/green	vertical	9 mm	cable	PNP	964401080
TLμ-111L	red/green	horizontal	9 mm	cable	PNP	964401090
TLμ-115	red/green	vertical	9 mm	M12 connector	PNP	964401100
TLμ-115L	red/green	horizontal	9 mm	M12 connector	PNP	964401110
TLμ-165	red/green	vertical	18 mm	M12 connector	PNP	964401140
TLμ-415C	white	circular	9 mm	M12 connector	NPN	954151330
TLμ-411C	white	circular	9 mm	cable	NPN	954151410
TLμ-445	white	refer to fibres	fibre-optic	M12 connector	NPN	954151350
TLμ-515C	white	circular	9 mm	M12 connector	PNP	954151360
TLμ-511C	white	circular	9 mm	cable	PNP	954151420
TLμ-545	white	refer to fibres	fibre-optic	M12 connector	PNP	954151380

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
Lens Hi-Res	lens with 9 mm focus (*)	95ACC1050
Lens No.18	lens with 18 mm focus	95ACC2680
Lens No.22	lens with 22 mm focus	95ACC1100
Lens No.28	lens with 28 mm focus	890000194
Lens No.50	lens with 50 mm focus	S73030511
OF-30-5	plastic fibre-optic L 50 cm - point-shaped spot proximity	96B001070
OF-31-10	glass fibre-optic L 100 cm - point-shaped spot proximity	96B201000
OF-32-10	glass fibre-optic L 100 cm - rectangular spot proximity	96B211000
OF-33-10	glass fibre-optic L 100 cm - through beam	96B221000
OF-34-10	glass fibre-optic L 100 cm - horizontal spot 90° proximity	96B231000
OF-35-10	glass fibre-optic L 100 cm - vertical spot 90° proximity	96B24100

* focussing lens to screw between the sensor and the normal 9 mm lens

Please refer also to **Sensor Accessories**

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TL46 SERIES

The new digital contrast sensor line of the **TL46** series is characterised by excellent performances in terms of resolution, definition and precision of the light spot emitted by RGB LEDs, low response time and high switching speed. The sensor, developed in a sturdy metal housing with standard fixing, is available in 3 different versions able to better satisfy all applications offering avantgarde technology at the best price/performance ratio. The **TL46-W** basic version has only one set push-button, 2 LEDs indicating respectively the output status and sensor acquisition condition. The performances and use ease have be optimised and offered at a competitive price. The **TL46-WL** standard version has set 3 push-buttons, 4 LEDs signalling the output status, sensor acquisition condition, delay output activation and push-button activation. A bargraph is also available for manual setting of the threshold to detect particularly difficult contrasts. The standad version supplies excellent performances in general at a 20 kHz switching frequency. The **TL46-WLF** enhanced version presents a 4-digit display for the setting of the most advanced functions, such as dynamic acquisition of the contast mark. The sensor reaches the maximum market performances at 30 kHz switching frequency. Accessory lenses with 9 - 40 mm focal distance are available for all versions, as well as a high-resolution focussing lens and a PMMA plastic patent-covered lens particularly suitable to food applications with standard 9 mm focal distance.

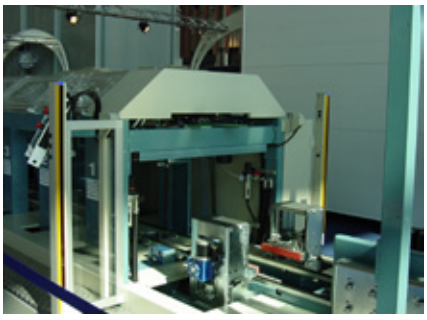


HIGHLIGHTS

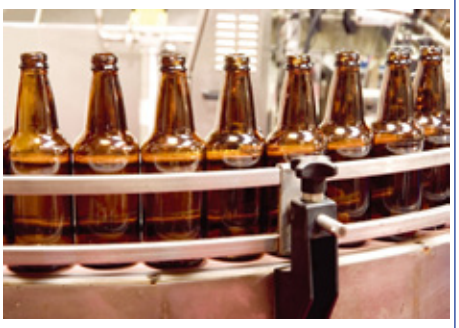
- Wide-spectrum RGB LED emission
- 3 different versions: basic, standard and enhanced
- Automatic, manual and dynamic setting
- 15, 20 or 30 kHz switching frequency
- NPN/PNP and analogue outputs
- Standard fixing, M12 connector rotatable on 5 positions

APPLICATIONS

Ceramics



Beverage & Bottling



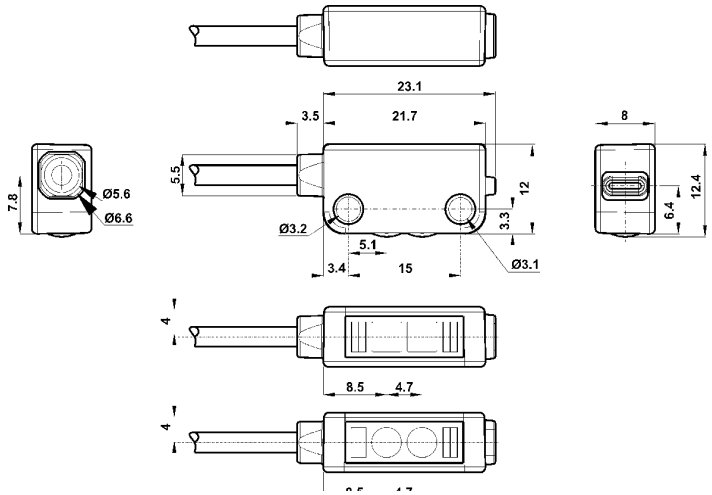
Packaging lines



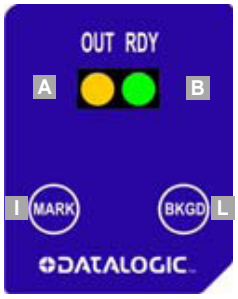
SETTING

The switching threshold is set pressing twice the SET push-button; the first for the mark the second for the background.
The threshold level can be set manually, in the TL46-WL/WLF version, pressing the '+' and '-' push-buttons which increase or reduce the threshold as visualised on the bargraph or display.
The dynamic setting, present in the TL46-WLF version, detects the moving mark by simply keeping the SET push-button pressed, or activating the Remote/Dyn input.

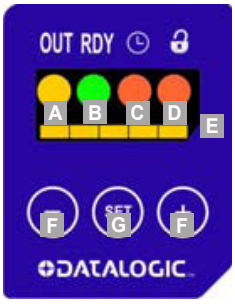
DIMENSIONS



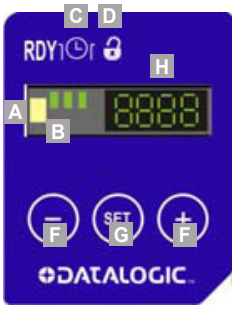
INDICATORS AND PUSH-BUTTONS



TL46-W BASE



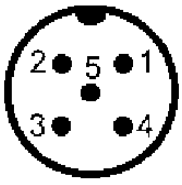
TL46-WL STANDARD



TL46-WLF ENHANCED

- A yellow OUTPUT LED
- B green READY LED
- C orange DELAY LED
- D orange KEYLOCK LED
- E Bargraph
- F +/- push-buttons
- G SET push-button
- H Display
- I MARK push-button
- L BKGD push-button

CONNECTIONS



M12 CONNECTOR

Version	pin 1	pin 2	pin 3	pin 4	pin 5 *
	(brown)	(white)	(blue)	(black)	(grigio)
TL46-W Base	+10...30Vdc	1...5.5Vdc output	0Vdc	NPN/PNP output	Delay
TL46-WL Std.	+10...30Vdc	1...5.5Vdc output	0Vdc	NPN/PNP output	Remote
TL46-WLF Enh.	+10...30Vdc	Dark/Light Dyn.	0Vdc	NPN/PNP output	Remote/Dyn.
* A M12 4-pole connector can be used if the PIN5 function is not necessary.					

TECHNICAL DATA

TECHNICAL NOTES [1] Limit values [2] Average life of 100.000 h with TA = +25 °C [3] Connettor block rotatable on 5 positions [4] A - reverse polarity protection B - overload and short-circuit protection		TL46-W-815	TL46-W-815L	TL46-WL-815	TL46-WL-815L	TL46-WLF-815	TL46-WLF-815L
Power supply:	10 … 30 Vdc , reverse polarity protection	●	●	●	●	●	●
Consumption:	85 mA max	●	●	●	●	●	●
Light emission:	RGB LED (630nm red, 520nm green, 465nm blue)[2]	●	●	●	●	●	●
Spot dimension:	1.5 x 5 mm (with standard 9 mm lens)	●	●	●	●	●	●
Spot orientation:	horizontal		●		●		●
	vertical	●		●		●	
Operating distance:	6 … 12 mm (with standard 9 mm lens)	●	●	●	●	●	●
Depth of field:	± 3 mm (with standard 9 mm lens)	●	●	●	●	●	●
Setting:	automatic	●	●				
	automatic / manual / remote			●	●		
	automatic / manual / remote / dynamic					●	●
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●
	green READY LED	●	●	●	●	●	●
	orange DELAY LED			●	●	●	●
	orange KEYLOCK LED			●	●	●	●
	5-segment bargraph			●	●		
	4-digit display					●	●
Output type:	NPN/PNP programmable					●	●
Output current:	100 mA max.	●	●	●	●	●	●
Saturation voltage:	≤ 2 V	●	●	●	●	●	●
Response time:	33 µs	●	●				
	25 µs			●	●		
	17 µs					●	●
Switching frequency:	15 kHz	●	●				
	20 kHz			●	●		
	30 kHz					●	●
Operating mode:	dark/light selectable					●	●
Analogue output:	1 … 5.5 V (3 V on 90% white)	●	●	●	●	●	●
Timing function:	20 ms programmable	●	●	●	●		
	0 ... 100 ms programmable					●	●
Auxiliary functions:	keylock			●	●	●	●
	fine hysteresis regulation					●	●
Connections:	m12 5-pole connector[3]	●	●	●	●	●	●
Electrical protection:	class 2, double insulation	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●
Protection devices:	A, B[4]	●	●	●	●	●	●
Housing material:	aluminum	●	●	●	●	●	●
Lens material:	PMMA	●	●				
	glass			●	●	●	●
Weight:	170 g max.	●	●	●	●	●	●
Operating temperature:	-10…55°C	●	●	●	●	●	●
Storage temperature:	-20…70°C	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●

II3DG

VERTICAL SPOT

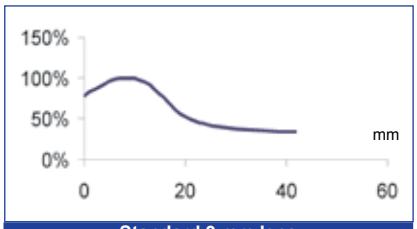


HORIZONTAL SPOT

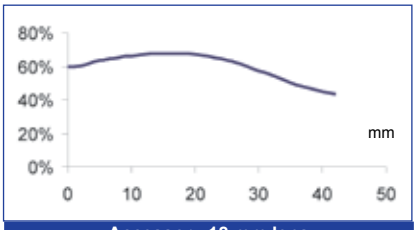


Horizontal spot is present in the TL46 models with final '-L' suffix

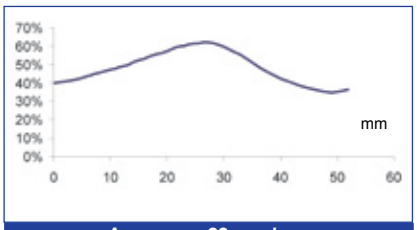
READING DIAGRAM



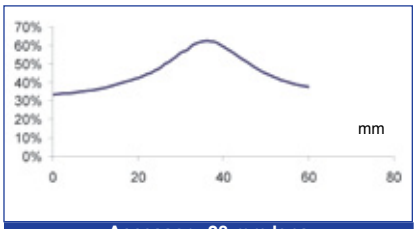
Standard 9 mm lens
(1.5 x 5 mm spot on focal point)



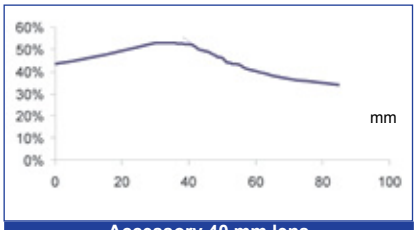
Accessory 18 mm lens
(2 x 7 mm spot on focal point)



Accessory 22 mm lens
(2 x 8 mm spot on focal point)



Accessory 28 mm lens
(2 x 9 mm spot on focal point)



Accessory 40 mm lens
(2.5 x 11 mm spot on focal point)

MODEL SELECTION

MODEL	V	SPOT	ORDER N°
TL46-W-815	basic	vertical	954601000
TL46-W-815L	basic	horizontal	954601010
TL46-WL-815	standard	vertical	954601020
TL46-WL-815L	standard	horizontal	954601030
TL46-WLF-815	enhanced	vertical	954601040
TL46-WLF-815L	enhanced	horizontal	954601050

ACCESSORY SELECTION

MODEL	DESCRIPTION	ORDER NO.
CS-A1-03-G-03	axial M12 NO-NC 5-poles 3 m	95ACC2110
CS-A1-03-G-05	axial M12 NO-NC 5-poles 5 m	95ACC2120
CS-A1-03-G-10	axial M12 NO-NC 5-poles 10 m	95ACC2140
Lens No.9 glass	glass lens with 9 mm focus	95ACC2670
Lens No.9 PMMA	plastic lens with 9 mm focus	95ACC2540
Lens Hi-Res glass	additional focussing glass lens (*)	95ACC1050
Lens No.18 glass	glass lens with 18 mm focus	95ACC2680
Lens No.22 glass	glass lens with 22 mm focus	95ACC1100
Lens No.28 glass	glass lens with 28 mm focus	890000194
Lens No.40 glass	glass lens with 40 mm focus	95ACC2740

* focussing lens to screw between the sensor and normal 9 mm lens to reduce the light spot dimension and increase resolution
Please refer also to Sensor Accessories

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

TL50 SERIES

The **TL50** contrast sensor line offers the best solution for all the applications where cost reduction is requested, without compromising the excellent detection performances. The optimised optics of these sensors, the RGB LED emission with automatic colour selection and the very fine resolution, allow the detection of the weakest contrast of colours or grayscale between mark and background, or between different objects or surfaces. The high resolution is not a limit for the detection speed, reaching 33 ms response time and 15 kHz switching frequency. Thanks to the compact dimensions and multiple fixing holes with metallic inserts present in standard positions, the sturdy ABS plastic housing is fully compatible and can replace the most traditional contrast sensors, as well as offering an interesting cost reduction.
The special PMMA plastic lens, that can be fixed either in an axial or lateral position, is suitable for sensor use in the food industry, where the presence of glass parts must be avoided.



HIGHLIGHTS

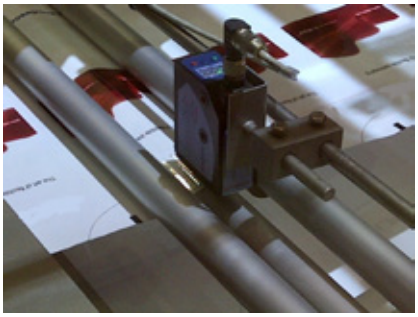
- High resolution and RGB LED emission with automatic colour selection
- Very fast switching frequency and low response time
- Easy sensor setting by means of two pushbuttons Mark/Bkgd
- Sturdy plastic housing with standard dimensions and fixing holes

APPLICATIONS

Packaging lines

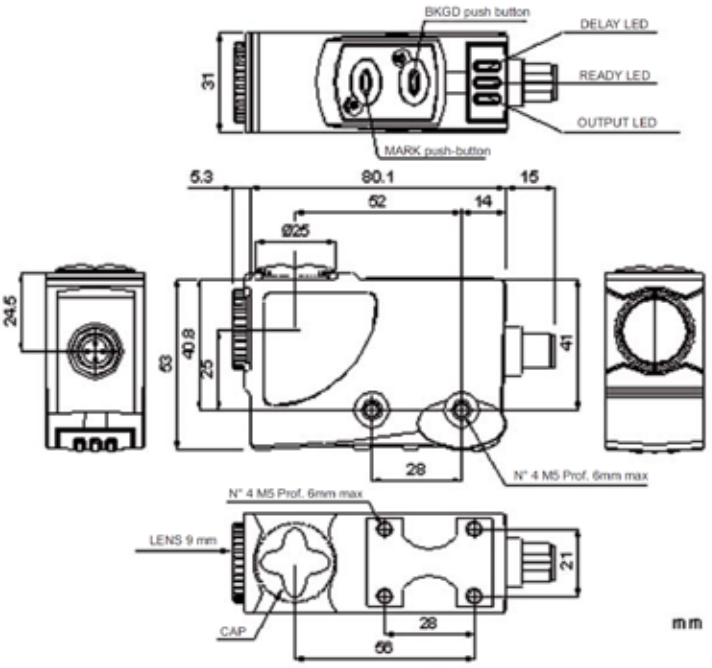


Contrast reading

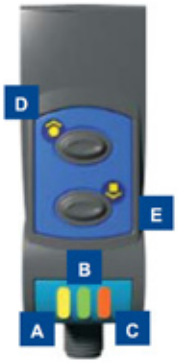


The acquisition of the mark and background signals is made by pressing the MARK and BKGD push-buttons.
The switching threshold level is set automatically between the mark and background values.
The Dark/Light operating mode is selected by the sensor on the ground of the lower or higher mark reflectivity with respect to the background.
When the green LED turns on the setting has been successfully completed and the sensor is ready, whereas the LED blinking indicates a setting failure or an insufficient contrast between mark and background.

DIMENSIONS



INDICATORS AND PUSH-BUTTONS



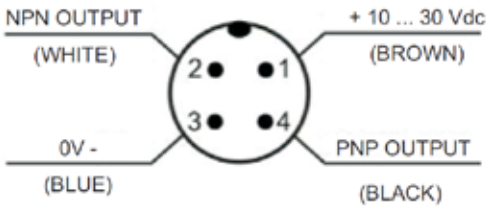
- A yellow OUTPUT LED
- B green READY LED
- C orange DELAY LED
- D MARK push-button
- E BKGD push-button

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

Refer also to **Connectors** of the **General Catalogue.**

CONNECTIONS



TECHNICAL DATA

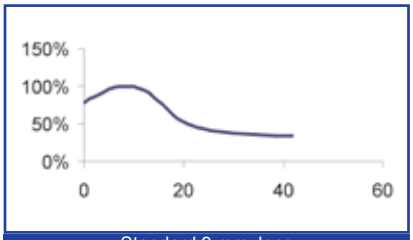
Power supply:	10 … 30 Vdc[1] , reverse polarity protection
Ripple:	2 Vpp max.
Consumption:	50 mA max. at 24Vdc
Light emission:	RGB LED (630nm red, 520nm green, 465nm blue)[2]
Spot dimension:	1.5 x 5 mm at 9 mm
Operating distance:	9 mm
Depth of field:	± 3 mm (with standard 9 mm lens)
Setting:	MARK push-button
	BKGD push-button
Indicators:	yellow OUTPUT LED
	green READY LED
	orange DELAY LED
Output type:	1 PNP output / 1 NPN output
Output current:	100 mA max.
Saturation voltage:	≤2 V
Response time:	33 µs
Switching frequency:	15 kHz
Operating mode:	dark/light automatic
Timing function:	0 ... 20 ms selectable
Connections:	4-pole M12 connector
Electrical protection:	class 2
Mechanical protection:	IP67
Protection devices:	A, B[3]
Housing material:	ABS
Lens material:	PMMA
Weight:	90 g max.
Operating temperature:	-10…55°C
Storage temperature:	-20…70°C
Reference standard:	EN 60947-5-2

II3DG

TECHNICAL NOTES

[1] Limit values
[2] Average life of 100.000 h with TA = +25 °C
[3] A - reverse polarity protection
B - overload and short-circuit protection

DETECTION DIAGRAMS



Standard 9 mm lens
(1,5 x 5 mm spot on the focus distance)

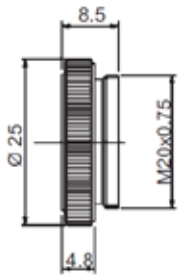


Accessory 18 mm lens
(2 x 7 mm spot on the focus distance)

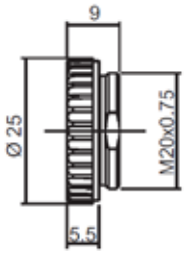
MODEL SELECTION AND ORDER INFORMATION

MODEL	OPERATING DISTANCE	ORDER N°
TL50-W-815	9 mm	954651000

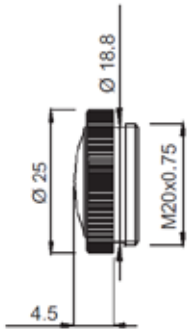
ACCESSORY LENSES



Lens No.9 glass



Lens No.9 PMMA



Lens 18 mm glass

mm

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
Lens No.9 glass	glass lens with 9 mm focus	95ACC2670
Lens No.9 PMMA	plastic lens with 9 mm focus	95ACC2540
Lens No.18 glass	glass lens with 18 mm focus	95ACC2680

Please refer also to **Sensor Accessories**

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S65-W SERIES

The **S65-W** series offers, in a sturdy standard compact 50x50 mm ABS housing with IP67 mechanical protection, an advanced contrast sensor for the detection of register marks and other neutral or coloured targets.
The control panel presents three push-buttons for easy and immediate setting and a 4-digit display that indicates the configuration parameters and the level of received signal without the need of connecting external devices.
Different operating modes, automatic EASYtouch™ and fine, manual and dynamic, allow extremely easy and precise object detection.
Models with only one NPN or PNP switching output are available, or with RS485 serial interface for data transmission as well as an analogue monitoring output proportional to the received light intensity. Electric connection is made by means of a standard 5 or 8-pole connector according to the model.



HIGHLIGHTS

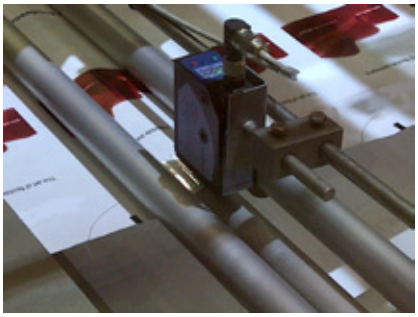
- High 12 bit resolution and 30 kHz switching speed
- 3 push-button setting with 4-digit display indication
- All setting modes: automatic, manual or dynamic
- PNP or NPN output with RS485 serial interface for data transmission

APPLICATIONS

Packaging lines

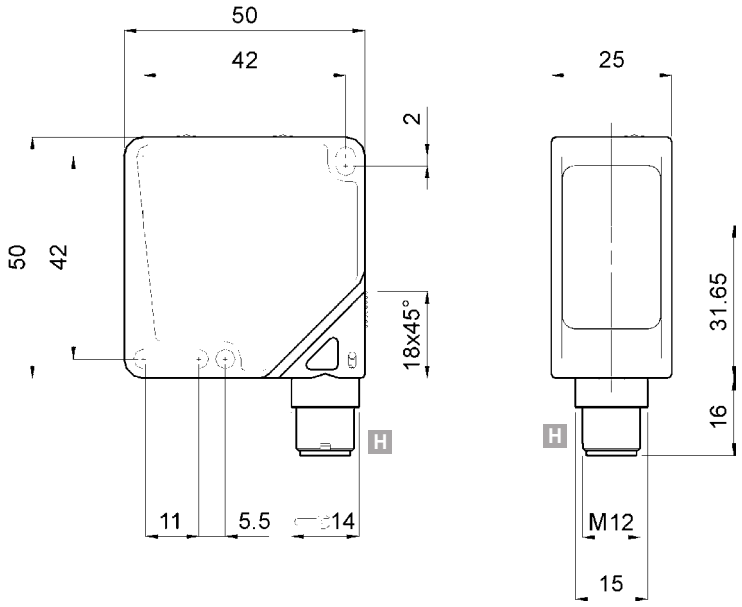


Contrast reading



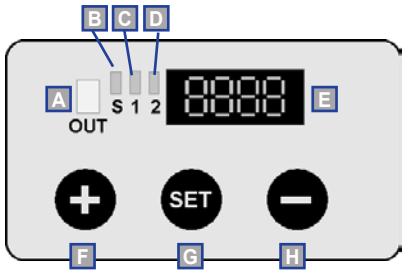
Sensor setting can be made in four different modes; **EASYtouch™** with one SET push-button pressure for a quicker setting, **fine** pressing twice the SET push-button for better precision, **manual** for rapid setting correction using the +/- push-buttons and **dynamic** for the detection of moving targets.
The timing function allows to set a delay of the output activation or deactivation, to avoid the detection of temporarily rapid changes, improve interfacing with slower systems or synchronise activator activation without needing external timers.

DIMENSIONS



mm

INDICATORS AND PUSH-BUTTONS



- A Output status LED
- B Stability LED
- C Delay ON LED
- D Delay OFF LED
- E 4-digit display
- F +/- push-buttons
- G SET push-button
- H M12 connector output, orientable on two positions

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

Refer also to **Connectors** of the **General Catalogue.**

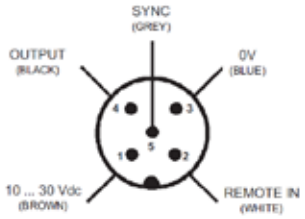
CONNECTIONS

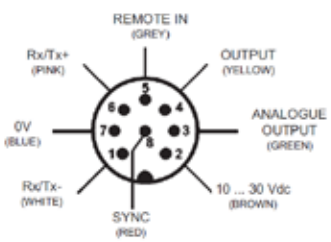


M12 5-POLE CONNECTOR



M12 8-POLE CONNECTOR





Versions and options: refer to **MODEL SELECTION TABLE**

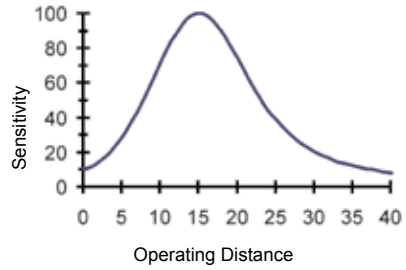
TECHNICAL DATA

TECHNICAL NOTE [1]Limit values [2]Average life of 100.000 h with TA = +25 °C [3]Is activated at powering with remote input connected to +Vdc for at least 1 sec. [4]Connector can be blocked on two positions [5]A - reverse polarity protection B - overload and short-circuit protection		S65-PA-5-W09-NH	S65-PA-5-W09-NHZ	S65-PA-5-W09-PH	S65-PA-5-W09-PHZ
Operating distance:	15 mm	•	•	•	•
Depth of field:	± 2 mm	•	•	•	•
Power supply:	10 ... 30 Vdc [1]	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•
Consumption:	50 mA max. at 24 Vdc	•	•	•	•
Light emission:	white LED 400 - 700 nm[2]	•	•	•	•
Spot dimension:	3x1 mm rectangular at 19 mm	•	•	•	•
Setting:	+ push-button	•	•	•	•
	- push-button	•	•	•	•
	SET push-button	•	•	•	•
Digital resolution:	12 bit (4096 points)	•	•	•	•
Indicators:	4-digit display	•	•	•	•
	yellow active OUTPUT LED	•	•	•	•
	green ON/OFF stabile OUTPUT LED	•	•	•	•
	green active DELAY ON LED	•	•	•	•
	green active DELAY OFF LED	•	•	•	•
Output type:	PNP - NO			•	•
	NPN - NO	•	•		
Output current:	≤100 mA	•	•	•	•
Saturation voltage:	≤2 V	•	•	•	•
Response time:	16 µs	•	•	•	•
Switching frequency:	30 KHz	•	•	•	•
Timing function:	1 ... 100 ms setting	•	•	•	•
Auxiliary functions:	RS485 serial interface		•		•
	keyboard lock [3]	•	•	•	•
	external synchronism	•	•	•	•
Connection:	M12 5-pole connector[4]	•		•	
	M12 8-pole connector[4]		•		•
Electrical protection:	class 2	•	•	•	•
Mechanical protection:	IP67	•	•	•	•
Protection devices:	A, B[5]	•	•	•	•
Housing material:	ABS	•	•	•	•
Lens material:	glass	•	•	•	•
Weight:	60 g max.	•	•	•	•
Operating temperature:	-10 ... +55°C	•	•	•	•
Storage temperature:	-20 ... +70°C	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•

SELECTION TABLE

contrast sensors			
S65-PA-5-W09-NH	954201000	NPN	
S65-PA-5-W09-NHZ	954201010	NPN	RS485
S65-PA-5-W09-PH	954201020	PNP	
S65-PA-5-W09-PHZ	954201030	PNP	RS485

DETECTION DIAGRAMS



Sensitivity according to operating distance

MODEL SELECTION AND ORDER INFORMATION

MODEL	CONNECTION	OUTPUT	SERIAL INTERFACE	ORDER N°
S65-PA-5-W09-NH	M12 5-pole connector	NPN	No	954201000
S65-PA-5-W09-NHZ	M12 8-pole connector	NPN	RS485	954201010
S65-PA-5-W09-PH	M12 5-pole connector	PNP	No	954201020
S65-PA-5-W09-PHZ	M12 8-pole connector	PNP	RS485	954201030

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5020	50 x 27 x 20 mm fixing bracket	95ACC5330
ST-5021	20 x 40 x 28 mm fixing bracket	95ACC5340
CS-A1-03-G-03	M12 5-pole conn. with 3 m unshielded cable	95ACC2110
CS-A1-03-G-05	M12 5-pole conn. with 5 m unshielded cable	95ACC2120
CS-A1-03-G-10	M12 5-pole conn. with 10 m unshielded cable	95ACC2140
CS-A1-06-B-03	M12 8-pole conn. with 3 m unshielded cable	95ACC2230
CS-A1-06-B-05	M12 8-pole conn. with 5 m unshielded cable	95ACC2240
CS-A1-06-B-10	M12 8-pole conn. with 10 m unshielded cable	95ACC2250

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S65-V SERIES

The **S65-V** colour sensors offer the best performances for colour detection in a standard 50x50x25 mm compact housing. The **S65-V0** model, thanks to a good response time of only 340 µs, results to be particularly suitable for automatic packaging applications where high speed and colour mark detection are necessary. The **S65-V1** model increases the chromatic sensitivity of S65-V0 towards dark colours. The sensors can memorise and recognise 3 colours on 3 independent channels. The C (chromaticity) or C+I (chromaticity and intensity) detection algorithm and the tolerance level can be chosen for each colour. The auxiliary functions include keylock and synchronisation with external events through a specific input. The control panel presents two setting push-buttons, outputs LEDs and a 4-digit display for functioning messages and sensor configuration. Complete remote control is possible for the version with the RS485 serial interface, which in the **S65-V1** sensor can also receive RGB chromatic information.





HIGHLIGHTS

- 3 channel colour sensor with C or C+I functions and 10 tolerance levels
- Wide spectrum white light LED emission and RGB photoreceiver
- 3 independent NPN or PNP outputs and RS485 serial interface
- 2 push-button easy setting and 4 digit display

APPLICATIONS

Automatic machines



Automotive

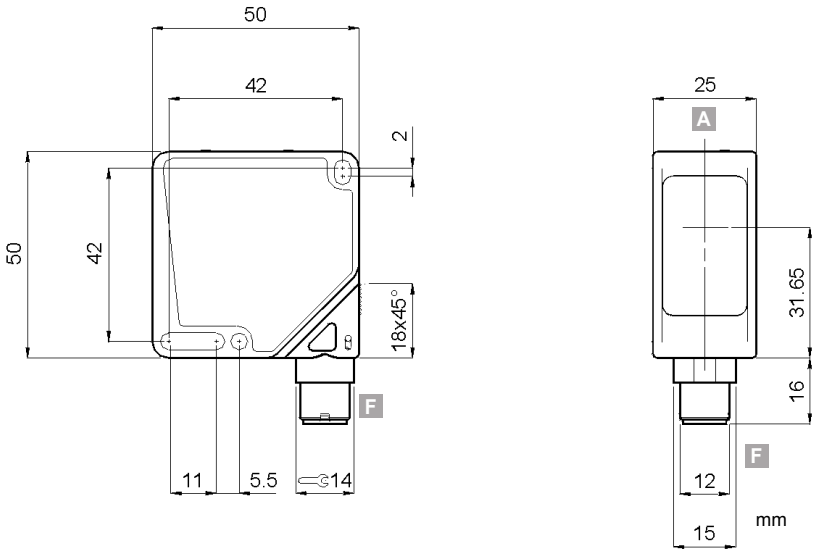


Packaging lines



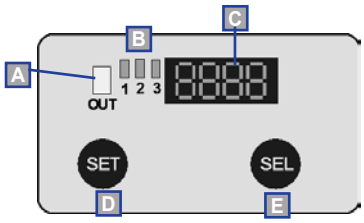
The colour sensor can be configured in a ‘C’ or ‘C+I’ detection mode. The ‘C’ type algorithm is used to obtain a larger depth of field, or to detect colours on different opaque, shiny or reflecting surfaces. The ‘C+I’ type algorithm offers a higher sensitivity towards tone variations, and is recommended for the detection of different colours on the same type of material. It will also distinguish grey tones.

DIMENSIONS





INDICATORS AND SETTING



- A Output ‘OR’ function LED
- B Output status LEDs
- C 4 digit display
- D SET push-button
- E SEL push-button
- F +/- selection push-buttons
- G M12 connector output, orientable on two positions

ACCESSORIES

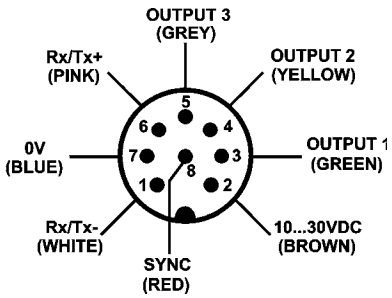
For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

Refer also to **Connectors** and **Fixing Brackets** and **Supports** of the **General Catalogue.**

CONNECTIONS



S65-PA-5



Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

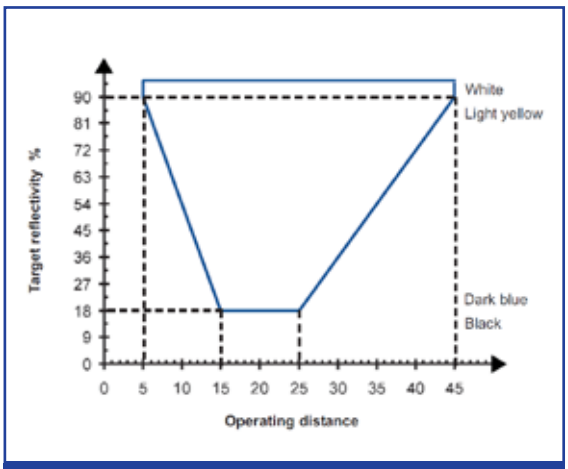
TECHNICAL NOTES [1]Limit values [2]Average life of 100.000 h with T_A = +25 °C [3] Is activated with SYNC connected to +V at powering [4] Connector can be blocked on two positions [4] A - reverse polarity protection B - overload and short-circuit protection		S65-PA-5-V09-NNN	S65-PA-5-V09-NNNZ	S65-PA-5-V09-PPP	S65-PA-5-V09-PPPZ	S65-PA-5-V19-NNN	S65-PA-5-V19-NNNZ	S65-PA-5-V19-PPP	S65-PA-5-V19-PPPZ
Operating distance:	5 ... 45 mm *	•	•	•	•	•	•	•	•
Power supply:	10 ... 30 Vdc[1]	•	•	•	•	•	•	•	•
Ripple:	2 Vpp	•	•	•	•	•	•	•	•
Consumption:	60 mA at 24 V	•	•	•	•	•	•	•	•
Light emission:	white LED 400 -700 nm[2]	•	•	•	•	•	•	•	•
Spot dimension:	approx. 4 mm at 20 mm	•	•	•	•	•	•	•	•
Setting:	SET push-button	•	•	•	•	•	•	•	•
	SEL push-button	•	•	•	•	•	•	•	•
Indicators:	4 digit display	•	•	•	•	•	•	•	•
	green active OUTPUT LEDs	•	•	•	•	•	•	•	•
	yellow 'OR' function OUTPUT LED	•	•	•	•	•	•	•	•
Output type:	PNP - NO			•	•			•	•
	NPN - NO	•	•			•	•		
Output current:	≤ 100 mA	•	•	•	•	•	•	•	•
Saturation voltage:	≤ 2 V	•	•	•	•	•	•	•	•
Response time:	335 µs	•	•	•	•				
	1 ms (FAST); 5 ms (NORM)					•	•	•	•
Switching frequency:	1.5 kHz	•	•	•	•				
	500 Hz (FAST); 100 Hz (NORM)					•	•	•	•
Operating mode:	C or C+I independent for each channel	•	•	•	•	•	•	•	•
Tolerance level:	selectable from TOL0 to TOL9	•	•	•	•	•	•	•	•
Timing function:	selectable between 5, 10, 20, 30 and 40 ms	•	•	•	•	•	•	•	•
Auxiliary functions:	ext. synchronism	•	•	•	•	•	•	•	•
	keylock[3]	•	•	•	•	•	•	•	•
	RS485 serial interface		•		•		•		•
Connection:	M12 8-pole connector[4]	•	•	•	•	•	•	•	•
Electrical protection:	class 2	•	•	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•	•	•
Protection devices:	A, B[5]	•	•	•	•	•	•	•	•
Housing material:	ABS	•	•	•	•	•	•	•	•
Lens material:	glass	•	•	•	•	•	•	•	•
Weight:	100 g max.	•	•	•	•	•	•	•	•
Operating temperature:	-10 ... +55°C	•	•	•	•	•	•	•	•
Storage temperature:	-25 ... +70°C	•	•	•	•	•	•	•	•
Reference standard:	EN 60947-5-2	•	•	•	•	•	•	•	•

* refer to detection diagrams

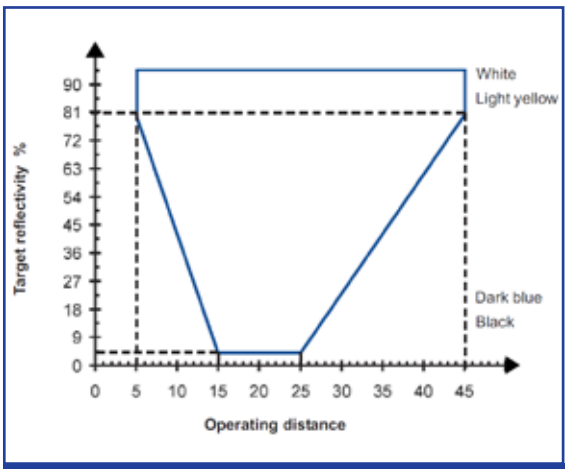
SELECTION TABLE

colour sensors			
S65-PA-5-V09-NNN	956251030	NPN	
S65-PA-5-V09-NNNZ	956251010	NPN	RS485
S65-PA-5-V09-PPP	956251020	PNP	RS485
S65-PA-5-V09-PPPZ	956251000	PNP	RS485
S65-PA-5-V19-NNN	956251110	NPN	
S65-PA-5-V19-NNNZ	956251090	NPN	RS485
S65-PA-5-V19-PPP	956251100	PNP	
S65-PA-5-V19-PPPZ	956251080	PNP	RS485

DETECTION DIAGRAMS



S65-V0: operating distance according to target reflectivity degree



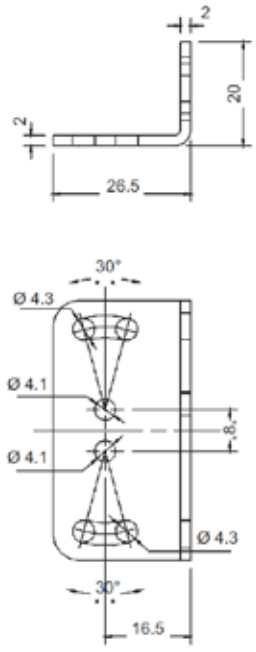
S65-V1: operating distance according to target reflectivity degree

MODEL SELECTION AND ORDER INFORMATION

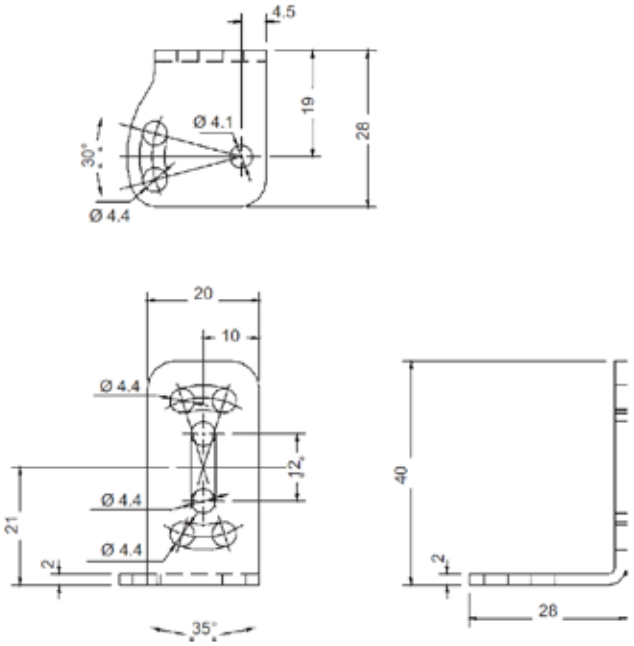
MODEL	FUNCTION	CONNECTION	OUTPUT	RS485	ORDER N°
S65-PA-5-V09-NNN	colour sensor	M12 connector	NPN		956251030
S65-PA-5-V09-NNNZ	colour sensor	M12 connector	NPN	•	956251010
S65-PA-5-V09-PPP	colour sensor	M12 connector	PNP		956251020
S65-PA-5-V09-PPPZ	colour sensor	M12 connector	PNP	•	956251000
S65-PA-5-V19-NNN	colour sensor	M12 connector	NPN		956251110
S65-PA-5-V19-NNNZ	colour sensor	M12 connector	NPN	•	956251090
S65-PA-5-V19-PPP	colour sensor	M12 connector	PNP		956251100
S65-PA-5-V19-PPPZ	colour sensor	M12 connector	PNP	•	956251080

ACCESSORY DIMENSIONS

ST-5020



ST-5021



mm

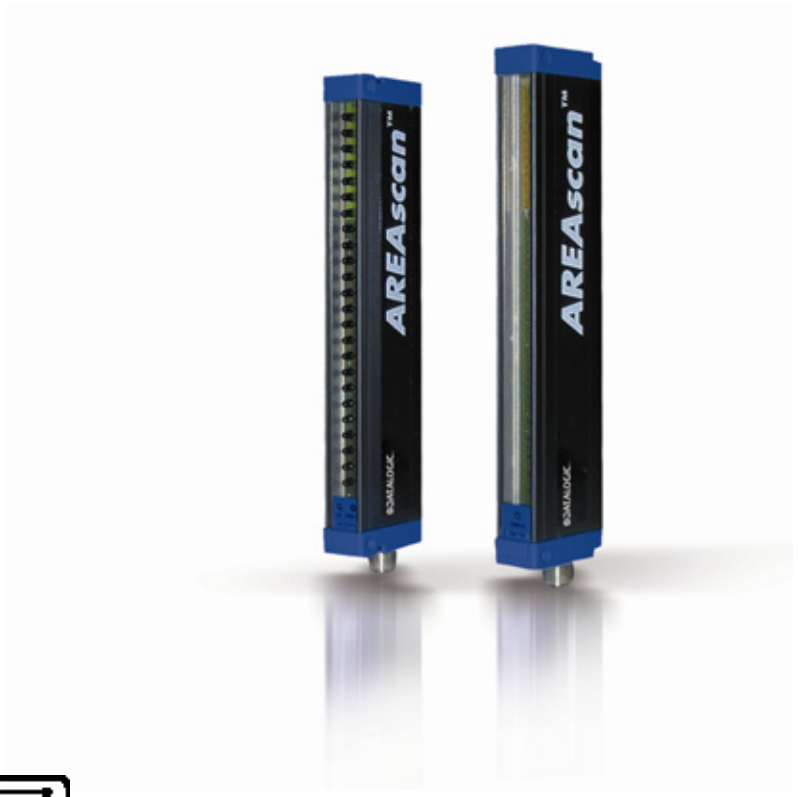
ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5020	fixing bracket 50 x 27 x 20 mm	95ACC5330
ST-5021	fixing bracket 20 x 40 x 28 mm	95ACC5340
Refer also to **Accessories for Sensors**		
CS-A1-06-B-03	M12 8-pole unshielded axial 3 m connector	95ACC2230
CS-A1-06-B-05	M12 8-pole unshielded axial 5 m connector	95ACC2240
CS-A1-06-B-10	M12 8-pole unshielded axial 10 m connector	95ACC2250

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AS1

The photoelectric light grids of the **AS1** series are **crossed-beam area sensors** able to detect all objects, with even 0.2mm thickness, inside a 100mm height, over operating distances reaching 3m between emitter and receiver.
The **AS1** area sensors represent the ideal solution for the detection of very small objects, even when passing in different positions inside the controlled height and width.
Version with **trimmer adjustment and optic synchronism** between emitter and receiver unit are available.
The distance between emitter and receiver can range from 0.3 up to 2.1 m for the **AS1-LD** models and from 0.8 up to 3 m for the **AS1-HD** models.



HIGHLIGHTS

- Crossed beam area sensors
- 100mm controlled height
- Operating distance reaching 3m
- Adjustment trimmer
- PNP output
- Optic synchronism (trimmer models)
- Scan Mode input (HR models)

APPLICATIONS

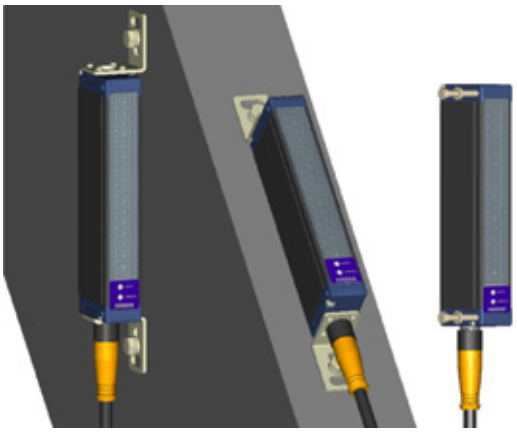
- Object presence/absence control
- Object counting
- Object passage control on conveyor lines



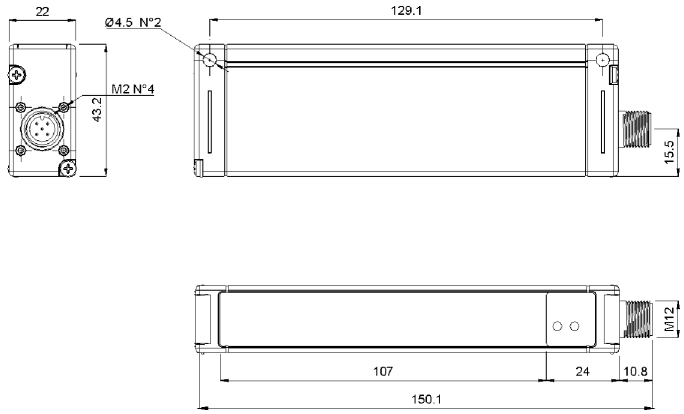




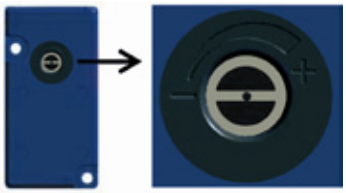
Two different models are available: **high resolution (AS1-HR) or standard resolution (AS1-SR).** In the first case the light array has 16 beams, while in the second case the beams are reduced to 6. In the AS1-HR model, the selection inputs of the SCAN MODE, can configure 4 different crossed-beam scanning modes. These different modes allow to vary the detection performances, in particular the resolution can be increased to 0.2mm thickness, or the response time up to less than 3ms.



DIMENSIONS



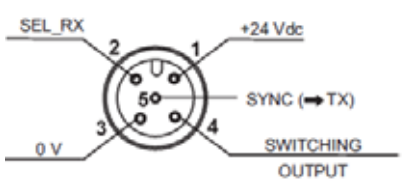
INDICATORS AND SETTING (TRIMMER VERSIONS)



Emitter is equiped with a manual regulation which lets the user change the emission power by means of a screwdriver.
The emission power reduction can be particularlly useful to lower passive reflections when maximum operating distance it is not required.

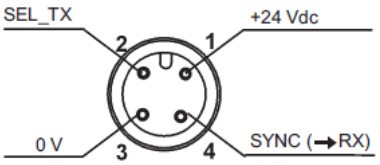
CONNECTIONS

RECEIVER (RX)



1	=	brown	=	+24Vdc
2	=	white	=	SEL_RX (only AS1-HR)
3	=	blue	=	0 V
4	=	black	=	SWITCHING OUTPUT
5	=	grey	=	SYNC

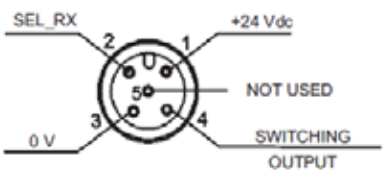
EMITTER (TX)



1	=	brown	=	+24Vdc
2	=	white	=	SEL_RX (only AS1-HR)
3	=	blue	=	0 V
4	=	black	=	SYNC

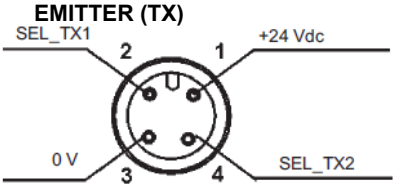
TRIMMER VERSIONS

RECEIVER (RX)



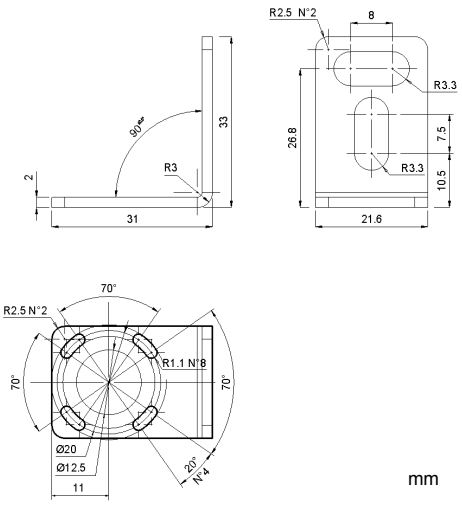
1	=	brown	=	+24Vdc
2	=	white	=	SEL_RX (only AS1-HR)
3	=	blue	=	0 V
4	=	black	=	SWITCHING OUTPUT
5	=	grey	=	SYNC

EMITTER (TX)



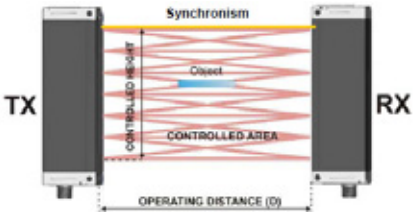
1	=	brown	=	+24Vdc
2	=	white	=	SEL_TX1 (only AS1-HR)
3	=	blue	=	0 V
4	=	black	=	SEL_TX2 (only AS1-HR)

FIXING BRACKET



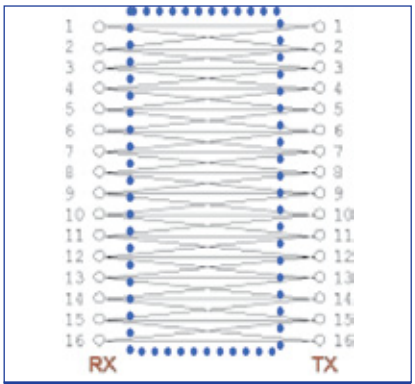
TECHNICAL DATA

Power supply:	24 Vdc ± 15 %
Consumption on emitting unit:	150 mA max.
Consumption on receiving unit:	40 mA max. load excluded
Outputs:	1 PNP output
Load current on PNP output:	100 mA; short-circuit protection
Saturation voltage on PNP output:	≤ 1.5 V at T=25°C
Emission type:	infrared 880 nm
Response time:	1,75 ms (AS1-SR vers.)
	2,75 - 8 ms (AS1-HR vers.)
Optics number:	6 (AS1-SR vers.) 16 (AS1-HR vers.)
Resolution:	refer to tables
Operating distance:	0.3 – 2.1 m (AS1-LD) 0.8 – 3 m (AS1-HD)
Receiver indicators:	green POWER ON LED yellow OUT LED
Emitter indicators:	green POWER ON LED
Functioning temperature:	0 … + 50 °C
Storage temperature:	- 25 … + 70 °C
Humidity:	15…95 % (uncondensed)
Mechanical protection:	IP65
Housing material:	aluminium
Optics material:	PMMA
Connections:	M12 4-pole connector (TX) M12 5-pole connector (RX)
Weight:	300g

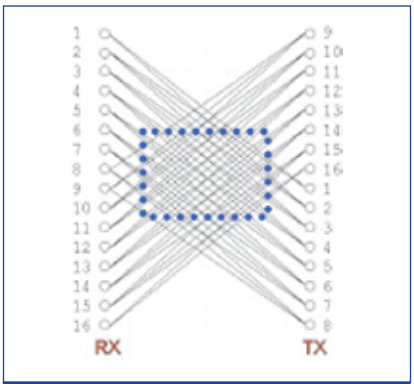


HIGH RESOLUTION SCANNING MODE

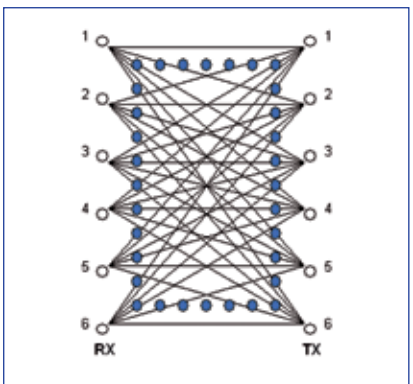
PROG. N°	SEL_RX	SEL_TX	RESOLUTION	RESPONSE TIME (msec)
1	0 Vdc or FLOAT	0 Vdc or FLOAT	LOW	2.75
2	0 Vdc or FLOAT	24 Vdc	M/L	3
3	24 Vdc	0Vdc or FLOAT	M/H	7.75
4	24 Vdc	24 Vdc	HIGH	8



Scan mode 1:
high speed / low resolution
Minimum object detection
Flat = 0.4 (thickness) x 100 (width) mm
Cylindrical objects = Ø 6 mm

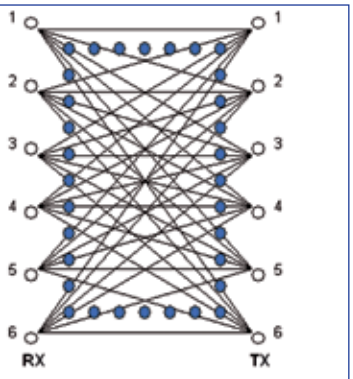


Scan mode 2:
high speed / mid resol. central area
Minimum object detection
Flat = 0.4 (thickness) x 90 (width) mm
Cylindrical objects = Ø 6 mm



Scan mode 3-4:
low speed / high resolution
Minimum object detection
Flat = 0.2 (thickness) x 75 (width) mm
Cylindrical objects = Ø 6 mm

STANDARD RESOLUTION SCANNING MODE



Minimum object detection
Flat = 0.2 (thickness) x 200 (width) mm
Cylindrical objects = Ø 18 mm

Note: the scan mode is fixed in the standard resolution version.

MODEL SELECTION AND ORDER INFORMATION

MODEL	DISTANCE	RESOLUTION	CONTROLLED HEIGHT	ADJUSTMENT TRIMMER	ORDER N°
AS1-LD-HR-010-J	0.3 – 2.1m	high	100mm		958101000
ASI-LD-HR-P-010-P	0.3 – 2.1m	high	100mm	•	958101040
AS1-LD-SR-010-J	0.3 – 2.1m	standard	100mm		958101010
ASI-LD-SR-P-010-P	0.3 – 2.1m	standard	100mm	•	958101050
AS1-HD-HR-010-J	0.8 – 3m	high	100mm		958101020
AS1-HD-SR-010-J	0.8 – 3m	standard	100mm		958101030

Fixing brackets and screws are supplied in the package

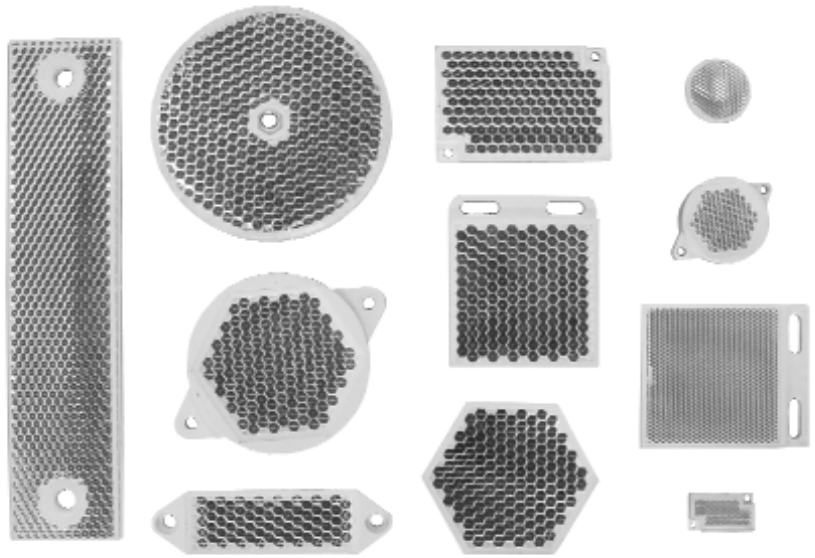
ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CS-A1-03-G-03	axial M12 5-pole unshielded 3 m connector	95ACC2110
CS-A1-03-G-05	axial M12 5-pole unshielded 5 m connector	95ACC2120
CS-A1-03-G-10	axial M12 5-pole unshielded 10 m connector	95ACC2140
CS-A1-02-G-03	axial M12 4-pole unshielded 3 m connector	95A251380
CS-A1-02-G-05	axial M12 4-pole unshielded 5 m connector	95A251270
CS-A1-02-G-10	axial M12 4-pole unshielded 10 m connector	95A251390

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R SERIES

A wide range of prismatic reflectors is available as accessories for retroreflex sensors in order to guarantee excellent operation with infrared, visible red light and polarised emission.
Reflectors of the R series satisfy the most varied application requirements, thanks to the different dimensions, shape, mounting possibilities or operating distances.
The R2 and R5 reflectors are standard reflectors, respectively with 48 mm and 75 mm diameters, whereas the R4 and R6 high-efficiency reflectors can be used for longer operating distances.
The R10 and R11 are suitable for specific applications requiring broad surfaces.
The R7, R8 and R20 microprism reflectors, suitable for high resolution detection, are available for sensors with laser emission.
The R9 reflector is a miniature reflector with a self-adhesive housing fixing system.
The self-adhesive reflective tape can be cut according to the required shape and dimensions, and a version for polarised light is available.

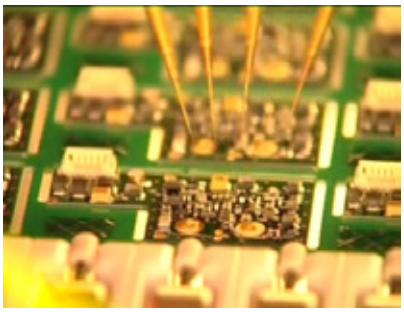


HIGHLIGHTS

- Prismatic reflectors for retroreflex sensors
- High efficiency models for long operating distances
- Microprism reflectors for sensors with laser emission
- Self-adhesive reflectors and reflective tape

APPLICATIONS

Electronics



Automatic warehouse



Packaging lines



Beverage & Bottling



TECHNICAL DATA

PRISMATIC REFLECTORS	
Mechanical protection	IP67
Material	reflector in PMMA plastic
	support in ABS
Operating temperature	-30 ... +70°C
Storage temperature	-30 ... +70°C
Normalised efficiency	refer to table 1
Prism dimension:	refer to table 2

REFLECTIVE TAPE	
Mechanical protection	IP00
Material	RT3870/RT3970 scotch tape
Operating temperature	-30 ... +70°C
Storage temperature	-30 ... +70°C
Normalised efficiency	refer to table 1

Note: The RT3870 tape is used only with retroreflex sensors. Used with RT3870/RT3970 reflective tapes, the sensor performances are strongly influenced by the dimensions used. The 'efficiency' values are only indicative and can vary according to the application and sensor type used.

TABLES

MODEL	EFFICIENCY
R1	60%
R2	100%
R3	85%
R4	120%
R5	120%
R6	120%
R7	70%
R8	30%
R9	60%
R10	100%
R11	80%
R20	100%
S12	100%
RT3870 20x30cm	60%
RT3970 20x30cm	80%
RT3970 60x40mm	40%

Table 1: NORMALISED EFFICIENCY *

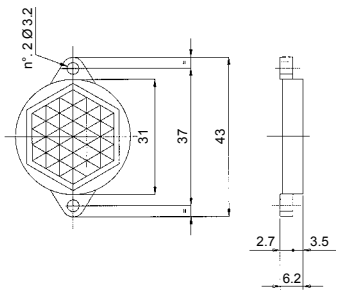
The operating distance obtainable can be calculated multiplying the normalised efficiency value by the operating distance indicated for each sensor respect to the R2 reference reflector.

MODEL	CH HEXAGON
R1	2.1 mm
R2	4.2 mm
R3	4.2 mm
R4	4.2 mm
R5	4.2 mm
R6	4.2 mm
R7	0.8 mm
R8	0.8 mm
R9	2.1 mm
R10	4.2 mm
R11	4.2 mm
R20	0.8 mm
S12	4.2 mm

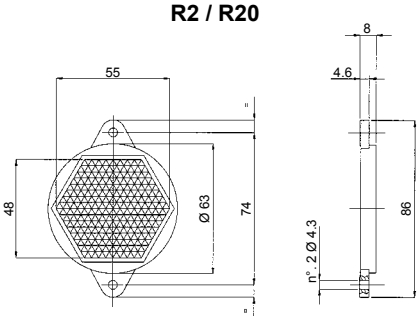
Table 2: PRISM DIMENSIONS

DIMENSIONS

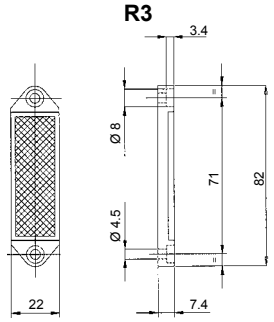
R1



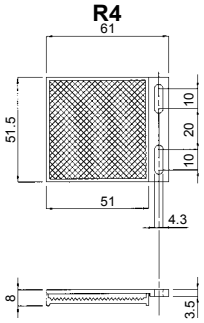
R2 / R20



R3



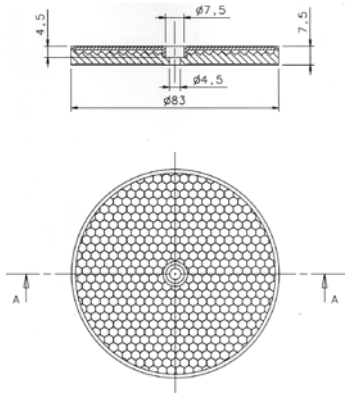
R4



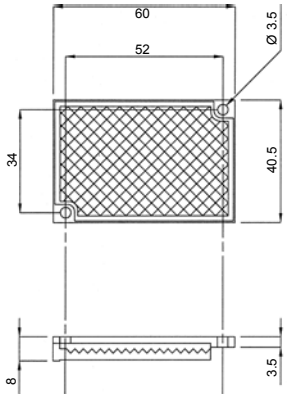
mm

DIMENSIONS

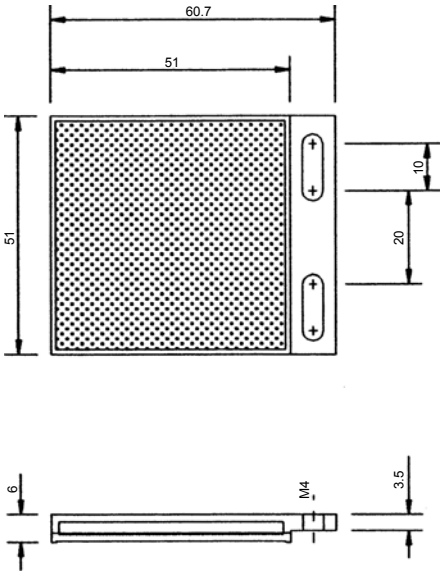
R5



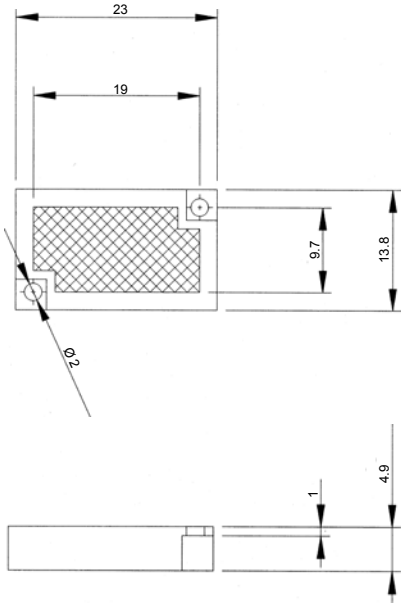
R6



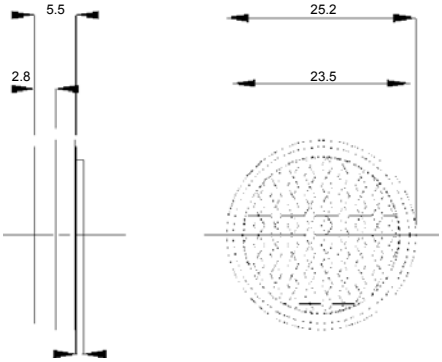
R7



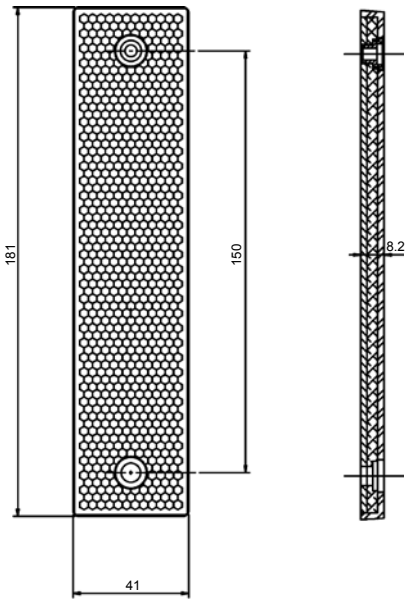
R8



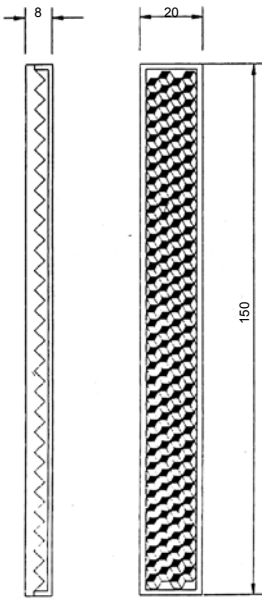
R9



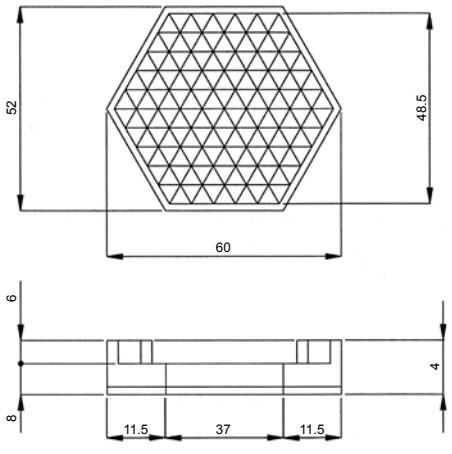
R10



R11



S12



mm

MODELLI

MODEL	DESCRIPTION	CODE N°
RT3870	200 x 300 mm self-adhesive reflective tape	S940000600
RT3970	200 x 300 mm self-adhesive reflective tape for polarised light	S940000900
RT3970	60 x 40 mm self-adhesive reflective tape for polarised light	S940000604
R1	Ø 23 mm prismatic reflector with Ø 31 mm support	S940700023
R2*	Ø 48 mm prismatic reflector with Ø 63 mm support	S940700048
R3	18 x 54 mm prismatic reflector with 22 x 82 mm support	S940700972
R4	47x 47 mm prismatic reflector with 51.5 x 61 mm support	95A151340
R5	Ø 75 mm prismatic reflector with Ø 82 mm support	S940700075
R6	36 x 55 mm prismatic reflector with 40.5 x 60 mm support	95A151350
R7	38 x 40 mm microprism reflector with 51 x 61 mm support	95A151360
R8	9.7 x 19 mm microprism reflector with 13.8 x 23 mm support	95A151370
R9	Ø 23 mm prismatic reflector with Ø 25 mm self-adhesive support	95A151080
R10	36 x 176 mm prismatic reflector with 41 x 181 mm support	S19120000
R11	146 x 15 mm prismatic reflector with 150 x 18 mm support	95A155050
R20	Ø 48 mm prismatic reflector with Ø 63 mm support	95A151090
S12	Ø 48 mm prismatic reflector with CH.52 mm hexagon support	S940710048

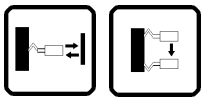
Note: R2 reflector is supplied together with S2, S3 and S6 retroreflex models

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

OF SERIES

The **OF series** offers a complete range of universal plastic fibreoptics, either for through-beam or diffuse and coaxial proximity detection, with free terminals that can be cut and connected to all the sensors with standard holes of 2.2 mm diameter.
Together with the standard models, suited to the most diffused applications, other versions for particular requirements are available: high temperature fibres resistant up to 125°C, ultra-flexible fibres with only 2 mm bending radius, highefficiency fibres with enhanced core, fibres with extending coiled cable, thin fibres with only 1 mm external diameter.
The OF series accessories include various additional lenses for focusing, collimating, or deviating the beam; as well as protecting metal sheaths, diameter adapters for thin.





HIGHLIGHTS

- Extra-flexible versions
- High-temperature versions
- High-efficiency versions
- Focusing, collimating and deviating lenses

APPLICATIONS

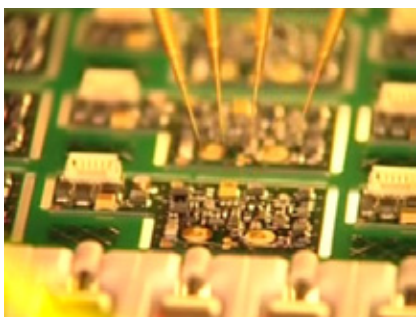
Beverage & Bottling



Packaging lines



Electronics



TECHNICAL DATA

External diameter (sheath)	Ø 2.2 mm
	Ø 1 mm (-TN vers.)
Internal diameter (core)	Ø 1 mm
	Ø 1.5 mm (-HP vers.)
	Ø 0.5 mm (-TN vers.)
Bending radius	25 mm
	15 mm (-TN vers.)
	5 mm (-XF vers.)
	2 mm (-UF vers.)
Normalised efficiency	refer to table 1
Mechanical protection	IP67
Core material	PMMA plastic
Sheath material	PE plastic
Terminal material	nickel-plated brass
Operating temperature	-40 ... +60°C
	-40 ... +125°C (-HT vers.)
Storage temperature	-40 ... +60°C
	-40 ... +125°C (-HT vers.)

TABLE

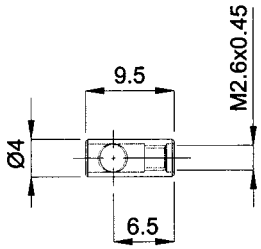
FIBRE TYPE	CODE	EFFICIENCY
standard	-ST-	100%
high-temperature	-HT-	70%
extra-flexible	-XF-	90%
ultra-flexible	-UF-	90%
high-efficiency	-HP-	125%
coiled cable	-CL-	65%
thin cable	-TN-	35%

Table 1: NORMALISED EFFICIENCY *

The operating distance is obtained multiplying the normalised efficiency value by the distance indicated for each sensor with standard fibre-optics.

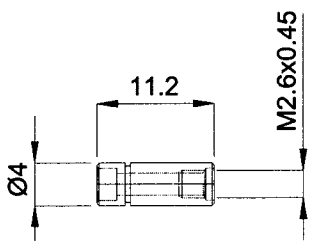
ACCESSORIES

AF-1
2 pcs 90° deviating lenses
Gain: distance x 0.7



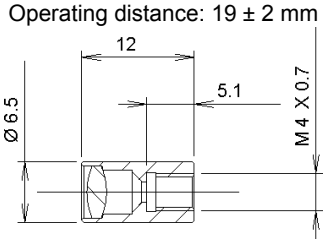
Suitable fibres: OF-43-xx

AF-2
2 pcs collimating lenses
Gain: distance x 4



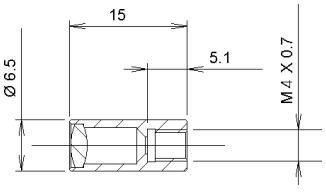
Suitable fibres: OF-43-xx

AF-3
1 pc focusing lenses
with 4 mm resolution
Operating distance: 19 ± 2 mm



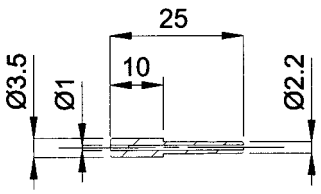
Suitable fibres: OF-44-xx

AF-4
1 pc focusing lenses
with 0.4 mm resolution
Operating distance: 7 ± 1 mm



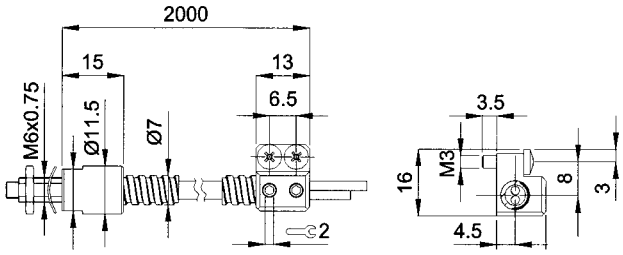
Suitable fibres: OF-44-xx

AF-5
2 pcs adapters Ø2.2mm for thin fibres Ø1mm
Material: plastic



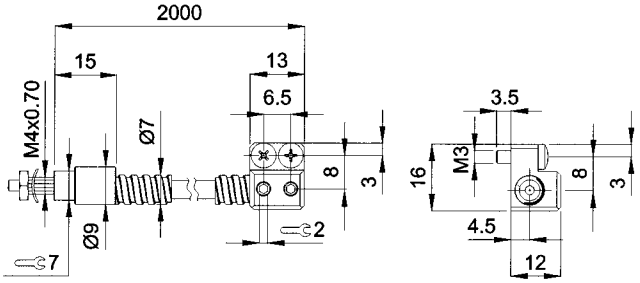
Suitable fibres: OF-xx-TN

AF-7
1 pc metal sheath for M6 x 0.75 fibres
Material: stainless steel



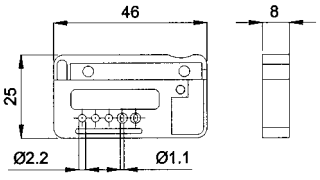
Suitable fibres: OF-42-xx

AF-9
1 pc metal sheath for M4 x 0.7 fibres
Material: stainless steel



Suitable fibres: OF-43-xx

AF-11
Fibre-cutting tool with Ø 2.2 mm and Ø 1.1 mm holes
Material: plastic with stainless steel blade

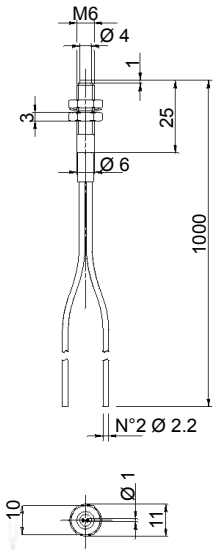


mm

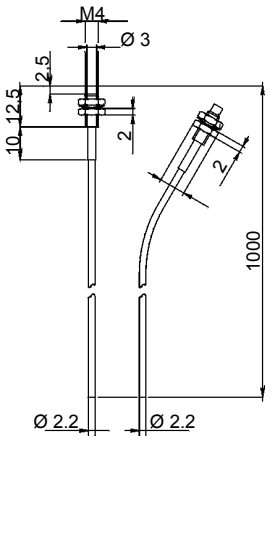
Suitable fibres: all

FIBRE-OPTIC DIMENSIONS

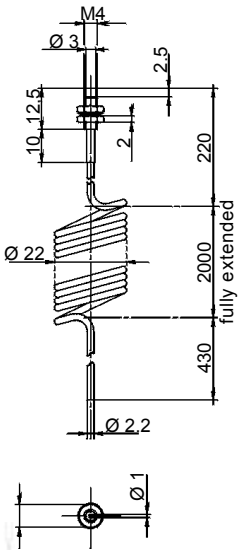
OF-18



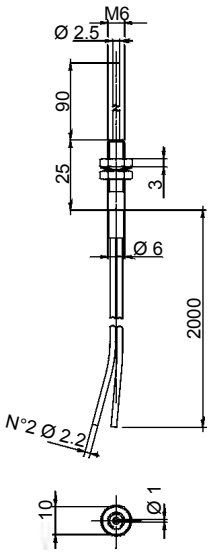
OF-19



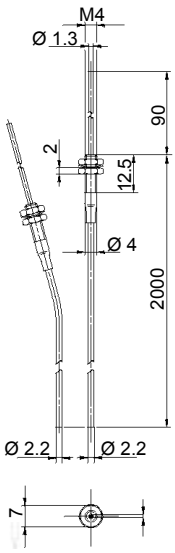
OF-21



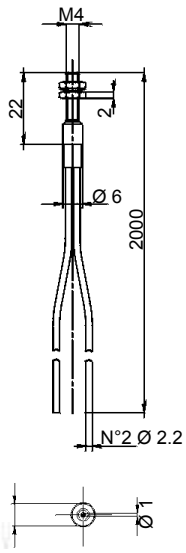
OF-22



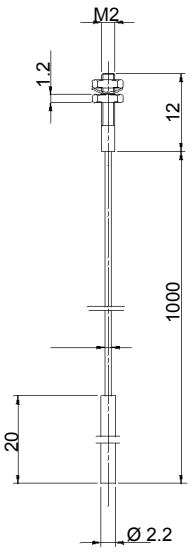
OF-23



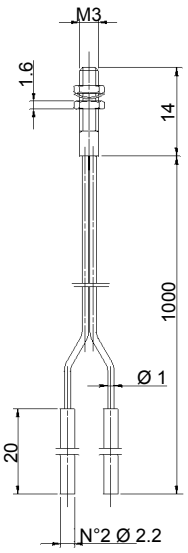
OF-24



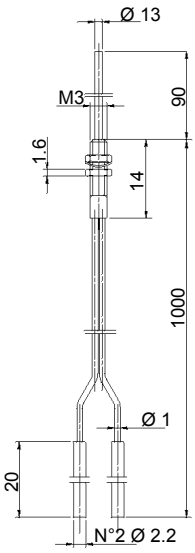
OF-25



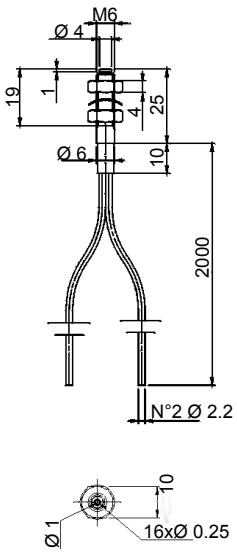
OF-26



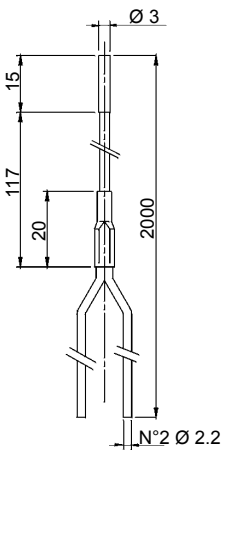
OF-28



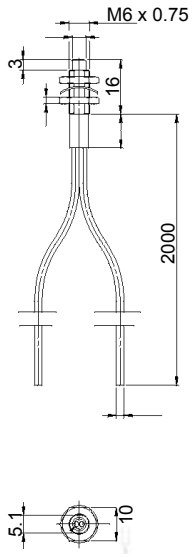
OF-36



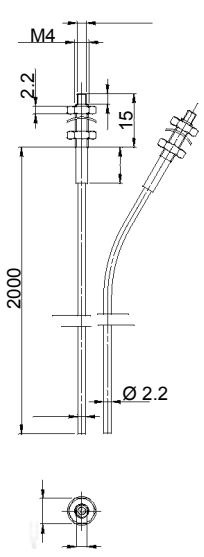
OF-38



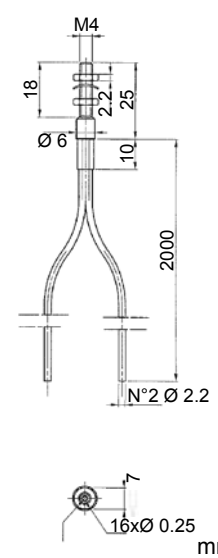
OF-42



OF-43



OF-44



mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	OPTIC FUNCTION	FIBRE TYPE	LENGTH **	TERMINAL	CODE N°
OF-18-ST-10	proximity	standard	1 m	M6x1 mm	S76021801
OF-19-ST-10	through beam	standard	1 m	M4x0.7 mm	S76021901
OF-21-CL-20	through beam	coiled	2 m	M4x0.7 mm	S76022100
OF-22-ST-20	proximity	standard	2 m	M6x1 mm *	S76022200
OF-23-ST-20	through beam	standard	2 m	M4x0.7 mm *	S76022300
OF-24-ST-20	proximity	standard	2 m	M4x0.7 mm	S76022400
OF-25-TN-10	through beam	thin (Ø 1 mm)	1 m	M2x0.4 mm	S76022500
OF-26-TN-10	proximity	thin (Ø 1 mm)	1 m	M3x0.5 mm	S76022600
OF-28-TN-10	proximity	thin (Ø 1 mm)	1 m	M3x0.5 mm *	S76022800
OF-36-ST-20	coaxial proximity	standard	2 m	M6x1 mm	95A201000
OF-36-XF-20	coaxial proximity	extra-flexible	2 m	M6x1 mm	95A201330
OF-38-ST-20	proximity	standard	2 m	D3x15 mm	95A201070
OF-42-ST-20	proximity	standard	2 m	M6x0.75 mm	95A201340
OF-42-HT-20	proximity	high-temperature	2 m	M6x0.75 mm	95A201250
OF-42-UF-20	proximity	ultra-flexible	2 m	M6x0.75 mm	95A201260
OF-42-HP-20	proximity	high-efficiency	2 m	M6x0.75 mm	95A201270
OF-43-ST-20	through beam	standard	2 m	M4x0.7 mm	95A201350
OF-43-HT-20	through beam	high-temperature	2 m	M4x0.7 mm	95A201280
OF-43-UF-20	through beam	ultra-flexible	2 m	M4x0.7 mm	95A201290
OF-43-HP-20	through beam	high-efficiency	2 m	M4x0.7 mm	95A201300
OF-44-ST-20	coaxial proximity	standard	2 m	M4x0.7 mm	95A201310
OF-44-XF-20	coaxial proximity	extra-flexible	2 m	M4x0.7 mm	95A201320

Note: * a bendable stainless steel extension 90mm long protrudes from the threaded optic head
** the length indicated is approximate; please refer to the mechanical drawings for the exact dimensions

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	SUITABLE FIBRES	CODE N°
AF-1	2 pcs 90° deviating lenses	OF-43-xx	95ACC2690
AF-2	2 pcs long distance collimating lenses (x 10)	OF-43-xx	95ACC2700
AF-3	1 pc focusing lens with 4 mm resolution	OF-44-xx	95ACC2710
AF-4	1 pc focusing lens with 0.4 mm resolution	OF-44-xx	95ACC2720
AF-5	2 pcs adapters Ø 2.2 mm for thin fibres	OF-xx-TN	95ACC2730
AF-7	1 pc metal sheath for M6 x 0.75 fibres	OF-42-xx	95ACC2750
AF-9	1 pc metal sheath for M4 x 07 fibres	OF-43-xx (*)	95ACC2770
AF-11	fibre-cutting tool with Ø 2.2 mm and Ø 1.1 mm holes	all	95ACC2780

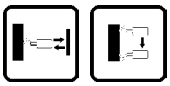
Note: 2 sheaths have to be ordered for both the emitter-receiver sections

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OFA SERIES

The **OFA series** offers advanced fibre optics able to effectively solve critical fibre applications.
The fibre array version with parallel beams increases the detection area avoiding vibrations or target position changes. One single fibre array is able to solve applications previously requiring more aligned fibres, such as the detection of small falling objects or casually varying positions.
The fixed focus proximity version can be used as background suppression as it ignores objects outside the focusing distance, even if more reflective than target. Typical applications include small object detection, such as electronic components or mechanical parts.
The proximity version with 90° optics is the ideal solution for applications with reduced space where the installation of standard emission fibres results impossible.
All the fibres of the **OFA series** have terminals that can be cut to reduce length and are recommended for use with high-resolution sensors of the S7 series.





HIGHLIGHTS

- Fibre array with parallel beams for proximity or through beam detection
- Fixed focus proximity with axial, radial or lateral optics
- Proximity with 90° optics, self-contained in the 3.8 mm diameter
- Recommended fibres for S7 sensors

APPLICATIONS

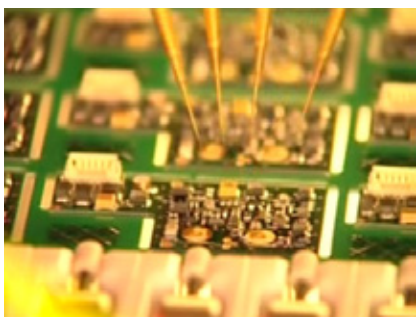
Beverage & Bottling



Packaging lines

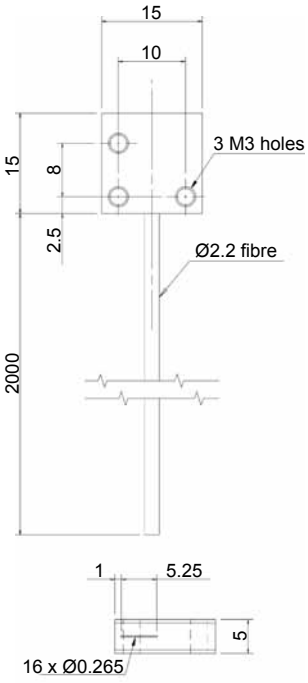


Electronics

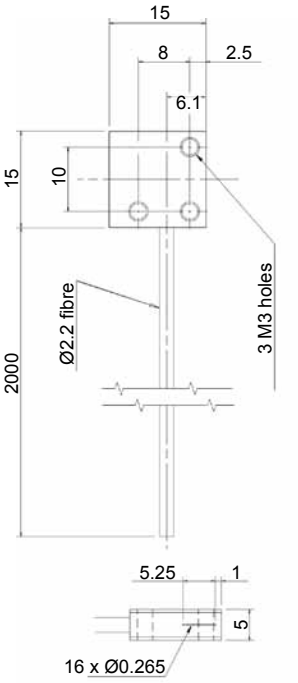


DIMENSIONS

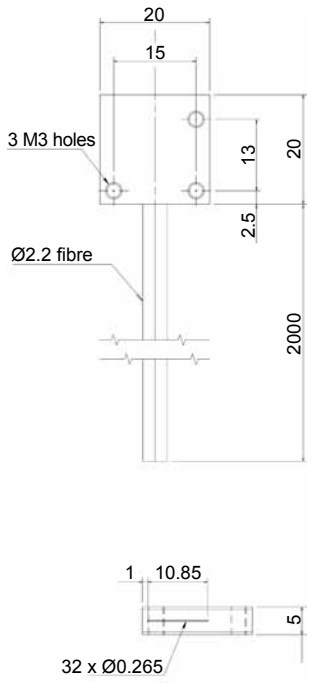
OFA-1-AE-20



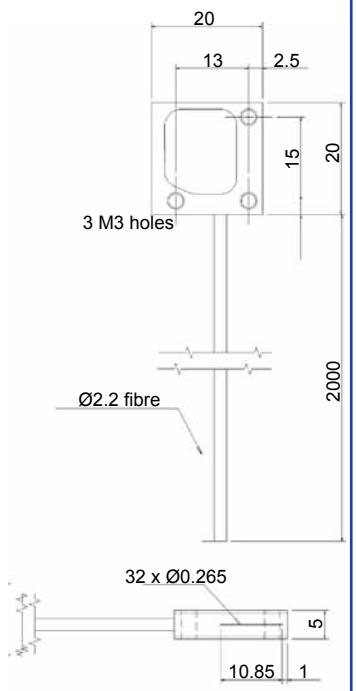
OFA-1-AS-20



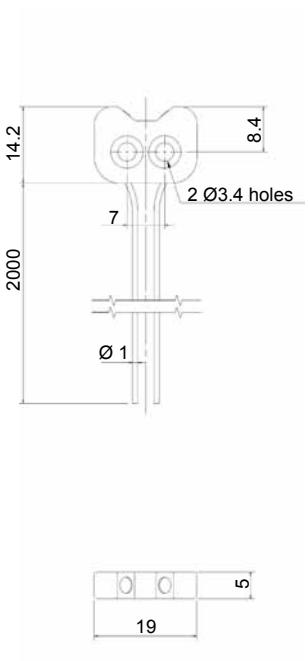
OFA-2-AE-20



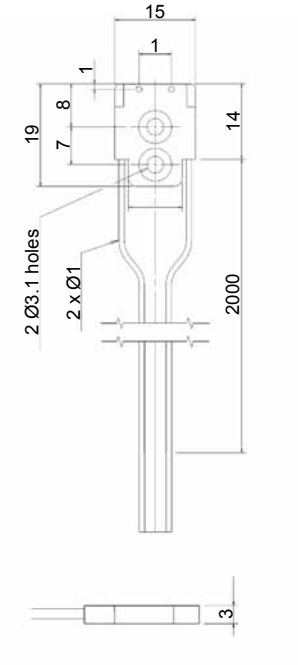
OFA-2-AS-20



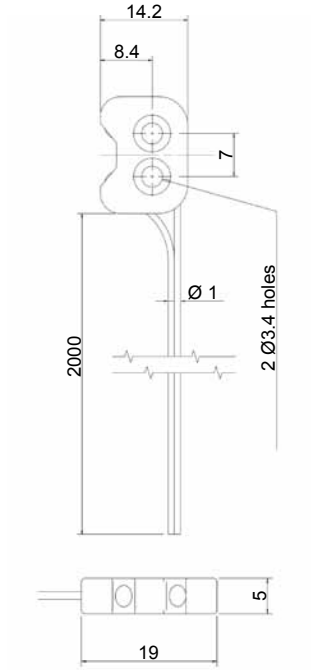
OFA-4-FE-20



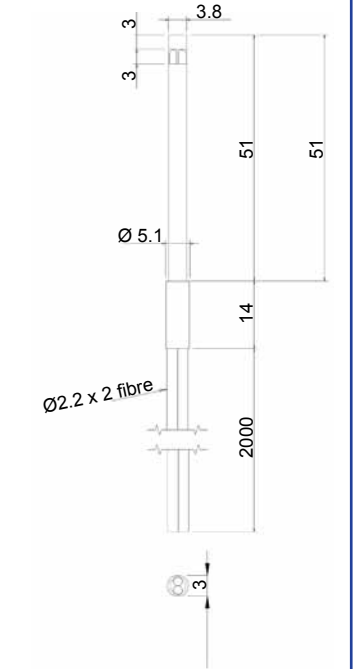
OFA-4-FF-20



OFA-4-FS-20



OFA-6-RA-20

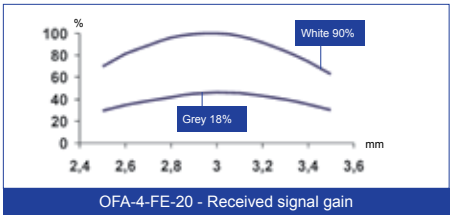


mm

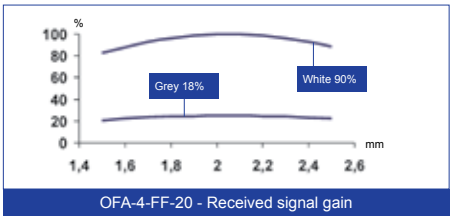
TECHNICAL DATA

		OFA-1-AE-20	OFA-1-AS-20	OFA-2-AE-20	OFA-2-AS-20	OFA-4-FE-20	OFA-4-FF-20	OFA-4-FS-20	OFA-6-RA-20
Optic function:	through beam	●	●						
	proximity			●	●				●
	fixed focus proximity					●	●	●	
Emission type:	axial	●		●		●			
	radial		●		●			●	●
	lateral						●		
Number of beams emitted:	1					●	●	●	●
	16 parallel	●	●						
	32 parallel			●	●				
External diameter (sheath):	2.2 mm			●	●				●
	2.2 mm	●	●						
	1 mm					●	●	●	
Internal diameter (core):	1.5 mm								●
	32 x 0.265 mm			●	●				
	16 x 0.265 mm	●	●						
	0,5 mm					●	●	●	
Bending radius:	10 mm					●	●	●	
	25 mm	●	●	●	●				●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●
Core material:	PMMA plastic	●	●	●	●	●	●	●	●
Sheath material:	PE plastic	●	●	●	●	●	●	●	●
Terminal material:	stainless steel								●
	aluminium	●	●	●	●				
	ABS					●	●	●	
Cable length:	2 m	●	●	●	●	●	●	●	●
Operating temperature:	-30…+70°C	●	●	●	●	●	●	●	●

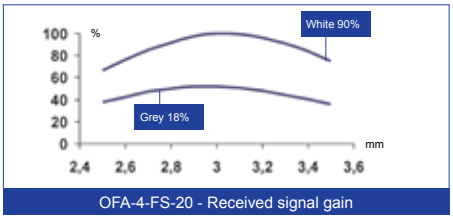
CE



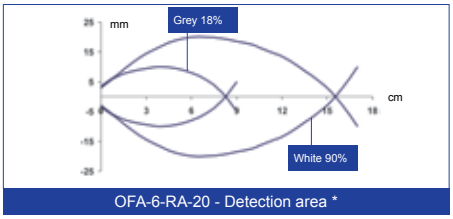
OFA-4-FE-20 - Received signal gain



OFA-4-FF-20 - Received signal gain

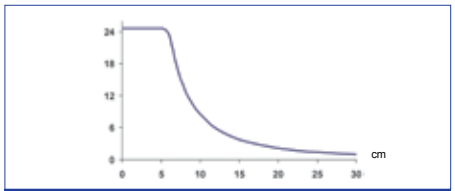


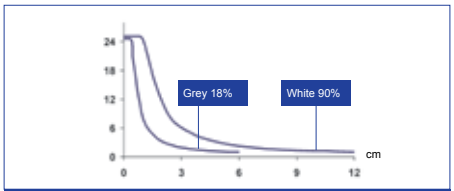
OFA-4-FS-20 - Received signal gain



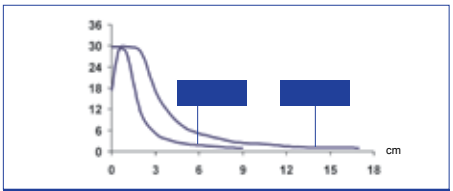
OFA-6-RA-20 - Detection area *

DETECTION DIAGRAMS

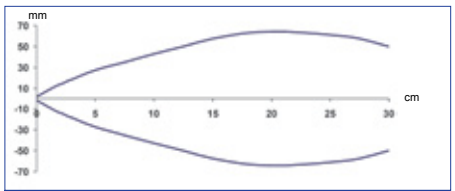


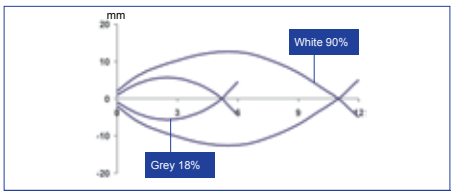


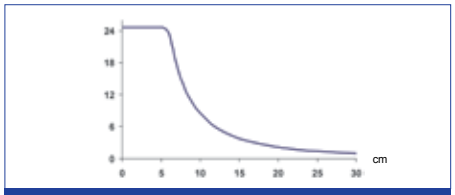
OFA-2-AE-20 - Excess gain



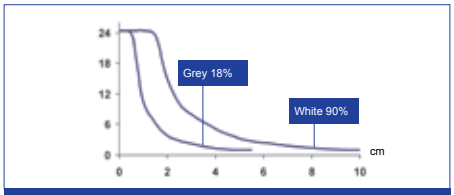
OFA-6-RA-20 - Excess gain



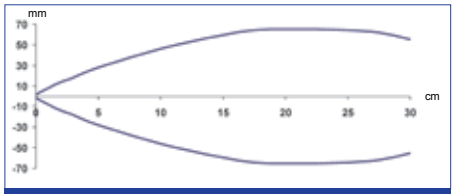




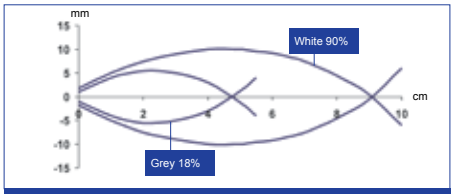
OFA-1-AS-20 - Excess gain



OFA-2-AS-20 - Excess gain



OFA-1-AS-20 - Detection area



OFA-2-AS-20 - Detection area **

TECHNICAL NOTES

The measurements indicated have been obtained using the S7 fibre-optic sensor with 1 kHz switching frequency and EASYtouchTM acquisition.

The values vary according to the sensor used, switching frequency and target movement.

* Object entering perpendicularly in the fibre optic beam.

** Object entering perpendicularly in the fibre array beam.

MODEL SELECTION AND ORDER INFORMATION

MODEL	OPTIC FUNCTION	EMISSION	ORDER N°
OFA-1-AE-20	through beam	axial, 16 beam array	95A201170
OFA-1-AS-20	through beam	radial, 16 beam array	95A201180
OFA-2-AE-20	proximity	axial, 32 beam array	95A201150
OFA-2-AS-20	proximity	radial, 32 beam array	95A201160
OFA-4-FE-20	fixed focus proximity	axial	95A201200
OFA-4-FF-20	fixed focus proximity	lateral	95A201210
OFA-4-FS-20	fixed focus proximity	radial	95A201190
OFA-6-RA-20	proximity	radial	95A201140

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
AF-11	fibre-cutting tool with Ø 2.2 mm and Ø 1.1 mm holes	95ACC2780

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CS SERIES

The **CS** series offers high-quality connectors, developed to guarantee maximum reliability with particularly compact dimensions in the standard M8x1 and M12x1 formats, can be used to connect photoelectric sensors as well as inductive or capacitive proximity sensors.
The M8 and M12 connectors offer either an axial or radial shape; wired with a 4-pole normalised configuration, with 3, 5, 7 or 10 metre cable.
Moreover, the M12 connectors are available in other versions with a 3-pole normalised configuration for a normally open output, or with a yellow PNP output LED and a green power LED.
The connector body is in PUR plastic and the cable in PVC with CEI 20-22 flammability class.



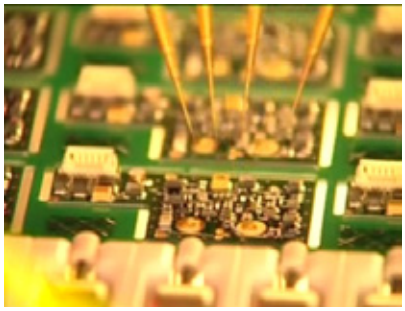


HIGHLIGHTS

- M8 and M12, axial or radial connectors
- Pre-cabled with cable of various standard lengths
- Configuration normalised to 4-poles and NO 3-poles
- Versions with LED for power and output signalling

APPLICATIONS

Electronics



Automatic warehouse



Packaging lines



Beverage & Bottling



TECHNICAL DATA

Conductor diameter	42 x 0.10 mm - 0.35 mm≈ (M12 3-pole)
	32 x 0.10 mm - 0.25 mm≈ (M12 4-pole)
	32 x 0.10 mm - 0.25 mm≈ (M8 4-pole)
Conductor colour	refer to table 1 and 2
Cable diameter	5 mm
Cable length	3, 5, 7, 10 m
Cable colour	grey RAL 7035
Cable material	PVC
Conductor material	annealed non-tinned electrolytic copper, with high flexibility
Connector material	housing in PVC, insulation in Nylon 6 30% glass
Contact material	0.3 mm gold-nickel-plated brass
Connector configuration	refer to table 1 and 2
Mechanical protection	IP67, with locked ring
Flammability class	CEI 20-22, IEC 332/3
	flame-retardant and non-propagate
Rated voltage	300 Vdc / 250 Vac
	10-30 Vdc with LED
Maximum current	4 A
Test voltage	1 kV
Operating temperature	-25 ... +80°C
Reference standard	EN 50044, EN 60947-5-2
Certifications	**CE**

TABLES

TERMINAL	COLOUR	FUNCTION
1	brown	positive (+)
3	blue	negative (-)
4	black	NO output

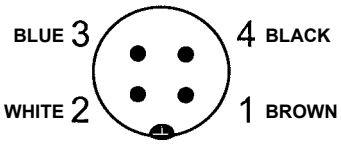
Tabel 1: NO 3-POLE CONN. CONFIGURATION

TERMINAL	COLOUR	FUNCTION
1	brown	positive (+)
2	white	NC output
3	blue	negative (-)
4	black	NO output

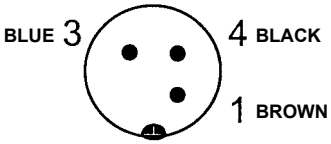
Tabel 2: NO-NC 4-POLE CONN. CONFIGURATION

CONNECTIONS

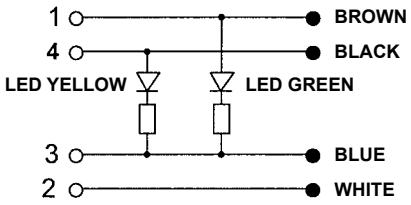
M12 4-POLE CONNECTOR



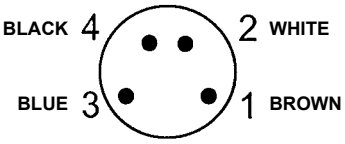
M12 3-POLE CONNECTOR



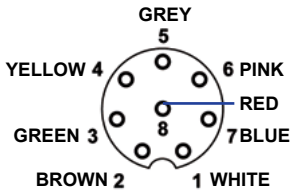
LED CONFIGURATION



M8 4-POLE CONNECTOR

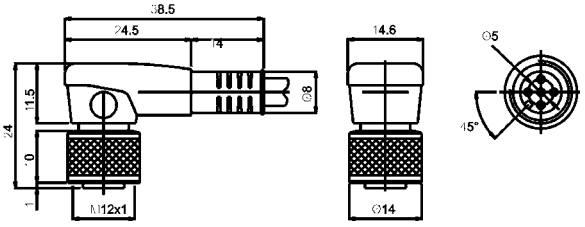


M12 8-POLE CONNECTOR

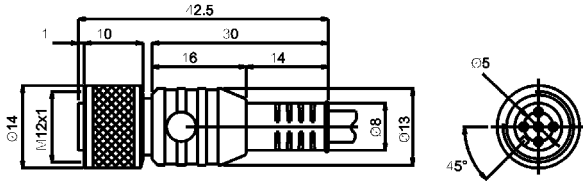


DIMENSIONS

RADIAL M12 CONNECTOR

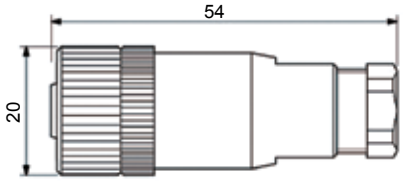


AXIAL M12 CONNECTOR

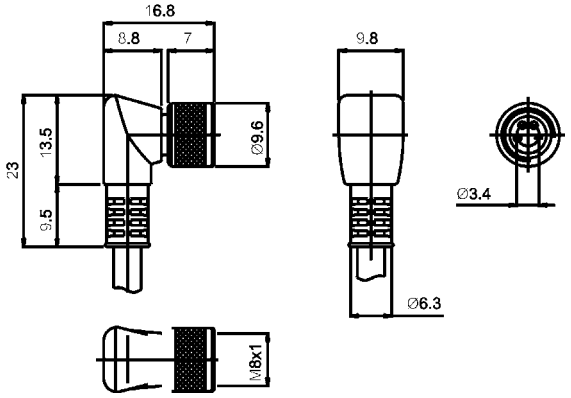


AXIAL M12 8-POLE FEMALE CONNECTOR

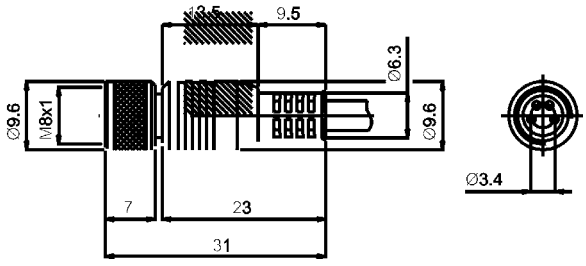
accepts conductors with
0.25 ... 0.75mm2 sections



RADIAL M8 CONNECTOR



AXIAL M8 CONNECTOR



mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	CONNECTOR	CONFIGURATION	CABLE LENGTH	CODE N°
CS-A1-01-G-03	axial M12	NO 3-poles	3 m	95A251290
CS-A1-01-G-05	axial M12	NO 3-poles	5 m	95A251300
CS-A1-01-G-07	axial M12	NO 3-poles	7 m	95A251320
CS-A1-01-G-10	axial M12	NO 3-poles	10 m	95A251340
CS-A1-02-G-03	axial M12	NO-NC 4-poles	3 m	95A251380
CS-A1-02-G-05	axial M12	NO-NC 4-poles	5 m	95A251270
CS-A1-02-G-07	axial M12	NO-NC 4-poles	7 m	95A251280
CS-A1-02-G-10	axial M12	NO-NC 4-poles	10 m	95A251390
CS-A1-03-G-03	axial M12	NO-NC 5-poles	3 m	95ACC2110
CS-A1-03-G-05	axial M12	NO-NC 5-poles	5 m	95ACC2120
CS-A1-03-G-10	axial M12	NO-NC 5-poles	10 m	95ACC2140
CS-A1-06-B-03	axial M12	8-poles	3 m	95ACC2230
CS-A1-06-B-05	axial M12	8-poles	5 m	95ACC2240
CS-A1-06-B-10	axial M12	8-poles	10 m	95ACC2250
CS-A1-06-B-NC	axial M12	8-poles	-	95ACC2550
CS-A2-01-G-03	radial M12	NO 3-poles	3 m	95A251200
CS-A2-01-G-05	radial M12	NO 3-poles	5 m	95A251210
CS-A2-01-G-07	radial M12	NO 3-poles	7 m	95A251220
CS-A2-01-G-10	radial M12	NO 3-poles	10 m	95A251230
CS-A2-02-G-03	radial M12	NO-NC 4-poles	3 m	95A251360
CS-A2-02-G-05	radial M12	NO-NC 4-poles	5 m	95A251240
CS-A2-02-G-07	radial M12	NO-NC 4-poles	7 m	95A251245
CS-A2-02-G-10	radial M12	NO-NC 4-poles	10 m	95A251260
CS-A2-11-G-05	radial M12*	NO 3-poles	5 m	95A251310
CS-A2-11-G-10	radial M12*	NO 3-poles	10 m	95A251330
CS-A2-12-G-03	radial M12*	NO-NC 4-poles	3 m	95A251400
CS-A2-12-G-05	radial M12*	NO-NC 4-poles	5 m	95A251350
CS-A2-12-G-10	radial M12*	NO-NC 4-poles	10 m	95A251370
CS-B1-01-G-03	axial M8	NA 3-poles	3 m	95A251490
CS-B1-01-G-05	axial M8	NA 3-poles	5 m	95A251510
CS-B2-01-G-03	radial M8	NA 3-poles	3 m	95A251500
CS-B2-01-G-05	radial M8	NA 3-poles	5 m	95A251520
CS-B1-02-G-03	axial M8	NO-NC 4-poles	3 m	95A251420
CS-B1-02-G-05	axial M8	NO-NC 4-poles	5 m	95A251430
CS-B1-02-G-07	axial M8	NO-NC 4-poles	7 m	95A251440
CS-B1-02-G-10	axial M8	NO-NC 4-poles	10 m	95A251480
CS-B2-02-G-03	radial M8	NO-NC 4-poles	3 m	95A251450
CS-B2-02-G-05	radial M8	NO-NC 4-poles	5 m	95A251460
CS-B2-02-G-07	radial M8	NO-NC 4-poles	7 m	95A251470
CS-B2-02-G-10	radial M8	NO-NC 4-poles	10 m	95A251530

Note: sul connettore è presente un LED giallo di segnalazione per l'uscita PNP ed un LED verde per l'alimentazione.

NON-CABLED CONNECTORS

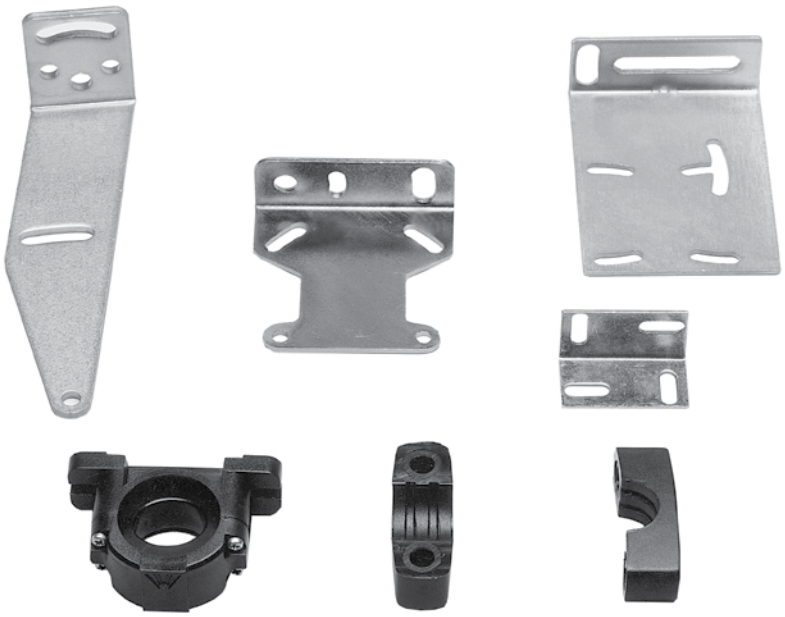
MODELLO	DESCRIZIONE	N° ORDINE
CS-A1-02-B-NC	M12 4-pole axial female connector	G5085002
CS-A2-02-B-NC	M12 4-pole radial female connector	G5085003

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FIXING BRACKET

ST SERIES

The **ST** series includes all the fixing brackets and supports available for the fixing of photoelectric sensors.
The 'L' shaped fixing brackets are in metal and present dimensions that guarantee the best sensor fixing, offering the maximum resistance against shocks and vibrations that can alter the positioning.
The holes are multiple or slotted in order to offer the best fixing versatility, even in place of other sensors.
Plastic supports are available for tubular sensors: a fixed and an adjustable support with which the inclination of the sensor's optic axis can be regulated right up to a 15° angle in every direction for a 360° arch.

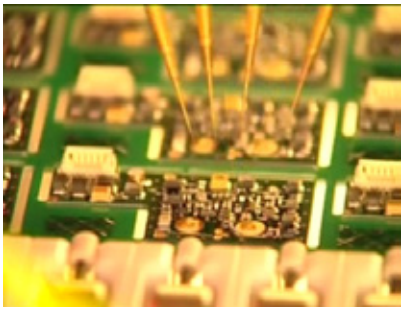


HIGHLIGHTS

- Fixing brackets for universal sensors
- Fixed supports for tubular M18 sensors
- Supports with optic axis regulation
- Good shock and vibration resistance

APPLICATIONS

Electronics



Automatic warehouse



Packaging lines

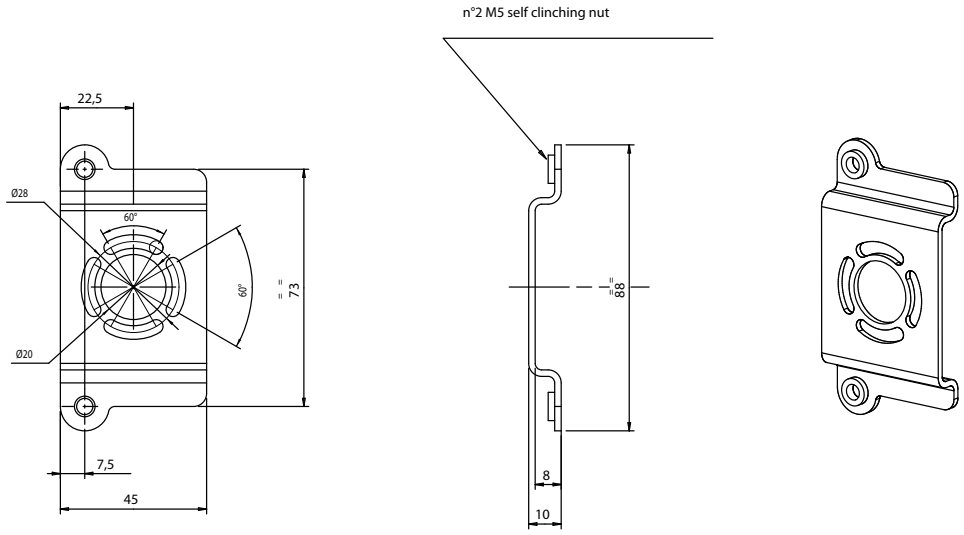


Beverage & Bottling

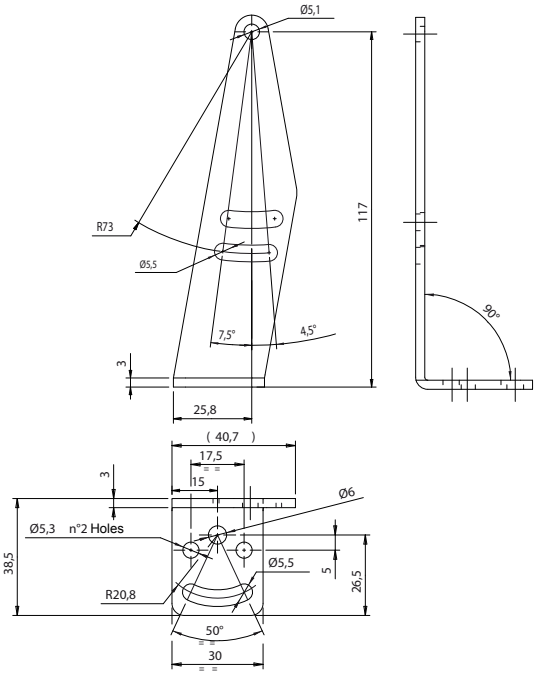


DIMENSIONS

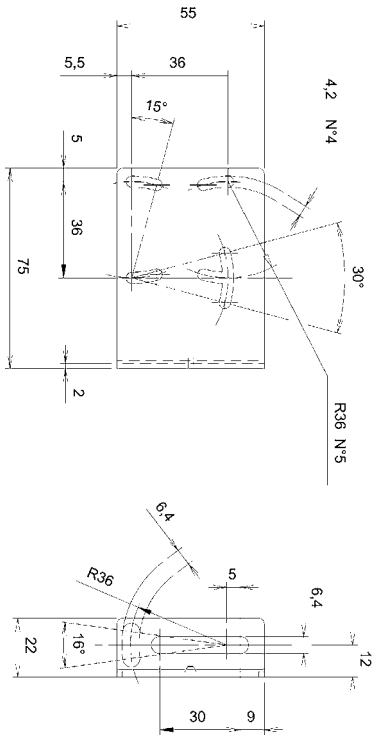
ST-5099
S300 fixing bracket



ST-5100
S300 fixing bracket



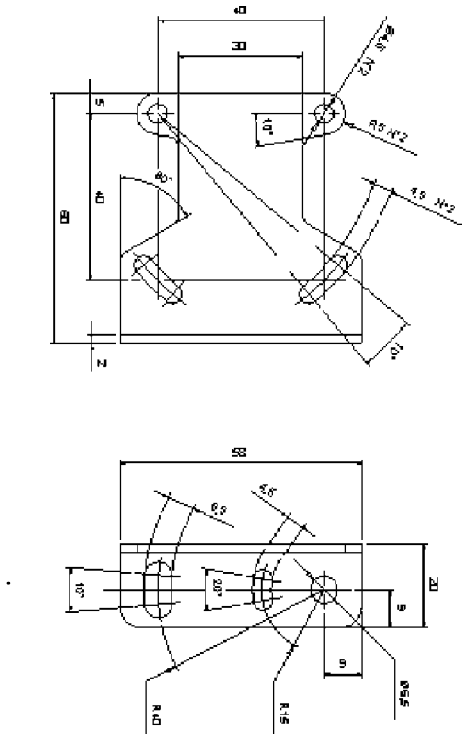
ST-164
S20 fixing bracket
material: yellow zinc-plated steel



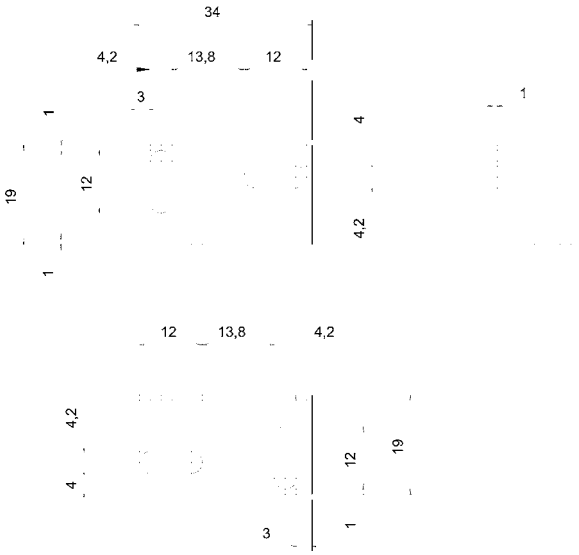
mm

DIMENSIONS

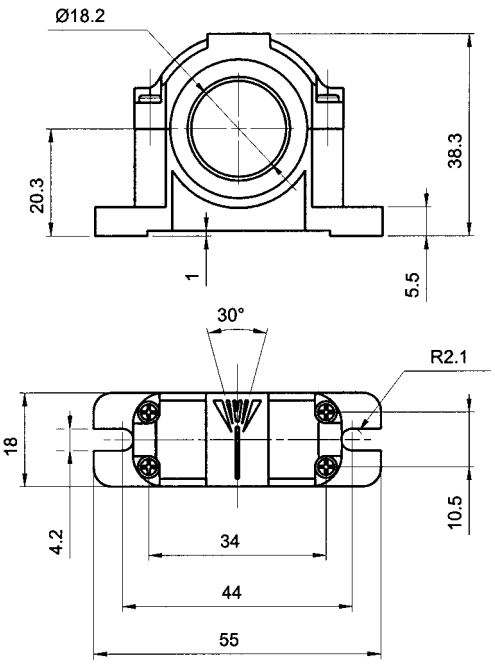
ST-504
S6 fixing brackets
material: yellow zinc-plated steel



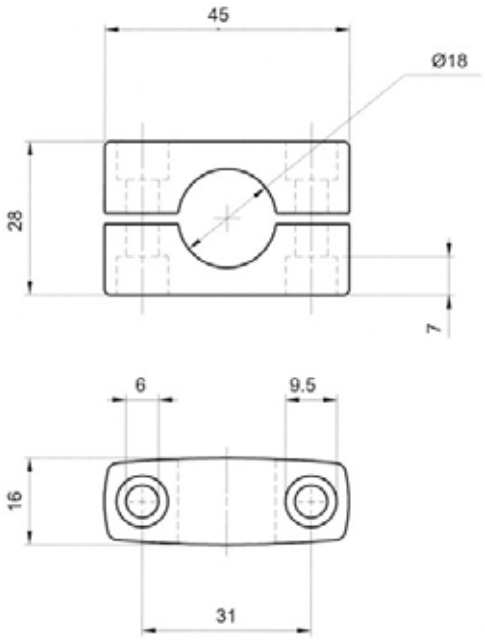
ST-505
S3/S40/S41 fixing bracket
material: yellow zinc-plated steel



SWING-18
adjustable support for plastic tubular M18 sensors
material: black dilamid



SP-40
fixed support for tubular M18 sensors
material: black durethan



mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-505	1 pc fixing bracket for S3/S40/S41	95ACC2800
ST-504	1 pc fixing bracket for S6	95ACC2820
ST-164	1 pc fixing bracket for S20	95ACC1340
ST-5099	FIXED BRACKET	95ACC2830
ST-5100	FIXED BRACKET	95ACC2840
SP-40	2 pcs fixed support for tubular M18 sensors	95ACC1370
SWING-18	1 pc adjustable support for plastic tubular M18 sensors	895000006

Note: the fixing bracket for the **S2/S3/S6** series is supplied with the sensor

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PSCU SERIES

The control units of the **PSCU** series can be used to supply low voltage photoelectric sensors, as well as inductive or capacitive proximity, with the possibility to process the outputs with logic and timing functions.
The input can be configured for 1 or 2 sensors, with NPN or PNP, with relay, or with 0-10 Vdc analog output, which can be controlled with different logic functions: NOT, AND, OR, NAND, NOR.
The signal resulting from the logic operations drives the controller output, which can be processed with timing functions: ON and/or OFF delay, monostable or bistable commutation.
On the **PSCU** control panel, protected by a transparent cover, are present the LEDs for power, inputs and output status indication, as well as the trimmer for the inputs sensitivity and the timer adjustment.
The input selection, the logic and the timing functions are easily configured using the dip-switches on the controller side, where the extractable terminal blocks for the connection are also present.
The **PSCU** series is suitable for DIN rail mounting and is available with a 100-240 Vac or 24 Vac/Vdc power supply input and relay SPDT or transistor NO-NC controller output.

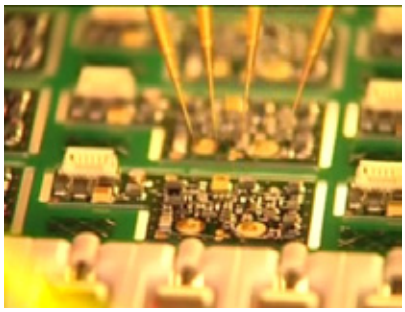


HIGHLIGHTS

- 100-240 Vac or 24 Vac/Vdc power supply
- Single or double input for NPN/PNP, relay or 0-10V analogue sensors
- Boolean logic functions: NOT, AND, OR, NAND, NOR
- Timing functions: ON and/or OFF delay, monostable, bistable

APPLICATIONS

Electronics



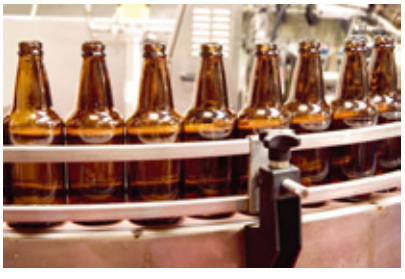
Automatic warehouse



Packaging lines



Beverage & Bottling

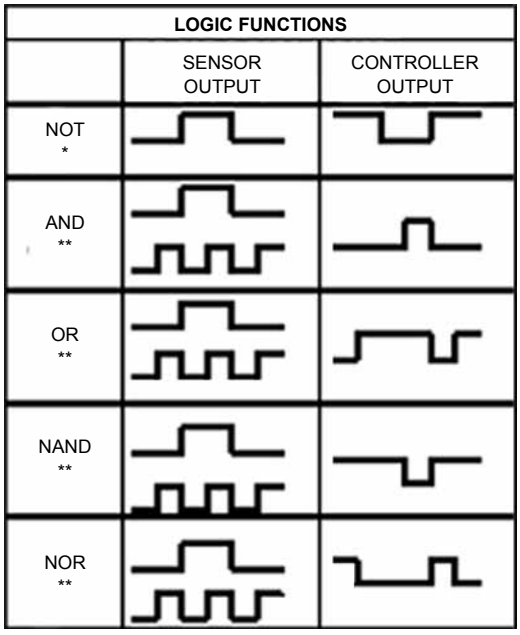


TECHNICAL DATA

Power supply	24 Vac/Vdc ±10% (PSCU-0x)
	100 … 240 Vac (PSCU-1x)
Consumption	2 VA max.
Sensor power supply	20 Vdc ±10% 100 mA max. fold-back and short-circuit protected
Sensor input	switch selectable, 1 or 2 inputs, relay
	NPN/PNP (10 kW) or 0…10 Vdc (100 kW)
Logic functions	NOT, AND, OR, NAND, NOR
Output	relay SPDT 250 Vac, 8 A (PSCU-x0)
	transistor NPN/PNP NO-NC, 100 mA, optoisolated, fold-back short-circuit protected (PSCU-x1)
Response time	10 ms max relay output (PSCU-x0)
	100 µs max. transistor output (PSCU-x1)
Timing functions	monostable non-reset, delay on rising edge, delay on falling edge, delay on both edges, bistable (without timing)
Timing period	switch selectable: 0.004...1 s or 0.1…10 s
Setting	input 1 sensitivity trimmer, input 2 sensitivity trimmer, timing trimmer, 4+8 dip-switch for inputs, logic and timing functions selection
Indicators	input 1 green LED, input 2 green LED, output yellow LED, power green LED, short-circuit red LED
Connection	2 extractable terminal blocks with 6+6 screw contacts
Electrical protection	class 1
Mechanical protection	IP20
Housing material	blend PC/ABS (UL94-V0)
Weight	200 g max.
Operating temperature	-10 … +55 °C
Storage temperature	-20 … +65 °C
Reference standards	EN 61010-1
Certifications	**CE**

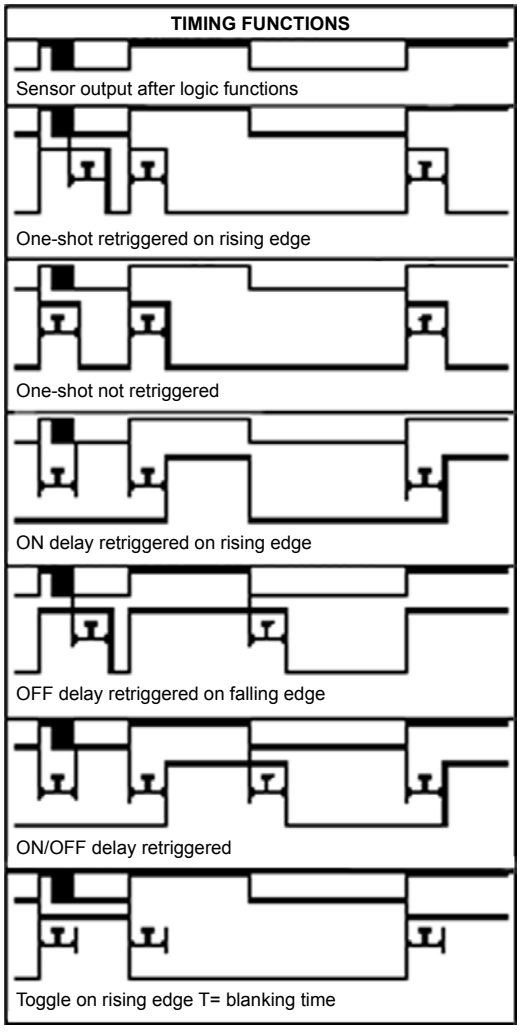
TABLES

LOGIC FUNCTIONS

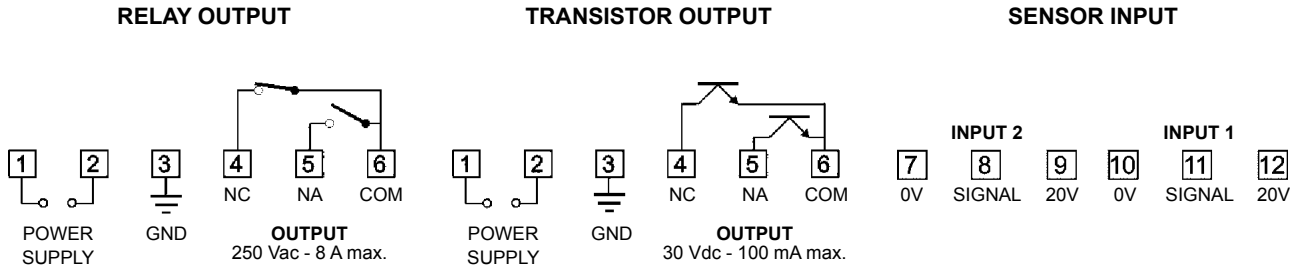


* Logic function on 1 or 2 sensor output
**Logic function between 1 and 2 sensor outputs

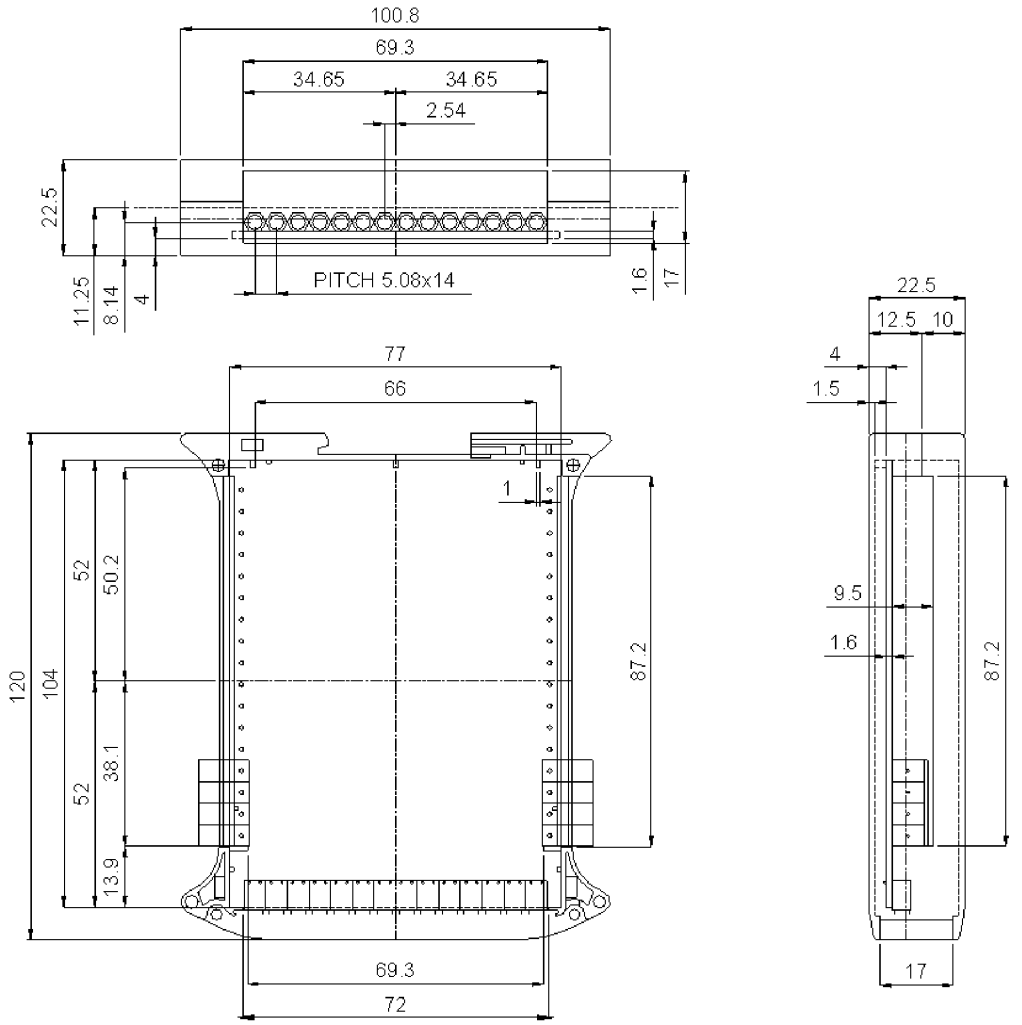
TIMING FUNCTIONS



CONNECTIONS



DIMENSIONS



mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	POWER SUPPLY	OUTPUT TYPE	CODE N°
PSCU-00	24 Vac/Vdc	relay SPDT	95A350100
PSCU-01	24 Vac/Vdc	transistor NPN/PNP NO-NC	95A350110
PSCU-10	100 ... 240 Vac	relay SPDT	95A350120
PSCU-11	100 ... 240 Vac	transistor NPN/PNP NO-NC	95A350130

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THE SERIES

The wide range of auxiliary functions available completes the excellent performances offered by the microprocessor-based controllers of the THE series, with standard 48x96 mm format and single and double display versions.
The main PID control action adjusts itself automatically to the optimum parameters with the AT initial autotuning, or with the ADT permanent autoadaptive function; while the auxiliary outputs can be programmed on 16 different alarm functions or fixed points.
The LFA diagnostic function is able to detect failures along the entire regulation loop, from the sensor to the actuator; moreover the regulation can be either automatic (closed loop) or manual (open loop), setting the output percentual value.
The complete programming of the controllers is made through the front panel, with the possibility of including a 3 level software safety lock.



HIGHLIGHTS

- Main control output with 1 or 2 auxiliary outputs
- PID action with AT autotuning and ADT autoadaptive functions
- Complete diagnostic of the regulation loop
- Automatic or manual regulation of the output

APPLICATIONS

Packaging lines



Process control



TECHNICAL DATA

Power Supply	12-24 Vac/Vdc ±10% version or 80-240 Vac ±10% version
Consumption	5 VA max.
Sensor input	selectable between E, J, K, L, R, S, T thermocouples and Pt100W/0°C RTDs
Measurement scale	selectable in °C or °F scales with lower and upper limits, refer to table 1
Precision	thermocouple measurement ±0,4% f.s.
	RTD measurement ±0,3% f.s.
	temperature drift 0,01% f.s. / °C of ambient
	temperature setting and indication ±1 digit
Data updating	input, output and indication every 500 ms
Data retention	non volatile eeprom memory
Keyboard correction indication	from -99,9 to +99,9 °C/°F
1st point control action	on/off or PID automatic or manual selection, maximum or minimum, with AT initial autotuning and ADT permanent autoadaptive function
Proportional band	20°C (sel. from 1 to 999 °C/°F)
Integral time	120 sec. (sel. from 0 to 960 sec.)
Derivative time	30 sec. (sel. from 0 to 240 sec.)
Cycle time	12 sec. (sel. from 1 to 120 sec.)
On/off hysteresis	±1 °C (sel. from ±0,1 o ±99,9° C/°F)
1st point output type	relay SPDT 250 Vac, 5 A version
	trans. PNP 15 Vdc ±20% version
	20 mA short-circuit protection
2nd/3rd point alarm action	selectable alarm setting from-999 to +999 °C/°F respect to 1st point, or fixed point setting on selected scale, refer to table 2
2nd point output type	relay SPDT 250 Vac, 5 A
3rd point output type	relay SPST 250 Vac, 5 A
Auxiliary functions	LFA Loop Failure Alert diagnostic function, digital filter with an average of 10 measures, SW program LOCK with 3 levels
Setting	PROG, SET, UP, DOWN, AUTO/MAN push-buttons
Indicators	4 digit red display (10mm height), 4 digit green display (7mm height) for ED or 5 LED movement bar (ES), yellow ON1 LED, red ON2 LED, red AUX LED, green LOCK, green MAN LED, green AT LED
Connection	terminal block with 15 screw contacts, electronic block extractable from front panel
Electric protection	class 1
Mechanical protection	IP54 - front panel
	IP20 - housing
	IP10 - contacts
Housing material	ABS
Weight	400 g max.
Operating temperature	-10 ... +55°C
Storage temperature	-20 ... +65°C
Reference standard	EN 61010-1
Certifications	CE

TABLES

Sensor	°C scale	°F scale
TR int.	-150...450	-200...850
TR dec.	-99,9...450	-99,9...850
TC - E	0...600	0...1100
TC - J	-50...760	-50...1400
TC - K	-100...1250	-150...2300
TC - L	-50...760	-50...1400
TC - S	0...1700	30...3000
TC - R	0...1700	30...3000
TC - T	-100...400	-150...750

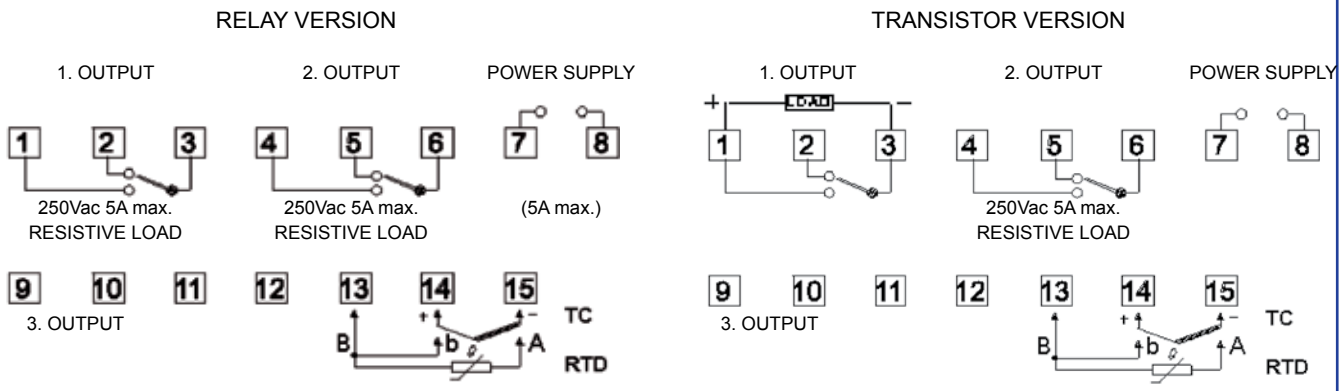
Table 1: °C/°F SCALE

Alarm	Fixed pt	Function
ALx0	FPx0	deactivated
ALx1	FPx1	minimum
ALx2	FPx2	maximum
ALx3	FPx3	neutral zone on
ALx4	FPx4	neutral zone off
ALx5	FPx5	minimum*
ALx6	FPx6	maximum*
ALx7	FPx7	neutral zone on*
ALx8	FPx8	neutral zone off*

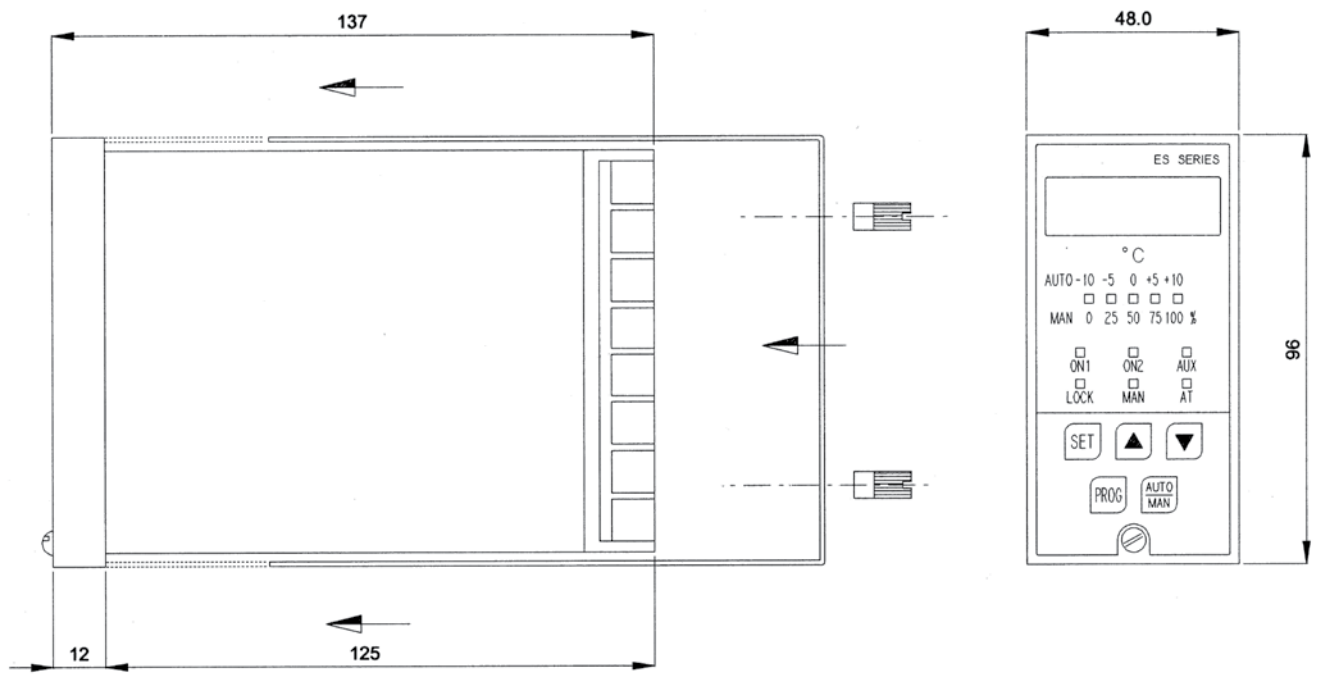
Table 2: ALARM FUNCTION

*stand-by: first intervention inhibition

CONNECTIONS



DIMENSIONS



mm

Panel cutout: 45 x 90 mm

MODEL SELECTION AND ORDER INFORMATION

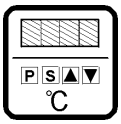
MODEL	DISPLAY	POWER SUPPLY	MAIN OUTPUT	POINTS	ORDER N°
ES-000	single	12 ... 24 Vdc/Vac	relay	2	975021000
ES-010	single	12 ... 24 Vdc/Vac	transistor	2	975021010
ES-100	single	80 ... 240 Vac	relay	2	975021020
ES-110	single	80 ... 240 Vac	transistor	2	975021030
ES-001	single	12 ... 24 Vdc/Vac	relay	3	975201060
ES-011	single	12 ... 24 Vdc/Vac	transistor	3	975201070
ES-101	single	80 ... 240 Vac	relay	3	975201110
ES-111	single	80 ... 240 Vac	transistor	3	975201120
ED-000	double	12 ... 24 Vdc/Vac	relay	2	975031000
ED-010	double	12 ... 24 Vdc/Vac	transistor	2	975031010
ED-100	double	80 ... 240 Vac	relay	2	975031020
ED-110	double	80 ... 240 Vac	transistor	2	975031030
ED-001	double	12 ... 24 Vdc/Vac	relay	3	975151070
ED-011	double	12 ... 24 Vdc/Vac	transistor	3	975151080
ED-101	double	80 ... 240 Vac	relay	3	975151120
ED-111	double	80 ... 240 Vac	transistor	3	975151130

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THQ SERIES

The microprocessor-based controllers of the THQ series are characterised by remarkable regulation precision, in particular in heat-sealing and thermoforming operations typical of the automatic packaging.
The AT initial autotuning and the ADT permanent autoadaptive functions can both be activated through the PID control action, responding excellently to frequent or fast system variations, as for example in process start and stop.
The panel with single or double display allows the setting of all the controller's values and configurations, such as sensor input, control action and alarm functions, with the possibility to lock the programming on three different safety levels.
The exclusive LFA diagnostic function is able to detect failures along the entire regulation loop, for example thermocouples short-circuit or heating resistance breaking.





HIGHLIGHTS

- Excellent measurement precision and regulation stability
- 9 sensors, 4 control actions, 16 alarms all keyboard configurable
- PID action with AT autotuning and ADT autoadaptive functions
- LFA diagnostic function of the regulation loop

APPLICATIONS

Packaging lines



Process control



TECHNICAL DATA

Power Supply	12-24 Vac/Vdc ±10% version, or 80-240 Vac ±10% version
Consumption	5 VA max.
Sensor input	selectable between E, J, K, L, R, S, T termocouples and Pt100W/0°C RTDs
Measurement scale	selectable in °C or °F degrees with lower and upper limits, refer to table 1
Precision	thermocouple measurement ±0,4% f.s.
	RTD measurement ±0,3% f.s.
	temperature drift 0,01% f.s. / °C of ambient
	temperature setting and indication ±1 digit
Data updating	input, output and indication every 500 ms
Data retention	non volatile eeprom memory
Keyboard correction indication	from -99,9 to +99,9 °C/°F
1st point control action	on/off or PID selection, maximum or minimum, with AT initial autotuning and ADT permanent autoadaptive functions

FUNCTIONS

Proportional band	20°C (sel. from 1 to 999 °C/°F)
Integral time	120 sec. (sel. from 0 to 960 sec.)
Derivative time	30 sec. (sel. from 0 to 240 sec.)
Cycle time	12 sec. (sel. from 1 to 120 sec.)
On/off hysteresis	±1 °C (sel. from ±0,1 to ±99,9° C/°F)
1st point output type	relay SPDT 250 Vac, 5 A version
	trans. PNP 12 Vcc ±20% version
	20 mA short-circuit protection
2nd point alarm action	selectable alarm setting from -999 to +999 °C/°F respect to 1st point, or fixed point setting on selected scale, refer to table 2
2nd point output type	relay SPST 250 Vac, 3 A
Auxiliary functions	LFA Loop Failure Alert diagnostic function, digital filter with an average of 10 measures, SW program LOCK with 3 levels
Setting	PROG, SET, UP, DOWN push-buttons
Indicators	4 digit red display (10mm height), 4 digit green display (7mm height) QD vers. or 5 LED movement bar (QS), yellow ON1 LED, red ON2 LED, green LOCK LED, green AT LED
Connection	terminal block with 10 screw contacts, electronic block extractable from panel
Electric protection	class 1
Mechanical protection	IP54 - front panel
	IP20 - housing
	IP10 - contacts
Housing material	ABS
Weight	175 g max.
Operating temperature	-10 ... +55°C
Storage temperature	-20 ... +65°C
Reference standard	EN 61010-1
Certifications	**CE**

TABLES

Sensor	°C scale	°F scale
TR int.	-150...450	-200...850
TR dec.	-99,9...450	-99,9...850
TC - E	0...600	0...1100
TC - J	-50...760	-50...1400
TC - K	-100...1250	-150...2300
TC - L	-50...760	-50...1400
TC - S	0...1700	30...3000
TC - R	0...1700	30...3000
TC - T	-100...400	-150...750

Table 1: °C/°F SCALE

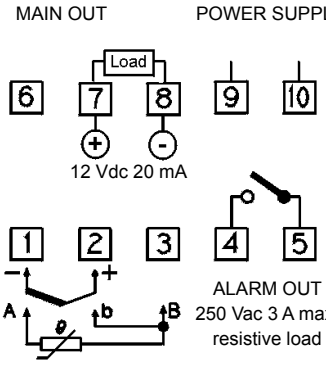
Alarm	Fixed pt	Function
AL20	FP20	deactivate
AL21	FP21	minimum
AL22	FP22	maximum
AL23	FP23	neutral zone on
AL24	FP24	neutral zone off
AL25	FP25	minimum*
AL26	FP26	maximum*
AL27	FP27	neutral zone on*
AL28	FP28	neutral zone off*

Table 2: ALARM FUNCTION

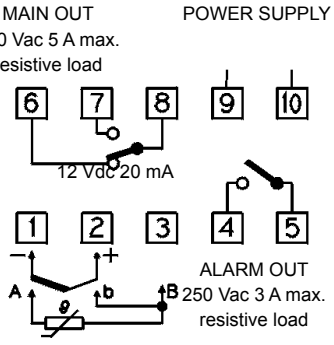
*stand-by: first intervention inhibition

CONNECTIONS

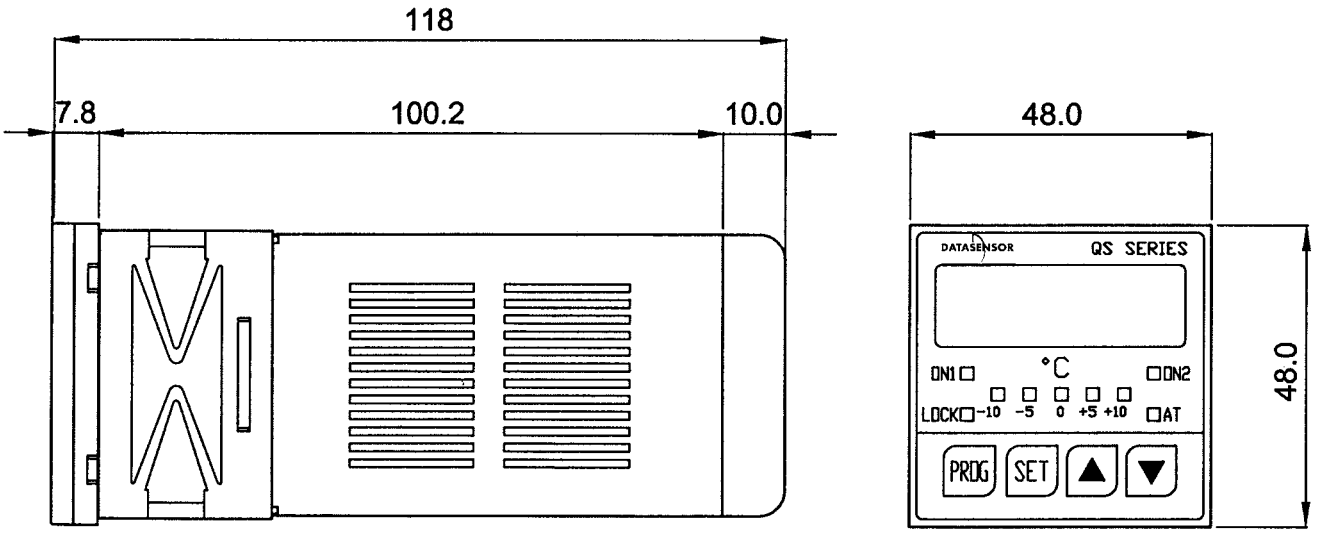
TRANSISTOR VERSION



RELAY VERSION



DIMENSIONS



mm

Panel cutout: 45 x 45 mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	DISPLAY	POWER SUPPLY	MAIN OUTPUT	ORDER N°
QS-00	single	12 ... 24 Vdc/Vac	relay	974021000
QS-01	single	12 ... 24 Vdc/Vac	transistor	974021010
QS-10	single	80 ... 240 Vac	relay	974021020
QS-11	single	80 ... 240 Vac	transistor	974021030
QD-00	double	12 ... 24 Vdc/Vac	relay	974031000
QD-01	double	12 ... 24 Vdc/Vac	transistor	974031010
QD-10	double	80 ... 240 Vac	relay	974031020
QD-11	double	80 ... 240 Vac	transistor	974031030

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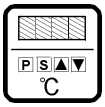
DATALOGIC

SENSOR

TH-T SERIES

The **TH-T** temperature controller series offers a complete range of solutions able to satisfy many varied industrial automation needs, including basic models suitable for more simple and cost-effective applications and advanced models created specifically for the more evolved control and interface systems.
Programming of the temperature controllers is quick and easy as the most frequently-used configurations can be set with few keyboard operations.
Models with a RS485 serial interface can send the parameter configuration and receive the controlled values through an industrial PC that can control different units.
Versions with a current transformer input, available as an accessory for measurements reaching 25 or 100 A, can detect even a partial load failure, as for example due to a broken heating element.
The series includes models with opto-isolated relay and transistor outputs to control static relays, as well as models with 4-20 mA or 0-10 V normalised proportional analogue outputs.



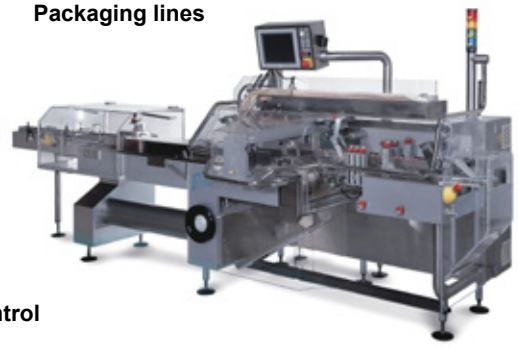


HIGHLIGHTS

- Complete range including basic and advanced control functions
- Relay output, static output for SSR, 4-20 mA and 0-10 V analogue outputs
- Models with current transformer input and HBA function
- Models with RS485 serial interface for MODBUS-RTU protocol

APPLICATION

Packaging lines



Process control



The temperature controllers are easily programmed by the 4 push-buttons and display indicators present on the front panel, or via the RS485 serial interface. Additionally the accessory device, as compact as a car key, copies the same configuration onto different temperature controllers.
The 'T' push-button rapidly activates the Auto-Tuning function when the temperature increases and reaches the set value, alongside the continuous Self-Tuning of the PID control parameters.

Single-display panel



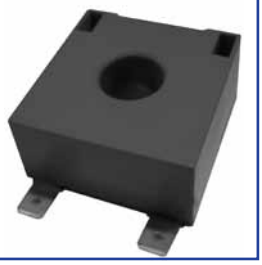
Double-display panel



Terminal block



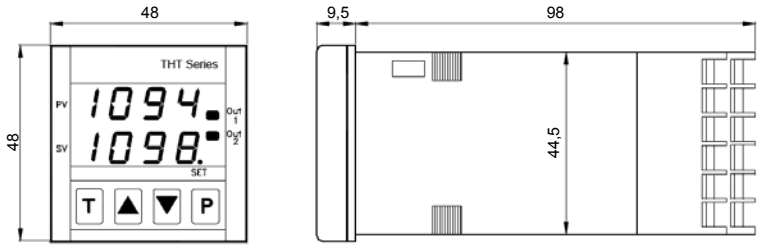
Amperometric transformer



Programming device



DIMENSION

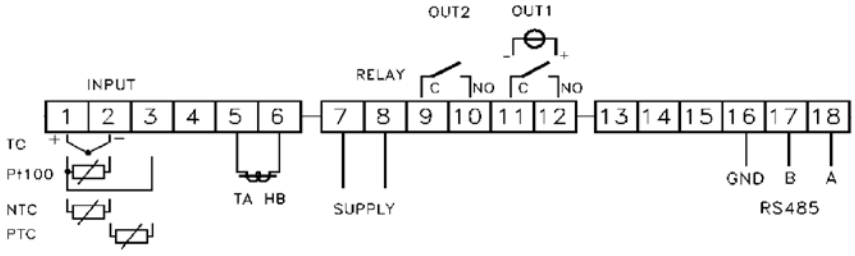


INDICATORS AND SETTINGS



- **A** P push-button for programming access and confirmation
- **B** Down push-button for value decrease / parameter selection
- **C** Up push-button for value increase / parameter selection
- **D** T push-button for Auto-Tuning and Self-Tuning activation
- **E** Out1 LED for main output 1 ON status indication
- **F** Out2 LED for auxiliary output 2 ON status indication
- **G** SET LED for programming access indication (blinking)
- **H** AT-ST LED Auto-Tuning (blinking) and Self-Tuning (on)
- **I** PV display for process value indication
- **J** SV display for set value indication (only TH-TD vers.)

CONNECTIONS



Note: For correct installation and use Datasensor SpA can guarantee only the data indicated in the instruction manual supplied with the products.

Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

		BASIC MODELS								ADVANCED MODELS											
		TH-TS-00	TH-TS-10	TH-TS-01	TH-TS-11	TH-TD-00	TH-TD-10	TH-TD-01	TH-TD-11	TH-TD-03	TH-TD-13	TH-TD-04	TH-TD-14	TH-TD-00-RS	TH-TD-10-RS	TH-TD-01-RS	TH-TD-11-RS	TH-TD-00-HB	TH-TD-10-HB	TH-TD-01-HB	TH-TD-11-HB
Power supply:	24 Vac/Vdc ±10%, 50/60 Hz 100-240 Vac ±10%, 50/60 Hz	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	5 VA 9 VA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
TC and RTD sensor input:	J thermocouple; programmable for J/K/S thermocouples, Pt100W/0°C RTDs, J/K I.R. sensors	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
PTC and NTC thermistor input:	PTC KTY81-121 990W/25°C, NTC 103AT-2 10kW/25°C									●	●	●	●	●	●	●	●	●	●	●	●
Measurement scale:	from -1999 to +9999 °C/°F, progammable lower and upper scale limits, with sensor break detection	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Precision:	±0.5% f.s. ±0.15% f.s.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Refresh time:	every 125 ms, display digital filter programmable from 0 to 20 sec.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Data retention:	non volatile eeprom memory	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Zero and span correction:	0°C; programmable offset from -1999 to +9999 °C/°F, with measurement line rotation from 0000 to 2000 (gain correction)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Set Point number:	1 control point; programmable from 1 to 4 set points	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Setting value:	0°C; programmable from -1999 to +9999 °C/°F	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1st main point function:	control ; programmable also as alarm point (see alarm action)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1st main point action:	inverse PID; programmable as inverse (heating) or direct (cooling), symmetrical or asymmetrical on/off, PID single or double action with Auto-Tuning and Self-Tuning	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1st main point output type:	SPST-NO relay 250 Vac 5 A transistor 12 Vdc 7 mA 4-20 mA analogue 0-10 V analogue	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2nd auxiliary point function:	alarm; programmable also as control point (see control action)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2nd auxiliary point action:	absolute maximum alarm; programmable as minimum, maximum or window, absolute or relative setting, with stand-by, delay and latch functions	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
2nd auxiliary point output type:	SPST-NO relay 250 Vac 5 A	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Overshoot control factor:	0.5; programmable from 0.00 to 2.00 (fuzzy control)	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Proportional band:	50°C; programmable from 0 to 9999 °C/°F	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Integral time:	200 sec.; programmable from 0 to 9999 sec.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Derivative time:	50 sec.; programmable from 0 to 9999 sec.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Cycle time:	20 sec.; programmable from 0.1 to 130.0 sec.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
On/off hysteresis:	1°C; programmable from -1999 to 9999 °C/°F	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Set point timing:	inactive; programmable from 0:00 to 99:59 hours:minutes	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Soft Start timing:	inactive; programmable from 0:1 to 7:59 hours:minutes with Soft Start power adjustable from -100 to +100%	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Serial communication interface:	RS485 interface, MODBUS-RTU protocol, 1200-38400 baud													●	●	●	●				
Loop break alarm:	LBA software function for sensor break or short-circuit and load interruption detection, with intervention time setting from 0 to 9999 sec. alarm output activation possibility	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Heater break alarm:	HBA hardware function with 25/0.05 A or 100/0.2 A current transformer input																	●	●	●	●
Connection:	terminal block with 2.5 mm≈ screw contacts	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Electrical protection:	class II - front panel, installed according to instructions	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP54 - front panel, installed according to instructions	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	UL 94 V0 self-extinguishing plastic	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Weight:	225 g	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Operating temperature:	0…+50°C, with 30…95 rH% non condensing humidity	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-10…+60°C	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 61010-1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

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MODEL SELECTION AND ORDER INFORMATION

MODEL	DISPLAY	POWER SUPPLY	MAIN OUTPUT	ADVANCED FUNCTION	ORDER N°
TH-TS-00	single	24 Vac/Vdc	relay	basic	95B030000
TH-TS-10	single	100-240 Vac	relay	basic	95B030010
TH-TS-01	single	24 Vac/Vdc	transistor	basic	95B030020
TH-TS-11	single	100-240 Vac	transistor	basic	95B030030
TH-TD-00	double	24 Vac/Vdc	relay	basic	95B030040
TH-TD-10	double	100-240 Vac	relay	basic	95B030050
TH-TD-01	double	24 Vac/Vdc	transistor	basic	95B030060
TH-TD-11	double	100-240 Vac	transistor	basic	95B030070
TH-TD-03	double	24 Vac/Vdc	4-20 mA	analogue out	95B030080
TH-TD-13	double	100-240 Vac	4-20 mA	analogue out	95B030090
TH-TD-04	double	24 Vac/Vdc	0-10 V	analogue out	95B030100
TH-TD-14	double	100-240 Vac	0-10 V	analogue out	95B030110
TH-TD-00-RS	double	24 Vac/Vdc	relay	RS485	95B030120
TH-TD-10-RS	double	100-240 Vac	relay	RS485	95B030130
TH-TD-01-RS	double	24 Vac/Vdc	transistor	RS485	95B030140
TH-TD-11-RS	double	100-240 Vac	transistor	RS485	95B030150
TH-TD-00-HB	double	24 Vac/Vdc	relay	HBA *	95B030160
TH-TD-10-HB	double	100-240 Vac	relay	HBA *	95B030170
TH-TD-01-HB	double	24 Vac/Vdc	transistor	HBA *	95B030180
TH-TD-11-HB	double	100-240 Vac	transistor	HBA *	95B030190

* Heater Break Alarm: load failure detection (eg. heating elements) through external current transformer, which can be ordered as an accessory.

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
THT-AT-25	25/0.05 A current transformer for HBA function	95A301010
THT-AT-100	100/0.2 A current transformer for HBA function	95A301020
THT-KEY	Device for copying the same programming to different temperature controllers	95A301030

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TC/TR SERIES

The TC/TR series offers thermocouple and RTD temperature sensors for measurements ranging from -100 to +450 °C, or up to 600 °C for the T101-J model.
The J type (Iron/Constantan) or K type (Chromel/Alumel) thermocouples present a tubular stainless steel housing or with brass ring; the measurement junction is grounded in order to obtain the best response speed.
The resistance temperature detectors are made with a Pt100Ω/0°C type platinium sensistive element and are available in different tubular housings, with chamfer point for penetration measurements, or holed for detection in open air; in stainless steel in all cases, with an insulated sensitive element.
The thermocouples and the resistance temperature detectors of the TC/TR series are suitable for applications in automatic packaging, food sector, plastic material printing and wood working.





HIGHLIGHTS

- J and K type thermocouples
- Pt100 type RTDs
- Wide range of operating temperatures
- Housing in AISI 304 stainless steel

APPLICATIONS

Process control



Packaging lines



TECHNICAL DATA

Calibration	J type TC (Fe/Cu-Ni) - DIN 43710
	K type TC (Ni-Cr/Ni-Al) - DIN 43710
	Pt100Ω/0°C RTD - DIN 43760 (refer to table 1)
Tolerance:	thermocouple ± 2°C at 200°C
	RTD ± 0.55°C at 200°C
Connection:	bi-polar 2 m cable
	2 screw terminals (P105 mod.)
	TC polarity and colour - DIN 43713, non-polarised RTD (refer to table 2)
Assembly:	TC with grounded junction
	RTD with insulated element
Housing material:	stainless steel AISI 304
	brass ring (T104-J and T104-K mod.)
Operating temperature:	-100 ... +450°C
	-100 ... +600°C (T101-J and T102-K mod.)

Temp.(°C)	TC-J (mV)	TC-K (mV)	Pt100 (.)
-100	-4,63	-3,55	60,25
-50	-2,43	-1,89	80,31
0	0	0	100
50	2,65	2,02	119,4
100	5,37	4,1	138,5
150	8,15	6,14	157,31
200	10,95	8,14	175,84
250	13,75	10,15	194,07
300	16,56	12,21	212,02
350	19,36	14,29	229,67
400	22,16	16,4	247,03
450	25	18,51	264,11
500	27,85	20,64	280,9

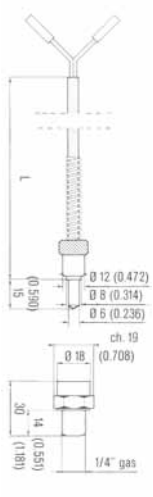
Table 1: SENSOR CALIBRATION

Sensor	Positive	Negative
J type TC	red wire	blue wire
K type TC	red wire	green wire
Pt100 RTD	(non-polarised)	

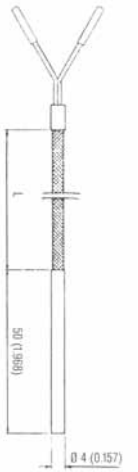
Table 2: SENSOR CONNECTION

DIMENSIONS

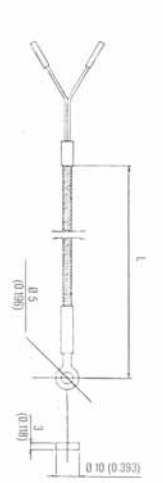
T101-J



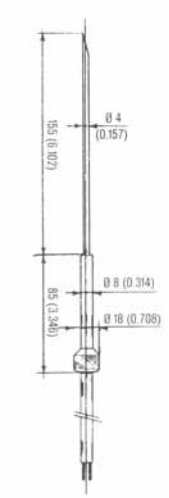
T102-J/K



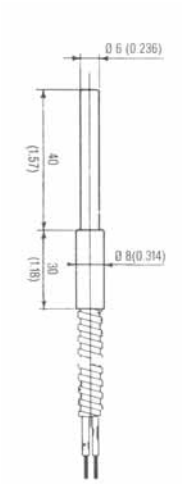
T104-J/K



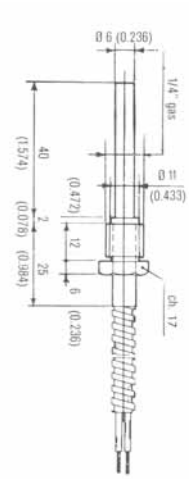
P101



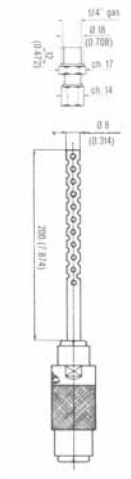
P102



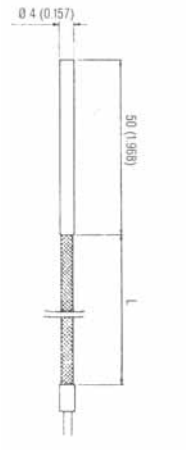
P103



P105



P106



mm

MODEL SELCTION AND ORDER INFORMATION

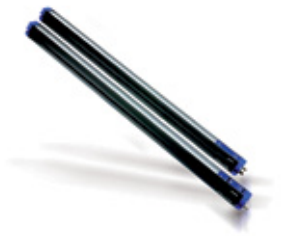
MODEL	DESCRIPTION	ORDER N°
T101-J	J type thermocouple with bayonet nipple 1/4” gas	T9980000
T102-J	J type thermocouple - tubular head with Ø 4 mm L 50 mm	T9980001
T102-K	K type thermocouple - tubular head with Ø 6 mm L 50 mm	T9981001
T104-J	J type thermocouple with Ø 5 mm eyelet	T9980003
T104-K	K type thermocouple with Ø 5 mm eyelet	T9981003
P101	Pt100 RTD - chamfer point with Ø 4 mm L 155 mm	T9982000
P102	Pt100 RTD - tubular head with Ø 6 mm L 40 mm	T9982001
P103	Pt100 RTD with moveable nipple 1/4 gas	T9982002
P105	Pt100 RTD - holed head with Ø 8 mm L 200 mm	T9982004
P106	Pt100 RTD - tubular head Ø 4 mm L 50 mm	T9982005

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AREAscan™
DATALOGIC
AREAscan™
DATALOGIC

Light arrays, line sensors





	SERIES	DS1	DS2
OPERATING DISTANCES	Light array (controlled height)	100...300 mm	150...1650 mm
	Line sensor (controlled height)		
	Resolution	4...10 mm	6/25 mm
	Number of beams	16...48	21...231 (res=6mm) 6...66 (res=25mm)
	Light emission	IR	IR
	Response time	1...2.75 ms	5...90 ms
	Serial interface		RS485
	Setting	Trimmer	Dip-switches Graphic interface
	Operating distance	0.15...0.8 m 0.15...2.1 m 0.2...4 m	0.3...5 m (res=6mm) 0.3...10 m (res=25mm)
	Hysteresis		
TECHNICAL DATA	Power supply – Vdc	24	24
	Power supply – Vac		
	Power supply – Vac/dc		
	Output – PNP	•	•
	Output – NPN		
	Output – NPN/PNP		
	Output – relay (triac)		
	Output – other	0. . . 10 V	0. . . 10 V
	Connection – cable		
	Connection – connector	M12 4-poles for TX / M12 5-poles for RX	M12 4-poles for TX / M12 8-poles for RX
	Connection – terminal block		
	Approximate dimensions (mm)	20 x 41	35 x 40
	Housing material	aluminium	aluminium
	Mechanical protection	IP65	IP65





DS3	S65-Z
150…600 mm	
	150 mm
0.5/0.8 mm (crossed beams) 6 mm (parallel beams)	0.9 mm
24. . .96	0.15 mm
IR	>130 Hz
3…12 ms (crossed beams) 23…92 ms (parallel beams)	IR LED
	RS485
Teach-in	200 mm
0.2...2 m	
24	10…30
•	•
	•
0. . . 10 V	4…20 mA
M12 4-poles for TX / M12 8-poles for RX	•
35 x 40	25 x 50 x 50
aluminium	ABS
IP65	IP67

Ultrasonic sensor





OPERATING DISTANCES

SERIES		US18	US30
Operating distance		30 ... 300 mm	200 ... 1000 mm 300 ... 2000 mm
Resolution		2.5 ms (Fast): 1 mm 30 ms (Slow): 0.5 mm	0.1 % measured distance
Linearity		2.5 ms (Fast): ±1 mm 30 ms (Slow): ±0.5 mm	0.25 % measured distance
Repeatability		0,5 mm	1000 mm: 0.1 % of dist. (0.5 mm min.) 2000 mm: 0.1 % of dist. (1 mm min.)
Ultrasonic frequency		300 KHzburst, rep. rate 2.5 ms	1000 mm : 224 KHz 2000 mm: 174 KHz
Response time		2,5ms FAST MODE 30ms SLOW MODE	1000 mm : 45 ms (fast), 105 ms (slow) 200 0mm : 92 ms (fast), 222 ms (slow)
Setting		PUSH BUTTON Teach-in	PUSH BUTTON Teach-in
Minimum Reading Window		5 mm	10 mm
Hysteresis		0.7 mm	1000 mm : 2 mm 2000 mm : 3 mm
Temperature effect		0.02% measured distance/°C	0.02% measured distance/°C

TECHNICAL DATA

Power supply	Vdc	10...30 ⎓	10...30 ⎓
	Vac		
	Vac/dc		
Output	PNP		
	NPN	•	•
	NPN/PNP		
	relay (triac)		
	other	4...20mA / 0 ... 10 V	4...20mA / 0 ... 10 V
Connection	cable		
	connector	M12 5-poles	M12 5-poles
	terminal block		
Approximate dimensions (mm)		18x91 (axial) 18x95 (radial)	30 x 63.6 x 45
Housing material		Polyester	Polyester
Mechanical protection		IP67	IP67



US50
200 ... 8000 mm
1 mm
± 0.2% of span from 200 to 8000 mm; ± 0.1% of span from 500 to 8000 mm (1mm min.)
1 mm
75 kHz burst, rep. rate 96 ms
100…2300 ms
PUSH BUTTON Teach-in
20 mm
5 mm
Uncompensated: 0.2% of distance /°C Compensated: 0.02% of distance /°C
10…30
•
4…20mA / 0 ... 10 V
M12 5-poles
74x81,2x67,4
Polyester
IP67

Distance sensors





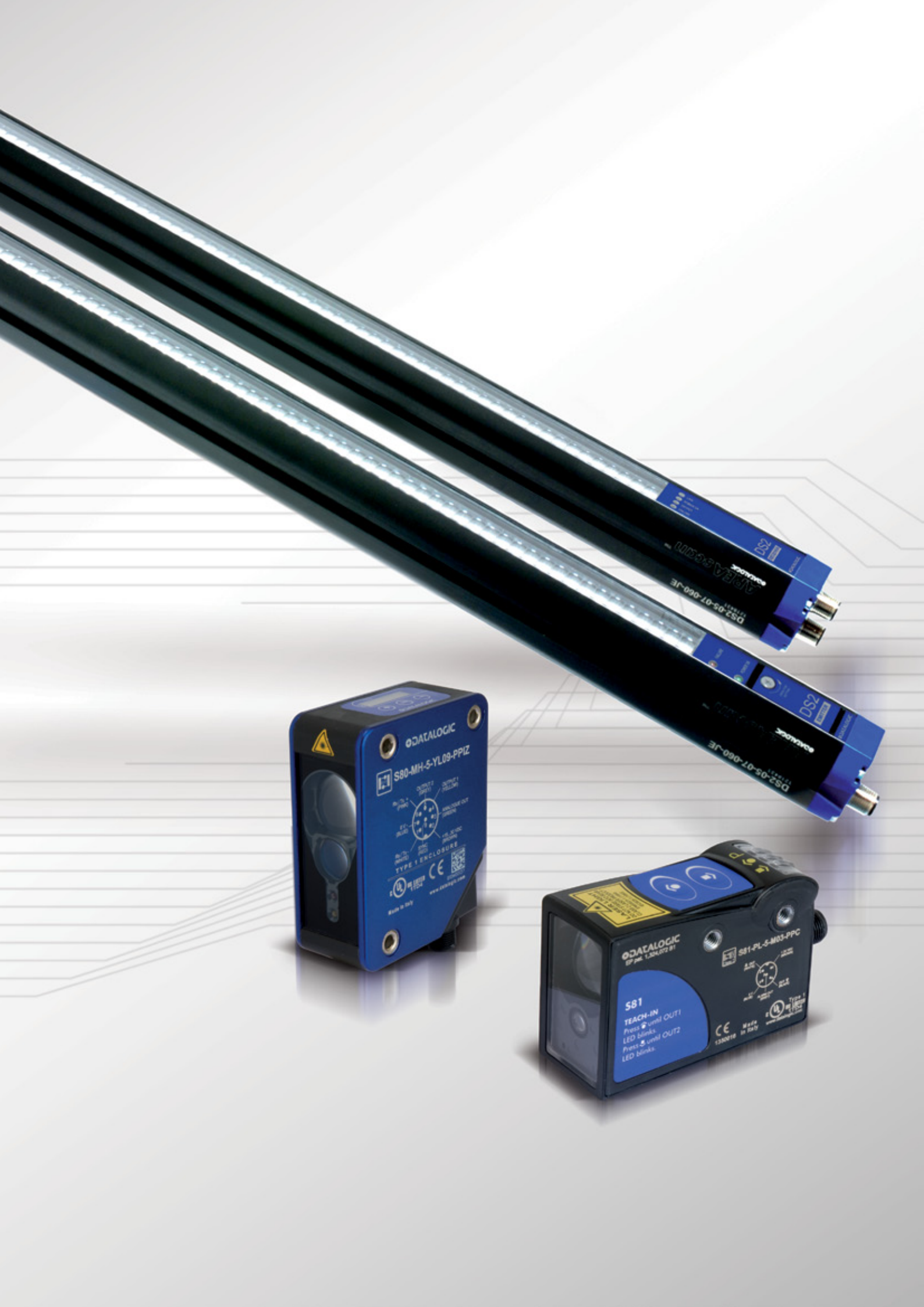
		S80-Y0	S80-YL0
OPERATING DISTANCES			
SERIES			
Distance sensor		0.3. . . 4 m	0.3. . . 7 m
Digital resolution		0.9 mm	0.4 mm
Linearity		0.3 %	0.3 %
Hysteresis		5 mm	5 mm
Switching frequency		100 Hz (Normal) 500 Hz (Fast)	100 Hz
Light emission		red Laser cl.2	red Laser cl.2
Response time		5 ms (Normal) 1 ms (Fast)	5 ms
Serial interface		RS485	RS485
Setting		Teach-in	Teach-in
TECHNICAL DATA			
Power supply	Vdc	15. . . 30	15. . . 30
	Vac		
	Vac/dc		
Output	PNP	•	•
	NPN		
	NPN/PNP		
	relay (triac)		
	other	4...20 mA	4...20 mA
Connection	cable		
	connector	M12 8-poles	M12 8-poles
	terminal block		
Approximate dimensions (mm)		34 x 90 x 73	34 x 90 x 73
Housing material		aluminium	aluminium
Mechanical protection		IP67	IP67







S80-Y1	S80-Y2	S81
0.3. . . 20.3 m (on R80 reflector)	0.3. . . 100.3 m (on R80 reflector)	0.3...4 m
0.6 mm	6 mm	0.9 mm
0.25 %	0.15 %	
25 mm	40 mm	30 mm (M models)
100 Hz (Normal) 500 Hz (Fast)	100 Hz (Normal) 500 Hz (Fast)	80 Hz
red Laser cl.2	red Laser cl.2	red Laser cl.2
5 ms (Normal) 1 ms (Fast)	5 ms (Normal) 1 ms (Fast)	6 ms
RS485	RS485	
Teach-in	Teach-in	Teach-in
15. . . 30	15. . . 30	15...30
•	•	•
		•
4...20 mA	4...20 mA	0...10 V
M12 8-poles	M12 8-poles	M12 5-poles
34 x 90 x 73	34 x 90 x 73	58 x 31 x 31
aluminium	aluminium	ABS
IP67	IP67	IP67


DATALOGIC
S80-MH-5-YL09-PPIZ
TYPE 1 ENCLOSURE
DATALOGIC
S81-PL-5-M03-PPC
S81
TEACH-IN
Press until OUT1
LED blinks.
Press until OUT2
LED blinks.

DATALOGIC

MEASUREMENT

DS1 SERIES

The **DS1** AREAscan™ series are compact multibeam light grids suitable for the detection and measurement of objects with different shapes and dimensions.
Different models are available with **100, 150 and 300 mm controlled height,** 4 mm resolution and operating distance reaching 4 m.
Versions with trimmer adjustment. The electronics is fully integrated and so no external drivers are required.





HIGHLIGHTS

- Measurement of object dimensions or position
- 4mm resolution and 1ms response time
- Controlled heights ranging from 100 to 300mm
- Operating distance reaching 4m
- PNP and 0-10V analogue output
- Adjustment trimmer
- Fully embedded electronics

APPLICATIONS

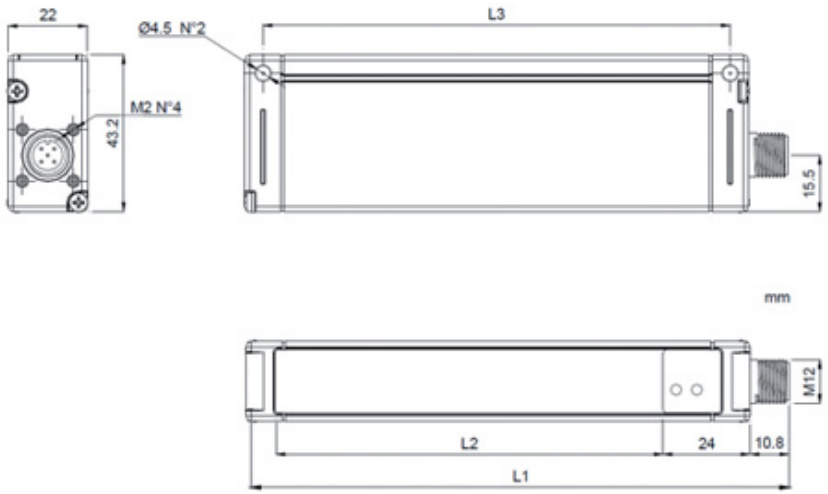
- Object dimension measurement
- Shape or profile detection
- Positioning, spacing, centering, stacking
- Edge guiding
- Object counting



The measurement of the object's position or dimensions, placed inside the sensitive area, is obtained thanks to the 0 - 10V analogue output, which supplies a signal proportional to the number of interrupted beams. The PNP digital output is activated each time that a beam is intercepted by an object; in this case, the yellow OUT LED on the receiving unit panel turns on. The green POWER ON LED, always on this panel, signals also the wrong alignment between the emitting and receiving units as well as the functioning outside or near the maximum operating distance.

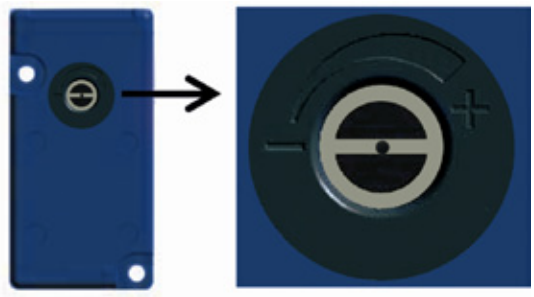


DIMENSIONS



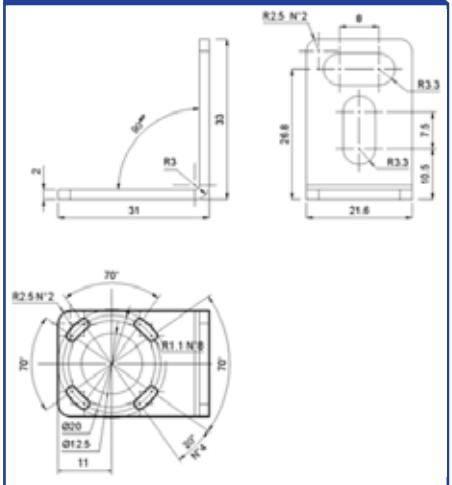
MODEL	L1	L2	L3
DS1-xx-010-xx	150,1	107	129,1
DS1-xx-015-xx	200,1	157	179,1
DS1-xx-030-xx	350,1	307	329,1

INDICATORS AND SETTING (TRIMMER VERSIONS)



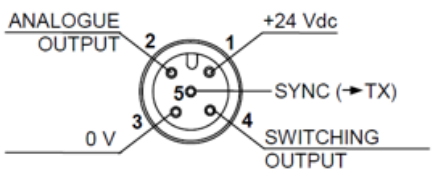
Emitter is equipped with a manual regulation which lets the user change the emission power by means of a screwdriver.
The emission power reduction can be particularlly useful to lower passive reflections when maximum operating distance is not required.

FIXING BRACKET



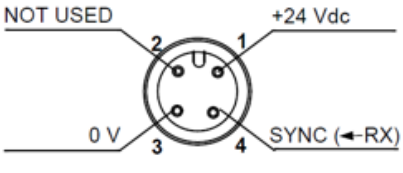
CONNECTIONS

RECEIVER (RX)



1	=	brown	=	+24 Vdc
2	=	white	=	Analogue output
3	=	blue	=	0 V
4	=	black	=	Switching output
5	=	grey	=	SYNC

EMITTER (TX)

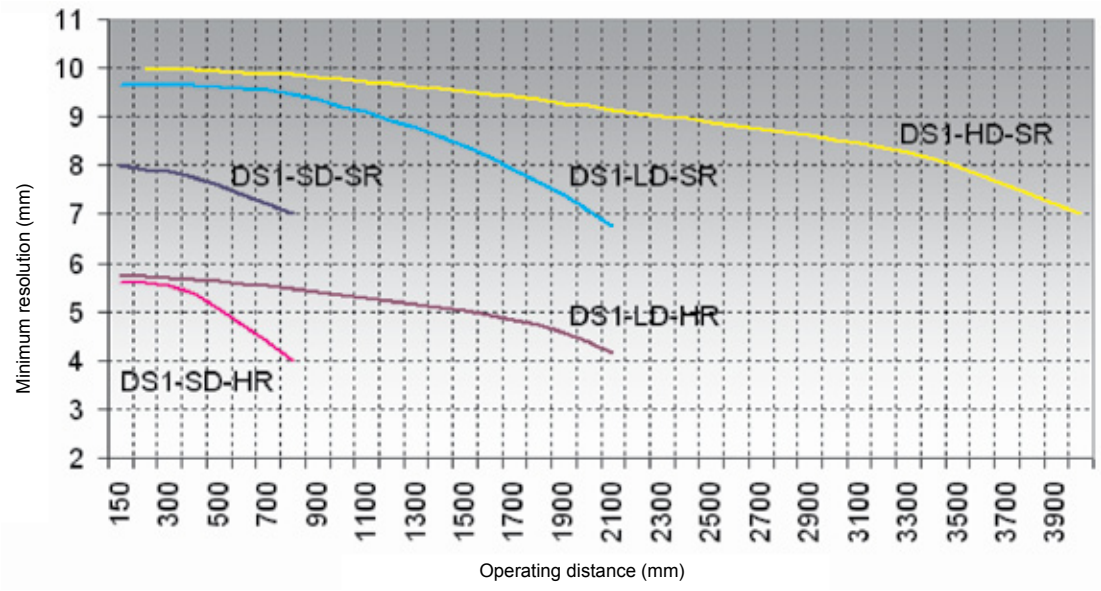


1	=	brown	=	+24 Vdc
2	=	white	=	not used
3	=	blue	=	0 V
4	=	black	=	SYNC

TECHNICAL DATA

Power supply:	24 Vdc ± 15 %
Consumption on emitter unit:	150 mA max.
Consumption on receiver unit:	50 mA max. without load
Outputs:	1 PNP output
	1 0 - 10 V analogue output
Load current on PNP output:	100 mA; short circuit protection
Saturation voltage on PNP output:	≤ 11.5V at T=25°C
Response time:	1 ms - 2.75ms
Emission type:	infrared 880nm
Resolution:	4 - 7mm
Measurement precision:	± 3.5 - 7mm
Operating distance:	0.15 - 0.80m (SD vers.)
	0.15 - 2.10 m (LD vers.)
	0.20 - 4.00m (HD vers.)
Receiver indicators:	green POWER ON LED
	yellow OUT LED
Emitter indicators:	green POWER ON LED
Operating temperature:	0 … + 55 °C
Storage temperature:	- 25 … + 70 °C
Humidity:	15…95 % (non condensing)
Mechanical protection:	IP65
Housing material:	aluminium
Optics material:	PMMA
Connections:	M12 4-pole connector for TX
	M12 5-pole connector for RX
Weight:	300g (DS1-xx-010-xx vers.)
	400g (DS1-xx-015-xx vers.)
	600g (DS1-xx-030-xx vers.)

DETECTION DIAGRAMS



Variation of the minimum resolution according to the operating distance between the emitting and receiving units.

MODEL SELECTION AND ORDER INFORMATION

MODEL	RESOLUTION	OPERATING DISTANCE	CONTROLLED HEIGHT	TRIMMER ADJUSTMENT	ORDER N°
DS1-LD-SR-010-JV	standard	0.15 - 2.10m	100mm		957701130
DS1-LD-HR-010-JV	high	0.15 - 2.10m	100mm		957701120
DS1-LD-SR-015-JV	standard	0.15 - 2.10m	150mm		957701150
DS1-LD-HR-015-JV	high	0.15 - 2.10m	150mm		957701140
DS1-LD-SR-030-JV	standard	0.15 - 2.10m	300mm		957701160
DS1-LD-SR-010-PV	standard	0.15 - 2.10m	100mm	•	957701250
DS1-LD-SR-015-PV	standard	0.15 - 2.10m	150mm	•	957701260
DS1-LD-SR-030-PV	standard	0.15 - 2.10m	300mm	•	957701270
DS1-SD-SR-010-JV	standard	0.15 - 0.80m	100mm		957701170
DS1-SD-HR-010-JV	high	0.15 - 0.80m	100mm		957701200
DS1-SD-SR-015-JV	standard	0.15 - 0.80m	150mm		957701180
DS1-SD-HR-015-JV	high	0.15 - 0.80m	150mm		957701210
DS1-SD-SR-030-JV	standard	0.15 - 0.80m	300mm		957701190
DS1-HD-SR-010-JV	standard	0.20 - 4.00 m	100mm		957701220
DS1-HD-SR-015-JV	standard	0.20 - 4.00 m	150mm		957701230
DS1-HD-SR-030-JV	standard	0.20 - 4.00 m	300mm		957701240

Fixing brackets and screws are supplied with the product

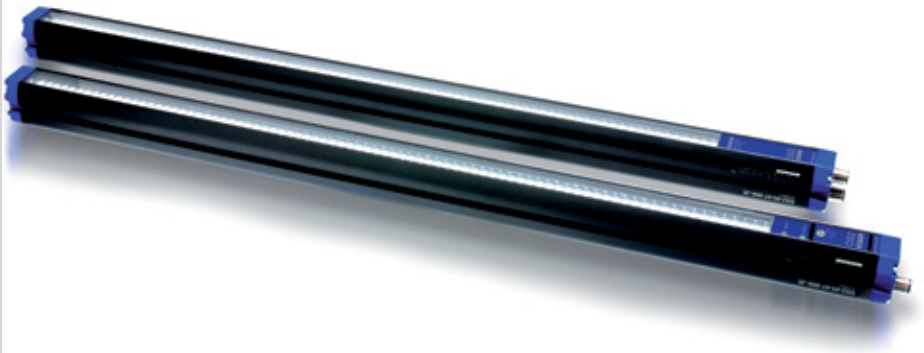
ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CS-A1-03-G-03	axial M12-5 pole unshielded 3 m connector	95ACC2110
CS-A1-03-G-05	axial M12-5 pole unshielded 5 m connector	95ACC2120
CS-A1-03-G-10	axial M12-5 pole unshielded 10 m connector	95ACC2140
CS-A1-02-G-03	axial M12-4 pole unshielded 3 m connector	95A251380
CS-A1-02-G-05	axial M12-4 pole unshielded 5 m connector	95A251270
CS-A1-02-G-10	axial M12-4 pole unshielded 10 m connector	95A251390

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DS2 SERIES

The **AREAscan™** family of the **DS2** series covers controlled heights ranging from 150 to 2500mm, with 5m operating distances for high resolution versions, or 10m for low resolution versions.
Digital resolution is 12mm or 25mm while relative measurement precision is ±6mm or ±22.5mm.
Models with RS485 serial port or ETHERNET host interface are available; ETHERNET models are only high resolution versions.
The device configuration can be set manually thanks to internal dip-switches, or using graphic interface from remote PC for serial models.
ETHERNET models can be programmed only from user interface.
Once loaded the program on the flash memory, the device functions in the stand-alone mode.
The serial or ETHERNET interface transmits the measurement in a binary or ASCII code, the operating status control as well as the setting of the different baud-rate versions.
The **DS2** light arrays suits different height or dimensional measurement applications ingeneral, in automatic material handling.





MEASUREMENT

HIGHLIGHTS

- Measurement in automatic material handling
- Versions with 6 or 25mm digital resolution
- Relative measurement precision ±6mm or ±22.5mm.
- 150 - 2500 mm controlled height
- Operating distance up to 5m or 10m
- Digital PNP output
- 0-10 V analogue output
- Serial RS485 protocol or ETHERNET host interface

APPLICATIONS

Automotive



Material Handling



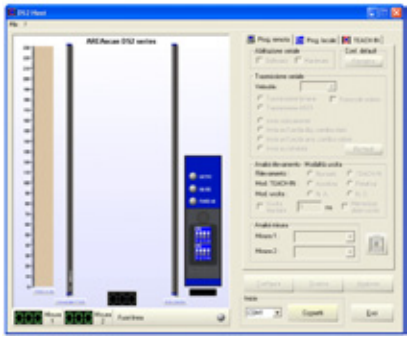
Automatic Warehouse



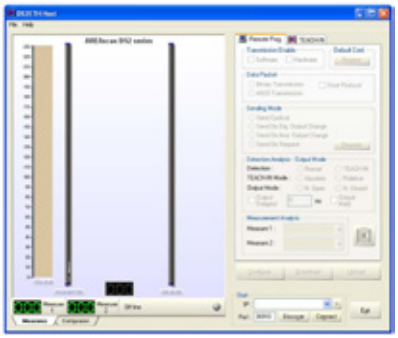
The different configuration parameters of the light grid can be visualised and modified using the extremely easy and intuitive user interface. In particular, the interface allows the access to many different advanced operating modes:

- complete beam status array, where serial output transmits a string of information relative to the status of each single optic;
- top beam, which provides information relative to the last interrupted or free optic;
- bottom beam, which provides information relative to the first interrupted or free optic;
- middle beam, which provides information relative to the central interrupted or free optic;
- total beam, which provides information on the total number of obscured or free optics;
- total contiguous beam, which provides information on the maximum number of adjacent obscured beams;
- number of transitions, provides information on the number of transitions from free to obscured optics or vice versa.

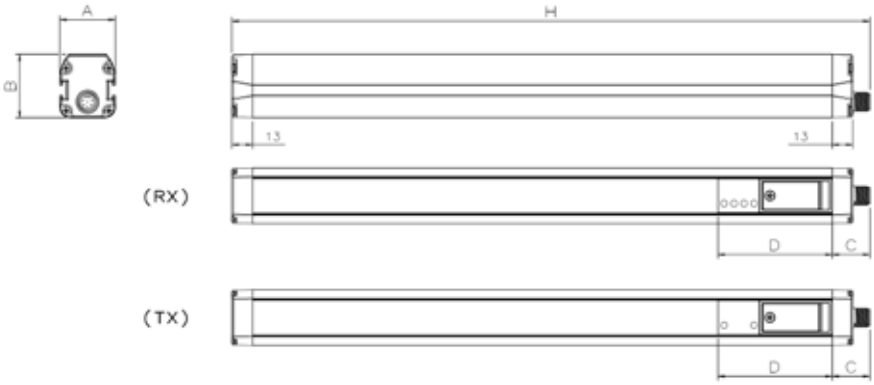
User interface serial version



User interface ethernet version



DIMENSIONS



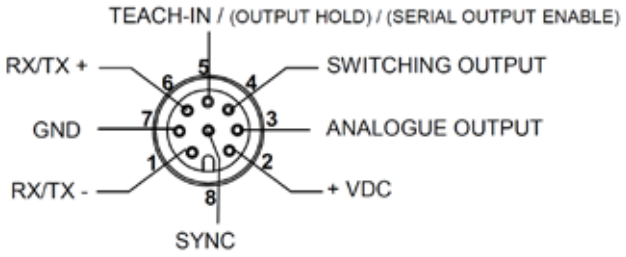
MODEL	A x B (mm)	H (mm)	C (mm)	D (mm)
DS2-05-07-015-XX	35 x 40	256	23.8	72.5
DS2-05-07-030-XX	35 x 40	403	23.8	72.5
DS2-05-07-045-XX	35 x 40	550	23.8	72.5
DS2-05-07-060-XX	35 x 40	697	23.8	72.5
DS2-05-07-075-XX	35 x 40	844	23.8	72.5
DS2-05-07-090-XX	35 x 40	991	23.8	72.5
DS2-05-07-105-XX	35 x 40	1138	23.8	72.5
DS2-05-07-120-XX	35 x 40	1285	23.8	72.5
DS2-05-07-135-XX	35 x 40	1432	23.8	72.5
DS2-05-07-150-XX	35 x 40	1579	23.8	72.5
DS2-05-07-165-XX	35 x 40	1726	23.8	72.5
DS2-05-25-045-XX	35 x 40	562	23.8	72.5
DS2-05-25-060-XX	35 x 40	713	23.8	72.5
DS2-05-25-075-XX	35 x 40	864	23.8	72.5
DS2-05-25-090-XX	35 x 40	1015	23.8	72.5

XX: JV for serial models or JE for ETHERNET models



CONNECTIONS

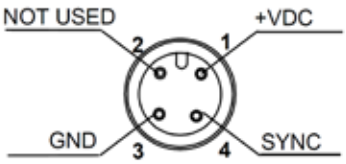
SERIAL VERSION - RX



Main connector: M12 8-pole connector

1	=	white	=	RX/TX -
2	=	brown	=	+VDC
3	=	green	=	ANALOGUE OUT
4	=	yellow	=	SWITCHING OUTPUT
5	=	grey	=	TEACH-IN / (OUT HOLD) / (SERIAL OUT ENABLE)
6	=	pink	=	RX/TX +
7	=	blue	=	GND
8	=	red	=	SYNC

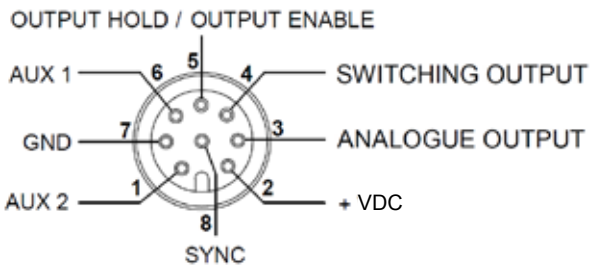
SERIAL VERSION - TX



Main connector: M12 4-pole connector

1	=	brown	=	+VDC
2	=	white	=	NOT USED
3	=	blue	=	GND
4	=	black	=	SYNC

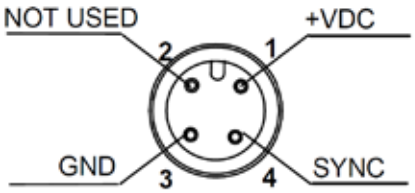
ETHERNET VERSION - RX



Main connector: M12 8-pole connector

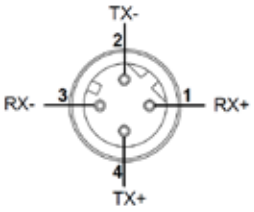
1	=	white	=	AUX 2
2	=	brown	=	+VDC
3	=	green	=	ANALOGUE OUT
4	=	yellow	=	SWITCHING OUTPUT
5	=	grey	=	OUT HOLD / OUT ENABLE
6	=	pink	=	AUX 1
7	=	blue	=	GND
8	=	red	=	SYNC

ETHERNET VERSION - TX



Main connector: M12 4-pole connector

1	=	brown	=	+VDC
2	=	white	=	NOT USED
3	=	blue	=	GND
4	=	black	=	SYNC



Secondary connector: M12 4-pole connector

1	=	brown	=	RX +
2	=	white	=	TX -
3	=	blue	=	RX -
4	=	black	=	TX +

TECHNICAL DATA

	DS2-05-07-xxx-JV	DS2-05-25-xxx-JV	DS2-05-07-xxx-JE
Power supply:	24 Vdc ± 20%		24 Vcc ± 20%
Consumption of emitter unit:	250 mA max without load		250 mA max without load
Outputs:	1 switching output; load max 10 kW		1 switching output: load max 10 kW
	load min 100 W		load min 100 W
	1 analogue output ; 0-10 V (DVmax. 2%)		1 analogue output : 0-10 V (DVmax. 2%)
Output current on switching output:	100 mA; short-circuit protection		100 mA; short-circuit protection
Output voltage on switching output:	-1.5 Vmax of the power supply at T=25°C		-1.5 Vmax of the power supply at T=25°C
Response time:	See table “Response time” below		See table “Response time” below
Emission type:	Infrared (880 nm)		Infrared (880 nm)
Resolution:	6 mm	25 mm	6 mm
Relative measurement precision:	± 6 mm	± 22.5 mm	± 6 mm
Absolute measurement precision:	6 mm	22.5 mm	6 mm
Dimensional difference between objects equally detected in asbolute Teach-in:	± 6 mm	± 22.5 mm	± 6 mm
Dimensional difference between objects equally detected in relative Teach-in	D = 12 mm	D = 45 mm	D = 12 mm
Operating distance:	0.3 ÷ 5 m	0.3 ÷ 10 m	0.3 ÷ 5 m
Available functions:	See next sections		See next sections
Operating temperature:	0 …+ 50 °C		0…+ 50 °C
Storage temperature:	- 25…+ 55 °C		- 25…+ 55 °C
Electrical protection:	Class I		Class I
Mechanical protection:	IP65 (EN 60529)		IP65 (EN 60529)
Vibrations:	0.5 mm width, 10 … 55 Hz frequency, (EN 60068-2-6)		0.5 mm width, 10 … 55 Hz frequency (EN 60068-2-6)
Shock resistance:	11 ms (30 G) 6 shock for each axis (EN 60068-2-27)		11 ms (30 G) 6 shock for each axis (EN 60068-2-27)
Housing material:	Painted aluminium (Pulverit 5121/0085 Black)		Painted aluminium (Pulverit 5121/0085 Black)
Lens material:	PMMA		PMMA
Connections:	TX: M12 4-poles connector RX: M12 8-poles connector		TX: M12 4-poles connector RX: M12 8-poles connector + M12 4-poles type “D”
Weight:	Min. 1.9 kg – Max. 4.6 kg		min 3.3 Kg – max 6.5 Kg (with packing)

TECHNICAL DATA

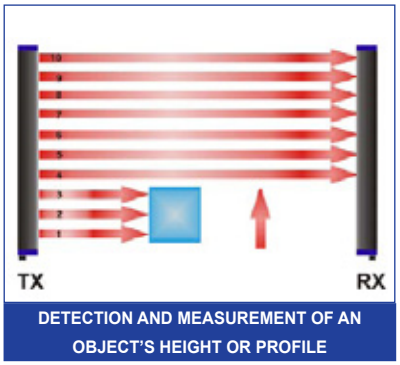
Response time - Serial version

Model	Tmin (msec)	T2	T3	T4	T5	T6	T7	Tmax (msec)
		Configuration						
	Top beam	Top beam	Top beam	Top beam	Complete Beams Status	Complete Beams Status	Complete Beams Status	Complete Beams Status
	57600 baud	9600 baud	57600 baud	9600 baud	57600 baud	9600 baud	57600 baud	9600 baud
	binary	binary	ASCII	ASCII	binary	binary	ASCII	ASCII
DS2-05-07-015-JV	5.5	12.5	5.05	13	5.5	15	6.5	10
DS2-05-07-030-JV	7	14	7	14.5	7	18	8.5	21
DS2-05-07-045-JV	8.5	15.5	8.5	16	8.5	21	10	24
DS2-05-07-060-JV	10	17	10	18	10	26	12	38
DS2-05-07-075-JV	11.5	18.5	11.5	19	11.5	31	15	44
DS2-05-07-090-JV	13	20	13	20	13	36	17	54
DS2-05-07-105-JV	14.5	21.5	14.5	22	14.5	40	19	62
DS2-05-07-120-JV	17	24	17	24	17	44	21	70
DS2-05-07-135-JV	18.5	25	19	26	19	48	23	80
DS2-05-07-150-JV	20	26.5	21	28	21	53	25	84
DS2-05-07-165-JV	22	28	23	30	23	56	28	91
DS2-05-25-045-JV	5	11	5	11	5	13	6	18
DS2-05-25-060-JV	5.5	12	5.5	12.5	5.5	14.5	6.5	19.5
DS2-05-25-075-JV	6	13	6	13.5	6	16	7	21
DS2-05-25-090-JV	6.5	13.5	6.5	14.5	6.5	17.5	7.5	22.5

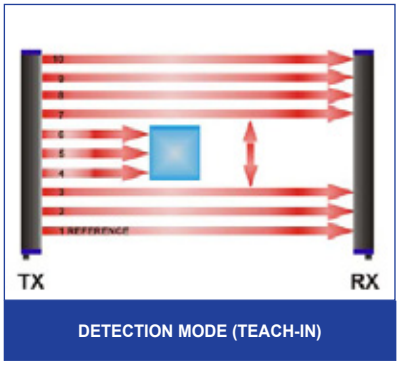
Response time - ETHERNET version

Model	Configuration			
	Top Beam		Complete Beams Status	
	binary	ASCII	binary	ASCII
DS2-05-07-060-JE	10	10	10	12
DS2-05-07-075-JE	11.5	11.5	11.5	15
DS2-05-07-090-JE	13	13	13	17
DS2-05-07-120-JE	17	17	17	21
DS2-05-07-150-JE	20	21	21	25
DS2-05-07-165-JE	22	23	23	28

FUNCTIONING MODE EXAMPLES



DETECTION AND MEASUREMENT OF AN OBJECT'S HEIGHT OR PROFILE



DETECTION MODE (TEACH-IN)

And more applications:

- Object height measurement (vertical mounting);
- Object width measurement (horizontal mounting);
- Object distance measurement (horizontal mounting);
- Object volume measurement (vertical and horizontal combination);
- Single or multiple object presence and/or position detection in a given area;
- Missing label detection on multiple lanes;
- Vertical warehouse drawers positioning;
- Box or other objects profiling on conveyors;
- Web edges or center guiding;
- Cartoners, stackers and palletizers.

MODEL SELECTION TABLE

Model	Optics interaxis (mm)	h1 Length of controlled area (mm)	A x B (mm)	h (mm)	N°. beams	Order n°
DS2-05-07-015-JV	6.75	147	35 x 40	256	21	957501040
DS2-05-07-030-JV	6.75	294	35 x 40	403	42	957501050
DS2-05-07-045-JV	6.75	441	35 x 40	550	63	957501060
DS2-05-07-060-JV	6.75	588	35 x 40	697	84	957501000
DS2-05-07-075-JV	6.75	735	35 x 40	844	105	957501070
DS2-05-07-090-JV	6.75	882	35 x 40	991	126	957501010
DS2-05-07-105-JV	6.75	1029	35 x 40	1138	147	957501080
DS2-05-07-120-JV	6.75	1176	35 x 40	1285	168	957501020
DS2-05-07-135-JV	6.75	1323	35 x 40	1432	189	957501090
DS2-05-07-150-JV	6.75	1470	35 x 40	1579	210	957501100
DS2-05-07-165-JV	6.75	1617	35 x 40	1726	231	957501030
DS2-05-25-045-JV	25	453	35 x 40	562	18	957501110
DS2-05-25-060-JV	25	604	35 x 40	713	24	957501140
DS2-05-25-075-JV	25	755	35 x 40	864	30	957501120
DS2-05-25-090-JV	25	912	35 x 40	1015	36	957501130
DS2-05-07-060-JE	6.75	588	35 x 40	697	84	957501150
DS2-05-07-075-JE	6.75	735	35 x 40	844	105	957501160
DS2-05-07-090-JE	6.75	882	35 x 40	991	126	957501170
DS2-05-07-120-JE	6.75	1176	35 x 40	1285	168	957501180
DS2-05-07-150-JE	6.75	1470	35 x 40	1579	210	957501190
DS2-05-07-165-JE	6.75	1617	35 x 40	1726	231	957501200

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CS-A1-02-G-03	axial M12-4 pole unshielded 3 m connector	95A251380
CS-A1-02-G-05	axial M12-4 pole unshielded 5 m connector	95A251270
CS-A1-02-G-10	axial M12-4 pole unshielded 10 m connector	95A251390
CS-A1-06-B-03	axial M12-8 pole unshielded 3 m connector	95ACC2230
CS-A1-06-B-05	axial M12-8 pole unshielded 5 m connector	95ACC2240
CS-A1-06-B-10	axial M12-8 pole unshielded 10 m connector	95ACC2250
CV-A1-22-B-03	axial M12 4-pole shielded 3 m connector	95ACC1480
CV-A1-22-B-05	axial M12 4-pole shielded 5 m connector	95ACC1490
CV-A1-22-B-10	axial M12 4-pole shielded 10 m connector	95ACC1500
CV-A1-26-B-03	axial M12 8-pole shielded 3 m connector	95ACC1510
CV-A1-26-B-05	axial M12 8-pole shielded 5 m connector	95ACC1520
CV-A1-26-B-10	axial M12 8-pole shielded 10 m connector	95ACC1530
DATAVS-CV-RJ45C-03	3 m crossed Ethernet cable	95A901340
DATAVS-CV-RJ45D-03	3 m direct Ethernet cable	95A901350
ST-KSTD	mounting brackets - 4 pcs kit	95ACC1670
ST-K4AV	anti-vibration supports - 4 pcs kit	95ACC1700
ST-K6AV	anti-vibration supports - 6 pcs kit	95ACC1710
ST-K4OR	orientable supports - 4 pcs kit	95ACC1680
ST-K6OR	orientable supports - 6 pcs kit	95ACC1690

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DS3 SERIES

The **AREAscan™** light arrays of the **DS3** series are optoelectronic multibeam devices that can be used to detect, measure and control the position of objects, also transparent and small. Models with 150, 300, 450 or 600 mm detection field height are available, as well as presenting 0.2 - 0.6 m or 0.6 - 1.5 m operating distances.
Internal dip-switches for configuration are available on all models, together with the Teach-in setting button with Remote and self-calibration function, LED indicators for the signalling of the device operating and auto-diagnostic status.
The synchronisation via cable of the emitter and receiver units guarantees high optic and electromagnetic interference immunity. The integrated electronics eliminates the need for an external control unit.
The compact dimensions (35 x 40 mm), easy installation and excellent performances make the **DS3** light grids particularly suitable to the many different applications of automatic packaging and industrial automation in general.





HIGHLIGHTS

- Operating distance reaching 1.5 m and up to 600 mm controlled height
- Digital PNP and 0 - 10 V analogue outputs
- Simple configuration obtained using the internal dip-switches
- Teach-in setting with Remote and self-calibration function

APPLICATIONS

- Control of the correct material positioning (opaque and transparent) during functioning (plastic, metal, paper etc)
- Detection of objects with different shapes in the food industry
- Loop control and positioning (also transparent material
- Detection of objects with different shapes in the food industry

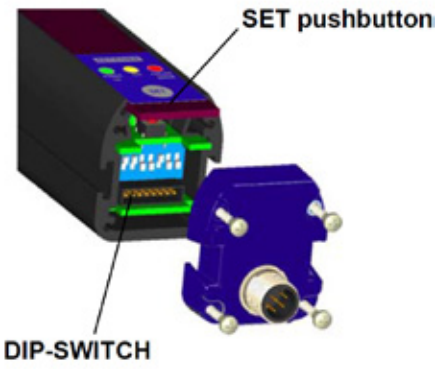


The following operating modes can be selected via internal dip-switches on the receiver unit and the SET and calibration button:

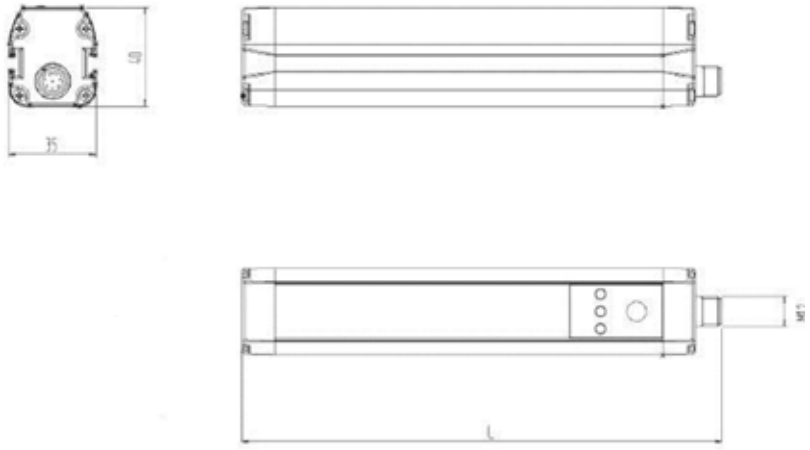
- Scanning with parallel or crossed beams
- Manual calibration or at powering on
- Absolute [1] or relative [2] measurement
- Absolute [3] or relative [4] detection
- Precise detection or with a tolerance channel
- Light or dark output
- Sensitivity level

Notes:

1. In this mode, the analogue output is proportional to the last obscured optic
2. In this mode, the analogue output is proportional to the the total number of obscured optics
3. In this mode, a certain object in a certain position in the sensitive area can be detected through Teach-in. The digital ouput switches every time the object is in this position
4. In this mode, a certain object can be detected through Teach-in. The digital output switches each time the object is inside the sensitive area in any position



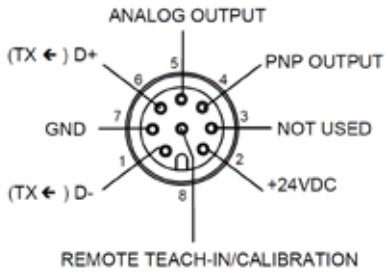
DIMENSIONS



MODEL	a x b (mm)	h (mm)
DS3-SD-015	35 x 40	226
DS3-SD-030	35 x 40	376
DS3-SD-045	35 x 40	526
DS3-SD-060	35 x 40	676
DS3-LD-015	35 x 40	226
DS3-LD-030	35 x 40	376
DS3-LD-045	35 x 40	526
DS3-LD-060	35 x 40	676

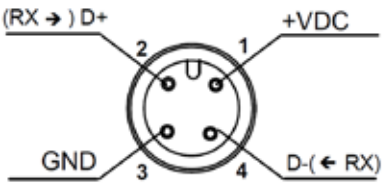
CONNECTIONS

RECEIVER (RX)



1	=	white	=	SYNC D-
2	=	brown	=	+VDC
3	=	green	=	NOT USED
4	=	yellow	=	PNP OUTPUT
5	=	grey	=	Analog OUTPUT
6	=	red	=	SYNC D+
7	=	blue	=	0 V
8	=	red	=	REMOTE TEACH-IN /CALIBRATION

EMITTER (TX)

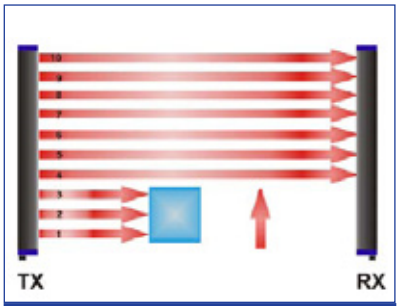


1	=	brown	=	+VDC
2	=	white	=	SYNC D+
3	=	blue	=	0 V
4	=	black	=	SYNC D-

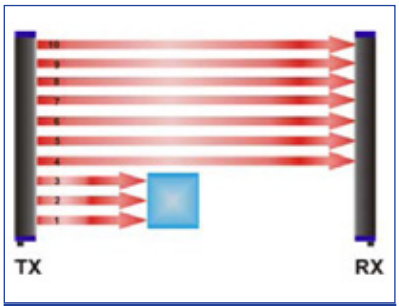
TECHNICAL DATA

Power supply:	24 Vdc ± 15 %
Consumption on emitter unit:	100 mA max.
Consumption on receiver unit:	100 mA max. without load
Outputs:	1 PNP output; max. 10 kW load
	1 analog output; 0 - 10 V (D Vmax. 5%)
Load current on PNP output:	100 mA; short circuit protection
Saturation voltage on PNP output:	1 V a T=25°C
Response time:	refer to selection table
Emission type:	infrared 880 nm
Resolution with crossed beams minimum object detectable:	DS3-SD: 0.5 mm
	DS3-LD: 0.8 mm
Resolution with parallel beams minimum object detectable:	6 mm
Relative measurement precision (parallel beams):	± 6 mm
Absolute measurement precision (parallel beams):	± 3 mm
Dimensional difference between equally detected objects in the absolute teach-in mode:	± 6 mm
Dimensional difference between equally detected objects in the absolute teach-in mode:	Δ = 12 mm
Operating distance:	0.2 - 0.6 m (SD vers. parallel beams)
	0.3 - 0.6 m (SD vers. crossed beams)
	0.6 - 1.5 m (LD vers.)
Receiver indicators:	green POWER ON LED
	orange OUT LED
	red FAILURE/ERROR LED
Emitter indicators:	green POWER ON LED
Operating temperature:	- 10 … + 55 °C
Storage temperature:	- 25 … + 70 °C
Humidity:	15…95 % (uncondensed)
Electrical protection:	class 1
Mechanical protection:	IP 65 (EN 60529)
Vibration resistance:	0.7 mm width,
	10 … 55 Hz amplitude,
	10 sweep for X, Y, Z axis;
	1 octave/min., (EN 60068-2-6)
Shock resistance:	16 ms (about 10 G) 1.000
	shock for axis (EN 60068-2-29)
Housing material:	painted aluminium (shiny black RAL9005)
Optics material:	PMMA
Connections:	M12-4 pole connector for TX
	M12-8 pole connector for RX
Weight:	DS3-015: 310 g. per unit
	DS3-030: 530 g. per unit
	DS3-045: 700 g. per unit
	DS3-060: 980 g. per unit

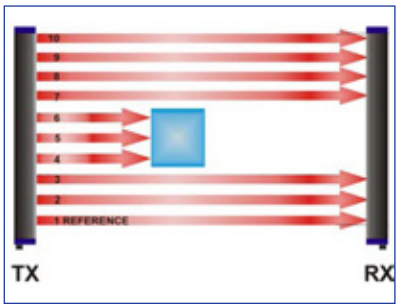
FUNCTIONING MODE



HIGH RESOLUTION DETECTION OF SMALL OR TRANSPARENT OBJECTS



DETECTION AND MEASUREMENT OF AN OBJECT'S HEIGHT OR PROFILE



DETECTION MODE (TEACH-IN)

Note: different operating modes can be selected: absolute or relative measurement respect to a reference by means of internal dip-switches and absolute or relative detection respect to a reference by means of internal dip-switches and SET button

SELECTION TABLE

	DS3-SD-015	DS3-SD-030	DS3-SD-045	DS3-SD-060	DS3-LD-015	DS3-LD-030	DS3-LD-045	DS3-LD-060
total length:	226 mm	376 mm	526 mm	676 mm	226 mm	376 mm	526 mm	676 mm
controlled area length:	150 mm	300 mm	450 mm	600 mm	150 mm	300 mm	450 mm	600 mm
n° beams	24	48	72	96	24	48	72	96
response time of crossed beams:	23 ms.	46 ms.	69 ms.	92 ms.	23 ms.	46 ms.	69 ms.	92 ms.
response time of parallel beams:	3 ms.	6 ms.	9 ms.	12 ms.	3 ms.	6 ms.	9 ms.	12 ms.
operating distance:	0.2 ... 0.6 m	0.2 ... 0.6 m	0.2 ... 0.6 m	0.2 ... 0.6 m	0.6 ... 1.5 m	0.6 ... 1.5 m	0.6 ... 1.5 m	0.6 ... 1.5 m

MODEL SELECTION AND ORDER INFORMATION

MODEL	DISTANCE	CONTROLLED HEIGHT	ORDER N°
DS3-SD-015	short	150 mm	957600100
DS3-SD-030	short	300 mm	957600110
DS3-SD-045	short	450 mm	957600150
DS3-SD-060	short	600 mm	957600170
DS3-LD-015	long	150 mm	957600120
DS3-LD-030	long	300 mm	957600140
DS3-LD-045	long	450 mm	957600160
DS3-LD-060	long	600 mm	957600180

Fixing brackets and screws are supplied with the product

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CV-A1-22-B-03	axial M12 4-pole shielded 3 m connector	95ACC1480
CV-A1-22-B-05	axial M12 4-pole shielded 5 m connector	95ACC1490
CV-A1-22-B-10	axial M12 4-pole shielded 10 m connector	95ACC1500
CV-A1-26-B-03	axial M12 8-pole shielded 3 m connector	95ACC1510
CV-A1-26-B-05	axial M12 8-pole shielded 5 m connector	95ACC1520
CV-A1-26-B-10	axial M12 8-pole shielded 10 m connector	95ACC1530

Note: the cabled connectors have to be ordered separately

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S65-Z SERIES

The **S65-Z** series offers a retroreflex line sensor for accurate measurements of the centre or edge position and width of objects. The detection is made on a reflecting tape, supplied with the sensor, positioned behind the object, with a 150 mm maximum measurement field width and a 200 mm operating distance. The 4-20 mA analogue output is proportional to the measurement, while the digital output, PNP or NPN according to the model, is activated when the measured value is included inside the interval fixed by the operator via teach-in. An alarm signal is activated when the luminous intensity received is weak. The setting is accomplished through three push-buttons present on the control panel, together with the output status LED, two LEDs signalling the operating mode, an alarm LED and a 4-digit display for the visualisation of the measurement and sensor configuration messages. Models with the RS485 serial interface offer the remote setting of all the programmable functions as well as the transmission of the measurements to an industrial PC are available.



HIGHLIGHTS

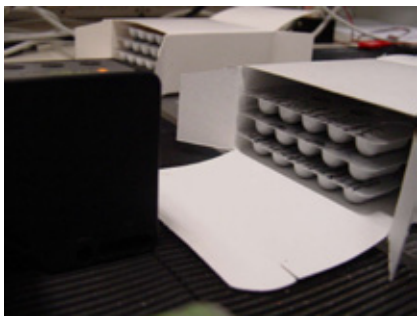
- Line sensors with RS485 serial interface
- PNP or NPN digital output and 4 - 20 mA analogue output
- Teach-in of the measurement limit values for digital output activation
- 3 setting push-buttons and a 4-digit display

APPLICATIONS

Automatic machines



Pharmaceuticals



Packaging lines

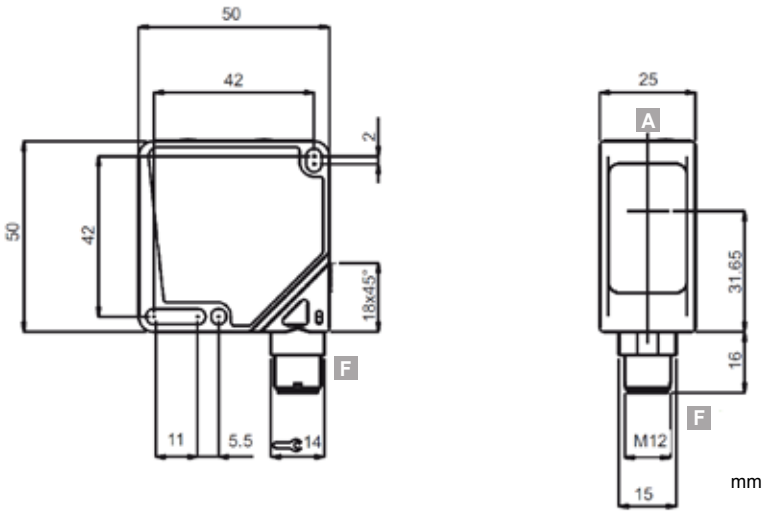


The object to measure is illuminated by the infrared emission cone. The light reflected by the reflector is detected by a photodiode array and analysed according to 3 operating modes:

- Edge position: detects the position of the right or left edge of an object or of the first edge beginning from the right or left side in presence of more objects;
- Centre position: detects the centre independently from the object's dimensions;
- Width measurement: in presence of one object it provides the distance between two edges; in presence of different objects it provides the sum of the respective widths;

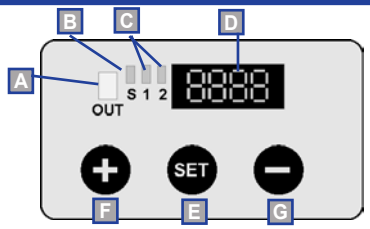
The analogue output generates a signal proportional to the distance from the reference edge or to the object width; the digital output switches when the detected position or measurement is inside the interval acquired via teach-in.

DIMENSIONS





INDICATORS AND SETTING



- A Output status LED
- B Alarm LED
- C Operating mode LEDs
- D 4-digit display
- E SET push-button
- F +/- selection push-buttons
- G M12 connector output orientable on two positions

ACCESSORIES

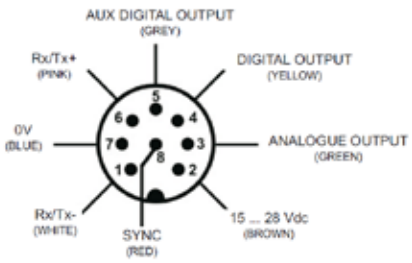
For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

Refer also to **Connectors** and **Fixing Brackets** and **Supports** of the **General Catalogue.**

CONNECTIONS



S65-PA-5



Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

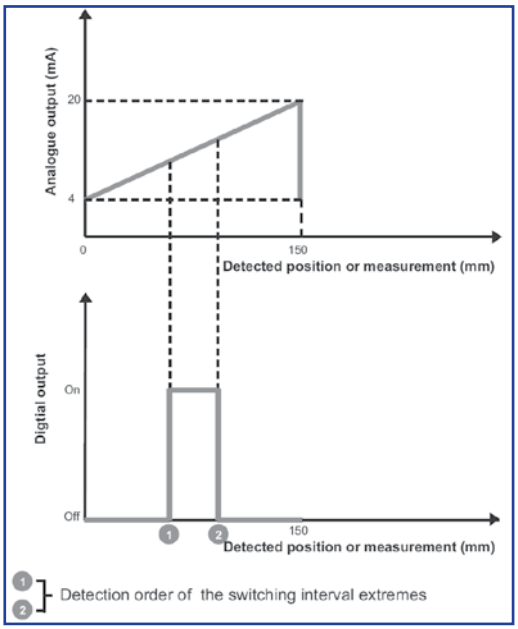
TECHNICAL NOTES
[1]Limit values
[2]Average life of 100.000 h with T_A = +25 °C
[3]Connector can be blocked on two positions
[4]A - reverse polarity protection
B - overload and short-circuit protection

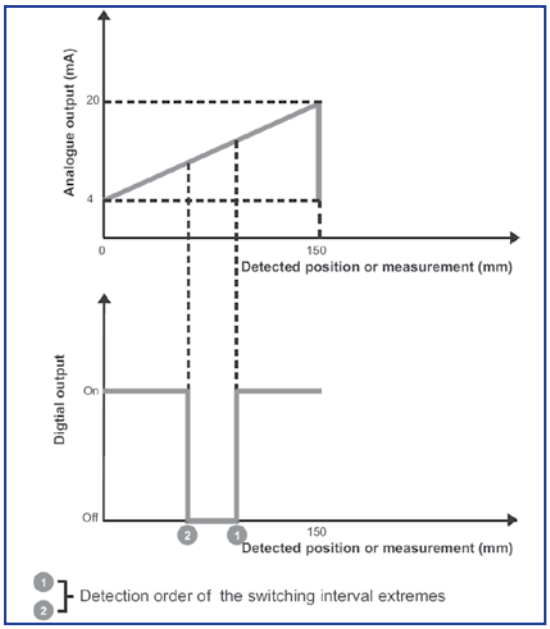
		S65-PA-5-Z03-NNI	S65-PA-5-Z03-NNIZ	S65-PA-5-Z03-PPI	S65-PA-5-Z03-PPIZ
Measurement distance from object:	200 mm	•	•	•	•
Measured width:	150 mm	•	•	•	•
Power supply:	10 ... 30 Vdc[1]	•	•	•	•
Ripple:	2 Vpp	•	•	•	•
Consumption:	< 70 mA	•	•	•	•
Light emission [2] :	infrared LED 875 nm	•	•	•	•
Minimum dimension measured:	0.9 mm	•	•	•	•
Resolution:	0.15 mm	•	•	•	•
Linearly error:	≤ 1%	•	•	•	•
Setting:	3 push-buttons	•	•	•	•
Indicators:	4-digit display	•	•	•	•
	2 green operating mode LEDs	•	•	•	•
	green ALARM LED	•	•	•	•
	yellow OUTPUT LED	•	•	•	•
Output type:	PNP, NA			•	•
	NPN, NA	•	•		
	analogue 4-20 mA	•	•	•	•
Output current:	≤ 100 mA at 25°C	•	•	•	•
Saturation voltage:	≤ 1.2 V	•	•	•	•
Switching frequency:	> 130 Hz	•	•	•	•
Auxiliary functions:	RS485 serial interface		•		•
	keylock	•	•	•	•
	delay	•	•	•	•
Connection:	M12 8-pole connector[3]	•	•	•	•
Electrical protection:	class 2	•	•	•	•
Mechanical protection	IP67	•	•	•	•
Protection devices:	A, B[4]	•	•	•	•
Housing material:	ABS	•	•	•	•
Lens material:	glass	•	•	•	•
Weight:	100 g max.	•	•	•	•
Operating temperature	-10 ... +55°C	•	•	•	•
Storage temperature:	-20 ... +70°C	•	•	•	•
Standard reference:	EN 60947-5-2	•	•	•	•

SELECTION TABLE

models with RS485 serial interface			
S65-PA-5-Z03-NNIZ	956251070	NPN	
S65-PA-5-Z03-PPIZ	956251060	PNP	RS485
models without RS485 serial interface			
S65-PA-5-Z03-NNI	956251050	NPN	RS485
S65-PA-5-Z03-PPI	956251040	PNP	

DETECTION DIAGRAMS



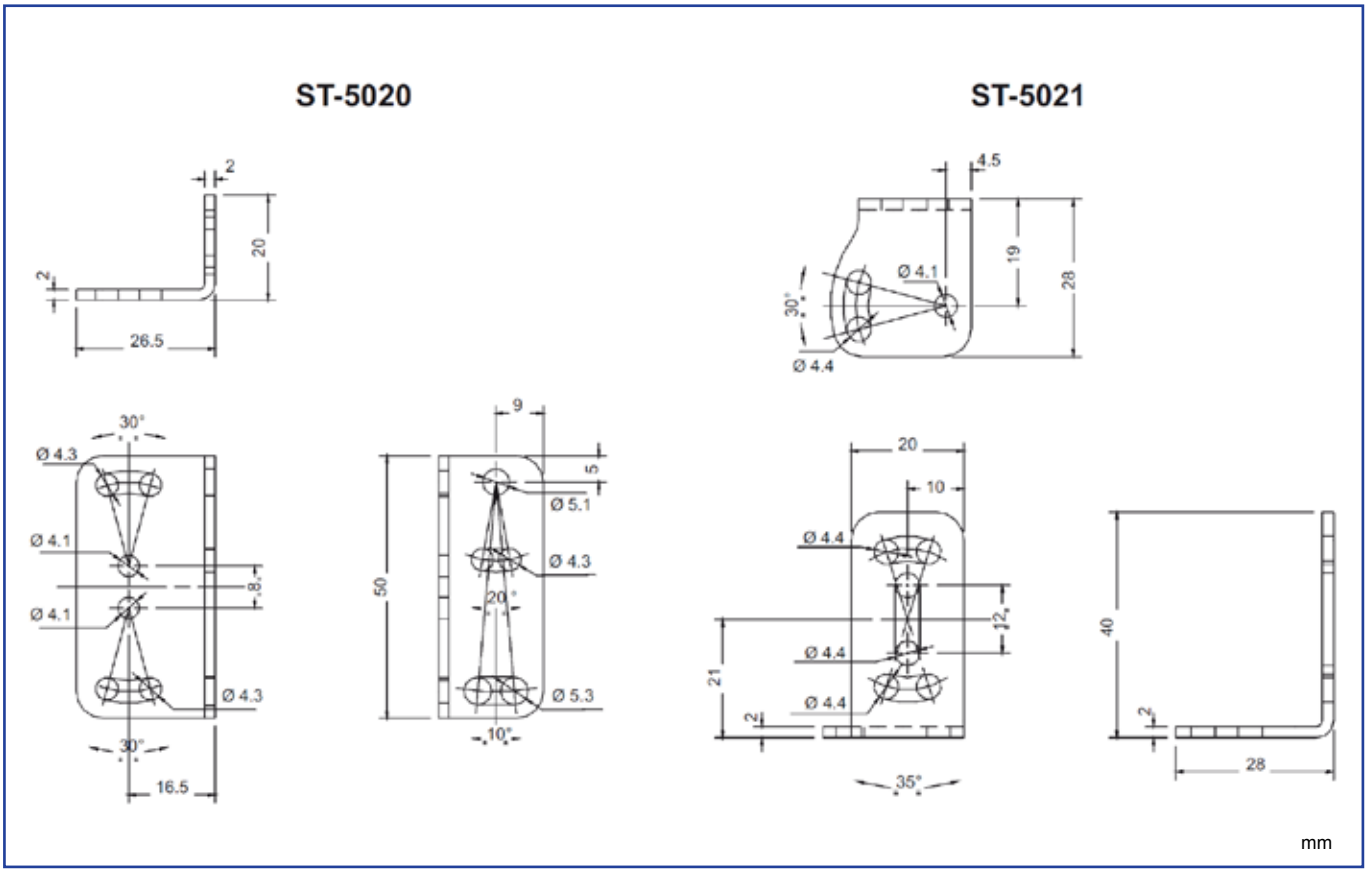


Note:the digital output is activated inside the switching range if the inferior limit is acquired first and then the superior limit. The inverse logic functioning is obtained inverting the acquisition order.

MODEL SELECTION AND ORDER INFORMATION

MODEL	RS485	CONNECTION	OUTPUT	ORDER N°
S65-PA-5-Z03-NNI		M12 connector	NPN	956251050
S65-PA-5-Z03-NNIZ	•	M12 connector	NPN	956251070
S65-PA-5-Z03-PPI		M12 connector	PNP	956251040
S65-PA-5-Z03-PPIZ	•	M12 connector	PNP	956251060

ACCESSORY DIMENSIONS



ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5020	fixing bracket 50 x 27 x 20 mm	95ACC5330
ST-5021	fixing bracket 20 x 40 x 28 mm	95ACC5340
TAPE S65-Z	self-adhesive reflective tape 25 x 900 mm	95ACC2290
S65-Z REFLECTOR	20x175 mm reflector with 47x190 mm support	95ACC2390
Refer also to **Accessories for Sensors**		
CS-A1-06-B-03	M12 8-pole unshielded axial 3 m connector	95ACC2230
CS-A1-06-B-05	M12 8-pole unshielded axial 5 m connector	95ACC2240
CS-A1-06-B-10	M12 8-pole unshielded axial 10 m connector	95ACC2250

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DATALOGIC

MEASUREMENT

S80 SERIES

The **S80** series, in the compact sturdy metal housing, offers innovative class 2 laser distance sensors with time of flight measurement. This technology, based on the measurement of the time between the emission and receipt of the laser light pulses, effects accurate distance detection.
The **S80-Y0** and **S80-YL0** sensors function as proximity on respectively a 0.3 - 4 m distance, or from 0.3 to 7 m with scalable range, in object positioning or detection applications.
The **S80-Y1** and **S80-Y2** sensors, with operating distances reaching 20 or 100 m, function as retroflex measuring the distance from a reflector mounted on the object to detect. All models have two switching outputs, available in both the NPN and PNP models, that can be set at different distances, while the measurement value is supplied on the 4-20 mA analogue output and RS485 serial interface; the latter can be also used to set all the parameters.
Moreover the **S80-YL0** version offers the possibility to scale the 4-20 mA analogue output. This feature allows to set the minimum and maximum values of the operating distance and link the minimum and maximum current.
A 4-digit display visualises the distance, as well as all the parameters that can be set with the three push-buttons.



HIGHLIGHTS

- High precision and speed
- Proximity measurement range scalable from 0 to 7 m
- Retroreflex measurement range reaching 20 or 100 m on reflector
- 4 digit display and RS485 serial interface

APPLICATIONS

Automatic warehouse



Automotive



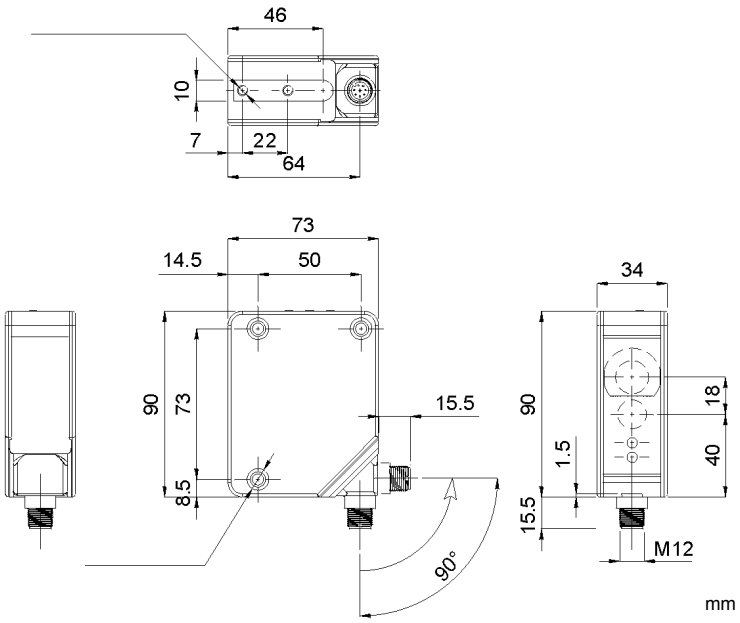
Wood



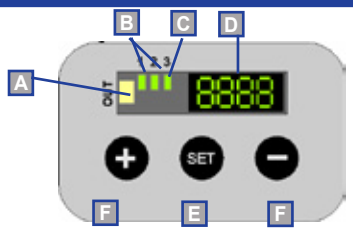
The laser distance sensors with time of flight measurement are suitable for long distance measurements offering constant performances on the entire range.
The linearity indicates the maximum deviation of the analogue output respect to the ideal value and is expressed in percentage of full range.
Whereas the temperature drift indicates the maximum deviation in relation to the sensor temperature variation and is expressed in mm/°C.
Lastly, the repeatability represents the variation interval of the measurement made different times on the target at the same distance. The product is not suitable to be used for OUTDOOR application.



DIMENSIONS



INDICATORS AND SETTINGS



- A Output 'OR' function LED
- B Output status LED
- C Response time LED
- D 4-digit display
- E SET push-button
- F +/- selection push-buttons
- G Alarm LED
- H M12 connector output orientable on two positions

ACCESSORIES

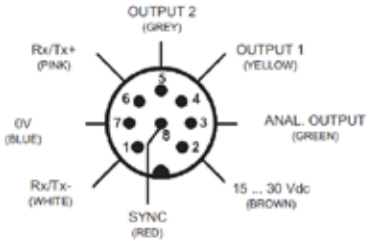
For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

Refer also to **Connectors** and **Fixing Brackets** and **Supports** of the **General Catalogue.**

CONNECTIONS



S80L-Y



NOTE: the wire colours refer to the cables manufactured according to the European standard

Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

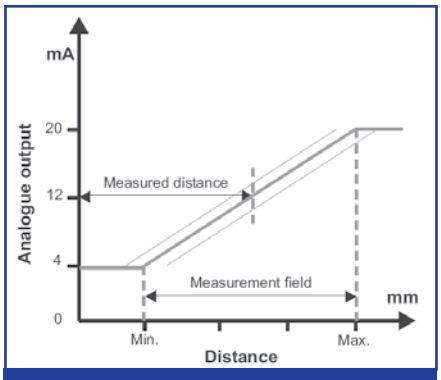
Direct measurement range[1]:	0.3 - 4 m (Y0), 0.3 - 7 m scalable (YL0)
Retroreflex measurement range[2]:	0.3 - 20.3 m (Y1), 0.3 - 100.3 m (Y2)
Linearity:	0.3% (Y0/YL0), 0.75% (Y1), 0.3% (Y2)
Temperature drift:	±0.6 mm/°C (Y0/YL0), <2mm/°C (Y1/Y2)
Warm Up:	20 min for all models
Repeatability[3]:	<5 mm (Y0 FAST)
	7 mm @ 7 m (YL0), 10 mm @ 20 m (Y1), 10 mm @ 100 m (Y2)
Switching output hysteresis[3]:	5 mm (Y0/YL0), 25 mm (Y1), 40 mm (Y2)
Power supply:	15 ... 30 Vdc (limit values)
Ripple:	2 Vpp max.
Consumption:	110 mA max. @ 24 Vdc
Light emission:	red Laser 658 nm, class 2
Setting:	SET push-button
	+/- push-button
Indicators (on command panel)**:**	4-digit display
	yellow OUTPUT LED
	green OUTPUT STATUS LED
	green FAST mode LED
Indicators (on front)**:**	yellow OUTPUT LED
	red ALARM LED
Output type:	2 PNP NO or 2 NPN NO
	4 ... 20 mA analogue
Output current:	≤ 100 mA
Saturation voltage:	≤ 2 V
Response time:	5 ms (NORMAL) / 1 ms (FAST)
	6 ms (YL0)
Switching frequency:	100 Hz (NORMAL) / 500 Hz (FAST)
	85 Hz (YL0)
Timing function:	selectable between 5, 10, 20, 30 e 40 ms
Auxiliary functions:	synchronism (SYNC)
	keylock[4]
	RS485 serial interface
Connection:	M12 8-pole connector[5]
Electrical protection:	class 2
Mechanical protection:	IP67
Protection devices:	A, B[6]
Housing material:	aluminium
Lens material:	glass
Weight:	330 g max.
Operating temperature:	-10 ... +50°C
Storage temperature:	-25 ... +70°C
Reference standard:	EN 60947-5-2, EN 60825-1

TECHNICAL NOTES

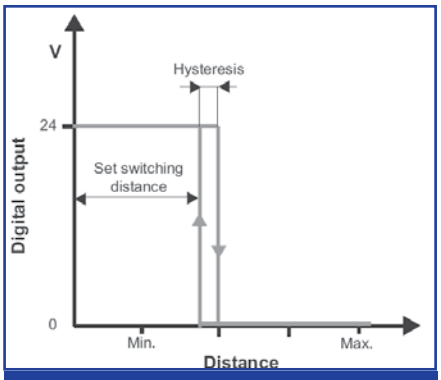
[1]On target 90% white to 18% grey
[2]On reflector R80
[3]In Normal mode with 5 ms response time
[4]Active with SYNC wire connected to + Vdc for at least 1 s at powering
[5]Connector can be blocked in two positions
[6]A - reverse polarity protection
B - overload and short-circuit protection



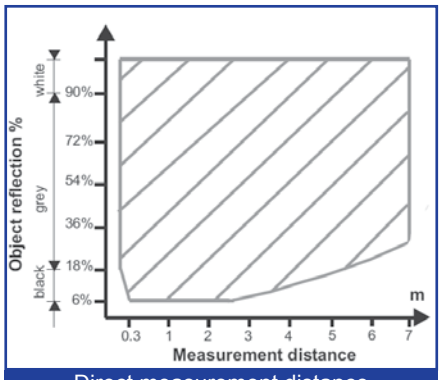
DETECTION DIAGRAMS



Analogue output



Digital outputs



Direct measurement distance according to object reflection degree

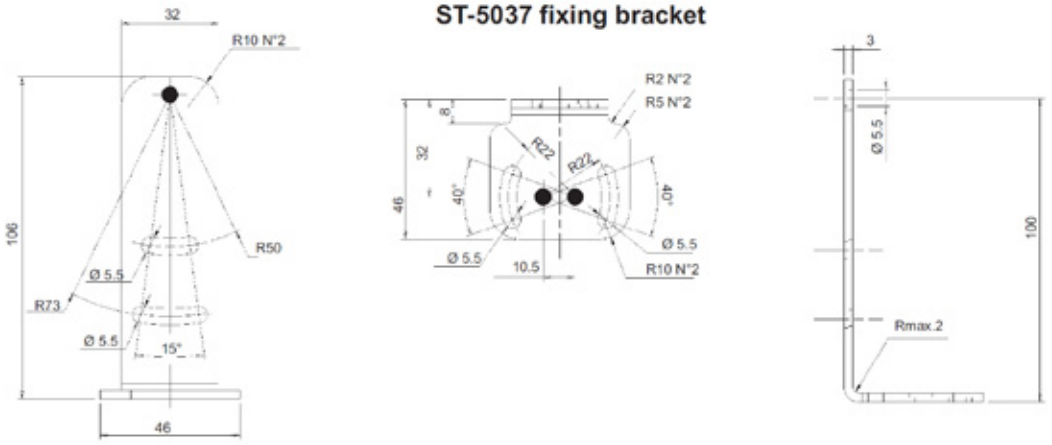
MODEL SELECTION AND ORDER INFORMATION

MODEL	MAX. DISTANCE	REFLECTOR	CONNECTION	OUTPUT	N° ORDER
S80-MH-5-Y09-PPIZ	4 m	no	M12 connector	PNP	951501080
S80-MH-5-Y09-NNIZ	4 m	no	M12 connector	NPN	951501010
S80-MH-5-YL09-PPIZ	7 m	no	M12 connector	PNP	951501060
S80-MH-5-YL09-NNIZ	7 m	no	M12 connector	NPN	951501070
S80-MH-5-Y19-PPIZ	20 m	yes *	M12 connector	PNP	951501020
S80-MH-5-Y19-NNIZ	20 m	yes *	M12 connector	NPN	951501030
S80-MH-5-Y29-PPIZ	100 m	yes *	M12 connector	PNP	951501040
S80-MH-5-Y29-NNIZ	100 m	yes *	M12 connector	NPN	951501050

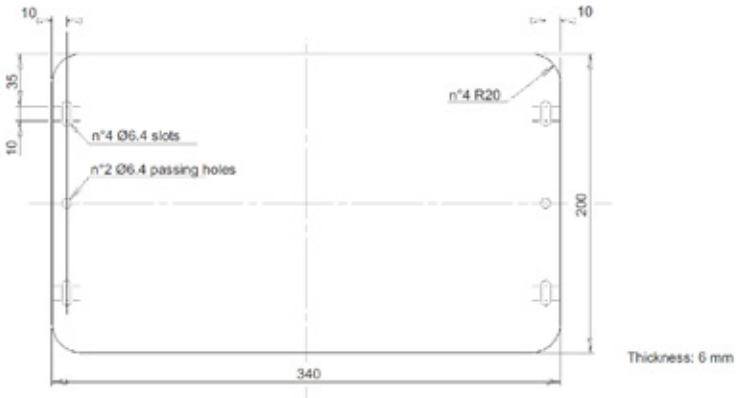
* supplied with the sensor

ACCESSORY DIMENSIONS

ST-5037 fixing bracket



R80 reflector



mm

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	N° ORDER
ST-5037	'L' shaped fixing bracket	95ACC2260
R80 *	S80 distance sensor reflector	95A151210
Refer also to **Accessories for Sensors**		
CS-A1-06-B-03	M12 8-pole conn. with 3 m unshielded cable	95ACC2230
CS-A1-06-B-05	M12 8-pole conn. with 5 m unshielded cable	95ACC2240
CS-A1-06-B-10	M12 8-pole conn. with 10 m unshielded cable	95ACC2250

* supplied with the sensor

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S81 SERIES

S81 distance sensor line offers the best solution for all the applications where cost reduction is requested, without compromising the detection or measurement performances.
The class 2 Laser emission and the exclusive time of flight measurement of light technology assure extreme precision in the distance measurement, with range up to 4 meters.
The high resolution is not a limit for the sensing speed, reaching 5 ms response time and 80 Hz switching frequency.
Thanks to only two push-buttons for different distance threshold setting, the automatic sensor setting is very easy and accurate for the two independent NPN or PNP outputs.
The sensor is available in two different versions: **S81-...Y** for distance measurement with an additional 0-10 V analogue output, or **S81-...M** as long distance background suppression proximity with an additional alarm output for received signal problems or dirty lens condition. Moreover the **S81-.. Y** version offers the possibility to scale the 0-10V analogue output. This feature allows to set the minimum and maximum values of the operating distance and link the minimum and maximum voltage.
.



HIGHLIGHTS

- Proximity measurement up to 4m
- Easy setting via push-buttons
- 2 PNP or NPN digital outputs
- 0-10V analogue output or alarm output

APPLICATIONS

Automatic warehouse



Automotive



Wood



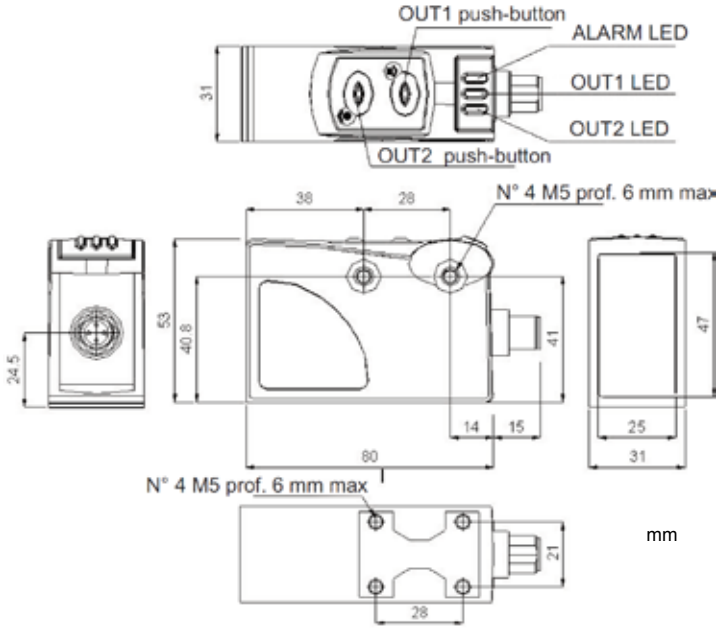
MEASUREMENT

Easy setting:
the switching thresholds are defined separately for each channel, by means of the following procedure:

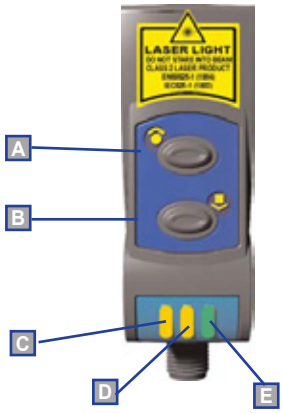
- Set the target object in front of the sensor at the expected distance
- In order to set the switching threshold for the output 1, press the button until the LED1 starts blinking
- In order to set the switching threshold for the output 2, press the button until the LED2 starts blinking



DIMENSIONS



INDICATORS AND SETTINGS



A Output2 push-button
B Output1 push-button
C Output1 LED
D Output2 LED
E Power/Alarm LED

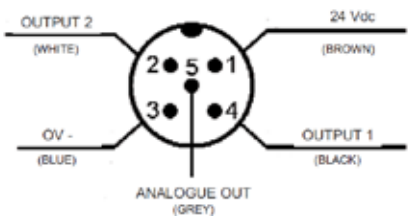
ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

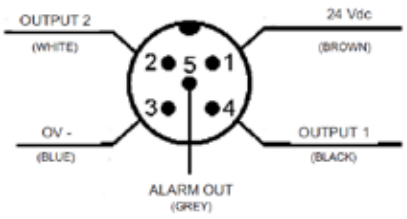
Refer also to **Connectors** and **Fixing Brackets** and Supports of the **General Catalogue.**

CONNECTIONS

S81-xx-x-Yxx-xxx models



S81-xx-x-Mxx-xxx models



NOTE: the wire colours refer to the cables manufactured according to the European standard

TECHNICAL DATA

Measurement range:	300 … 4000 mm[1]
Linearity:	<1% f.s. (24 Vdc, 25 °C, with white 90% target)
Repeatability:	+/- 4 mm
Temperature drift:	< 1 mm/°C
Hysteresis:	20 mm
Power supply:	24 Vdc +/- 20%, limit values
Ripple:	2 Vpp max.
Consumption:	120 mA max (100 mA at 24V)
Light emission:	red Laser 665 nm, class 2
Spot dimension:	Ø3.5 mm at 0.3 m
	Ø7 mm at 4 m
Setting:	OUT2 , OUT1
Indicators:	yellow OUTPUT 1 LED
	yellow OUTPUT 2 LED
	green POWER / READY LED
Output type:	2 PNP or NPN outputs
	1 PNP or NPN alarm output (only S81...M)
	1 analogue 0-10 V output (only S81...Y)
Output current:	100 mA max.
Response time:	5 ms
Switching frequency:	80 Hz
Connections:	5-pole M12 connector
Electrical protection:	class 2
Mechanical protection:	IP67
Protection devices:	A, B[2]
Housing material:	ABS
Lens material:	PMMA
Weight:	92 g max.
Operating temperature:	-10 … 50 °C
Storage temperature:	-20 … 70 °C
Reference standard:	EN 60947-5-2, EN 60825-11

TECHNICAL NOTES

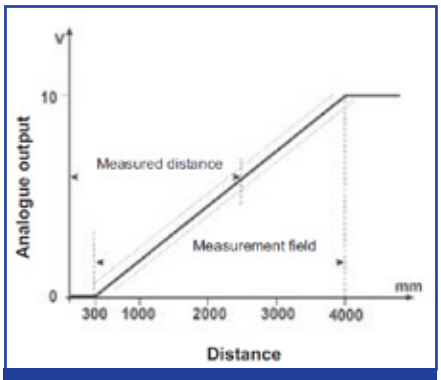
[1]On target 90% white to 18% grey
[6]A - reverse polarity protection
B - overload and short-circuit protection

SELECTION TABLE

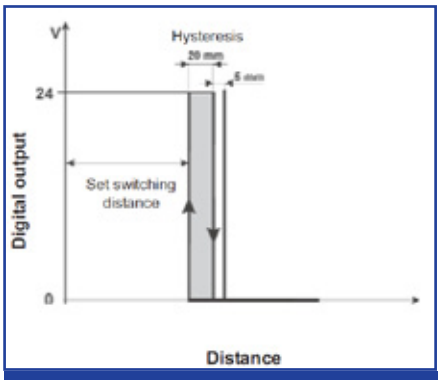
Model	Analogue output 0-10V	Scalable 0-10V Analogue output	Alarm output Switching outputs	2 NPN	2 PNP Switching outputs
S81-PL-5-M03-NNC			•	•	
S81-PL-5-M03-PPC			•		•
S81-PL-5-Y03-NNV	•			•	
S81-PL-5-Y03-PPV	•				•
S81-PL-5-Y03-PPVK		•	•		

CAUTION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
EN60825-1 (1994) - IEC825-1 (1993)
Max.power ≤ 1mW λ 665nm

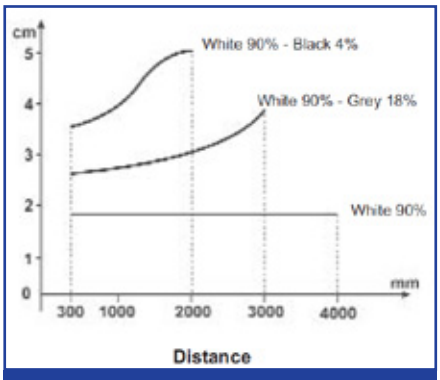
DETECTION DIAGRAMS



Analogue output



Digital outputs



White/Black difference

MODEL SELECTION AND ORDER INFORMATION

MODEL	MAX. DISTANCE	ANALOGUE OUT	alarm output	SWITCHING OUTPUT	N° ORDER
S81-PL-5-M03-NNC	4 m	no	yes	2 NPN	951551100
S81-PL-5-M03-PPC	4 m	no	yes	2 PNP	951551110
S81-PL-5-Y03-NNV	4 m	yes	no	2 NPN	951551120
S81-PL-5-Y03-PPV	4 m	yes	no	2 PNP	951551030
S81-PL-5-Y03-PPVK	4 m	yes	no	2 PNP	951551040

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	N° ORDER
CS-A1-06-B-03	M12 8-pole conn. with 3 m unshielded cable	95ACC2230
CS-A1-06-B-05	M12 8-pole conn. with 5 m unshielded cable	95ACC2240
CS-A1-06-B-10	M12 8-pole conn. with 10 m unshielded cable	95ACC2250

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US18 SERIES

The range of measurement devices is enriched by M18x1 ABS tubular ultrasonic sensors of the **US18** series. Models with axial or radial acoustic emission and with discrete bipolar output (1 NPN and 1 PNP) or with 4-20 mA or 0-10 V analogue output are available. The extremely reduced blind zone and the unequalled 5 ms response speed are only two of the many features that are worth highlighting. The sensors are easily configured through the Teach-in function, while the operating status is visibly signalled by 2 bi-coloured LEDs.
The temperature compensation function corrects the sound speed changes due to temperature variations, so the sensor precision remains unchanged in all situations and a 0.5 mm resolution is guaranteed. The electrical connection is accomplished through standard M12 5-pole connectors. The **US18** ultrasonic sensors detect all objects independent from the non sound-absorbent material, reflectivity, transparency and colour, thus perfectly suiting applications.



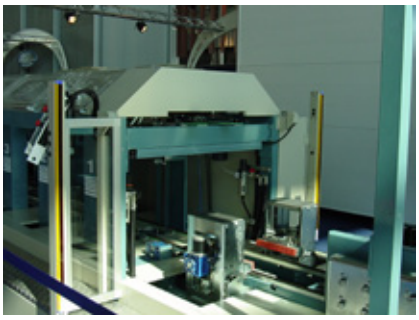


HIGHLIGHTS

- High precision and switching frequency
- Colour independence and transparent object detection
- Easy Teach-in setting and 2 bi-coloured signalling LEDs
- Models with digital NPN - PNP and 0 - 10 V or 4- 20 mA analogue outputs
- Temperature compensation function

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



Packaging lines

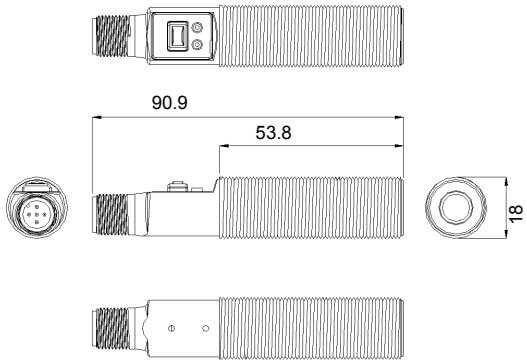


Models with discrete output are excellent foreground and/or background suppressors. The Teach-in procedure allows to fix a switching window with 10 mm width and to detect minimum and maximum values.
The models with analogue output are conceived as distance sensors: the analogue output can be scaled on windows of any width inside the operating range, or positioned at the centre of a detection window with a fixed width of 100 mm.

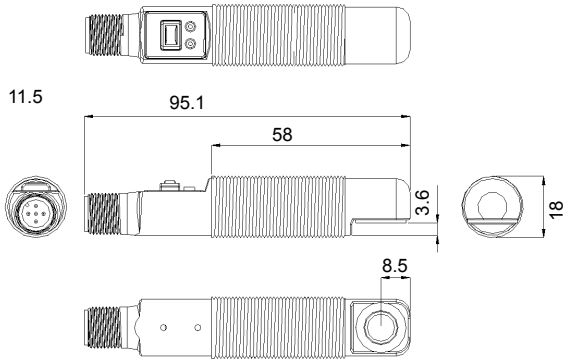


DIMENSIONS

AXIAL VERSION

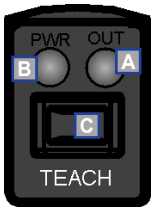


RADIAL VERSION



mm

INDICATORS AND SETTING



A OUT LED

B Power / signal intensity LED

C Teach-in push-button

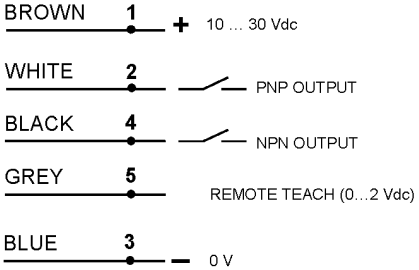
ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

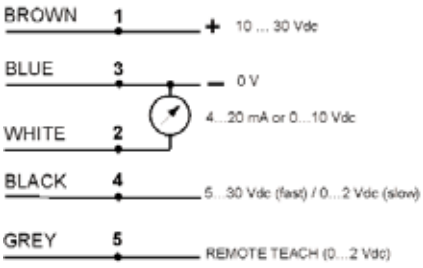
Refer also to **Connectors** and **Fixing Brackets** and **Supports** of the **General Catalogue.**

CONNECTIONS

DIGITAL VERSION



ANALOGUE VERSION



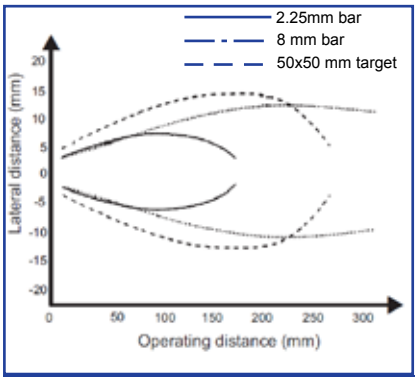
TECHNICAL DATA

	Models with discrete output	Models with analogue ouput
Operating distance (typical values):	30 … 300 mm	
Power supply:	10 … 30 Vdc (limit values), polarity inversion protection	
Ripple:	≤2 Vpp	
Consumption:	65 mA max., 40 mA typical at 25 Vdc	
Output type:	NPN and PNP	0…10 Vdc or 4…20 mA
Output current:	100 mA max., short-circuit protection	
Saturation voltage:	PNP < 1.2 V at 10 mA, < 1.6 V at 100 mA	
	NPN < 200 mV at 10 mA, < 600 mV at 100 mA	
Load resistance:		voltage output: 2.5 kΩ min.
		current output: 1 kΩ max.
Response time:	5 ms	2.5 ms (black wire at 0-2 Vdc or unconnected) 30 ms (black wire at 5-30 Vdc)
Switching frequency:	100 Hz	200 Hz (black wire at 0-2 Vdc or unconnected) 16 Hz (black wire at 5-30 Vdc)
Delay at powering:	300 ms	
Indicators:	yellow-green bi-coloured OUTPUT LED	
	red POWER LED	
Setting:	Teach-in or remote input	
Ultrasonic emission frequency:	300 KHz, repeated each 2.5 ms	
Temperature drift:	minor than 1.7 % at detection distance	
Repeatability:	0.5 mm	
Minimum detection window:	5 mm	
Hysteresis:	0.7 mm	
Resolution *:	±1 mm with 2.5 ms response time	
	±0.5 mm with 30 ms response time	
Minimum detection window dimension:	5 mm	
Operating temperature:	-25 … 55 °C	
Storage temperature:	-25 … 70 °C	
Electrical protection:	Class 2	
Housing material:	Thermoplastic polyester	
Mechanical protection:	IP67	
Connections:	M12 5-pole connector	
Weight:	25 g	
Standard reference:	EN 60068-2-6, EN 60068-2-27	

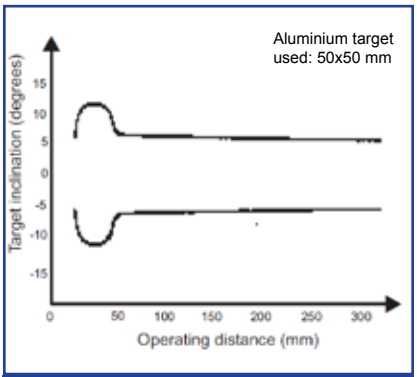
* with 50x50 mm aluminium target at 22°C and constant operating conditions

CE

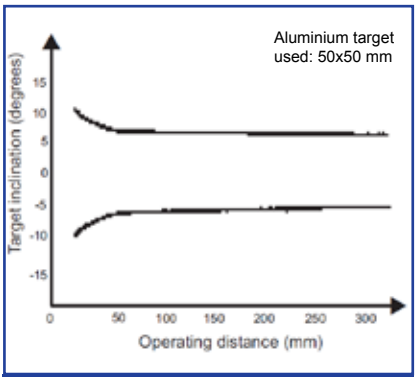
DETECTION DIAGRAMS



Beam - distance variation
(typical values)



Maximum target inclination
(models with discrete output)

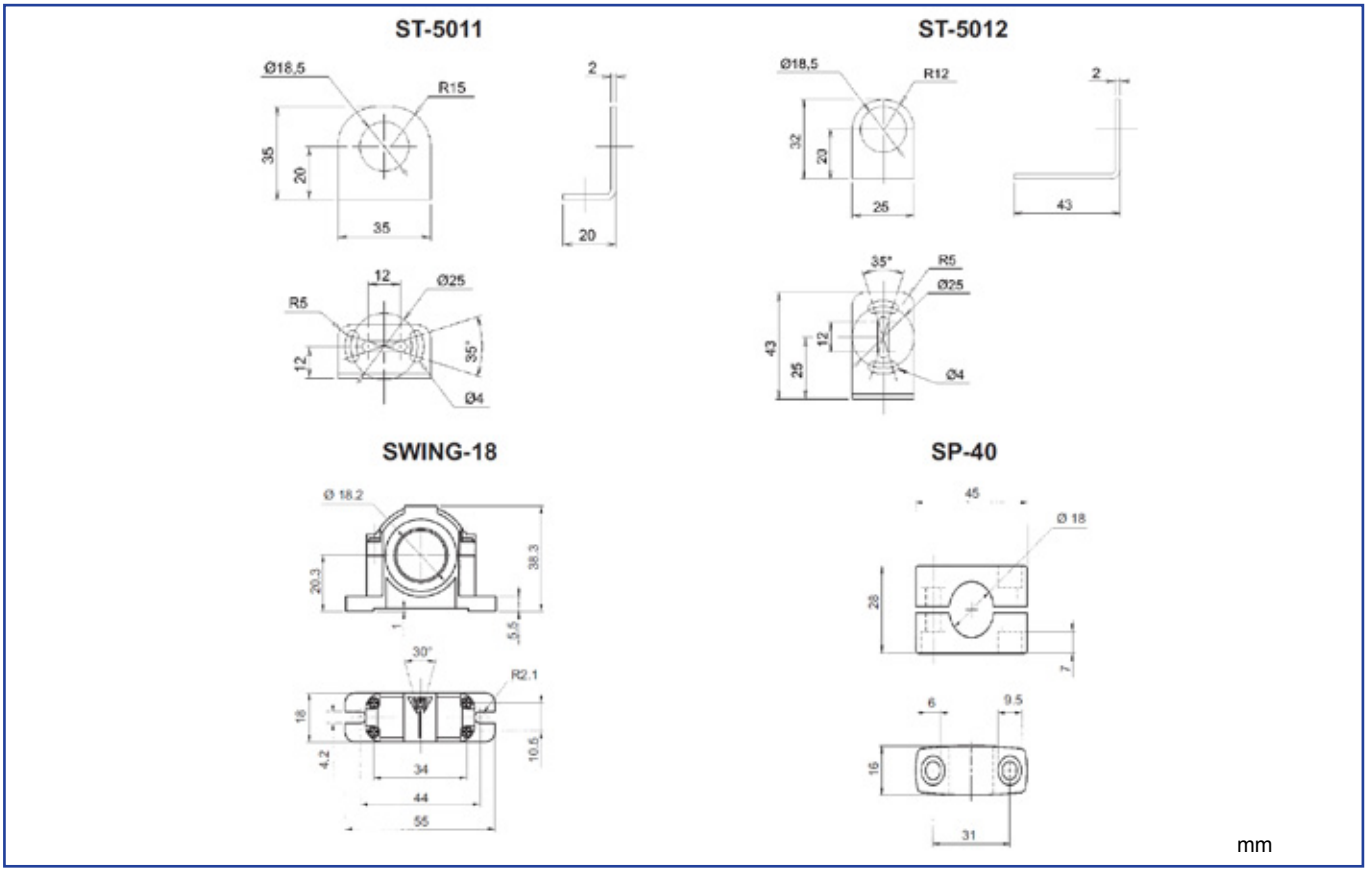


Maximum target inclination
(models with analogue output)

MODEL SELECTION AND ORDER INFORMATION

MODEL	HOUSING TYPE	OUTPUT	ORDER N°
US18-PA-5-N03-OH	axial	NPN and PNP	95B040000
US18-PR-5-N03-OH	radial	NPN and PNP	95B040010
US18-PA-5-N03-IH	axial	4-20 mA analogue	95B040020
US18-PR-5-N03-IH	radial	4-20 mA analogue	95B040030
US18-PA-5-N03-VH	axial	0-10 V analogue	95B040040
US18-PR-5-N03-VH	radial	0- 10 V analogue	95B040050

ACCESSORY DIMENSIONS



ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5011	M18 fixing bracket	95ACC5240
ST-5012	M18 fixing bracket	95ACC5250
SWING-18	adjustable support for plastic tubular M18 sensors	895000006
SP-40	fixed support for tubular M18 sensors	95ACC1370
CS-A1-03-G-03	axial M12 5 pole unshielded 3 m connector	95ACC2110
CS-A1-03-G-05	axial M12 5 pole unshielded 5 m connector	95ACC2120

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DATALOGIC

MEASUREMENT

US30 SERIES

The range of measurement and inspection devices is enriched thanks to the introduction of tubular standard M30x1 sensors of the **US30** series. Models with operating distances reaching 200 cm are available either with bipolar digital output (NPN/PNP NO/NC) or with 4-20 mA or 0-10 V analogue output. The sensors can be easily configured using the Teach-in function, while the operating status is visibly signalled by 3 LEDs.
The temperature compensation function corrects the sound speed changes due to temperature variations, so the sensor precision remains unchanged in all situations and guarantees a resolution reaching 0.5 mm. The electrical connection is accomplished through standard M12 4-pole connectors.
The **US30** ultrasonic sensors detect all objects independent from the non sound-absorbent material, reflectivity, transparency and colour, thus perfectly suiting applications in the automotive, packaging, machine tool fields and material transformation processes.

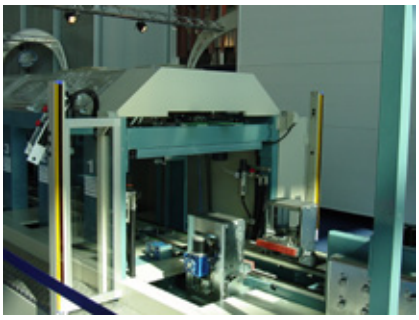


HIGHLIGHTS

- High precision and switching frequency
- Colour independence and transparent object detection
- Easy Teach-in setting and 3 signalling LEDs
- Models with digital NPN - PNP and 0 - 10 V or 4- 20 mA analogue outputs

APPLICATIONS

Ceramics



Beverage & Bottling



Transportation lines



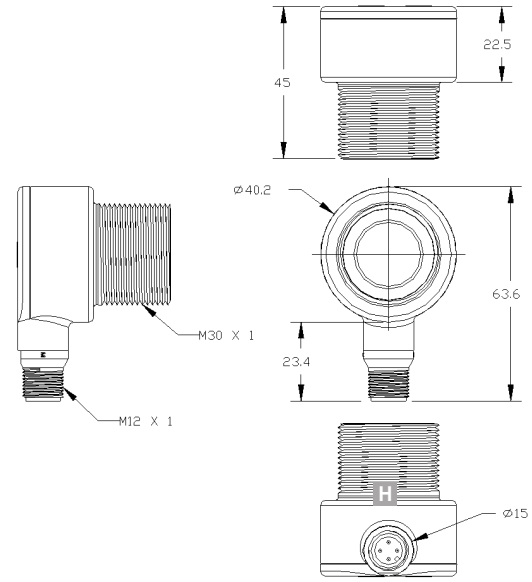
Packaging lines



MEASUREMENT

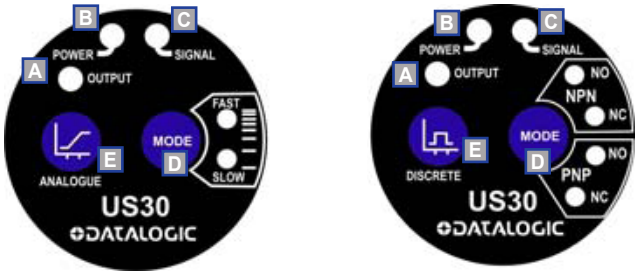
Models with discrete output are excellent foreground and/or background suppressors.
The Teach-in procedure allows to fix a switching window with 10 mm width or to detect minimum and maximum values.
The models with analogue output are conceived as distance sensors: the analogue output can be scaled on windows of any width inside the operating range, or positioned at the centre of a detection window with a fixed width of 100 mm.

DIMENSIONS



mm

INDICATORS AND PUSH-BUTTONS



- A Output status LED
- B POWER ON LED
- C SIGNAL LED
- D MODE push-button
- E TEACH push-button

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

Refer also to **Connectors** of the **General Catalogue.**

CONNECTIONS

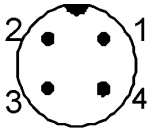
M12 4-POLE CONNECTOR

Analogue

BROWN	1	+ 10 ... 30 VDC
BLUE	3	– 0 V
WHITE	2	REMOTE
BLACK	4	ANALOGUE OUTPUT (4...20 mA / 0...10 V)

Digital

BROWN	1	+ 10 ... 30 VDC
BLUE	3	– 0 V
WHITE	2	REMOTE
BLACK	4	NPN/PNP OUTPUT



Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

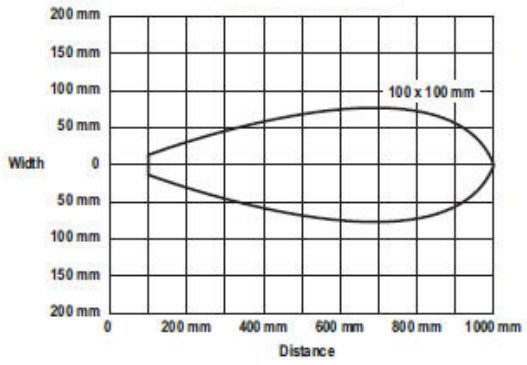
		US30-PR-5-N13-IH	US30-PR-5-N23-IH	US30-PR-5-N13-VH	US30-PR-5-N23-VH	US30-PR-5-N13-OH	US30-PR-5-N23-OH
Operating distance:	100 … 1000 mm	•		•		•	
	200 ... 2000 mm		•		•		•
Power supply:	10 … 30 Vdc (limit values),	•	•	•	•	•	•
	polarity inversion protection	•	•	•	•	•	•
Ripple:	≤ 2 Vpp	•	•	•	•	•	•
Consumption:	40 mA max. (output current excluded)	•	•	•	•	•	•
Output type:	bipolar digital NPN and PNP					•	•
	analogue 0…10 Vdc			•	•		
	analogue 4…20 mA	•	•				
Output current:	100 mA max., short-circuit protection					•	•
Saturation voltage:	PNP < 3 V @ 100 mA; NPN < 1.6 V @ 100 mA					•	•
Load resistance:	voltage output: 2,5 kΩmin.			•	•		
	current output: 1 kΩ @ 24 V	•	•				
Response time:	45 ... 92 ms selectable					•	•
	45 ... 105 ms selectable	•		•			
	92 ... 222 ms selectable		•		•		
Switching frequency:	11 ... 5.4 Hz			•	•		
	11 ... 4.7 Hz	•		•			
	5.4 ... 2.2 Hz		•		•		
Delay at powering:	500 ms	•	•	•	•	•	•
Indicators:	yellow OUT LED	•	•	•	•	•	•
	green POWER ON LED	•	•	•	•	•	•
	red SIGNAL LED	•	•	•	•	•	•
Setting:	DISCRETE push-button					•	•
	ANALOG push-button	•	•	•	•		
	MODE push-button	•	•	•	•	•	•
Ultrasonic emission frequency:	174 kHz		•		•		•
	224 kHz	•		•		•	
Temperature drift:	< 0.02 % reading distance/°C	•	•	•	•	•	•
Repeatability:	0.1% reading distance					•	•
Resolution:	0.1% reading distance	•	•	•	•		
Linearity:	0.25% reading distance	•	•	•	•		
Minimum detection window:	10 mm					•	•
	100 mm	•	•	•	•		
Hysteresis:	2 mm					•	
	3 mm						•
Operating temperature:	-40 … 70 °C	•	•	•	•	•	•
Storage temperature:	-40 … 70 °C	•	•	•	•	•	•
Housing material:	PBT	•	•	•	•	•	•
Mechanical protection:	IP67	•	•	•	•	•	•
Connections:	M12 4-pole connector	•	•	•	•	•	•
Weight:	68 g	•	•	•	•	•	•
Standard reference:	EN 60947-5-2	•	•	•	•	•	•

CE

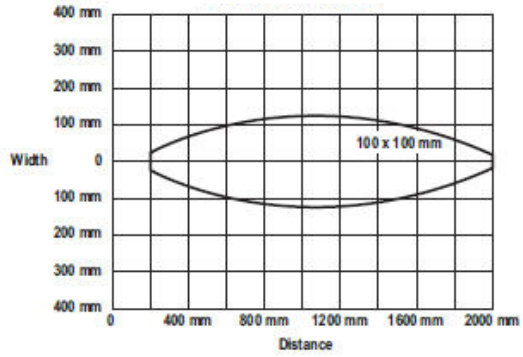
READING DIAGRAMS

WITH PLATE TARGET (TYPICAL)

1 METER MODELS

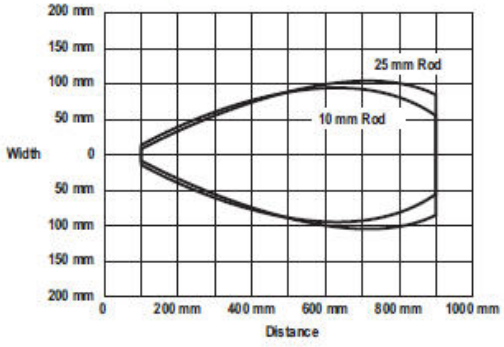


2 METER MODELS

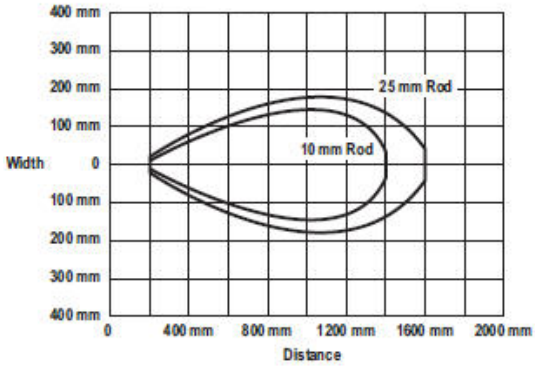


WITH ROD TARGET (TYPICAL)

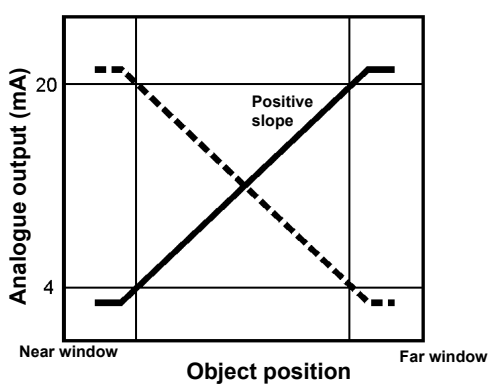
1 METER MODELS

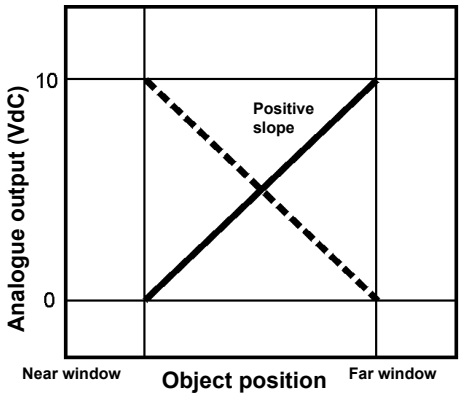


2 METER MODELS



ANALOGUE OUTPUT DIAGRAMS





MODEL SELECTION AND ORDER INFORMATION

MODEL	OPERATING DISTANCE	OUTPUT	ORDER N°
US30-PR-5-N13-IH	100 ... 1000 mm	4-20 mA analogue	95B040060
US30-PR-5-N13-OH	100 ... 1000 mm	NPN e PNP	95B040100
US30-PR-5-N13-VH	100 ... 1000 mm	0-10 V analogue	95B040070
US30-PR-5-N23-IH	200 ... 2000 mm	4-20 mA analogue	95B040080
US30-PR-5-N23-OH	200 ... 2000 mm	NPN e PNP	95B040110
US30-PR-5-N23-VH	200 ... 2000 mm	0-10 V analogue	95B040090

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATALOGIC

MEASUREMENT

US50 SERIES

Datalogic Automation **US50** is the new series of ultrasonic sensors with M50 plastic tubular housing. All models are provided with a radial emitting head and offer the following versions:

- Digital bipolar **PNP/NPN NO/NC** configurable output;
- Analogue **0-10V / 4-20m** configurable output.

Operating distance from **200mm to 8m** makes US50 ideal solution for all industrial applications where the target must be detected or measured really far away from the sensor.
The sensor functions are set using DIP-switches located on the rear side. Electrical connection is obtained through a standard **M12 5-pole** connector Euro Style.
These new sensors can be easily configurable thanks to the **TEACH-IN procedure**, performed through two PUSH-BUTTONS located on the rear side of the device or through the connector's **REMOTE input.**
New Datalogic Automation US50 ultrasonic sensors can detect all objects independently from the material, transparency and/or colour.

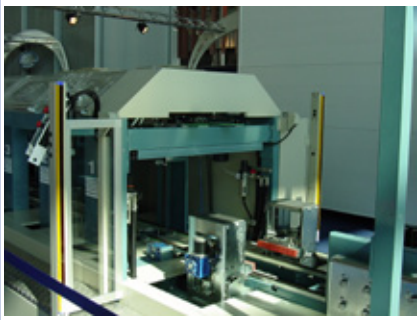


HIGHLIGHTS

- Digital bipolar PNP/NPN NO/NC configurable output model
- Digital and 0-10V / 4-20mA configurable analogue output model
- Operating range of 200mm…8m
- Minimum resolution: 1mm
- Analogue output Linearity: +/- 0.2% of span from 200 to 8000 mm; +/- 0.1% of span from 500 to 8000 mm (1 mm minimum)
- Minimum window size : 20mm
- Repeatability: 1mm
- Hysteresis: 5mm
- Response Time: 100ms to 1600ms
- DIP SWITCH selectable
- Access to bank of 8 DIP switches through sealed cover for superior user functionality
- Fast, easy-to-use REMOTE TEACH-Mode programming; no potentiometer adjustments
- Wide operating range of -20° to +70°C with compensation function
- Rugged encapsulated design for harsh environments
- Unique housing design allows for multiple mounting configurations
- Euro-style quick-disconnect fitting

APPLICATIONS

Ceramics



Beverage & Bottling



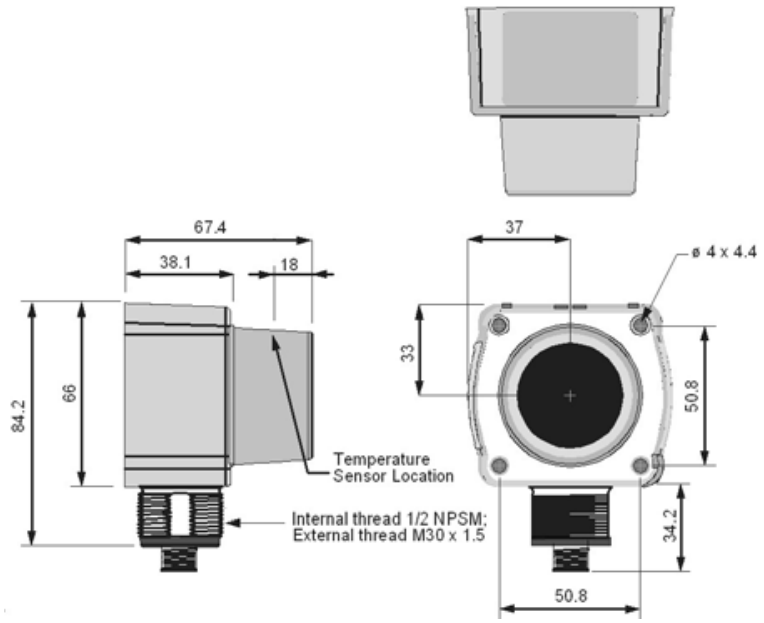
Transportation lines



Packaging lines

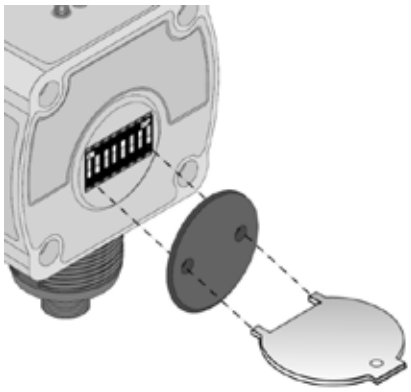


DIMENSIONS



SENSOR PROGRAMMING





Switch	Digital models - Functions	Analogue model - Functions
1	PNP or NPN select	Voltage/Current mode
2	Window / Fill level	Loss of echo
3	Output operation	Min-max
4	Teach/Disable control	Teach/Enable control
5 and 6	Response (100 ms/cycle) 1 cycle 4 cycles* 8 cycles 16 cycles	Analogue voltage output response for 95% of step change 100 ms with 100 ms update 500 ms with 100 ms update* 1100 ms with 100 ms update 2300 ms with 100 ms update
7	Temperature compensation	Temperature compensation
8	Factory calibration	Factory calibration

Note: for DIP-switches settings and corresponding factory defaults refer to the user manuals

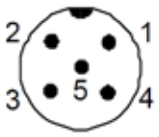
CE

CONNECTIONS

DIGITAL VERSION

5-POLE M12 CONNECTOR

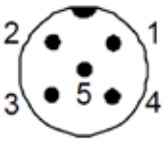
BROWN	1	+ 10 … 30 VDC
BLUE	3	– 0 V
WHITE	2	LOAD1 — Select NPN or PNP with Dipswitch
BLACK	4	LOAD2
GREY	5	REMOTE TEACH — 0…2 VDC



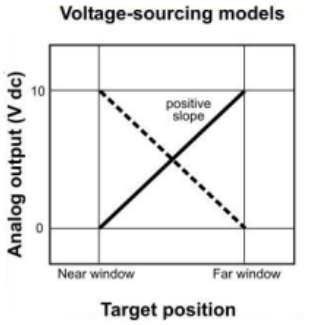
ANALOGUE VERSION

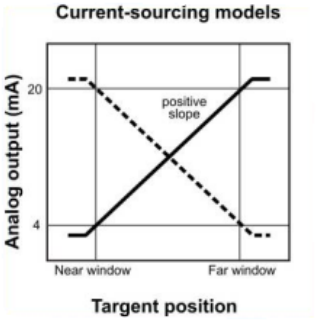
5-POLE M12 CONNECTOR

BROWN	1	+ 10 … 30 VDC
BLUE	3	– 0 V
WHITE	2	ANALOGUE OUTPUT (4…20 mA / 0…10 V)
BLACK	4	
GREY	5	REMOTE TEACH

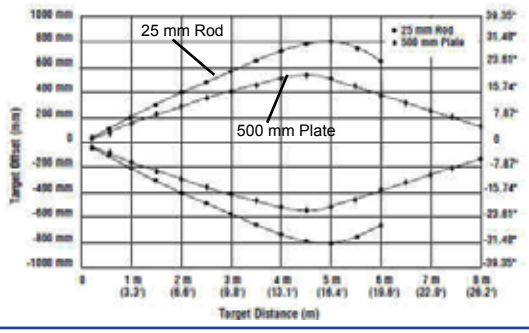


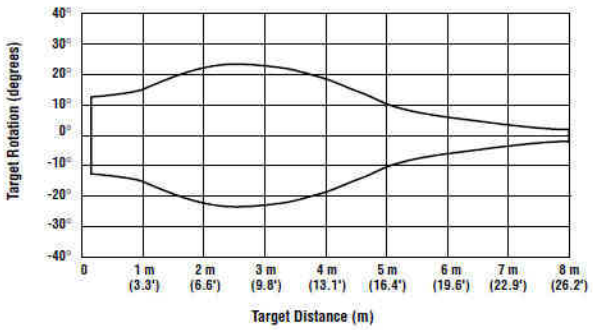
ANALOGUE OUTPUT DIAGRAMS





READING DIAGRAMS





CONTROLS

DIGITAL CONTROLS



Signal LED (Red) – indicates the strength and condition of the sensor's incoming signal.

Output LEDs (Yellow or Red) – active when the target is inside to the window limits

Power ON LED (Green) – indicates the operating status of the sensor.

ANALOGUE CONTROLS



Signal LED (Red) – indicates the strength and condition of the sensor's incoming signal.

Limit LEDs (Red or Yellow) – indicate the position of the target relative to the window limits

Power ON LED (Green) – indicates the operating status of the sensor.

TECHNICAL DATA

	DIGITAL VERSION	ANALOGUE VERSION
Power supply:	10 … 30 VDC reverse polarity protection	10 … 30 VDC reverse polarity protection
Ripple:	≤ 2 VPP	≤ 2 VPP
Consumption (load current excluded):	100mA max. at 10V 40mA max. at 30V	100mA max. at 10V 40mA max. at 30V
Ultrasonic frequency:	75 kHz burst, rep. rate 96 ms	75 kHz burst, rep. rate 96 ms
Output configuration:	NPN or PNP, selectable via DIP switch	**Voltage sourcing: 0…10 VDC** (Short-circuit protection) **Current sourcing:** 4…20mA
Output ratings:	150 mA max. **OFF-state leakage current:** < 5 µA **Output saturation NPN:** < 200 mV @ 10 mA and <650 mV @ 150 mA **Output saturation PNP:** < 1.2V @ 10 mA and <1.65V @ 150 mA	-
Response time:	100 ms to 1600 ms	100 ms to 2300 ms
Indicators:	Power ON LED (GREEN), Signal LED (RED), Output LED (bicolour YELLOW/RED)	Power ON LED (GREEN), Signal LED (RED), Output LED (bicolour YELLOW/RED)
Setting:	Teach-in push-button or remotely via TEACH input	ANALOG push-button, remote command input (remote teach). Minimum and maximum detection limits can be programmed using the ANALOG push-button or remote input.
Remote Teach:	Connect grey wire to 0 to +2 VDC; impedence 12KΩ	-
Remote input levels:	-	Connect grey wire to 0 to +2 VDC; impedence 12KΩ
Delay at Power On:	1.5 sec	1.5 sec
Temperature effect:	Uncompensated: 0.2% of distance /°C Compensated: 0.02% of distance /°C	Uncompensated: 0.2% of distance /°C Compensated: 0.02% of distance /°C
Hysteresis:	5 mm	-
Linearity:	-	± 0.2% of span from 200 to 8000 mm; ± 0.1% of span from 500 to 8000 mm (1mm min.)
Resolution:	-	1 mm
Repeatability:	1 mm	-
Minimum reading window size:	20 mm	20 mm
Operating temperature:	-20 … 70 °C	-20 … 70 °C
Storage temperature:	-20 … 70 °C	-20 … 70 °C
Maximum relative humidity:	100%	100%
Operating distance (typical values):	200…8000 mm	200…8000 mm
Vibrations:	0.5 mm amplitude, 10…55 Hz frequency, for every axis (EN60068-2-6)	0.5 mm amplitude, 10…55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (30 G) shock for every axis (EN60068-2-27)	11 ms (30 G) shock for every axis (EN60068-2-27)
Reference standard:	EN60947-5-2	EN60947-5-2
Housing material:	ABS polycarbonate	ABS polycarbonate
Push-button material:	Polyester	Polyester
Mechanical protection:	IP67	IP67
Connections:	M12 5-poles connector	M12 5-poles connector
Weight:	260 g	260 g.

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
US50-PR-5-N43-OH	US50-PR-5-N43-OH RIGHT ANGLE B.PNP/NPN	95B040120
US50-PR-5-N43-IVH	US50-PR-5-N43-IVH RIGHT ANGLE B. AN. OUT	95B040130

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
ST-30SC	ST-30SC US50 MOUNT. BRACKET ASSY	95ACC7820
ST-30MM	ST-30MM US50 STAINLESS STEEL BRACKET	95ACC7830

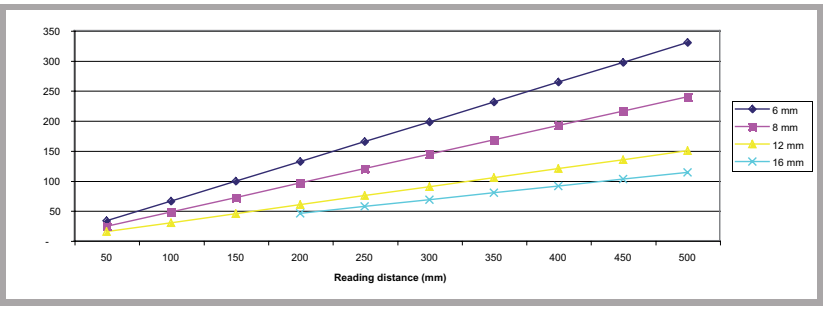

VS Series
Status
Teach
DATALOGIC
DATALOGIC

HORIZONTAL FIELD OF VIEW

DATAVS1



The Horizontal Field of View refers to the longest side of the image.

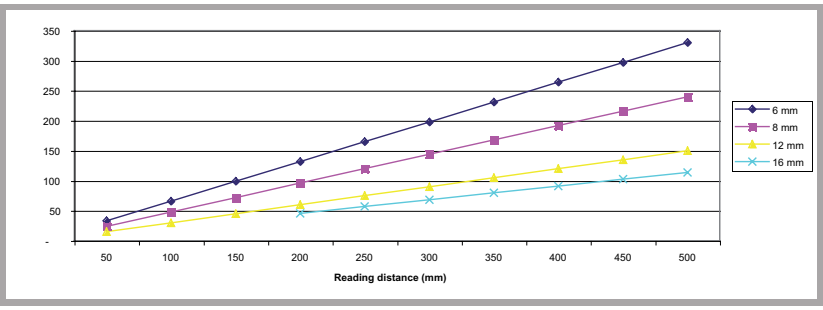


Horizontal FOV*

DATAVS2



The Horizontal Field of View refers to the longest side of the image.



Horizontal FOV*

Communication I/O	Inspection tools	Mechanical	Configuration	Applications
• Two digital inputs • Four digital outputs	• Pattern match • OCV • Brightness / contrast • Measurement	• Dimension: 60x52x40 mm (2.36x2.05x1.57 in) • Weight: 125 g (4.4 oz.) • Case material: Aluminium/Plastic	Configuration through Vision Sensor Configurator (VSC). No PC needed.	• Quality inspection • Part presence verification • Object counting • Measuring • OCV
• Two digital inputs • Four digital outputs • Ethernet • RS-232 (ID and PRO models)	• Pattern match • Contour match • 360° pattern match • Brightness / contrast • Measurement • Identification	• Dimension: 60x52x40 mm (2.36x2.05x1.57 in) • Weight: 125 g (4.4 oz.) • Case material: Aluminium/Plastic	Configuration through PC (the DataVS2 Graphical User Interface software is supplied with the product)	• Quality inspection • Part presence verification • Object counting • Measuring • Part orientation • Identification

DATAVS1 SERIES

The **DATAVS1** series is the easiest solution for machine vision applications. The setup is very quick and intuitive thanks to the VSC unit, the external configurator with 3.5” colour display. The sensor setting is carried-out through three simple steps: region of interest definition, control type selection, parameter adjusting. **DATAVS1** is a fully embedded vision sensor able to acquire images, control them and activate digital outputs according to the result. The VSC unit can provide a real time monitoring of the images, but it is not required during the functioning of the sensor and so it can be disconnected and used to setup multiple sensors. **DATAVS1** is able to carry-out 8 different controls: Brightness, Contrast, Position, Width, Edge counting, Pattern match, Pattern match counting, OCV. Its flexibility together with the VSC configurator make the sensor ideal for plants with frequent format changes (packaging, food, cosmetic, bottling, labelling,…).

DataVS1



VISION

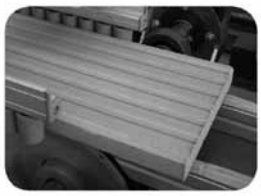
HIGHLIGHTS

- Quick setup without PC
- Fully embedded vision sensor
- 3.5” colour display, 8 push-buttons, 8 LEDs
- 8 different controls
- Memorisation of 20 differrent inspections

APPLICATIONS

DATAVS1 is ideal for the control of text presence in overprinting and logo position on food packages, product completeness before packaging, logo position on cosmetic bottles, correct stamp on post envelopes, liquid level inside a plastic bottle, correct product orientation on a conveyor belt, expiry date or lot number integrity.

Surface control



Part orientation



Expiring date integrity



Level control



Product conformity



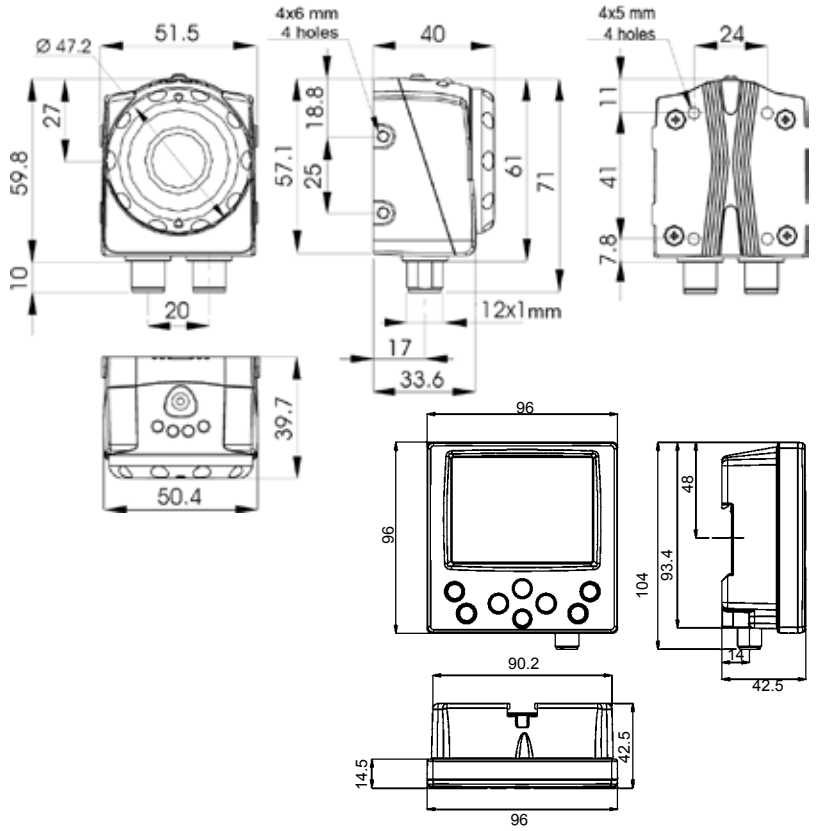
Bottling check



The extremely compact size of the DATAVS1 sensors is not an obstacle for the full integration of all the elements for a reliable image-based control.

- Compact housing
- 640 x 480 image sensor
- VSC configurator with 3.5” colour display, 8 push-buttons, 8 LEDs
- Red light LED illuminator
- Selectable lenses
- Standard M12 connectors
- Configurator preset for DIN rail or panel mounting
- 3 PNP outputs
- 4 signalling LEDs: output1, output2, power supply, communication

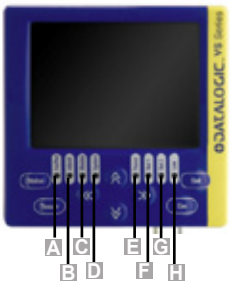
DIMENSIONS



INDICATORS AND SETTINGS



- A Power supply, green
- B Digital output 2, yellow
- C Digital output 1, yellow
- D VSC connection, green



- A Setting mode, green
- B Adjust mode, green
- C Monitor mode, green
- D Main menu, green
- E Power supply, green
- F Digital output 1, yellow
- G Digital output 2, yellow
- H Sensor connection, green

CONNECTIONS



M12 8-pole (VSC connection)

PIN 1 = Ethernet TX+
PIN 2 = Ethernet RX+
PIN 3 = Ethernet RX-
PIN 4 = Not used
PIN 5 = 24 Vdc
PIN 6 = Not used
PIN 7 = Ethernet TX-
PIN 8 = GND

M12 8-pole (power supply and I/O)

PIN 1 = white = digital input 1
PIN 2 = brown = 24 Vdc
PIN 3 = green = STROBE for external illuminator
PIN 4 = yellow = output 1
PIN 5 = grey = output 2
PIN 6 = pink = output 3
PIN 7 = blue = GND
PIN 8 = red = external trigger

TECHNICAL DATA

Power supply:	24 Vcc ±10 %
Ripple:	1 Vpp max with illuminator 2 Vpp without illuminator
Consumption (DATAVS1+VSC):	300 mA @ 24 Vdc (illuminator excluded)
Output type:	3 PNP
Output current:	100 mA max
Saturation voltage:	< 2 V
VSC connection:	M12 8-pole A-code
External illuminator interface:	Strobe signal (24 V PNP N.O.)
Frame rate:	60 fps
Optics:	integrated (6 mm / 8 mm / 12 mm / 16 mm)
Setting:	VSC configurator
Sensor indicators:	4 LEDs
VSC indicators:	8 LEDs
Connections:	2 x M12 8-poli A-code
Mechanical protection:	IP50 (DATAVS1) IP40 (VSC)
Protection devices:	A, B[2]
Housing material:	aluminium alloy / ABS
Sensor weight:	125 g
VSC weight:	170 g
Operating temperature:	-10 ... +50°C
Storage temperature:	-25 ... +70°C

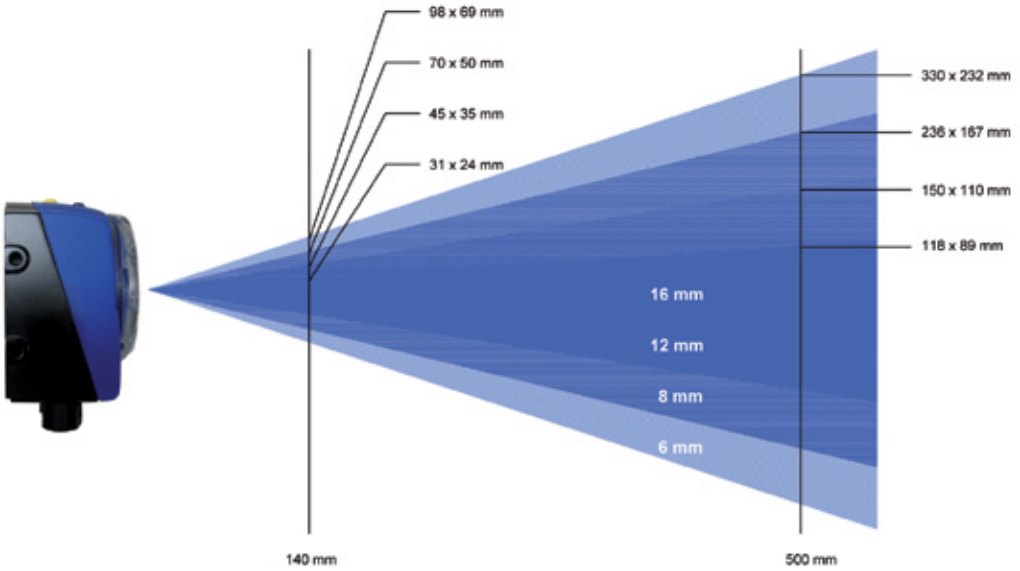
TECHNICAL NOTES

[1]Limit values
[2]A - reverse polarity protection
B - overload and short-circuit protection



FIELD OF VIEW

OPERATING DISTANCE (mm)	FIELD OF VIEW (Width x Height) in mm			
	DATAVS1-16-C-S	DATAVS1-12-DC-S	DATAVS1-08-DC-X	DATAVS1-06-DC-S
50	-	17 x 12	25 x 20	42 x 30
80	-	25 x 20	40 x 30	60 x 41
110	-	33 x 25	55 x 40	80 x 55
140	31 x 24	45 x 35	70 x 50	98 x 69
170	39 x 29	53 x 38	85 x 60	118 x 83
200	46 x 34	60 x 50	100 x 70	138 x 92
300	70 x 53	90 x 65	145 x 103	201 x 140
400	94 x 71	121 x 82	186 x 132	265 x 189
500	118 x 89	150 x 110	236 x 167	330 x 232
600	143 x 107	185 x 130	282 x 232	385 x 270



DATAVS1 CONFIGURATOR



The configuration of DATAVS1 sensors is obtained exclusively via VSC unit. No PC is necessary and thus sensor setting is easy and quick. Once the configuration has been completed, the VSC display can be used to visualise inspection results in real time or to configure a new sensor.

The interface available on the configurator, composed of 8 signalling LEDs and 8 push-buttons, allows the operator to quickly and intuitively set the sensor functioning parameters.

PUSH-BUTTONS

Push-button label	Main functions
Status	Go to next configuration step
Teach	Setting memorisation Acquisition of a new reference image
Set	Confirmation of option selected Confirmation of parameter value
Esc	Exit without saving Return to previous panel Return to previous configuration step
Arrows	Change of option selected Movement/resizing of ROI Parameter change



Step 1:
Image adjustment and control definition



In the first configuration step, the user has to set the sensor parameters in order to obtain a good image quality in terms of focus, brightness and contrast. The control type and the part to inspect have to be then defined.

Step 2:
Parameter setting



The second configuration step consists in setting the functioning parameters of the control previously selected and the acceptance thresholds.

Step 3:
Inspection check and memorisation



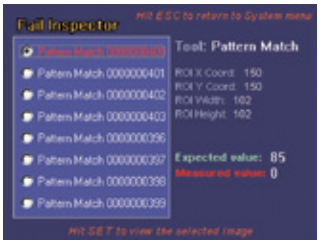
The third step consists in the control of the correct inspection functioning and the saving on the sensor memory. Once completed, the sensor can operate in a stand-alone mode.

EXCELLENT FLEXIBILITY

Password
A Password that prevents the access to the configuration parameters to unauthorised personnel can be defined.

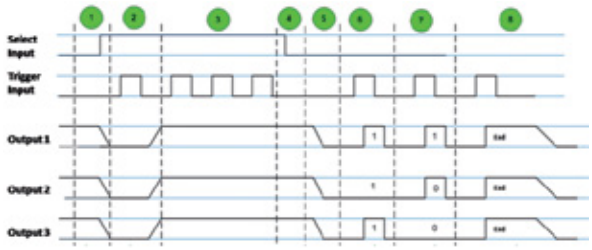


Fail inspector
The latest 8 inspected parts that have caused a control failure can be recalled by the Fail Inspector. This tool provides an immediate control of the production non-conformities.

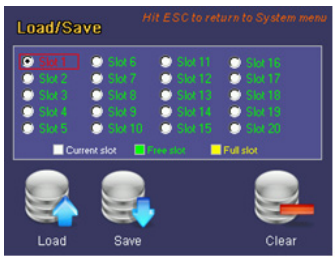




Inspection selection



Each inspection is composed of a template and parameters. A specific inspection can be thus referred to different products in progress on the same production line.
The different inspections can be recalled using digital pulses. Different inspection selection protocols with or without acknowledge are available.



The inspection change can be carried-out also directly by the operator using the bankset manager panel.

MONITORING USE OF THE VSC

Standard mode



Camera mode



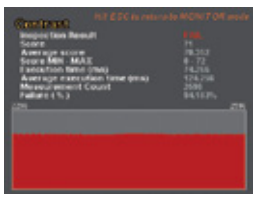
Zoom mode



Fail mode

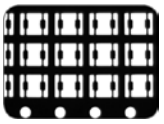
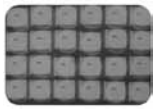


Production statistics



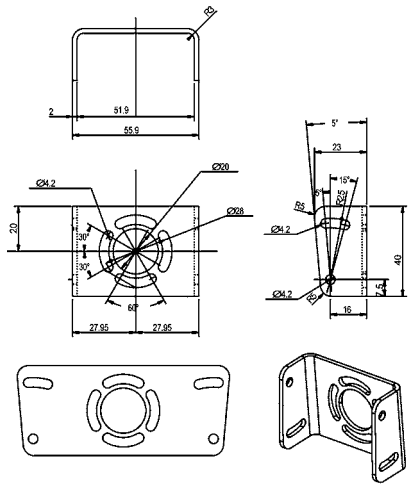
Besides the four monitoring modes, indicated above, the VSC configurator can visualise some production statistics, such as the number of inspected items and percentage of non-conformities.

Object Recognition

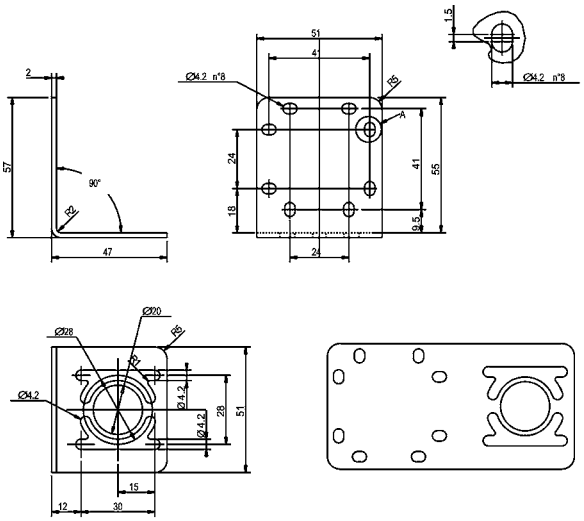
Eight different controls able to cover the most varied applications.			
Control	Functioning	Applications	Image
Pattern Match	Searches a sample inside a specific area	• Packaging: logo check • Assembling: product orientation • Post automation: stamp check	
OCV	Verifies the readability of printed characters	• Packaging: production lot control • Food: expiry date control	
Position	Checking of object border position	• Bottling: liquid level control: • Food: label position control	
Width	Measures object width	• Assembling: plastic part control • Wood industry: branch thickness measurement	
Counting	Counts the objects along a line	• Electronics: component counting • Pharmaceutical: blister stack counting	
Contrast	Contrast calculation	• Food: date and lot presence control • Metal working: laser marking control	
Brightness	Brightness calculation	• Bottling: cap presence control • Packaging: object counting	
Pattern match count	Count the number of templates inside a specific area	• Bottling: bottle count • Packaging: object counting	

ACCESSORIES

ST-5066
U-shaped fixing bracket for angle adjustment

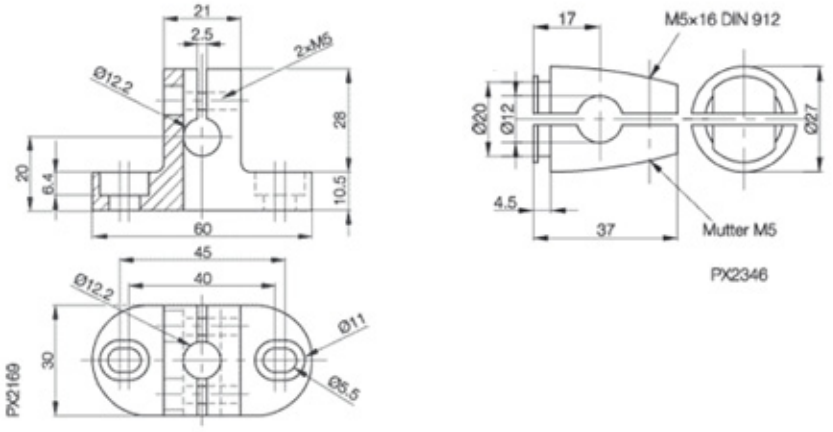


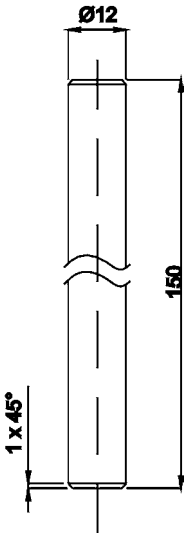
ST-5068
L-shaped fixing bracket for 90° mounting





Mounting kit







MODEL SELECTION TABLE

MODEL	OPTIC	VSC INCLUDED	POWER SUPPLY CABLES	DIGITAL INPUT	DIGITAL OUTPUT	ORDER N°
DATAVS1-08-DC-K	8 mm	•	•	2	4	959941000
DATAVS1-06-DC-S	6 mm			2	4	959941010
DATAVS1-08-DC-S	8 mm			2	4	959941020
DATAVS1-12-DC-S	12 mm			2	4	959941030
DATAVS1-16-DC-S	16 mm			2	4	959941050

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CV-A1-36-B-03	M12 8-pin shielded cable 3m	95A255430
CV-A1-36-B-05	M12 8-pin shielded cable 5m	95A255440
CV-A1-36-B-10	M12 8-pin shielded cable 10m	95A255450
DATAVS-CV-VSC-02	DATAVS-VSC connection cable 2 m	95A901360
DATAVS-CV-VSC-04	DATAVS-VSC connection cable 4 m	95A901370
DATAVS1-VSC	VSC configurator	959941040
DATAVS1 UPDATING KIT	Updating kit	95A901540
DATAVS-ST-5068	L-shaped fixing bracket for 90° mounting	95A901320
DATAVS-ST-5068	U-shaped fixing bracket for angle adjustement	95A901330
DATAVS-MK-01	Mounting kit	95A901380

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATAVS2

The **DataVS2** vision sensor series presents all the characteristics to solve artificial machine vision applications in a flexible and intuitive way.
DataVS2 is a completely embedded device: the optic, the red LED illuminator and the electronics are included in an extremely compact housing. The sensor is configured via PC through Ethernet communication. The configuration software is included in the product and it has been developed in order to lead the customer through the configuration process step by step.

DataVS2 is available in four different versions according to the installed control tools: Object Recognition (OBJ), Advanced Object Recognition (AOR), Identification (ID) and Professional (PRO).

Many different control typologies are available: brightness, contrast, position, width, count, pattern match, countour match, 360° pattern match, barcode and datamatrix reader, OCV, 360° contour match & counter, 360° defect finder.

DataVS2



VISION

HIGHLIGHTS

- Flexible and intuitive setup via PC through Ethernet
- Memorisation of 20 inspections
- 14 different controls
- 360° pattern match for Advanced models
- Logical operators: AND, OR, NOT, NAND, NOR, ecc.
- TURBO mode to double elaboration speed
- VSM compatibility
- Inspection & Identification functionalities together available on Professional models

APPLICATIONS

DataVS2 is ideal for the control of text presence in overprinting and logo position on food packages, product completeness before packaging, logo position on cosmetic bottles, correct stamp on post envelopes, liquid level inside a plastic bottle, correct product orientation on a conveyor belt, barcode and datamatrix reading.

Stamp control



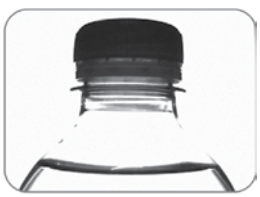
Part orientation



Overprinting



Level control



Logo control



Barcode & Datamatrix

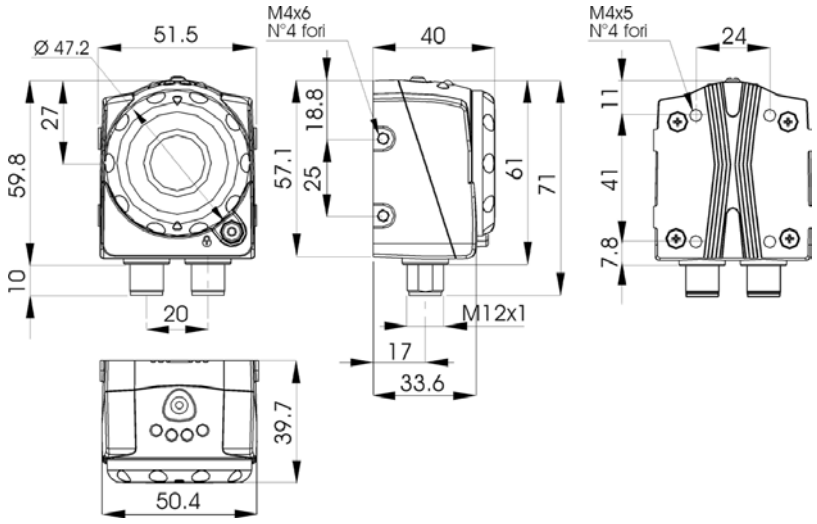


The extremely compact size of the DATAVS sensors is not an obstacle for the full integration of all the elements for a reliable image-based control.

- Compact housing
- Red light LED illuminator
- Selectable lenses
- Focus knob
- Standard M12 connectors
- Ethernet communication
- 3+1 PNP outputs
- 4 signalling LEDs: output1, output2, power supply, communication
- Teach push-button
- 640x480 pixel greyscale image sensor



DIMENSIONS



INDICATORS AND SETTINGS

Teach push-button with double function:

- reference image update
- recovery mode



- A Power supply, green
- B Digital output 1, orange
- C Digital output 2, orange
- D Network connection, green

CONNECTIONS



M12 4-pole Ethernet



1 = white/orange = RX+
2 = white/green = TX+
3 = orange = RX-
4 = green = TX-

M12 8-pole (power supply and I/O)



OBJ and AOR models	ID and PRO models
1 = white = digital input 1	1 = white = RS232 RX
2 = brown = 24 Vdc	2 = brown = 24 Vdc
3 = green = configurable output	3 = green = configurable output
4 = yellow = output 1	4 = yellow = output 1
5 = grey = output 2	5 = grey = output 2
6 = pink = output 3	6 = pink = RS232 TX
7 = blue = GND	7 = blue = GND
8 = red = external trigger	8 = red = external trigger

TECHNICAL DATA

Power supply:	24 Vcc ±10 %
Ripple:	1 Vpp max with illuminator 2 Vpp without illuminator
Consumption:	100 mA at 24 Vdc (without illuminator)
Output type:	3+1 PNP
Output current:	100 mA max
Saturation voltage:	< 2 V
Network interface:	M12 4-poli Ethernet 10/100 Mbs
Serial interface:	RS232 (only ID and PRO models)
External illuminator interface:	Strobe signal (24 V PNP N.O.)
Frame rate:	60 fps
Optics:	integrated (6 mm / 8 mm / 12 mm / 16 mm)
Setting:	TEACH push-button
Indicators:	4 LED
Connections:	M12 8 pole A-code M12 4 pole D-code
Mechanical protection:	IP50
Protection devices:	A, B
Housing material:	aluminium alloy / ABS
Weight:	125 g
Operating temperature:	-10 ... +50°C
Storage temperature:	-25 ... +70°C

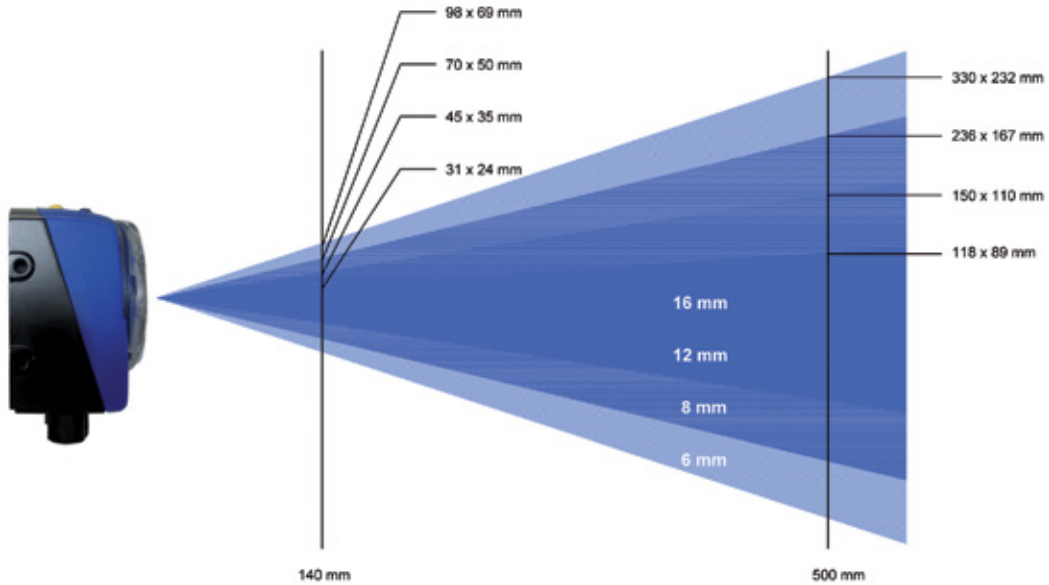
TECHNICAL NOTES

[1]Limit values
[2]A - reverse polarity protection
B - overload and short-circuit protection



FIELD OF VIEW

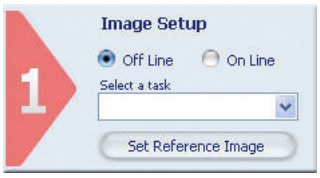
OPERATING DISTANCE (MM)	FIELD OF VIEW (WIDTH X HEIGHT) IN MM			
	DATAVS2-16-xx-xxx	DATAVS2-12-xx-xxx	DATAVS2-08-xx-xxx	DATAVS2-06-xx-xxx
50	-	17 x 12	25 x 20	42 x 30
80	-	25 x 20	40 x 30	60 x 41
110	-	33 x 25	55 x 40	80 x 55
140	31 x 24	45 x 35	70 x 50	98 x 69
170	39 x 29	53 x 38	85 x 60	118 x 83
200	46 x 34	60 x 50	100 x 70	138 x 92
300	70 x 53	90 x 65	145 x 103	201 x 140
400	94 x 71	121 x 82	186 x 132	265 x 189
500	118 x 89	150 x 110	236 x 167	330 x 232
600	143 x 107	185 x 130	282 x 232	385 x 270



SOFTWARE PC

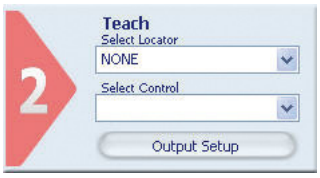


Step 1: Image Setup



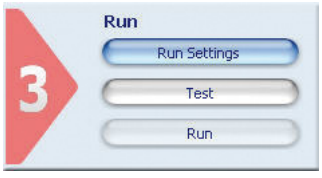
The first step consists in connecting the sensor and configuring the image quality parameters. When the desired results are obtained, the user can memorise the image that will be used as a template during sensor functioning.

Step 2: Teach



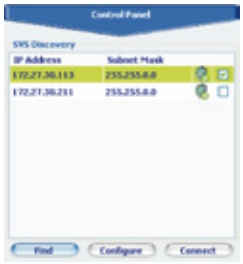
The second step establishes the acceptance criteria to distinguish objects from wastes. One or more controls can be selected according to the task to carry-out.

Step 3: Run



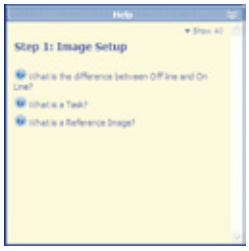
The third step configures the sensor digital outputs, simulates sensor functioning on the PC to verify the controls chosen and activates the operating phase on the sensor using the PC only to control the diagnostics.

MAXIMUM SIMPLICITY



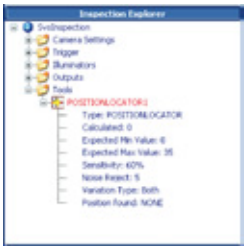
Discovery

The Discovery function finds all the sensors connected to the network.



Help

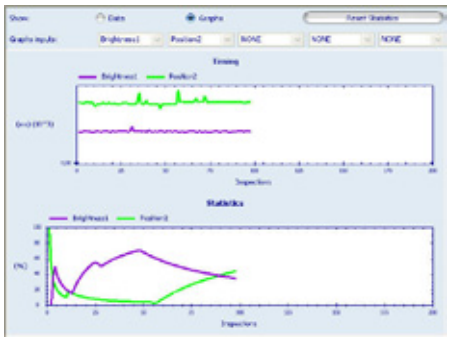
A Help is available for each step, supplying useful suggestions on the options available.

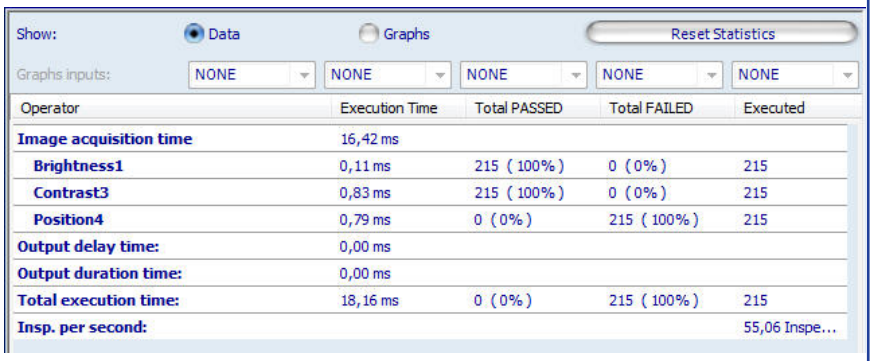


Inspection explorer

All the parameters connected to the inspection are grouped together and can be easily reached by the user.

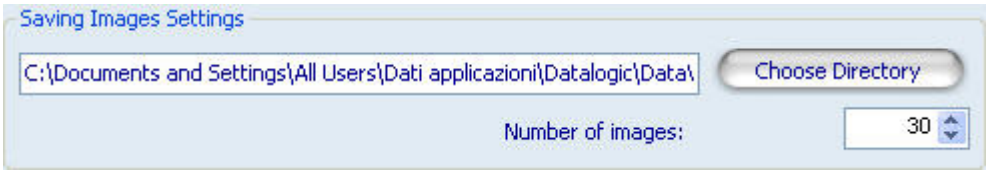
Statistics



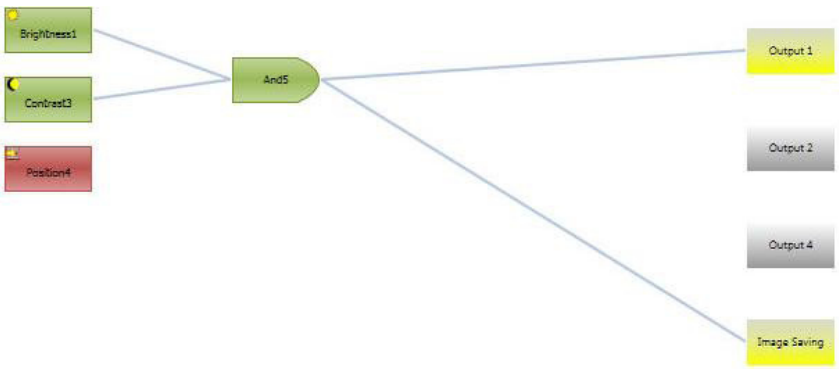


The statistics panel displays all the information about inspection results and execution time.
Data can be shown also in a graph.

Image saving

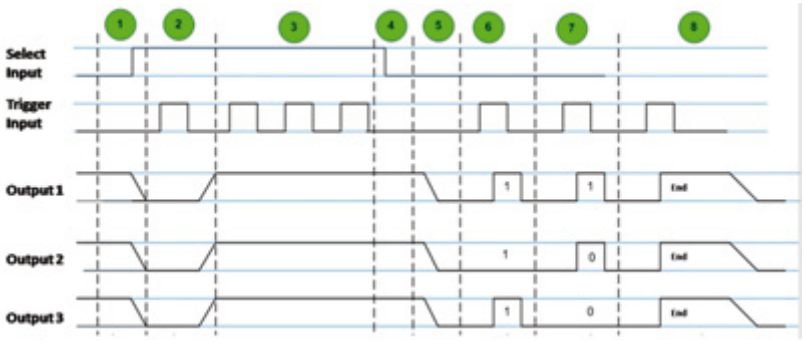


The image saving panel allows to set a folder where the acquired pictures are stored. An image saving condition can be also specified through a dedicated panel.



EXCELENT FLEXIBILITY

Inspection selection



Each inspection is composed of a template and parameters. The user can store up to 20 different inspections on the sensor memory in order to manage different items on the same production line.
The different inspections can be recalled in several different ways:
(1) using digital pulses on OBJ and AOR models
(2) through an Ethernet command on AOR, ID and PRO models
(3) through a Serial command on ID and PRO models

VSM COMPATIBILITY

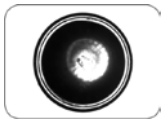
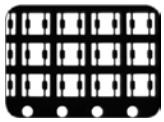
All DataVS2 models (i.e. OBJ, AOR, ID and PRO) are compatible with VSM, the monitoring device that allows to display elaborated images together with inspection results. The unit also offers the possibility to change the running inspection as well as to fine-tune the vision sensor functioning parameters on-the-fly.

The device integrates a 3.5'' LCD color display and 8 push buttons. It features a standard TCP/IP Ethernet interface thus it can be connected either directly to a specific vision sensor or to a Local Area Network (LAN) where more DataVS2 have been previously installed.



CONTROL TABLE

Object Recognition

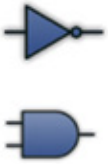
Seven different controls able to cover the most varied applications.			
Control	Functioning	Applications	Image
Pattern Match	Searches a sample inside a specific area	• Packaging: logo check • Assembling: product orientation • Post automation: stamp check	
Contour Match	Shape control	• Metal working: integrity control • Food: coffee waffle shape control	
Position	Check of object border position	• Bottling: liquid level control: • Food: label position control	
Width	Measures object width	• Assembling: plastic part control • Wood industry: branch thickness measurement	
Counting	Counts the objects along a line	• Electronics: component counting • Pharmaceutical: blister stack counting	
Contrast	Contrast calculation	• Food: date and lot presence control • Metal working: laser marking control	
Brightness	Brightness calculation	• Bottling: cap presence control • Packaging: object counting	

ADVANCED MODELS (AOR)

The Advanced Object Recognition (AOR) models integrate new important functionalities, including:



360° Pattern Match Locator
Object detection independent from rototranslations.



Logical tools
Possibility to combine the results of the single tools through boolean operator (AND, OR, NOT, etc.)



Advanced Ethernet
Current inspection results available also on Ethernet communication.



Speed-up
High execution speed thanks to the management of reduced resolution and TURBO mode.

360° Pattern match

The Advanced Object Recognition (AOR) models include all the controls and locators available on Object Recognition models as well as the new 360° Geometric Pattern Match Locator.





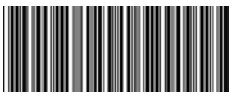




IDENTIFICATION MODELS (ID)

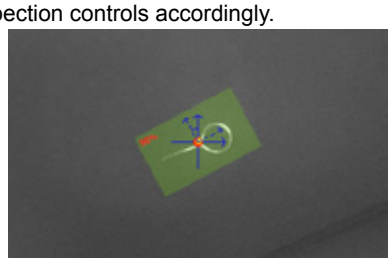
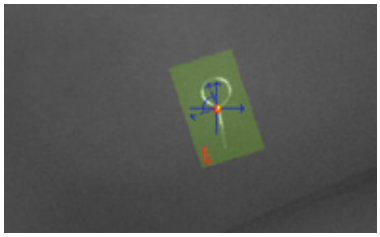
Control	Functioning	Image
Barcode reader	**Decode:** read and decode one (or more) barcode in the Region Of Interest. **String match:** read and decode one (or more) barcode and compare it with a set of reference strings. **Counter:** count the number of barcodes in the Region Of Interest.	
Datamatrix reader	**Decode:** read and decode one (or more) datamatrix in the Region Of Interest. **String match:** read and decode one (or more) datamatrix and compare it with a set of reference strings. **Counter:** count the number of datamatrix in the Region Of Interest.	
OCV	Verify the readability of printed characters.	

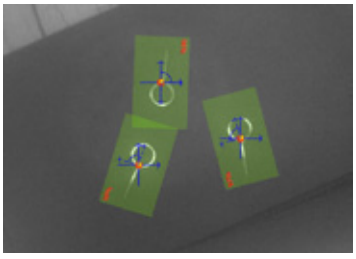
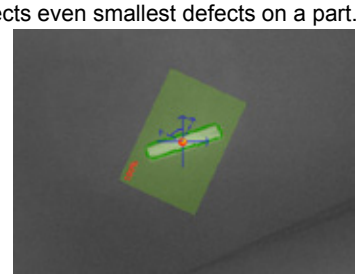
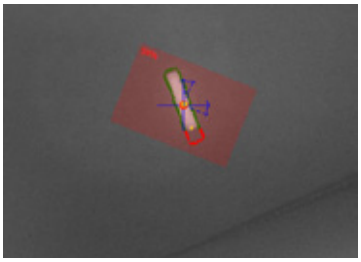
Symbologies

	Codabar		UPC-E
	Code 39		PDF417
	Code 128		Pharmacode
	EAN-8 EAN-13 EAN-128		Postnet
	Interleaved 2 of 5		IMB
	UPC-A		ECC200

PROFESSIONAL MODELS (PRO)

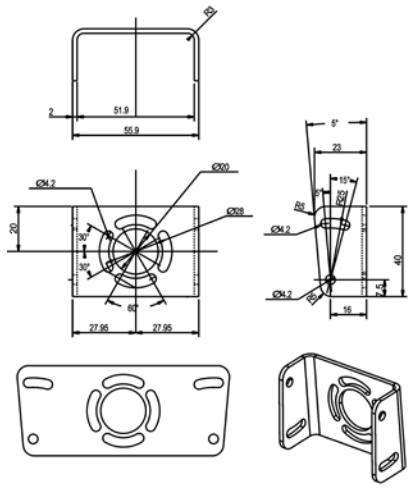
The professional model includes in the same software all the functionalities already available on Advanced and Identification versions. Moreover it features 5 new software tools: 3 locators and 2 controls.

Locators	Functioning
Barcode	Finds a barcode in the Region Of Interest and re-locates all the other inspection controls accordingly. 
Datamatrix	Finds a datamatrix code in the Region Of Interest and re-locates all the other inspection controls accordingly. 
360° Contour Match	Finds a reference template in the Region Of Interest and re-locates all the other inspection controls accordingly.  

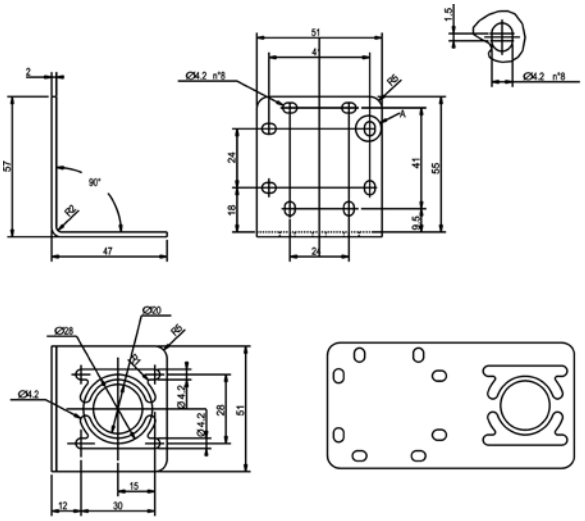
Controls	Functioning
360° Contour Counter	Counts how many times a reference contour is present in the Region Of Interest. 
360° Defect Finder	Detects even smallest defects on a part.  

ACCESSORIES

ST-5066
U-shaped fixing bracket for angle adjustment

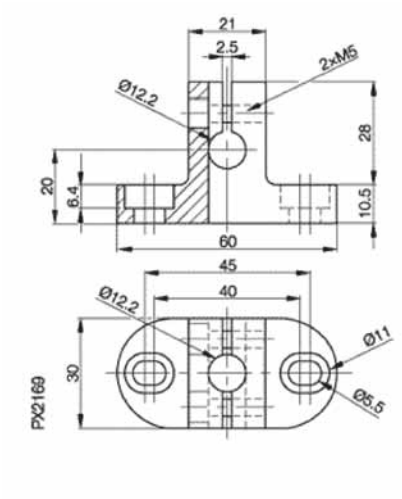


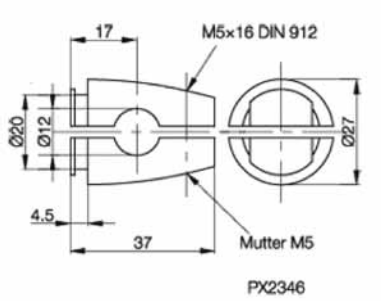
ST-5068
L-shaped fixing bracket for 90° mounting

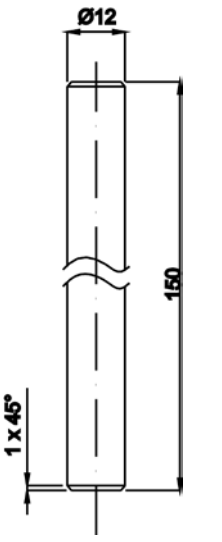




Mounting kit













MODEL SELECTION TABLE

MODEL	SOFTWARE	LOGICAL TOOLS	ETHERNET	RS232	I/O	OPTIC	ORDER N°
DATAVS2-06-DE-OBJ	Object Rec.		Base		2IN; 4 OUT	6mm	959951050
DATAVS2-08-DE-OBJ	Object Rec.		Base		2IN; 4 OUT	8mm	959951060
DATAVS2-12-DE-OBJ	Object Rec.		Base		2IN; 4 OUT	12mm	959951070
DATAVS2-16-DE-OBJ	Object Rec.		Base		2IN; 4 OUT	16mm	959951030
DATAVS2-06-DE-AOR	Adv. Obj. Rec.	•	Advanced		2IN; 4 OUT	6mm	959951000
DATAVS2-08-DE-AOR	Adv. Obj. Rec.	•	Advanced		2IN; 4 OUT	8mm	959951010
DATAVS2-12-DE-AOR	Adv. Obj. Rec.	•	Advanced		2IN; 4 OUT	12mm	959951020
DATAVS2-16-DE-AOR	Adv. Obj. Rec.	•	Advanced		2IN; 4 OUT	16mm	959951040
DATAVS2-06-RE-ID	Identification	•	Advanced	•	1 IN; 3 OUT	6mm	959951130
DATAVS2-08-RE-ID	Identification	•	Advanced	•	1 IN; 3 OUT	8mm	959951140
DATAVS2-12-RE-ID	Identification	•	Advanced	•	1 IN; 3 OUT	12mm	959951120
DATAVS2-16-RE-ID	Identification	•	Advanced	•	1 IN; 3 OUT	16mm	959951190
DATAVS2-06-RE-PRO	Professional	•	Advanced	•	1 IN; 3 OUT	6mm	959951220
DATAVS2-08-RE-PRO	Professional	•	Advanced	•	1 IN; 3 OUT	8mm	959951230
DATAVS2-12-RE-PRO	Professional	•	Advanced	•	1 IN; 3 OUT	12mm	959951240
DATAVS2-16-RE-PRO	Professional	•	Advanced	•	1 IN; 3 OUT	16mm	959951250

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CV-A1-36-B-03	M12 8-pin shielded cable 3m	95A255430
CV-A1-36-B-05	M12 8-pin shielded cable 5m	95A255440
CV-A1-36-B-10	M12 8-pin shielded cable 10m	95A255450
DATAVS-ST-5068	L-shaped fixing bracket for 90° mounting	95A901320
DATAVS-ST-5066	U-shaped fixing bracket for angle adjustment	95A901330
DATAVS-CV-RJ45C-03	3 m crossed Ethernet cable	95A901340
DATAVS-CV-RJ45D-03	3 m direct Ethernet cable	95A901350
DATAVS-MK-01	Mounting kit	95A901380

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATAVS2 - VSM

VSM is a monitoring device compatible with all DataVS2 vision sensor models. The device integrates a 3.5'' LCD color display and 8 push buttons. It also embeds a standard TCP/IP Ethernet interface thus it can be connected either directly to a specific vision sensor or to a LAN where more sensors have been previously installed.
VSM allows to display images and results as well as to change the running inspection or also to adjust the vision sensor functioning parameters.
Thanks to this wide range of functionalities, the device represents an excellent and complete HMI interface ideal for automated production lines attended by operators.

DataVS2 - VSM



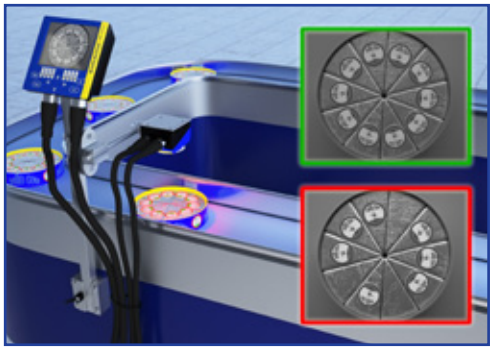
VISION

HIGHLIGHTS

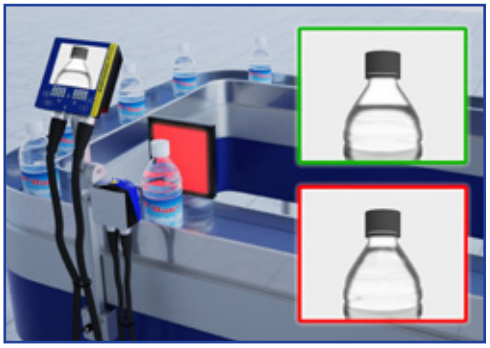
- 3.5'' LCD color display and 8 push buttons
- 20 additional memory slots
- Images and results visualization
- Parameter fine tuning
- DIN rail or panel mounting
- 2 industrial M12 connectors

APPLICATIONS

Packaging & Food



Bottling & Beverages



PRODUCT DESCRIPTION

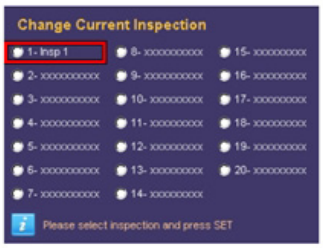


1. Display
2. Status LEDs
3. STATUS button
4. TEACH button
5. Power connector
6. ARROWS button
7. ETHERNET connector
8. ESC button
9. SET button
10. Power, OUT, ETH Link LEDs

MAIN FEATURES



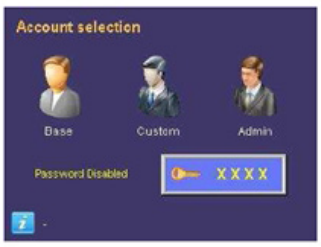
Monitoring
VSM displays the pictures acquired by the connected DataVS2. The results of each tool are shown in a graphical way (GREEN = OK, RED = FAILURE). Several different monitoring options are available (e.g. standard, display on condition, zoom mode).



Inspection switching
VSM allows to change the running inspection in a quick and easy way. Moreover, the unit has 20 additional memory slots that extend the DataVS2 capability to manage different items on the same production line.



Parameter fine-tuning
All the vision sensor functioning parameters can be adjusted directly with the VSM. There is no need to use the PC to change the configuration of the camera any more since all the settings and the thresholds can be adjusted on-the-fly.

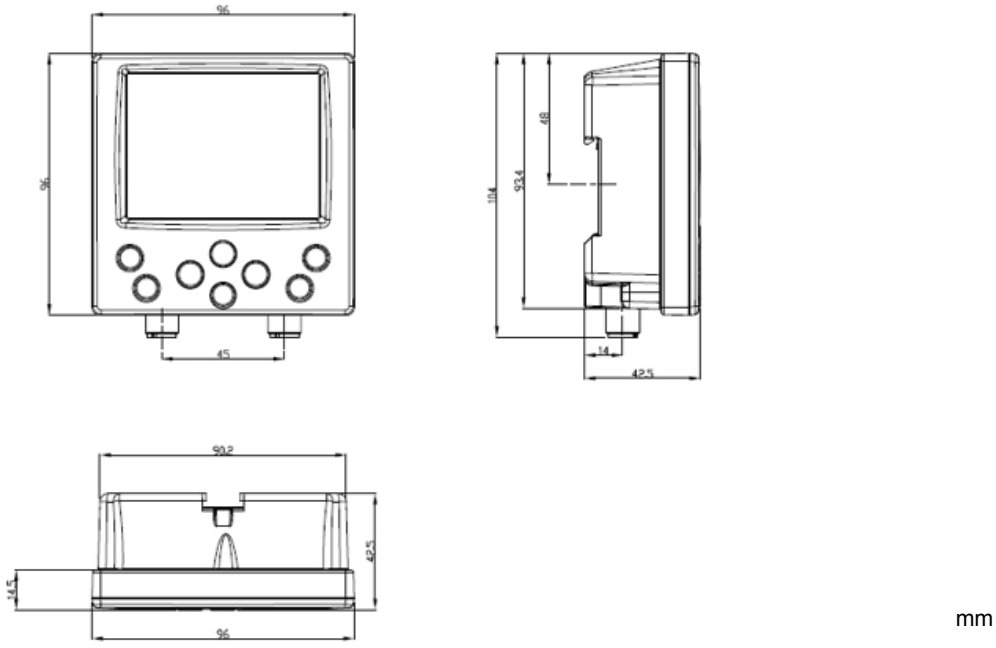


Account management
VSM is able to manage up to three different user accounts. This allows to protect the device configuration and to assign different rights to different groups of users.

TECHNICAL DATA

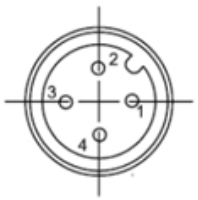
Power supply:	24 Vcc ± 10%
Ripple:	2 Vpp max
Consumption:	140 mA @ 24 Vcc
Dimensions:	96 x 96 x 39 mm
Indicators:	8 LEDs + 3.5" LCD color display
Setup:	DataVS2 GUI
Data retention:	Non-volatile FLASH memory
Operating temperature:	-10 °C … +55 °C
Storage temperature:	-25 °C … +70 °C
Vibration:	0.5 mm amplitude, 10 … 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (30 G) 6 shocks for every axis (EN60068-2-27)
Housing material:	ABS
Mechanical protection:	IP40
Connections:	2 x M12 4 poles
Weight:	170 g

DIMENSIONS



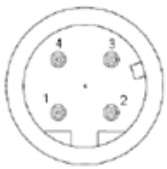
mm

CONNECTIONS



M12 4 Poles
(Power supply)

PIN 1: + 24 Vdc
PIN 2: Reserved
PIN 3: Ground
PIN 4: Reserved



M12 4 Poles
(Ethernet)

PIN 1: Ethernet RX+
PIN 2: Ethernet TX+
PIN 3: Ethernet RX-
PIN 4: Ethernet TX-

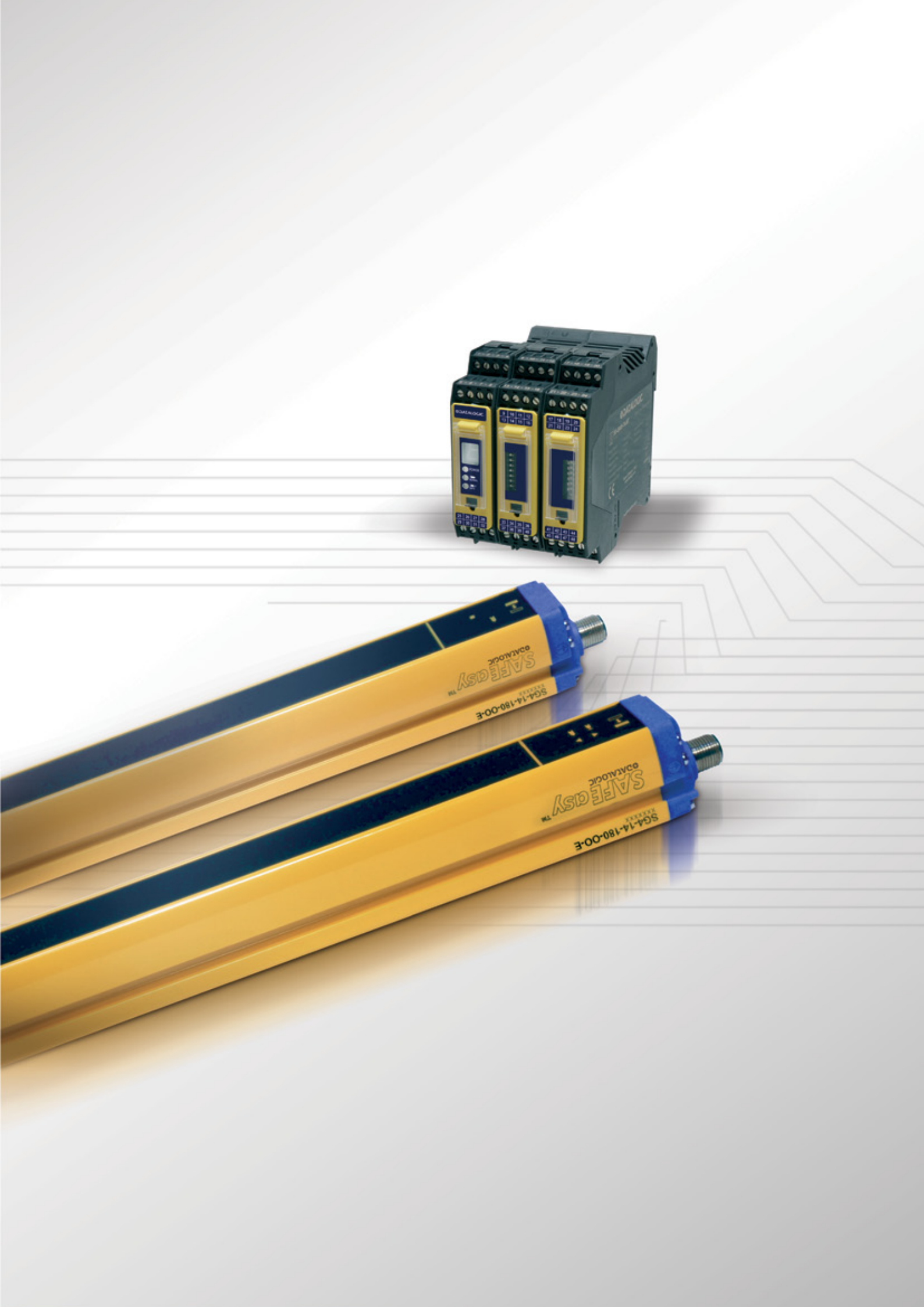
MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
DataVS2-VSM	VSM monitor for DataVS2 series	95A901480

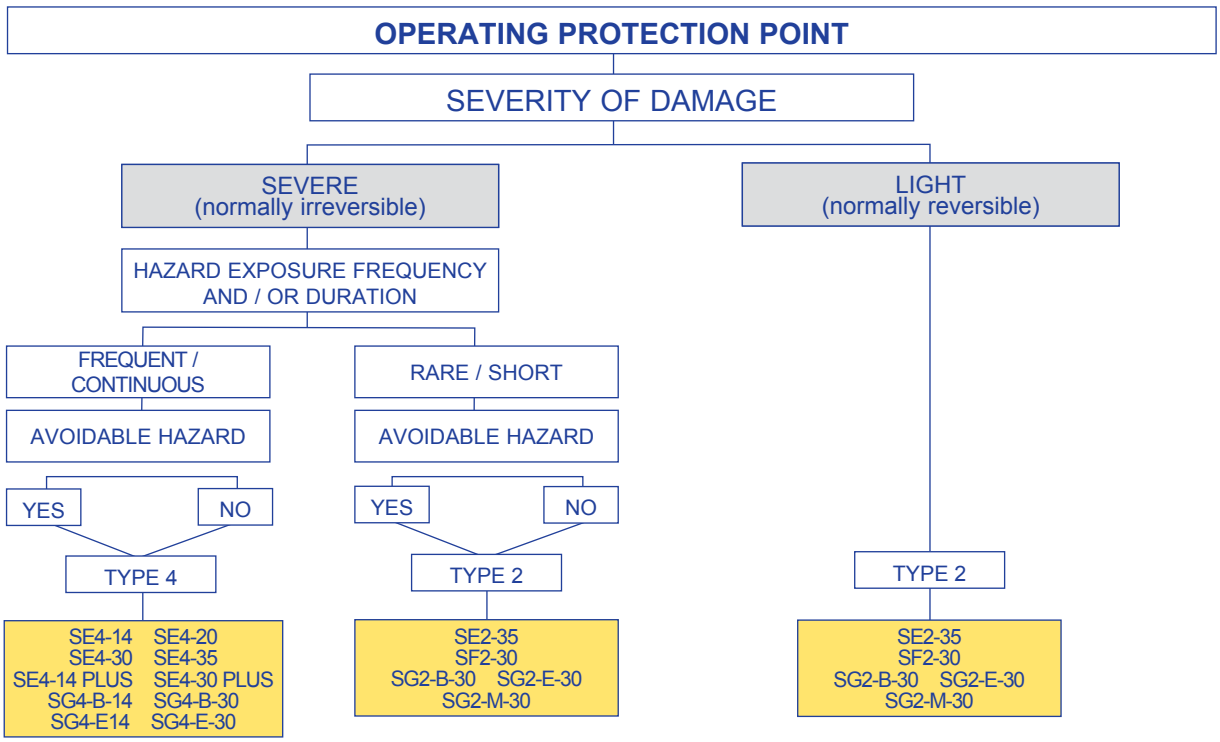
ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CV-A1-32-B-03	3m M12 4pin shielded power supply cable	95A252790
CV-A1-32-B-05	5m M12 4pin shielded power supply cable	95A252800
DataVS-CV-VSM-02	2m point-to-point DataVS2-VSM connection cable	95A901700
DataVS-CV-VSM-04	4m point-to-point DataVS2-VSM connection cable	95A901710
DataVS-CV-RJ45C-03	3m ethernet crossed cable	95A901340
DataVS-CV-RJ45D-03	3m ethernet straight cable	95A901350

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SAFEGSY
SG4-14-180-00-E

Selection guide

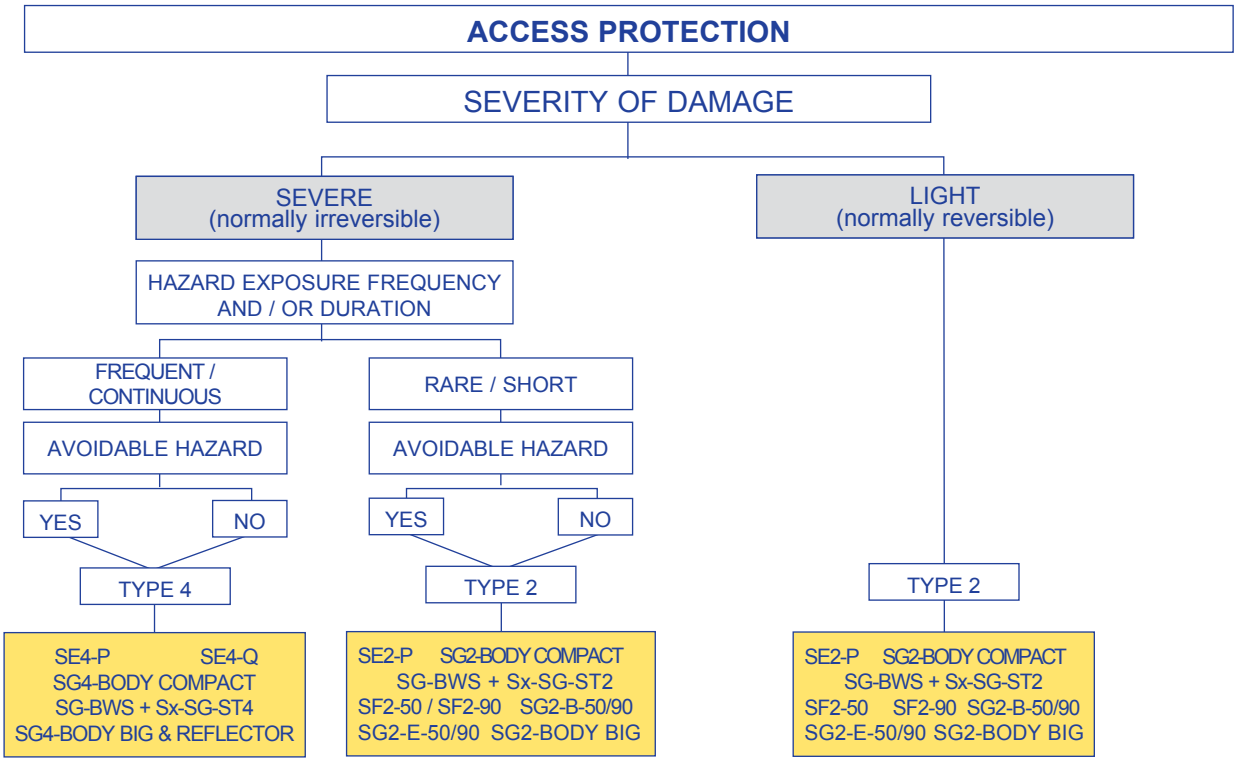


Note: The given information is indicative and synthetic; it is compulsory to refer to the complete EN 954 standard for a correct risk and safety type evaluation.

		RESOLUTION (mm)	OPERATING RANGE (m)
Type 2	SF2-30	30	15
	SG2-B-30	30	19
	SG2-E-30	30	9 / 19*
	SE2-35	35	15
	SG2-M-30	30	12/20
Type 4	SG4-B-14	14	6
	SE4-14	14	6
	SG4-14-E	14	4/7
	SE4-14 PLUS	14	6
	SE4-20	20	6
Type 4	SE4-30	30	15
	SE4-30 PLUS	30	15
	SG4-30-E	30	12/20
	SE4-35	35	15
	SG4-B-30	30	19

* selectable maximum distance: 9 m or 19 m

TYPE 2 TYPE 4



Note: The given information is indicative and synthetic; it is compulsory to refer to the complete EN 954 standard for a correct risk and safety type evaluation.

		RESOLUTION (mm)	OPERATING RANGE (m)
Type 2	SE2-P	515 - 415 - 315	50
	SG2 BODY BIG	520 - 420 - 320	60
	SG2 BODY COMPACT	515 - 415 - 315	50
Type 2	SF2-B-50 / 90	50 / 90	15
	SG2-B-50 / 90	50 / 90	19
	SG2-E-50 / 90	50 / 90	9 / 19* * selectable maximum distance: 9 m or 19 m
	SG-BWS + SX-SG-T2	-	up to 50* * 8 m with S5-SG-ST2; 50 m with S300-ST2
Type 4	SE4-Q	515 - 415 - 315	25
	SE4-P	515 - 415	50
	SG4 BODY COMPACT L/T	515 - 415	3 | 7 * 3 m for - 'W' version; 7 m for - 'T' version;
	SG4 BODY COMPACT Linear	515 - 415 - 315	50
	SG4 BODY BIG	520 - 420 - 320	30/60* * short range models: 0.5-30 m, long range models: 6-60 m
Type 4	SG4 BODY REFLECTOR L/T	520 - 420	3
	SG4 BODY REFLECTOR Linear	520 - 420 - 320	6,5 | 8
Type 4	SB-BWS-T4 + Sx-ST4	-	up to 40* * 8 m with S5-SG-ST4; 40 m with SL5-ST4; 50 m with S300-ST4

TYPE 2 TYPE 4

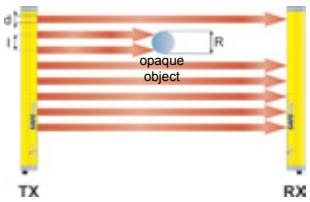
Selection guide

Note: The reference Standard is the **EN 999** / **ISO 13855** 'Safety of machinery - the positioning of protective equipment in respect of approach speeds of parts of the human body'. The given information is indicative and synthetic; it is compulsory to refer to the complete **EN 999** / **ISO 13855** standard for a correct safety distance calculation.

The minimum distance S in mm between the hazardous area and the detection point is expressed by the formula:

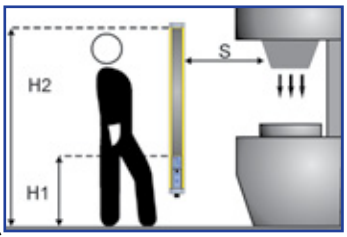
S = (K x T) + C

K is a parameter (mm/sec) linked to the approach speed of the human body or parts
T is the total time (sec) necessary to stop the machine, where $T = t_1 + t_2$
t_1 = max. time between the detection actuation and the change of the device switching status
t_2 = max. machine response time
C is an additional distance (mm) based on the device typology used in terms of resolution, where the resolution is the minimum dimension of an opaque object able to obscure at least one of the beams of the sensitive detection area.



R ≤ 40 mm	Finger or hand protection	Type 4 / Type 2 / Type 4	R=resolution
R > 70 mm	Body protection	Type 2 / Type 4 / Type 4	
R < 116 mm	Presence detection	Type 2	

NORMAL APPROACH TO THE DETECTION AREA



Safety light curtains with 40 mm maximum resolution

S = (K x T) + C

where K = 2000 mm/sec, C = 8 (d - 14 mm) but not smaller than 0,
d = device resolution (mm)

This formula is valid for safety distances S up to 500 mm.
If the result of the formula gives S higher than 500 mm, K = 1600 mm/sec and S = (1600 mm/sec x T) + 8(d-14 mm)

Safety light curtains with 40 to 70 mm resolution

S = (K x T) + C

where K = 1600 mm/sec, C = 850 mm

In all cases, the highest beam height is ∅ 900 mm and the lowest beam is ≤ 300 mm.

Safety light grid with separate multiple beams

S = (K x T) + C

where K = 1600 mm/sec, C = 850 mm

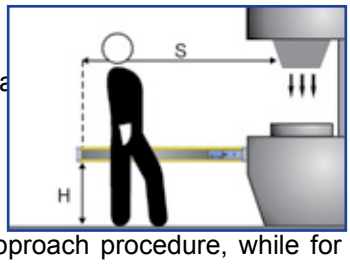
A light grid with 2, 3, 4 separate beams is often used to detect the intrusion of the human body or parts in a specific area; the number of beams and the distance between them depends on the risk estimation made and by specific machine applications. Risks such as slipping under the lower beam, passing over the higher beam, passing through two beams have to be considered.
The following table provides the heights from the ground or from reference plane for different beams.

Number of beams	Heights of single beams from the plane (mm)
4	300, 600, 900, 1200
3	300, 700, 1100
2	400, 900

In case of use of a single beam, in an industrial environment, a height of 750 mm is considered appropriate, with the device positioned at a machine distance, where
S = (1600 mm/sec x T) + 1200 mm.

PARALLEL APPROACH TO THE DETECTION AREA

S = (K x T) + C
where K = 1600 mm/sec, C = (1200 mm - 0,4 H), not less than 850 mm
Hmax = 1000 mm, Hmin = 15 (d - 50 mm), where d = resolution of the sa



ANGLED APPROACH RESPECT TO THE DETECTION AREA

For foreseeable approach angles bigger than 30°, follow the normal approach procedure, while for angles inferior to 30° follow the parallel approach procedure.

Note: The reference Standard is the **EN 999** / **ISO 13855** 'Safety of machinery - the positioning of protective equipment in respect of approach speeds of parts of the human body'. The given information is indicative and synthetic; it is compulsory to refer to the complete **EN 999** / **ISO 13855** standard for a correct safety distance calculation.

Finger protection





TECHNICAL DATA

SERIES	SE4-14	SE4-14 PLUS
According to IEC 61496-1 IEC 61496-2	Type 4 integrated light curtains	Type 4 integrated light curtains
Power supply	24 Vdc	24 Vdc
Resolution	14 mm	14 mm
Operating range	0.2...6 m	0.2...6 m
Controlled height	150...900 mm	150...1200 mm
Response time	18...39 ms	21...68 ms
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles; Tx: M12 4-poles Rx: M12 5-poles; Tx: M12 5-poles
Dimensions (mm)	35 x 40	35 x 40
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection EDM selection
Certifications		
Plus functions		3 models available: Fixed/Floating Blanking EDM Cascading EDM Cascading/Blanking EDM







SE4-20	SG4-B-14	SG4-E-14
Type 4 integrated light curtains	Type 4 integrated light curtains	Type 4 integrated light curtains
24 Vdc	24 Vdc	24 Vdc
20 mm	14 mm	14 mm
0.2...6 m	0.2...6 m	0.2...7 m / 0.2....4 m selectable
150...1650 mm	150 ... 1800 mm	300 ... 1800 mm
16...39 ms	10...51 ms	no coding: 15...33 ms coding: 20...65 ms
2 PNP transistor	2 PNP transistor	2 PNP / NPN transistor
Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 12-poles+5-poles/M12 12-poles Tx: M12 5-poles
35 x 40	32 x 37	35 x 41 ZERO DEAD ZONE
Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection EDM selection	Test Manual/auto Restart selection EDM selection Programmable Muting Programmable Blanking
		Reduction Range Anti-interference coding Selectable PNP/NPN outputs ALIGNMENT AID
		Accessory DONGLE for: configuration cloning remote monitoring remote programming

Hand protection





TECHNICAL DATA

SERIES	SE2-35	SF2-30
According to IEC 61496-1 IEC 61496-2	Type 2 integrated light curtains	Type 2 integrated light curtains
Power supply	24 Vdc	24 Vdc
Resolution	35 mm	30 mm
Operating range	0.2...15 m	0.2...15 m
Controlled height	150...1650 mm	150...1500 mm
Response time	15...32 ms	24 ms max.
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 5 poles Tx: M12 4 poles
Dimensions (mm)	35 x 40	31 x 32
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual Restart Automatic Restart
Certifications		
Plus functions		







SG2-B-30	SG2-E-30	SG2-M-30
Type2 integrated light curtains	Type2 integrated light curtains	Type 2 integrated light curtains
24 Vdc	24 Vdc	24 Vdc
30 mm	30 mm	30 mm
0.2...19 m	0.2...9 m / 0.2...19 m selectable	0.2...20 m / 0.2....12 m selectable
150...1800 mm	150...1800 mm	300 ... 1800 mm
8...24 ms	8...24 ms	13...22 ms
2 PNP transistor	2 PNP transistor	2 PNP transistor
Rx: M12 5-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 12-poles+5-poles Tx: M12 5-poles
32 x 37	32 x 37	35 x 41 ZERO DEAD ZONE
Test Automatic Restart	Test Manual/auto Restart selection	Test Manual/auto Restart selection EDM selection Configurable Muting
	EDM selectable Selectable max. distance: 9 m or 19 m	Reduction Range ALIGNMENT AID

Hand protection





TECHNICAL DATA

SERIES	SE4-20	SE4-30
According to IEC 61496-1 IEC 61496-2	Type 4 integrated light curtains	Type 4 integrated light curtains
Power supply	24 Vdc	24 Vdc
Resolution	20 mm	30 mm
Operating range	0.2...6 m	0.2...15 m
Controlled height	150...1650 mm	150...1650 mm
Response time	16...39 ms	15...32 ms
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles
Dimensions (mm)	35 x 40	35 x 40
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection Total/partial Muting selection Override
Certifications		
Plus functions		









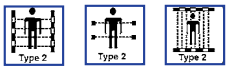
SE4-30 PLUS	SE4-35	SG4-B-30	SG4-E-30
Type 4 integrated light curtains	Type 4 integrated light curtains	Type 4 integrated light curtains	Type 4 integrated light curtains
24 Vdc	24 Vdc	24 Vdc	24 Vdc
30 mm	35 mm	30 mm	30 mm
0.2...15 m	0.2...15 m	0.2...19 m	0.2...20 m / 0.2....12 m
150...1650 mm	150...1650 mm	150 ... 1800 mm	300 ... 1800 mm
16...43 ms	15...32 ms	9...28 ms	no coding: 13...22 ms coding: 16...38 ms
2 PNP transistor	2 PNP transistor	2 PNP transistor	2 PNP / NPN transistor
Rx: M12 8-poles; Tx: M12 4-poles Rx: M12 5-poles; Tx: M12 5-poles	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 12-poles+5-poles/M12 12-poles Tx: M12 5-poles
35 x 40	35 x 40	32 x 37	35 x 41 ZERO DEAD ZONE
Test Manual/auto Restart selection EDM selection	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection EDM selection	Test Manual/auto Restart selection EDM selection Programmable Muting Programmable Blanking
3 models available: Fixed/Floating Blanking EDM Cascading EDM Cascading/Blanking EDM			Reduction Range Anti-interference coding Selectable PNP/NPN outputs ALIGNMENT AID
			Accessory DONGLE for: configuration cloning remote monitoring remote programming

Body protection and presense control





TECHNICAL DATA

SERIES	SE2-P	SG-BWS-T4+Sx-SG-ST2
According to IEC 61496-1 IEC 61496-2 	Type 2 integrated light curtains	Type 4 control unit or sensors
Power supply	24 Vdc	24 Vdc
N° beams / resolution	2 - 3 - 4	up to 4
Operating range	0.5...50 m	up to 50 m
Controlled height	500 - 800 - 900 - 1200 mm	
Response time	14 ms	29 ms max
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles Tx: M12 4-poles	terminal block: 16 clamps
Dimensions (mm)	35 x 40	23 x 119 x 99
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Reset Manual/auto Restart selection EDM selection
Certifications		
Plus functions		







SF2-50 / SF2-90	SG2-B-50 / SG2-B-90	SG2-E-50 / SG2-E-90
Type 2 integrated light curtains	Type 2 integrated light curtains	Type 2 integrated light curtains
24 Vdc	24 Vdc	24 Vdc
50 / 90 mm	50 / 90 mm	50 / 90 mm
0.2... 15 m	0.2...19 m	0.2...9 m / 0.2...19 m selectable
300...1500 mm	300...1800 mm	300...1800 mm
15...24 ms	8...20 ms (50 vers.) 8...19 ms (90 vers.)	8...20 ms (50 vers.) 8...19 ms (90 vers.)
2 PNP transistor	2 PNP transistor	2 PNP transistor
Rx: M12 5-poles Tx: M12 4-poles	Rx: M12 5-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles
31 x 32	32 x 37	32 x 37
Test Manual Restart Automatic Restart	Test Automatic Restart	Test Manual/auto Restart selection
		EDM selectable Selectable max. distance: 9 m or 19 m

Body protection





TECHNICAL DATA

SERIES	SE4-P	SE4-Q
According to IEC 61496-1 IEC 61496-2  	Type 4 integrated light curtains	Type 4 integrated light curtains
Power supply	24 Vdc	24 Vdc
N° beams	2 - 3 - 4	2 - 3 - 4
Operating range	4...50 m	0.5...25 m
Controlled height	500 - 800 - 900 - 1200 mm	500 - 800 - 900 - 1200 mm
Response time	14 ms	14 ms
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8-poles Tx: M12 4-poles	Rx: M12 8-poles Tx: M12 4-poles
Dimensions (mm)	35 x 40	35 x 40
Device functions	Test Manual/auto Restart selection Total/partial Muting selection Override	Test Manual/auto Restart selection Total/partial Muting selection Override
Certifications		
Plus functions		





SG-BWS-T4+Sx-SG-ST4	SG-BWS-T4-MT
Type 4 control unit and sensors	Type 4 control unit
24 Vdc	24 Vdc
up to 4	up to 4 safety sensor couples and up to 2 light curtain couples
up to 40 m	Refer to sensors or curtains
	Refer to sensors or curtains
29 ms max	39 ms
2 PNP transistor	2 relay
terminal block: 16 clamps	terminal block: 48 clamps
23 x 119 x 99	68 x 119 x 99
Reset Manual/auto Restart selection EDM selection	Reset Manual/auto Restart selection EDM selection Single / double Muting selection Edge / Triggered Override selection

Body protection with integrated Muting





TECHNICAL DATA

SERIES	SG BODY COMPACT BASE	SG BODY COMPACT MUTING
According to IEC 61496-1 IEC 61496-2 	Type 2 Type 4 integrated light curtains	Type 2 Type 4 integrated light curtains
Power supply	24 Vdc	24 Vdc
N° beams	2 - 3 - 4	2 - 3 - 4
Operating range	0.5…50 m	0.5…3 m (‘L’ or ‘T’) 0.5…50 m (linear models)
Controlled height	500 - 800 - 900 - 1200 mm	500 - 800 - 900 - 1200 mm 500 - 800 mm (‘L or T’ models)
Response time	16 ms	16 ms
OSSD output	2 PNP transistor	2 PNP transistor
Connection	Rx: M12 8 - poles Tx: M12 4 - poles	Rx: M12 8 - poles / M12 5 - poles Tx: M12 4 - poles / M12 5 - poles
Dimensions (mm)	35 x 40	35 x 40
Device functions	Test Manual/auto Restart selection EDM selection	One-way / Two-way Muting Test Manual/auto Restart selection Muting time-out selection EDM selection Override
Certifications		
Plus functions		





SG BODY BIG TX-RX BASE	SG BODY BIG TX-RX MUTING
Type 2 Type 4 integrated light curtains	Type 2 Type 4 integrated light curtains
24 Vdc	24 Vdc
2 - 3 - 4	2 - 3 - 4
6…60 m	Type 2: 0,5...60 m Type 4 Short range: 0,5…30 m Type 4 Long range: 6…60 m
500 - 800 - 900 - 1200 mm	500 - 800 - 900 - 1200 mm
Max 12 ms	Max 24 ms
2 PNP transistor	2 PNP transistor
Rx: M12 8 - poles Tx: M12 5 - poles	Rx: M12 5 - poles + M12 12 - poles Tx: M12 5 - poles + M12 5 - poles
52 x 57	52 x 57
Manual/auto Restart selection EDM selection	Test Manual/auto Restart selection EDM selection
	One-way or two-way Muting Muting time-out selection Muting enable Muting filter Edged/Triggered Override selection Auto restart after Override selection Anti-Interference coding

Body protection with passive unit and integrated Muting

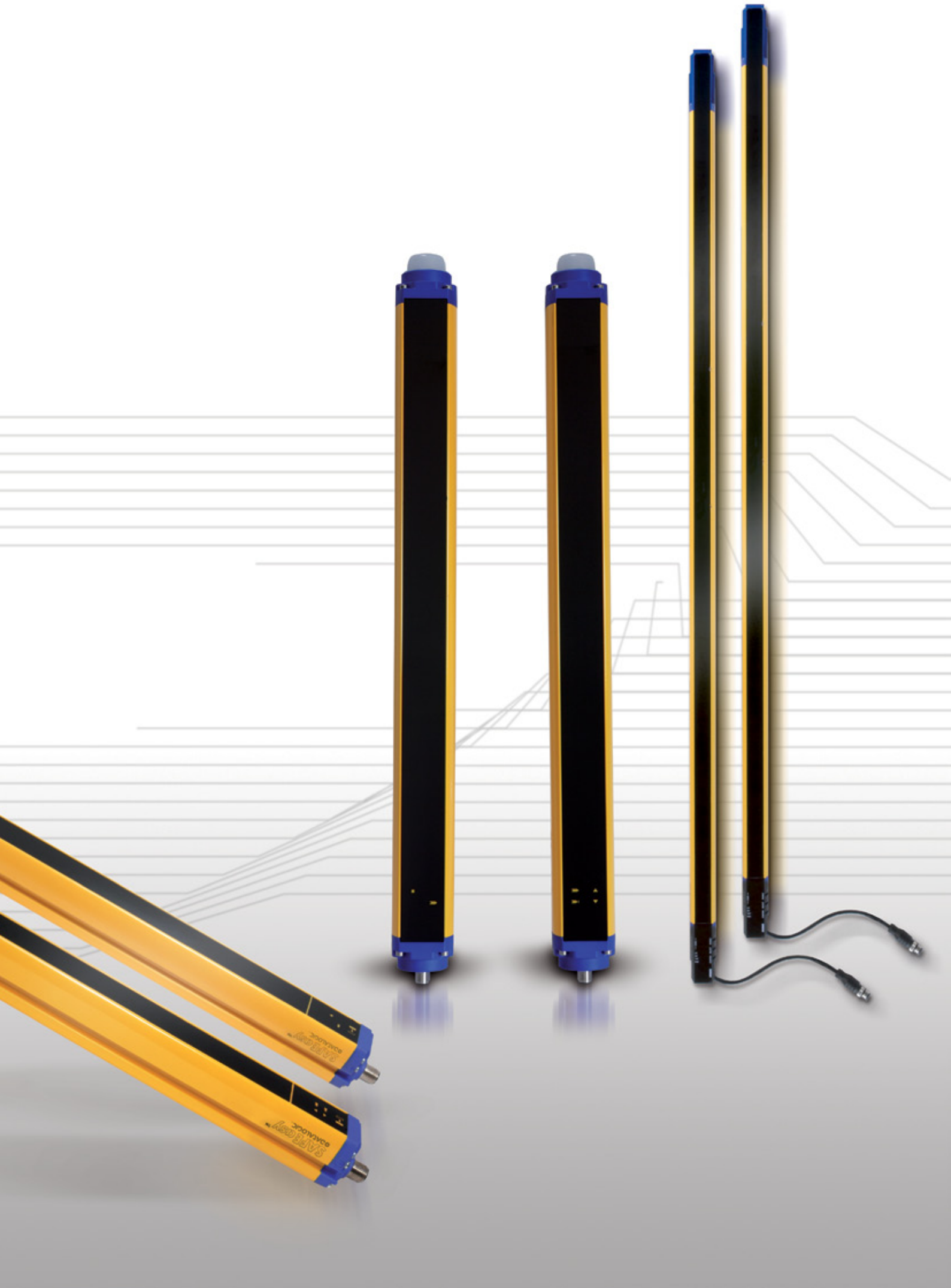




TECHNICAL DATA

SERIES	SG4 BODY REFLECTOR BASE	SG4 BODY REFLECTOR MUTING
According to IEC 61496-1 IEC 61496-2 	Type 4 retroreflex light curtains	Type 4 retroreflex light curtains
Power supply	24 Vdc	24 Vdc
N° beams	2 - 3 - 4	2 - 3 - 4 (linear) 2 - 3 ('L' or 'T')
Operating range	0.5...8 m	0.5...3 m ('L or T' models) 0.5...8 m (linear models)
Controlled height	500 - 800 - 900 - 1200 mm	500 - 800 - 900 - 1200 mm (linear) 500 - 800 ('L' or 'T')
Response time	12 ms	12 ms
OSSD output	2 PNP transistor	2 PNP transistor
Connection	active unit: M12 8-poles passive unit: non connected	active unit: M12 5-poles / M12 12-poles passive unit: non connected
Dimensions (mm)	52 x 57	52 x 57
Device functions	Test Manual/auto Restart selection EDM selection	Test Manual/auto Restart selection EDM selection
Certifications		
Plus functions		One-way or two-way Muting Muting time-out selection Muting enable Muting filter Edged/Triggered Override selection Auto restart after Override selection




SAFEBOOT
SAFEBOOT

DATALOGIC

SAFETY

SF2-HAND SERIES

The **SAFEasy™** light curtains of the SF2 series, according to the IEC 61496-1 and IEC 61496-2 standards, are very suitable for hand protection of operators exposed to risks.
Different models are available with ten standard heights ranging from 150 to 1500 mm, 30 mm resolution and an operating distance reaching 15 m.
The emitter and receiver units are optically synchronised and contain all the control circuits, test input and two safety outputs inside the housing.
The connection with the machine stopping circuits are guaranteed by unshielded M12 4-pole connectors for the emitter and M12 5-pole connectors for the receiver.
The SAFEasy™ light curtains of the SF 2 series have also integrated the test function, automatically activated every 0.5 seconds, without stopping the machine's working cycle.
A wide range of industrial applications, requiring operator safety, can be solved by the SAFEasy™light curtains, thanks to the extremely compact dimensions (31x32 mm), easy installation and excellent performances.



Type 2

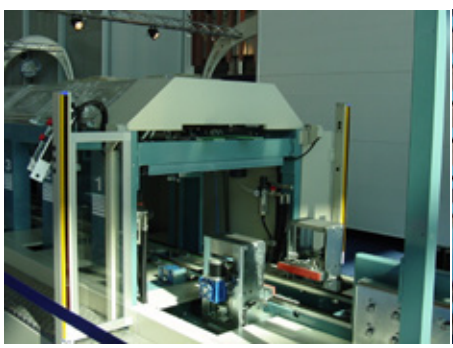
HIGHLIGHTS

- Integrated light curtains for HAND PROTECTION
- 30 mm resolution and operating distance up to 15 m
- 31 x 32 mm compact profile
- Versions with automatic or manual RESTART

APPLICATIONS

- Automatic machines;
- Machines for packaging, material handling, storing;
- Weaving machines, wood working machines, ceramic working machines;
- Automatic and semi-automatic assembly lines;
- Automatic warehouses.

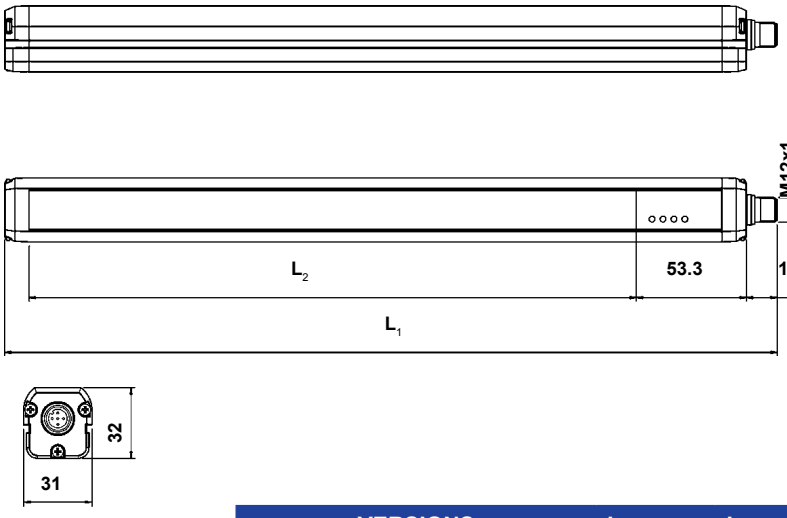






The LED panel present on the extremely compact receiving unit guarantees an easy and immediate indication of the operating status of the safety light curtain.
These LED indicators supply also information relative to the device's effective alignment and diagnostics.

DIMENSIONS

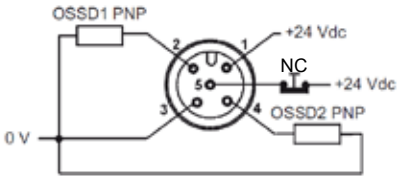




VERSIONS	L_1	L_2
SF2-30-015	227	147
SF2-30-030	374	294
SF2-30-045	521	441
SF2-30-060	668	588
SF2-30-075	815	735
SF2-30-090	962	882
SF2-30-105	1109	1029
SF2-30-120	1256	1176
SF2-30-135	1403	1323
SF2-30-150	1550	1470

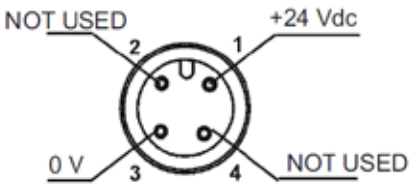
CONNECTIONS

RX: M12 5 POLE CONNECTOR



1 = brown = +24 Vdc
2 = white = OSSD1
3 = blue = 0 V
4 = black = OSSD2
5 = grey = TEST *

TX: M12 4 POLE CONNECTOR



1 = brown = +24 Vdc
2 = white = Not used
3 = blue = 0 V
4 = black = Not used

*= automatic RESTART (X version) TEST/RESET function
= manual RESTART (Y version) TEST/RESTART/RESET function

TECHNICAL DATA

Power supply (Vdd):	24 Vdc ± 20% (SELV / PELV)
Consumption:	50 mA max. / 1 W (emitter)
	90 mA max. / 2.5 W (receiver without load)
Light emission:	infrared LED 880 nm
Optic diameter:	Ø 18 mm
Number of controlled beams:	refer to table 1
Optic interaxis:	18.4 mm
Resolution:	30 mm
Controlled height:	refer to table 2
Operating distance:	0.2 ... 15 m
Receiver inputs:	external switches for Test and Restart
Receiver indicators:	2 yellow ALIGNMENT LEDs
	red BREAK LED
	green SAFE LED
Emitter indicators:	yellow WORKING UNIT CHECK LED
	green POWER ON LED
Output type:	2 PNP
	short-circuit protection: max.1.4 A at 55°C
	min. 1.2 A at 0 °C
Output current (for all loads):	500 mA max. per output
Output voltage ON min.:	Vdd - 1 V
Output voltage OFF max.:	0.2 V
Leakage current:	0.65 mA
Capacitive load (pure):	100 nF max.
Resistive load (pure):	60 Ω min.
Response time:	refer to table 3
Receiver connection:	M12 5-pole connector
Emitter connection:	M12 4-pole connector
Safety category:	type 2
Electrical protection:	class 1
Mechanical protection:	IP65 (EN 60529)
	IP67 (connector part)
Housing material:	painted aluminium
Cap end material:	PBT
Lens material:	PMMA
Cable length:	50 m max * (at 100nF capacitive load and Vdd=24V)
	M12 conductors (according to EN 50044, EN 60947-5-2)
	poles Ø = 32x0.1mm, external Ø = 0.5mm
Weight:	1 Kg. max. / m of total height
Operating temperature:	0 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

* = if a longer cable has to be used, please verify that the same specifications are respected

TABLES

Model	SF2
SF2 height 150	8
SF2 height 300	16
SF2 height 450	24
SF2 height 600	32
SF2 height 750	40
SF2 height 900	48
SF2 height 1050	56
SF2 height 1200	64
SF2 height 1350	72
SF2 height 1500	80

Table 1: NUMBER OF CONTROLLED BEAMS

Model	SF2
SF2 height 150	187
SF2 height 300	334
SF2 height 450	481
SF2 height 600	628
SF2 height 750	775
SF2 height 900	922
SF2 height 1050	1069
SF2 height 1200	1216
SF2 height 1350	1363
SF2 height 1500	1510

Table 2: CONTROLLED HEIGHT (mm)

Model	SF2
SF2 height 150	14
SF2 height 300	15
SF2 height 450	16
SF2 height 600	17
SF2 height 750	18
SF2 height 900	19
SF2 height 1050	20
SF2 height 1200	22
SF2 height 1350	23
SF2 height 1500	24

Table 3: RESPONSE TIME (ms)

RELIABILITY DATA

PL (Ref. EN ISO 13849-1)	d
CAT (Ref. EN 954-1)	2
SIL (Ref. EN IEC 61508)	2
SIL CL (Ref. EN IEC 62061)	2
PFHD – Probability of Danger Failure (1/h)	2,34E-08
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	302
DC – Diagnostic Coverage (%)	93,80%
SFF – Safe Failure Fraction (%)	96,06%
HFT – Hardware Fault Tolerance	0

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	N° ORDER
with automatic RESTART		
SF2-30-015-PP-X	type 2 safety light curtain h=150 mm	957081000
SF2-30-030-PP-X	type 2 safety light curtain h=300 mm	957081010
SF2-30-045-PP-X	type 2 safety light curtain h=450 mm	957081020
SF2-30-060-PP-X	type 2 safety light curtain h=600 mm	957081030
SF2-30-075-PP-X	type 2 safety light curtain h=750 mm	957081040
SF2-30-090-PP-X	type 2 safety light curtain h=900 mm	957081050
SF2-30-105-PP-X	type 2 safety light curtain h=1050 mm	957081060
SF2-30-120-PP-X	type 2 safety light curtain h=1200 mm	957081070
SF2-30-135-PP-X	type 2 safety light curtain h=1350 mm	957081080
SF2-30-150-PP-X	type 2 safety light curtain h=1500 mm	957081090
with manual RESTART		
SF2-30-015-PP-Y	type 2 safety light curtain h=150 mm	957081100
SF2-30-030-PP-Y	type 2 safety light curtain h=300 mm	957081110
SF2-30-045-PP-Y	type 2 safety light curtain h=450 mm	957081120
SF2-30-060-PP-Y	type 2 safety light curtain h=600 mm	957081130
SF2-30-075-PP-Y	type 2 safety light curtain h=750 mm	957081140
SF2-30-090-PP-Y	type 2 safety light curtain h=900 mm	957081150
SF2-30-105-PP-Y	type 2 safety light curtain h=1050 mm	957081160
SF2-30-120-PP-Y	type 2 safety light curtain h=1200 mm	957081170
SF2-30-135-PP-Y	type 2 safety light curtain h=1350 mm	957081180
SF2-30-150-PP-Y	type 2 safety light curtain h=1500 mm	957081190
SF2-90-150-PP-Y	Type 2 safety light curtain h=1500 mm	957081550

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	N° ORDER
CS-A1-03-G-03	M12 5-pole unshielded axial 3 m connector	95ACC2110
CS-A1-03-G-05	M12 5-pole unshielded axial 5 m connector	95ACC2120
CS-A1-03-G-10	M12 5-pole unshielded axial 10 m connector	95ACC2140
CS-A1-02-G-03	M12 4-pole unshielded axial 3 m connector	95A251380
CS-A1-02-G-05	M12 4-pole unshielded axial 5 m connector	95A251270
CS-A1-02-G-10	M12 4-pole unshielded axial 10 m connector	95A251390
ST-KSF2	anti-scratch fixing bracket (4 pcs)	95ACC2320
ST-KSF2STD	SF2 standard fixing bracket (12 pcs)	95ASE1020
ST-KSF2-4OR	SF2 orientable supports (4 pcs)	95ACC2580
ST-KSF2-6OR	SF2 orientable supports (6 pcs)	95ACC2590

Please refer also to **Safety Device Accessories**

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATALOGIC

SAFETY

SF2-PRESENCE CONTROL SERIES

The **SAFEasy™** light curtains of the **SF2** series, according to the IEC 61496-1 and IEC 61496-2 standards, are very suitable for presence detection of operators exposed to risks.
Different models are available with nine standard heights ranging from 300 to 1500 mm, with 50 or 90 mm resolution and an operating distance reaching 15 m.
The emitter and receiver units are optically synchronised and contain all the control circuits, test input and two safety outputs inside the housing.
The connection with the machine stopping circuits are guaranteed by unshielded M12 4-pole connectors for the emitter and M12 5-pole connectors for the receiver.
The **SAFEasy™** light curtains of the SF2 series have also integrated the test function, automatically activated every 0.5 seconds, without stopping the machine's working cycle.
A wide range of industrial applications, requiring operator safety, can be solved by the **SAFEasy™** light curtains, thanks to the extremely compact dimensions (31x32 mm), easy installation and excellent performances.



Type 2

HIGHLIGHTS

- Integrated light curtains for PRESENCE CONTROL PROTECTION
- 50 and 90 mm resolution and operating distance up to 15 m
- 31 x 32 mm compact profile
- Versions with automatic or manual RESTART

APPLICATIONS

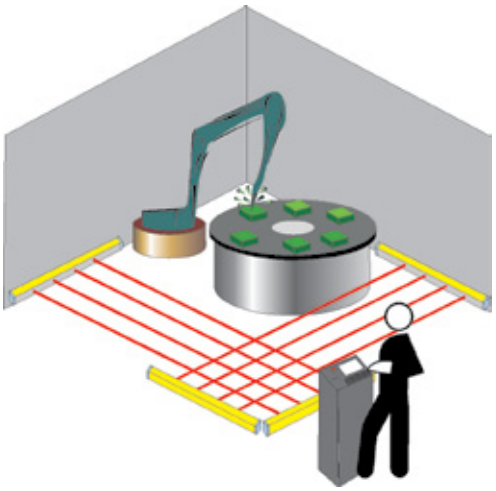
- Automatic machines;
- Packaging, material handling and storage machines;
- Textile, wood-working and ceramic machines;
- Automatic and semi-automatic assembling lines;
- Automatic warehouses.



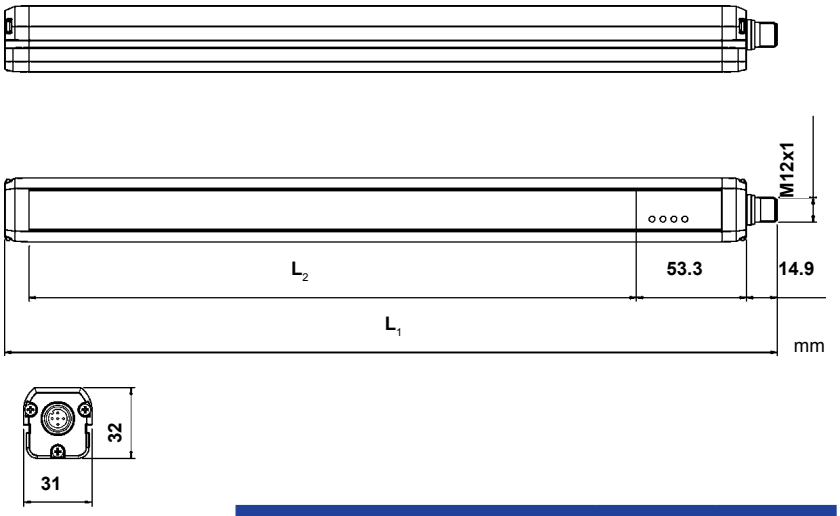




Presence control is obtained positioning horizontally the safety light curtain. This installation allows to continuously control the presence of an obstacle inside a specific area. This is a particularly useful solution when dangerous area, not visible from the machine control points, has to be protected.



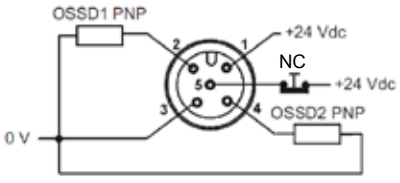
DIMENSIONS



CONTROLLED HEIGHT (mm)	L_1	L_2
300	294	374
450	521	441
600	668	588
750	815	735
900	962	882
1050	1109	1029
1200	1256	1176
1350	1403	1323
1500	1550	1470

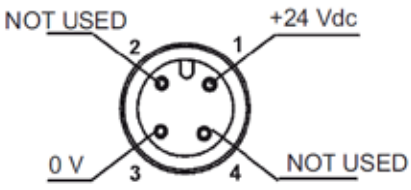
CONNECTIONS

RX: M12 5 POLE CONNECTOR



1 = brown = +24 Vdc
2 = white = OSSD1
3 = blue = 0 V
4 = black = OSSD2
5 = grey = TEST *

TX: M12 4 POLE CONNECTOR



1 = brown = +24 Vdc
2 = white = Not used
3 = blue = 0 V
4 = black = Not used

*= automatic RESTART (X version) TEST/RESET function
= manual RESTART (Y version) TEST/RESTART/RESET function

TECHNICAL DATA

Power supply (Vdd):	24 Vdc ± 20% (SELV / PELV)
Consumption:	50 mA max. / 1 W (emitter)
	90 mA max. / 2.5 W (receiver without load)
Light emission:	infrared LED 880 nm
Optic diameter:	Ø 18 mm
Number of controlled beams:	refer to table 1
Optic interaxis:	37,5 mm (SF2-50); 74 mm (SF2-90)
Resolution:	50 / 90 mm
Controlled height:	refer to table 2
Operating distance:	0.2 ... 15 m
Receiver inputs:	external switches for Test and Restart
Receiver indicators:	2 yellow ALIGNMENT LEDs
	red BREAK LED
	green SAFE LED
Emitter indicators:	yellow WORKING UNIT CHECK LED
	green POWER ON LED
Output type:	2 PNP
	short-circuit protection: max.1.4 A at 55°C
	min. 1.2 A at 0 °C
Output current (for all loads):	500 mA max. per output
Output voltage ON min.:	Vdd - 1 V
Output voltage OFF max.:	0.2 V
Leakage current:	0.65 mA
Capacitive load (pure):	100 nF max.
Resistive load (pure):	60 Ω min.
Response time:	refer to table 3
Receiver connection:	M12 5-pole connector
Emitter connection:	M12 4-pole connector
Safety category:	type 2
Electrical protection:	class 1
Mechanical protection:	IP65 (EN 60529)
	IP67 (connector part)
Housing material:	painted aluminium
Cap end material:	PBT
Lens material:	PMMA
Cable length:	50 m max * (at 100nF capacitive load and Vdd=24V)
	M12 conductors (according to EN 50044, EN 60947-5-2)
	poles Ø = 32x0.1mm, external Ø = 0.5mm
Weight:	1 Kg. max. / m of total height
Operating temperature:	0 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

* = if a longer cable has to be used, please verify that the same specifications are respected

TABLES

Model	SF2-50	SF2-90
SF2 height 300	9	5
SF2 height 450	13	7
SF2 height 600	17	9
SF2 height 750	21	11
SF2 height 900	25	13
SF2 height 1050	29	15
SF2 height 1200	33	17
SF2 height 1350	37	19
SF2 height 1500	41	21

Table 1: NUMBER OF CONTROLLED BEAMS

Model	SF2
SF2 height 300	334
SF2 height 450	481
SF2 height 600	628
SF2 height 750	775
SF2 height 900	922
SF2 height 1050	1069
SF2 height 1200	1216
SF2 height 1350	1363
SF2 height 1500	1510

Table 2: CONTROLLED HEIGHT (mm)

Model	SF2
SF2 height 300	15
SF2 height 450	16
SF2 height 600	17
SF2 height 750	18
SF2 height 900	19
SF2 height 1050	20
SF2 height 1200	22
SF2 height 1350	23
SF2 height 1500	24

Table 3: RESPONSE TIME (ms)

RELIABILITY DATA

PL (Ref. EN ISO 13849-1)	d
CAT (Ref. EN 954-1)	2
SIL (Ref. EN IEC 61508)	2
SIL CL (Ref. EN IEC 62061)	2
PFHD – Probability of Danger Failure (1/h)	2,34E-08
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	302
DC – Diagnostic Coverage (%)	93,80%
SFF – Safe Failure Fraction (%)	96,06%
HFT – Hardware Fault Tolerance	0

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	N° ORDER
SF2-50 with automatic RESTART		
SF2-50-030-PP-X	Type 2 safety light curtain h=300 mm	957081200
SF2-50-045-PP-X	Type 2 safety light curtain h=450 mm	957081210
SF2-50-060-PP-X	Type 2 safety light curtain h=600 mm	957081220
SF2-50-075-PP-X	Type 2 safety light curtain h=750 mm	957081230
SF2-50-090-PP-X	Type 2 safety light curtain h=900 mm	957081240
SF2-50-105-PP-X	Type 2 safety light curtain h=1050 mm	957081250
SF2-50-120-PP-X	Type 2 safety light curtain h=1200 mm	957081260
SF2-50-135-PP-X	Type 2 safety light curtain h=1350 mm	957081270
SF2-50-150-PP-X	Type 2 safety light curtain h=1500 mm	957081280
SF2-50 with manual RESTART		
SF2-50-030-PP-Y	Type 2 safety light curtain h=300 mm	957081380
SF2-50-045-PP-Y	Type 2 safety light curtain h=450 mm	957081390
SF2-50-060-PP-Y	Type 2 safety light curtain h=600 mm	957081400
SF2-50-075-PP-Y	Type 2 safety light curtain h=750 mm	957081410
SF2-50-090-PP-Y	Type 2 safety light curtain h=900 mm	957081420
SF2-50-105-PP-Y	Type 2 safety light curtain h=1050 mm	957081430
SF2-50-120-PP-Y	Type 2 safety light curtain h=1200 mm	957081440
SF2-50-135-PP-Y	Type 2 safety light curtain h=1350 mm	957081450
SF2-50-150-PP-Y	Type 2 safety light curtain h=1500 mm	957081460
SF2-90 with automatic RESTART		
SF2-90-030-PP-X	Type 2 safety light curtain h=300 mm	957081290
SF2-90-045-PP-X	Type 2 safety light curtain h=450 mm	957081300
SF2-90-060-PP-X	Type 2 safety light curtain h=600 mm	957081310
SF2-90-075-PP-X	Type 2 safety light curtain h=750 mm	957081320
SF2-90-090-PP-X	Type 2 safety light curtain h=900 mm	957081330
SF2-90-105-PP-X	Type 2 safety light curtain h=1050 mm	957081340
SF2-90-120-PP-X	Type 2 safety light curtain h=1200 mm	957081350
SF2-90-135-PP-X	Type 2 safety light curtain h=1350 mm	957081360
SF2-90-150-PP-X	Type 2 safety light curtain h=1500 mm	957081370
SF2-90 with manual RESTART		
SF2-90-030-PP-Y	Type 2 safety light curtain h=300 mm	957081470
SF2-90-045-PP-Y	Type 2 safety light curtain h=450 mm	957081480
SF2-90-060-PP-Y	Type 2 safety light curtain h=600 mm	957081490
SF2-90-075-PP-Y	Type 2 safety light curtain h=750 mm	957081500
SF2-90-090-PP-Y	Type 2 safety light curtain h=900 mm	957081510
SF2-90-105-PP-Y	Type 2 safety light curtain h=1050 mm	957081520
SF2-90-120-PP-Y	Type 2 safety light curtain h=1200 mm	957081530
SF2-90-135-PP-Y	Type 2 safety light curtain h=1350 mm	957081540
SF2-90-150-PP-Y	Type 2 safety light curtain h=1500 mm	957081550

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	N° ORDER
CS-A1-03-G-03	M12 5-pole unshielded axial 3 m connector	95ACC2110
CS-A1-03-G-05	M12 5-pole unshielded axial 5 m connector	95ACC2120
CS-A1-03-G-10	M12 5-pole unshielded axial 10 m connector	95ACC2140
CS-A1-02-G-03	M12 4-pole unshielded axial 3 m connector	95A251380
CS-A1-02-G-05	M12 4-pole unshielded axial 5 m connector	95A251270
CS-A1-02-G-10	M12 4-pole unshielded axial 10 m connector	95A251390
ST-KSF2	anti-scratch fixing bracket (4 pcs)	95ACC2320
ST-KSF2STD	SF2 standard fixing bracket (12 pcs)	95ASE1020
ST-KSF2-4OR	SF2 orientable supports (4 pcs)	95ACC2580
ST-KSF2-6OR	SF2 orientable supports (6 pcs)	95ACC2590

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATALOGIC

SAFETY

SG2-HAND SERIES

The **SAFEasy™ SG2** light curtains represent the natural evolution of the SF2 series.
The SG2 series offers two models, **SG2-B** "**Base**" and **SG2-E** "**Extended**", thus guaranteeing compatibility with the SF2 series (**SG2-B**), as well as offering advanced functions for a Type 2 safety light curtain, such as EDM and Anti-Interference (**SG2-E**). Models with controlled heights ranging from 150 to 1800 mm are available, all with an operating distance reaching 19 m.
The response times ranging from 8 to 24 msec result to be amongst the lowest on the market, consenting the installation of the product nearer to the dangerous area. As well as offering the base functions present in the **SG2-B** model, the **SG2-E** series integrates advanced functions for a Type 2 device such as manual/automatic Restart, EDM function, Anti-interference system (obtained thanks to the reduction to 9 m of the maximum operating distance). All selectable functions.
The profile and rotating fixing brackets ease installation and the alignment of the emitting and receiving units, even at long distances and in applications with deviating mirrors.
The **SG2** series represents the ideal solution for all the typical applications of a Type 2 safety light curtain.





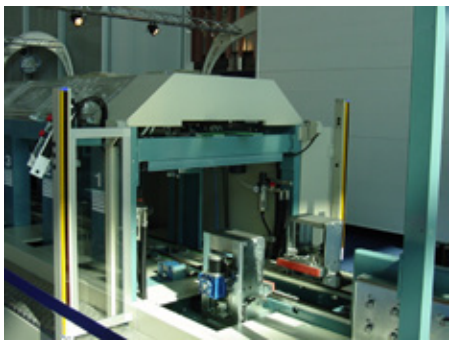
HIGHLIGHTS

- Integrated light curtain for HAND PROTECTION
- Maximum operating distance reaching 19 m
- Controlled heights ranging from 150 to 1800 mm
- New sturdy profile and rotating brackets
- Selectable Manual/Automatic Restart, EDM and Anti-Interference

APPLICATIONS

- Automatic machines;
- Machines for packaging, material handling, storing;
- Weaving machines, wood working machines, ceramic working machines;
- Automatic and semi-automatic assembly lines;
- Automatic warehouses.



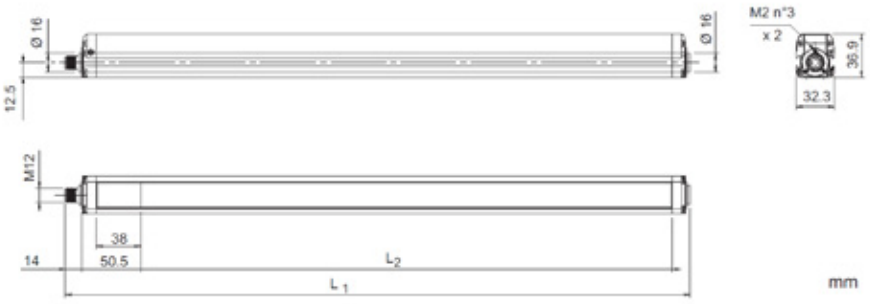




The characteristics introduced by the SG2 safety light curtains are:

- Operating distance reaching 19 m
- Wider controlled height range (reaching 1800 mm)
- Reduced response times, 25% less than SF2
- New sturdy and more functional profile
- Easier and quicker installation thanks to the new rotating fixing brackets that ease alignment even in the harshest conditions
- Compatibility with the entire SE accessory range
- SG2-E with selectable “Function” such as: Manual/Automatic Restart, EDM and Anti-Interference thanks to the reduction of the maximum operating distance from 19 to 9 m

DIMENSIONS



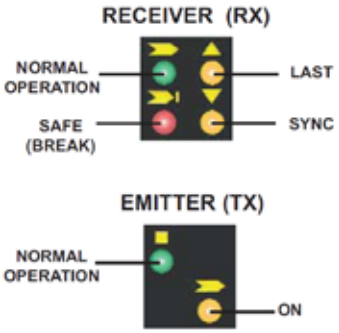
VERSIONS	L_1	L_2
SG2-30-015-OO-*	233.3	153.3
SG2-30-030-OO-*	383.2	303.2
SG2-30-045-OO-*	533.2	453.3
SG2-30-060-OO-*	683.2	603.2
SG2-30-075-OO-*	833.2	753.3
SG2-30-090-OO-*	983.2	903.2
SG2-30-105-OO-*	1133.2	1053.2
SG2-30-120-OO-*	1283.3	1203.3
SG2-30-135-OO-*	1433.2	1353.2
SG2-30-150-OO-*	1583.3	1503.3
SG2-30-165-OO-*	1733.3	1653.3
SG2-30-180-OO-*	1883.3	1803.3

* = X Base model or E-C Extended model

INDICATORS AND SETTINGS

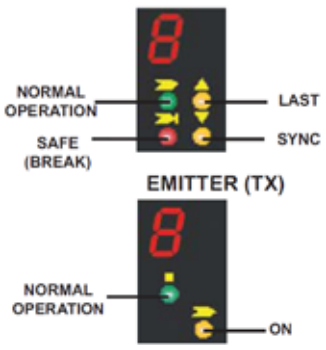


SG2-B





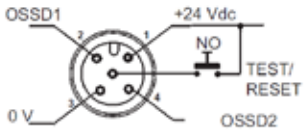
SG2-E



CONNECTIONS

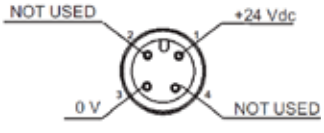
SG2-B

RX: M12 5-POLE CONNECTOR



1 = brown = +24 Vdc
2 = white = OSSD1
3 = blue = 0 V
4 = black = OSSD2
5 = grey = TEST/RESET

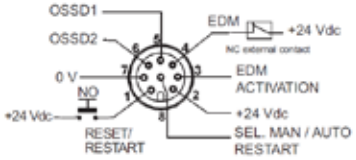
TX: M12 4-POLE CONNECTOR



1 = brown = +24 Vdc
2 = white = NOT USED
3 = blue = 0 V
4 = black = NOT USED

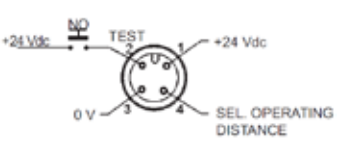
SG2-E

RX: M12 8-POLE CONNECTOR



1 = white = RESET/RESTART
2 = brown = +24 Vdc
3 = green = EDM ACTIVATION
4 = yellow = EDM
5 = grey = OSSD1
6 = pink = OSSD2
7 = blue = 0 V
8 = red = SEL. MAN. / AUTO RESTART

TX: M12 4-POLE CONNECTOR



1 = brown = +24 Vcc
2 = white = TEST
3 = blue = 0 V
4 = black = SEL. OPERATING DISTANCE

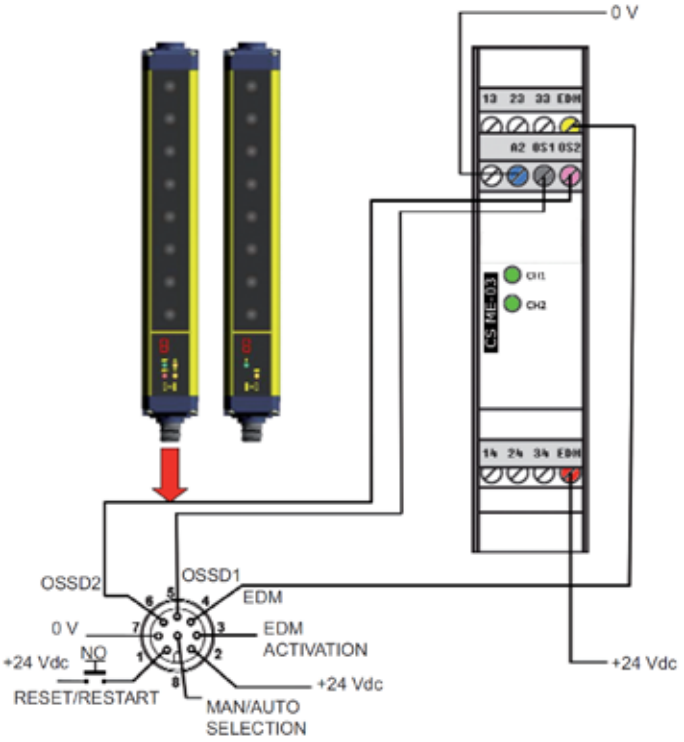
NOTE: For MANUAL RESTART CONNECT TOGETHER Pin8 with Pin6.
For Automatic Restart connect together Pin8 with Pin5

SG2-E: FUNCTIONS

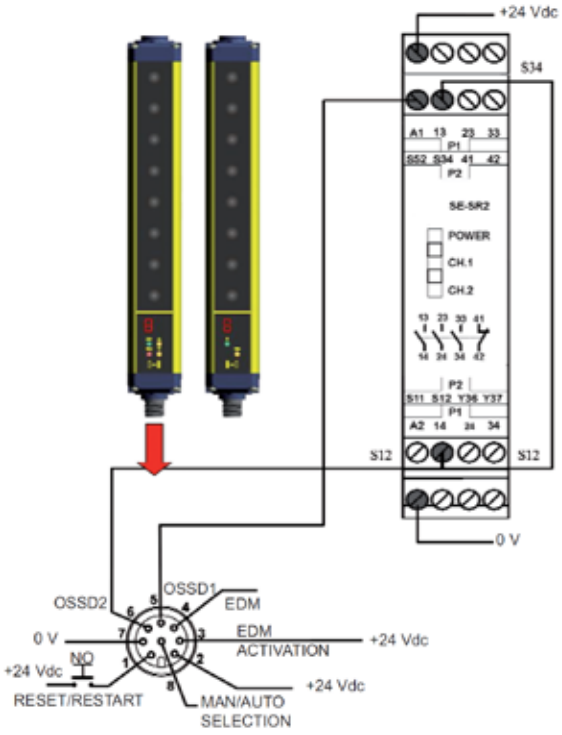
EDM

The **EDM** function allows to connect the light barrier to a couple of simple forced-guided safety relays instead to a Type 2 safety relay and thus guaranteeing an enormous economical advantage.

Connection with EDM function

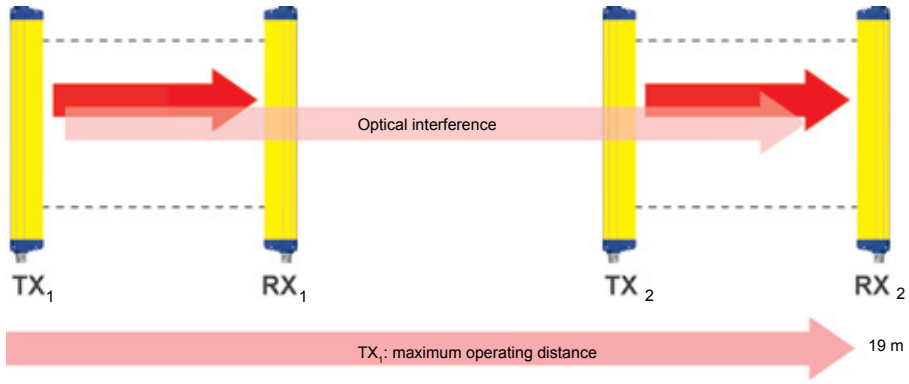


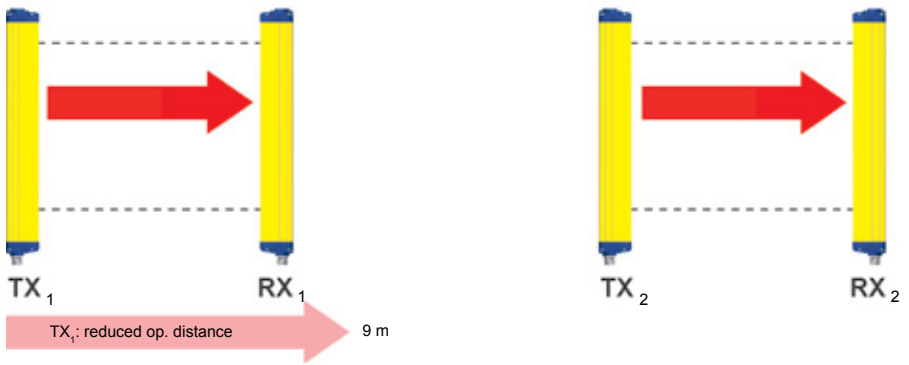
Connection without EDM function



Anti-Interference system

The Anti-Interference system consents the installation of different light curtains aligned one next to the other avoiding mutual optical interference, without the need to install separating shields.





TECHNICAL DATA

Electrical Data	
Power supply (Vdd):	24 Vdc ± 20%
Consumption (emitter):	2 W max
Consumption (receiver):	3.5 W max (without load)
OSSD outputs:	2 PNP
Short-circuit protection:	1.4 A max
Output current:	0.5 A max on each output
Output voltage - ON status:	Vdd –1 V min
Output voltage - OFF status:	0.2 V max
Capacitive load:	2.2 uF @ 24 Vdc max
Response time:	Refer to table
Controlled height:	150...1800 mm
Safety category:	Type 2
Auxiliary functions:	
SG2-B	Reset / Test
	Automatic Restart
SG2-E	Reset / Test
	Man./Auto Restart
	Selectable EDM
Electrical protection:	Class I / Class III
Connections:	
SG2-B	M12 4-pole for emitter
	M12 5-pole for receiver
SG2-E	M12 4-pole for emitter
	M12 8-pole for receiver
Cable length (for powering):	50 m max *
Optical Data	
Light emission:	Infrared LED (950 nm)
Resolution:	30 mm
Operating distance:	0.2…19 m (SG2-B)
	selectable 0.2…9 m / 0.2…19 m (SG2-E)
Aperture angle (EAA) :	± 5°
Ambient light rejection:	IEC-61496-2
MECHANICAL AND ENVIRONMENTAL DATA	
Operating temperature:	
SG2-B	0…+ 55 °C
SG2-E	- 10…+ 55 °C
Storage temperature:	- 25…+ 70 °C
Temperature class:	T6
Humidity:	15…95 % (non condensating)
Mechanical protection:	IP 65 (EN 60529)
Vibrations:	0.35 mm amplitude
	ency, 20 sweep per axis
	1 octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10 G) 1.000 shock per axis
	(EN 60068-2-29)
Housing material:	Painted aluminium (yellow RAL 1003)
Protective shield materiale:	PMMA
Cap material:	PC MAKROLON
Weight:	1 kg / m

*If a longer cable has to be used, please verify that the capacitive load specifications are respected

TABLES

MODEL	
SG2 height 150	8
SG2 height 300	16
SG2 height 450	24
SG2 height 600	32
SG2 height 750	40
SG2 height 900	48
SG2 height 1050	56
SG2 height 1200	64
SG2 height 1350	72
SG2 height 1500	80
SG2 height 1650	88
SG2 height 1800	96

Table 1: NUMBER OF CONTROLLED BEAMS

MODEL	
SG2 height 150	150
SG2 height 300	300
SG2 height 450	450
SG2 height 600	600
SG2 height 750	750
SG2 height 900	900
SG2 height 1050	1050
SG2 height 1200	1200
SG2 height 1350	1350
SG2 height 1500	1500
SG2 height 1650	1650
SG2 height 1800	1800

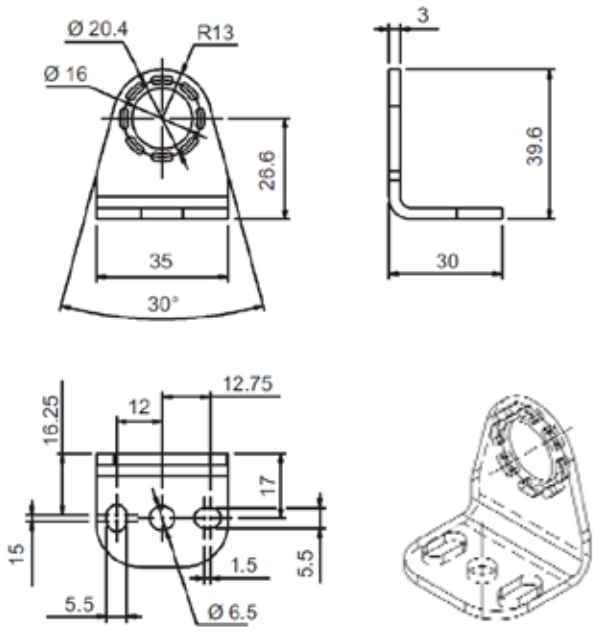
Table 2: CONTROLLED HEIGHT (mm)

MODEL	
SG2 height 150	8
SG2 height 300	9
SG2 height 450	11
SG2 height 600	12
SG2 height 750	14
SG2 height 900	15
SG2 height 1050	17
SG2 height 1200	18
SG2 height 1350	20
SG2 height 1500	21
SG2 height 1650	23
SG2 height 1800	24

Table 3: RESPONSE TIME (ms)

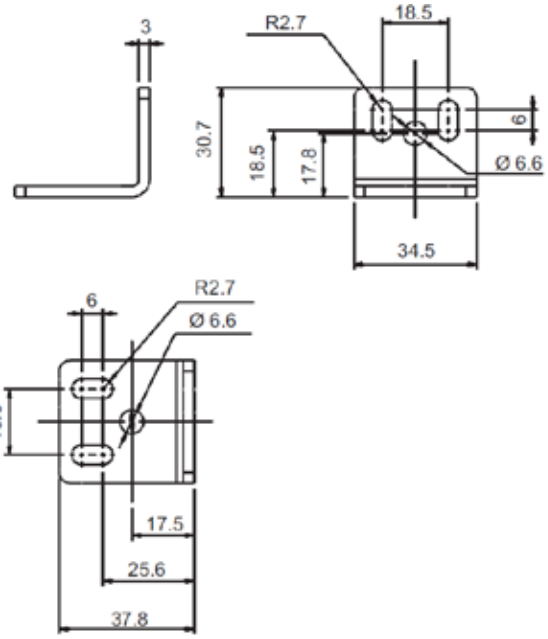
FIXING BRACKET

Rotating fixing bracket[1]



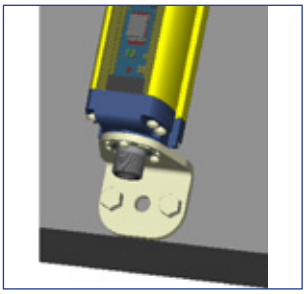
[1] Supplied with the Extended model

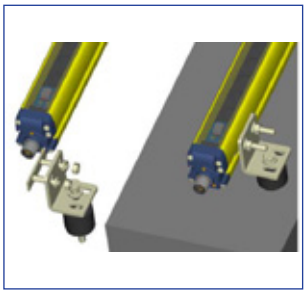
Angled fixing bracket[2]

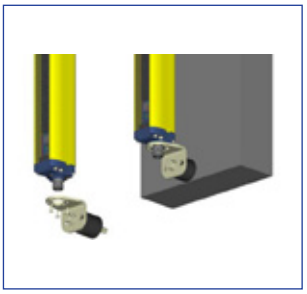


[2] Supplied with the Base model

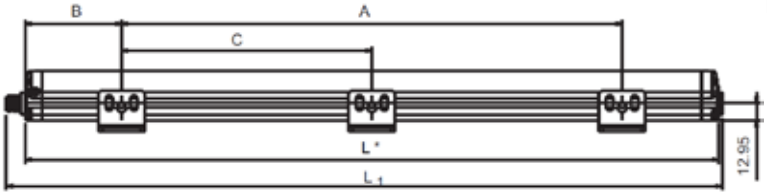


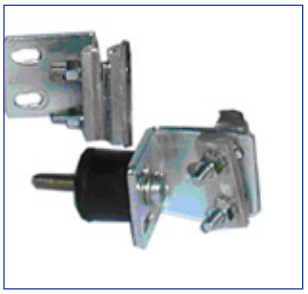






Installation with anti-vibration supports





MODELS	L (mm)	A (mm)	B (mm)	C (mm)
SG2-30-015-OO-*	216.3	108	54	-
SG2-30-030-OO-*	366.2	216	75	-
SG2-30-045-OO-*	516.3	316	100	-
SG2-30-060-OO-*	666.2	366	150	-
SG2-30-075-OO-*	816.3	466	175	-
SG2-30-090-OO-*	966.2	566	200	-
SG2-30-105-OO-*	1116.2	666	225	-
SG2-30-120-OO-*	1266.3	966	150	483
SG2-30-135-OO-*	1416.2	1066	175	533
SG2-30-150-OO-*	1566.3	1166	200	583
SG2-30-165-OO-*	1716.3	1266	225	633
SG2-30-180-OO-*	1866.3	1366	250	683

* = X Base model or E-C Extended model

RELIABILITY DATA SG2-B SG2-E

PL (Ref. EN ISO 13849-1)	d
CAT (Ref. EN 954-1)	2
SIL (Ref. EN IEC 61508)	2
SIL CL (Ref. EN IEC 62061)	2
PFHD – Probability of Danger Failure (1/h)	1,04E-08
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	273
DC – Diagnostic Coverage (%)	97,50%
SFF – Safe Failure Fraction (%)	98,40%
HFT – Hardware Fault Tolerance	0

MODEL SELECTION AND ORDER INFORMATION

Model	Description	Order N°
SG2-B		
SG2-30-015-OO-X	Type 2 safety light curtain h=150 mm	957801000
SG2-30-030-OO-X	Type 2 safety light curtain h=300 mm	957801010
SG2-30-045-OO-X	Type 2 safety light curtain h=450 mm	957801020
SG2-30-060-OO-X	Type 2 safety light curtain h=600 mm	957801030
SG2-30-075-OO-X	Type 2 safety light curtain h=750 mm	957801040
SG2-30-090-OO-X	Type 2 safety light curtain h=900 mm	957801050
SG2-30-105-OO-X	Type 2 safety light curtain h=1050 mm	957801060
SG2-30-120-OO-X	Type 2 safety light curtain h=1200 mm	957801070
SG2-30-135-OO-X	Type 2 safety light curtain h=1350 mm	957801080
SG2-30-150-OO-X	Type 2 safety light curtain h=1500 mm	957801090
SG2-30-165-OO-X	Type 2 safety light curtain h=1650 mm	957801100
SG2-30-180-OO-X	Type 2 safety light curtain h=1800 mm	957801110

Model	Description	Order N°
SG2-E		
SG2-30-015-OO-E-C	Type 2 safety light curtain h=150 mm	957801340
SG2-30-030-OO-E-C	Type 2 safety light curtain h=300 mm	957801350
SG2-30-045-OO-E-C	Type 2 safety light curtain h=450 mm	957801360
SG2-30-060-OO-E-C	Type 2 safety light curtain h=600 mm	957801370
SG2-30-075-OO-E-C	Type 2 safety light curtain h=750 mm	957801380
SG2-30-090-OO-E-C	Type 2 safety light curtain h=900 mm	957801390
SG2-30-105-OO-E-C	Type 2 safety light curtain h=1050 mm	957801400
SG2-30-120-OO-E-C	Type 2 safety light curtain h=1200 mm	957801410
SG2-30-135-OO-E-C	Type 2 safety light curtain h=1350 mm	957801420
SG2-30-150-OO-E-C	Type 2 safety light curtain h=1500 mm	957801430
SG2-30-165-OO-E-C	Type 2 safety light curtain h=1650 mm	957801440
SG2-30-180-OO-E-C	Type 2 safety light curtain h=1800 mm	957801450

ACCESSORY SELECTION AND ORDER INFORMATION

Model	Description	Order N°
CS-A1-02-U-03	M12 4-pole unshielded axial 3 m connector, UL 2464	95ASE1120
CS-A1-02-U-05	M12 4-pole unshielded axial 5 m connector, UL 2464	95ASE1130
CS-A1-02-U-10	M12 4-pole unshielded axial 10 m connector, UL 2464	95ASE1140
CS-A1-02-U-15	M12 4-pole unshielded axial 15 m connector, UL 2464	95ASE1150
CS-A1-02-U-25	M12 4-pole unshielded axial 25 m connector, UL 2464	95ASE1160
CS-A1-03-U-03	M12 5-pole unshielded axial 3 m connector, UL 2464	95ASE1170
CS-A1-03-U-05	M12 5-pole unshielded axial 5 m connector, UL 2464	95ASE1180
CS-A1-03-U-10	M12 5-pole unshielded axial 10 m connector, UL 2464	95ASE1190
CS-A1-03-U-15	M12 5-pole unshielded axial 15 m connector, UL 2464	95ASE1200
CS-A1-03-U-25	M12 5-pole unshielded axial 25 m connector, UL 2464	95ASE1210
CS-A1-06-U-03	M12 8-pole unshielded axial 3 m connector, UL 2464	95ASE1220
CS-A1-06-U-05	M12 8-pole unshielded axial 5 m connector, UL 2464	95ASE1230
CS-A1-06-U-10	M12 8-pole unshielded axial 10 m connector, UL 2464	95ASE1240
CS-A1-06-U-15	M12 8-pole unshielded axial 15 m connector, UL 2464	95ASE1250
CS-A1-06-U-25	M12 8-pole unshielded axial 25 m connector, UL 2464	95ASE1260
ST-KSTD	Angled fixing brackets (4 pc kit)	95ACC1670
ST-K4AV	Anti-vibration supports (4 pc kit)	95ACC1700
ST-K6AV	Anti-vibration supports (6 pc kit)	95ACC1710
ST-K4ROT	Top-Bottom rotating fixing brackets (4 pc kit)	95ASE1280

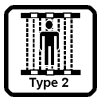
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SAFETY

SG2-PRESENCE CONTROL SERIES

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The **SG2** series offers two models, **SG2-B "Base"** and **SG2-E "Extended"**, thus guaranteeing compatibility with the SF2 series (**SG2-B**), as well as offering advanced functions for a Type 2 safety light curtain, such as EDM and Anti-Interference (**SG2-E**). Models with controlled heights ranging from 300 to 1800 mm are available, all with an operating distance reaching 19 m.
The response times ranging from 9 to 20 msec result to be amongst the lowest on the market, consenting the installation of the product nearer to the dangerous area. As well as offering the base functions present in the **SG2-B** model, the **SG2-E** series integrates advanced functions for a Type 2 device such as manual/automatic Restart, EDM function, Anti-interference system (obtained thanks to the reduction to 9 m of the maximum operating distance). All selectable functions.
The profile and rotating fixing brackets ease installation and the alignment of the emitting and receiving units, even at long distances and in applications with deviating mirrors.
The **SG2** series represents the ideal solution for all the typical applications of a Type 2 safety light curtain.





HIGHLIGHTS

- Integrated light curtain for PRESENCE CONTROL
- Maximum operating distance reaching 19 m
- Controlled heights ranging from 300 to 1800mm
- New sturdy profile and rotating brackets
- Selectable Manual/Automatic Restart, EDM and Anti-Interference

APPLICATIONS

- Automatic machines;
- Packaging, material handling and storage machines;
- Textile, wood-working and ceramic machines;
- Automatic and semi-automatic assembling lines;
- Automatic warehouses.



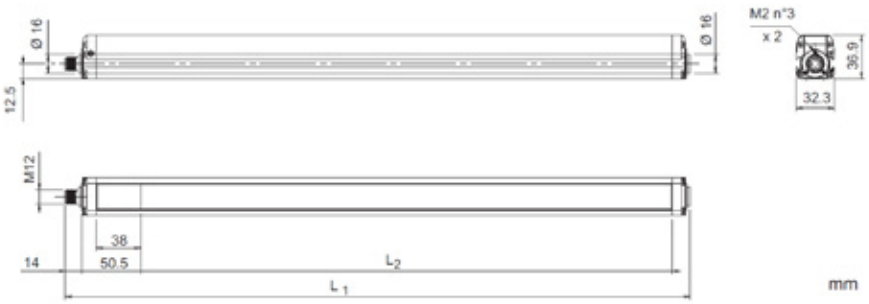




The characteristics introduced by the SG2 safety light curtains are:

- Operating distance reaching 19 m
- Wider controlled height range (reaching 1800 mm)
- Reduced response times, 30% less than SF2
- New sturdy and more functional profile
- Easier and quicker installation thanks to the new rotating fixing brackets that ease alignment even in the harshest conditions
- Compatibility with the entire SE accessory range
- SG2-E with selectable functions, such as Manual/Automatic Restart, EDM and Anti-Interference thanks to the reduction of the maximum operating distance from 19 to 9 m

DIMENSIONS



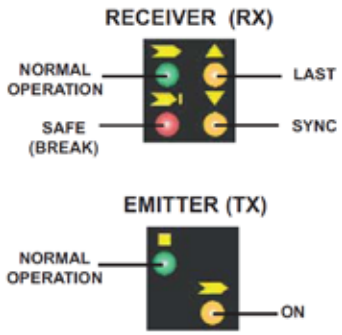
VERSION	L_1	L_2
SG2-kk-030-OO-*	383.2	303.2
SG2-kk-045-OO-*	533.2	453.3
SG2-kk-060-OO-*	683.2	603.2
SG2-kk-075-OO-*	833.2	753.3
SG2-kk-090-OO-*	983.2	903.2
SG2-kk-105-OO-*	1133.2	1053.2
SG2-kk-120-OO-*	1283.3	1203.3
SG2-kk-135-OO-*	1433.2	1353.2
SG2-kk-150-OO-*	1583.3	1503.3
SG2-kk-165-OO-*	1733.3	1653.3
SG2-kk-180-OO-*	1883.3	1803.3

kk = Resolution (50 mm – 90 mm)
* = X Base model or E-C Extended model

INDICATORS AND SETTINGS

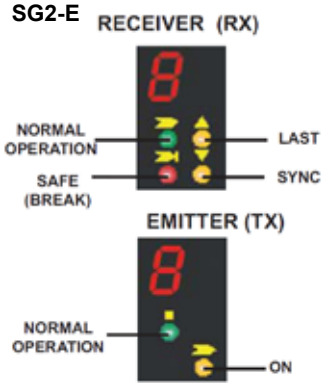


SG2-B





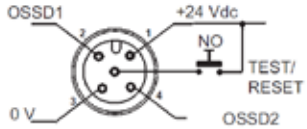
SG2-E



CONNECTIONS

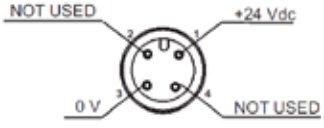
SG2-B

RX: M12 5-POLE CONNECTOR



1 = brown = +24 Vdc
2 = white = OSSD1
3 = blue = 0 V
4 = black = OSSD2
5 = grey = TEST/RESET

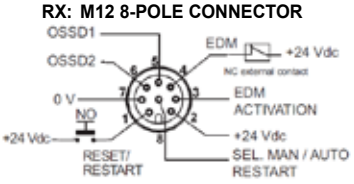
TX: M12 4-POLE CONNECTOR



1 = brown = +24 Vdc
2 = white = NOT USED
3 = blue = 0 V
4 = black = NOT USED

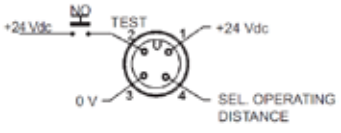
SG2-E

RX: M12 8-POLE CONNECTOR



1 = white = RESET (*)
2 = brown = +24 Vdc
3 = green = EDM ACTIVATION
4 = yellow = EDM
5 = grey = OSSD1
6 = pink = OSSD2
7 = blue = 0 V
8 = red = SEL. MAN. / AUTO RESTART

TX: M12 4-POLE CONNECTOR



1 = brown = +24 Vcc
2 = white = TEST
3 = blue = 0 V
4 = black = SEL. OPERATING DISTANCE

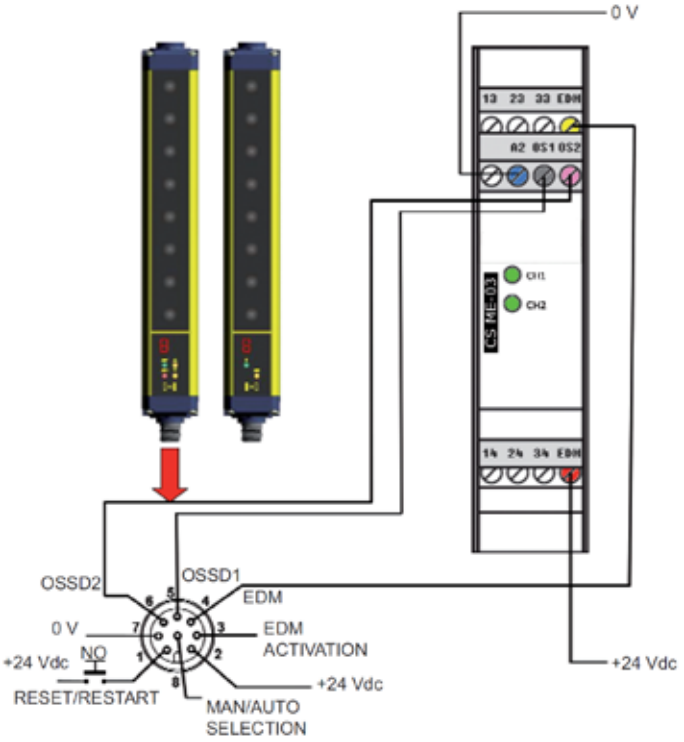
NOTE: For MANUAL RESTART CONNECT TOGETHER Pin8 with Pin6.
For Automatic Restart connect together Pin8 with Pin5

SG2-E: FUNCTIONS

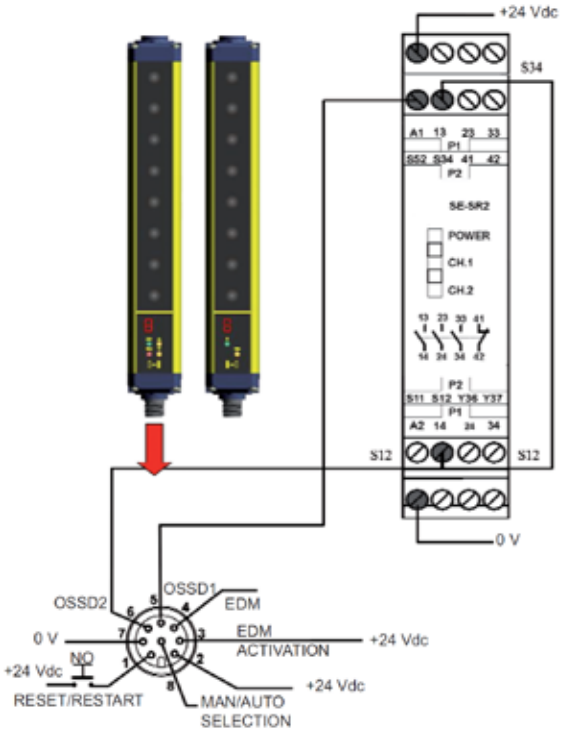
EDM

The **EDM** function allows to connect the light barrier to a couple of simple forced-guided safety relays instead to a Type 2 safety relay and thus guaranteeing an enormous economical advantage.

Connection with EDM function

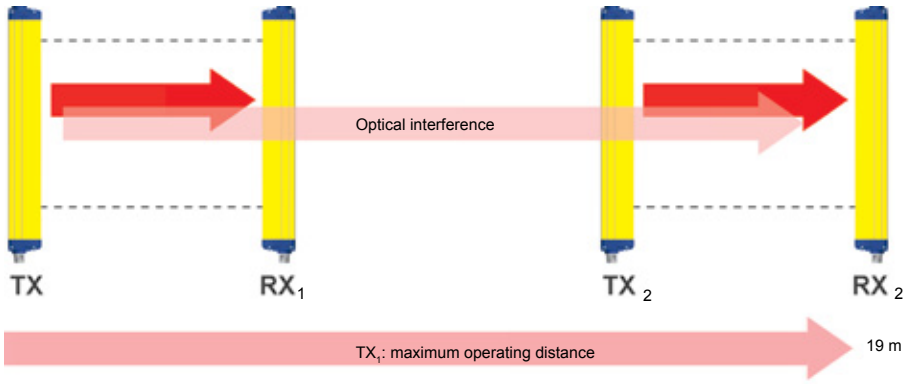


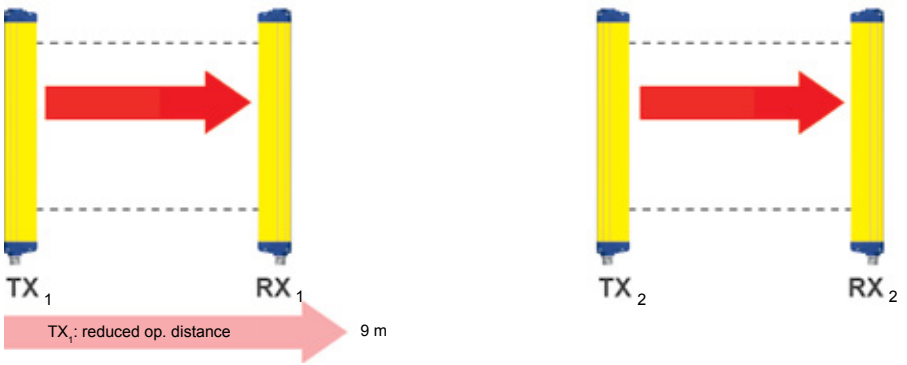
Connection without EDM function



Anti-Interference system

The Anti-Interference system consents the installation of different light curtains aligned one next to the other avoiding mutual optical interference, without the need to install separating shields.





TECHNICAL DATA

Electrical Data	
Power supply (Vdd):	24 Vdc ± 20%
Consumption (emitter):	2 W max
Consumption (receiver):	3.5 W max (without load)
OSSD outputs:	2 PNP
Short-circuit protection:	1.4 A max
Output current:	0.5 A max on each output
Output voltage - ON status:	Vdd –1 V min
Output voltage - OFF status:	0.2 V max
Capacitive load:	2.2 uF @ 24 Vdc max
Response time:	Refer to table
Controlled height:	300..1800 mm
Safety category:	Type 2
Auxiliary functions:	
SG2-B	Reset / Test
	Automatic Restart
SG2-E	Reset / Test
	Man./Auto Restart
	Selectable EDM
Electrical protection:	Class I / Class III
Connections:	
SG2-B	M12 4-pole for emitter
	M12 5-pole for receiver
SG2-E	M12 4-pole for emitter
	M12 8-pole for receiver
Cable length (for powering):	50 m max *
OPTICAL DATA	
Light emission:	Infrared LED (950 nm)
Resolution:	50 - 90 mm
Operating distance:	0.2…19 m (SG2-B)
	selectable 0.2…9 m / 0.2…19 m (SG2-E)
Aperture angle (EAA) :	± 5°
Ambient light rejection:	IEC-61496-2
MECHANICAL AND ENVIRONMENTAL DATA	
Operating temperature:	
SG-B	0 - + 55 °C
SG-E	-10...+55 °C
Storage temperature:	- 25…+ 70 °C
Temperature class:	T6
Humidity:	15…95 % (non condensating)
Mechanical protection:	IP 65 (EN 60529)
Vibrations:	0.35 mm amplitude
	10 … 55 Hz frequency, 20 sweep per axis
	1 octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10 G) 1.000 shock per axis
	(EN 60068-2-29)
Housing material:	Painted aluminium (yellow RAL 1003)
Protective shield materiale:	PMMA
Cap material:	PC MAKROLON
Weight:	1 kg / m

*If a longer cable has to be used, please verify that the capacitive load specifications are respected

TABLES

MODEL	50 mm	90 mm
SG2 height 300	9	5
SG2 height 450	13	7
SG2 height 600	17	9
SG2 height 750	21	11
SG2 height 900	25	13
SG2 height 1050	29	15
SG2 height 1200	33	17
SG2 height 1350	37	19
SG2 height 1500	41	21
SG2 height 1650	45	23
SG2 height1800	49	25

Table 1: NUMBER OF CONTROLLED BEAMS

MODEL	
SG2 height 300	300
SG2 height 450	450
SG2 height 600	600
SG2 height 750	750
SG2 height 900	900
SG2 height 1050	1050
SG2 height 1200	1200
SG2 height 1350	1350
SG2 height 1500	1500
SG2 height 1650	1650
SG2 height 1800	1800

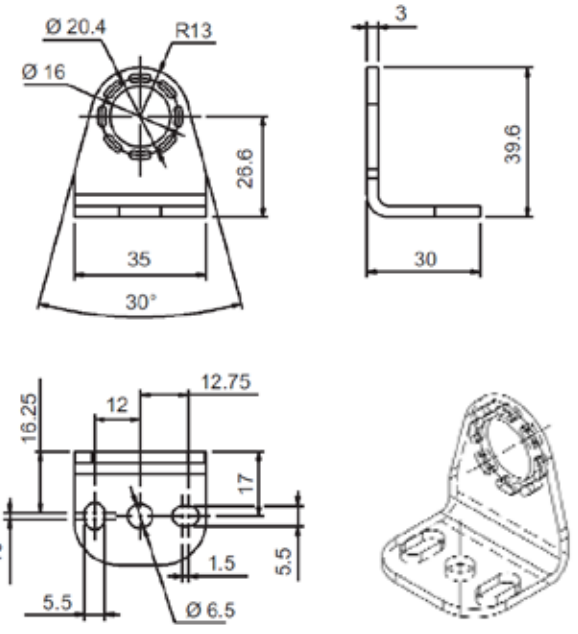
Table 2: CONTROLLED HEIGHT (mm)

MODEL	50 mm	90 mm
SG2 height 300	9	9
SG2 height 450	10	10
SG2 height 600	11	11
SG2 height 750	12	12
SG2 height 900	14	13
SG2 height 1050	15	14
SG2 height 1200	16	15
SG2 height 1350	17	16
SG2 height 1500	18	17
SG2 height 1650	19	18
SG2 height 1800	20	19

Table 3: RESPONSE TIME (ms)

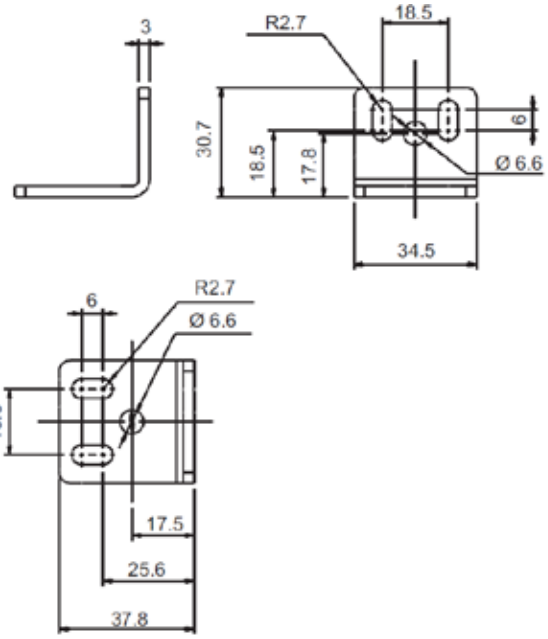
FIXING BRACKET

Rotating fixing bracket[1]



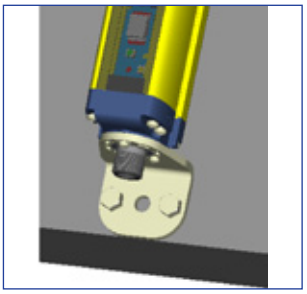
[1] Supplied with the Extended model

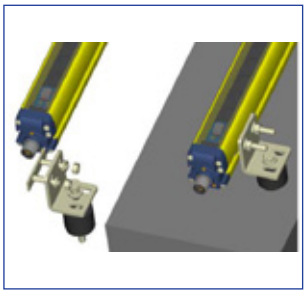
Angled fixing bracket[2]

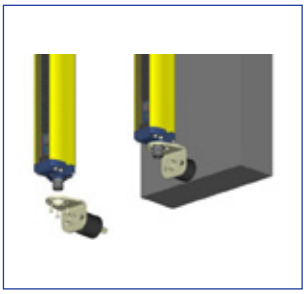


[2] Supplied with the Base model

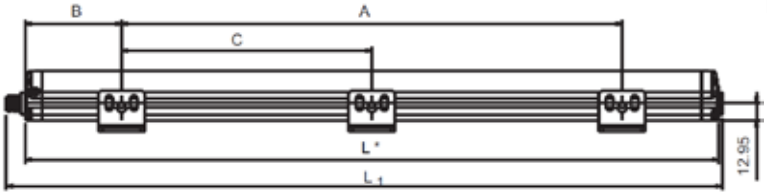


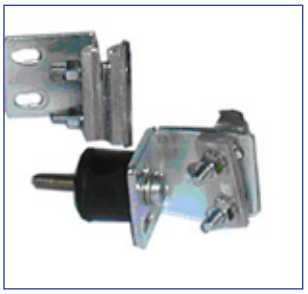






Installation with anti-vibration supports





MODELS	L (mm)	A (mm)	B (mm)	C (mm)
SG2-kk-030-OO-*	366.2	216	75	-
SG2-kk-045-OO-*	516.3	316	100	-
SG2-kk-060-OO-*	666.2	366	150	-
SG2-kk-075-OO-*	816.3	466	175	-
SG2-kk-090-OO-*	966.2	566	200	-
SG2-kk-105-OO-*	1116.2	666	225	-
SG2-kk-120-OO-*	1266.3	966	150	483
SG2-kk-135-OO-*	1416.2	1066	175	533
SG2-kk-150-OO-*	1566.3	1166	200	583
SG2-kk-165-OO-*	1716.3	1266	225	633
SG2-kk-180-OO-*	1866.3	1366	250	683

kk = Resolution (50 mm – 90 mm)
* = X Base model or E-C Extended model

MODEL SELECTION AND ORDER INFORMATION

Model	Description	Order N°
SG2-B 50 mm		
SG2-50-030-OO-X	Type 2 safety light curtain h=300 mm	957801120
SG2-50-045-OO-X	Type 2 safety light curtain h=450 mm	957801130
SG2-50-060-OO-X	Type 2 safety light curtain h=600 mm	957801140
SG2-50-075-OO-X	Type 2 safety light curtain h=750 mm	957801150
SG2-50-090-OO-X	Type 2 safety light curtain h=900 mm	957801160
SG2-50-105-OO-X	Type 2 safety light curtain h=1050 mm	957801170
SG2-50-120-OO-X	Type 2 safety light curtain h=1200 mm	957801180
SG2-50-135-OO-X	Type 2 safety light curtain h=1350 mm	957801190
SG2-50-150-OO-X	Type 2 safety light curtain h=1500 mm	957801200
SG2-50-165-OO-X	Type 2 safety light curtain h=1650 mm	957801210
SG2-50-180-OO-X	Type 2 safety light curtain h=1800 mm	957801220

Model	Description	Order N°
SG2-B 90 mm		
SG2-90-030-OO-X	Type 2 safety light curtain h=300 mm	957801230
SG2-90-045-OO-X	Type 2 safety light curtain h=450 mm	957801240
SG2-90-060-OO-X	Type 2 safety light curtain h=600 mm	957801250
SG2-90-075-OO-X	Type 2 safety light curtain h=750 mm	957801260
SG2-90-090-OO-X	Type 2 safety light curtain h=900 mm	957801270
SG2-90-105-OO-X	Type 2 safety light curtain h=1050 mm	957801280
SG2-90-120-OO-X	Type 2 safety light curtain h=1200 mm	957801290
SG2-90-135-OO-X	Type 2 safety light curtain h=1350 mm	957801300
SG2-90-150-OO-X	Type 2 safety light curtain h=1500 mm	957801310
SG2-90-165-OO-X	Type 2 safety light curtain h=1650 mm	957801320
SG2-90-180-OO-X	Type 2 safety light curtain h=1800 mm	957801330

Model	Description	Order N°
SG2-E 50 mm		
SG2-50-030-OO-E-C	Type 2 safety light curtain h=300 mm	957801460
SG2-50-045-OO-E-C	Type 2 safety light curtain h=450 mm	957801470
SG2-50-060-OO-E-C	Type 2 safety light curtain h=600 mm	957801480
SG2-50-075-OO-E-C	Type 2 safety light curtain h=750 mm	957801490
SG2-50-090-OO-E-C	Type 2 safety light curtain h=900 mm	957801500
SG2-50-105-OO-E-C	Type 2 safety light curtain h=1050 mm	957801510
SG2-50-120-OO-E-C	Type 2 safety light curtain h=1200 mm	957801520
SG2-50-135-OO-E-C	Type 2 safety light curtain h=1350 mm	957801530
SG2-50-150-OO-E-C	Type 2 safety light curtain h=1500 mm	957801540
SG2-50-165-OO-E-C	Type 2 safety light curtain h=1650 mm	957801550
SG2-50-180-OO-E-C	Type 2 safety light curtain h=1800 mm	957801560

Model	Description	Order N°
SG2-E 90 mm		
SG2-90-030-OO-E-C	Type 2 safety light curtain h=300 mm	957801570
SG2-90-045-OO-E-C	Type 2 safety light curtain h=450 mm	957801580
SG2-90-060-OO-E-C	Type 2 safety light curtain h=600 mm	957801590
SG2-90-075-OO-E-C	Type 2 safety light curtain h=750 mm	957801600
SG2-90-090-OO-E-C	Type 2 safety light curtain h=900 mm	957801610
SG2-90-105-OO-E-C	Type 2 safety light curtain h=1050 mm	957801620
SG2-90-120-OO-E-C	Type 2 safety light curtain h=1200 mm	957801630
SG2-90-135-OO-E-C	Type 2 safety light curtain h=1350 mm	957801640
SG2-90-150-OO-E-C	Type 2 safety light curtain h=1500 mm	957801650
SG2-90-165-OO-E-C	Type 2 safety light curtain h=1650 mm	957801660
SG2-90-180-OO-E-C	Type 2 safety light curtain h=1800 mm	957801670

RELIABILITY DATA SG2-B SG2-E

PL (Ref. EN ISO 13849-1)	d
CAT (Ref. EN 954-1)	2
SIL (Ref. EN IEC 61508)	2
SIL CL (Ref. EN IEC 62061)	2
PFHD – Probability of Danger Failure (1/h)	1,04E-08
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	273
DC – Diagnostic Coverage (%)	97,50%
SFF – Safe Failure Fraction (%)	98,40%
HFT – Hardware Fault Tolerance	0

ACCESSORY SELECTION AND ORDER INFORMATION

Model	Description	Order N°
CS-A1-02-U-03	M12 4-pole unshielded axial 3 m connector, UL 2464	95ASE1120
CS-A1-02-U-05	M12 4-pole unshielded axial 5 m connector, UL 2464	95ASE1130
CS-A1-02-U-10	M12 4-pole unshielded axial 10 m connector, UL 2464	95ASE1140
CS-A1-02-U-15	M12 4-pole unshielded axial 15 m connector, UL 2464	95ASE1150
CS-A1-02-U-25	M12 4-pole unshielded axial 25 m connector, UL 2464	95ASE1160
CS-A1-03-U-03	M12 5-pole unshielded axial 3 m connector, UL 2464	95ASE1170
CS-A1-03-U-05	M12 5-pole unshielded axial 5 m connector, UL 2464	95ASE1180
CS-A1-03-U-10	M12 5-pole unshielded axial 10 m connector, UL 2464	95ASE1190
CS-A1-03-U-15	M12 5-pole unshielded axial 15 m connector, UL 2464	95ASE1200
CS-A1-03-U-25	M12 5-pole unshielded axial 25 m connector, UL 2464	95ASE1210
CS-A1-06-U-03	M12 8-pole unshielded axial 3 m connector, UL 2464	95ASE1220
CS-A1-06-U-05	M12 8-pole unshielded axial 5 m connector, UL 2464	95ASE1230
CS-A1-06-U-10	M12 8-pole unshielded axial 10 m connector, UL 2464	95ASE1240
CS-A1-06-U-15	M12 8-pole unshielded axial 15 m connector, UL 2464	95ASE1250
CS-A1-06-U-25	M12 8-pole unshielded axial 25 m connector, UL 2464	95ASE1260
ST-KSTD	Angled fixing brackets (4 pc kit)	95ACC1670
ST-K4AV	Anti-vibration supports (4 pc kit)	95ACC1700
ST-K6AV	Anti-vibration supports (6 pc kit)	95ACC1710
ST-K4ROT	Top-Bottom rotating fixing brackets (4 pc kit)	95ASE1280

Please refer also to **Safey Device Accessories**

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATALOGIC

SAFETY

SG4-FINGER SERIES

The series of **SAFEasy™ SG4-B FINGER** safety light curtains widens the existing **SG** range, whilst representing an evolution of the SE4-PLUS line, offering a Type 4 safety light device for finger protection with base functions. Ideal for applications that do not require complementary functions such as Muting, Cascade and blanking.

The **SG4-B** series has been especially developed to simplify:

- installation (new rotating TOP-BOTTOM fixing brackets to ease alignment);
- connection (use of standard connectors, no connection between emitter and receiver necessary);
- configuration (no external control units and / or supplementary cables necessary);
- use (alignment guided by a 7 segment double display on both units).

Improved response time and operating distance, respect to the SE4-PLUS series distinguish this series and make it one of the best performing light curtains available today on the market.



Type 4

HIGHLIGHTS

- Integrated light curtain for FINGER PROTECTION (14 mm resolution)
- Maximum operating distance reaching 6 m
- Controlled heights ranging from 150 to 1800 mm
- Compact 32x37 mm profile
- Selectable EDM and Manual/ Automatic Restart

APPLICATIONS

- Automatic machines;
- Packaging and cutting machines;
- Textile, wood-working and ceramic machines;
- Automatic assembling lines;
- Milling, lathe and shearing machines;
- Bending and metal-working machines.



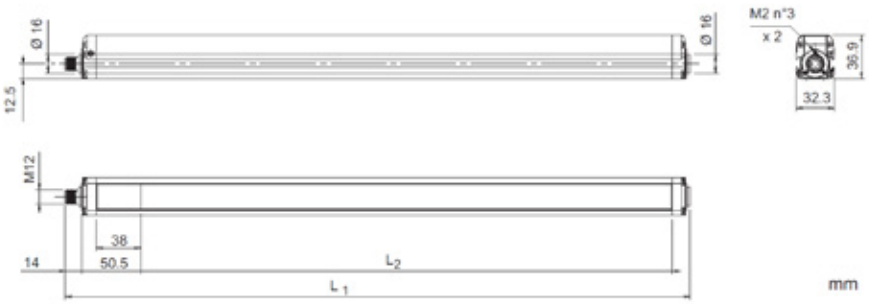




The main characteristics of the SG4-B FINGER are:

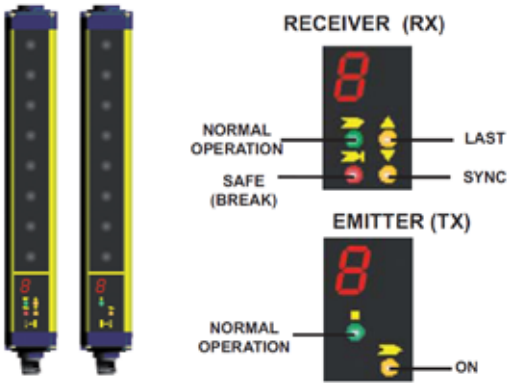
- Operating distance reaching 6 m
- Response time from 11 to 50 msec
- Controlled heights ranging from 150 to 1800 mm
- New sturdy and more functional profile
- Compatibility with the entire SE accessory range
- Selectable EDM and Manual/Automatic Restart
- User interface equipped with a 7 segment display on both TX and RX units
- Alignment aid function

DIMENSIONS



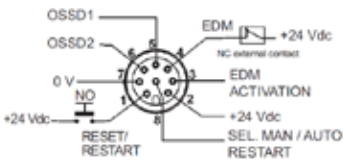
VERSION	L_1	L_2
SG4-14-015-OO-E	233.3	153.3
SG4-14-030-OO-E	383.2	303.2
SG4-14-045-OO-E	533.2	453.3
SG4-14-060-OO-E	683.2	603.2
SG4-14-075-OO-E	833.2	753.3
SG4-14-090-OO-E	983.2	903.2
SG4-14-105-OO-E	1133.2	1053.2
SG4-14-120-OO-E	1283.3	1203.3
SG4-14-135-OO-E	1433.2	1353.2
SG4-14-150-OO-E	1583.3	1503.3
SG4-14-165-OO-E	1733.3	1653.3
SG4-14-180-OO-E	1883.3	1803.3

INDICATORS AND SETTINGS



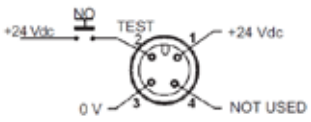
CONNECTIONS

RX: M12 8-POLE CONNECTOR



1 = white = RESET (*)
2 = brown = +24 Vdc
3 = green = EDM ACTIVATION (**)
4 = yellow = EDM
5 = grey = OSSD1
6 = pink = OSSD2
7 = blue = 0 V
8 = red = SEL. MAN. / AUTO RESTART

TX: M12 4-POLE CONNECTOR



1 = brown = +24 Vdc
2 = white = TEST
3 = blue = 0 V
4 = black = NOT USED

*Automatic RESTART - RESET function
Manual RESTART - RESET/RESTART function
**Refer to "SG4-B: functions"

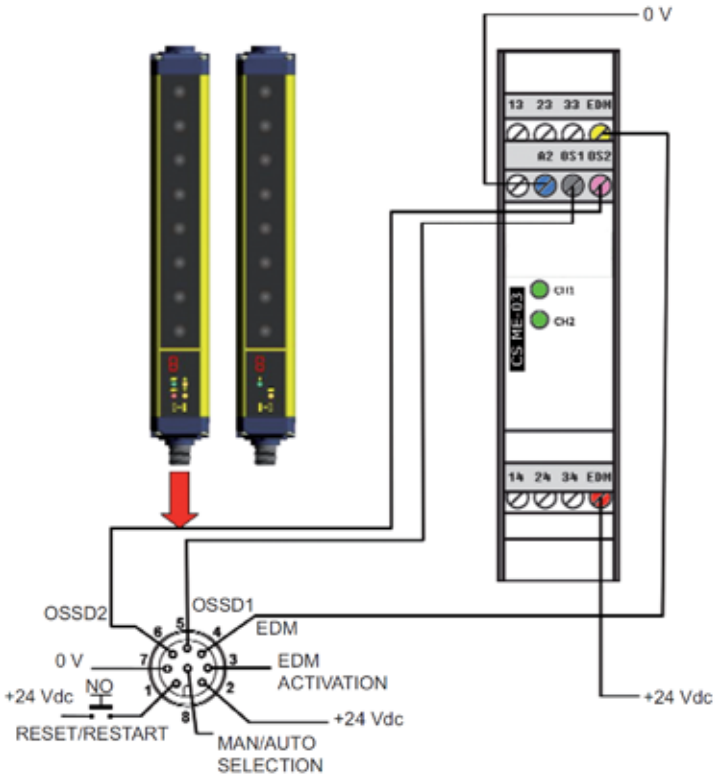
NOTE: For MANUAL RESTART CONNECT TOGETHER Pin8 with Pin6.
For Automatic Restart connect together Pin8 with Pin5

SG4-B: FUNCTIONS

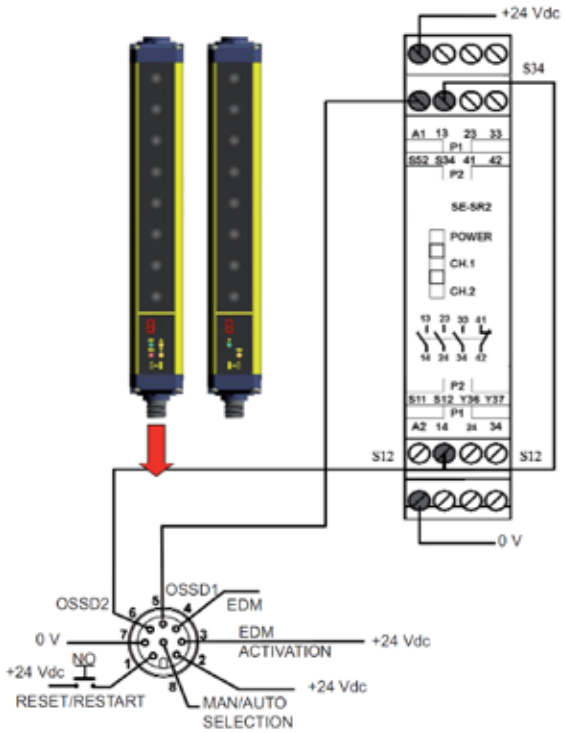
EDM

The **EDM** function allows to connect the light barrier to a couple of simple forced-guided safety relays instead to a Type 4 safety relay and thus guaranteeing an enormous economical advantage.

Connection with EDM function



Connection without EDM function



TECHNICAL DATA

Electrical Data	
Power supply (Vdd)	24 Vdc ± 20%
Consumption (TX):	2.5 W max
Consumption (RX):	4 W max (without load)
OSSD outputs:	2 PNP
Short-circuit protection:	1.4 A max
Output current:	0.5 A max on each output
Output voltage – ON status:	Vdd-1 V
Output voltage – OFF status:	0.2 V
Leakage current:	< 1mA
Capacitive load:	2.2 uF @ 24Vdc (*)
Response time:	Refer to table
Controlled height:	150 ... 1800 mm
Safety category:	Type 4
Auxiliary functions:	Reset/Test
	Selectable Man./ Auto. Restart
	Selectable EDM
Electrical protection:	Class I / Class III
Connections:	M12 4-pole for emitter
	M12 8-pole for receiver
Cable length (for powering)	50 m. max (*)
OPTICAL DATA	
Light emission:	Infrared LED (950 nm)
Resolution:	14 mm
Operating distance:	0.2…6 m
Aperture angle (EAA):	±2.5°
Ambient light rejection:	IEC 61496-2
MECHANICAL AND ENVIRONMENTAL DATA	
Operating temperature:	0…55°C
Storage temperature:	-25…+ 70 °C
Temperature class:	T6
Humidity:	15…95 % (non condensating)
Mechanical protection:	IP65 (EN 60529)
Vibrations:	Width 0.35 mm
	Frequency 10 … 55 Hz 20 sweep per axis,
	1 octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10g) 1.000 shock per axis
	(EN 60068-2-29)
Housing material:	Painted aluminium (yellow RAL 1003)
Protective shield material:	PMMA
Cap material:	PC MAKROLON
Weight:	1.3 Kg / m

*If a longer cable has to be used, please verify that the capacitive load specifications are respected

TABLES

MODEL	
SG4 height 150	16
SG4 height 300	32
SG4 height 450	48
SG4 height 600	64
SG4 height 750	80
SG4 height 900	96
SG4 height 1050	112
SG4 height 1200	128
SG4 height 1350	144
SG4 height 1500	160
SG4 height 1650	176
SG4 height 1800	192

Table 1: NUMBER OF CONTROLLED BEAMS

MODEL	
SG4 height 150	150
SG4 height 300	300
SG4 height 450	450
SG4 height 600	600
SG4 height 750	750
SG4 height 900	900
SG4 height 1050	1050
SG4 height 1200	1200
SG4 height 1350	1350
SG4 height 1500	1500
SG4 height 1650	1650
SG4 height 1800	1800

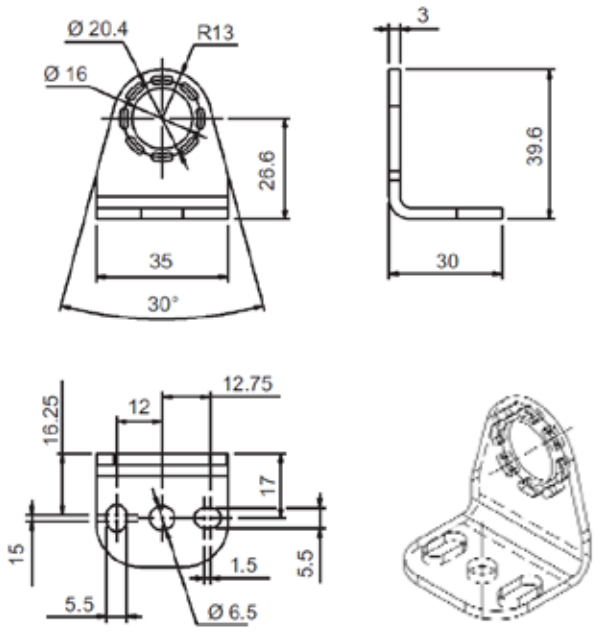
Table 2: CONTROLLED HEIGHT (mm)

MODEL	
SG4 height 150	11
SG4 height 300	15
SG4 height 450	18
SG4 height 600	22
SG4 height 750	25
SG4 height 900	29
SG4 height 1050	33
SG4 height 1200	36
SG4 height 1350	40
SG4 height 1500	43
SG4 height 1650	47
SG4 height 1800	50

Table 3: RESPONSE TIME (ms)

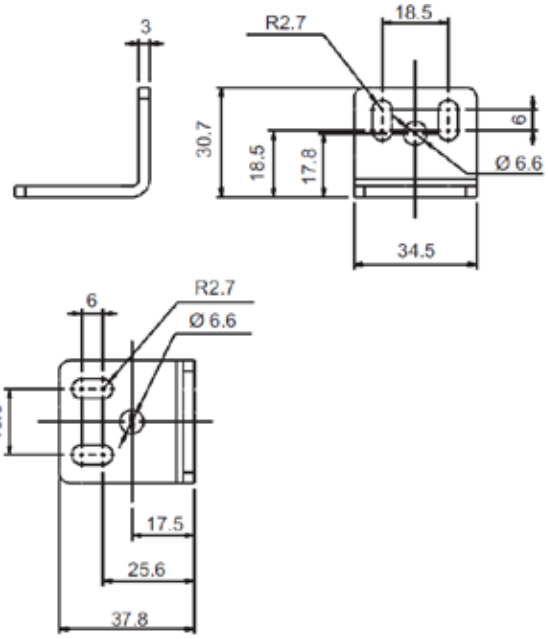
FIXING BRACKET

Rotating fixing bracket[1]



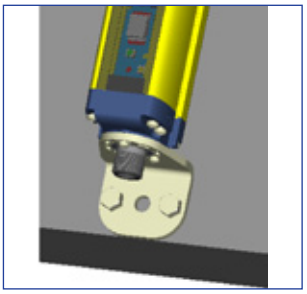
[1] Accessory sold separately

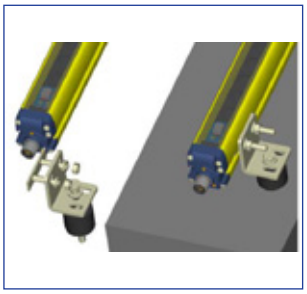
Angled fixing bracket[2]

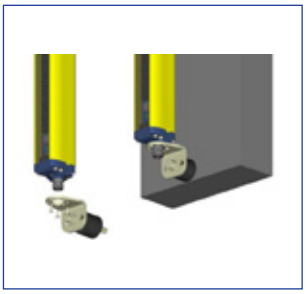


[2] Supplied in the package

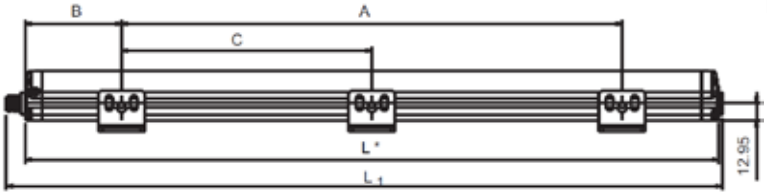


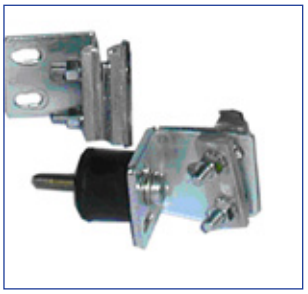






Installation with anti-vibration supports





MODELS	L (mm)	A (mm)	B (mm)	C (mm)
SG4-14-015-OO-E	216.3	108	54	-
SG4-14-030-OO-E	366.2	216	75	-
SG4-14-045-OO-E	516.3	316	100	-
SG4-14-060-OO-E	666.2	366	150	-
SG4-14-075-OO-E	816.3	466	175	-
SG4-14-090-OO-E	966.2	566	200	-
SG4-14-105-OO-E	1116.2	666	225	-
SG4-14-120-OO-E	1266.3	966	150	483
SG4-14-135-OO-E	1416.2	1066	175	533
SG4-14-150-OO-E	1566.3	1166	200	583
SG4-14-165-OO-E	1716.3	1266	225	633
SG4-14-180-OO-E	1866.3	1366	250	683

RELIABILITY DATA SG4-B

PL (Ref. EN ISO 13849-1)	e
CAT (Ref. EN 954-1)	4
SIL (Ref. EN IEC 61508)	3
SIL CL (Ref. EN IEC 62061)	3
PFHD – Probability of Danger Failure (1/h)	2,64E-09
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	444
DC – Diagnostic Coverage (%)	98,80%
SFF – Safe Failure Fraction (%)	99,30%
HFT – Hardware Fault Tolerance	1

MODEL SELECTION AND ORDER INFORMATION

Model	Description	Order N°
SG4-14-015-OO-E	Type 4 safety light curtain h=150 mm	957901000
SG4-14-030-OO-E	Type 4 safety light curtain h=300 mm	957901010
SG4-14-045-OO-E	Type 4 safety light curtain h=450 mm	957901020
SG4-14-060-OO-E	Type 4 safety light curtain h=600 mm	957901030
SG4-14-075-OO-E	Type 4 safety light curtain h=750 mm	957901040
SG4-14-090-OO-E	Type 4 safety light curtain h=900 mm	957901050
SG4-14-105-OO-E	Type 4 safety light curtain h=1050 mm	957901060
SG4-14-120-OO-E	Type 4 safety light curtain h=1200 mm	957901070
SG4-14-135-OO-E	Type 4 safety light curtain h=1350 mm	957901080
SG4-14-150-OO-E	Type 4 safety light curtain h=1500 mm	957901090
SG4-14-165-OO-E	Type 4 safety light curtain h=1650 mm	957901100
SG4-14-180-OO-E	Type 4 safety light curtain h=1800 mm	957901110

ACCESSORYSELECTION AND ORDER INFORMATION

Model	Description	Order N°
CS-A1-02-U-03	M12 4-pole unshielded axial 3 m connector, UL 2464	95ASE1120
CS-A1-02-U-05	M12 4-pole unshielded axial 5 m connector, UL 2464	95ASE1130
CS-A1-02-U-10	M12 4-pole unshielded axial 10 m connector, UL 2464	95ASE1140
CS-A1-02-U-15	M12 4-pole unshielded axial 15 m connector, UL 2464	95ASE1150
CS-A1-02-U-25	M12 4-pole unshielded axial 25 m connector, UL 2464	95ASE1160
CS-A1-06-U-03	M12 8-pole unshielded axial 3 m connector, UL 2464	95ASE1220
CS-A1-06-U-05	M12 8-pole unshielded axial 5 m connector, UL 2464	95ASE1230
CS-A1-06-U-10	M12 8-pole unshielded axial 10 m connector, UL 2464	95ASE1240
CS-A1-06-U-15	M12 8-pole unshielded axial 15 m connector, UL 2464	95ASE1250
CS-A1-06-U-25	M12 8-pole unshielded axial 25 m connector, UL 2464	95ASE1260
ST-KSTD	Angled fixing brackets (4 pc kit)	95ACC1670
ST-K4AV	Anti-vibration supports (4 pc kit)	95ACC1700
ST-K6AV	Anti-vibration supports (6 pc kit)	95ACC1710
ST-K4ROT	Top-Bottom rotating fixing brackets (4 pc kit)	95ASE1280

Please refer also to **Safey Device Accessories**

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATALOGIC

SAFETY

SG4-B HAND SERIES

The new series of **SAFEasy™SG4-B HAND** safety light curtains widens the existing **SG** range, whilst representing an evolution of the SE4-PLUS line, offering a Type 4 safety light device for hand protection with base functions. Ideal for applications that do not require complementary functions such as Muting, Cascade and blanking.
The new **SG4-B** series has been especially developed to simplify:
- installation (new rotatingTOP-BOTTOM fixing brackets to ease alignment);
- connection (use of standard connectors, no connection between emitter and receiver necessary);
- configuration (no external control units and / or supplementary cables necessary);
- use (alignment guided by a 7 segment double display on both units).
Improved response time and operating distance, respect to the SE4-PLUS series distinguish this series and make it one of the best performing light curtains available today on the market.





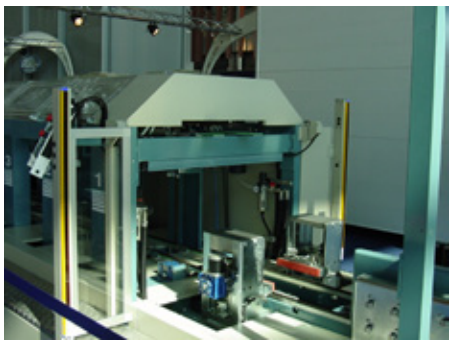
HIGHLIGHTS

- Integrated light curtain for HAND PROTECTION (30 mm resolution)
- Maximum operating distance reaching 19 m
- Controlled heights ranging from 150 to 1800 mm
- Compact 32x37 mm profile
- Selectable EDM and Manual/ Automatic Restart

APPLICATIONS

- Automatic machines;
- Packaging and cutting machines;
- Textile, wood-working and ceramic machines;
- Automatic assembling lines;
- Milling, lathe and shearing machines;
- Bending and metal-working machines.





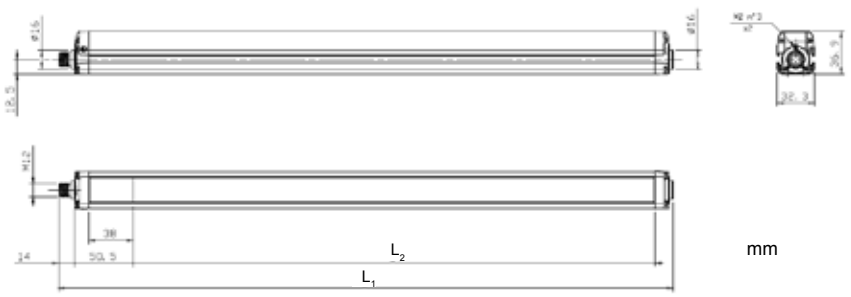


SETTING

The main characteristics of the SG4-B HAND are:

- Operating distance reaching 19 m
- Response times ranging from 9 to 27 msec
- Controlled heights ranging from 150 to 1800 mm
- New sturdy and more functional profile
- Compatibility with the entire SE accessory range
- Selectable EDM and Manual/Automatic Restart
- User interface equipped with a 7 segment display on both TX and RX units
- Alignment aid function

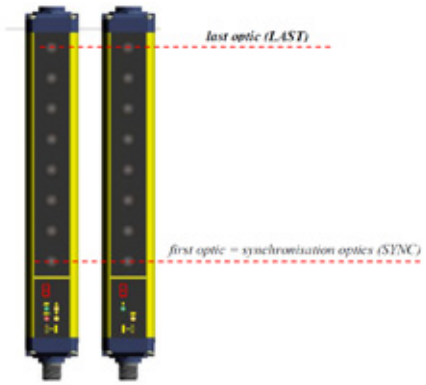
DIMENSIONS



mm

VERSIONS	L_1	L_2
SG4-30-015-OO-E	233.3	153.3
SG4-30-030-OO-E	383.2	303.2
SG4-30-045-OO-E	533.2	453.3
SG4-30-060-OO-E	683.2	603.2
SG4-30-075-OO-E	833.2	753.3
SG4-30-090-OO-E	983.2	903.2
SG4-30-105-OO-E	1133.2	1053.2
SG4-30-120-OO-E	1283.3	1203.3
SG4-30-135-OO-E	1433.2	1353.2
SG4-30-150-OO-E	1583.3	1503.3
SG4-30-165-OO-E	1733.3	1653.3
SG4-30-180-OO-E	1883.3	1803.3

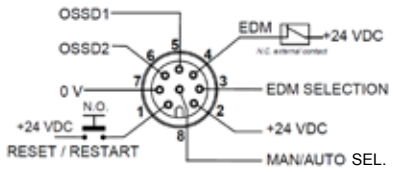
INDICATORS AND SETTINGS





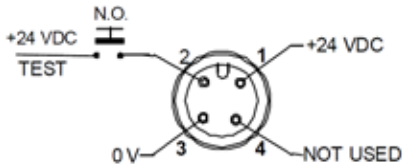
CONNECTIONS

RX:M12 8-POLE CONNECTOR



1 = white = RESET (*)
2 = brown = +24 Vdc
3 = green = EDM ACTIVATION (**)
4 = yellow = EDM
5 = grey = OSSD1
6 = pink = OSSD2
7 = blue = 0 V
8 = red = SEL. MAN. / AUTO RESTART

TX:M12 4-POLE CONNECTOR



1 = brown =+24 Vdc
2 = white =TEST
3 = blue =0 V
4 = black =NOT USED

*automatic RESTART - RESET function
manual RESTART-RESET/RESTART function
**Refer to "SG4-B: function"
NOTE: For MANUAL RESTART CONNECT TOGETHER Pin8 with Pin6.
For Automatic Restart connect together Pin8 with Pin5

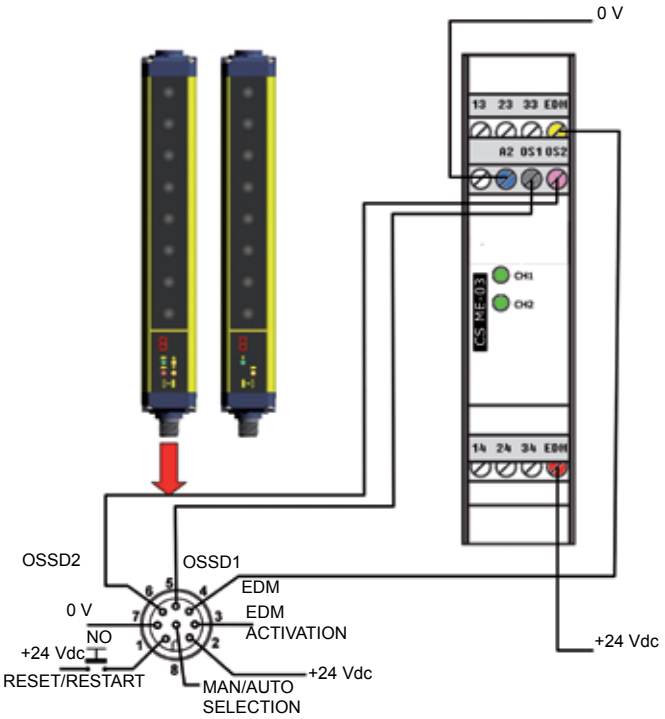
SG4-B: FUNCTIONS

EDM

The **EDM** function allows to connect the light barrier to a couple of simple forced-guided safety relays instead to a Type 4 safety relay and thus guaranteeing an enormous economical advantage.

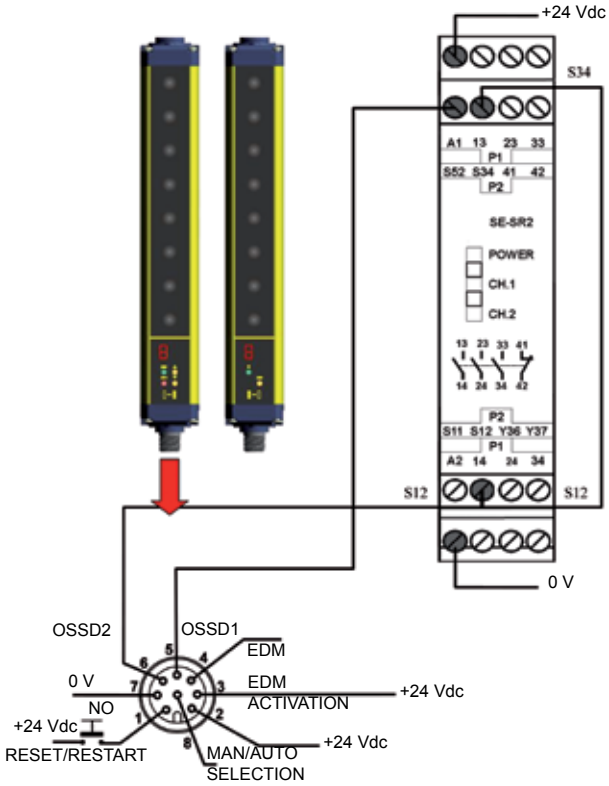
Connection with EDM function

CS ME relay box



Connection without EDM function

SE-SR2 Type 4 safety relay



TECHNICAL DATA

Electrical Data	
Power supply (Vdd)	24 Vdc ± 20%
Consumption (TX):	2.5 W max
Consumption (RX):	4 W max (without load)
OSSD outputs:	2 PNP
Short-circuit protection:	1.4 A max
Output current:	0.5 A max on each output
Output voltage – ON status:	Vdd-1 V
Output voltage – OFF status:	0.2 V
Leakage current:	< 1mA
Capacitive load:	2.2 uF @ 24Vdc (*)
Response time:	Refer to table
Controlled height:	150 ... 1800 mm
Safety category:	Type 4
Auxiliary functions:	Reset/Test
	Selectable Man./ Auto. Restart
	Selectable EDM
Electrical protection:	Class I / Class III
Connections:	M12 4-pole for emitter
	M12 8-pole for receiver
Cable length (for powering)	50 m. max (*)
Optical Data	
Light emission:	Infrared LED (950 nm)
Resolution:	30 mm
Operating distance:	0.2…19 m
Aperture angle (EAA):	±2.5° max.
Ambient light rejection:	IEC 61496-2
Mechanical and environmental data	
Operating temperature:	0…55°C
Storage temperature:	-25…+ 70 °C
Temperature class:	T6
Humidity:	15…95 % (non condensating)
Mechanical protection:	IP65 (EN 60529)
Vibrations:	Width 0.35 mm
	Frequency 10 … 55 Hz 20 sweep per axis,
	1 octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10g) 1.000 shock per axis
	(EN 60068-2-29)
Housing material:	Painted aluminium (yellow RAL 1003)
Protective shield material:	PMMA
Cap material:	PC MAKROLON
Weight:	1.3 Kg / m

*If a longer cable has to be used, please verify that the capacitive load specifications are respected

TABLES

MODEL	
SG4 height 150	8
SG4 height 300	16
SG4 height 450	24
SG4 height 600	32
SG4 height 750	40
SG4 height 900	48
SG4 height 1050	56
SG4 height 1200	64
SG4 height 1350	72
SG4 height 1500	80
SG4 height 1650	88
SG4 height 1800	96

Table 1: NUMBER OF CONTROLLED BEAMS

MODEL	
SG4 height 150	150
SG4 height 300	300
SG4 height 450	450
SG4 height 600	600
SG4 height 750	750
SG4 height 900	900
SG4 height 1050	1050
SG4 height 1200	1200
SG4 height 1350	1350
SG4 height 1500	1500
SG4 height 1650	1650
SG4 height 1800	1800

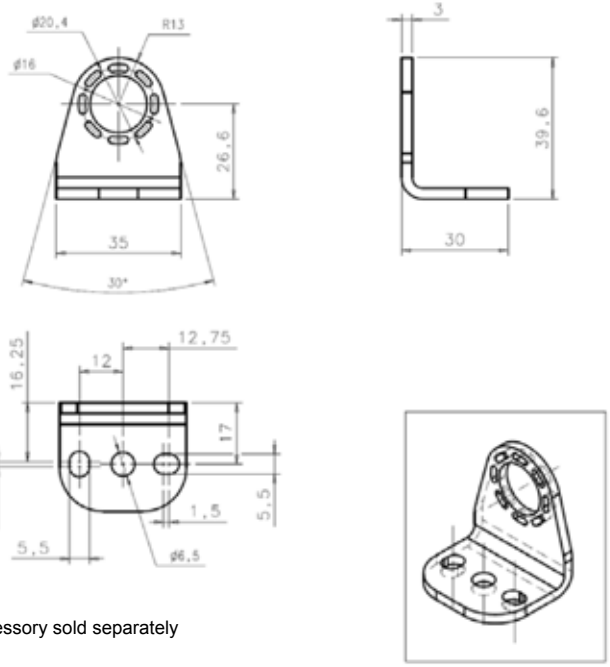
Table 2: CONTROLLED HEIGHT (mm)

MODEL	
SG4 height 150	9
SG4 height 300	11
SG4 height 450	13
SG4 height 600	14
SG4 height 750	16
SG4 height 900	18
SG4 height 1050	19
SG4 height 1200	21
SG4 height 1350	23
SG4 height 1500	25
SG4 height 1650	26
SG4 height 1800	28

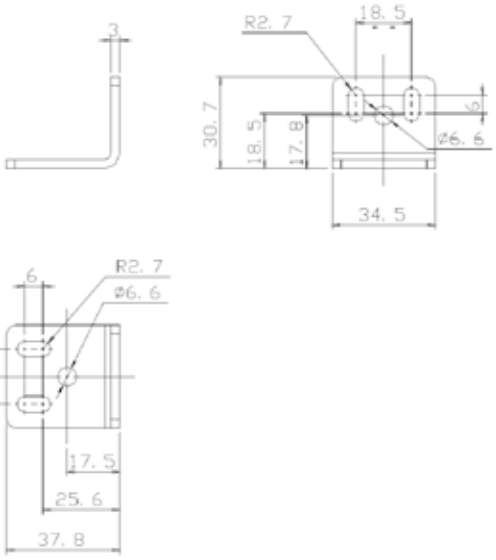
Table 3: RESPONSE TIME (ms)

FIXING BRACKET

Rotating fixing bracket[1]



Angled fixing bracket[2]

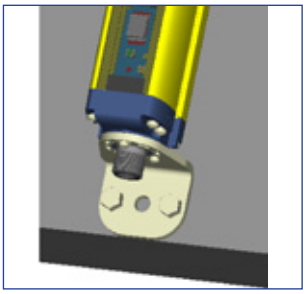


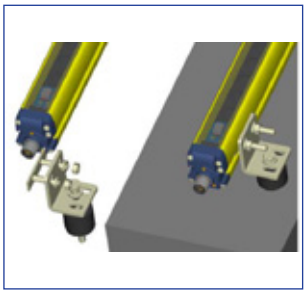
[1] Accessory sold separately

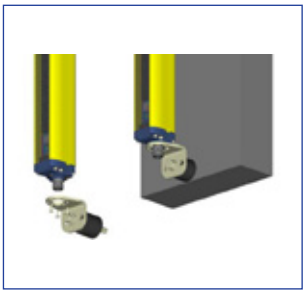
[2] Supplied in the package

mm

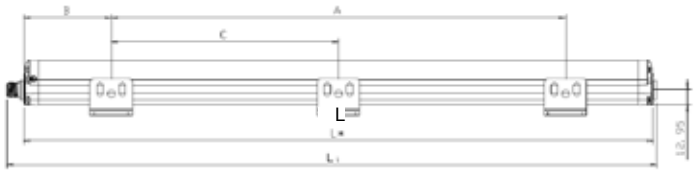


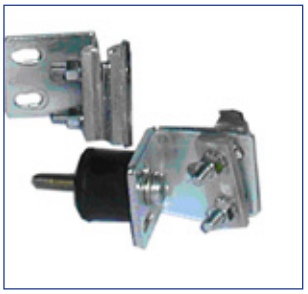






Installation with anti-vibration supports





MODELS	L (mm)	A (mm)	B (mm)	C (mm)
SG4-30-015-OO-E	216.3	108	54	-
SG4-30-030-OO-E	366.2	216	75	-
SG4-30-045-OO-E	516.3	316	100	-
SG4-30-060-OO-E	666.2	366	150	-
SG4-30-075-OO-E	816.3	466	175	-
SG4-30-090-OO-E	966.2	566	200	-
SG4-30-105-OO-E	1116.2	666	225	-
SG4-30-120-OO-E	1266.3	966	150	483
SG4-30-135-OO-E	1416.2	1066	175	533
SG4-30-150-OO-E	1566.3	1166	200	583
SG4-30-165-OO-E	1716.3	1266	225	633
SG4-30-180-OO-E	1866.3	1366	250	683

RELIABILITY DATA SG4-B

PL (Ref. EN ISO 13849-1)	e
CAT (Ref. EN 954-1)	4
SIL (Ref. EN IEC 61508)	3
SIL CL (Ref. EN IEC 62061)	3
PFHD – Probability of Danger Failure (1/h)	2,64E-09
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	444
DC – Diagnostic Coverage (%)	98,80%
SFF – Safe Failure Fraction (%)	99,30%
HFT – Hardware Fault Tolerance	1

MODEL SELECTION TABLE

Model	Description	Order N°
SG4-30-015-OO-E	Type 4 safety light curtain h=150 mm	957901120
SG4-30-030-OO-E	Type 4 safety light curtain h=300 mm	957901130
SG4-30-045-OO-E	Type 4 safety light curtain h=450 mm	957901140
SG4-30-060-OO-E	Type 4 safety light curtain h=600 mm	957901150
SG4-30-075-OO-E	Type 4 safety light curtain h=750 mm	957901160
SG4-30-090-OO-E	Type 4 safety light curtain h=900 mm	957901170
SG4-30-105-OO-E	Type 4 safety light curtain h=1050 mm	957901180
SG4-30-120-OO-E	Type 4 safety light curtain h=1200 mm	957901190
SG4-30-135-OO-E	Type 4 safety light curtain h=1350 mm	957901200
SG4-30-150-OO-E	Type 4 safety light curtain h=1500 mm	957901210
SG4-30-165-OO-E	Type 4 safety light curtain h=1650 mm	957901220
SG4-30-180-OO-E	Type 4 safety light curtain h=1800 mm	957901230

ACCESSORYSELECTION AND ORDER INFORMATION

Model	Description	Order N°
CS-A1-02-U-03	M12 4-pole unshielded axial 3 m connector, UL 2464	95ASE1120
CS-A1-02-U-05	M12 4-pole unshielded axial 5 m connector, UL 2464	95ASE1130
CS-A1-02-U-10	M12 4-pole unshielded axial 10 m connector, UL 2464	95ASE1140
CS-A1-02-U-15	M12 4-pole unshielded axial 15 m connector, UL 2464	95ASE1150
CS-A1-02-U-25	M12 4-pole unshielded axial 25 m connector, UL 2464	95ASE1160
CS-A1-06-U-03	M12 8-pole unshielded axial 3 m connector, UL 2464	95ASE1220
CS-A1-06-U-05	M12 8-pole unshielded axial 5 m connector, UL 2464	95ASE1230
CS-A1-06-U-10	M12 8-pole unshielded axial 10 m connector, UL 2464	95ASE1240
CS-A1-06-U-15	M12 8-pole unshielded axial 15 m connector, UL 2464	95ASE1250
CS-A1-06-U-25	M12 8-pole unshielded axial 25 m connector, UL 2464	95ASE1260
ST-KSTD	Angled fixing brackets (4 pc kit)	95ACC1670
ST-K4AV	Anti-vibration supports (4 pc kit)	95ACC1700
ST-K6AV	Anti-vibration supports (6 pc kit)	95ACC1710
ST-K4ROT	Top-Bottom rotating fixing brackets (4 pc kit)	95ASE1280

Please refer also to **Safey Device Accessories**

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DATALOGIC

SAFETY

SE2-HAND SERIES

The **SAFEasy™** light curtains, according to the IEC 61496-1 e IEC 61496-2 standards, are suitable for hand protection of operators exposed to risks.
Different models with eleven standard heights ranging from 150 to 1650 mm, 35 mm resolution and an operating distance reaching 15 m are available.
Specific dip-switches, that can be reached through a slot present on the front of the receiver protected by a lid and opened with a simple screwdriver, guarantee rapid and safe device setting.
The operator is thus able to configure, according to the specific needs, the manual or automatic Restart, as well as the Muting and partial Muting functions.
The emitter-receiver units are optically synchronised and contain all the control circuits, inputs and outputs inside the housing.
The **SAFEasy™** light curtains have also integrated the test function, automatically activated every second, without stopping the machine's working cycle.
A wide range of industrial applications, requiring operator safety, can be solved by the **SAFEasy™** light curtains, thanks to the extremely compact dimensions (35x40 mm) and easy connection and installation.





HIGHLIGHTS

- Integrated light curtains for HAND PROTECTION
- Version with 35 mm resolution
- Special slot for device setting
- 35 x 40 mm compact profile

APPLICATIONS

- Automatic machines
- Packaging machines, handling machines, storing machines
- Wood working machines, glass working machines, ceramics working machines.
- Automatic and semi-automatic assembly lines
- Automatic warehouses
- Presses, punching machines, benders and cutters

Assembly lines



Automatic warehouse



Packaging lines



TECHNICAL DATA

Power supply:	24 Vdc ± 20% (SELV/PELV)
Consumption:	70 mA max. / 2.1 W (emitter)
	100 mA max. / 3 W (receiver without load)
Light emission:	infrared LED 880 nm
Optic diameter:	Ø 16 mm
Number of controlled beams:	refer to table 1
Optic interaxis:	refer to table 2
Resolution:	refer to table 2
1st beam installation height:	refer to table 3
Through beam operating distance:	0.5 ... 25 m (Q vers.)
	4 ... 50 m (P vers.)
Receiver inputs:	external switches for Muting, Test, Restart and Override
Receiver indicators:	green / red SAFE / BREAK LED
	2 yellow ALIGNMENT LEDs
	green POWER ON LED
Emitter indicators:	yellow blinking FAILURE LED
	green POWER ON LED
Output type:	2 PNP
Output current:	0.7 A max.
	0.25 A max. (45°C - 55°C)
	short-circuit signalling and protection
Response time:	14 ms
Selectable functions:	Total / partial Muting
	Manual / Automatic Restart
	refer to table 4
Time-out period:	Muting: 10 minutes
	Override: 2 minutes
Muting signalling lamp:	24 V
	3 W min. (125 mA), 7 W max. (300 mA)
Receiver connection:	8-pole M12 connector
Emitter connection:	4-pole M12 connector
Cable length:	50 m max. (with 50 nF capacitive load)
Safety category:	type 4
Electrical protection:	class 1
Mechanical protection:	IP65
	IP67 (connector part)
Housing material:	aluminium with PC Makrolon plastic caps
Weight:	1.2 Kg max. / m of total height
Operating temperature:	-10 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

TABLES

MODEL	SE2-35
SE2 height 150	8
SE2 height 300	16
SE2 height 450	24
SE2 height 600	32
SE2 height 750	40
SE2 height 900	48
SE2 height 1050	56
SE2 height 1200	64
SE2 height 1350	72
SE2 height 1500	80
SE2 height 1650	88

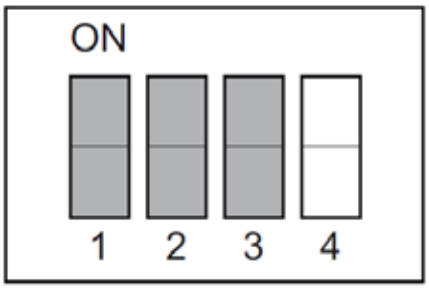
Table 1: NUMBER OF BEAMS

MODEL	SE2-35
SE2 height 150	180
SE2 height 300	327
SE2 height 450	474
SE2 height 600	621
SE2 height 750	768
SE2 height 900	915
SE2 height 1050	1062
SE2 height 1200	1209
SE2 height 1350	1356
SE2 height 1500	1503
SE2 height 1650	1650

Table 2: CONTROLLED HEIGHT (mm)

MODEL	SE2-35
SE2 height 150	15
SE2 height 300	17
SE2 height 450	18
SE2 height 600	20
SE2 height 750	22
SE2 height 900	23
SE2 height 1050	25
SE2 height 1200	27
SE2 height 1350	28
SE2 height 1500	30
SE2 height 1650	32

Table 3: RESPONSE TIME (ms)



GREY dip-switches: total / partial Muting selection
WHITE dip-switches: manual / auto. Restart selection

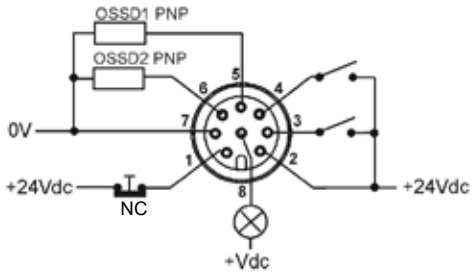
Table 4: DIP-SWITCH SELECTION

RELIABILITY DATA

PL (Ref. EN ISO 13849-1)	d
CAT (Ref. EN 954-1)	2
SIL (Ref. EN IEC 61508)	2
SIL CL (Ref. EN IEC 62061)	2
PFHD – Probability of Danger Failure (1/h)	1,37E-08
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	309
DC – Diagnostic Coverage (%)	96,3%
SFF – Safe Failure Fraction (%)	97,83%
HFT – Hardware Fault Tolerance	0

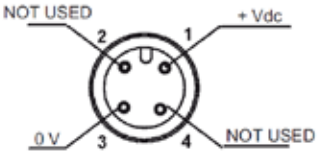
CONNECTIONS

RX: M12 8-POLE CONNECTOR



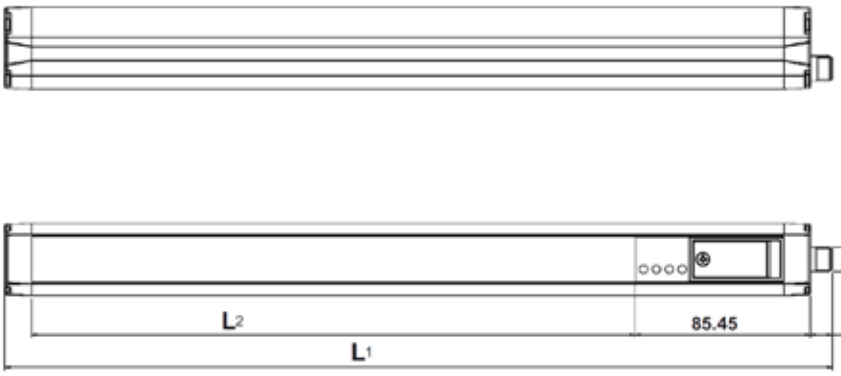
1 = TEST/RESTART
2 = + Vdc
3 = MUTING 1
4 = MUTING 2
5 = OUT 1
6 = OUT 2
7 = 0 V
8 = LAMP

TX: M12 4-POLE CONNECTOR

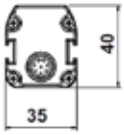


1 = brown = + Vdc
2 = white = NOT USED
3 = blue = 0 V
4 = black = NOT USED

DIMENSIONS



mm



VERSIONS	L_1	L_2
SE2-35-015-PP-W	256	147
SE2-35-030-PP-W	403	294
SE2-35-045-PP-W	550	441
SE2-35-060-PP-W	697	588
SE2-35-075-PP-W	844	735
SE2-35-090-PP-W	991	882
SE2-35-105-PP-W	1138	1029
SE2-35-120-PP-W	1285	1176
SE2-35-135-PP-W	1432	1323
SE2-35-150-PP-W	1579	1470
SE2-35-165-PP-W	1726	1617

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
SE2-35-015-PP-W	type 2 safety light curtain h=150 mm	957101000
SE2-35-030-PP-W	type 2 safety light curtain h=300 mm	957101010
SE2-35-045-PP-W	type 2 safety light curtain h=450 mm	957101020
SE2-35-060-PP-W	type 2 safety light curtain h=600 mm	957101030
SE2-35-075-PP-W	type 2 safety light curtain h=750 mm	957101040
SE2-35-090-PP-W	type 2 safety light curtain h=900 mm	957101050
SE2-35-105-PP-W	type 2 safety light curtain h=1050 mm	957101060
SE2-35-120-PP-W	type 2 safety light curtain h=1200 mm	957101070
SE2-35-135-PP-W	type 2 safety light curtain h=1350 mm	957101080
SE2-35-150-PP-W	type 2 safety light curtain h=1500 mm	957101090
SE2-35-165-PP-W	type 2 safety light curtain h=1650 mm	957101100

ACCESSORY SELECTION AND ORDER INFORMATION

Please refer also to **Safety Device Accessories**

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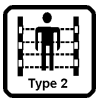
DATALOGIC

SAFETY

SE2-BODY SERIES

The **SAFEasy™** light curtains, according to the IEC 61496-1 e IEC 61496-2 standards, are suitable for detecting the human body when approaching dangerous areas.
Models with different standard heights (500, 800, 900, 1200 mm), with 2, 3, 4 beams and operating distance reaching 50 m are available.
Specific dip-switches, that can be reached through a slot present on the front of the receiver protected by a lid and opened with a simple screwdriver, guarantee rapid and safe device setting.
The operator is thus able to configure, according to the specific needs, the manual or automatic Restart, as well as the Muting and partial Muting functions.
The emitter-receiver units are optically synchronised and contain all the control circuits, inputs and outputs inside the housing.
The **SAFEasy™** light curtains have also integrated the test function, automatically activated every second, without stopping the machine's working cycle.
A wide range of industrial applications, requiring operator safety, can be solved by the **SAFEasy™** light curtains, thanks to the extremely compact dimensions (35x40 mm) and easy connection and installation.





HIGHLIGHTS

- Integrated light curtains for BODY PROTECTION
- Versions with 2 / 3 / 4 beams
- Special slot for device setting
- 35 x 40 mm compact profile

APPLICATIONS

- Automatic machines
- Packaging machines, handling machines, storing machines
- Wood working machines, glass working machines, ceramics working machines, etc.
- Automatic and semi-automatic assembly lines
- Automatic warehouses
- Presses, punching machines, benders and cutters

Conveyors



Automatic warehouse



Automotive



TECHNICAL DATA

Power supply:	24 Vdc ± 20% (SELV/PELV)
Consumption:	70 mA max. / 2.1 W (emitter)
	100 mA max. / 3 W (receiver without load)
Light emission:	infrared LED 880 nm
Optic diameter:	Ø 16 mm
Number of controlled beams:	refer to table 1
Optic interaxis:	refer to table 2
Resolution:	refer to table 2
1st beam installation height:	refer to table 3
Through beam operating distance:	0.5 ... 50 m
Receiver inputs:	external switches for Muting, Test, Restart and Override
Receiver indicators:	green / red SAFE / BREAK LED
	2 yellow ALIGNMENT LEDs
	green POWER ON LED
Emitter indicators:	yellow blinking FAILURE LED
	green POWER ON LED
Output type:	2 PNP
Output current:	0.7 A max. (using both outputs)
	0.5 A max. (using one single output)
	0.25 A max. (for both outputs from 45°C - 55°C)
	short-circuit signalling and protection
Response time:	14 ms
Selectable functions:	Total / partial Muting
	Manual / Automatic Restart
	refer to table 4
Time-out period:	Muting: 10 minutes
	Override: 2 minutes
Muting signalling lamp:	24 V
	3 W min. (125 mA), 7 W max. (300 mA)
Receiver connection:	8-pole M12 connector
Emitter connection:	4-pole M12 connector
Cable length:	50 m max. (with 50 nF capacitive load)
Safety category:	type 2
Electrical protection:	class 1
Mechanical protection:	IP65
	IP67 (connector part)
Housing material:	aluminium with PC Makrolon plastic caps
Weight:	1.2 Kg max. / m of total height
Operating temperature:	-10 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

TABLES

MODEL	BEAMS
SE2 height 500	2
SE2 height 800	3
SE2 height 900	4
SE2 height 1200	4

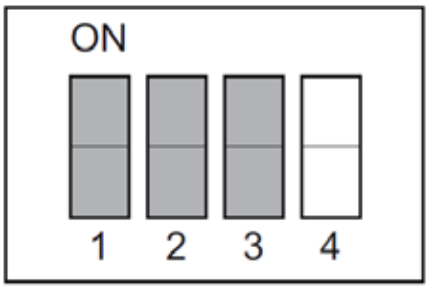
Table 1: NUMBER OF BEAMS

MODEL	mm
SE2 height 500	500 / 515
SE2 height 800	400 / 415
SE2 height 900	300 / 315
SE2 height 1200	400 / 415

Table 2: INTERXIS/RESOLUTION

MODEL	mm
SE2 height 500	400
SE2 height 800	300
SE2 height 900	300
SE2 height 1200	300

Table 3: 1st BEAM INSTALLATION HEIGHT



GREY dip-switches: total / partial Muting selection
WHITE dip-switches: manual / auto. Restart selection

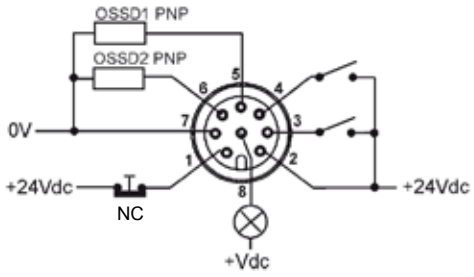
Table 4: DIP-SWITCH SELECTION

RELIABILITY DATA

PL (Ref. EN ISO 13849-1)	d
CAT (Ref. EN 954-1)	2
SIL (Ref. EN IEC 61508)	2
SIL CL (Ref. EN IEC 62061)	2
PFHD – Probability of Danger Failure (1/h)	1,37E-08
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	309
DC – Diagnostic Coverage (%)	96,3%
SFF – Safe Failure Fraction (%)	97,83%
HFT – Hardware Fault Tolerance	0

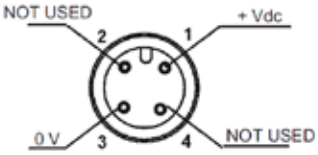
CONNECTIONS

RX: M12 8-POLE CONNECTOR



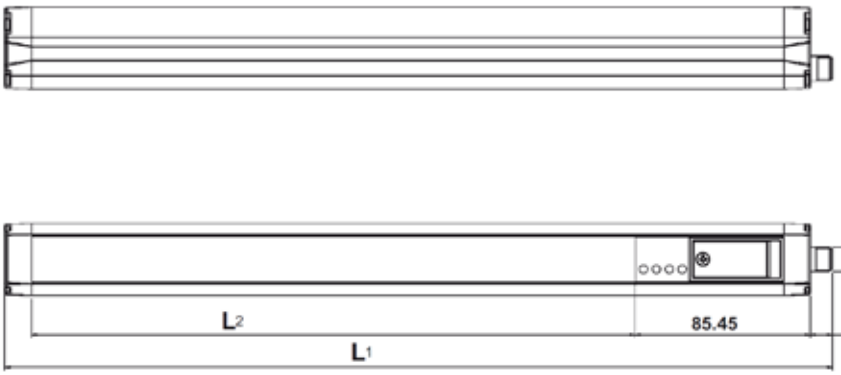
1 = TEST/RESTART
2 = + Vdc
3 = MUTING 1
4 = MUTING 2
5 = OUT 1
6 = OUT 2
7 = 0 V
8 = LAMP

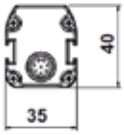
TX: M12 4-POLE CONNECTOR



1 = brown = + Vdc
2 = white = NOT USED
3 = blue = 0 V
4 = black = NOT USED

DIMENSIONS





VERSIONS	L_1	L_2
SE2-P2-050-PP-W	652	543
SE2-P3-080-PP-W	952	843
SE2-P4-090-PP-W	1052	943
SE2-P4-120-PP-W	1352	1243

mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
SE2-P2-050-PP-W	type 2 safety light curtain with 2 beams	957101110
SE2-P3-080-PP-W	type 2 safety light curtain with 3 beams	957101120
SE2-P4-090-PP-W	type 2 safety light curtain with 4 beams	957101130
SE2-P4-120-PP-W	type 2 safety light curtain with 4 beams	957101140

ACCESSORY SELECTION AND ORDER INFORMATION

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SE4-FINGER SERIES

The **SAFEasy™** light curtains, according to the IEC 61496-1 e IEC 61496-2 standards, are suitable for finger protection of operators exposed to risks.
Different models with six standard heights ranging from 150 to 900 mm, with 14 mm resolution and operating distance reaching 6 m are available.
Specific dip-switches, that can be reached through a slot present on the front of the receiver protected by a lid and opened with a simple screwdriver, guarantee rapid and safe device setting.
The operator is thus able to configure, according to the specific needs, the manual or automatic Restart, as well as the muting and partial muting functions.
The emitter-receiver units are optically synchronised and contain all the control circuits, inputs and outputs inside the housing.
A wide range of industrial applications, requiring operator safety, can be solved by the **SAFEasy™** light curtains, thanks to the extremely compact dimensions (35x40 mm) and easy connection and installation.





HIGHLIGHTS

- Integrated light curtains for FINGER PROTECTION
- Version with 14 mm resolution
- Special slot for device setting
- 35 x 40 mm compact profile

APPLICATIONS

- Automatic machines
- Packaging machines, handling machines, storing machines
- Wood working machines, glass working machines, ceramics working machines, etc.
- Automatic and semi-automatic assembly lines
- Automatic warehouses
- Presses, punching machines, benders and cutters

Conveyors



Automatic warehouse



Automotive



TECHNICAL DATA

Power supply:	24 Vdc ± 20%, (SELV/PELV)
Consumption:	70 mA max. / 2.1 W (emitter)
	100 mA max. / 3 W (receiver without load)
Light emission:	infrared LED 880 nm
Optic diameter:	Ø 14 mm
Number of controlled beams:	refer to table 1
Optic interaxis:	7 mm
Resolution:	14 mm
Controlled height:	refer to table 2
Through beam operating distance:	0.2 ... 6 m
Receiver inputs:	external switches for Muting, Test, Restart and Override
Receiver indicators:	green / red SAFE / BREAK LED
	2 yellow ALIGNMENT LEDs
	green POWER ON LED
Emitter indicators:	yellow blinking FAILURE LED
	green POWER ON LED
Output type:	2 PNP
Output current:	0.7 A max.
	0.25 A max. (45°C - 55°C)
	short-circuit signalling and protection
Response time:	refer to table 3
Selectable functions:	Total / partial Muting
	Manual / Automatic Restart
	refer to table 4
Time-out periods:	Muting: 10 minutes
	Override: 2 minutes
Muting signalling lamp:	24 V
	3 W min. (125 mA), 7 W max. (300 mA)
Receiver connection:	8-pole M12 connector
Emitter connection:	4-pole M12 connector
Cable length:	50 m max. (with 50 nF capacitive load)
Safety category:	type 4
Electrical protection:	class 1
Mechanical protection:	IP65
	IP67 (connector part)
Housing material:	aluminium with PC Makrolon plastic caps
Weight:	1.2 Kg max. / m of total height
Operating temperature:	-10 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

TABLES

MODEL	BEAMS
SE4 height 150	21
SE4 height 300	42
SE4 height 450	63
SE4 height 600	84
SE4 height 750	105
SE4 height 900	126

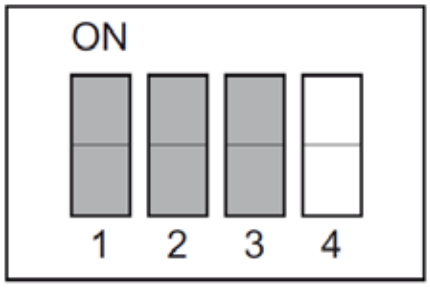
Table 1: NUMBER OF BEAMS

MODEL	mm
SE4 height 150	161
SE4 height 300	308
SE4 height 450	455
SE4 height 600	602
SE4 height 750	749
SE4 height 900	896

Table 2: CONTROLLED HEIGHT

MODEL	ms
SE4 height 150	18
SE4 height 300	22
SE4 height 450	26
SE4 height 600	31
SE4 height 750	35
SE4 height 900	39

Table 3: RESPONSE TIME



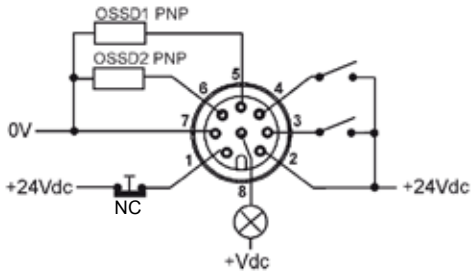
GREY dip-switches: total / partial Muting selection
WHITE dip-switches: manual / auto. Restart selection
Table 4: DIP-SWITCH SELECTION

RELIABILITY DATA

PL (Ref. EN ISO 13849-1)	e
CAT (Ref. EN 954-1)	4
SIL (Ref. EN IEC 61508)	3
SIL CL (Ref. EN IEC 62061)	3
PFHD – Probability of Danger Failure (1/h)	2.76E-09
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	335
DC – Diagnostic Coverage (%)	99,00%
SFF – Safe Failure Fraction (%)	99,44%
HFT – Hardware Fault Tolerance	1

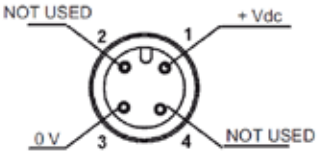
CONNECTIONS

RX: M12 8-POLE CONNECTOR



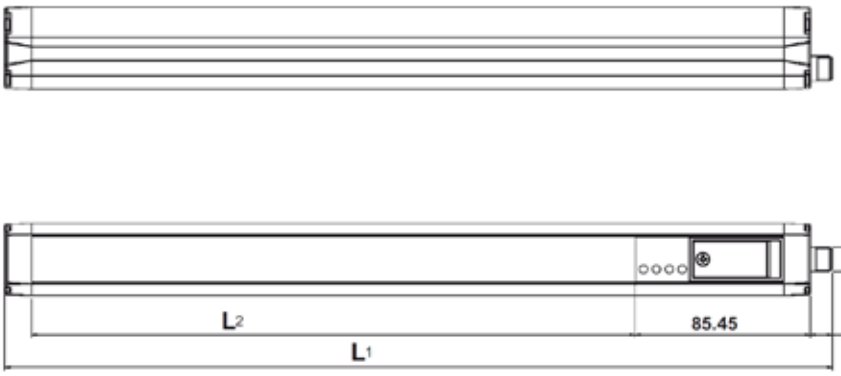
1 = TEST/RESTART
2 = + Vdc
3 = MUTING 1
4 = MUTING 2
5 = OUT 1
6 = OUT 2
7 = 0 V
8 = LAMP

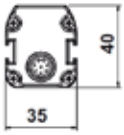
TX: M12 4-POLE CONNECTOR



1 = brown = + Vdc
2 = white = NOT USED
3 = blue = 0 V
4 = black = NOT USED

DIMENSIONS





VERSIONS	L_1	L_2
SE4-14-015-PP-W	256	147
SE4-14-030-PP-W	403	294
SE4-14-045-PP-W	550	441
SE4-14-060-PP-W	697	588
SE4-14-075-PP-W	844	735
SE4-14-090-PP-W	991	882

mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
SE4-14-015-PP-W	type 4 safety light curtain h=150 mm	957201150
SE4-14-030-PP-W	type 4 safety light curtain h=300 mm	957201160
SE4-14-045-PP-W	type 4 safety light curtain h=450 mm	957201170
SE4-14-060-PP-W	type 4 safety light curtain h=600 mm	957201180
SE4-14-075-PP-W	type 4 safety light curtain h=750 mm	957201190
SE4-14-090-PP-W	type 4 safety light curtain h=900 mm	957201370

ACCESSORY SELECTION AND ORDER INFORMATION

Please refer also to **Safety Device Accessories**

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DATALOGIC

SAFETY

SE4-HAND SERIES

The **SAFEasy™** light curtains, according to the IEC 61496-1 e IEC 61496-2 standards, are suitable for hand protection of operators exposed to risks.
Different models with eleven standard heights ranging from 150 to 1650 mm, with 20, 30 and 35 mm resolutions and operating distance reaching 15 m are available.
Specific dip-switches, that can be reached through a slot present on the front of the receiver protected by a lid and opened with a simple screwdriver, guarantee rapid and safe device setting. The operator is thus able to configure, according to the specific needs, the manual or automatic Restart, as well as the Muting and partial Muting functions.
The emitter-receiver units are optically synchronised and contain all the control circuits, inputs and outputs inside the housing.
A wide range of industrial applications, requiring operator safety, can be solved by the **SAFEasy™** light curtains, thanks to the extremely compact dimensions (35x40 mm) and easy connection and installation.





HIGHLIGHTS

- Integrated light curtains for HAND PROTECTION
- Versions with 20, 30 and 35 mm resolution
- Special slot for device setting
- 35 x 40 mm compact profile

APPLICATIONS

- Automatic machines
- Packaging machines, handling machines, storing machines
- Wood working machines, glass working machines, ceramics working machines, etc.
- Automatic and semi-automatic assembly lines
- Automatic warehouses
- Presses, punching machines, benders and cutters

Conveyors



Automatic warehouse



Automotive



TECHNICAL DATA

Power supply:	24 Vdc ± 20% (SELV/PELV)
Consumption:	70 mA max. / 2.1 W (emitter)
	100 mA max. / 3 W (receiver without load)
Light emission:	infrared LED 880 nm
Number of controlled beams:	refer to table 1
Optic interaxis:	14 mm (SE4-20)
	18.4 mm (SE4-30)
	18.4 mm (SE4-35)
Resolution:	20 mm (SE4-20)
	30 mm (SE4-30)
	35 mm (SE4-35)
Controlled height:	refer to table 2
Through beam operating distance:	0.2 ... 6 m (SE4-20)
	0.2 ... 15 m (SE4-30)
	0.2 ... 15 m (SE4-35)
Receiver inputs:	external switches for Muting, Test, Restart and Override
Receiver indicators:	green / red SAFE / BREAK LED
	2 yellow ALIGNMENT LEDs
	green POWER ON LED
Emitter indicators:	yellow blinking FAILURE LED
	green POWER ON LED
Output type:	2 PNP
Output current:	0.7 A max.
	0.25 A max. (45°C - 55°C)
	short-circuit signalling and protection
Response time:	refer to table 3
Selectable functions:	Total / partial Muting
	Manual / Automatic Restart
	refer to table 4
Time-out period:	Muting: 10 minutes
	Override: 2 minutes
Muting signalling lamp:	24 V
	3 W min. (125 mA), 7 W max. (300 mA)
Receiver connection:	8-pole M12 connector
Emitter connection:	4-pole M12 connector
Cable length:	50 m max. (with 50 nF capacitive load)
Safety category:	type 4
Electrical protection:	class 1
Mechanical protection:	IP65
	IP67 (connector part)
Housing material:	aluminium with PC Makrolon plastic caps
Weight:	1.2 Kg max. / m of total height
Operating temperature:	-10 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

TABLES

MODEL	SE4-20	SE4-30/35
SE4 height 150	11	8
SE4 height 300	22	16
SE4 height 450	33	24
SE4 height 600	44	32
SE4 height 750	55	40
SE4 height 900	66	48
SE4 height 1050	77	56
SE4 height 1200	88	64
SE4 height 1350	99	72
SE4 height 1500	110	80
SE4 height 1650	121	88

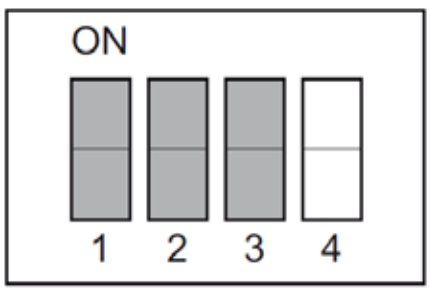
Table 1: NUMBER OF BEAMS

MODEL	SE4-20	SE4-30/35
SE4 height 150	161	180
SE4 height 300	308	327
SE4 height 450	455	474
SE4 height 600	602	621
SE4 height 750	749	768
SE4 height 900	896	915
SE4 height 1050	1043	1062
SE4 height 1200	1190	1209
SE4 height 1350	1337	1356
SE4 height 1500	1484	1503
SE4 height 1650	1631	1650

Table 2: CONTROLLED HEIGHT (mm)

MODEL	SE4-20	SE4-30/35
SE4 height 150	16	15
SE4 height 300	18	17
SE4 height 450	21	18
SE4 height 600	23	20
SE4 height 750	25	22
SE4 height 900	27	23
SE4 height 1050	29	25
SE4 height 1200	32	27
SE4 height 1350	34	28
SE4 height 1500	36	30
SE4 height 1650	39	32

Table 3: RESPONSE TIME (ms)



GREY dip-switches: total / partial Muting selection
WHITE dip-switches: manual / auto. Restart selection

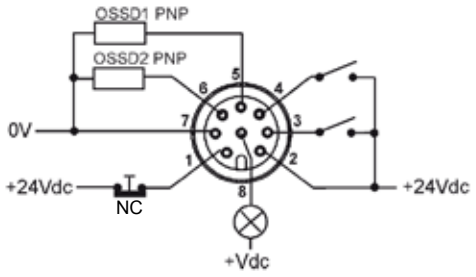
Table 4: DIP-SWITCH SELECTION

RELIABILITY DATA

PL (Ref. EN ISO 13849-1)	e
CAT (Ref. EN 954-1)	4
SIL (Ref. EN IEC 61508)	3
SIL CL (Ref. EN IEC 62061)	3
PFHD – Probability of Danger Failure (1/h)	2.76E-09
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	335
DC – Diagnostic Coverage (%)	99,00%
SFF – Safe Failure Fraction (%)	99,44%
HFT – Hardware Fault Tolerance	1

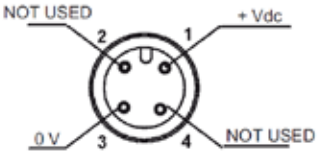
CONNECTIONS

RX: M12 8-POLE CONNECTOR



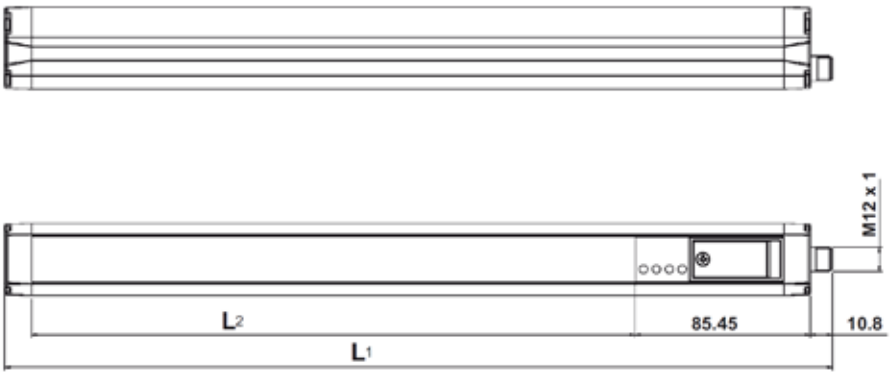
1 = TEST/RESTART
2 = + Vdc
3 = MUTING 1
4 = MUTING 2
5 = OUT 1
6 = OUT 2
7 = 0 V
8 = LAMP

TX: M12 4-POLE CONNECTOR

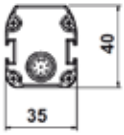


1 = brown = + Vdc
2 = white = NOT USED
3 = blue = 0 V
4 = black = NOT USED

DIMENSIONS



mm



VERSIONS	L_1	L_2
SE4-xx-015-PP-W	256	147
SE4-xx-030-PP-W	403	294
SE4-xx-045-PP-W	550	441
SE4-xx-060-PP-W	697	588
SE4-xx-075-PP-W	844	735
SE4-xx-090-PP-W	991	882
SE4-xx-105-PP-W	1138	1029
SE4-xx-120-PP-W	1285	1176
SE4-xx-135-PP-W	1432	1323
SE4-xx-150-PP-W	1579	1470

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	RESOLUTION	CODE N°
SE4-20-015-PP-W	type 4 safety light curtain, h=150 mm	20 mm	957201270
SE4-20-030-PP-W	type 4 safety light curtain, h=300 mm	20 mm	957201280
SE4-20-045-PP-W	type 4 safety light curtain, h=450 mm	20 mm	957201290
SE4-20-060-PP-W	type 4 safety light curtain, h=600 mm	20 mm	957201250
SE4-20-075-PP-W	type 4 safety light curtain, h=750 mm	20 mm	957201300
SE4-20-090-PP-W	type 4 safety light curtain, h=900 mm	20 mm	957201310
SE4-20-105-PP-W	type 4 safety light curtain, h=1050 mm	20 mm	957201320
SE4-20-120-PP-W	type 4 safety light curtain, h=1200 mm	20 mm	957201330
SE4-20-135-PP-W	type 4 safety light curtain, h=1350 mm	20 mm	957201340
SE4-20-150-PP-W	type 4 safety light curtain, h=1500 mm	20 mm	957201350
SE4-20-165-PP-W	type 4 safety light curtain, h=1650 mm	20 mm	957201360
SE4-30-015-PP-W	type 4 safety light curtain, h=150 mm	30 mm	957201380
SE4-30-030-PP-W	type 4 safety light curtain, h=300 mm	30 mm	957201390
SE4-30-045-PP-W	type 4 safety light curtain, h=450 mm	30 mm	957201400
SE4-30-060-PP-W	type 4 safety light curtain, h=600 mm	30 mm	957201240
SE4-30-075-PP-W	type 4 safety light curtain, h=750 mm	30 mm	957201410
SE4-30-090-PP-W	type 4 safety light curtain, h=900 mm	30 mm	957201420
SE4-30-105-PP-W	type 4 safety light curtain, h=1050 mm	30 mm	957201430
SE4-30-120-PP-W	type 4 safety light curtain, h=1200 mm	30 mm	957201440
SE4-30-135-PP-W	type 4 safety light curtain, h=1350 mm	30 mm	957201450
SE4-30-150-PP-W	type 4 safety light curtain, h=1500 mm	30 mm	957201460
SE4-30-165-PP-W	type 4 safety light curtain, h=1650 mm	30 mm	957201470
SE4-35-015-PP-W	type 4 safety light curtain, h=150 mm	35 mm	957201000
SE4-35-030-PP-W	type 4 safety light curtain, h=300 mm	35 mm	957201010
SE4-35-045-PP-W	type 4 safety light curtain, h=450 mm	35 mm	957201020
SE4-35-060-PP-W	type 4 safety light curtain, h=600 mm	35 mm	957201030
SE4-35-075-PP-W	type 4 safety light curtain, h=750 mm	35 mm	957201040
SE4-35-090-PP-W	type 4 safety light curtain, h=900 mm	35 mm	957201050
SE4-35-105-PP-W	type 4 safety light curtain, h=1050 mm	35 mm	957201060
SE4-35-120-PP-W	type 4 safety light curtain, h=1200 mm	35 mm	957201070
SE4-35-135-PP-W	type 4 safety light curtain, h=1350 mm	35 mm	957201080
SE4-35-150-PP-W	type 4 safety light curtain, h=1500 mm	35 mm	957201090
SE4-35-165-PP-W	type 4 safety light curtain, h=1650 mm	35 mm	957201100

ACCESSORY SELECTION AND ORDER INFORMATION

Please refer also to **Safety Device Accessories**

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

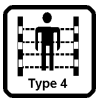
DATALOGIC

SAFETY

SE4-BODY SERIES

The **SAFEasy™** light curtains, according to the IEC 61496-1 e IEC 61496-2 standards, are suitable for detecting the human body when approaching dangerous areas.
Models with different standard heights (500, 800, 900, 1200 mm), with 2, 3, 4 beams and operating distance reaching 50 m are available.
Specific dip-switches, that can be reached through a slot present on the front of the receiver protected by a lid and opened with a simple screwdriver, guarantee rapid and safe device setting.
The operator is thus able to configure, according to the specific needs, the manual or automatic Restart, as well as the Muting and partial Muting functions.
The emitter-receiver units are optically synchronised and contain all the control circuits, inputs and outputs inside the housing.
A wide range of industrial applications, requiring operator safety, can be solved by the **SAFEasy™** light curtains, thanks to the extremely compact dimensions (35x40 mm) and easy connection and installation.





HIGHLIGHTS

- Integrated light curtains for BODY PROTECTION
- Versions with 2 / 3 / 4 beams
- Special slot for device setting
- 35 x 40 mm compact profile

APPLICATIONS

- Automatic machines
- Packaging machines, handling machines, storing machines
- Wood working machines, glass working machines, ceramics working machines, etc.
- Automatic and semi-automatic assembly lines
- Automatic warehouses
- Presses, punching machines, benders and cutters

Conveyors



Automatic warehouse



Automotive



TECHNICAL DATA

Power supply:	24 Vdc ± 20% (SELV/PELV)
Consumption:	70 mA max. / 2.1 W (emitter)
	100 mA max. / 3 W (receiver without load)
Light emission:	infrared LED 880 nm
Optic diameter:	Ø 16 mm
Number of controlled beams:	refer to table 1
Optic interaxis:	refer to table 2
Resolution:	refer to table 2
1st beam installation height:	refer to table 3
Through beam operating distance:	0.5 ... 25 m (Q vers.)
	4 ... 50 m (P vers.)
Receiver inputs:	external switches for Muting, Test, Restart and Override
Receiver indicators:	green / red SAFE / BREAK LED
	2 yellow ALIGNMENT LEDs
	green POWER ON LED
Emitter indicators:	yellow blinking FAILURE LED
	green POWER ON LED
Output type:	2 PNP
Output current:	0.7 A max.
	0.25 A max. (45°C - 55°C)
	short-circuit signalling and protection
Response time:	14 ms
Selectable functions:	Total / partial Muting
	Manual / Automatic Restart
	refer to table 4
Time-out period:	Muting: 10 minutes
	Override: 2 minutes
Muting signalling lamp:	24 V
	3 W min. (125 mA), 7 W max. (300 mA)
Receiver connection:	8-pole M12 connector
Emitter connection:	4-pole M12 connector
Cable length:	50 m max. (with 50 nF capacitive load)
Safety category:	type 4
Electrical protection:	class 1
Mechanical protection:	IP65
	IP67 (connector part)
Housing material:	aluminium with PC Makrolon plastic caps
Weight:	1.2 Kg max. / m of total height
Operating temperature:	-10 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

TABLES

MODEL	BEAMS
SE4 height 500	2
SE4 height 800	3
SE4 height 900	4
SE4 height 1200	4

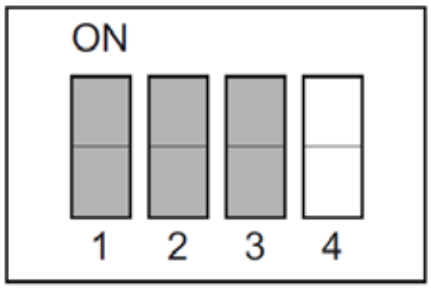
Table 1: NUMBER OF BEAMS

MODEL	mm
SE4 height 500	500 / 515
SE4 height 800	400 / 415
SE4 height 900	300 / 315
SE4 height 1200	400 / 415

Table 2: INTERAXIS / RESOLUTION

MODEL	mm
SE4 height 500	400
SE4 height 800	300
SE4 height 900	300
SE4 height 1200	300

Table 3: 1st BEAM INSTALLATION HEIGHT



GREY dip-switches: total / partial Muting selection
WHITE dip-switches: manual / auto. Restart selection

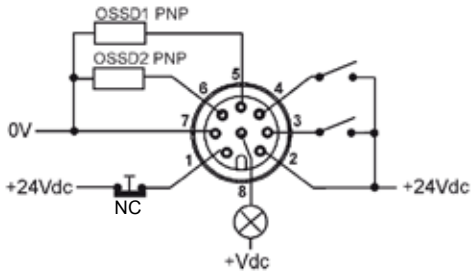
Table 4: DIP-SWITCH SELECTION

RELIABILITY DATA

PL (Ref. EN ISO 13849-1)	e
CAT (Ref. EN 954-1)	4
SIL (Ref. EN IEC 61508)	3
SIL CL (Ref. EN IEC 62061)	3
PFHD – Probability of Danger Failure (1/h)	2,76E-09
T1 – Life Time (Years)	20
MTTFD - Mean Time to Danger Failure (Years)	335
DC – Diagnostic Coverage (%)	99%
SFF – Safe Failure Fraction (%)	99,4%
HFT – Hardware Fault Tolerance	1

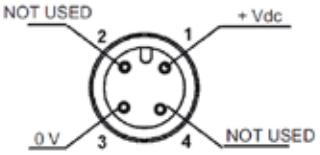
CONNECTIONS

RX: M12 8-POLE CONNECTOR



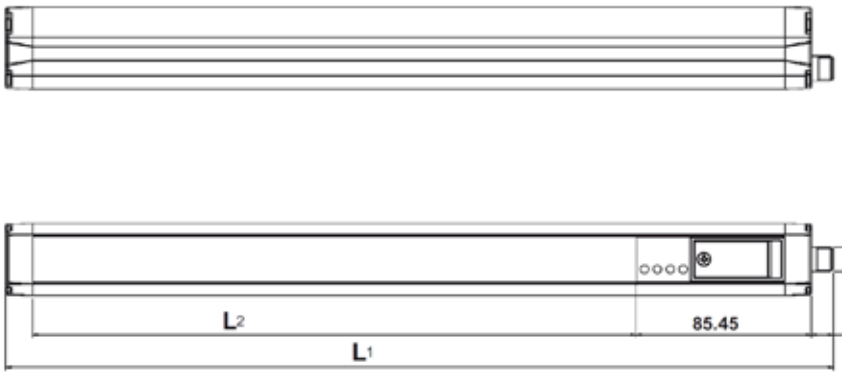
1 = TEST/RESTART
2 = + Vdc
3 = MUTING 1
4 = MUTING 2
5 = OUT 1
6 = OUT 2
7 = 0 V
8 = LAMP

TX: M12 4-POLE CONNECTOR

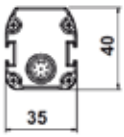


1 = brown = + Vdc
2 = white = NOT USED
3 = blue = 0 V
4 = black = NOT USED

DIMENSIONS



mm



VERSIONS	L_1	L_2
SE4-x2-050-PP-W	652	543
SE4-x3-080-PP-W	952	853
SE4-x4-090-PP-W	1052	943
SE4-x4-120-PP-W	1352	1243

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
SE4-P2-050-PP-W	type 4 safety light curtain with 2 beams and 4 ... 50 m op. distance	957201110
SE4-P3-080-PP-W	type 4 safety light curtain with 3 beams and 4 ... 50 m op. distance	957201120
SE4-P4-090-PP-W	type 4 safety light curtain with 4 beams and 4 ... 50 m op. distance	957201130
SE4-P4-120-PP-W	type 4 safety light curtain with 4 beams and 4 ... 50 m op. distance	957201140
SE4-Q2-050-PP-W	type 4 safety light curtain with 2 beams and 0.5 ... 25 m op. distance	957201200
SE4-Q3-080-PP-W	type 4 safety light curtain with 3 beams and 0.5 ... 25 m op. distance	957201210
SE4-Q4-090-PP-W	type 4 safety light curtain with 4 beams and 0.5 ... 25 m op. distance	957201220
SE4-Q4-120-PP-W	type 4 safety light curtain with 4 beams and 0.5 ... 25 m op. distance	957201230

ACCESSORY SELECTION AND ORDER INFORMATION

Please refer also to **Safety Device Accessories**

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SE4-PLUS FINGER SERIES

The SAFEasy™ light curtains, according to the IEC 61496-1 and IEC 61496-2, are particularly suitable for finger protection of operators exposed to risks.
Different models are available with heights ranging from 150 to 1200 mm, 14 mm resolution and operating distance reaching 6 m. Each model has one or more advanced functions: EDM, Blanking and Cascade. The light curtains are able to verify the integrity of external monitoring devices thanks to the EDM (External Device Monitoring) function. The Blanking function allows to deactivate a part of the detection area during functioning, allowing material passage or mechanical obstacle presence without causing machine interruption. Fixed Blanking and Floating Blanking can be selected.
The Cascade configuration allows to combine the functioning of a couple of light curtains positioned in different areas.
Specific dip-switches, that can be reached through a slot present on the front of the active unit protected by a lid and opened with a simple screwdriver, guarantee a rapid and safe configuration.
The compact dimensions (35 x 40 mm), easy installation and excellent performances make the SAFEasy™ light curtains suitable to industrial applications requiring operator safety.



Type 4

HIGHLIGHTS

- Integrated light curtains for FINGER PROTECTION (14 mm resolution)
- EDM and Blanking functions
- Cascade configuration
- 35 x 40 mm compact profile

APPLICATIONS

Wood working machines



Packaging lines



Automatic machines

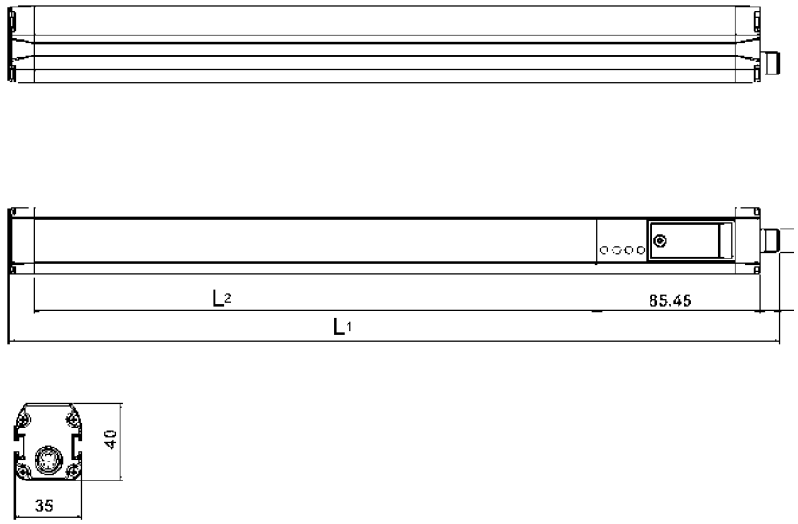


The features introduced by the safety light curtains of the SE4-PLUS FINGER series are given below:

- EDM function: allows to verify the status of the external monitoring devices (typically safety relays), avoiding external malfunctions jeopardising correct device functioning.
- Fixed Blanking: allows the operator to exclude the control of beams in a pre-set position.
- Floating Blanking: allows the operator to exclude the control of a pre-set number of beams in any position within the detection area.
- Cascade configuration: a couple of light curtains can function connected to each other in accordance to a Master-Slave protocol and combining the safety information relative to the two different sections of the controlled machine. The Master unit has a Blanking function and can be used without the Slave unit.

Models with the Muting function are not available in the SE4-PLUS FINGER series.

DIMENSIONS



mm

VERSIONS	L_1	L_2
SE4-xx-015-PP-y	256	147
SE4-xx-030-PP-y	403	294
SE4-xx-045-PP-y	550	441
SE4-xx-060-PP-y	697	588
SE4-xx-075-PP-y	844	735
SE4-xx-090-PP-y	991	882
SE4-xx-105-PP-y	1138	1029
SE4-xx-120-PP-y	1285	1176

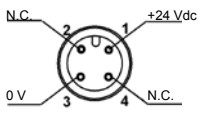
xx= 14 o 30
y: B= BLANKING, M= MASTER, N= MASTER BLANKING, S= SLAVE

CONNECTIONS

MODEL	EMITTER	RECEIVER
EMD+Blanking	M12 4-pole	M12 8-pole
EDM+Cascade (Master)*	M12 4-pole +M12 5-pole	M12 8-pole +M12 5-pole
EDM+Cascade (Slave)	M12 5-pole	M12 5-pole
EDM + Cascade + Blanking (Master)*	M12 4-pole +M12 5-pole	M12 8-pole +M12 5-pole

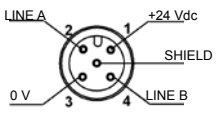
* an electric terminal is supplied for the Master Cascade models for the M12 5-pole connection in order to use the Master unit without connecting the Slave unit

M12 CONNECTOR 4-POLE



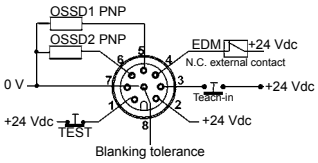
1 = brown = +24 Vdc
2 = white = N.C.
3 = blue = 0 V
4 = black = N.C.

M12 CONNECTOR 5-POLE



1 = brown = +24 Vdc
2 = white = LINE A
3 = blue = 0 V
4 = black = LINE B
5 = grey = SHIELD

M12 CONNECTOR 8-POLE



1 = white = TEST/START
2 = brown = +24 Vdc
3 = green = TEACH-IN
4 = yellow = EDM
5 = grey = OSSD1
6 = pink = OSSD2
7 = blue = 0 V
8 = red = BLANKING TOLERANCE

TECHNICAL DATA

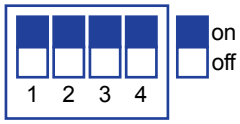
Power supply:	24 Vdc ± 20% (SELV / PELV)
Consumption:	55 mA max. / 1.5. W (emitter)
	125 mA max. / 3.75 W (receiver without load)
Light emission:	infrared LED 880 nm
Number of controlled beams:	refer to table 1
Optic interaxis:	7 mm
Resolution:	14 mm
Controlled height:	refer to table 2
Through beam operating distance:	0.2 ... 6 m
Receiver indicators:	green / red SAFE/ BREAK LED
	2 yellow ALIGNMENT LEDs
	green POWER ON LED
Emitter indicators:	yellow blinking FAILURE LED
	greeen POWER ON LED
Output type:	2 PNP
Output current:	0.5 A max., short-circuit protection
Response time:	refer to tables 3 and 4
Selectable functions:	refer dip-switches
Receiver connection:	refer to connections
Emitter connection:	refer to connections
Cable length:	50 m max. (with 50 nF capacitive load)
Safety category:	Type 4
Electrical protection:	class 1
Mechanical protection:	IP65
Housing material:	aluminium with PC Makrolon plastic caps
Weight:	1.2 Kg max. / m of total height
Operating temperature:	-10 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

SELECTION TABLE

MODEL	BEAMS
SE4 height 150	21
SE4 height 300	42
SE4 height 450	63
SE4 height 600	84
SE4 height 750	105
SE4 height 900	126
SE4 height 1050	147
SE4 height 1200	168
Table 1: NUMBER OF BEAMS	

MODEL	mm
SE4 height 150	161
SE4 height 300	308
SE4 height 450	455
SE4 height 600	602
SE4 height 750	749
SE4 height 900	896
SE4 height 1050	1043
SE4 height 1200	1190
Table 2: CONTROLLED HEIGHT	

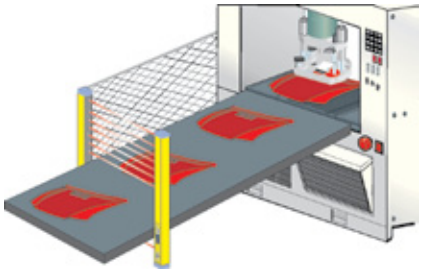
MODEL	ms
SE4 height 150	21
SE4 height 300	28
SE4 height 450	35
SE4 height 600	41
SE4 height 750	48
SE4 height 900	55
SE4 height 1050	62
SE4 height 1200	68
Table 3: RESPONSE TIME	



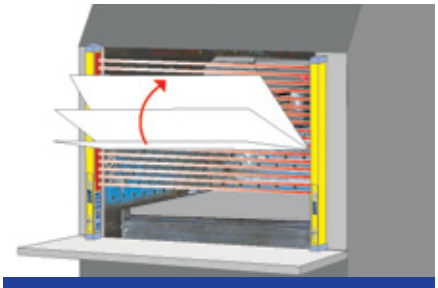
DIP-SWITCHES
1 - Floating function: refer to table
2 - Floating function: refer to table
3 - EDM inactive (ON) / EDM active (OFF)
4 - Automatic (ON) / manual (OFF) reset

DIP1	DIP2	FUNCTION
ON	ON	Floating function deactivated,
ON	OFF	Floating function active, 1 Blanking beam
OFF	ON	Floating function active, 2 adjiacent Blanking beams
OFF	OFF	Floating function active, 1, 2 or 3 adjacent Blanking beams

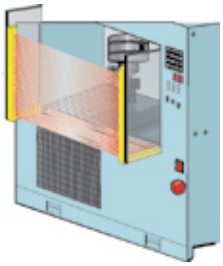
FUNCTIONING MODE



Example of
'Fixed Blanking'



Example of
'Floating Blanking'



Example of
'Cascade' configuration

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	FUNCTION	ORDER N°
SE4-14-015-PP-B	Type 4 safety light curtain	EDM, Blanking	957202000
SE4-14-030-PP-B	Type 4 safety light curtain	EDM, Blanking	957202010
SE4-14-045-PP-B	Type 4 safety light curtain	EDM, Blanking	957202020
SE4-14-060-PP-B	Type 4 safety light curtain	EDM, Blanking	957202030
SE4-14-075-PP-B	Type 4 safety light curtain	EDM, Blanking	957202040
SE4-14-090-PP-B	Type 4 safety light curtain	EDM, Blanking	957202050
SE4-14-105-PP-B	Type 4 safety light curtain	EDM, Blanking	957202060
SE4-14-120-PP-B	Type 4 safety light curtain	EDM, Blanking	957202070
SE4-14-015-PP-M	Type 4 safety light curtain	EDM, Master	957202200
SE4-14-030-PP-M	Type 4 safety light curtain	EDM, Master	957202210
SE4-14-045-PP-M	Type 4 safety light curtain	EDM, Master	957202220
SE4-14-060-PP-M	Type 4 safety light curtain	EDM, Master	957202230
SE4-14-075-PP-M	Type 4 safety light curtain	EDM, Master	957202240
SE4-14-090-PP-M	Type 4 safety light curtain	EDM, Master	957202250
SE4-14-105-PP-M	Type 4 safety light curtain	EDM, Master	957202260
SE4-14-120-PP-M	Type 4 safety light curtain	EDM, Master	957202270
SE4-14-015-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202400
SE4-14-030-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202410
SE4-14-045-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202420
SE4-14-060-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202430
SE4-14-075-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202440
SE4-14-090-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202450
SE4-14-105-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202460
SE4-14-120-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202470
SE4-14-015-PP-S	Type 4 safety light curtain	Slave	957202600
SE4-14-030-PP-S	Type 4 safety light curtain	Slave	957202610
SE4-14-045-PP-S	Type 4 safety light curtain	Slave	957202620
SE4-14-060-PP-S	Type 4 safety light curtain	Slave	957202630
SE4-14-075-PP-S	Type 4 safety light curtain	Slave	957202640
SE4-14-090-PP-S	Type 4 safety light curtain	Slave	957202650
SE4-14-105-PP-S	Type 4 safety light curtain	Slave	957202660
SE4-14-120-PP-S	Type 4 safety light curtain	Slave	957202670

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CV-A1-23-B-005-2F	M12 5-pole shielded axial 0.5 m connector (supplied with the Slave)	95ACC2440
CV-A1-23-B-01-2F	M12 5-pole shielded axial 1 m connector (to be ordered separately)	95ACC2450
SE-C	5 pole-connector cap (supplied with the Master)	95ACC2460
Please refer also to **Safey Device Accessories**		

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

SG2-M & SG4-E SERIES

The new **SG EXTENDED** safety light curtain series represents the ultimate innovation step of SG family.
SG EXTENDED are FULLY INTEGRATED safety light curtains that perfectly combine the SAFEasy concept with applicative flexibility, reliability and performance.
TOTALLY ZERO DEAD ZONE is the distinctive characteristic of all the models from 300 mm to 1800 mm of controlled and overall height
SG EXTENDED series guarantees full application coverage thanks to the following versions :

- **SG2-M 'Muting'** : Type 2 30 mm resolution with integrated Muting function for all packaging and material handling applications
- **SG4-E 'Programmable'** : Type 4 14 and 30 mm resolution with integrated and configurable Cascade, Muting and Blanking functions all in the same part number.

Integrated functions are selectable and configurable in 2 different ways :

- **Basic Configuration Mode (BCM)** : push buttons located on both TX and RX allow the user to configure the device in a very easy and quick way;
- **Advanced Configuration Mode (ACM)** : a GUI interface on PC communicate to the barrier through Ethernet and lead the customer through the configuration process step by step.

SG EXTENDED



HIGHLIGHTS

- Type 2 And Type 4
- 14 And 30Mm Resolution
- Zero Dead Zone
- Up To 20 M Operating Distance
- 300…1800 Mm Controlled Height
- Basic Configuration Mode (Bcm) Through Push-Buttons
- Advanced Configuration Mode (Acm) Through Gui
- CASCADE (No Differentiation Between Master And Slave Models)
- Integrated MUTING Function
- Integrated BLANKING Function
- Accessory Dongle For:
  - Configuration Cloning
  - Ethernet (Tcp/Ip connection)
  - Remote Monitoring
  - Remote Programming

APPLICATIONS

Extreme flexibility together with high performances make **SG EXTENDED** ideal solution for the following applications :

Automotive



Packaging



Metalworking



Woodworking



Electronics



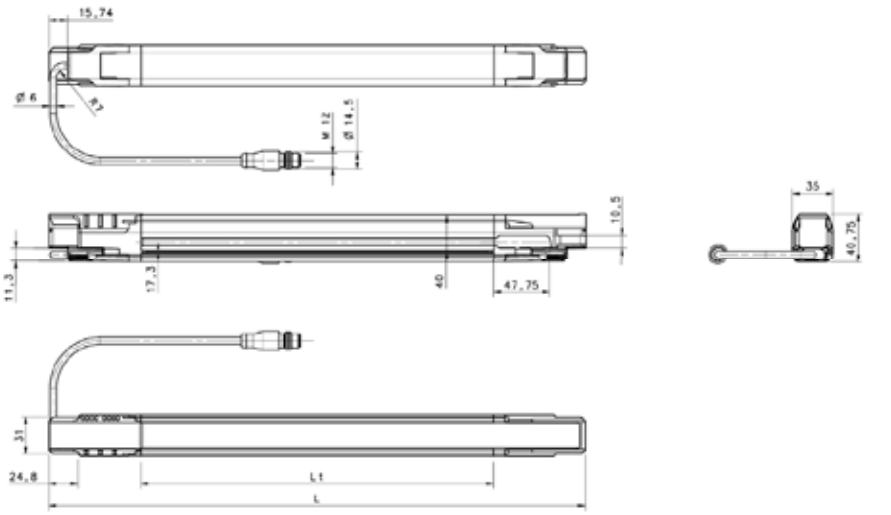
SAFETY

The extremely compact size of SG EXTENDED together with the TOTALLY ZERO DEAD ZONE are distinctive characteristic in automation shopfloor for a safety light curtains

- Compact housing
- Standard M12 connectors
- Ethernet communication
- 2 PNP/NPN configurable OSSD outputs
- 8 signalling LEDs
- Alignment level bar-graph on both TX and RX unit
- 3 push-buttons on TX and RX unit for programming



DIMENSIONS

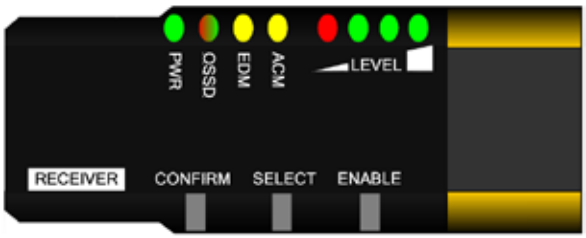


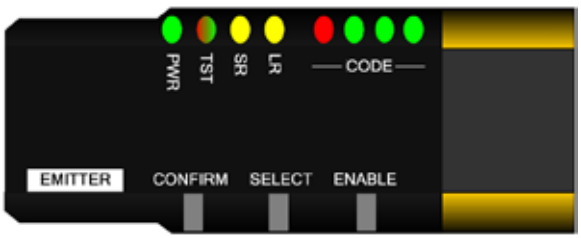
Model	Lt [mm]	L [mm]
SGy-xx-030-OO-#	150	306,3
SGy-xx-045-OO-#	300	456,3
SGy-xx-060-OO-#	450	606,3
SGy-xx-075-OO-#	600	756,3
SGy-xx-090-OO-#	750	906,3
SGy-xx-105-OO-#	900	1056,3
SGy-xx-120-OO-#	1050	1206,3
SGy-xx-135-OO-#	1200	1356,3
SGy-xx-150-OO-#	1350	1506,3
SGy-xx-165-OO-#	1500	1656,3
SGy-xx-180-OO-#	1650	1806,3

y = 2 for SG2-M and 4 for SG4-E
xx = 30 mm for SG2-M
14 and 30 mm SG4-E
= W for SG2-M and P for SG4-E

INDICATORS

In the left side of user control panel (on both units of light curtains) an 8 leds user interface helps customer to control and check the state of the light curtain, for alignment mode, normal operation and for troubleshooting activity. User interface allows the user to understand which is the configuration set with the push buttons.





CONNECTIONS

SG2-M RX / SG4-E Muting RX



M12 12 pin:

1. 24V (brown)
2. 0V (blue)
3. RESET/RESTART/ALIGN (white)
4. OVERRIDE1 (green)
5. OSSD2 (pink)
6. EDM (yellow)
7. MUTING DISABLE (black)
8. OSSD1 (grey)
9. OVERRIDE2 (red)
10. MUTING LAMP (violet)
11. OVERRIDE STATUS (grey-pink)
12. EARTH (red-blue)

M12 5 pin:

1. 24V (brown)
2. MUTING2 (white)
3. 0V (blue)
4. MUTING1 (black)
5. N.C. (grey)

SG4-E Blanking RX



M12 12 pin:

1. 24V (brown)
2. 0V (blue)
3. RESET/RESTART/ALIGN (white)
4. TEACH IN (green)
5. OSSD2 (pink)
6. EDM (yellow)
7. N.C. (black)
8. OSSD1 (grey)
9. TOLERANCE (red)
10. LAMP (violet)
11. N.C. (grey-pink)
12. EARTH (red-blue)

SG2-M TX / SG4-E TX

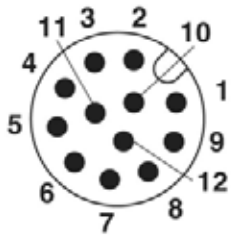


M12 5 pin:

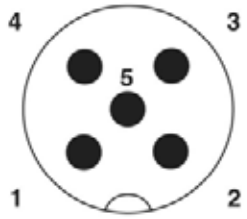
1. 24V (brown)
2. TEST (white)
3. 0V (blue)
4. EARTH (black)
5. REDUCTION RANGE (grey)

M12 Connectors pin-out

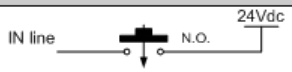
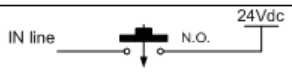
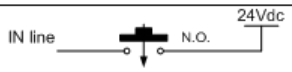
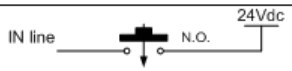
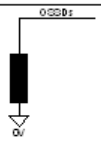
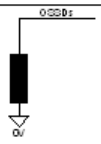
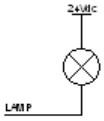
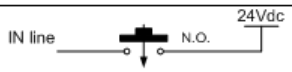
12 pin

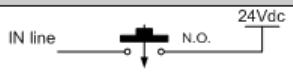
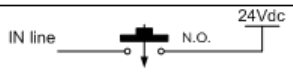
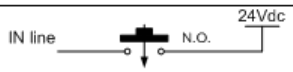
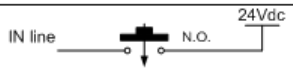
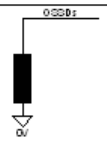
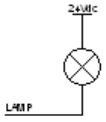
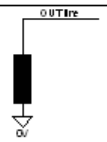


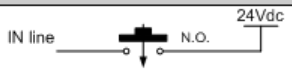
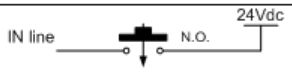
5 pin



CONNECTIONS

SG2-M RX / SG4-E MUTING RX	
LINE	LAYOUT CONNECTION
RESET	
RESTART	
OVERRIDE 1	
OVERRIDE 2	
EDM	REFER TO USER MANUAL SECTION 7.4
MUTING DISABLE	
OSSD1 / OSSD 2	
OVERRIDE STATUS	
MUTING LAMP	
MUTING1/MUTING2	

SG4-E BLANKING RX	
LINE	LAYOUT CONNECTION
RESET	
RESTART	
TEACH IN	
TOLERANCE	
EDM	REFER TO USER MANUAL SECTION 7.4
OSSD1 / OSSD 2	
BLANKING LAMP	
AUX OUTPUT	

SG2-M TX / SG4-E TX	
LINE	LAYOUT CONNECTION
TEST	
REDUCTION RANGE	

TECHNICAL DATA

	SG2-M	SG4-E
Electrical Data		
Power supply (Vdd):	24 Vdc ± 20%	24 Vdc ± 20%
Emitter consumption (TX):	3 W max	3 W max
Receiver consumption (RX):	5 W max (without load)	5 W max (without load)
Outputs:	2 PNP outputs short-circuit protection (1.4 A @55°C)	2 PNP / NPN configurable outputs short-circuit protection (1.4 A @55°C)
Output current:	0.5 A max / each output	0.5 A max / each output
Output voltage - ON min:	Vdd -1 V min	Vdd -1 V min
Output voltage - OFF max:	0.2 V	0.2 V
Output capacitive load:	2.2 uF @24Vdc max	2.2 uF @24Vdc max
Response time:	See section “MODEL TABLE SELECTION”	See section “MODEL TABLE SELECTION”
Recovery time:	100 ms typical	100 ms typical
Protected height:	from 300 mm to1800 mm See section “MODEL TABLE SELECTION”	from 300 mm to1800 mm See section “MODEL TABLE SELECTION”
Safety category:	Type 2 (ref. EN 61496-1)	Type 4 (ref. EN 61496-1)
Auxiliary functions:	Reset, Restart selection, EDM, Test, Muting, Partial Muting, Range reduction	Reset, Restart selection, Alignment, EDM, Test, Muting, Partial Muting, Override, Coding, Range reduction, Fixed Blanking, Floating Blanking, Cascade, PNP / NPN output, GUI programming
Electrical protection:	Class I / Class III	Class I / Class III
Connections:	TX : M12 5 poles RX : M12 12 poles + M12 5 poles	TX : M12 5 poles RX : • M12 12 poles + M12 5 poles for Muting applications • M12 12 poles for Blanking applications
Cable length (for power supply):	50m. max.	50m. max.
Pollution degree	2	2
Optical Data		
Emitting light:	Infrared LED (950 nm wavelength)	Infrared LED (950 nm wavelength)
Resolution:	30 mm	14 mm 30 mm
N° of beams:	See section “MODEL TABLE SELECTION”	See section “MODEL TABLE SELECTION”
Operating distance:	0.2...20 m / 0.2...12 m	0.2...7 m / 0.2...4 m for 14 mm resolution 0.2...20 m / 0.2...12 m for 30 mm resolution
Ambient light rejection:	IEC 61496-2	IEC 61496-2
Mechanical and environmental data		
Operating temperature:	0…50°C	0…50°C
Storage temperature:	-25…+ 70 °C	-25…+ 70 °C
Temperature class:	T6	T6
Humidity:	15…95 % (no condensation)	15…95 % (no condensation)
Water protection grade:	IP 65 (EN 60529)	IP 65 (EN 60529)
Vibration:	0.35 mm width, 10…55 Hz frequency, 20 sweep for each axis, 1 octave/min (EN 60068-2-6)	0.35 mm width, 10…55 Hz frequency, 20 sweep for each axis, 1 octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10g) 1.000 shock for each axis (EN 60068-2-29)	16 ms (10g) 1.000 shock for each axis (EN 60068-2-29)
Housing material:	Painted aluminium (yellow RAL 1003)	Painted aluminium (yellow RAL 1003)
Caps material:	PBT Valox 508 (pantone 072-CVC)	PBT Valox 508 (pantone 072-CVC)
Front glass material:	PMMA	PMMA
Connectors:	M12	M12

RELIABILITY PARAMETERS

	SG2-M	SG4-E
PL (Ref. EN ISO 13849-1)	d	e
CAT (Ref. EN 954-1)	2	4
SIL (Ref. EN IEC 61508)	2	3
SIL CL (Ref. EN IEC 62061)	2	3
PFHD – Probability of Danger Failure (1/h)	1,04E-08	2,64E-09
T1 – Life Time (Years)	20	20
MTTFD - Mean Time to Danger Failure (Years)	273	444
DC – Diagnostic Coverage (%)	97,50%	98,80%
SFF – Safe Failure Fraction (%)	98,40%	99,30%
HFT – Hardware Fault Tolerance	0	1

MODEL SELECTION TABLE

SG2-M

Description	Protected height [mm]	Beams N.	Response time [msec]	Resolution [mm]	Code
SG2-30-030-OO-W	300	16	13	30	957801700
SG2-30-045-OO-W	450	24	14	30	957801710
SG2-30-060-OO-W	600	32	15	30	957801720
SG2-30-075-OO-W	750	40	16	30	957801730
SG2-30-090-OO-W	900	48	17	30	957801740
SG2-30-105-OO-W	1050	56	18	30	957801750
SG2-30-120-OO-W	1200	64	19	30	957801760
SG2-30-135-OO-W	1350	72	19	30	957801770
SG2-30-150-OO-W	1500	80	20	30	957801780
SG2-30-165-OO-W	1650	88	21	30	957801790
SG2-30-180-OO-W	1800	96	22	30	957801800

SG4-E 14

Description	Protected height [mm]	Beams N.	Response time [msec]	Response time with code (msec)	Resolution [mm]	Code
SG4-14-030-OO-P	300	32	15	20	14	957901240
SG4-14-045-OO-P	450	48	17	25	14	957901250
SG4-14-060-OO-P	600	64	19	29	14	957901260
SG4-14-075-OO-P	750	80	20	34	14	957901270
SG4-14-090-OO-P	900	96	22	38	14	957901280
SG4-14-105-OO-P	1050	112	24	43	14	957901290
SG4-14-120-OO-P	1200	128	26	47	14	957901300
SG4-14-135-OO-P	1350	144	27	52	14	957901310
SG4-14-150-OO-P	1500	160	29	56	14	957901320
SG4-14-165-OO-P	1650	176	31	61	14	957901330
SG4-14-180-OO-P	1800	192	33	65	14	957901340

SG4-E 30

Description	Protected height [mm]	Beams N.	Response time [msec]	Response time with code (msec)	Resolution [mm]	Code
SG4-30-030-OO-P	300	16	13	16	30	957901350
SG4-30-045-OO-P	450	24	14	18	30	957901360
SG4-30-060-OO-P	600	32	15	20	30	957901370
SG4-30-075-OO-P	750	40	16	23	30	957901380
SG4-30-090-OO-P	900	48	17	25	30	957901390
SG4-30-105-OO-P	1050	56	18	27	30	957901400
SG4-30-120-OO-P	1200	64	19	29	30	957901410
SG4-30-135-OO-P	1350	72	19	32	30	957901420
SG4-30-150-OO-P	1500	80	20	34	30	957901430
SG4-30-165-OO-P	1650	88	21	36	30	957901440
SG4-30-180-OO-P	1800	96	22	38	30	957901450

SG4-E CASCADE RESPONSE TIME

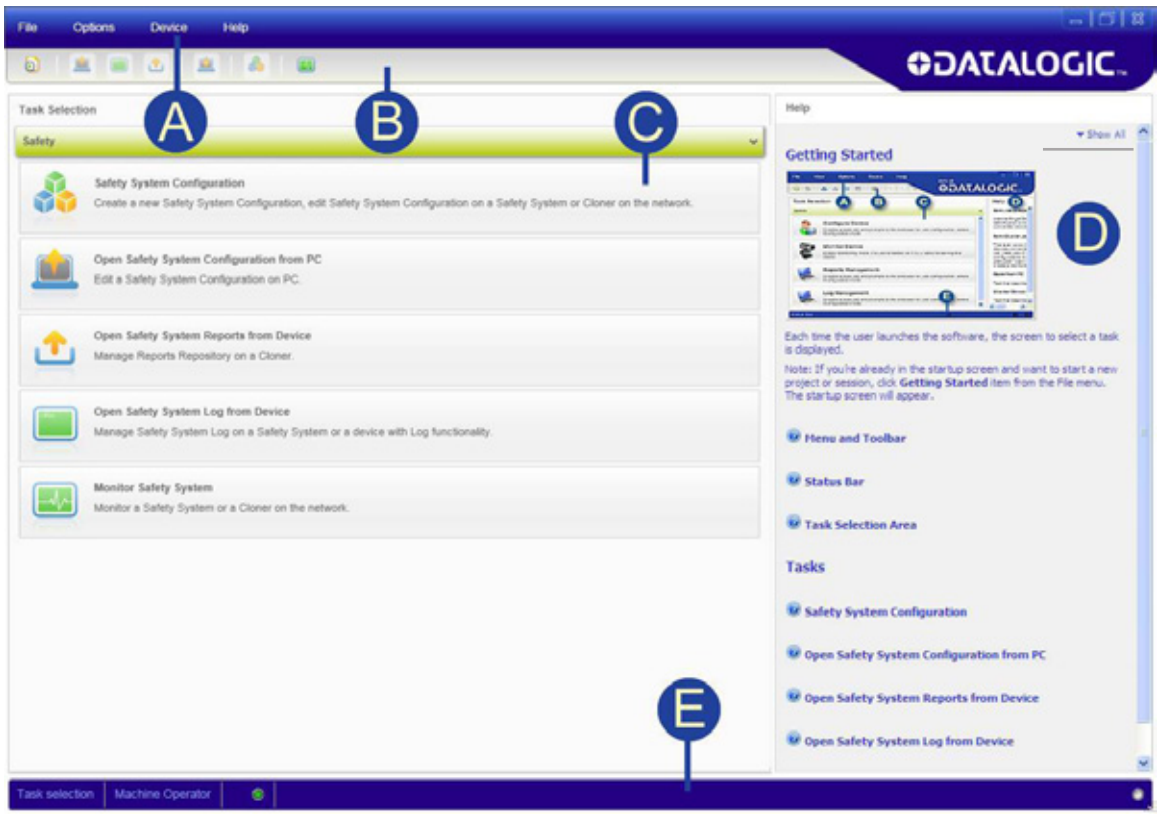
With the following formulas (and referring to the response time reported in the following tables) the user can calculate the response time of every cascade configuration:

- no code: $T_{CASCADE}$ [msec] = T_{MASTER} + $T_{SLAVE\ 1}$ [+ $T_{SLAVE\ 2}$] + 7,5
- with code: $T_{CASCADE}$ [msec] = $T_{MASTER\ AIC}$ + $T_{SLAVE\ 1\ AIC}$ [+ $T_{SLAVE\ 2\ AIC}$] + 7,5

Description	Master responsetime without code (msec) T_{MASTER}	Slave response time without code (msec) T_{SLAVE}	Master response time with code (msec) $T_{MASTER\ AIC}$	Slave response time with code (msec) $T_{SLAVE\ AIC}$
SG4-14-030-OO-P	13,7	13,7	19,1	19,1
SG4-14-045-OO-P	15,4	15,4	23,6	23,6
SG4-14-060-OO-P	17,2	17,2	28,1	28,1
SG4-14-075-OO-P	18,9	18,9	32,6	32,6
SG4-14-090-OO-P	20,7	20,7	37,1	37,1
SG4-14-105-OO-P	22,4	22,4	41,6	41,6
SG4-14-120-OO-P	24,2	24,2	46,0	46,0
SG4-14-135-OO-P	26,0	-	50,5	-
SG4-14-150-OO-P	27,7	-	55,0	-
SG4-14-165-OO-P	29,5	-	59,5	-
SG4-14-180-OO-P	31,2	-	64,0	-

Description	Master response time without code (msec) T_{MASTER}	Slave response time without code (msec) T_{SLAVE}	Master response time with code (msec) $T_{MASTER\ AIC}$	Slave response time with code (msec) $T_{SLAVE\ AIC}$
SG4-30-030-OO-P	11,9	11,9	14,6	15,0
SG4-30-045-OO-P	12,8	12,8	16,8	17,0
SG4-30-060-OO-P	13,7	13,7	19,1	19,0
SG4-30-075-OO-P	14,5	14,5	21,3	21,0
SG4-30-090-OO-P	15,4	15,4	23,6	24,0
SG4-30-105-OO-P	16,3	16,3	25,8	26,0
SG4-30-120-OO-P	17,2	17,2	28,1	28,0
SG4-30-135-OO-P	18,0	-	30,3	-
SG4-30-150-OO-P	18,9	-	32,6	-
SG4-30-165-OO-P	19,8	-	34,8	-
SG4-30-180-OO-P	20,7	-	37,1	-

SOFTWARE PC



A Home
B Toolbar
C Task selection area
D Help online
E Status Bar

Step 1: Configuration



Configuration step allows the user to edit the functions parameters of the safety light curtain.
This step will be selected, by default, when you first access the Configuration window.

Note

The Step 1 Configuration button will be active only if the current logged user is a Systems Integrator. A Maintainer or a Machine User cannot modify the safety configuration parameters.

Step 2: Programming



Programming step is aimed to view and accept the new configuration report before saving it to the safety light curtain.
This Step is enabled only when connected to a SG Dongle or a SG4-E Safety System.

Step 3: Monitoring

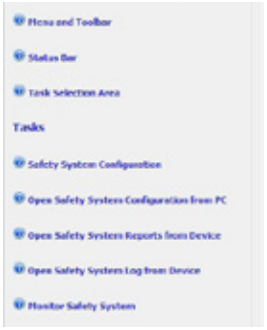


Monitoring step is to check the final behavior of the safety system after configuration. The Step 3 Monitoring enables you monitor a safety system to test a new configuration.

MAXIMUM SIMPLICITY



Scan for Devices
This function finds all the devices connected to the network.



Help

A Help is available for each step, supplying useful suggestions on the options available.

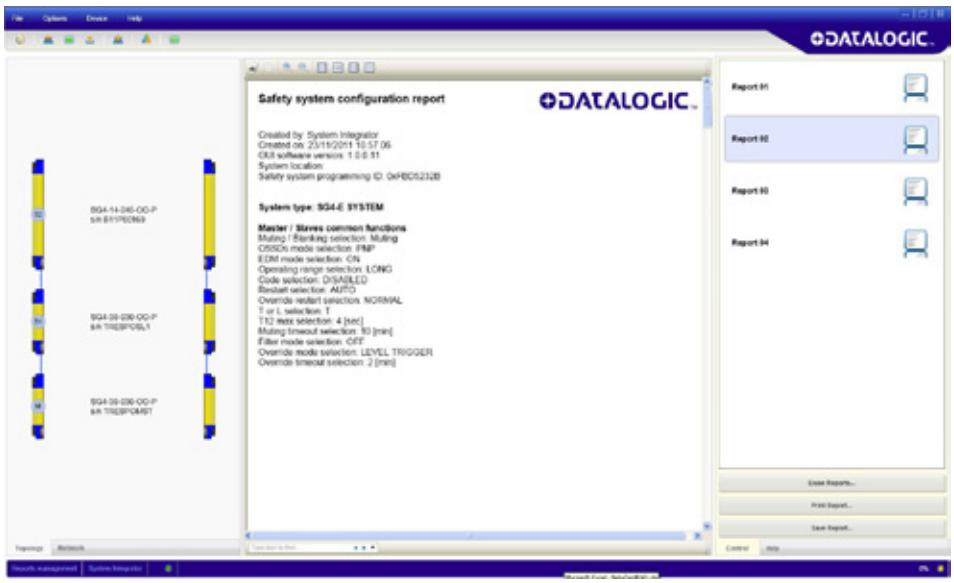


Topology

The Topology area, selected by default, displays the graphical representation of the configuration of the Safety Light Curtain in the current configuration operation. The System can be a real or virtual Safety System composed in the Selection screen.

REPORT MANAGEMENT

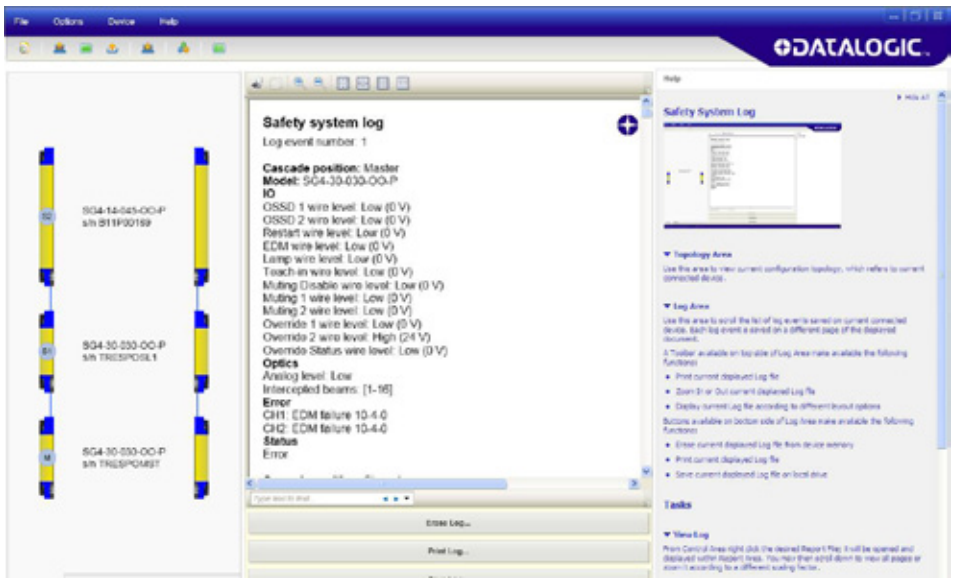
Use this option to connect to a Cloner device and view, print, save, or erase the Safety System configuration reports stored on the Cloner itself.
A report is a list of parameters that represent a configuration that is generally saved on a safety system.



LOG MANAGEMENT

Use this option to connect to a logger device and view, print, save or erase the Safety System log stored on the logger.

Note: A logger is a Safety Device or a Cloner, e.g. SG Dongle, which can store the Safety System log. It is a collection of Safety System states. The log stores the state each device when particular events occur during the Safety System operation.



EXCELLENT FLEXIBILITY

Monitoring



Connect to the remote Safety Systems or Cloner through the Ethernet connection and monitor their present or working status.
A Network Area: Displays the list of Safety devices present on the Local Area Network. It is a read only area.
B Topology Area: Displays the structure of the current connected SG4E light curtains cascade if SG Dongle is connected to a cascade, or the SG Dongle when only SG Dongle is connected.
C Protected Area: Displays the current status of the protected area by listing light curtain beams. You may check current status by verifying all beams are displayed.
D Control Area: Displays the level of the OSSDs and current status of the inputs and the outputs on the M12 connectors of the SG Dongle; it also gives information about the operation status of master, slaves and SG Dongle.
The bottom part displays the status of each component of the cascade connection. That is the status of the master and one or more slaves.

SG4 DONGLE ETHERNET ADAPTOR

The SG4 DONGLE makes the system flexible and addressable allowing remote monitoring and remote programming: product assistance becomes much easier.

- CONFIGURATION CLONING
- ETHERNET (TCP/IP) CONNECTION
- REMOTE MONITORING
- REMOTE PROGRAMMING



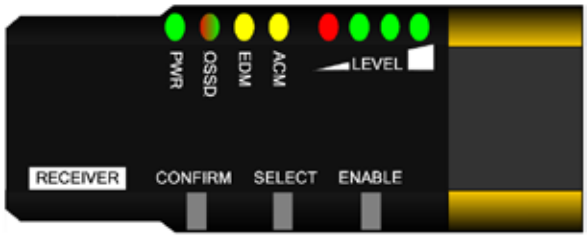
FUNCTIONS

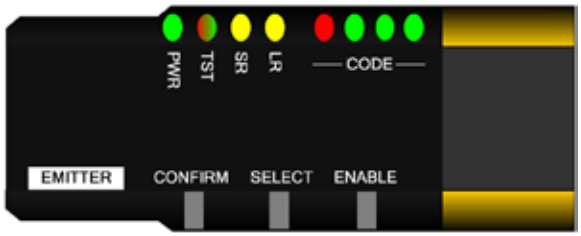
Operation functions and parameters configuration can be performed in two different ways:

Basic Configuration Mode (BCM):
Let the user select among basic functions / basic parameters with the help of push buttons and led user interface (**available on both SG2-M and SG4-E**)
Advanced Configuration Mode (ACM):
Let the user select among advanced functions / advanced parameters with the help of a PC Software GUI interface (**available only for SG4-E**)

BCM

A user interface of 8 leds and 3 protected push buttons lets the user operate basic configuration.
The user must use the provided special tool (see below) to activate push buttons thus accidental access to safety configuration is avoided.



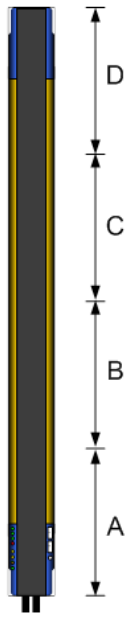


Basic configuration steps:
In the right side of user control panel (on both units of the light curtain) a setting interface composed by 3 push buttons is present; the purpose of the interface is to let the user set light curtain locally and without use of PC graphic user interface.
Setting interface is composed by a CONFIRM push button used to enter in BCM and to confirm the selected configuration, a SELECT push button used to roll by different functions and an ENABLE push button to activate/deactivate the current function.
Please refer to the quick installation guide for necessary BCM configuration steps.

When an Advanced Configuration is already set on ESPE (configuration by SG4-GUI PC User Interface) ACM LED on RX unit's ON. Then a button pressure on Step 2 causes ESPE configuration failure lockout to prevent unauthorized advanced configuration changes.

SG2-M RX

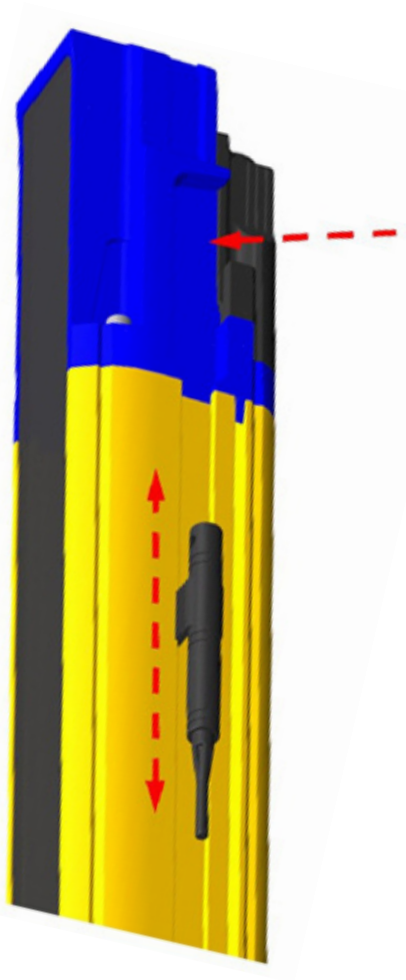
RX Function list

Function	Led #	Setting (default in bold)	LED Status 1 2 3 4 5 6 7 8	Zone
Partial Muting	2 - 3	Zone A	○ ○ ○ ○	
		Zone A+B	○ ● ○ ○	
		Zone A+B+C	○ ● ○ ○	
		Zone **A+B+C+D**	○ ○ ● ○	
		Zone B	○ ● ● ○	
		Zone C	○ ● ● ○	
EDM	4	**Enabled**	○ ○ ○ ●	
		Disabled	○ ○ ○ ○	
Restart Mode	5	**Auto**	○ ○ ○ ○ ● ○ ○ ○	
		Manual	○ ○ ○ ○ ○ ○ ○ ○	
Muting direction	6	**T (bidirectional)**	○ ○ ○ ○ ○ ● ○ ○	
		L (monodirectional)	○ ○ ○ ○ ○ ○ ○ ○	
Muting Time-out	7	**10 min**	○ ○ ○ ○ ○ ○ ● ○	
		Inf.	○ ○ ○ ○ ○ ○ ○ ○	
Override sensor	8	**Level**	○ ○ ○ ○ ○ ○ ○ ●	
		Edge	○ ○ ○ ○ ○ ○ ○ ○	

SG4-E RX

RX Function list in Muting (default) operation Mode (Led3 ON Yellow)			
Function	**Led #**	**Setting (default in bold)**	**Led Status** 1 2 3 4 5 6 7 8
Coding	2	Code 1	
		Code 2	
		No Code	
Muting/Blanking Selection	3	**Muting**	
		Blanking	
EDM	4	**Enabled**	
		Disabled	
Restart mode	5	**Auto**	
		Manual	
Muting Direction	6	**T (bidirectional)**	
		L (monodirectional)	
Muting Timeout	7	**10 min**	
		Inf.	
Override Trigger	8	**Level**	
		Edge	

Function list in Blanking operation Mode (Led3 OFF)			
Function	**Led #**	**Setting (default in bold)**	**Led Status** 1 2 3 4 5 6 7 8
Coding	2	Code 1	
		Code 2	
		No Code	
Muting/Blanking Selection	3	Muting	
		Blanking	
EDM	4	**Enabled**	
		Disabled	
Restart mode	5	**Auto**	
		Manual	
Floating Blanking Selection	6-7	**Floating Blanking Disabled**	
		Floating Blanking 1 beam	
		Floating Blanking 2 beams	
		Reduced Res 4 beams	
Fixed blanking selection	8	**1 Fixed Blanking Zone**	
		2 Fixed Blanking Zones	



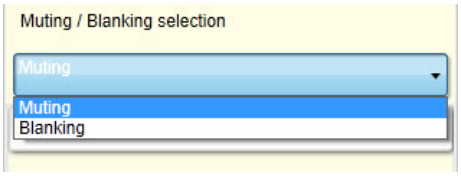
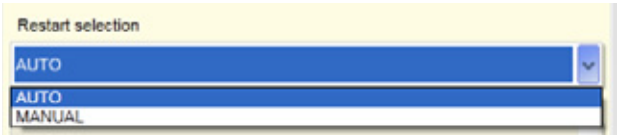
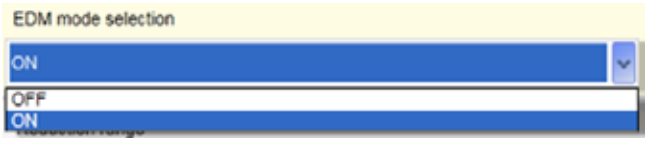
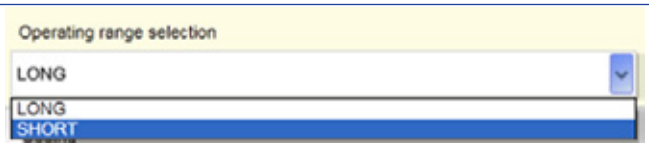
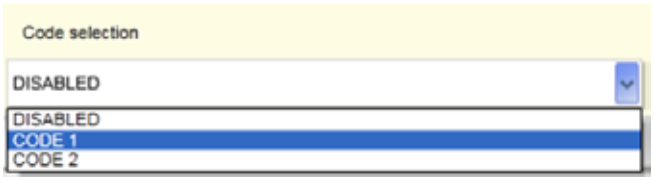
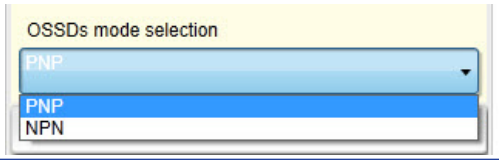
SG4-E TX

Tx Function list			
Function	**Led #**	**Setting (default in bold)**	**Led Status** 1 2 3 4 5 6 7 8
Coding	2	Code 1	
		Code 2	
		No Code	
Range Selection	3	**Long**	
		Short	



FUNCTIONS
SG4-E RX ACM

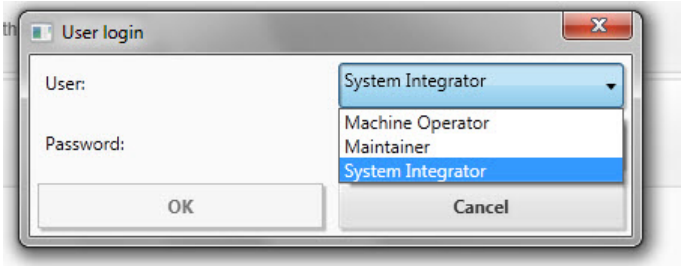
COMMON FUNCTIONS

Control	Functioning	ACM Configuration
Muting / Blanking mode	This function allows the user to define the light curtain mode.	
Restart	The restart mode allows the user to define how the light curtain returns in a Normal Operation condition.	
EDM	The External Device Monitoring (EDM) function controls external relays or contactors by verifying the OSSDs status.	
Reduction range	This function allows the user to select the maximum operating distance at which the curtains can be mounted.	
Anti-Interference Coding	The coding function allows the ESPE to remain in normal operation also when an interference condition with an other ESPE occurs, and in particular when the TX of the first light curtain radiates in the direction of the RX of the second light curtain.	
PNP / NPN OSSD output	The PNP/NPN function allows the user to inform the light curtain on how the OSSDs are connected.	

RIGHTS MANAGEMENT

There are 3 different kinds of operator that can use the GUI with 3 different levels of authorizations.

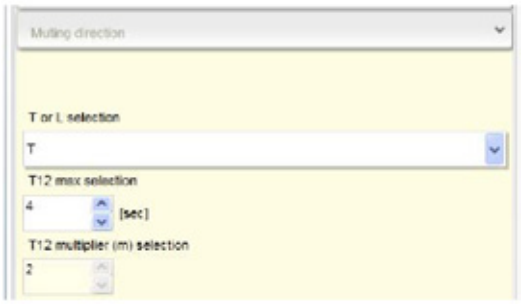
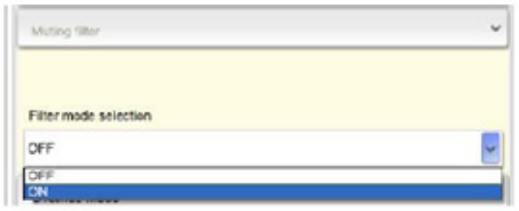
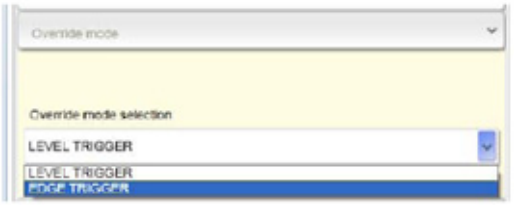
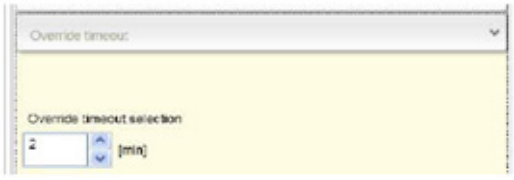
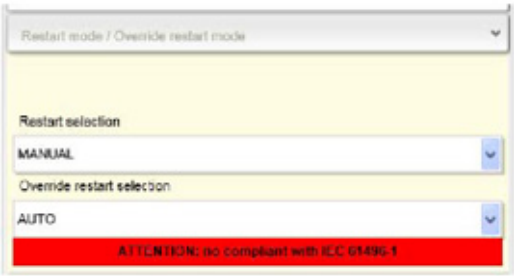
- **System Integrator:** has all the possible authorizations and can set every configuration on the GUI
- **Maintainer:** can upload the configurations (saved on the GUI) on the light curtain and use the GUI for monitoring the system, but he can't create new configurations
- **Machine Operator:** uses the GUI only for monitoring the system



PASSWORDS: each product has FACTORY passwords for each user that are reported on Instruction Manual. After the first access, each user's PASSWORD can be changed and personalized.

FUNCTIONS - MUTING

In this section are listed all the functionalities related with MUTING that can be selected through SG4-E GUI. For detailed explanation of each function and corresponding Time Diagrams please refer to Instruction manual and GUI software HELP.

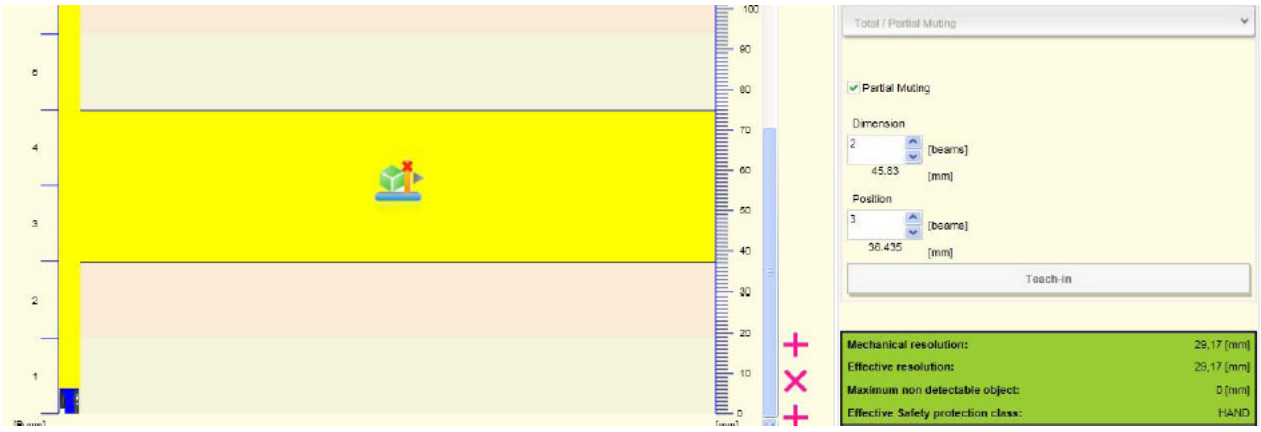
Control	Functioning	ACM Configuration
Muting direction	The DEVICE can be used with both bidirectional 'T' or unidirectional 'L' type muting.	
Muting Activation Time T12	Time T12 needed from Muting 1 and Muting 2 signals activation for starting the Muting. ***Values: from 1 to 16 secs***	
L Muting Deactivation Time TMoff	When Muitng 1 signal becomes OFF the device starts a countdown before stopping the muting. This countdown lasts a time related to the Muting Activation Time T12 by a multiplier. ***Values: from 1 to 16***	
Muting duration (Muting TimeOut)	Muting timeout is a time that defines the maximum duration of muting function; after the timeout the muting ends. ***Values: from 10 to 1080 min infinitive (∞)***	
Muting Filter	The muting filter is a filter on muting inputs; low-high or high-low transitions of MUTING signals are considered valid only if maintained for a time (Tf) greater than 100 msec. ***Values: ON (100 msec) or OFF***	
Override Mode	It's possible to configure the trigger of override inputs: Level or Edge. ***Values: LEVEL or EDGE***	
Override Timeout	Override timeout is the maximum duration of override. ***Values: from 1 to 256 min***	
Override Restart	This kind of selection can be achieved only if the light curtain is in Manual Restart; the user can select the type of Override Restart. ***Values: Normal or Auto***	

FUNCTIONS - PARTIAL MUTING

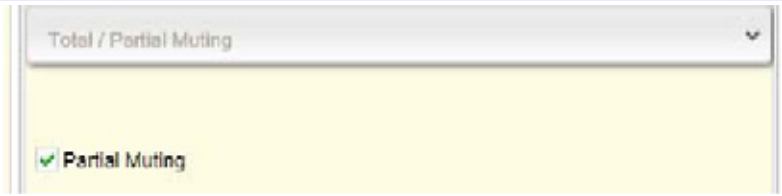
It's possible to configure the type of muting: total or partial. Partial muting can be useful in those applications in which the user wants to limit the muting function effects to selected zones only.

In ACM Configuration the user can select a maximum of **5 muting zones**, each defined with the following parameters:

- ***Position:*** first beam of muting zone (starting from user display cap)
- ***Dimension:*** number of beams of muting zone



Check "Partial Muting" to enable function



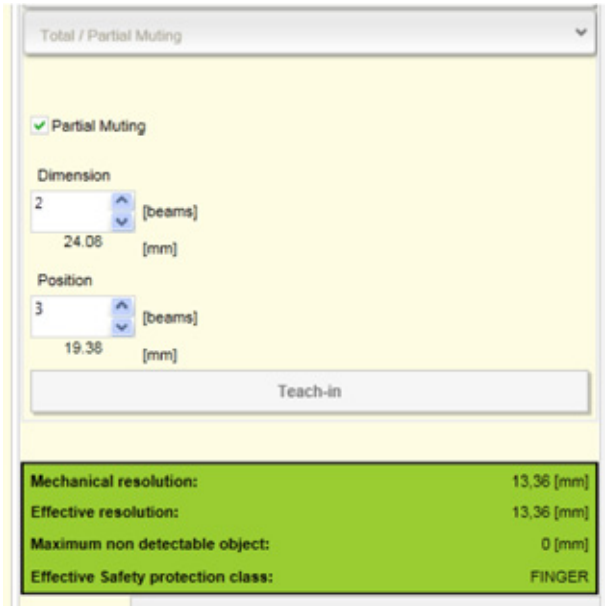
Click "+" button to add a new muting zone,
X to remove a selected one



Click "Teach-In" button to acquire an object positioned inside the controlled area as a new muting zone



Choose correct parameters for selected zone. Both Dimension and Position are set in beams unit, equivalent measures in mm are exposed by GUI.

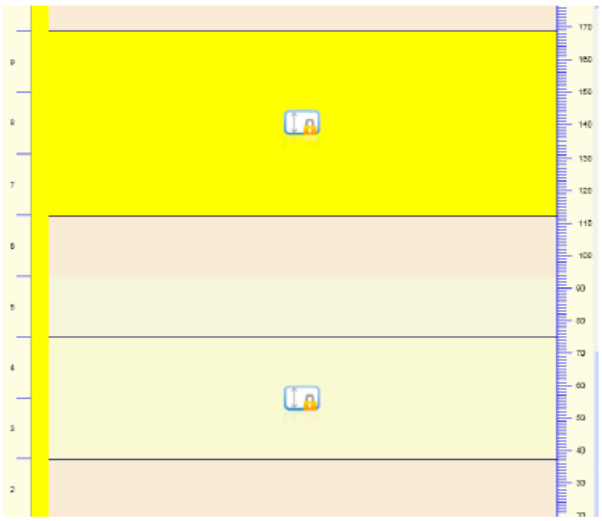


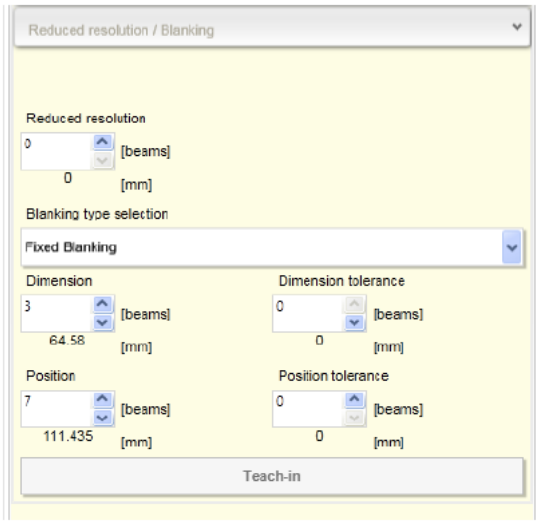
FUNCTIONS - BLANKING

In this section are listed all the functionalities related with BLANKING that can be selected through SG4-E GUI. For detailed explanation of each function and corresponding Time Diagrams please refer to Instruction manual and GUI software HELP. Operator can add up to **5 zones** of different **BLANKING TYPES**.

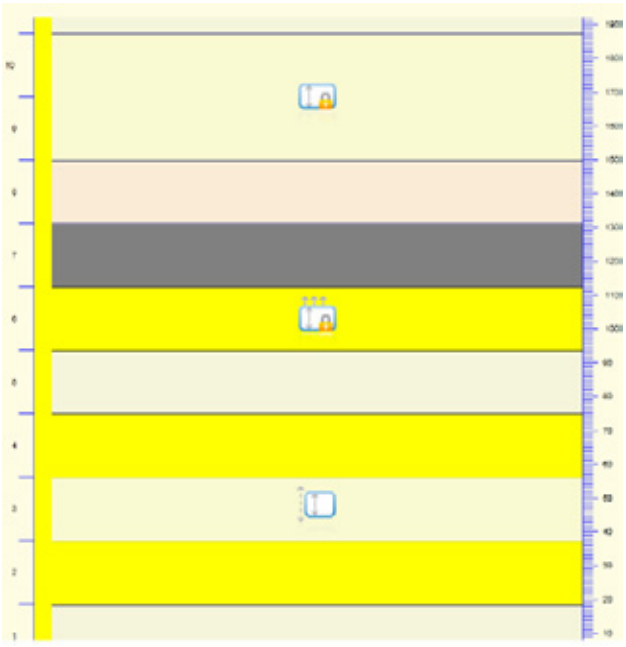
Click “+” button to add a new muting zone, X to remove a selected one		Click “Teach-In” button to acquire an object positioned inside the controlled area as a new muting zone	

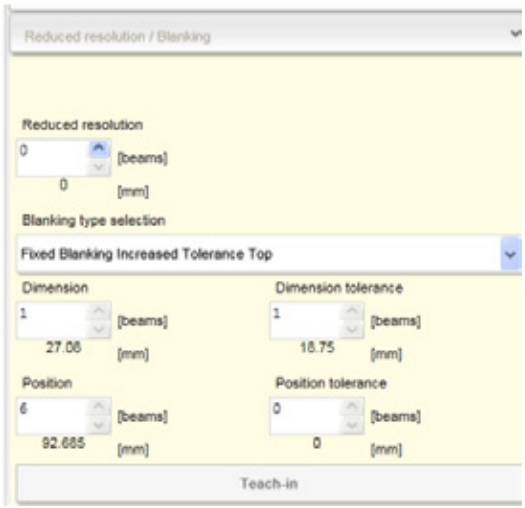
Fixed Blanking
Fixed Blanking allows a fixed portion of the controlled area (i.e. a fixed set of beams) to be occupied, while all the other beams operate normally.



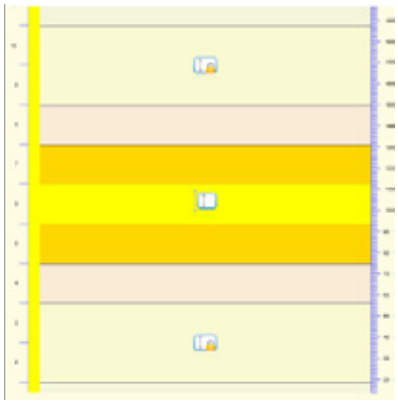


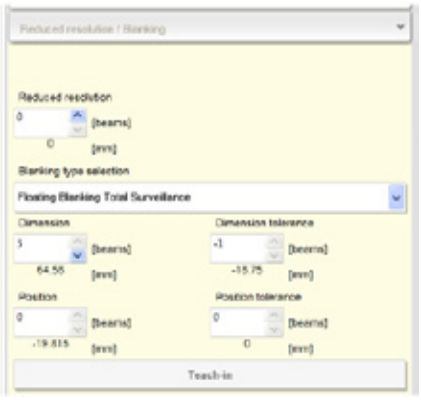
Fixed Blanking with increased tolerance
This is a fixed blanking with the tolerance only on one side of the blanking zone, so the user has to choose a “tolerance top” or a “tolerance bottom”.



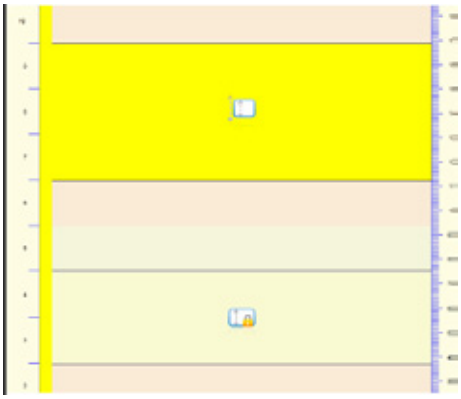


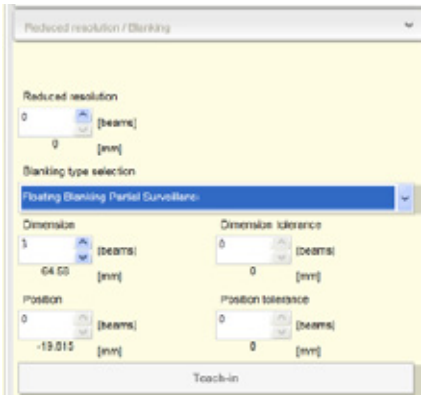
FLOATING BLANKING WITH TOTAL SURVEILLANCE
Floating objects can move up or down intercepting different beams while moving; the objects can't overlap nor change relative positions.





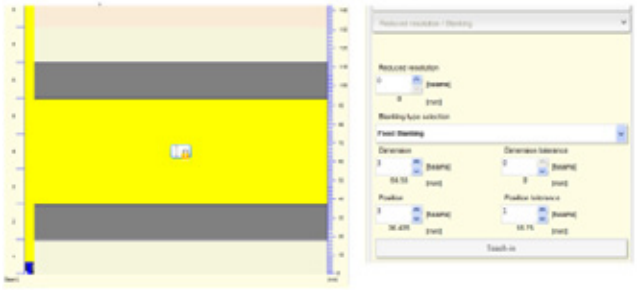
FLOATING BLANKING WITH PARTIAL SURVEILLANCE
Floating objects can move up or down intercepting different beams while moving; they can even get out of the protected area or intercept a number of beams minor than the configured one.





Tolerance
There are 2 types of tolerance: position and dimension.

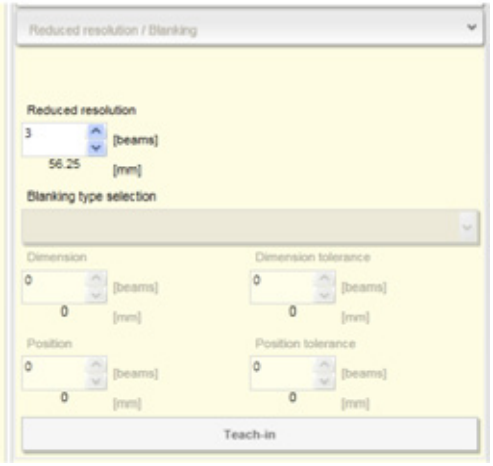
Dimension Tolerance
It indicates how many beams the object can be smaller than the number fixed by the value Dimension.



Position Tolerance
It indicates the number of beams in blanking zone that can be intercepted above and below the blanking zone without making the OSSDs switch off.



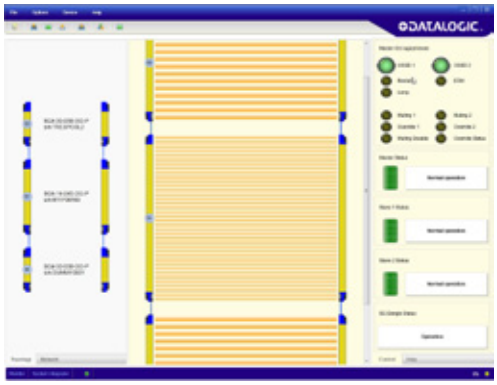
Reduced Resolution
Reduced Resolution is a particular kind of floating blanking in which more than one object can intercept each a defined number of beams with the device remaining in normal operation.





FUNCTIONS - CASCADE

SG4-E allows to connect in a cascade configuration up to 3 units (1 Master and 2 Slaves). It means a maximum of 160 beams for 30 mm resolution models and a maximum of 320 beams for 14mm resolution models. The maximum length of the master unit is 1800mm and the maximum length of each slave is 1200mm.



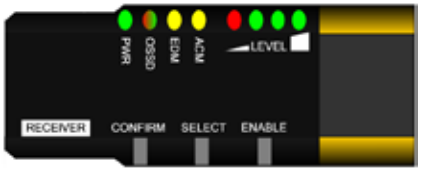
Response Time
Please Refer to SG4-E CASCADE RESPONSE TIME section of this document.

MASTER and SLAVE configuration
A safe auto-recognition procedure at startup is implemented; it automatically detects cascade topology and correctly address units.
In order to allow auto-recognition it's mandatory to connect the termination cap (supplied on kit) on the tail connector of last cascade unit, in both transmitter and receiver units.

RESET TO FACTORY SETTINGS

This feature can be achieved both through BCM and ACM.

- **BCM:** press and keep pressed CONFIRM button for at least 9 sec but less than 30 sec. otherwise the light curtin goes in lockout failure.
- **ACM:** press ERASE CONFIGURATION Button on Device Selection section of GUI after a connected device has been selected

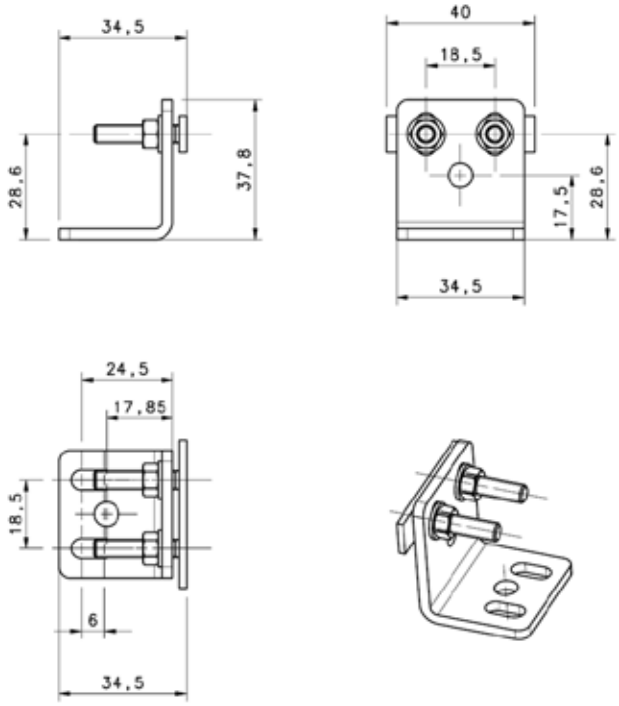


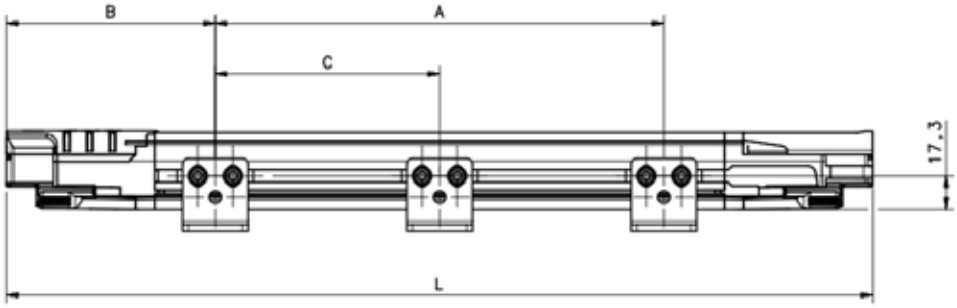


NOTE: Factory reset will erase both BCM and ACM configurations.

OUTFITS

ANGLED FIXING BRACKET (WITH THREADED PINS METALLIC INSERT)

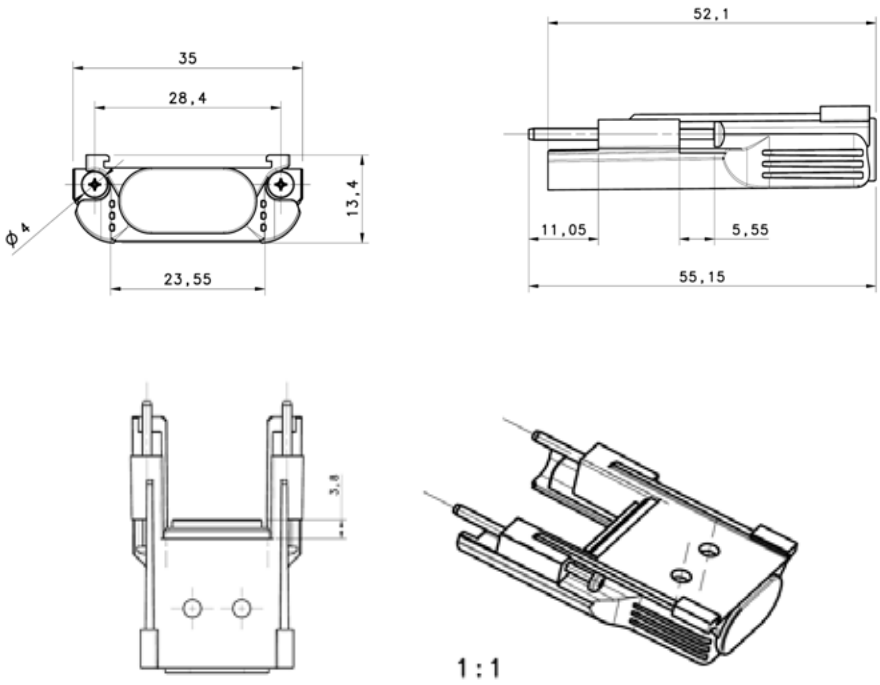




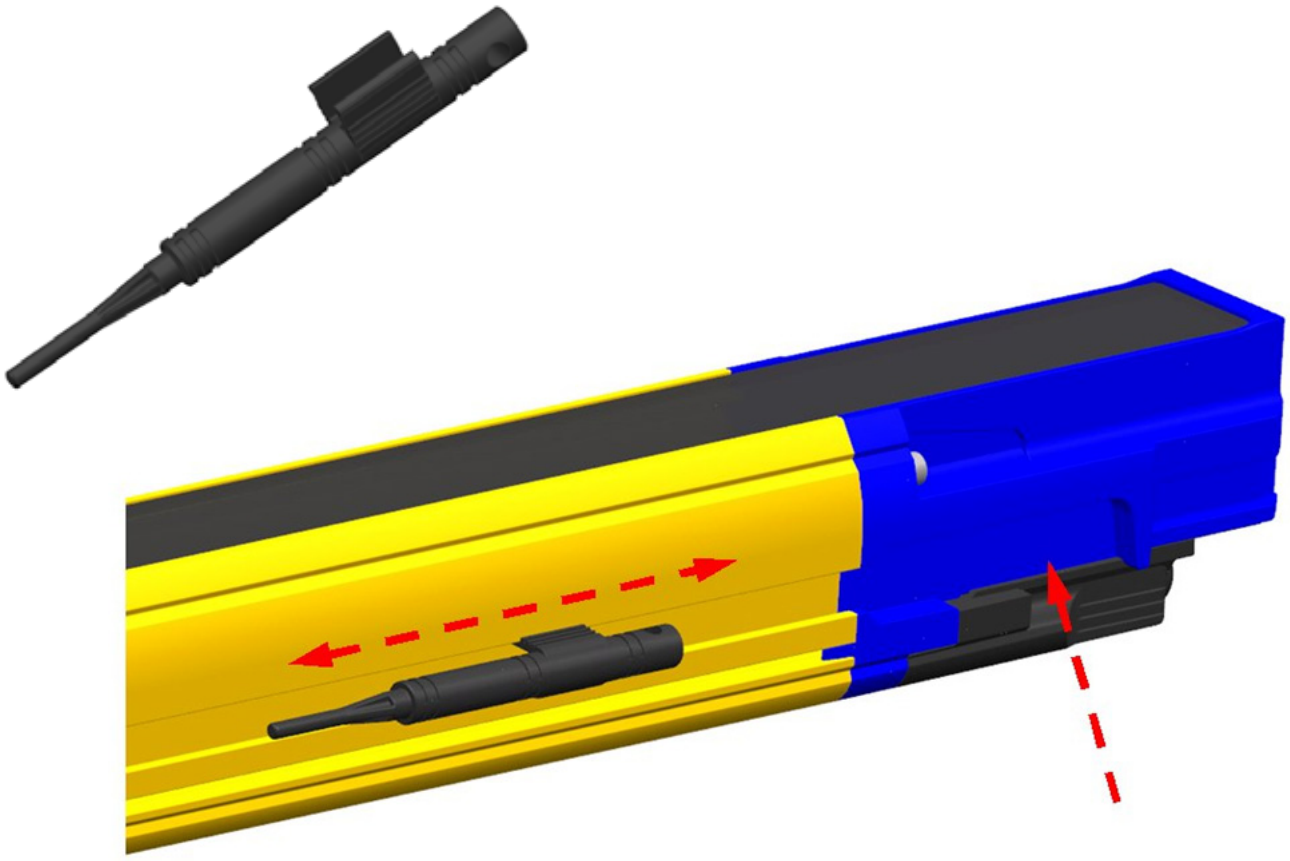
DESCRIPTION	L[mm]	A [mm]	B [mm]	C [mm]
SGy-xx-030-OO-#	306.3	86.3	110	-
SGy-xx-045-OO-#	456.3	236.3	110	-
SGy-xx-060-OO-#	606.2	306.2	150	-
SGy-xx-075-OO-#	756.2	406.2	175	-
SGy-xx-090-OO-#	906.1	506.1	200	-
SGy-xx-105-OO-#	1056.1	606.1	225	-
SGy-xx-120-OO-#	1206	966	150	453
SGy-xx-135-OO-#	1356	1066	175	503
SGy-xx-150-OO-#	1505.9	1166	200	553
SGy-xx-165-OO-#	1655.9	1266	225	603
SGy-xx-180-OO-#	1805.8	1366	250	652.9

Legend:
y = 2 for SG2-M and 4 for SG4-E
xx = 30 mm for SG2-M
14 and 30 mm SG4-E
= W for SG2-M and P for SG4-E

TERMINATOR CAP

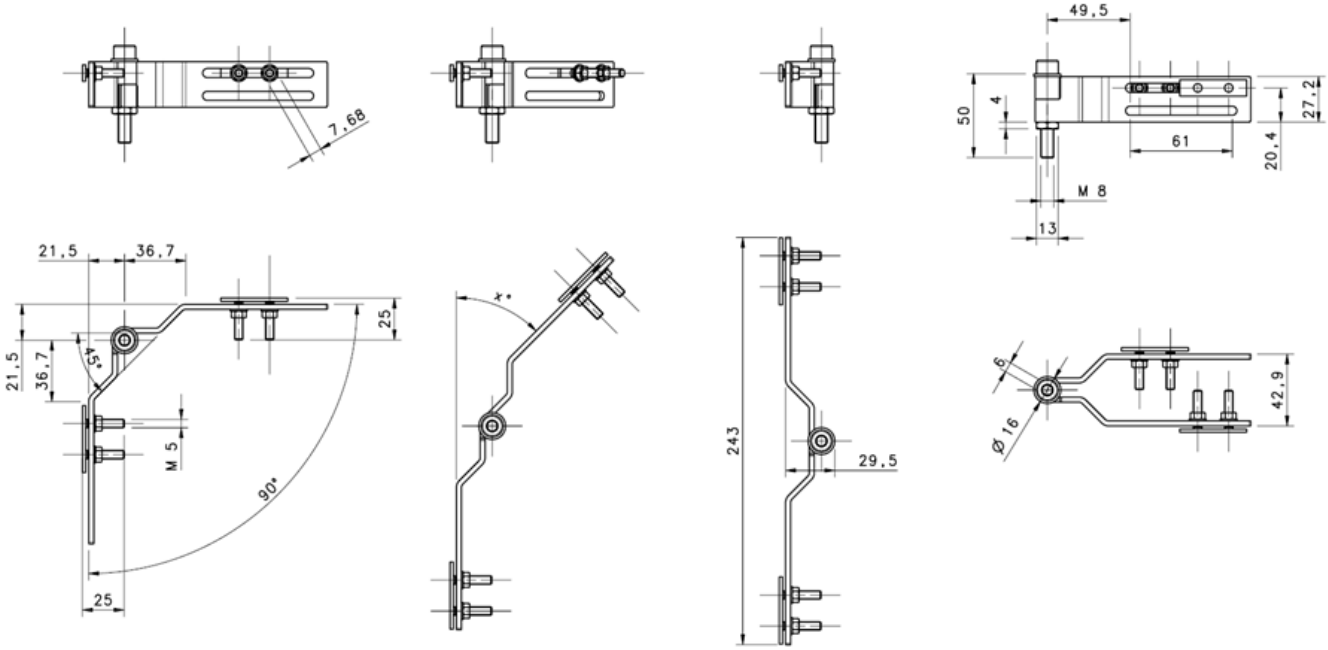


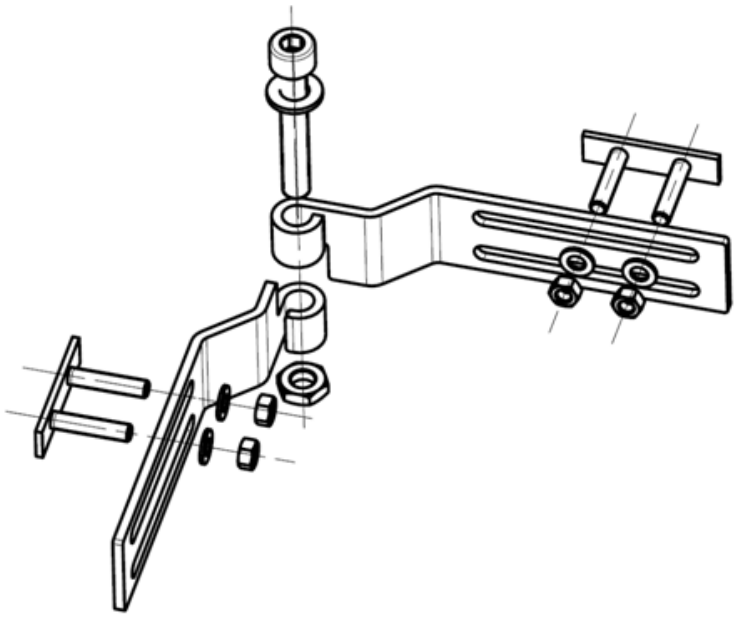
PROGRAMMING TOOL FOR BCM



ACCESSORY SELECTION AND ORDER INFORMATION

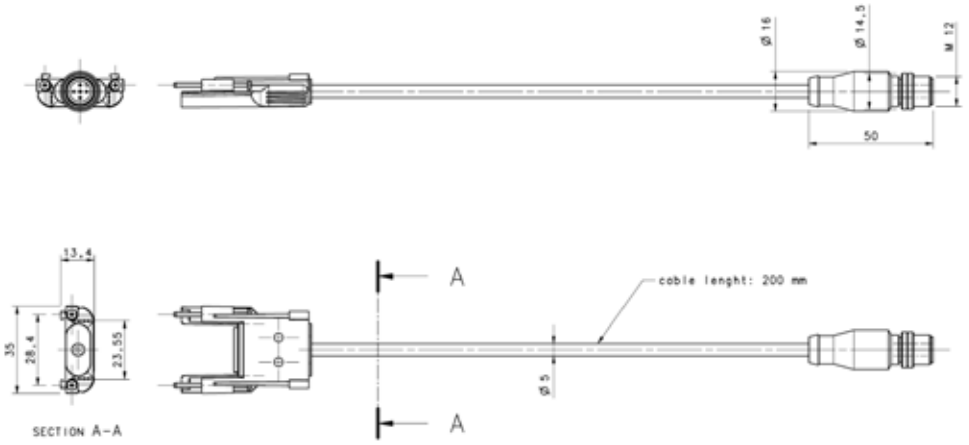
CASCADE BRACKET





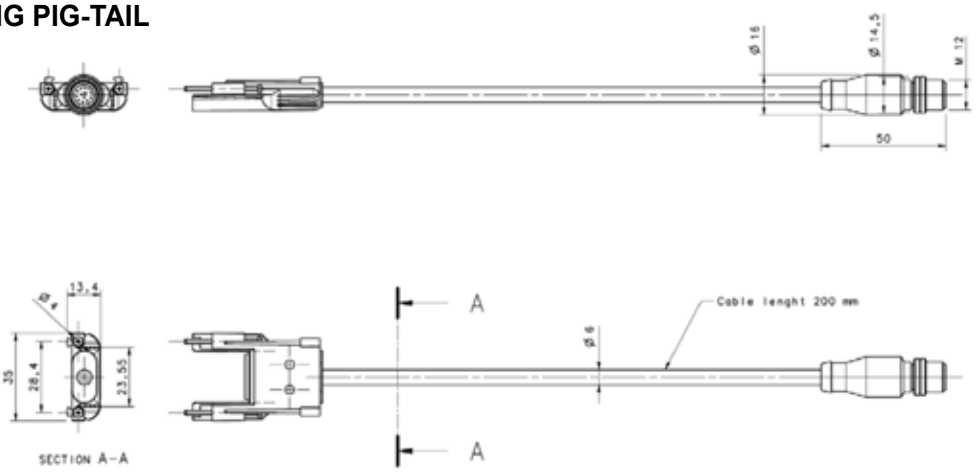
MODEL	DESCRIPTION	CODE
ST-KCASCADE-SG EXTENDED	ST-KCASCADE-SG EXTENDED	95ASE2110

TX PIG-TAIL



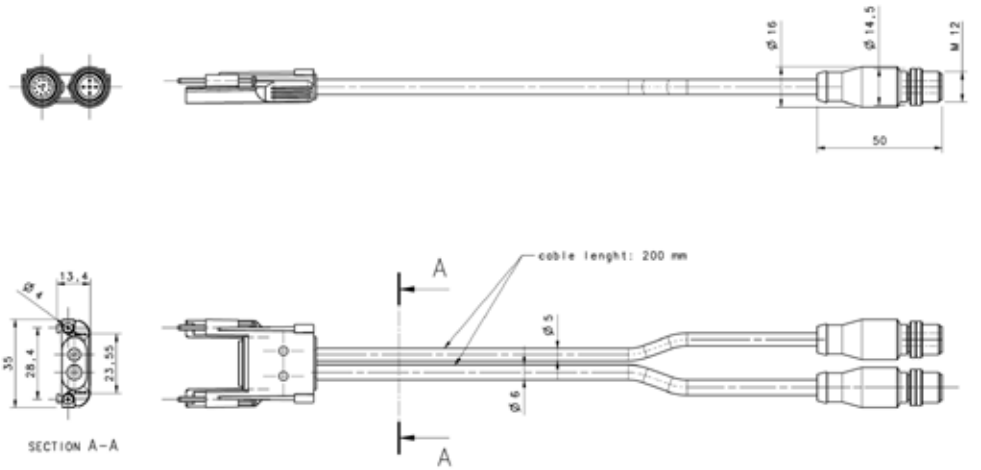
This is the Pig-Tail cable that must be always used for TX UNIT of both SG2-M and SG4-E. It has a 18 poles socket in one side and a M12 5 poles in the other

RX BLANKING PIG-TAIL



This is the Pig-Tail cable that must be used for RX UNIT of SG4-E when you configure it in BLANKING MODE and DON'T USE SG4 DONGLE. It has a 18 poles socket in one side and a M12 12 poles in the other

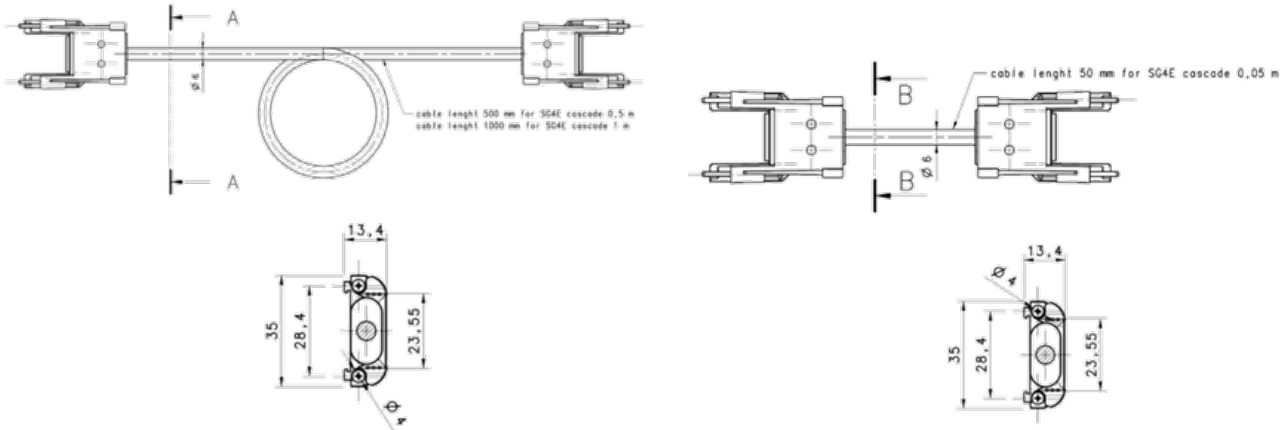
RX MUTING PIG-TAIL



This is the Pig-Tail cable that must be always used for RX UNIT of SG2-M and SG4-E when you configure it in MUTING MODE and DON'T USE SG4 DONGLE. It has a 18 poles socket in one side and a M12 5 poles plus M12 12 poles in the other.

MODEL	DESCRIPTION	CODE
CS-G1-50-B-002	CS-G1-50-B-002 SG EXTENDED TX 0,2m	95A252820
CS-G1-70-B-002	CS-G1-70-B-002 SG EXTENDED BLANK RX 0,2m	95A252830
CS-R1-75-B-002	CS-R1-75-B-002 SG EXTENDED MUTING RX 0,2	95A252810

CASCADE CABLES

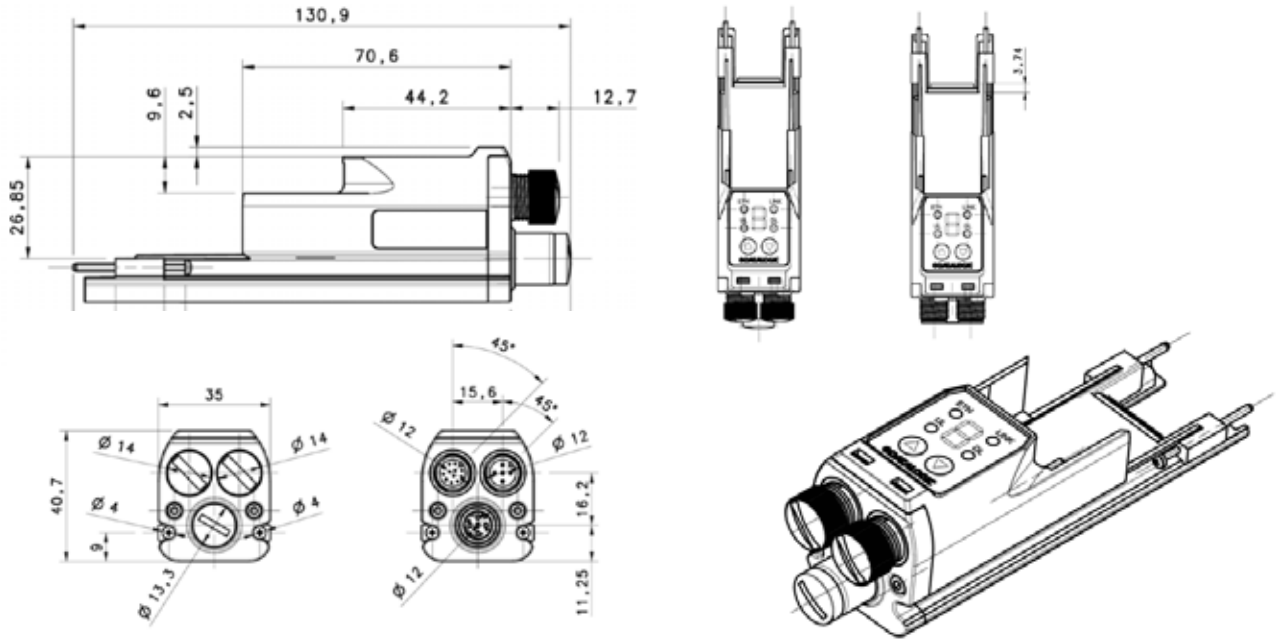


This is the Pig-Tail cable that must be always used for connecting 2 RX units and 2 TX units of SG4-E in a CASCADE configuration.
It has a 18 poles socket on both sides.
3 different lengths are available :

- **50 mm**
- **500 mm**
- **1000 mm**

MODEL	DESCRIPTION	CODE
CS-F1-80-B-01	CS-F1-80-B-01 SG EXTENDED CASCADE 1m	95A252840
CS-F1-80-B-005	CS-F1-80-B-005 SG EXTENDED CASCADE 0,5m	95A252850
CS-F1-80-B-0005	CS-F1-80-B-0005SG EXTENDED CASCADE 0,05m	95A252860

SG4-DONGLE ETHERNET ADAPTOR



MODEL	DESCRIPTION	CODE
SG4-DONGLE	SG4-DONGLE ETHERNET ADAPTOR	95ASE2080

MODEL	DESCRIPTION	CODE
SG-DM 150	Deviating mirror version 150 mm	95ASE1670
SG-DM 600	Deviating mirror version 600 mm	95ASE1680
SG-DM 900	Deviating mirror version 900 mm	95ASE1690
SG-DM 1200	Deviating mirror version 1200 mm	95ASE1700
SG-DM 1650	Deviating mirror version 1650 mm	95ASE1710
SG-DM 1900	Deviating mirror version 1900 mm	95ASE1720
SE-S 800	Column and floor stand H= 800 mm	95ACC1730
SE-S 1000	Column and floor stand H= 1000 mm	95ACC1740
SE-S 1200	Column and floor stand H= 1200 mm	95ACC1750
SE-S 1500	Column and floor stand H= 1500 mm	95ACC1760
SE-S 1800	Column and floor stand H= 1800 mm	95ACC1770
SG-PSB 600	SG-PSB 600 PROTECTIVE STAND H=600mm	95ASE2240
SG-PSB 1000	SG-PSB 1000 PROTECTIVE STAND H=1000mm	95ASE2250
SG-PSB 1200	SG-PSB 1000 PROTECTIVE STAND H=1200mm	95ASE2260
SG-PSB 1650	SG-PSB 1000 PROTECTIVE STAND H=1650mm	95ASE2270
SG-PSB 1900	SG-PSB 1000 PROTECTIVE STAND H=1900mm	95ASE2280
SG-P	SG-P PLATE KIT FOR PROTECTIVE STANDS	95ASE2290
TP-14	TP-14 test piece Ø 14mm L = 300mm	95ACC1630
TP-30	TP-30 test piece Ø 30mm L = 300mm	95ACC1650
SG-LP	Laser pointer	95ASE5590
CS-A1-03-U-03	5-pole M12 cable (axial) 3 m	95ASE1170
CS-A1-03-U-05	5-pole M12 cable (axial) 5 m	95ASE1180
CS-A1-03-U-10	5-pole M12 cable (axial) 10 m	95ASE1190
CS-A1-03-U-15	5-pole M12 cable (axial) 15 m	95ASE1200
CS-A1-03-U-25	5-pole M12 cable (axial) 25 m	95ASE1210
CS-A1-03-U-50	5-pole M12 cable (axial) 50m	95A252700
CS-A1-06-U-03	8-pole M12 cable (axial) 3 m	95ASE1220
CS-A1-06-U-05	8-pole M12 cable (axial) 5 m	95ASE1230
CS-A1-06-U-10	8-pole M12 cable (axial) 10 m	95ASE1240
CS-A1-06-U-15	8-pole M12 cable (axial) 15 m	95ASE1250
CS-A1-06-U-25	8-pole M12 cable (axial) 25 m	95ASE1260
CS-A1-06-U-50	8-pole M12 cable (axial) 50 m	95A252710
CS-A1-10-U-03	12-pole M12 cable (axial) 3 m	95A252720
CS-A1-10-U-05	12-pole M12 cable (axial) 5 m	95A252730
CS-A1-10-U-10	12-pole M12 cable (axial) 10 m	95A252740
CS-A1-10-U-15	12-pole M12 cable (axial) 15 m	95A252750
CS-A1-10-U-25	12-pole M12 cable (axial) 25 m	95A252760
CS-A1-10-U-50	12-pole M12 cable (axial) 50 m	95A252770
SG-AS-ARM note 1	Active sensor single arm	95ASE1840
SG-PR-ARM note 1	Passive reflector single arm	95ASE1850
SG-L-ARMS	“L” Muting arms kit	95ASE1860
SG-T-ARMS	“T” Muting arms kit	95ASE1870
SG-CB-C	Muting C Bracket Compact Kit	95ASE1930
LMS	Muting lamp	95ASE1830
LMS-1	Modular Muting lamp	95ACC1990
LMS-2	Muting lamp - horizontal mounting	95ACC2000
LMS-3	Muting lamp - vertical mounting	95ACC2010
SU-LMS-1A	Basic module for LMS-1	95ACC2020
SU-LMS-1B	Tower module for LMS-1	95ACC2030
CV-Y1-02-B-007	M12 4-pole cable 0.7m for “T” Muting	95ACC2560
CV-L1-02-B-007	M12 4-pole cable 0.7m for “L” Muting	95ACC2570
SE-SR2	Type 4 Safety Relay 3NO 1NC	95ACC6170
CS ME-03VU24-Y14	EDM Relay Box	95ASE1270

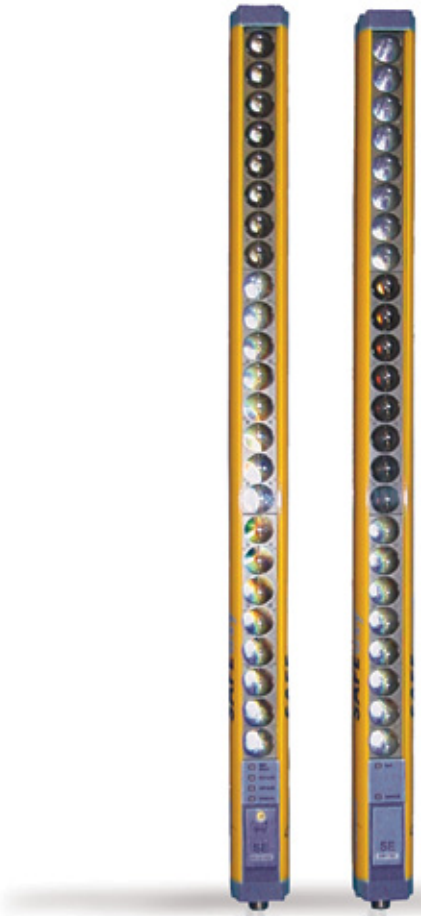
note 1: With RRX Muting arms the overall operating distance is reduced to **3 meters**.

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

SAFETY

SE4-PLUS HAND SERIES

The SAFEasyTM light curtains, according to the IEC 61496-1 and IEC 61496-2, are particularly suitable for hand protection of operators exposed to risks.
Different models are available with heights ranging from 150 to 1650 mm, 30 mm resolution and operating distance reaching 15 m. Each model has one or more advanced functions: EDM, Blanking and Cascade. The light curtains are able to verify the integrity of external monitoring devices thanks to the EDM (External Device Monitoring) function. The Blanking function allows to deactivate a part of the detection area during functioning, allowing material passage or mechanical obstacle presence without causing machine interruption. Fixed Blanking and Floating Blanking can be selected.
The Cascade configuration allows to combine the functioning of a couple of light curtains positioned in different areas.
Specific dip-switches, that can be reached through a slot present on the front of the active unit protected by a lid and opened with a simple screwdriver, guarantee a rapid and safe configuration.
The compact dimensions (35 x 40 mm), easy installation and excellent performances make the SAFEasyTM light curtains suitable to industrial applications requiring operator safety.



Type 4

HIGHLIGHTS

- Integrated light curtains for HAND PROTECTION (30 mm resolution)
- EDM and Blanking functions
- Cascade configuration
- 35 x 40 mm compact profile

APPLICATIONS

Wood working machines



Packaging lines



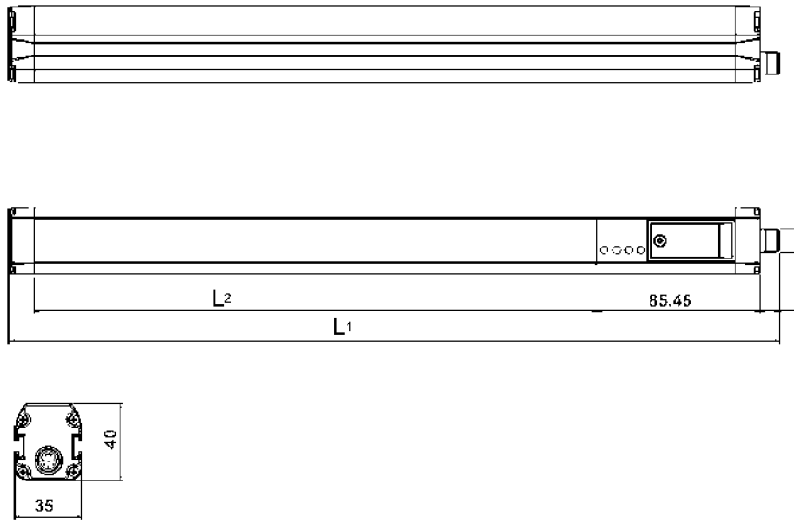
Automatic machines



The features introduced by the safety light curtains of the SE4-PLUS HAND series are given below:

- EDM function: allows to verify the status of the external monitoring devices (typically safety relays), avoiding external malfunctions jeopardising correct device functioning.
- Fixed Blanking: allows the operator to exclude the control of beams in a pre-set position.
- Floating Blanking: allows the operator to exclude the control of a pre-set number of beams in any position within the detection area.
- Cascade configuration: a couple of light curtains can function connected to each other in accordance to a Master-Slave protocol and combining the safety information relative to the two different sections of the controlled machine. The Master unit has a Blanking function and can be used without the Slave unit. Models with the Muting function are not available in the SE4-PLUS HAND series.

DIMENSIONS



mm

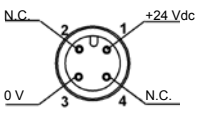
VERSIONS	L_1	L_2
SE4-xx-015-PP-y	256	147
SE4-xx-030-PP-y	403	294
SE4-xx-045-PP-y	550	441
SE4-xx-060-PP-y	697	588
SE4-xx-075-PP-y	844	735
SE4-xx-090-PP-y	991	882
SE4-xx-105-PP-y	1138	1029
SE4-xx-120-PP-y	1285	1176
SE4-xx-135-PP-y	1432	1323
SE4-xx-150-PP-y	1579	1470
SE4-xx-165-PP-y	1726	1617

CONNECTIONS

MODEL	EMITTER	RECEIVER
EMD+Blanking	M12 4-pole	M12 8-pole
EDM+Cascade (Master)*	M12 4-pole +M12 5-pole	M12 8-pole +M12 5-pole
EDM+Cascade (Slave)	M12 5-pole	M12 5-pole
EDM + Cascade + Blanking (Master)*	M12 4-pole +M12 5-pole	M12 8-pole +M12 5-pole

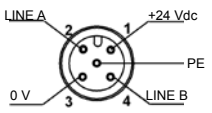
* an electric terminal is supplied for the Master Cascade models for the M12 5-pole connection in order to use the Master unit without connecting the Slave unit

M12 CONNECTOR 4-POLE



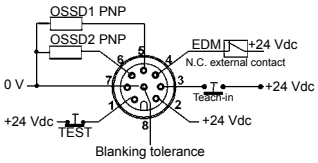
1 = brown = +24 Vdc
2 = white = N.C.
3 = blue = 0 V
4 = black = N.C.

M12 CONNECTOR 5-POLE



1 = brown = +24 Vdc
2 = white = LINE A
3 = blue = 0 V
4 = black = LINE B
5 = grey = PE

M12 CONNECTOR 8-POLE



1 = white = TEST/START
2 = brown = +24 Vdc
3 = green = TEACH-IN
4 = yellow = EDM
5 = grey = OSSD1
6 = pink = OSSD2
7 = blue = 0 V
8 = red = BLANKING TOLERANCE

TECHNICAL DATA

Power supply:	24 Vdc ± 20% (SELV / PELV)
Consumption:	55 mA max. / 1.5. W (emitter)
	125 mA max. / 3.75 W (receiver without load)
Light emission:	infrared LED 880 nm
Number of controlled beams:	refer to table 1
Optic interaxis:	18.4 mm
Resolution:	30 mm
Controlled height:	refer to table 2
Through beam operating distance:	0.2 ... 15 m
Receiver indicators:	green / red SAFE/ BREAK LED
	2 yellow ALIGNMENT LEDs
	green POWER ON LED
Emitter indicators:	yellow blinking FAILURE LED
	greeen POWER ON LED
Output type:	2 PNP
Output current:	0.5 A max., short-circuit protection
Response time:	refer to tables 3 and 4
Selectable functions:	refer dip-switches
Receiver connection:	refer to connections
Emitter connection:	refer to connections
Cable length:	50 m max. (with 50 nF capacitive load)
Safety category:	Type 4
Electrical protection:	class 1
Mechanical protection:	IP65
Housing material:	aluminium with PC Makrolon plastic caps
Weight:	1.2 Kg max. / m of total height
Operating temperature:	-10 ... +55 °C
Storage temperature:	-25 ... +70 °C
Reference standards:	EN 954-1, IEC 61496-1, IEC 61496-2

c UL US LISTED

SELECTION TABLE

MODEL	BEAMS
SE4 height150	8
SE4 height 300	16
SE4 height 450	24
SE4 height 600	32
SE4 height 750	40
SE4 height 900	48
SE4 height 1050	56
SE4 height 1200	64
SE4 height 1350	72
SE4 height 1500	80
SE4 height 1650	88

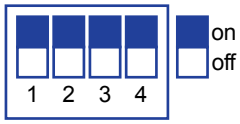
Table 1: NUMBER OF BEAMS

MODEL	mm
SE4 height 150	180
SE4 height 300	327
SE4 height 450	474
SE4 height 600	621
SE4 height 750	768
SE4 height 900	915
SE4 height 1050	1062
SE4 height 1200	1209
SE4 height 1350	1356
SE4 height 1500	1503
SE4 height 1650	1650

Table 2: CONTROLLED HEIGHT

MODEL	ms
SE4 height 150	16
SE4 height 300	20
SE4 height 450	23
SE4 height 600	25
SE4 height 750	27
SE4 height 900	30
SE4 height 1050	32
SE4 height 1200	35
SE4 height 1350	38
SE4 height 1500	40
SE4 height 1650	43

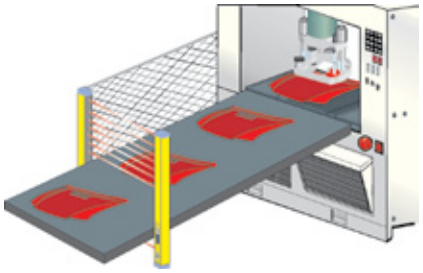
Table 4: RESPONSE TIME



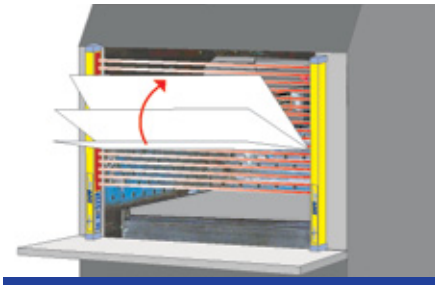
DIP-SWITCHES
1 - Floating function: refer to table
2 - Floating function: refer to table
3 - EDM inactive (ON) / EDM active (OFF)
4 - Automatic (ON) / manual (OFF) reset

DIP1	DIP2	FUNCTION
ON	ON	Floating function deactivated,
ON	OFF	Floating function active, 1 Blanking beam
OFF	ON	Floating function active, 2 adjiacent Blanking beams
OFF	OFF	Floating function active, 1, 2 or 3 adjacent Blanking beams

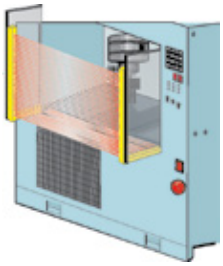
FUNCTIONING MODE



Example of
'Fixed Blanking'



Example of
'Floating Blanking'



Example of
'Cascade' configuration

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	FUNCTION	ORDER N°
SE4-30-015-PP-B	Type 4 safety light curtain	EDM, Blanking	957202080
SE4-30-030-PP-B	Type 4 safety light curtain	EDM, Blanking	957202090
SE4-30-045-PP-B	Type 4 safety light curtain	EDM, Blanking	957202100
SE4-30-060-PP-B	Type 4 safety light curtain	EDM, Blanking	957202110
SE4-30-075-PP-B	Type 4 safety light curtain	EDM, Blanking	957202120
SE4-30-090-PP-B	Type 4 safety light curtain	EDM, Blanking	957202130
SE4-30-105-PP-B	Type 4 safety light curtain	EDM, Blanking	957202140
SE4-30-120-PP-B	Type 4 safety light curtain	EDM, Blanking	957202150
SE4-30-135-PP-B	Type 4 safety light curtain	EDM, Blanking	957202160
SE4-30-150-PP-B	Type 4 safety light curtain	EDM, Blanking	957202170
SE4-30-165-PP-B	Type 4 safety light curtain	EDM, Blanking	957202180
SE4-30-015-PP-M	Type 4 safety light curtain	EDM, Master	957202280
SE4-30-030-PP-M	Type 4 safety light curtain	EDM, Master	957202290
SE4-30-045-PP-M	Type 4 safety light curtain	EDM, Master	957202300
SE4-30-060-PP-M	Type 4 safety light curtain	EDM, Master	957202310
SE4-30-075-PP-M	Type 4 safety light curtain	EDM, Master	957202320
SE4-30-090-PP-M	Type 4 safety light curtain	EDM, Master	957202330
SE4-30-105-PP-M	Type 4 safety light curtain	EDM, Master	957202340
SE4-30-120-PP-M	Type 4 safety light curtain	EDM, Master	957202350
SE4-30-135-PP-M	Type 4 safety light curtain	EDM, Master	957202360
SE4-30-150-PP-M	Type 4 safety light curtain	EDM, Master	957202370
SE4-30-165-PP-M	Type 4 safety light curtain	EDM, Master	957202380
SE4-30-015-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202480
SE4-30-030-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202490
SE4-30-045-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202500
SE4-30-060-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202510
SE4-30-075-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202520
SE4-30-090-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202530
SE4-30-105-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202540
SE4-30-120-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202550
SE4-30-135-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202560
SE4-30-150-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202570
SE4-30-165-PP-N	Type 4 safety light curtain	EDM, Master Blanking	957202580
SE4-30-015-PP-S	Type 4 safety light curtain	Slave	957202680
SE4-30-030-PP-S	Type 4 safety light curtain	Slave	957202690
SE4-30-045-PP-S	Type 4 safety light curtain	Slave	957202700
SE4-30-060-PP-S	Type 4 safety light curtain	Slave	957202710
SE4-30-075-PP-S	Type 4 safety light curtain	Slave	957202720
SE4-30-090-PP-S	Type 4 safety light curtain	Slave	957202730
SE4-30-105-PP-S	Type 4 safety light curtain	Slave	957202740
SE4-30-120-PP-S	Type 4 safety light curtain	Slave	957202750
SE4-30-135-PP-S	Type 4 safety light curtain	Slave	957202760
SE4-30-150-PP-S	Type 4 safety light curtain	Slave	957202770
SE4-30-165-PP-S	Type 4 safety light curtain	Slave	957202780

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
CV-A1-23-B-005-2F	M12 5-pole shielded axial 0.5 m connector (supplied with the Slave)	95ACC2440
CV-A1-23-B-01-2F	M12 5-pole shielded axial 1 m connector (to be ordered separately)	95ACC2450
SE-C	5 pole-connector cap (supplied with the Master)	95ACC2460
Please refer also to **Safey Device Accessories**		

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATALOGIC

SAFETY

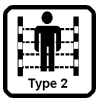
SG-BODY "BIG" SERIES

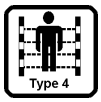
The new **SG BODY "BIG"** safety light curtain series thanks to its new housing together with the innovative design optical-electronic platform ensures the performance of high-level safety light curtain required in the material handling market.
Classical TX-RX models with operating distance reaching up to **60m**, available in **2, 3 and 4 beams** models with controlled height of **500, 800, 900** and **1200mm** controlled height are now completed by a **LONG RANGE** version **40mm** resolution for hand protection with operating distance reaching up to 60m.
All SG BODY "BIG" models are then provided in 2 different versions :

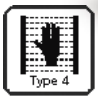
- **BASE** version that represents the ideal product for all applications where Muting function is not required but EDM, MANUAL/AUTOMATIC restart are fundamental;
- **MUTING** version integrates the Muting function and completes it with all advanced features associated to like anti-interference coding, 'L' o 'T' configurations, edged or triggered OVERRIDE and external Muting enable.

Total absence of "DEAD ZONE", 7 segment displays USER INTERFACE for signaling and diagnostics, alignment AID function, both integrated and external muting lamp and 3 different types of mounting brackets (SWIVELLING SIDE for "THIN MOUNTING", TOP-BOTTOM ROTATING and REAR) complete the product and make it the ideal and most performing solution for all the industrial application.









HIGHLIGHTS

- New big sturdy profile for heavy duties;
- Up to 60mt operating distance;
- 2,3,4 beams with 500, 800, 900 and 1200mm controlled height;
- Two models : BASE and MUTING;
- No programming required : integrated safety functions DIP SWITCH selectable;
- Integrated Muting with all advanced features associated to like anti-interference coding, 'L' o 'T' configurations, edged or triggered OVERRIDE and external Muting enable.
- Type 2 models SIL 2 and PL d and Type 4 models SIL 3 PL e

APPLICATIONS

Extreme reliability and simplicity make the SG BODY safety light curtains the ideal solution for the following applications:
- Automatic machines
- Robots
- Automatic assembling lines
- Palletizers and Depalletizers
- Automatic warehouses

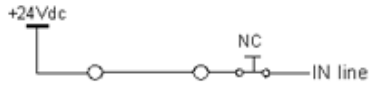
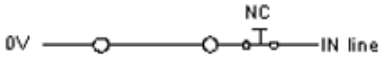
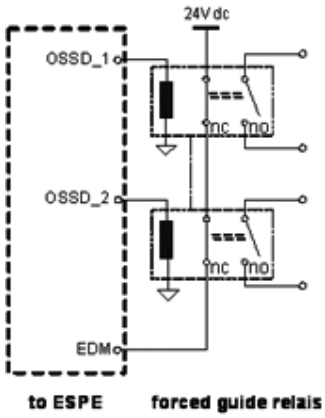
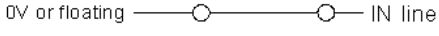
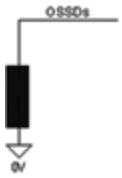






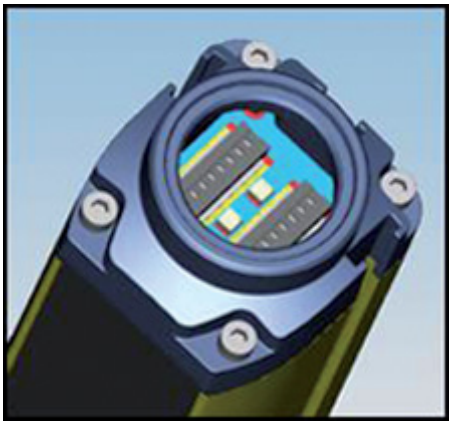
SETTINGS

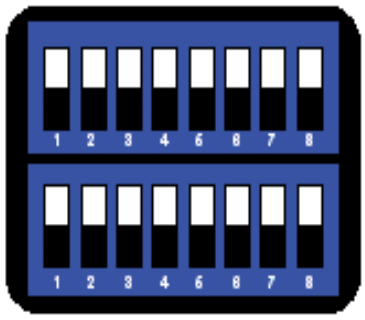
BASE VERSION
In BASE versions integrated functions can be selected or enabled through dedicate wires on TX and RX M12 connectors

Line	Layout connection	Behaviour
TEST		Test not active
RESET/RESTART/RESTART MODE		Automatic restart
RESET/RESTART/RESTART MODE		Manual restart
EDM		(EDM ENABLE: active)
EDM ENABLE		EDM enabled
OSSDs		

MUTING VERSION
A closing cap coupled with the top cap of the RX and TX units can be unscrewed to access dip-switches slot. By means of internal dip-switches the user can set-up some functions.
RX closiong cap contains LED integrated MUTING lamp





RX			TX		
					
	ON	OFF		ON	OFF
Dip switch n°1: Muting timeout Dip switch n°2: Muting T/L Dip switch n°3: Muting filter Dip switch n°4: Override restart Dip switch n°5: Override mode Dip switch n°6: EDM enable Dip switch n°7: coding selection Dip switch n°8: coding selection	10 min T Disabled Manual Edged EDM on See table See table	∞ L Enabled Automatic Triggered EDM off See table See table	Dip switch n°1: coding selection Dip switch n°2: coding selection Dip switch n°3: not used Dip switch n°4: not used Dip switch n°5: not used Dip switch n°6: not used Dip switch n°7: not used Dip switch n°8: not used	See table See table - - - - - -	See table See table - - - - - -

Dip-switch 7	Dip-switch 8	CODE	Dip-switch 1	Dip-switch 2	CODE
ON	ON	NO CODE	ON	ON	NO CODE
OFF	ON	Code 1	OFF	ON	Code 1
ON	OFF	Code 2	ON	OFF	Code 2
OFF	OFF	Not used	OFF	OFF	Not used

Wire configurations are the same reported in the table above for base versions

INDICATORS

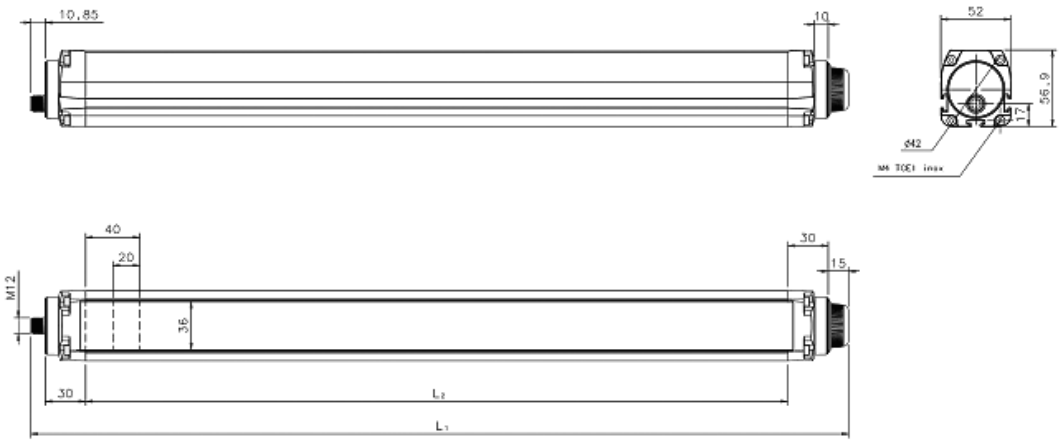
A user interface aids the customer to control and check the state of the light curtain, for alignment mode, normal operation and for troubleshooting activity. User interface is composed by four LEDs on the receiver and two LEDs on the emitter and an one-digit display present on both receiver and emitter unit

RX	TX
	



DIMENSIONS

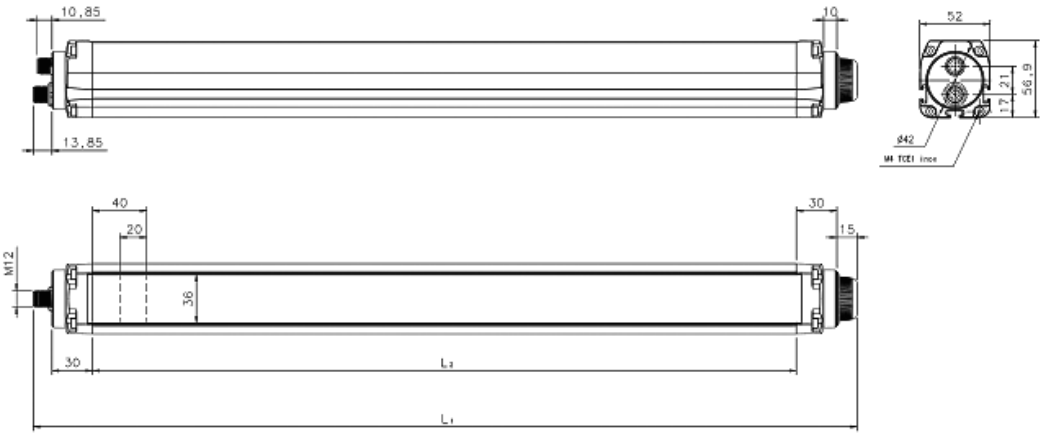
BASE VERSION



Model	L1 [mm]	L2 [mm]
SGx-B2-050-OO-E	606,35	520,5
SGx-B3-080-OO-E	906,35	820,5
SGx-B4-090-OO-E	1006,35	920,5
SGx-B4-120-OO-E	1306,35	1220,5
SG4-40-060-OO-E	783,35	700,5
SG4-40-090-OO-E	1083,35	1000,5
SG4-40-120-OO-E	1383,35	1300,5

x = ESPE Type: 2,4

MUTING VERSION



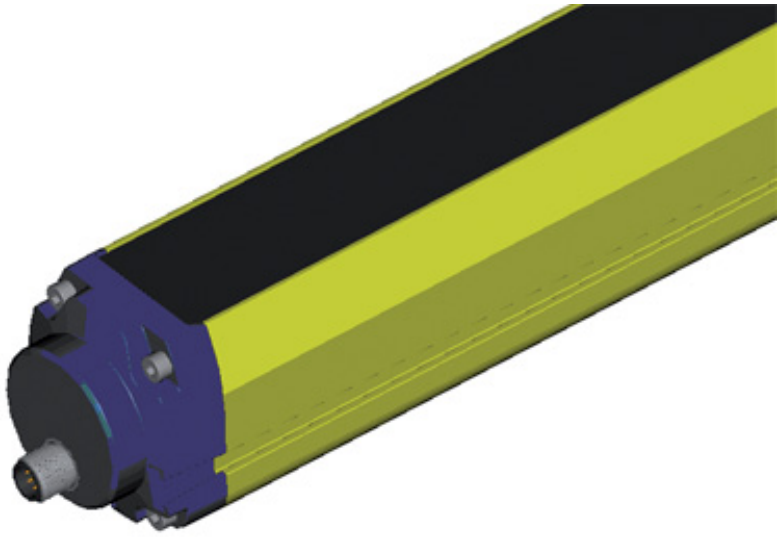
Model	L1 [mm]	L2 [mm]
SGx-Byy2-050-OO-W-C	609,35	520,5
SGx-Byy3-080-OO-W-C	909,35	820,5
SGx-Byy4-090-OO-W-C	1009,35	920,5
SGx-Byy4-120-OO-W-C	1309,35	1220,5

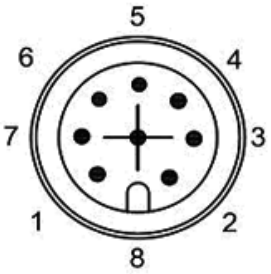
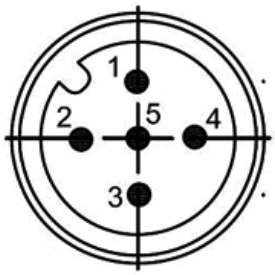
x = ESPE Type: 2,4

yy = operating distance (only for Type 4): SR, LR

CONNECTIONS

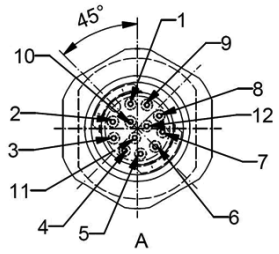
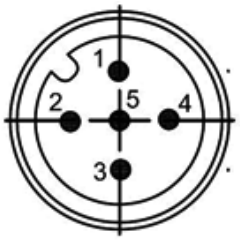
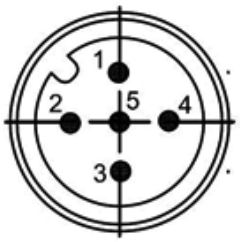
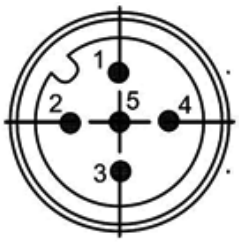
BASE VERSION CONNECTIONS



RX	TX
	
M12 8-pole connector 1 = White = RESET/RESTART/RESTART MODE 2 = Brown = 24Vdc 3 = Green = EDM ENABLE 4 = Yellow = EDM 5 = Grey = OSSD1 6 = Pink = OSSD2 7 = Blue = 0V 8 = Red = EARTH	**M12 5-pole connector** 1 = Brown = 24Vdc 2 = White = TEST 3 = Blue = 0V 4 = Black = EARTH 5 = Grey = N.C.

CONNECTIONS

MUTING VERSION CONNECTIONS

RX		TX	
MAIN CONNECTOR	SECONDARY CONNECTOR	MAIN CONNECTOR	SECONDARY CONNECTOR
			

Main connector: M12 12-pole connector

1	=	Brown	=	24Vdc
2	=	Blue	=	0V
3	=	White	=	RESET/RESTART/RESTART MODE
4	=	Green	=	OVERRIDE1
5	=	Pink	=	OSSD2
6	=	Yellow	=	EDM
7	=	Black	=	MUTING ENABLE
8	=	Grey	=	OSSD1
9	=	Red	=	OVERRIDE2
10	=	Violet	=	LAMP OUTPUT
11	=	Grey-Pink	=	OVERRIDE STATUS
12	=	Red-Blue	=	EARTH

Secondary connector: M12 5-pole connector

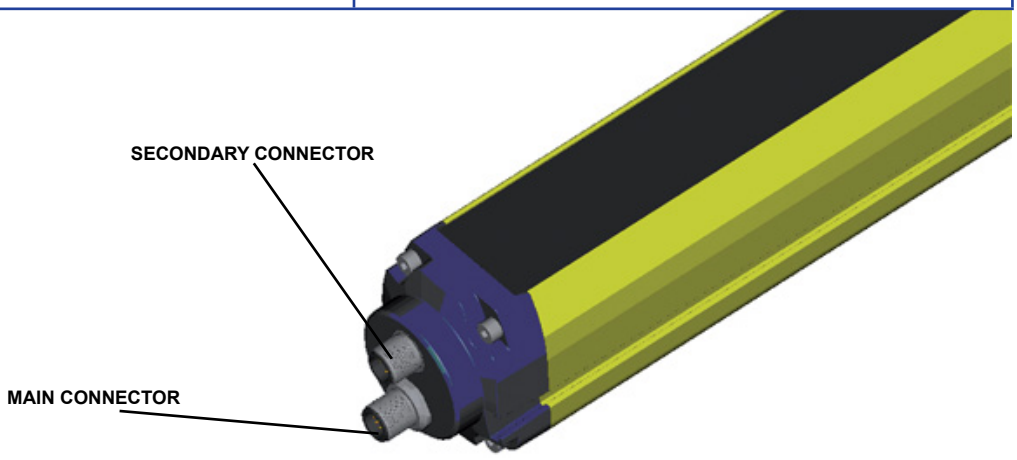
1	=	Brown	=	24Vdc
2	=	White	=	MUTING2
3	=	Blue	=	0V
4	=	Black	=	MUTING1
5	=	Grey	=	N.C.

Main connector: M12 5-pole connector

1	=	Brown	=	24Vdc
2	=	White	=	TEST
3	=	Blue	=	0V
4	=	Black	=	EARTH
5	=	Grey	=	N.C.

Secondary connector: M12 5-pole connector

1	=	Brown	=	24Vdc
2	=	White	=	N.C.
3	=	Blue	=	0V
4	=	Black	=	N.C.
5	=	Grey	=	N.C.

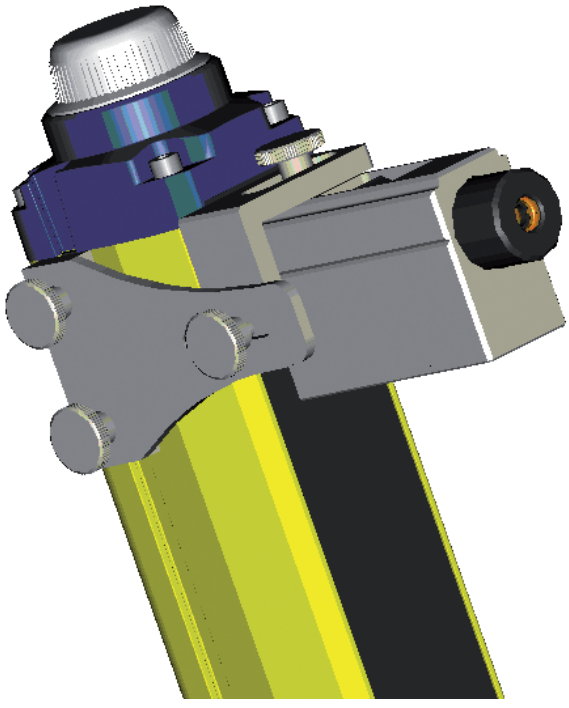


TECHNICAL DATA

	BASE VERSION	MUTING VERSION
Electrical Data		
Power supply	24 Vdc ±20%	24 Vdc ± 20%
Emitter consumption (TX)	2.5 W max	2.5 W max
Receiver consumption (RX)	4.0 W max (without load)	4.0 W max (without load)
Outputs:	2 PNP outputs short-circuit protection (1.4 A @55°C)	2 PNP outputs short-circuit protection (1.4 A @55°C)
Output current:	0.5 A max / each output	0.5 A max / each output
Output voltage - ON min:	Power supply value less 1 V	Power supply value less 1 V
Output voltage - OFF max:	0.2 V	0.2 V
Output capacitive load	2.2 uF @24Vdc	2.2 uF @24Vdc
Response time:	From 11 to 24 ms See section “MODEL TABLE SELECTION”	From 11 to 24 ms See section “MODEL TABLE SELECTION”
Protected height:	from 500mm to1200mm See section “MODEL TABLE SELECTION”	from 500mm to1200mm See section “MODEL TABLE SELECTION”
Safety category:	Type 4 / Type 2 (ref. EN 61496-1)	Type 4 / Type 2 (ref. EN 61496-1)
Auxiliary functions:	Reset, Restart selection, EDM, Test	Reset, Restart selection, Alignment, EDM, Test, Muting, Override, Coding
Electrical protection:	class III	class III
Connections:	TX : M12 5 poles RX : M12 8 poles	TX : M12 5 pole + M12 5 pole RX : M12 12 pole + M12 5 pole
Cable length (for power supply):	70m. max.	70m. max.
Pollution degree	2	2
Optical Data		
Light source:	Infrared LED (950 nm wavelength)	Infrared LED (950 nm wavelength)
Resolution:	40 mm 319,75 mm 419,75 mm 519,75 mm	319,75 mm 419,75 mm 519,75 mm
Beam spacing:	20 mm 300 mm 400 mm 500 mm	300 mm 400 mm 500 mm
Operating distance:	See section “MODEL TABLE SELECTION”	See section “MODEL TABLE SELECTION”
Ambient light rejection:	IEC 61496-2	IEC 61496-2
Mechanical and environmental data		
Operating temperature:	0…55°C	0…55°C
Storage temperature:	-25…+ 70 °C	-25…+ 70 °C
Temperature class:	T6	T6
Humidity:	15…95 % (no condensation)	15…95 % (no condensation)
Water protection grade:	IP 65 (EN 60529)	IP 65 (EN 60529)
Vibration:	0.35 mm width, 10…55 Hz frequency, 20 sweep for each axis, 1 octave/min (EN 60068-2-6)	0.35 mm width, 10…55 Hz frequency, 20 sweep for each axis, 1 octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10g) 1.000 shock for each axis (EN 60068-2-29)	16 ms (10g) 1.000 shock for each axis (EN 60068-2-29)
Housing material:	Painted aluminium (yellow RAL 1003)	Painted aluminium (yellow RAL 1003)
Caps material:	PBT Valox 508 (pantone 072-CVC)	PBT Valox 508 (pantone 072-CVC)
Front glass material:	PMMA	PMMA
Connectors:	M12	M12

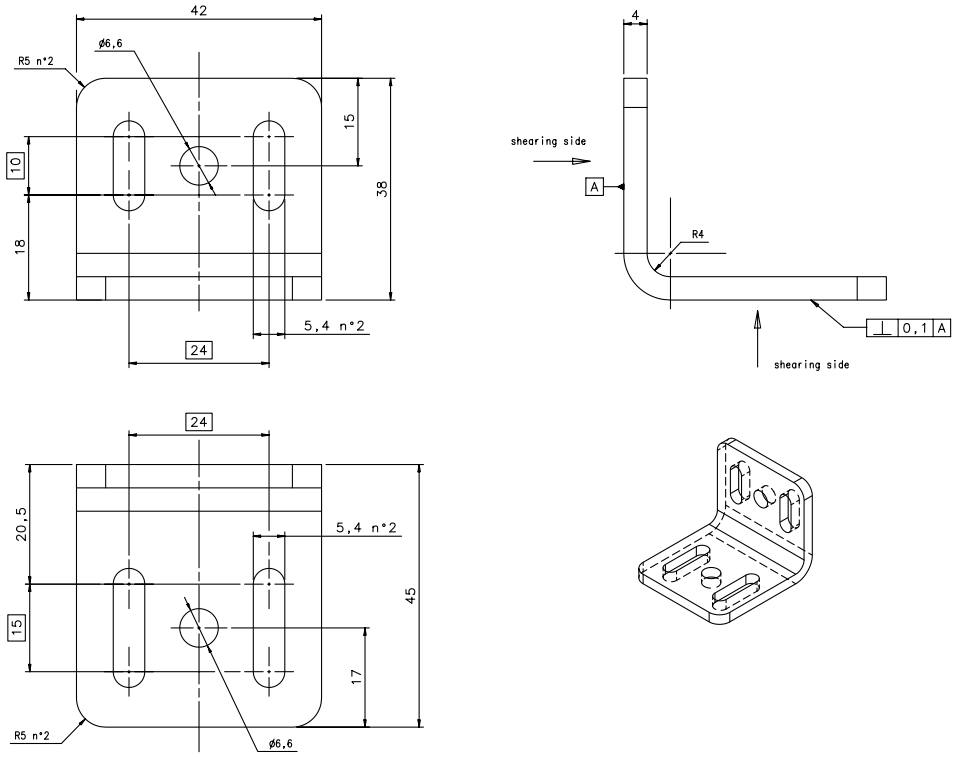
TECHNICAL DATA

	BASE VERSION	MUTING VERSION
Reliability data		
PL (Ref. EN ISO 13849-1)	SG2 : d SG4 : e	SG2 : d SG4 : e
CAT (Ref. EN 954-1)	SG2 : 2 SG4 : 4	SG2 : 2 SG4 : 4
SIL (Ref. EN IEC 61508)	SG2 : 2 SG4 : 3	SG2 : 2 SG4 : 3
SIL CL (Ref. EN IEC 62061)	SG2 : 2 SG4 : 3	SG2 : 2 SG4 : 3
PFHD – Probability of Danger Failure (1/h)	SG2 : 1,19E-08 SG4 :1,10E-08 SG4 40mm LONG RANGE : 1,95E-08	SG2 : 3,15E-08 SG4 : 1,03E-08
T1 – Life Time (Years)	SG2 : 20 SG4 : 20	SG2 : 20 SG4 : 20
MTTFD - Mean Time to Danger Failure (Years)	SG2 : 317 SG4 : 353 SG4 40mm LONG RANGE : 98	SG2 : 288 SG4 : 338
DC – Diagnostic Coverage (%)	SG2 : 96,7% SG4 : 96,4% SG4 40mm LONG RANGE : 98,3%	SG2 : 92,10% SG4 : 96,80%
SFF – Safe Failure Fraction (%)	SG2 : 98% SG4 : 97,9% SG4 40mm LONG RANGE : 98,9%	SG2 : 95,20% SG4 : 98,1%
HFT – Hardware Fault Tolerance	SG2 : 0 SG4 : 1 SG4 40mm LONG RANGE : 1	SG2 : 0 SG4 : 1



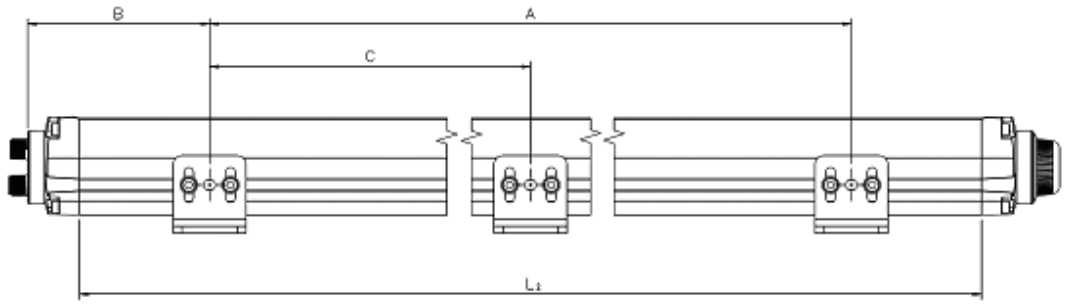
ACCESSORY SELECTION AND ORDER INFORMATION

SIDE FIXING BRACKET



MODEL	DESCRIPTION	CODE
ST-K4STD-SG BODY BIG	Side fixing bracket (4 pcs kit)	95ASE1950
ST-K4AV	Antivibration support (4 pcs kit)	95ACC1700
ST-K6AV	Antivibration support (6 pcs kit)	95ACC1710

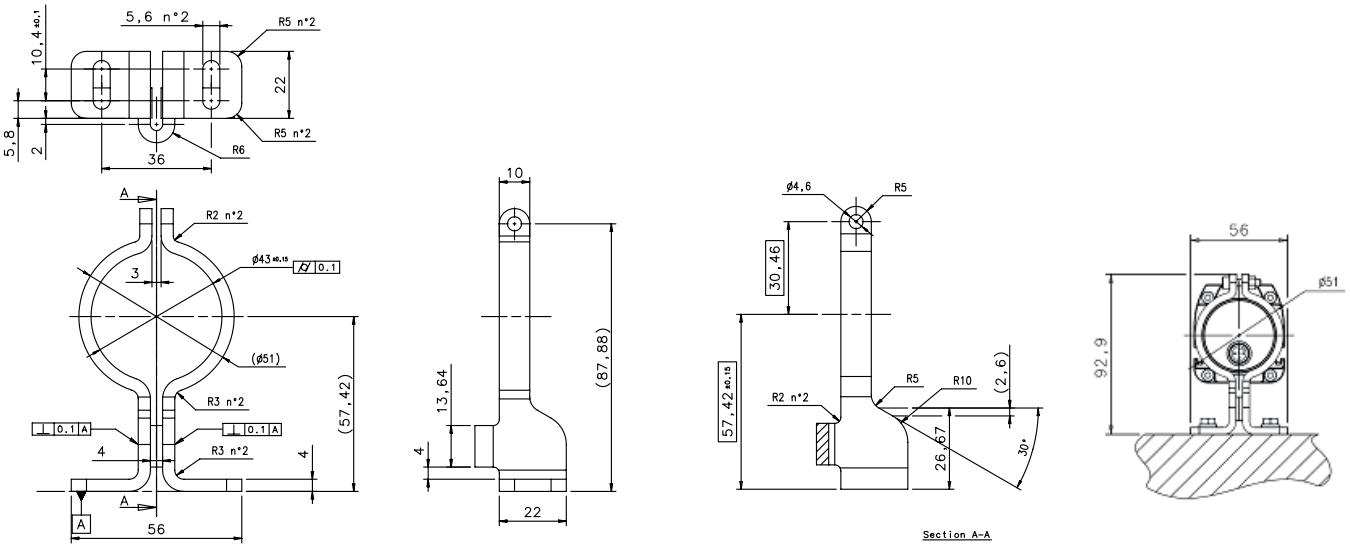
THE RECOMMENDED MOUNTING POSITIONS ACCORDING TO THE LIGHT CURTAIN LENGTH ARE SHOWN IN FIGURE 52 AND IN THE SUBSEQUENT TABLE.



DESCRIPTION	L2[mm]	A [mm]	B [mm]	C [mm]
SGx-yyy2-050-OO-k-x	520,5	320,5	100	-
SGx- yyy3 -080-OO-k-x	820,5	370,5	125	-
SGx- yyy4 -090-OO-k-x	920,5	620,5	150	-
SGx- yyy4 -120-OO-k-x	1220,5	1020,5	100	510,25
SG4-40-060-OO-E	700,5	420,5	140	-
SG4-40-090-OO-E	1000,5	770,5	115	-
SG4-40-120-OO-E	1300,5	1120,5	90	560,25

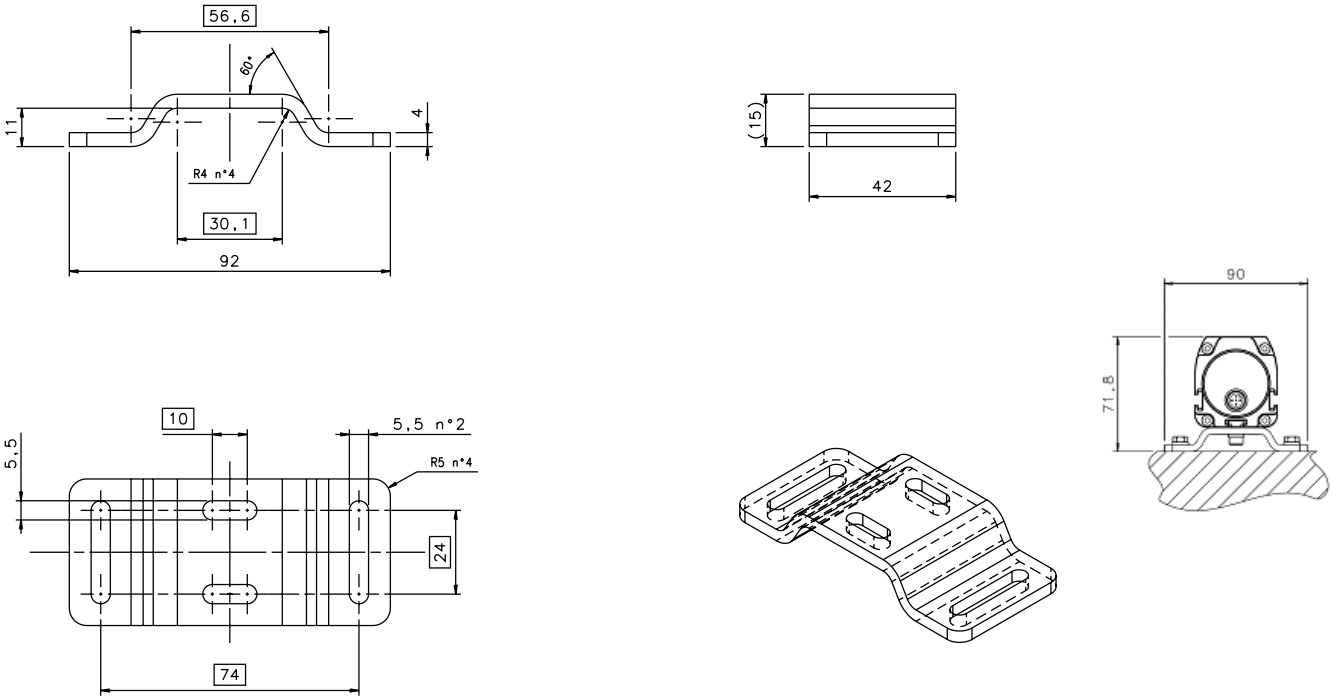
Legend
x : 2 or 4;
yyy : • B
• BSR
• BLR
k : E or W
x : C

ROTATIVE FIXING BRACKET



MODEL	DESCRIPTION	CODE
ST-K4ROT-SG BODY BIG	Rotative Fixing Bracket (4 pcs kit)	95ASE1960

REAR FIXING BRACKET



MODEL	DESCRIPTION	CODE
ST-K4REAR-SG BODY BIG	Rear Fixing Bracket (4 pcs kit)	95ASE1970

NOTE: The aforementioned fixing brackets are not available as outfit

MODEL	DESCRIPTION	CODE
SG-DM 150	Deviating mirror version 150 mm	95ASE1670
SG-DM 600	Deviating mirror version 600 mm	95ASE1680
SG-DM 900	Deviating mirror version 900 mm	95ASE1690
SG-DM 1200	Deviating mirror version 1200 mm	95ASE1700
SG-DM 1650	Deviating mirror version 1650 mm	95ASE1710
SG-DM 1900	Deviating mirror version 1900 mm	95ASE1720
SE-S 800	Column and floor stand H= 800 mm	95ACC1730
SE-S 1000	Column and floor stand H= 1000 mm	95ACC1740
SE-S 1200	Column and floor stand H= 1200 mm	95ACC1750
SE-S 1500	Column and floor stand H= 1500 mm	95ACC1760
SE-S 1800	Column and floor stand H= 1800 mm	95ACC1770
SG-SB	Protective stand base	95ASE1660
SG-PS 600	Protective stand H= 600 mm	95ASE1610
SG-PS 900	Protective stand H= 900 mm	95ASE1620
SG-PS 1200	Protective stand H= 1200 mm	95ASE1630
SG-PS 1650	Protective stand H = 1650 mm	95ASE1640
SG-PS 1900	Protective stand H = 1900 mm	95ASE1650
TP-40	Test piece Ø 40 mm	95ASE1820
TP-50	Test piece Ø 50 mm	95ASE1790
TP-90	Test piece Ø 90 mm	95ASE1800
SG-LP	Laser pointer	95ASE5590
CS-A1-03-U-03	5-pole M12 cable (axial) 3 m	95ASE1170
CS-A1-03-U-05	5-pole M12 cable (axial) 5 m	95ASE1180
CS-A1-03-U-10	5-pole M12 cable (axial) 10 m	95ASE1190
CS-A1-03-U-15	5-pole M12 cable (axial) 15 m	95ASE1200
CS-A1-03-U-25	5-pole M12 cable (axial) 25 m	95ASE1210
CS-A1-03-U-50	5-pole M12 cable (axial) 50m	95A252700
CS-A1-06-U-03	8-pole M12 cable (axial) 3 m	95ASE1220
CS-A1-06-U-05	8-pole M12 cable (axial) 5 m	95ASE1230
CS-A1-06-U-10	8-pole M12 cable (axial) 10 m	95ASE1240
CS-A1-06-U-15	8-pole M12 cable (axial) 15 m	95ASE1250
CS-A1-06-U-25	8-pole M12 cable (axial) 25 m	95ASE1260
CS-A1-06-U-50	8-pole M12 cable (axial) 50 m	95A252710
CS-A1-10-U-03	12-pole M12 cable (axial) 3 m	95A252720
CS-A1-10-U-05	12-pole M12 cable (axial) 5 m	95A252730
CS-A1-10-U-10	12-pole M12 cable (axial) 10 m	95A252740
CS-A1-10-U-15	12-pole M12 cable (axial) 15 m	95A252750
CS-A1-10-U-25	12-pole M12 cable (axial) 25 m	95A252760
CS-A1-10-U-50	12-pole M12 cable (axial) 50 m	95A252770
SG-AS-ARM note 1	Active sensor single arm	95ASE1840
SG-PR-ARM note 1	Passive reflector single arm	95ASE1850
SG-F1-G1-ARMS note 2	F1-G1 muting arm for RX	95ASE1880
SG-F2-G2-ARMS note 2	F2-G2 muting arm for RX	95ASE1890
SG-CB-B	Muting C bracket big kit	95ASE1920
LMS	Muting lamp	95ASE1830
LMS-1	Modular Muting lamp	95ACC1990
LMS-2	Muting lamp - horizontal mounting	95ACC2000
LMS-3	Muting lamp - vertical mounting	95ACC2010
SU-LMS-1A	Basic module for LMS-1	95ACC2020
SU-LMS-1B	Tower module for LMS-1	95ACC2030
CV-Y1-02-B-007	M12 4-pole cable 0.7m for “T” vesions with integrated sensors	95ACC2560
CV-L1-02-B-007	M12 4-pole cable 0.7m for “L” vesions with integrated sensors	95ACC2570
SE-SR2	TYPE 4 SAFETY RELAY 3NO 1NC	95ACC6170
CS ME-03VU24-Y14	EDM RELAY BOX	95ASE1270

note 1: With RRX Muting arms the overall operating distance is reduced to **3 meters**.
RRX Muting arms **MUST BE USED ONLY WITH 0.5..30/60 MT OPERATING DISTANCE MODELS**
note 2: With F/G Muting arms the overall operating distance is reduced to **7 meters.**
F/G Muting arms **MUST BE USED ONLY WITH 0.5..30/60 MT OPERATING DISTANCE MODELS**

MODEL SELECTION TABLE

BASE MODELS

Description	Protected height [mm]	Beams N.	Response time [msec]	Resolution [mm]	Interaxis [mm]	Operating distance [m]	Code
SG2-B2-050-OO-E	500	2	11	519,75	500	0.5..60	957851240
SG2-B3-080-OO-E	800	3	12	419,75	400	0.5..60	957851250
SG2-B4-090-OO-E	900	4	13	319,75	300	0.5..60	957851260
SG2-B4-120-OO-E	1200	4	13	419,75	400	0.5..60	957851270
SG4-B2-050-OO-E	500	2	11	519,75	500	6..60	957851280
SG4-B3-080-OO-E	800	3	12	419,75	400	6..60	957851290
SG4-B4-090-OO-E	900	4	13	319,75	300	6..60	957851300
SG4-B4-120-OO-E	1200	4	13	419,75	400	6..60	957851310
SG4-40-060-OO-E	660	33	20	40	20	6..60	957851570
SG4-40-090-OO-E	960	48	22	40	20	6..60	957851580
SG4-40-120-OO-E	1260	63	24	40	20	6..60	957851590

MUTING MODELS

Description	Protected height [mm]	Beams N.	Response time [msec]	Resolution [mm]	Interaxis [mm]	Operating distance [m]	Code
SG2-B2-050-OO-W-C	500	2	No code: 11 Code: 17	519,75	500	0.5..60	957851320
SG2-B3-080-OO-W-C	800	3	No code: 12 Code: 19	419,75	400	0.5..60	957851330
SG2-B4-090-OO-W-C	900	4	No code: 13 Code: 21	319,75	300	0.5..60	957851340
SG2-B4-120-OO-W-C	1200	4	No code: 13 Code: 21	419,75	400	0.5..60	957851350
SG4-BSR2-050-OO-W-C	500	2	No code: 11 Code: 17	519,75	500	0.5..30	957851400
SG4-BSR3-080-OO-W-C	800	3	No code: 12 Code: 19	419,75	400	0.5..30	957851410
SG4-BSR4-090-OO-W-C	900	4	No code: 13 Code: 21	319,75	300	0.5..30	957851420
SG4-BSR4-120-OO-W-C	1200	4	No code: 13 Code: 21	419,75	400	0.5..30	957851430
SG4-BLR2-050-OO-W-C	500	2	No code: 11 Code: 17	519,75	500	6..60	957851360
SG4-BLR3-080-OO-W-C	800	3	No code: 12 Code: 19	419,75	400	6..60	957851370
SG4-BLR4-090-OO-W-C	900	4	No code: 13 Code: 21	319,75	300	6..60	957851380
SG4-BLR4-120-OO-W-C	1200	4	No code: 13 Code: 21	419,75	400	6..60	957851390

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

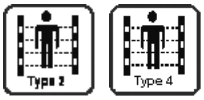
DATALOGIC

SAFETY

SG BODY COMPACT SERIES

SG BODY COMPACT is the new family of Datalogic Automation Type 2 and Type 4 safety light curtains for body protection and access control able to rapidly and effectively solve all the industrial safety applications mainly in automotive field, packaging and material handling.
SG BODY COMPACT perfectly combines vanguard technology, extremely high performances and Datalogic distinctive ***SAFEasy***™ concept.
2, 3 and 4 beams models with controlled height of 500, 800, 900 and 1200mm all reaching 50m operating distance are available.
All SG BODY "COMPACT" models are then provided in 2 different versions:
· **BASE** version represents the ideal product for all applications where Muting function is not required but EDM and MANUAL/AUTOMATIC restart functions are basic requirements for very standard applications;
· **MUTING** version series satisfy all applications that require the Muting function, thanks to the use of preassembled, pre-cabled and pre-aligned Muting sensors. Polarized retroreflex or through beam models with 'T' integrated Muting sensors for two-way Muting, 'L' integrated Muting sensors for one-way and linear versions without integrated Muting sensors.





HIGHLIGHTS

- Up to 50mt operating distance
- 2,3,4 beams 500, 800, 900 and 1200mm controlled height
- Two versions : BASE and MUTING
- No programming required : integrated safety functions WIRE or DIP SWITCH selectable
- Integrated Muting with all advanced features associated to like 'L' or 'T' configurations, EDM, Manual/ Automatic RESTART selectable
- Integrated LED MUTING lamp;
- Same profile of SE series;
- Compatible with SE series;
- TOP-BOTTOM Rotating brackets for easier alignment
- Type 2 models SIL 2 and PL d and Type 4 models SIL 3 PL e

APPLICATIONS

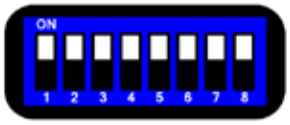
Extreme reliability and simplicity make the SG BODY COMPACT safety light curtains the ideal solution for the following applications:
- Automatic machines
- Robots
- Automatic assembling lines
- Palletizers and Depalletizers

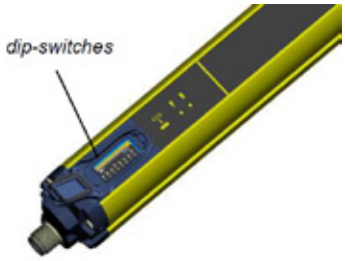


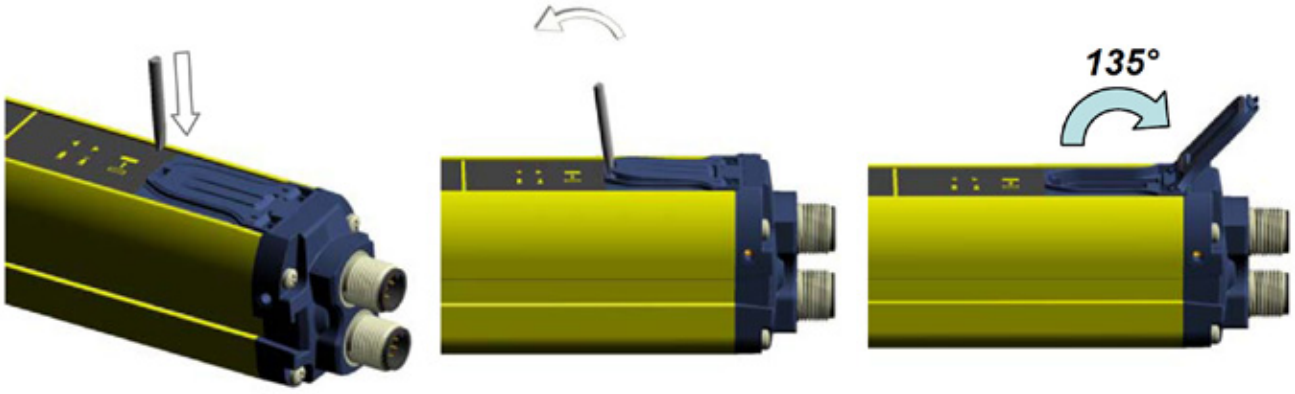


SETTINGS

A slot located in the front side of the RX unit, that can be easily opened using a screwdriver, simplifies the access to the internal dip-switches used for enabling/configuring integrated functions





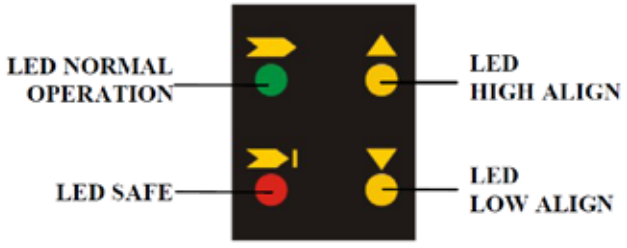
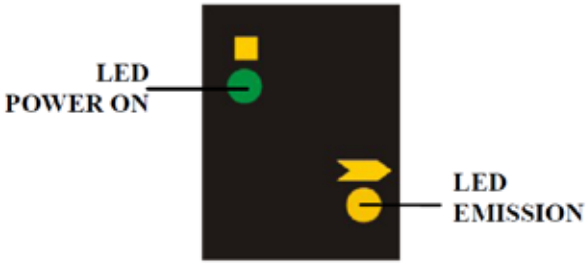


BASE VERSION			
Switch	Function	ON	OFF
1,5	-	-	-
2,6	-	-	-
3,7	EDM	Deactivated	Activated
4,8	Restart	Automatic	Manual

MUTING VERSION			
Switch	Function	ON	OFF
1,5	Muting time-out	10 min.	∞
2,6	Muting	T config. (4 beams)	L config. (2 beams)
3,7	EDM	Deactivated	Activated
4,8	Restart	Automatic	Manual

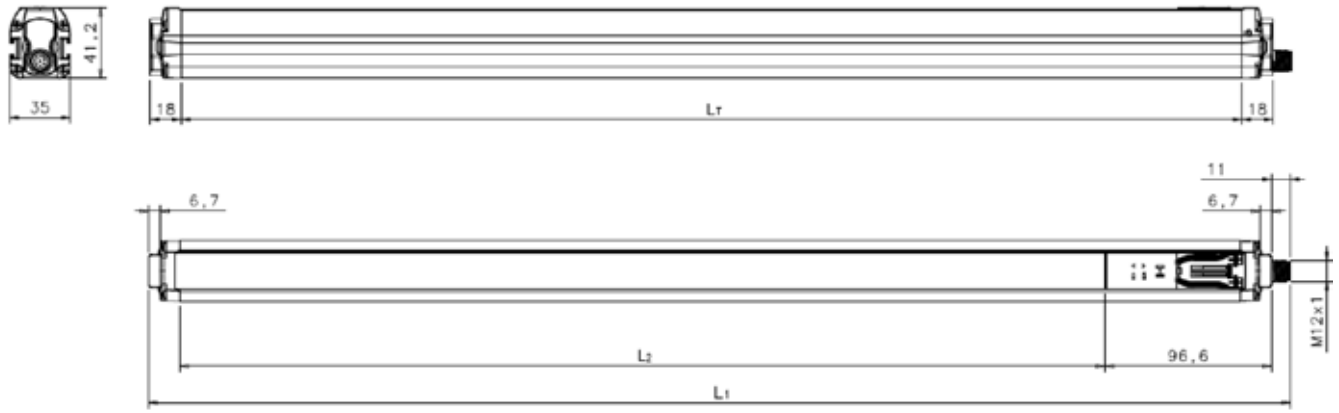
INDICATORS

The operator can check the operating condition of the light curtains through four LEDs positioned on the receiving unit and two LEDs on the emitting unit.

RX	TX
	

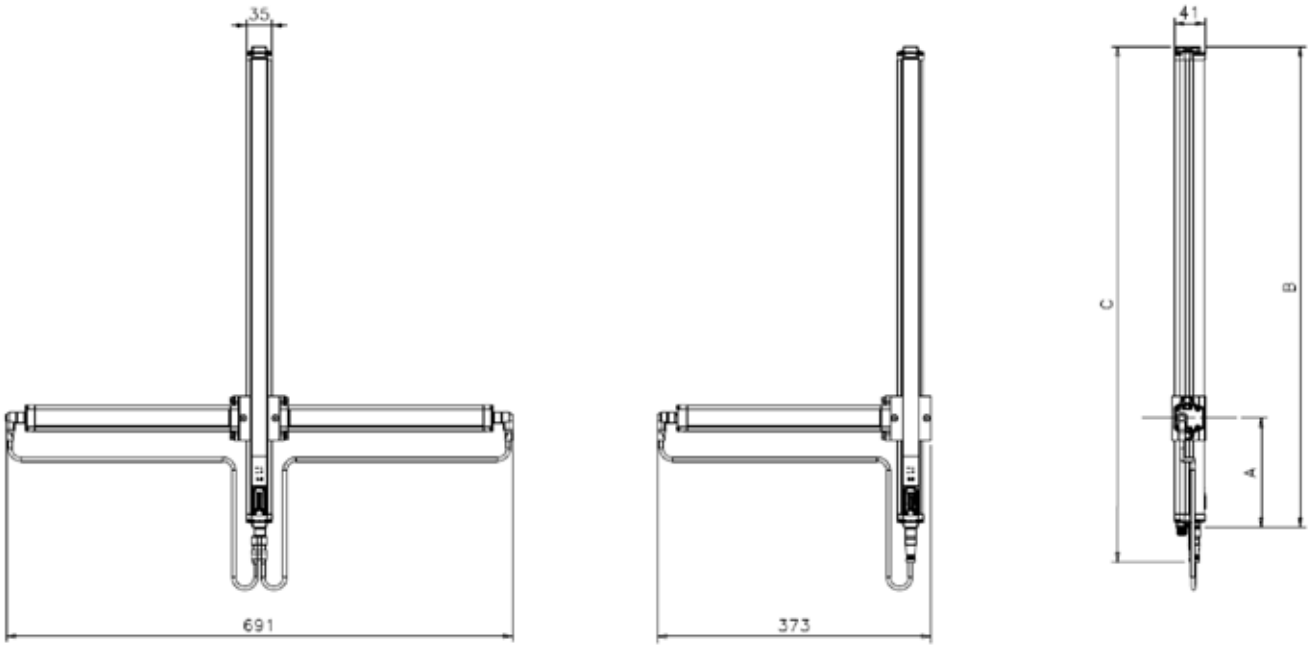
DIMENSIONS

BASE VERSION



Model	L1	L2	L3
2 BEAMS 500mm	664	617	538.4
3 BEAMS 800mm	964	917	838.4
4 BEAMS 900mm	1064	1017	938.4
4 BEAMS 1200mm	1364	1317	1238.4

MUTING VERSION



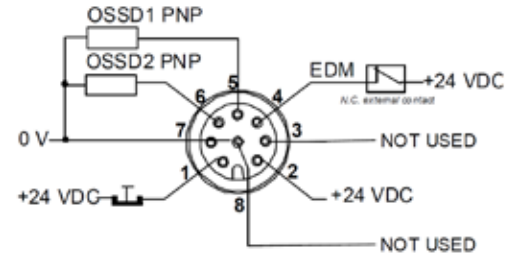
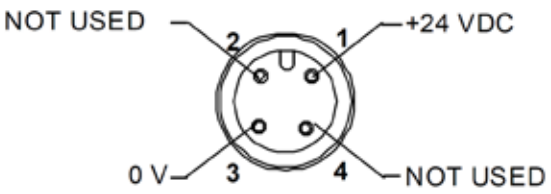
Model	A [mm]	B [mm]	C [mm]
2 BEAMS 500mm	120-260	653	700
3 BEAMS 800mm	120-260	953	1000
4 BEAMS 900mm	120-260	1053	1100
4 BEAMS 1200mm	120-260	1353	1400

CONNECTIONS

BASE VERSION CONNECTIONS

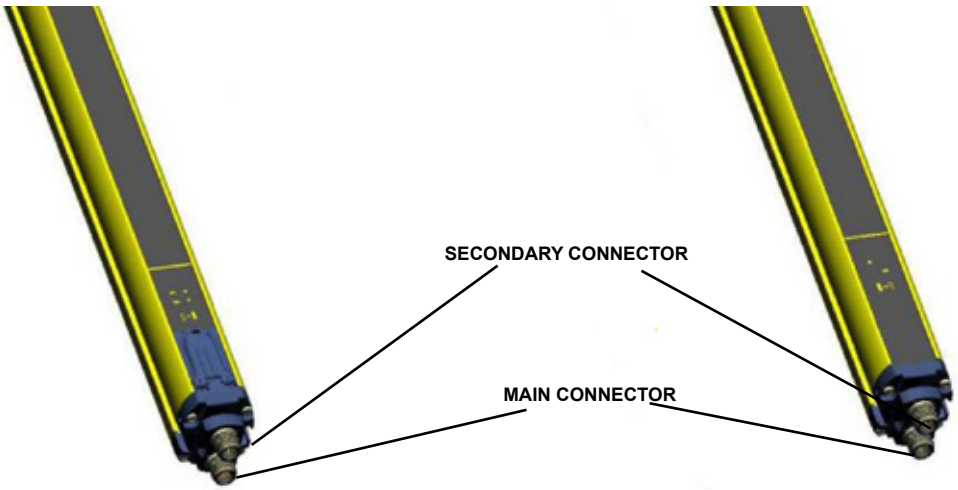




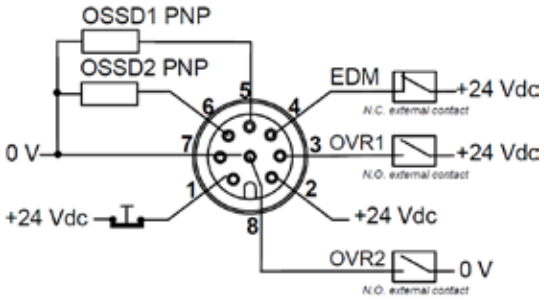
RX	TX
	
M12 8-pole connector 1 = white = TEST/START 2 = brown = 24 Vdc 3 = green = NOT USED 4 = yellow = EDM 5 = grey = OSSD1 6 = pink = OSSD2 7 = blue = 0V 8 = red = NOT USED	**M12 4-pole connector** 1 = Brown = 24Vdc 2 = White = NOT USED 3 = Blue = 0V 4 = Black = NOT USED

CONNECTIONS

MUTING VERSION CONNECTIONS

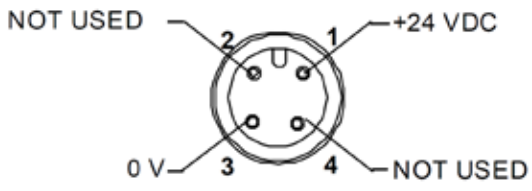


RX	TX



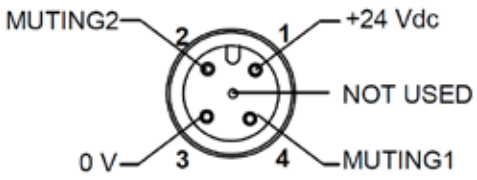
Main connector: M12 8-pole connector

1	=	white	=	TEST/START
2	=	brown	=	24 VDC
3	=	green	=	OVERRIDE 1
4	=	yellow	=	EDM
5	=	grey	=	OSSD1
6	=	pink	=	OSSD2
7	=	blue	=	0V
8	=	red	=	OVERRIDE 2



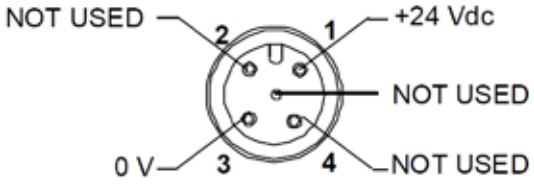
Main connector: M12 4-pole connector

1	=	brown	=	24 VDC
2	=	white	=	NOT USED
3	=	blue	=	0 V
4	=	black	=	NOT USED



Secondary connector: M12 5-pole connector

1	=	brown	=	24 VDC
2	=	white	=	MUTING2
3	=	blue	=	0V
4	=	black	=	MUTING1
5	=	grey	=	NOT USED



Secondary connector: M12 5-pole connector

1	=	brown	=	24 VDC
2	=	white	=	NOT USED
3	=	blue	=	0 V
4	=	black	=	NOT USED
5	=	grey	=	NOT USED

TECHNICAL DATA

	BASE VERSION	MUTING VERSION
Power supply = Vdd:	24 Vdc ± 20% (SELV/PELV)	24 Vdc ± 20% (SELV/PELV)
Internal capacitance:	23 nF (Tx) /120 nF (Rx)	23 nF (Tx) /120 nF (Rx)
Outputs:	2 PNP outputs (2 NPN on request) short-circuit protection max: 1.4A at 55°C min: 1.1A at -10°C	2 PNP outputs (2 NPN on request) short-circuit protection max: 1.4A at 55°C min: 1.1A at -10°C
Output current:	0.5 A max / each output	0.5 A max / each output
Output voltage - ON min:	Vdd –1 V	Vdd –1 V
Output voltage - OFF max:	0.2 V	0.2 V
Leakage current:	< 1mA	< 1mA
Capacitive load (pure):	65 nF max at 25°C	65 nF max at 25°C
Response time:	From 14 to 16 ms	From 14 to 16 ms
Emission type:	Infrared (880 nm)	Infrared (880 nm)
Resolution:	315 mm (4 beams)	315 mm (4 beams)
	415 mm (3 and 4 beams)	415 mm (3 and 4 beams)
	515 mm (2 beams)	515 mm (2 beams)
Operating distance:	0.5…50 m	0.5…3 m (SG2-T/L and SG4-T/L); 0.5…50 m (SG2-S and SG4-S)
Ambient light rejection	IEC 61496-2	IEC 61496-2
Safety category:	Type 4 / Type 2 (ref. EN 61496-1)	Type 4 / Type 2 (ref. EN 61496-1)
Auxiliary functions:	Restart/EDM/Reset	Muting / Override
		Restart/EDM/Reset
Time-out period:		Muting: 10 minutes / ∞ Override: 2 minutes
Operating temperature:	- 10…+ 55 °C	- 10…+ 55 °C
Storage temperature:	- 25…+ 70 °C	- 25…+ 70 °C
Temperature class:	T6 (Tx/Rx/Arm)	T6 (Tx/Rx/Arm)
Humidity:	15…95 % (no condensation)	15…95 % (no condensation)
Electrical protection:	Class 1 (**refer to note)	Class 1 (**refer to note)
Mechanical protection:	IP 65 (EN 60529)	IP 65 (EN 60529)
Ambient light rejection:	IEC-61496-2	IEC-61496-2
Vibrations:	0.35 mm width, 10 … 55 Hz frequency, 20 sweep for each axis, 1octave/min (EN 60068-2-6)	0.35 mm width, 10 … 55 Hz frequency, 20 sweep for each axis, 1octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10 G) 1.000 shock for each axis (EN 60068-2-29)	16 ms (10 G) 1.000 shock for each axis (EN 60068-2-29)
Housing material:	Painted alluminium (yellow RAL 1003)	Painted alluminium (yellow RAL 1003)
Cap material:	PC Lexan 943A	PC Lexan 943A
Lens material:	PMMA	PMMA
Connections:	Tx: conn. M12-4 poles	Tx: conn. M12-4 poles + conn. M12-5 poles
	Rx: conn. M12-8 poles	Rx: conn. M12-8 poles + conn. M12-5 poles
Cable length:	50 m. max (* refer to note) (with 50nF capactive load and Vdc=24V)	

* if a longer cable has to be used, please verify that the same specifications are respected
** Electrical protection

	Class 1	Class 3
Protective grounding	Compulsory	Not accepted
Symbol for connection protective grounding	Compulsory	Not accepted
Protection by means of extra-low voltage with protective separation (SELV and PELV)	Recommended	Compulsory

RELIABILITY DATA

	BASE VERSION	MUTING VERSION
PL (Ref. EN ISO 13849-1)	SG2 : d SG4 : e	SG2 : d SG4 : e
CAT (Ref. EN 954-1)	SG2 : 2 SG4 : 4	SG2 : 2 SG4 : 4
SIL (Ref. EN IEC 61508)	SG2 : 2 SG4 : 3	SG2 : 2 SG4 : 3
SIL CL (Ref. EN IEC 62061)	SG2 : 2 SG4 : 3	SG2 : 2 SG4 : 3
PFHD – Probability of Danger Failure (1/h)	SG2 : 1,00E-08 SG4 : 2,62E-09	SG2 : 1,00E-08 SG4 : 2,62E-09
T1 – Life Time (Years)	SG2 : 20 SG4 : 20	SG2 : 20 SG4 : 20
MTTFD - Mean Time to Danger Failure (Years)	SG2 : 337 SG4 : 384	SG2 : 337 SG4 : 384
DC – Diagnostic Coverage (%)	SG2 : 97% SG4 : 98,9%	SG2 : 97% SG4 : 98,9%
SFF – Safe Failure Fraction (%)	SG2 : 98,14% SG4 : 99,38%	SG2 : 98,14% SG4 : 99,38%
HFT – Hardware Fault Tolerance	SG2 : 0 SG4 : 1	SG2 : 0 SG4 : 1

MODEL SELECTION TABLE

BASE VERSION

Description	Prot. height [mm]	Beams N.	Resp. time [msec]	Resolution [mm]	Interaxis [mm]	Op. distance [m]	Code
SG2-S2-050-PP-E	515	2	14	515	500	0.5..50	957851000
SG2-S3-080-PP-E	815	3	14	415	380	0.5..50	957851010
SG2-S4-090-PP-E	915	4	16	315	300	0.5..50	957851020
SG2-S4-120-PP-E	1215	4	16	415	400	0.5..50	957851030
SG4-S2-050-PP-E	515	2	14	515	500	0.5..50	957851040
SG4-S3-080-PP-E	815	3	14	415	380	0.5..50	957851050
SG4-S4-090-PP-E	915	4	16	315	300	0.5..50	957851060
SG4-S4-120-PP-E	1215	4	16	415	400	0.5..50	957851070

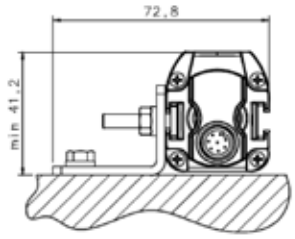
MUTING VERSION

Description	Prot. height [mm]	Beams N.	Resp. time [msec]	Resolution [mm]	Interaxis [mm]	Op. distance [m]	Code
SG2-S2-050-PP-W	515	2	14	515	500	0.5..50	957851080
SG2-S3-080-PP-W	815	3	14	415	400	0.5..50	957851090
SG2-S4-090-PP-W	915	4	16	315	300	0.5..50	957851100
SG2-S4-120-PP-W	1215	4	16	415	400	0.5..50	957851110
SG2-L2-050-PP-W	515	2	14	515	500	0.5..3	957851120
SG2-L3-080-PP-W	815	3	14	415	400	0.5..3	957851130
SG2-T2-050-PP-W	915	2	14	515	500	0.5..3	957851140
SG2-T3-080-PP-W	1215	3	14	415	400	0.5..3	957851150
SG4-S2-050-PP-W	515	2	14	515	500	0.5..50	957851160
SG4-S3-080-PP-W	815	3	14	415	400	0.5..50	957851170
SG4-S4-090-PP-W	915	4	16	315	300	0.5..50	957851180
SG4-S4-120-PP-W	1215	4	16	415	400	0.5..50	957851190
SG4-L2-050-PP-W	515	2	14	515	500	0.5..3	957851200
SG4-L3-080-PP-W	815	3	14	415	400	0.5..3	957851210
SG4-T2-050-PP-W	515	2	14	515	500	0.5..3	957851220
SG4-T3-080-PP-W	815	3	14	415	400	0.5..3	957851230

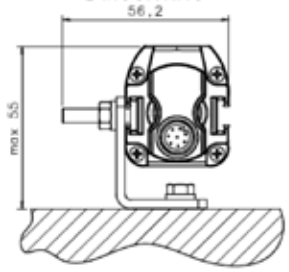
ACCESSORY SELECTION AND ORDER INFORMATION

SIDE FIXING BRACKET

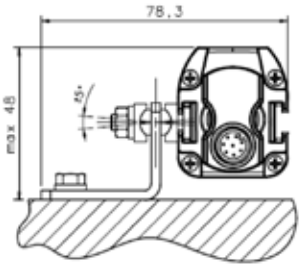
A MOUNTING

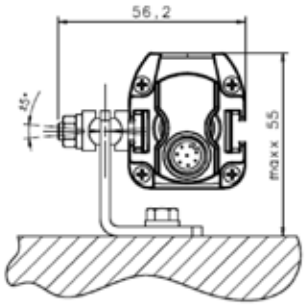


B MOUNTING

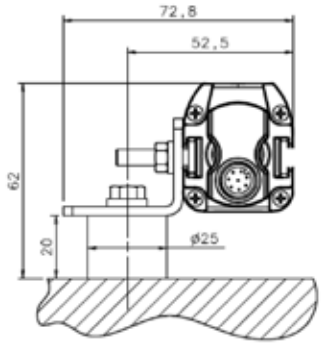


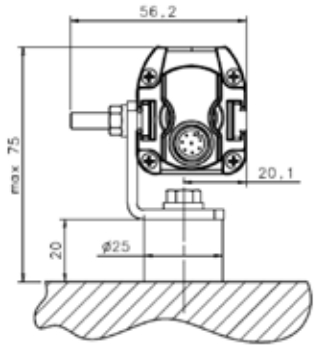
Angled fixing bracket



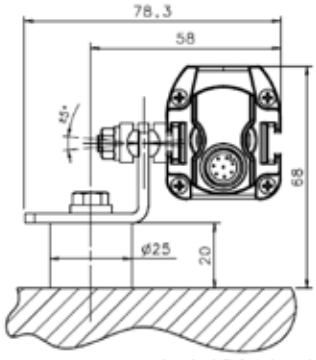


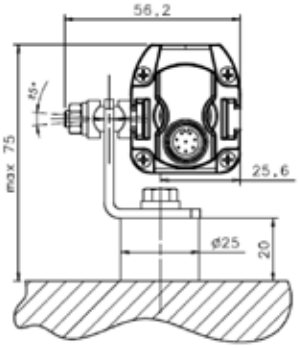
Angled fixing bracket + Orientable support





Angled fixing bracket + Antivibration support



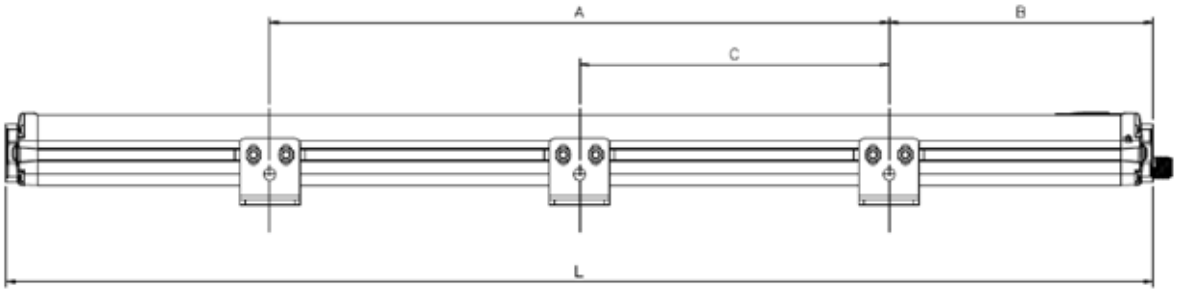


Angled fixing bracket + Orientable support + Antivibration support

MODEL	DESCRIPTION	CODE
ST-KSTD	Fixing brackets for angle mounting (4 pcs kit)	95ACC1670
ST-K4AV	Antivibration support (4 pcs kit)	95ACC1700
ST-K6AV	Antivibration support (6 pcs kit)	95ACC1710
ST-K4OR	Orientable support (4 pcs kit)	95ACC1680
ST-K6OR	Orientable support (6 pcs kit)	95ACC1690

ACCESSORY SELECTION AND ORDER INFORMATION

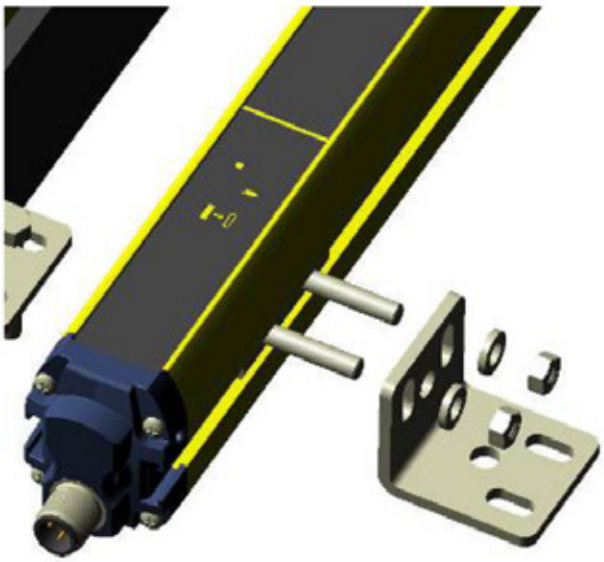
The recommended mounting positions according to the light curtain length are shown in the subsequent table.



DESCRIPTION	L2[mm]	A [mm]	B [mm]	C [mm]
SGx-S2-050-PP-y	653	342	150	-
SGx-S3-080-PP-y	953	542	200	-
SGx-S4-090-PP-y	1053	602	220	-
SGx-S4-120-PP-y	1353	942	200	472
SGx-L2-050-PP-W	653	342	150	-
SGx-L3-080-PP-W	953	542	200	-
SGx-T2-050-PP-W	653	342	150	-
SGx-T3-080-PP-W	953	542	200	-

x = Type 2 or Type 4 models
y = E for BASE version W for MUTING version

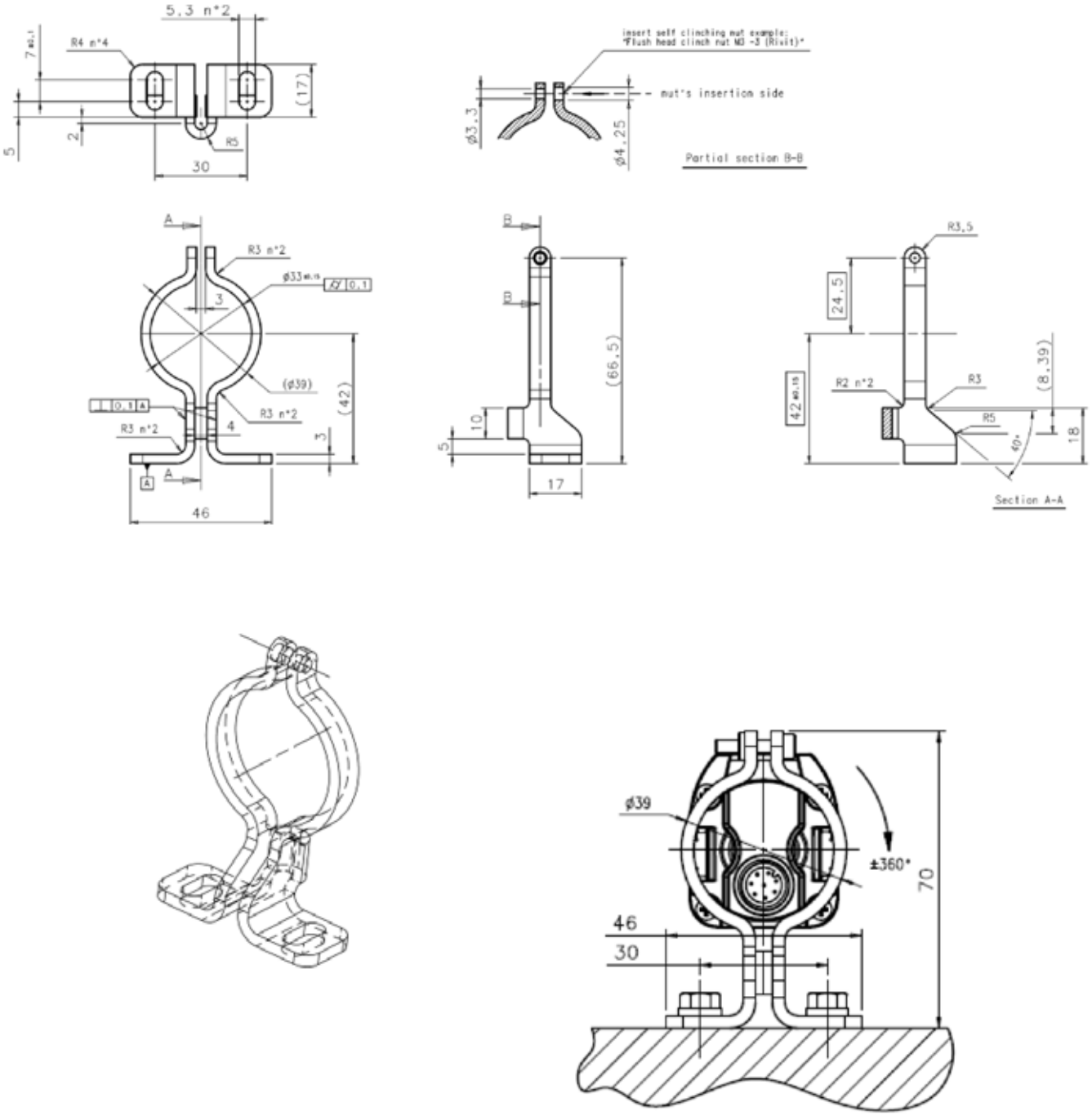
NOTE: The side fixing brackets are provided into the package as outfit. Models with controlled area less than 1200mm are provided with 4 side fixing brackets; models with 1200mm controlled area are provided with 6 side fixing brackets.





ACCESSORY SELECTION AND ORDER INFORMATION

ROTATIVE FIXING BRACKET

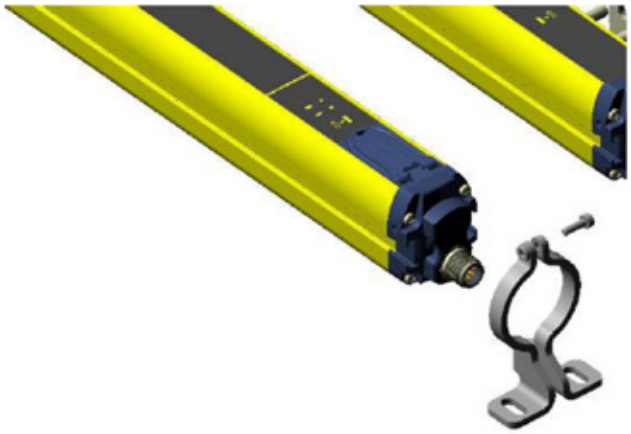


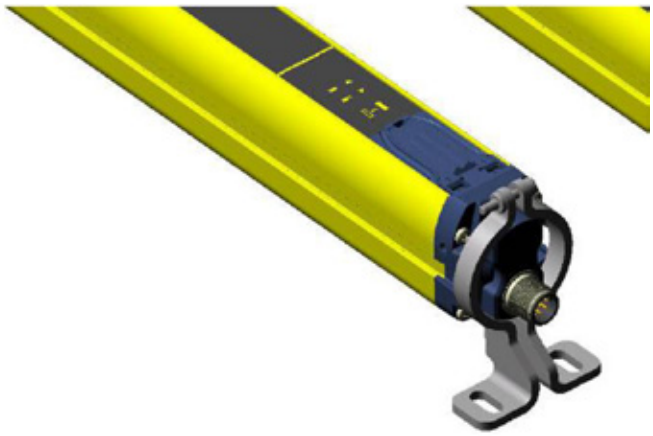
MODEL	DESCRIPTION	CODE
ST-K4ROT-SG BODY COMPACT	Rotative Fixing Bracket (4 pcs kit)	95ASE2040

NOTE: The rotating fixing brackets are not available as outfit

ACCESSORY SELECTION AND ORDER INFORMATION

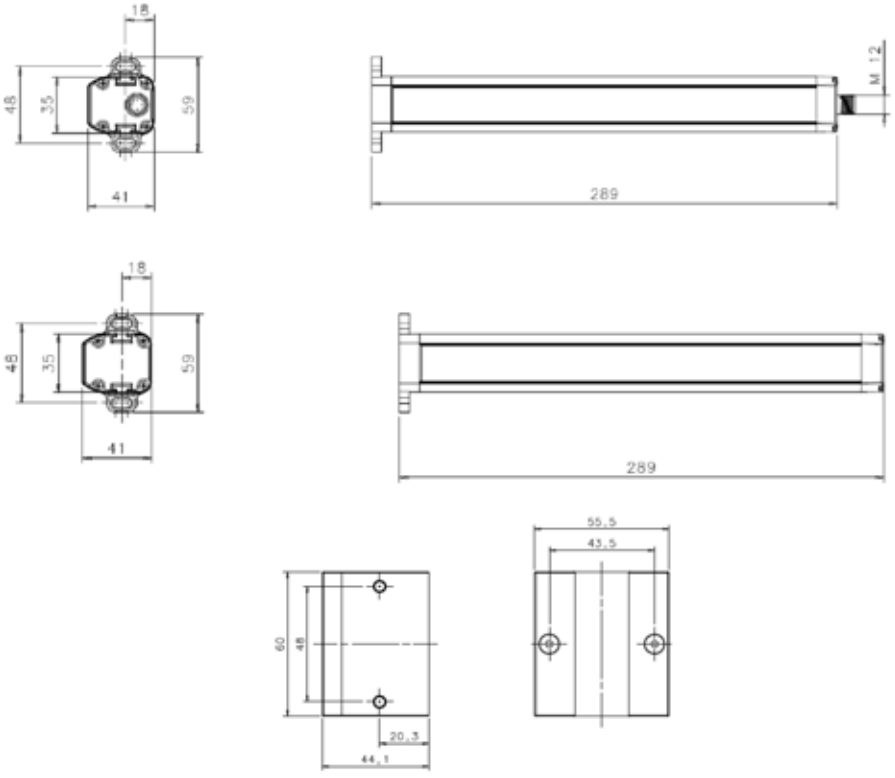
ROTATIVE FIXING BRACKET MOUNTING





MUTING ARMS

SG BODY COMPACT series light curtains are available in T models for bidirectional Muting and L models for unidirectional Muting with Muting arms provided of retroreflex sensors; also linear models without integrated Muting sensors are available. These models can be converted in T models and L models by means of Muting arms accessories.
Muting arms are available in 2 versions: with retroretroreflex sensors and with emitter-receiver sensors. SG BODY COMPACT light curtains are designed, on both emitter and receiver, for mounting of both tipology of Muting arms.
The following figures show, respectively, the dimensions of single active arms, of single passive arms, and the corresponding fixing bracket stand alone.



ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE
SE-S 800	Column and floor stand H= 800 mm	95ACC1730
SE-S 1000	Column and floor stand H= 1000 mm	95ACC1740
SE-S 1200	Column and floor stand H= 1200 mm	95ACC1750
SE-S 1500	Column and floor stand H= 1500 mm	95ACC1760
SE-S 1800	Column and floor stand H= 1800 mm	95ACC1770
SG-SB	Protective stand base	95ASE1660
SG-PS 600	Protective stand H= 600 mm	95ASE1610
SG-PS 900	Protective stand H= 900 mm	95ASE1620
SG-PS 1200	Protective stand H= 1200 mm	95ASE1630
SG-PS 1650	Protective stand H = 1650 mm	95ASE1640
SG-PS 1900	Protective stand H = 1900 mm	95ASE1650
TP-50	Test piece Ø 50 mm	95ASE1790
TP-90	Test piece Ø 90 mm	95ASE1800
SG-LP	Laser pointer	95ASE5590
CS-A1-03-U-03	5-pole M12 cable (axial) 3 m	95ASE1170
CS-A1-03-U-05	5-pole M12 cable (axial) 5 m	95ASE1180
CS-A1-03-U-10	5-pole M12 cable (axial) 10 m	95ASE1190
CS-A1-03-U-15	5-pole M12 cable (axial) 15 m	95ASE1200
CS-A1-03-U-25	5-pole M12 cable (axial) 25 m	95ASE1210
CS-A1-03-U-50	5-pole M12 cable (axial) 50m	95A252700
CS-A1-06-B-NC	axial M12-8 pole	95ACC2550
CV-A1-22-B-03	axial shielded 4-pin 3 m cable	95ACC1480
CV-A1-22-B-05	axial shielded 4-pin 5 m cable	95ACC1490
CV-A1-22-B-10	axial shielded 4-pin 10 m cable	95ACC1500
CV-A1-22-B-15	axial shielded 4-pin 15 m cable	95ACC2070
CV-A1-22-B-25	axial shielded 4-pin 25 m cable	95ACC2090
CV-A1-26-B-03	axial shielded 8-pin 3 m cable	95ACC1510
CV-A1-26-B-05	axial shielded 8-pin 5 m cable	95ACC1520
CV-A1-26-B-10	axial shielded 8-pin 10 m cable	95ACC1530
CV-A1-26-B-15	axial shielded 8-pin 15 m cable	95ACC2080
CV-A1-26-B-25	axial shielded 8-pin 25 m cable	95ACC2100
CV-A2-22-B-03	radial shielded 4-pin 3 m cable	95ACC1540
CV-A2-22-B-05	radial shielded 4-pin 5 m cable	95ACC1550
CV-A2-22-B-10	radial shielded 4-pin 10 m cable	95ACC1560
SG-AS-ARM note 1	Active sensor single arm	95ASE1840
SG-PR-ARM note 1	Passive reflector single arm	95ASE1850
SG-L-ARMS	L COUPLE ARMS	95ASE1860
SG-T-ARMS	T COUPLE ARMS	95ASE1870
SG-F1-G1-ARMS note 2	F1-G1 muting arm for RX	95ASE1880
SG-F2-G2-ARMS note 2	F2-G2 muting arm for RX	95ASE1890
SG-CB-C	Muting C bracket compact kit	95ASE1930
CV-Y1-02-B-007	M12 4-pole cable 0.7m for “T” vesions with integrated sensors	95ACC2560
CV-L1-02-B-007	M12 4-pole cable 0.7m for “L” vesions with integrated sensors	95ACC2570
SE-SR2	TYPE 4 SAFETY RELAY 3NO 1NC	95ACC6170
CS ME-03VU24-Y14	EDM RELAY BOX	95ASE1270

note 1: With RRX Muting arms the overall operating distance is reduced to **3 meters**.
note 2: With F/G Muting arms the overall operating distance is reduced to **7 meters.** F/G Muting arms **can be mounted on TX and RX units by using secondary connectors.**

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATALOGIC

SAFETY

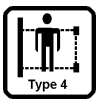
SG-BODY "BIG" REFLECTOR SERIES

The new **SG BODY "BIG"** safety light curtain series thanks to its new housing together with the innovative design optical-electronic platform ensures the performance of high-level safety light curtain required in the material handling market.
Classical TX-RX models are now completed by **"REFLECTOR"** models made by an active unit and a complete passive unit, with integrated moulded plastic mirrors, reaching up to **8m**, available in **2, 3 and 4 beams** with 5**00, 800, 900 and 1200mm** controlled height. REFLECTOR models are provided in 2 different versions :

- **BASE** version that represents the ideal product for all applications where Muting function is not required but EDM, MANUAL/AUTOMATIC restart are fundamental;
- **MUTING** version integrates the Muting function and completes it with all advanced features associated to like 'L' or 'T' configurations, edged or triggered OVERRIDE and external Muting enable.

Total absence of "DEAD ZONE", 7 segment displays USER INTERFACE for signaling and diagnostics, alignment AID function, both integrated and external muting lamp and 3 different types of mounting brackets (SWIVELLING SIDE for "THIN MOUNTING", TOP-BOTTOM ROTATING and REAR) complete the product and make it the ideal and most performing solution for all the industrial application.





HIGHLIGHTS

- Same big sturdy profile for both active and passive unit with same length;
- Up to 8mt operating distance;
- 2,3,4 beams with 500, 800, 900 and 1200mm controlled height;
- Two models : BASE and MUTING;
- No programming required : integrated safety functions DIP SWITCH selectable;
- Integrated muting Muting with all advanced features associated to like anti-interference coding, 'L' o 'T' configurations, edged or triggered OVERRIDE and external Muting enable.
- Same profile for active and passive unit
- Type 4 models SIL 3 and PL e

APPLICATIONS

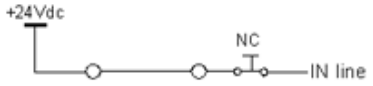
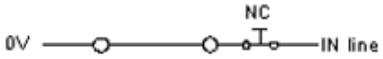
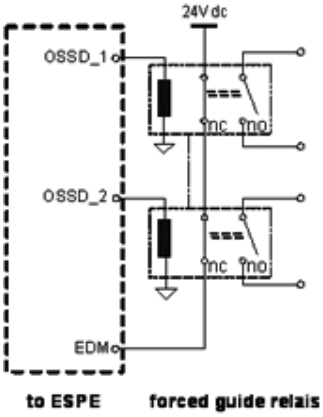
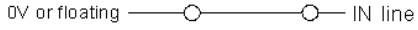
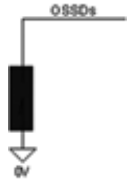
Extreme reliability and simplicity make the SG BODY safety light curtains the ideal solution for the following applications:
- Automatic machines
- Robots
- Automatic assembling lines
- Palletizers and Depalletizers





SETTINGS

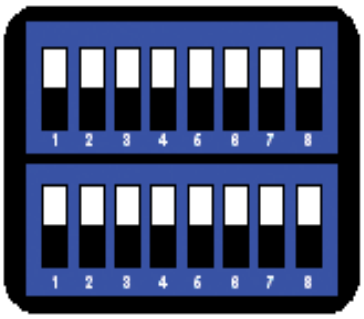
BASE VERSION
In BASE versions integrated functions can be selected or enabled through dedicate wires on ACTIVE UNIT M12 connectors

Line	Layout connection	Behaviour
RESET/RESTART/RESTART MODE		Automatic restart
RESET/RESTART/RESTART MODE		Manual restart
EDM		(EDM ENABLE: active)
EDM ENABLE		EDM enabled
OSSDs		

MUTING VERSION
A closing cap coupled with the top cap of the ACTIVE UNIT can be unscrewed to access dip-switches slot. By means of internal dip-switches the user can set-up some functions.
ACTIVE UNIT closiong cap contains LED integrated MUTING lamp







	ON	OFF
Dip switch n°1: Muting timeout Dip switch n°2: Muting T/L Dip switch n°3: Muting filter Dip switch n°4: Override restart Dip switch n°5: Override mode Dip switch n°6: EDM enable Dip switch n°7-8: not used	10 min T Disabled Manual Edged EDM on	∞ L Enabled Automatic Triggered EDM off

INDICATORS

A user interface aids the customer to control and check the state of the light curtain, for alignment mode, normal operation and for troubleshooting activity. User interface is composed by four LEDs and an one-digit display on the ACTIVE UNIT.

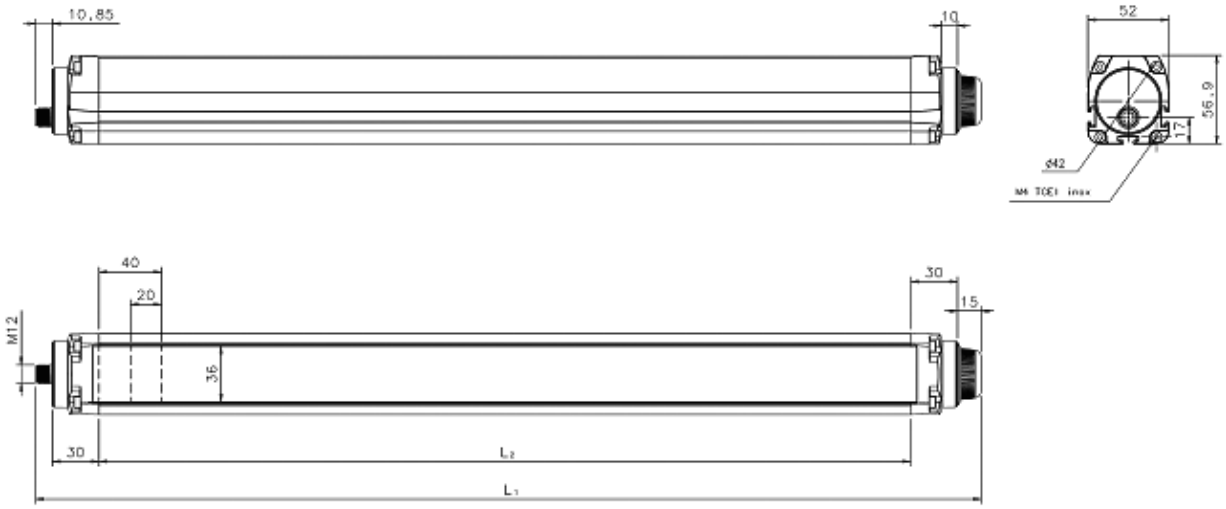
ACTIVE UNIT



DIMENSIONS

BASE VERSION - ACTIVE UNIT

LINEAR

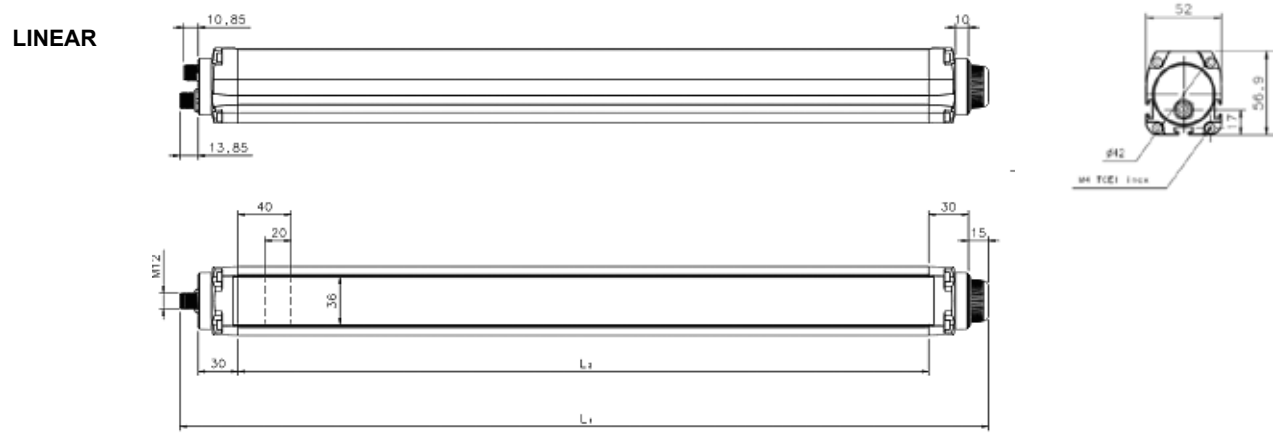


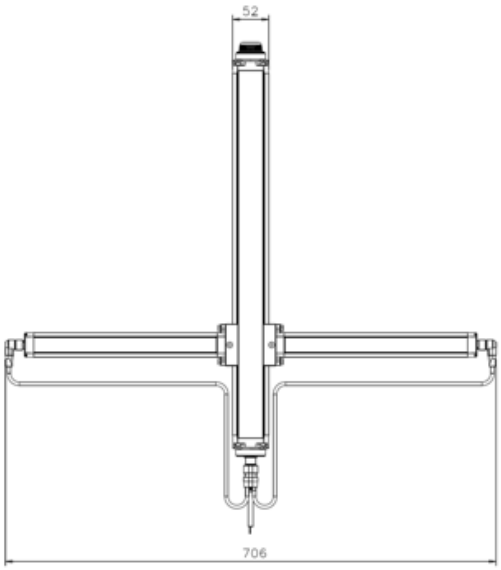
Model	L1 [mm]	L2 [mm]
SG4-RB2-050-OO-E	606,35	520,5
SG4-RB3-080-OO-E	906,35	820,5
SG4-RB4-090-OO-E	1006,35	920,5
SG4-RB4-120-OO-E	1306,35	1220,5

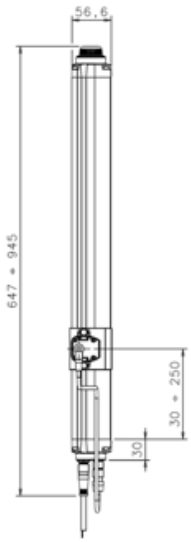
DIMENSIONS

MUTING VERSION - ACTIVE UNIT

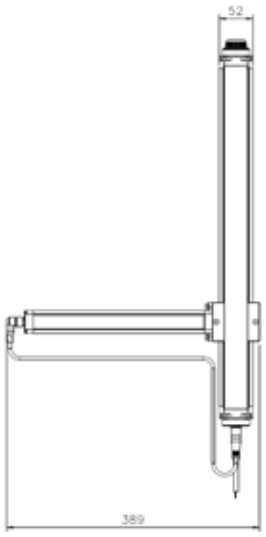
LINEAR

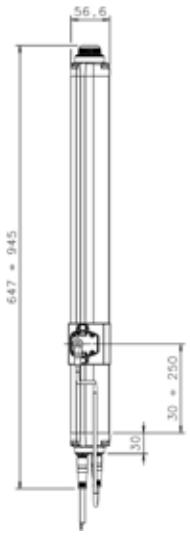






T- ACTIVE





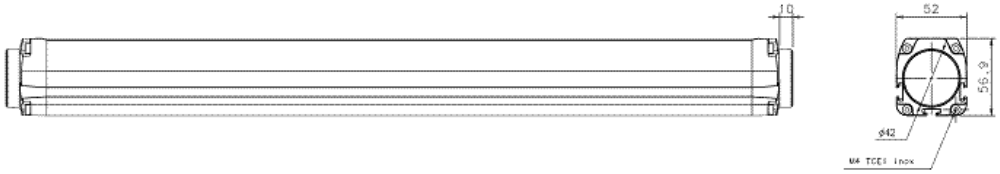
L- ACTIVE

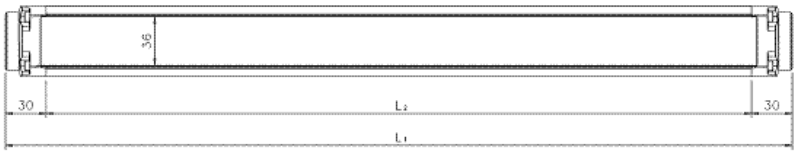
Model	L1 [mm]	L2 [mm]
SG4-RB2-050-OO-W	609,35	520,5
SG4-RB2L-050-OO-W	609,35	520,5
SG4-RB2T-050-OO-W	609,35	520,5
SG4-RB3-080-OO-W	909,35	820,5
SG4-RB3L-080-OO-W	909,35	820,5
SG4-RB3T-080-OO-W	909,35	820,5
SG4-RB4-090-OO-W	1009,35	920,5
SG4-RB4-120-OO-W	1309,35	1220,5

DIMENSIONS

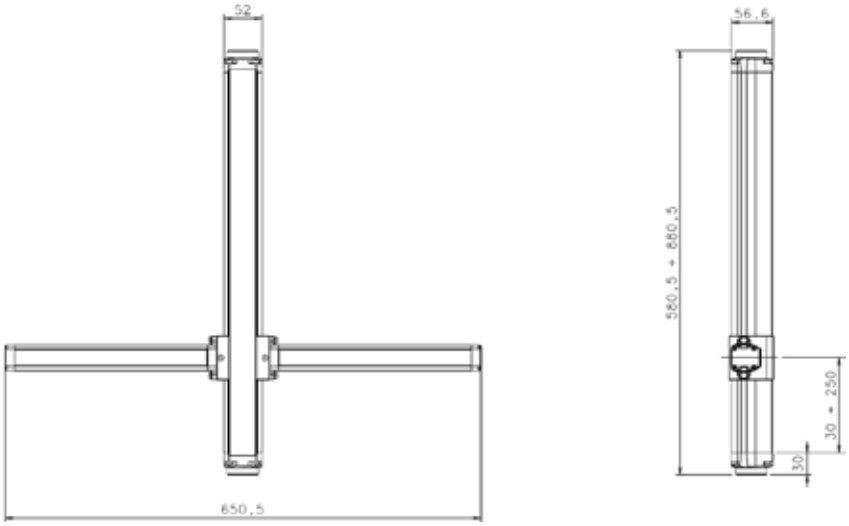
MUTING VERSION - PASSIVE UNIT

LINEAR

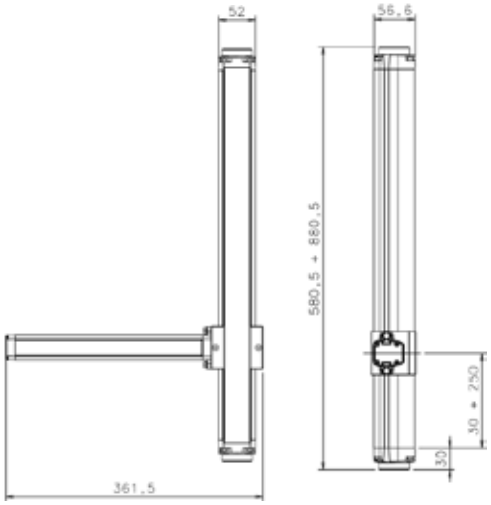




T- PASSIVE



L- PASSIVE

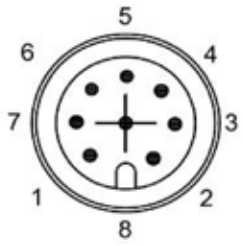


Model	L1 [mm]	L2 [mm]
SG4-RDB2	580,5	520,5
SG4-RDB2L	580,5	520,5
SG4-RDB2T	580,5	520,5
SG4-RDB3	880,5	820,5
SG4-RDB3L	880,5	820,5
SG4-RDB3T	880,5	820,5
SG4-RDB4-090	980,5	920,5
SG4-RDB4-120	1280,5	1220,5

CONNECTIONS

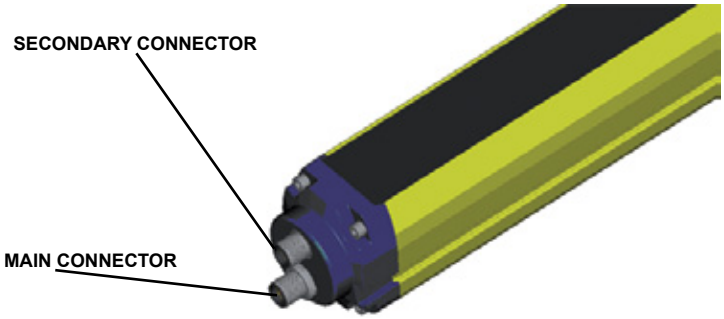
BASE VERSION CONNECTIONS

ACTIVE UNIT



M12 8-pole connector

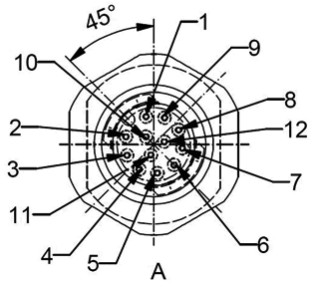
1	=	White	=	RESET/RESTART/RESTART MODE
2	=	Brown	=	24Vdc
3	=	Green	=	EDM ENABLE
4	=	Yellow	=	EDM
5	=	Grey	=	OSSD1
6	=	Pink	=	OSSD2
7	=	Blue	=	0V
8	=	Red	=	EARTH



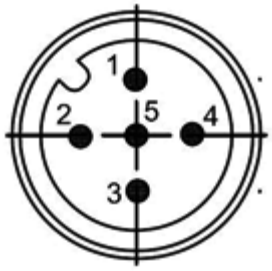
MUTING VERSION CONNECTIONS

ACTIVE UNITE

MAIN CONNECTOR



SECONDARY CONNECTOR



M12 12-pole connectors

1	=	Brown	=	24Vdc
2	=	Blue	=	0V
3	=	White	=	RESET/RESTART/RESTART MODE
4	=	Green	=	OVERRIDE1
5	=	Pink	=	OSSD2
6	=	Yellow	=	EDM
7	=	Black	=	MUTING ENABLE
8	=	Grey	=	OSSD1
9	=	Red	=	OVERRIDE2
10	=	Violet	=	LAMP INPUT
11	=	Grey-Pink	=	OVERRIDE STATUS
12	=	Red-Blue	=	EARTH

M12 5-pole connectors

1	=	Brown	=	24Vdc
2	=	White	=	MUTING2
3	=	Blue	=	0V
4	=	Black	=	MUTING1
5	=	Grey	=	N.C.

TECHNICAL DATA

	BASE VERSION	MUTING VERSION
Electrical Data		
Power supply	24 Vdc ±20%	24 Vdc ± 20%
Active unit	6.5 W max (without load)	6.5 W max (without load)
Outputs:	2 PNP outputs short-circuit protection (1.4 A @55°C)	2 PNP outputs short-circuit protection (1.4 A @55°C)
Output current:	0.5 A max / each output	0.5 A max / each output
Output voltage - ON min:	Power supply value less 1 V	Power supply value less 1 V
Output voltage - OFF max:	0.2 V	0.2 V
Output capacitive load	2.2 uF @24Vdc	2.2 uF @24Vdc
Response time:	From 11 to 12 ms See section “MODEL TABLE SELECTION”	From 11 to 12 ms See section “MODEL TABLE SELECTION”
Protected height:	from 500mm to1200mm See section “MODEL TABLE SELECTION”	from 500mm to1200mm See section “MODEL TABLE SELECTION”
Safety category:	Type 4 (ref. EN 61496-1)	Type 4 (ref. EN 61496-1)
Auxiliary functions:	Reset, Restart selection, Alignment, EDM	Reset, Restart selection, Alignment, EDM, Muting, Override
Electrical protection:	class III	class III
Connections:	ACTIVE: M12 8-poles PASSIVE: no connections	ACTIVE: M12 12-poles + M12 5-poles PASSIVE: no connections
Cable length (for power supply):	70m. max.	70m. max.
Pollution degree	2	2
Optical Data		
Light source:	Infrared LED (950 nm wavelength)	Infrared LED (950 nm wavelength)
Resolution:	319,75 mm 419,75 mm 519,75 mm	319,75 mm 419,75 mm 519,75 mm
Beam spacing:	300 mm 380 mm 500 mm	300 mm 380 mm 500 mm
Operating distance:	From 0,5 to 8 mt See section “MODEL TABLE SELECTION”	From 0,5 to 8 mt See section “MODEL TABLE SELECTION”
Ambient light rejection:	IEC 61496-2	IEC 61496-2
Mechanical and environmental data		
Operating temperature:	0…55°C	0…55°C
Storage temperature:	-25…+ 70 °C	-25…+ 70 °C
Temperature class:	T6	T6
Humidity:	15…95 % (no condensation)	15…95 % (no condensation)
Water protection grade:	IP 65 (EN 60529)	IP 65 (EN 60529)
Vibrations:	0.35 mm width, 10…55 Hz frequency, 20 sweep for each axis, 1 octave/min (EN 60068-2-6)	0.35 mm width, 10…55 Hz frequency, 20 sweep for each axis, 1 octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10g) 1.000 shock for each axis (EN 60068-2-29)	16 ms (10g) 1.000 shock for each axis (EN 60068-2-29)
Housing material:	Painted aluminium (yellow RAL 1003)	Painted aluminium (yellow RAL 1003)
Caps material:	PBT Valox 508 (pantone 072-CVC)	PBT Valox 508 (pantone 072-CVC)
Front glass material:	PMMA	PMMA
Connectors:	M12	M12

TECHNICAL DATA

	BASE VERSION	MUTING VERSION
Reliability data		
PL (Ref. EN ISO 13849-1)	e	e
CAT (Ref. EN 954-1)	4	4
SIL (Ref. EN IEC 61508)	3	3
SIL CL (Ref. EN IEC 62061)	3	3
PFHD – Probability of Danger Failure (1/h)	9,28E-09	8,57E-09
T1 – Life Time (Years)	20	20
MTTFD - Mean Time to Danger Failure (Years)	462	439
DC – Diagnostic Coverage (%)	96%	96,50%
SFF – Safe Failure Fraction (%)	97,20%	97,50%
HFT – Hardware Fault Tolerance	1	1

MODEL SELECTION TABLE

BASE VERSION

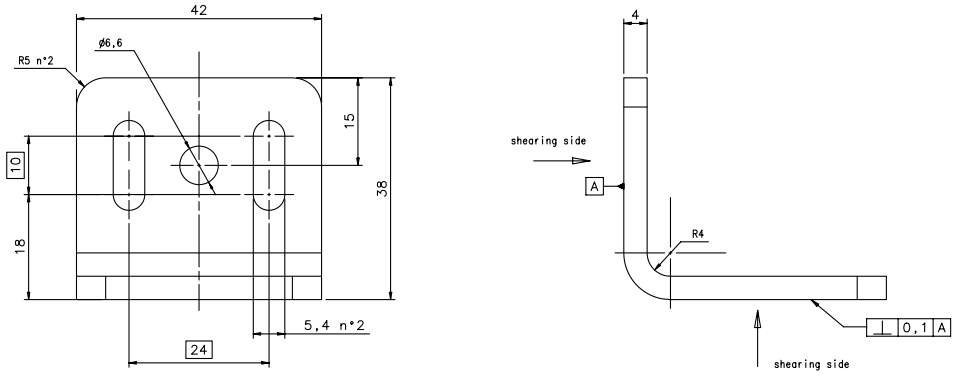
Description	Protected height [mm]	Beams N.	Respon-se time [msec]	Resolution [mm]	Interaxis [mm]	Operating distance [m]	Code
SG4-RB2-050-OO-E	500	2	11	519,75	500	0.5..8	957951000
SG4-RB3-080-OO-E	800	3	12	399,75	380	0.5..8	957951010
SG4-RB4-090-OO-E	900	4	12	319,75	300	0.5..6.5	957951190
SG4-RB4-120-OO-E	1200	4	12	419,75	400	0.5..8	957951020
SG4-RDB2 (passive)	500	-	-	-	500	-	957951100
SG4-RDB3 (passive)	800	-	-	-	380	-	957951110
SG4-RDB4-090 (passive)	900	-	-	-	300	-	957951170
SG4-RDB4-120 (passive)	1200	-	-	-	400	-	957951120

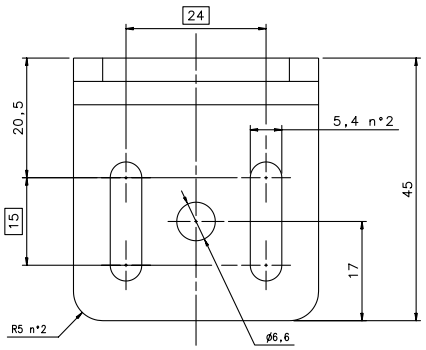
MUTING VERSION

Description	Protected height [mm]	Beams N.	Respon-se time [msec]	Resolution [mm]	Interaxis [mm]	Operating distance [m]	Code
SG4-RB2-050-OO-W	500	2	11	519,75	500	0.5..8	957951030
SG4-RB2L-050-OO-W	500	2	11	519,75	500	0.5..3	957951060
SG4-RB2T-050-OO-W	500	2	11	519,75	500	0.5..3	957951080
SG4-RB3-080-OO-W	800	3	12	399,75	380	0.5..8	957951040
SG4-RB3L-080-OO-W	800	3	12	399,75	380	0.5..3	957951070
SG4-RB3T-080-OO-W	800	3	12	399,75	380	0.5..3	957951090
SG4-RB4-090-OO-W	900	4	12	319,75	300	0.5..6.5	957951180
SG4-RB4-120-OO-W	1200	4	12	419,75	400	0.5..8	957951050
SG4-RDB2 (passive)	500	2	-	-	500	-	957951100
SG4-RDB2L (passive)	500	2	-	-	500	-	957951130
SG4-RDB2T (passive)	500	2	-	-	500	-	957951150
SG4-RDB3 (passive)	800	3	-	-	380	-	957951110
SG4-RDB3L (passive)	800	3	-	-	380	-	957951140
SG4-RDB3T (passive)	800	3	-	-	380	-	957951160
SG4-RDB4-090 (passive)	900	4	-	-	300	-	957951170
SG4-RDB4-120 (passive)	1200	4	-	-	400	-	957951120

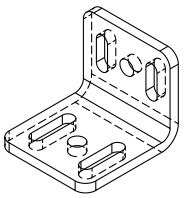
ACCESSORY SELECTION AND ORDER INFORMATION

SIDE FIXING BRACKET

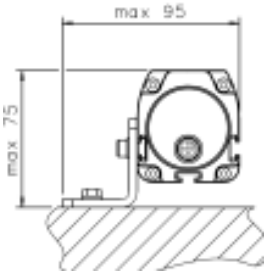


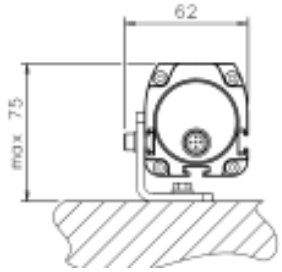


MOUNTING A

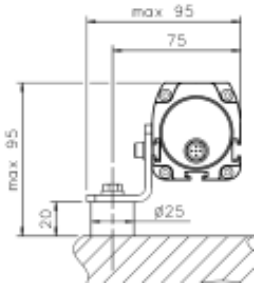


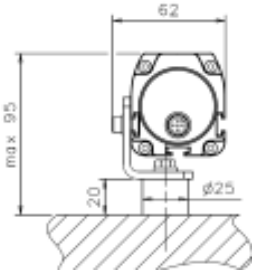
MOUNTING B





Angled fixing bracket



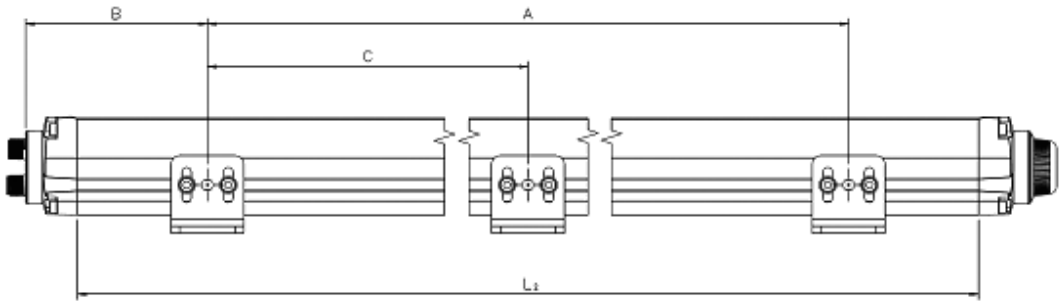


Angled fixing bracket + Antivibration support

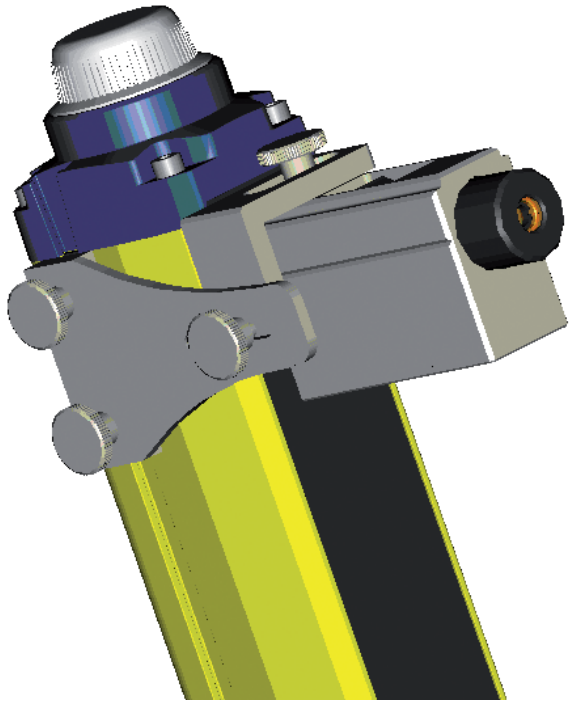
MODEL	DESCRIPTION	CODE
ST-K4STD-SG BODY BIG	Side fixing bracket (4 pcs kit)	95ASE1950
ST-K4AV	Antivibration support (4 pcs kit)	95ACC1700
ST-K6AV	Antivibration support (6 pcs kit)	95ACC1710

ACCESSORY SELECTION AND ORDER INFORMATION

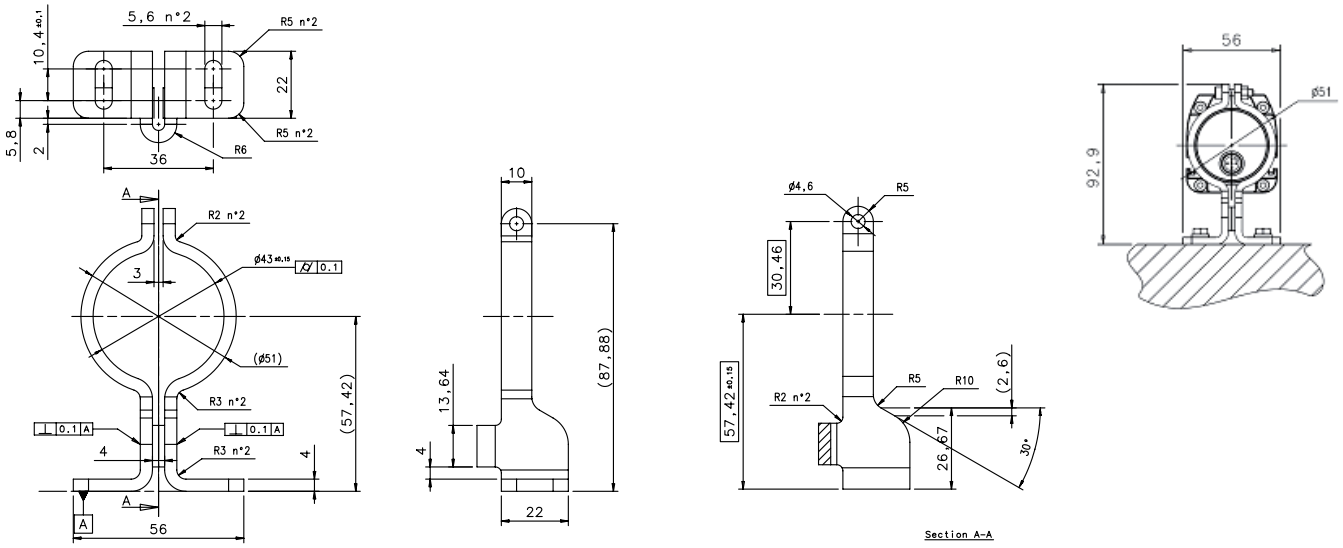
The recommended mounting positions according to the light curtain length are shown in and in the subsequent table.



DESCRIPTION	L2[mm]	A [mm]	B [mm]	C [mm]
SG4-RB2-050-OO-W	520,5	320,5	100	-
SG4-RB2L-050-OO-W	520,5	320,5	100	-
SG4-RB2T-050-OO-W	520,5	320,5	100	-
SG4-RB3-080-OO-W	820,5	370,5	125	-
SG4-RB3L-080-OO-W	820,5	370,5	125	-
SG4-RB3T-080-OO-W	820,5	370,5	125	-
SG4-RB4-090-OO-W	920,5	620,5	150	-
SG4-RB4-120-OO-W	1220,5	1020,5	100	510,25
SG4-RDB2 (passive)	520,5	320,5	100	-
SG4-RDB2L (passive)	520,5	320,5	100	-
SG4-RDB2T (passive)	520,5	320,5	100	-
SG4-RDB3 (passive)	820,5	370,5	125	-
SG4-RDB3L (passive)	820,5	370,5	125	-
SG4-RDB3T (passive)	820,5	370,5	125	-
SG4-RDB4-090 (passive)	920,5	620,5	150	-
SG4-RDB4-120 (passive)	1220,5	1020,5	100	510,25

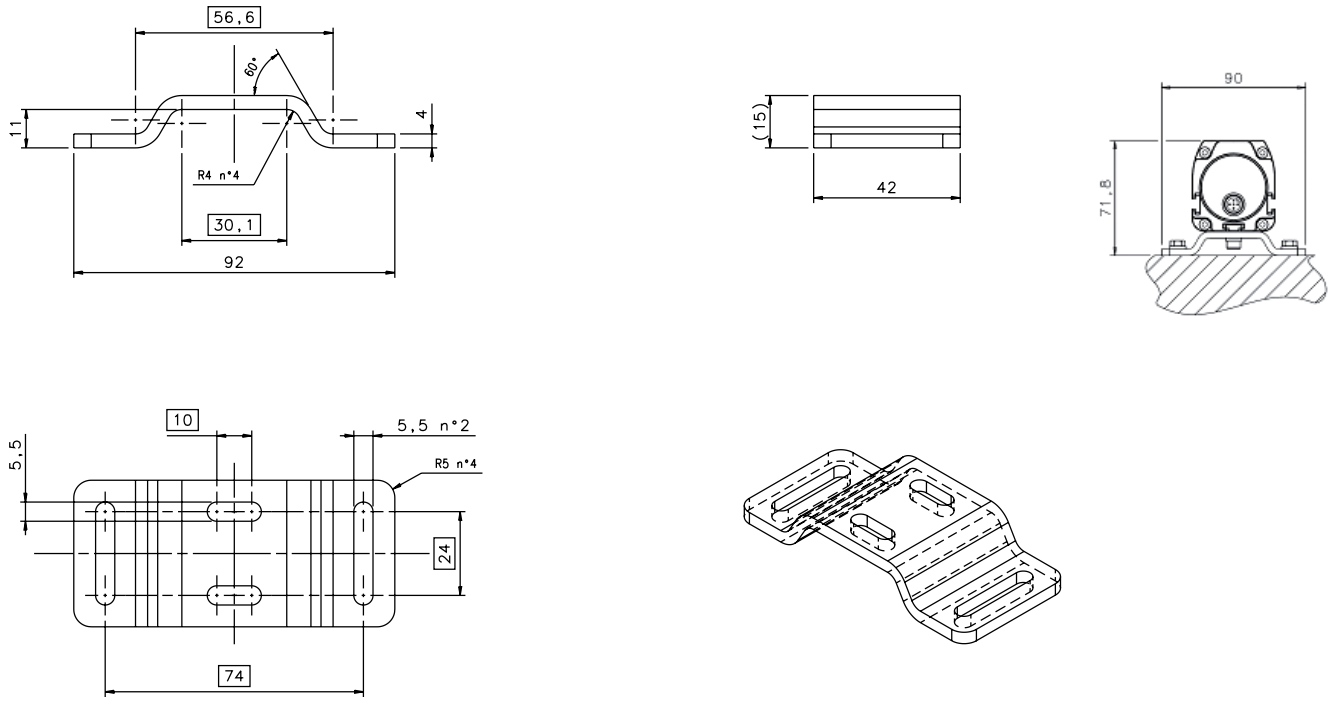


ROTATIVE FIXING BRACKET



MODEL	DESCRIPTION	CODE
ST-K4ROT-SG BODY BIG	Rotative Ficxing Bracket (4 pcs kit)	95ASE1960

REAR FIXING BRACKET



MODEL	DESCRIPTION	CODE
ST-K4REAR-SG BODY BIG	Rear Fixing Bracket (4 pcs kit)	95ASE1970

NOTE: The aforementioned fixing brackets are not available as outfit

MODEL	DESCRIPTION	CODE
SE-S 800	Column and floor stand H= 800 mm	95ACC1730
SE-S 1000	Column and floor stand H= 1000 mm	95ACC1740
SE-S 1200	Column and floor stand H= 1200 mm	95ACC1750
SE-S 1500	Column and floor stand H= 1500 mm	95ACC1760
SE-S 1800	Column and floor stand H= 1800 mm	95ACC1770
SG-SB	Protective stand base	95ASE1660
SG-PS 600	Protective stand H= 600 mm	95ASE1610
SG-PS 900	Protective stand H= 900 mm	95ASE1620
SG-PS 1200	Protective stand H= 1200 mm	95ASE1630
SG-PS 1650	Protective stand H = 1650 mm	95ASE1640
SG-PS 1900	Protective stand H = 1900 mm	95ASE1650
TP-50	Test piece Ø 50 mm	95ASE1790
TP-90	Test piece Ø 90 mm	95ASE1800
SG-LP	Laser pointer	95ASE5590
CS-A1-03-U-03	5-pole M12 cable (axial) 3 m	95ASE1170
CS-A1-03-U-05	5-pole M12 cable (axial) 5 m	95ASE1180
CS-A1-03-U-10	5-pole M12 cable (axial) 10 m	95ASE1190
CS-A1-03-U-15	5-pole M12 cable (axial) 15 m	95ASE1200
CS-A1-03-U-25	5-pole M12 cable (axial) 25 m	95ASE1210
CS-A1-03-U-50	5-pole M12 cable (axial) 50m	95A252700
CS-A1-06-U-03	8-pole M12 cable (axial) 3 m	95ASE1220
CS-A1-06-U-05	8-pole M12 cable (axial) 5 m	95ASE1230
CS-A1-06-U-10	8-pole M12 cable (axial) 10 m	95ASE1240
CS-A1-06-U-15	8-pole M12 cable (axial) 15 m	95ASE1250
CS-A1-06-U-25	8-pole M12 cable (axial) 25 m	95ASE1260
CS-A1-06-U-50	8-pole M12 cable (axial) 50 m	95A252710
CS-A1-10-U-03	12-pole M12 cable (axial) 3 m	95A252720
CS-A1-10-U-05	12-pole M12 cable (axial) 5 m	95A252730
CS-A1-10-U-10	12-pole M12 cable (axial) 10 m	95A252740
CS-A1-10-U-15	12-pole M12 cable (axial) 15 m	95A252750
CS-A1-10-U-25	12-pole M12 cable (axial) 25 m	95A252760
CS-A1-10-U-50	12-pole M12 cable (axial) 50 m	95A252770
SG-AS-ARM note 1	Active sensor single arm	95ASE1840
SG-PR-ARM note 1	Passive reflector single arm	95ASE1850
SG-F1-G1-ARMS note 2	F1-G1 muting arm for RX	95ASE1880
SG-F2-G2-ARMS note 2	F2-G2 muting arm for RX	95ASE1890
SG-CB-B	Muting C bracket big kit	95ASE1920
LMS	Muting lamp	95ASE1830
LMS-1	Modular Muting lamp	95ACC1990
LMS-2	Muting lamp - horizontal mounting	95ACC2000
LMS-3	Muting lamp - vertical mounting	95ACC2010
SU-LMS-1A	Basic module for LMS-1	95ACC2020
SU-LMS-1B	Tower module for LMS-1	95ACC2030
CV-Y1-02-B-007	M12 4-pole cable 0.7m for “T” vesions with integrated sensors	95ACC2560
CV-L1-02-B-007	M12 4-pole cable 0.7m for “L” vesions with integrated sensors	95ACC2570
SE-SR2	TYPE 4 SAFETY RELAY 3NO 1NC	95ACC6170
CS ME-03VU24-Y14	EDM RELAY BOX	95ASE1270
CS-R1-40-B-0015	REFLECTOR 12to8 POLES ADAPTOR	95ASE2020
SG-MFB	MUTING ARMS FRONT BRACKETS KIT	95ASE2030

note 1: With RRX Muting arms the overall operating distance is reduced to **3 meters**.
note 2: With F/G Muting arms the overall operating distance is reduced to **7 meters.** F/G Muting arms **can be mounted on a passive unite but requiring external power supply**

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

DATALOGIC

SAFETY

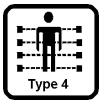
SG-BWS SERIES

The SG-BWS series presents two models:

- **SG-BWS-T4**: control unit with plastic housing for DIN/OMEGA rail mounting equipped with 16 clamps that can connect from 1 to 4 photocell couples of the S5-ST, SL5-ST, S300 series **with OSSD safety outputs;**
- **SG-BWS-T4-MT**: control unit with plastic housing for DIN/OMEGA rail mounting equipped with 48 clamps that can connect from 1 to 4 photocell couples of the S5-ST, SL5-ST, S300 series and contemporaneously up to 2 safety light curtains equipped with safety outputs activated with two 230V relay.

The SG-BWS-T4 model is **WITHOUT MUTING FUNCTION** but presents EDM and selectable MANUAL/AUTOMATIC RESTART. The SG-BWS-T4-MT model is provided with **DOUBLE MUTING FUNCTION**. The control unit fits some safety outputs controlled depending on the status of the safety photocells connected to the device. A danger condition detected by a photocell or light curtain opens the outputs.





HIGHLIGHTS

- Two models:
  - SG-BWS-T4 WITHOUT MUTING FUNCTION
  - SG-BWS-T4-MT WITH DOUBLE MUTING FUNCTION
- Factory automation standard housing with compact dimensions
- Possibility to connect 4 safety single-beam and 2 safety light curtains
- PLUS functions: Single/Double muting, Edged/triggered Override, Double Muting Lamp, External Muting Enable
- Configurable device through dip-switches
- Satisfies the requirements of key safety Standards, such as Category 4 of EN 954-1, SIL3 of IEC 61508, and performance levels PL e of EN ISO 13849-1.

APPLICATIONS

Extreme reliability and simplicity make the SG-BWS control units the ideal solution for the following applications:

- Automatic warehouses
- Machines for food packaging
- Robots
- Automatic assembling lines
- Machines for PCB production







SETTINGS



• User interface is present on the top of the SG-BWS-T4 for signalling and configuration.

• Two units made of 8 dip-switches are present on the top of the SG-BWS-T4-MT model. These switches activate/deactivate and configure additional functions integrated in the device.

• Signalling interface and dip-switches are protected from non-authorized access by transparent lids that can be opened using a specific tool.



DIP	PURPOSE	OFF (Default)	ON
1	ENABLE EDM	ENABLED	DISABLED
2	RESET MODE	AUTOMATIC	MANUAL
3	MUTING TIME-OUT	10 MINUTES	INFINITY
4	MUTING DIRECTION	T	L
2	OVERRIDE	EDGED	TRIGGERED
6	MUTING SELECTION	See specific table	
7	MUTING SELECTION		
8	MUTING SELECTION		

The EDM and MAN/AUTO Restart functions integrated in SG-BWS-T4 model can be selected through specific control unit lines (refer “CONNECTION” section of the present document).

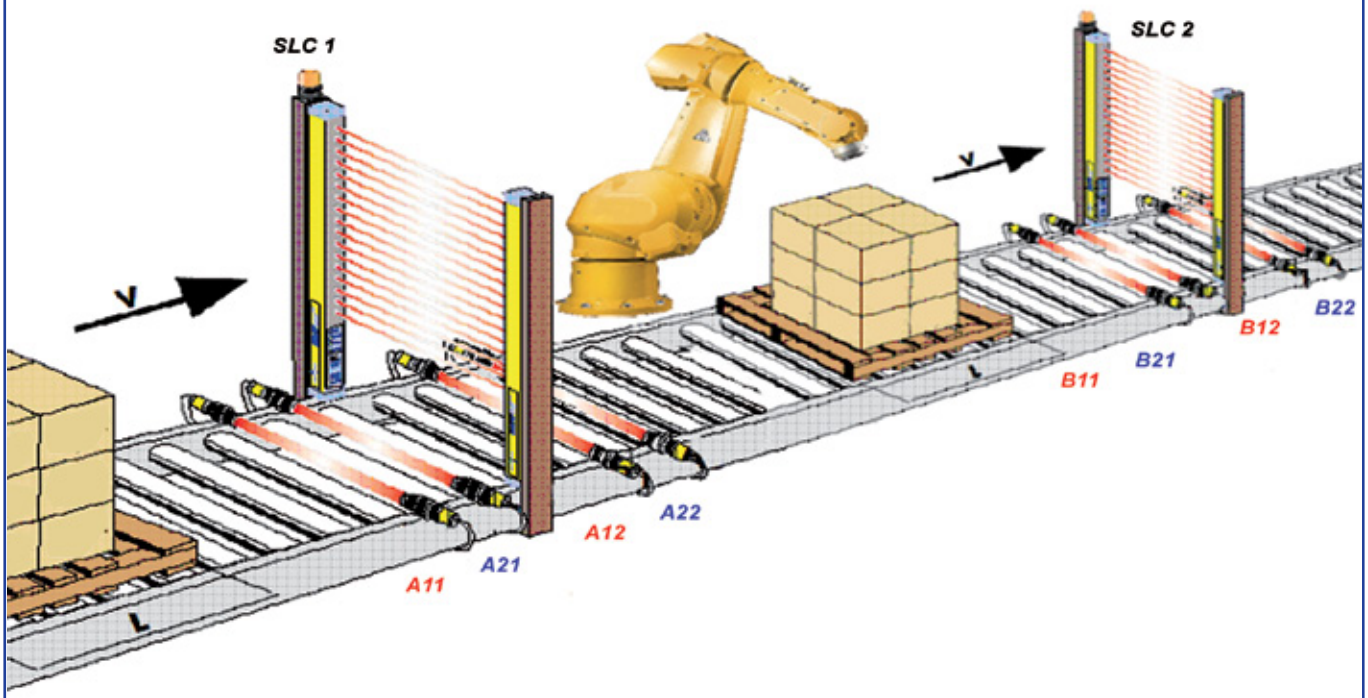
INDICATORS

An user interface is present for viewing warnings and setup is present on the top of both SG-BWS-T4 and SG-BWS-T4-MT control units Besides the 7-segment display (for diagnostics purposes), the warning components include 3 LEDs:



LED	INDICATION
POWER	Device is powered correctly
NORMAL	No danger: safety outputs closed
SAFE	Danger or fault: safety outputs open
8.	The 7-segment display shows detailed information on control unit current status

DOUBLE MUTING FUNCTION SETTING



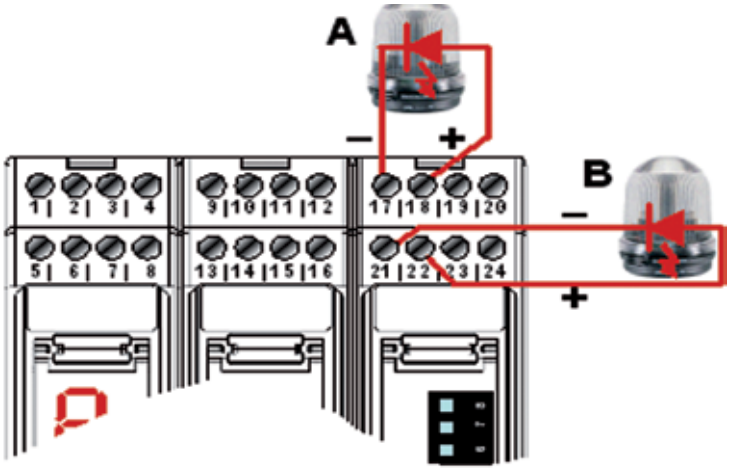
Thanks to its two separate muting channels, SG-BWS-T4-MT can accept the muting request output by sensors without interrupting the safety function on light curtain or safety sensors of both channels. The dip-switches 6-7-8 allow users to couple the single devices to the 2 muting channels available on the SG-BWS-T4-MT control unit. Following table reports all the available combinations.

DIP-SWITCH SETUP	PHOTOCELLS	LIGHT CURTAIN 1	LIGHT CURTAIN 2
000	A	A	A
001	A	A	B
010	A	B	B
011	-	A	B
100	A	B	-
101	-	A	A
110	A	-	-
111	-	-	-
0=OFF, 1=0N, A(B)=Device associated to channel A(B) Default setting: 000			

MUTING WARNING DEVICES

To use the Muting function it is also required to connect the external Muting warning (lamp) since control unit would lock out if it is missing. One lamp shall be used per channel. If device is preset for use of just one channel, both warning devices are associated to it: in this way, failure of one of the lamps would not lock out system operation.
SG-BWS-T4-MT allows installation of both incandescent lamps and LEDs. For the latter case, polarity shall be carefully complied with, as indicated aside.

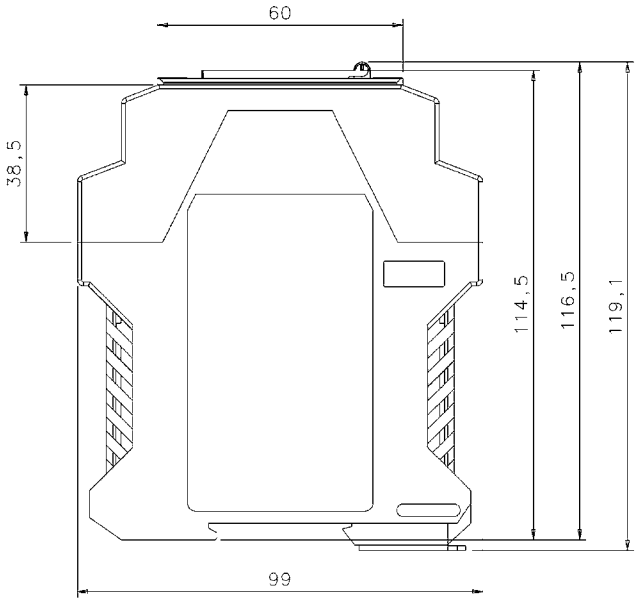
Note: When only 1 muting lamp is used, please connect on the clamps of the other one a 150 ohm > 5W resistor!

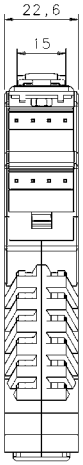


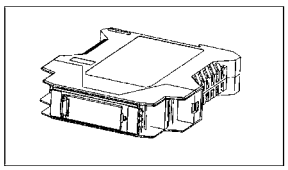
Note: the Muting lamp is not supplied with the device.
Please refer to “Accessory selection and order information table.”

DIMENSIONS

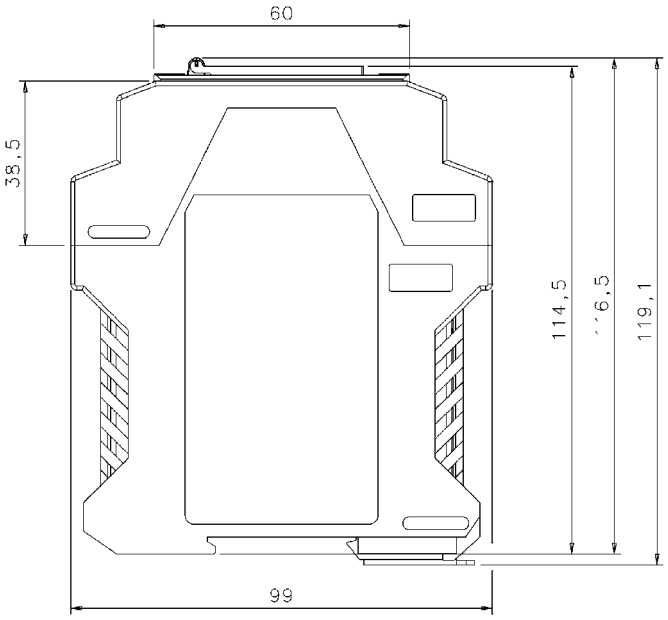
SG-BWS-T4

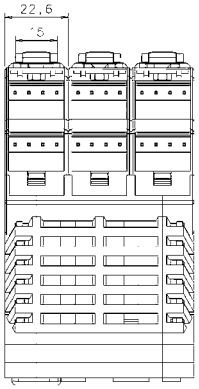


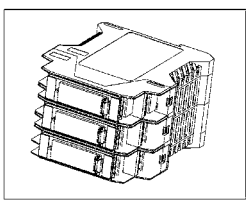




SG-BWS-T4-MT

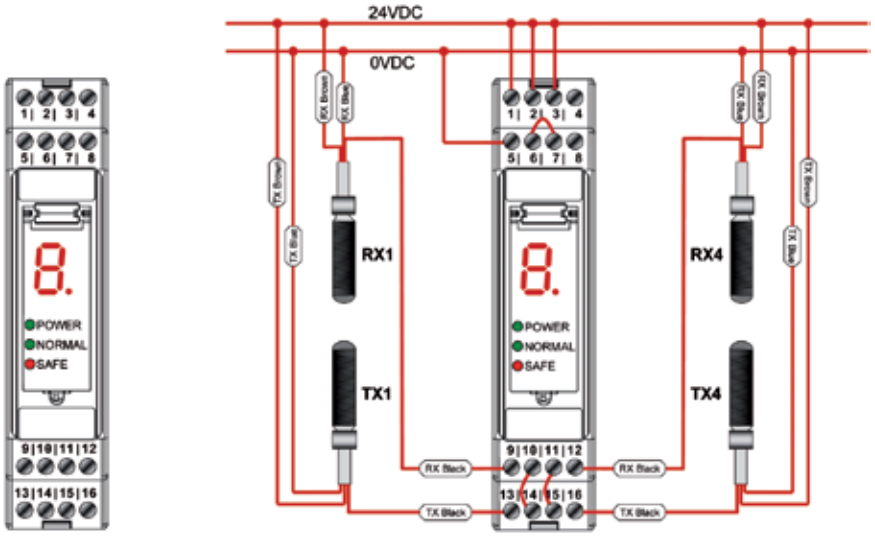




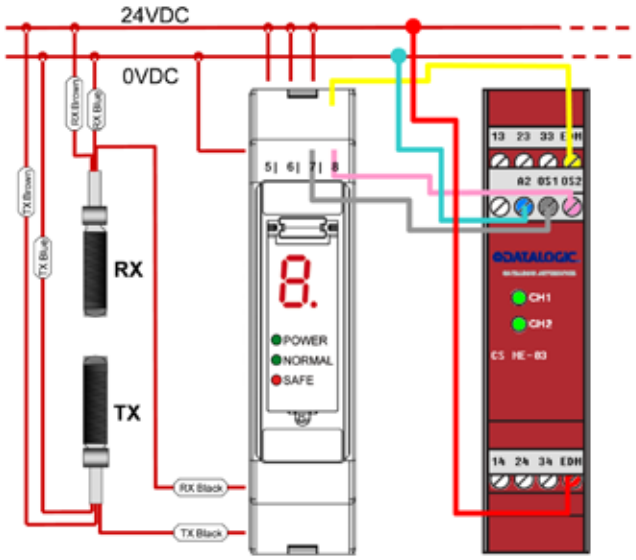


mm

SG-BWS-T4 CONNECTIONS

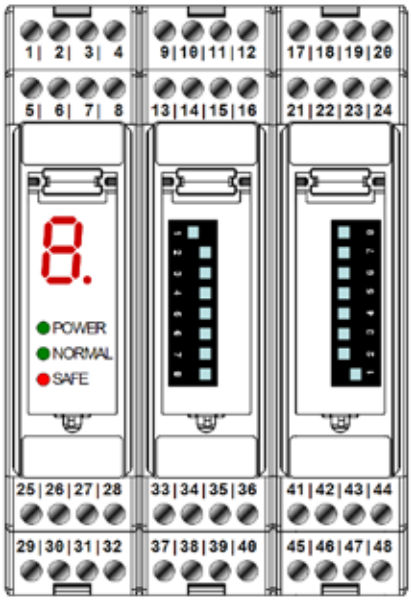


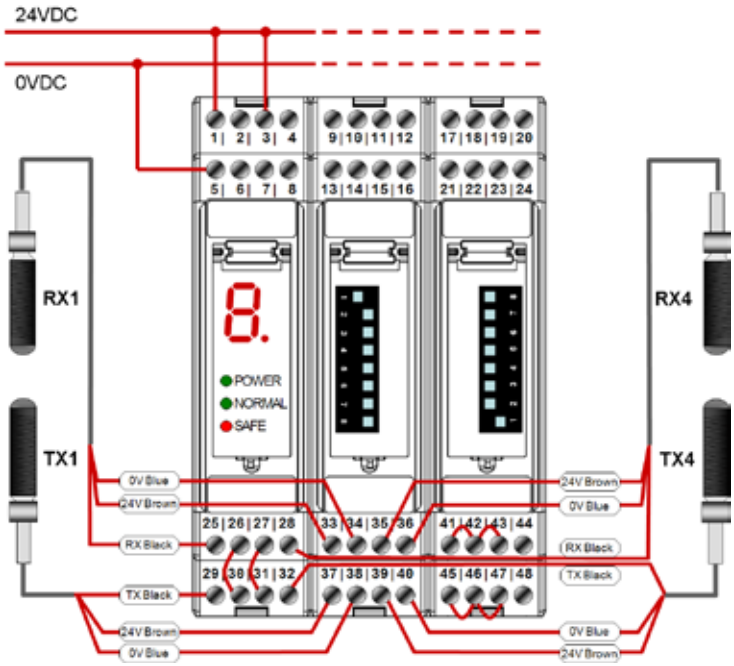
NOTE : As SG-BWS-T4 has OSSD Safety outputs in order to have relay outputs, the device must have EDM function connected to the CS-ME EDM relay box as represented below:

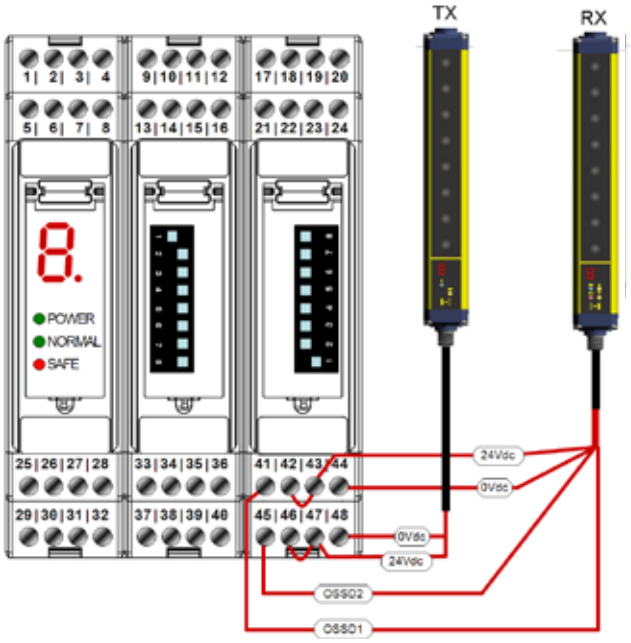


SIGNAL	CONTACT	CONNECTION
VCC	1	External 24Vdc
START/TEST/RESET	2	- Contact NC towards 24Vdc
EDM ENABLE	3	- 24Vdc > EDM DEACTIVATED - Not connected > EDM activated
EDM	4	- NC contact of external relays towards 24Vdc (with EDM activated) - Not connected > with EDM deactivated
0V	5	External 0Vdc
MAN/AUTO	6	- OSSD1 (7) > AUTOMATIC RESTART - OSSD2 (8) > MANUAL RESTART
OSSD1	7	Reel of external relay 1 (positive)
OSSD2	8	Reel of external relay 2 (positive)
RX1	9	PNP output of receiver photocell 1 (black)
RX2	10	PNP output of receiver photocell 2 (black)
RX3	11	PNP output of receiver photocell 3 (black)
RX4	12	PNP output of receiver photocell 4 (black)
TX1	13	TEST of emitter photocell 1 (black)
TX2	14	TEST of emitter photocell 2 (black)
TX3	15	TEST of emitter photocell 3 (black)
TX4	16	TEST of emitter photocell 4 (black)

SG-BWS-T4-MT CONNECTIONS







SIGNAL	CLAMP	CONNECTION	FUNCTION
VDC	1	External 24Vdc	Power supply
START	2	NO contact towards 24Vdc	Reset function
TEST/RESET	3	NC contact towards 24Vdc	Test/Reset function
EDM	4	- NC contact of external relays towards 24Vdc (with EDM activated) - NOT CONNECTED (with EDM deactivated)	Input EDM
0V	5	0Vdc external	Power supply
MUTEN A	6	NO contact towards 24Vdc	Muting activation
MUTEN B	7	NO contact towards 24Vdc	Muting activation
DEFLAMP	8	Positive terminal signaling device	Lamp fault signaling
MUTA1	9	PNP output of the A1 Muting sensor	Muting input
OVRA1	10	Contact of Override A1 NO towards 24Vdc	Override input
MUTB1	11	PNP output of the B1 Muting sensor	Muting input
OVRB1	12	Contact of Override B1 NO towards 24Vdc	Override input
MUTA2	13	PNP output of A2 Muting sensor	Muting input
OVRA2	14	Contact of Override A2 NO towards 24Vdc	Override input
MUTB2	15	PNP output of B2 Muting sensor	Muting input
OVRB2	16	Contact of Override B2 NO towards 24Vdc	Override input
LAMPA-	17	Negative terminal of the A Muting lamp	Muting lamp output
LAMPA+	18	Positive terminal of the A Muting lamp	Muting lamp output
SAFNC11	19	NO relay 230V 1 output	Safety contact
SAFNC21	20		Safety contact
LAMPB-	21	Negative terminal of the B Muting lamp	Muting lamp output
LAMPB+	22	Positive terminal of the B Muting lamp	Muting lamp output
SAFNC12	23	NO relay 230V 2 output	Safety contact
SAFNC22	24		Safety contact
RX1	25	PNP output of the photocell receiver 1 (black)	Photocell input
RX2	26	PNP output of the photocell receiver 2 (black)	Photocell input
RX3	27	PNP output of the photocell receiver 3 (black)	Photocell input
RX4	28	PNP output of the photocell receiver 4 (black)	Photocell input
TX1	29	TEST of the photocell emitter 1 (black)	Photocell output
TX2	30	TEST of the photocell emitter 2 (black)	Photocell output
TX3	31	TEST of the photocell emitter l 3 (black)	Photocell output
TX4	32	TEST of the emitter photocell 4 (black)	Photocell output
24VRX12	33	24Vdc photocell receivers 1 and 2 (brown)	Power supply output
0VRX12	34	0 Vdc photocell receivers 1 and 2 (blue)	Power supply output
24VRX34	35	24 Vdc photocell receivers 3 and 4 (brown)	Power supply output
0VRX34	36	0Vdc photocell receivers 3 and 4 (blue)	Power supply output
24VTX12	37	24Vdc photocell emitters 1 and 2 (brown)	Power supply output
0VTX12	38	0Vdc photocell emitters 1 and 2 (blue)	Power supply output
24VTX34	39	24Vdc photocell emitters 3 and 4 (brown)	Power supply output
0VTX34	40	0Vdc photocell emitters 3 and 4 (blue)	Power supply output
OSSD11	41	OSSD 1 output of the light curtain 1 (grey)	Light curtain input
OSSD21	42	OSSD 1 output of the light curtain 2 (grey)	Light curtain input
24LRX12	43	24Vdc receivers of light curtain 1 and 2 (brown)	Power supply output
0LRX12	44	0Vdc receivers of light curtain 1 and 2 (brown)	Power supply output
OSSD12	45	OSSD 2 output of light curtain 1 (pink)	Light curtain input
OSSD22	46	OSSD 2 output of light curtain 2 (pink)	Light curtain input
24LTX12	47	24Vdc light curtain emitters 1 and 2 (brown)	Power supply output
0LTX12	48	0Vdc light curtain emitters 1 and 2 (brown)	Power supply output
NO: Normally open – NC: Normally closed			

NOTE : Both SG-BWS-T4 and SG-BWS-T4-MT models are equipped with extractable screw clamps. It's possible to replace them with corresponding spring clamps provided as accessories, if necessary.

TECHNICAL DATA

ELECTRICAL DATA		
	SG-BWS-T4	**SG-BWS-T4-MT**
Power supply:	24 Vdc ± 15%	24 Vdc ± 15%
Consumption:	2.1 W max	3.8 W max
Output contacts:	2 PNP	2 normally open relays, 250 Vac 5A - 24 Vdc 5A
Response time:	Short circuit protection: 1.4 A max	39ms (includes response time of photocells)
Safety category:	Type 4 (ref. EN 61496-1)	Type 4 (ref. EN 61496-1)
SIL:	SIL 3 (ref. IEC 61508 and IEC 62061)	SIL 3 (ref. IEC 61508 and IEC 62061)
PL:	PL e (ref. EN ISO 13849-1)	PL e (ref. EN ISO 13849-1)
PFHd min (1/h):	1,60E-09	1,74E-09
MTTFd (years):	545	428
Accessory functions:	Reset / EDM selection / auto-man selection	Reset / EDM selection / auto-man selection Single/Double Muting selection Edged/Triggered Override Selection
Overload protection:		Cat. II (250 Vac) – Cat. III (24Vdc) (ref. EN 50178)
Connections:	Clamps (*)	Clamps (*)
Cable lengths (power supply):	50 m. max	50 m. max
Pollution degree:	2	2
MECHANICAL AND ENVIRONMENTAL DATA		
Operating temperature:	0…55°C	0…55°C
Storage temperature:	-25…+ 70 °C	-25…+ 70 °C
Temperature class:	T6	T6
Humidity:	15…95 % (no condensation)	15…95 % (no condensation)
Mechanical protection:	IP 20 (EN 60529)	IP 20 (EN 60529)
Vibrations:	0.35 mm amplitude, 10 … 55Hz frequency 20 sweeps for axis, 1octave/min (EN 60068-2-6)	0.35 mm amplitude, 10 … 55Hz frequency 20 sweeps per axis, 1octave/min (EN 60068-2-6)
Shock resistance:	16 ms (10 G) 1.000 shocks for axis (EN 60068-2-29)	16 ms (10 G) 1.000 shocks for axis (EN 60068-2-29)
Housing material:	Nylon PA66	Nylon PA66
Weight:		

(*) Spring clamps are available as accessories

MODEL SELECTION TABLE

MODEL	DESCRIPTION	ORDER N°
SG-BWS-T4	cat. 4 safety control unit with edm and man/auto restart	957051000
SG-BWS-T4-MT	cat. 4 safety control unit with double muting	957051010

ACCESSORY SELECTION AND ORDER INFORMATION

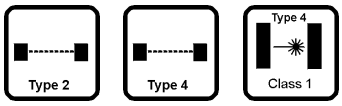
MODEL	DESCRIPTION	ORDER N°
SG-DM 150	deviating mirror h=150mm	95ASE1670
LMS	muting lamp	95ASE1830
LMS-1	modular muting lamp	95ACC1990
LMS-2	muting lamp – horizontal mounting	95ACC2000
LMS-3	muting lamp - vertical mounting	95ACC2010
SU-LMS-1A	base module for lms-1	95ACC2020
SU-LMS-1B	tower module for lms-1	95ACC2030

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.

SX-F/G-SG-ST SERIES

The emitter-receiver photocells of the **Sx-F/G-SG-ST** series have been homologated to function with the control units of the SG-BWS series that together form a safety system respectively of **Type 2 and Type 4 conforming with the EN 954-1 and EN ISO 13849-1 Standards.**
The photocells are available in the **M18 tubular plastic** format with infrared emission of the **S5** series for distances reaching **8m,** M18 plastic tubular format with laser emission of the **SL5** series with operating range reaching **40m**, and MAXI format with infrared emission of the new **S300** series with operating range reaching a respectively 50m for Type 2 and 40m for Type 4 models.
Together with S300 standard models **DEFOGGING MODELS** with heated front glass are available for applications where sudden changes of the temperature in the nearby of the sensor are causing condensation.
All models are equipped with **M12 4-pole connector**: no cable or terminal block models are available. LEDs signal both the operating status and correct alignment of the safety photocells.





HIGHLIGHTS

- Emitter-receiver photocells with test input
- Type 2 and Type 4 models
- Plastic tubular and MAXI
- Photocells with standard M12 connectors
- IR emission models for distances reaching 8m, 40m, 50m
- Class 1 laser emission models for distances reaching 40m

APPLICATIONS

Extreme reliability and simplicity make the SX-F/G-SG-ST together with SG-BWS control units the ideal solution for the following applications:

- Automatic warehouses
- Machines for food packaging
- Robots
- Automatic assembling lines
- Machines for PCB production



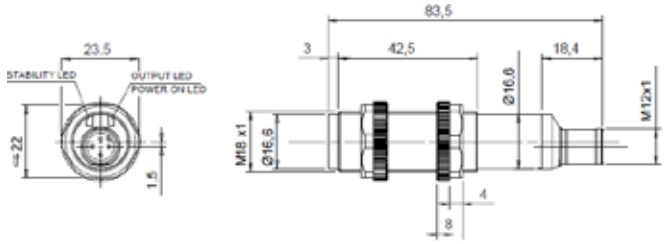




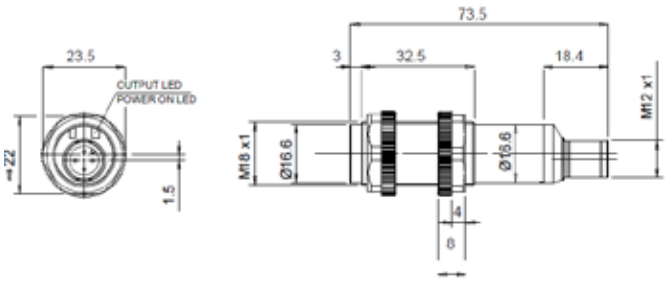
DIMENSIONS

S5 and SL5

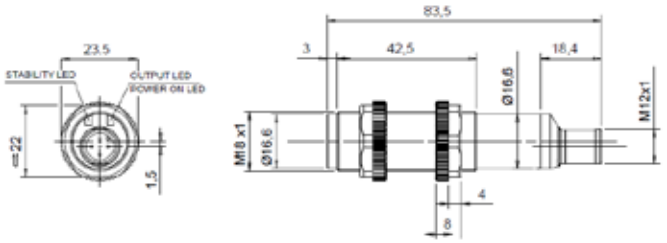
S5-5-F8-92-SG-ST2



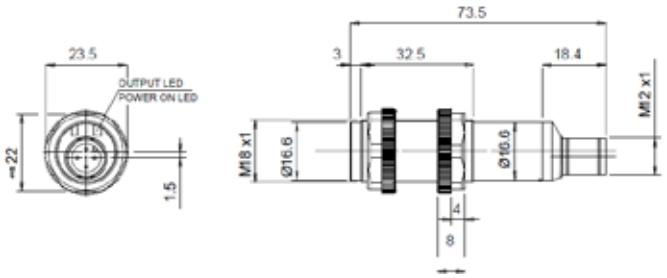
S5-5-G8-62-SG-ST2



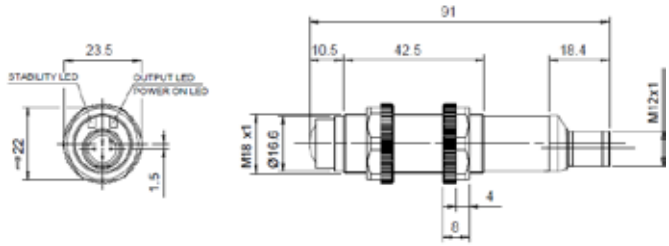
S5-5-F8-92-SG-ST4



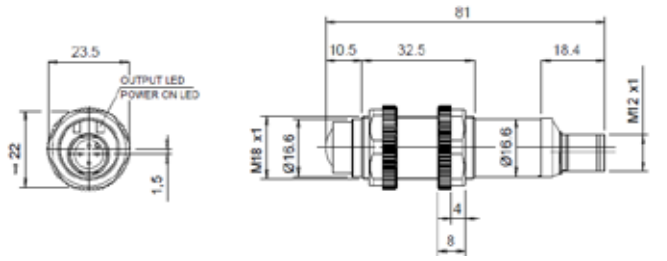
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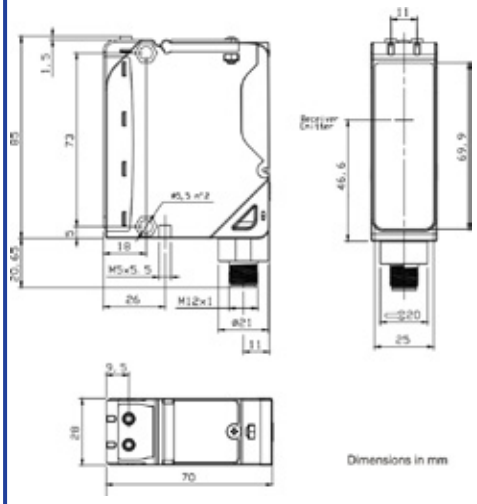
SL5-5-F-92-SG-ST4

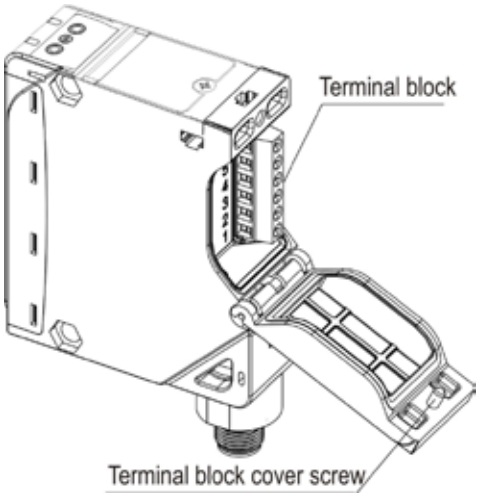


SL5-5-G-82-SG-ST4



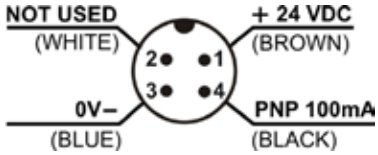
S300



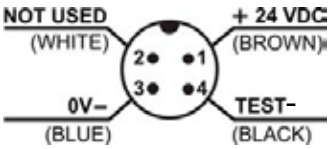


CONNECTIONS S5/SL5 F/G

S5/SL5 F

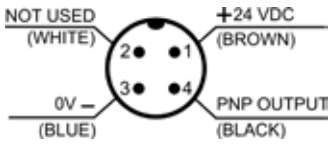


S5/SL5 G

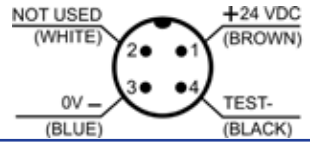


CONNECTIONS S300 F/G

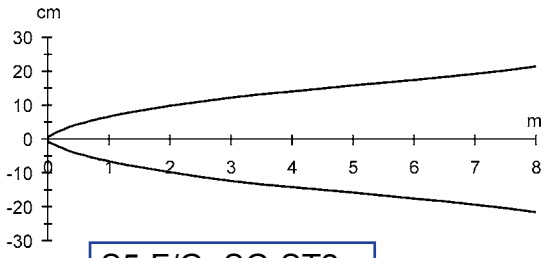
S300 F



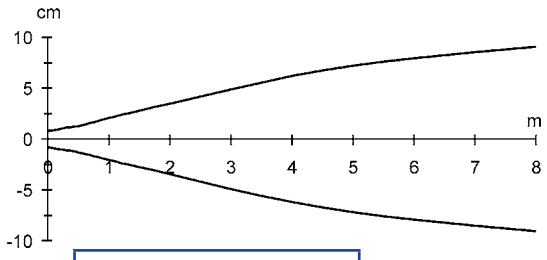
S300 G



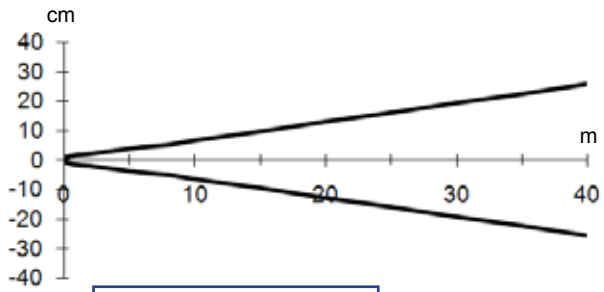
DETECTION DIAGRAMS



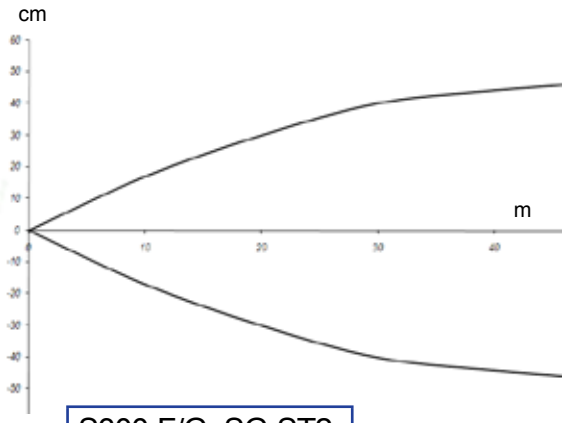
S5-F/G- SG-ST2



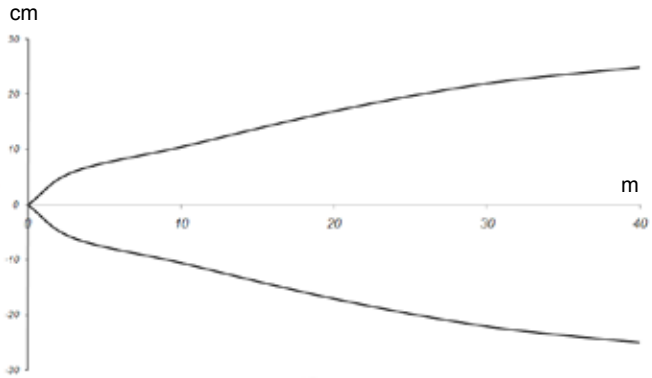
S5-F/G- SG-ST4



SL5-F/G- SG-ST4



S300-F/G- SG-ST2



S300-F/G- SG-ST4

TECHNICAL DATA

S5/SL5

	SL5…SG-ST4	S5…SG-ST2/ST4
Power supply:	24 Vdc ±15%	
Consumption (excluded output current):	35 mA max.	30 mA max.
Outputs:	PNP (short-circtuit protection)	
Output current:	100 mA max.	
Output saturation voltage:	2 V max.	
Leakage current:	50 µA at 30 Vdc	
Response time:	1 ms max.	
Switching frequency:	500 Hz max.	
Operating temperature:	-10 … 50 °C	-25 … 55 °C
Storage temperature:	-25 … 70 °C	
Dialectric strength:	500 Vac / 1 min. between electronic parts and housing	
Insulating resistance	>20 MΩ / 500 Vdc, between electronic parts and housing	
Operating distance (min. values):	0 … 40 m	0…8 m
Emission type:	red Laser (650 nm) Class 1 EN 60825-1 (1994)	LED infrared 880 nm
Effective aperture angle:	xx…ST2 = ± 5° / xx…ST4 = ± 2.5°	
Ambient light rejection:	according to EN 60947-5-2	
Vibration:	0.5 mm amplitude, 10 … 55 Hz frequency, for each axis (EN60068-2-6)	
Shock resistance:	11 ms (30 G) 6 shocks for each axis (EN60068-2-27)	
Housing material:	ABS UL 94V-O	
Connector/gland material:	Polycarbonate	
Lens material:	PMMA	
Mechanical protection:	IP67	
Connections:	M12 4-pole connector	
Weight:	30 g. max.	

S300

DC MODELS	**S300…2/5-G/F-ST2/ST4**	
Power supply:	24 VDC ±15%	
Ripple:	10 % max	
Consumption (excluded output current):	S300…F: <25mA S300…G: < 20 mA	
Outputs:	PNP NC open collector	
Output current:	100 mA (resistive load)	
Output saturation voltage:	2.4 V max	
Diagnostic functions	Test- iput	
Response time:	1 ms	
Switching frequency:	500 Hz	
Weight:	140 g	
Common data	**S300…G**	**S300…F**
Emission type:	INFRARED LED (880nm)	
Operating distance (typical value):	S300…ST2: 0..50m S300…ST4: 0..40m	
EAA:	S300…ST2: ± 5° / S300…ST4: ±2.5°	
Indicators:	POWER ON LED (GREEN)	OUTPUT LED (YELLOW), STABILITY LED (GREEN)
Operating temperature:	-40…55 °C	
Storage temperature:	-40…70 °C	
Insulating resistance:	> 20 MΩ, 500 VDC between electronics and housing	
Ambient light rejection:	EN 60947-5-2	
Vibration:	0.5 mm amplitude, 10 … 55 Hz frequency, for every axis (EN60068-2-6)	
Shock resistance:	11 ms (30 G) 6 shock for every axis (EN60068-2-27)	
Housing:	PBT 30% Glass fiber-reiforced	
Lenses:	frontal window and lens in PC	
Protection class:	IP67 (IEC / EN60529) / cable gland EN50262	
UL requirements:	Class 2 power supply; 60-70°C copper conductor 24-20 AWG; Type 1 Enclosure	
Connections:	see the “CONNECTIONS” paragraph	

MODEL SELECTION AND ORDER INFORMATION

S5

MODEL	DESCRIPTION	CODE
S5-5-G8-62-SG-ST2	S5-5-G8-62-SG-ST2 emitter, 10/30Vdc, Type 2	952051870
S5-5-F8-92-SG-ST2	S5-5-F8-92-SG-ST2 receiver, 10/30Vdc. Type 2	952051890
S5-5-G8-62-SG-ST4	S5-5-G8-62-SG-ST4 emitter, 10/30Vdc, Type 4	952051910
S5-5-F8-92-SG-ST4	S5-5-F8-92-SG-ST4 receiver, 10/30Vdc. Type 4	952051930

SL5

MODEL	DESCRIPTION	CODE
SL5-5-G-82-SG-ST4	SL5-5-G-82-SG-ST4 Laser emitter, 40m, M12, Type 4	952501160
SL5-5-F-92-SG-ST4	SL5-5-F-92-SG-ST4 receiver, 40m, PNP, Light, M12, Type 4	952501170

S300

MODEL	DESCRIPTION	CODE
S300-PR-5-G00-EX-SG-ST2	S300-PR-5-G00-EX-SG-ST2 emitter 10/30Vdc Type 2	951451320
S300-PR-5-G00-EX-M-SG-ST2	S300-PR-5-G00-EX-M-SG-ST2 emitter 10/30Vdc Type 2 defogging	951451330
S300-PR-5-F00-OC-SG-ST2	S300-PR-5-F00-OC-SG-ST2 receiver 10/30Vdc Type 2	951451340
S300-PR-5-F00-OC-M-SG-ST2	S300-PR-5-F00-OC-M-SG-ST2 receiver 10/30Vdc Type 2 defogging	951451350
S300-PR-5-G00-EX-SG-ST4	S300-PR-5-G00-EX-SG-ST4 emitter 10/30Vdc Type 4	951451360
S300-PR-5-G00-EX-M-SG-ST4	S300-PR-5-G00-EX-M-SG-ST4 emitter 10/30Vdc Type 4 defogging	951451370
S300-PR-5-F00-OC-SG-ST4	S300-PR-5-F00-OC-SG-ST4 receiver 10/30Vdc Type 4	951451380
S300-PR-5-F00-OC-M-SG-ST4	S300-PR-5-F00-OC-M-SG-ST4 receiver 10/30Vdc Type 4 defogging	951451390

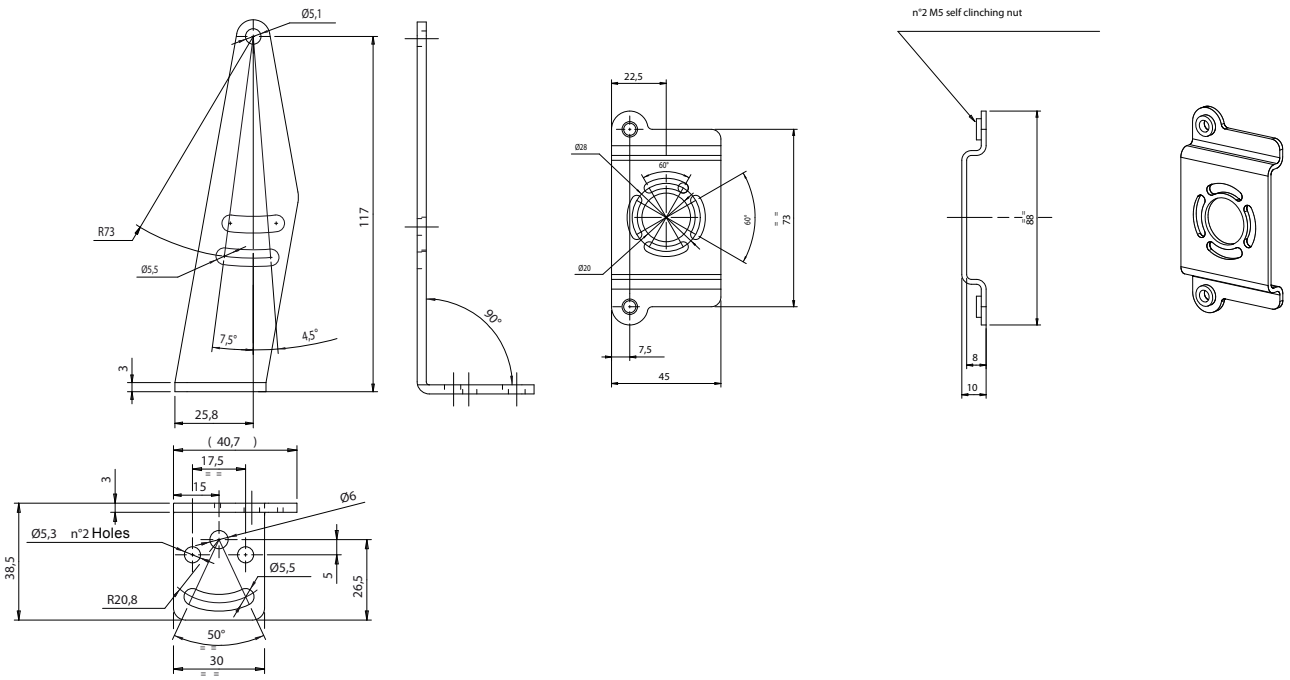
NOTE: THE SAFETY PHOTOCELLS LISTED ABOVE ARE CERTIFIED AND MUST BE USED ONLY WITH SAFETY CONTROL UNITS SG-BWS-T4 AND SG-BWS-T4-MT SERIES. NEITHER TECHNICAL AND FUNCTIONING COMPATIBILITY NOR CERTIFICATIONS ARE GUARANTEE IF USING THEM WITH OTHER BRAND CONTROL UNITS OR OLD/OBSOLETE DATALOGIC AUTOMATION CONTROL UNITS

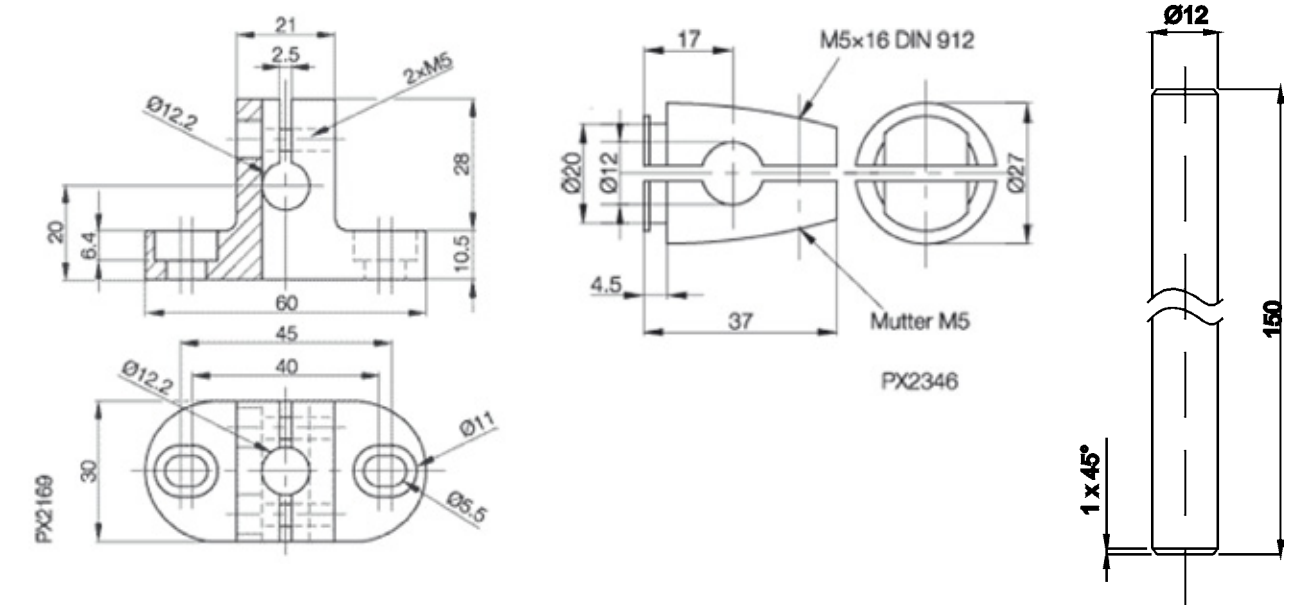
ACCESSORIES SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE
CS-A1-02-U-03	4-pole M12 cable (axial) 3 m	95ASE1120
CS-A1-02-U-05	4-pole M12 cable (axial) 5 m	95ASE1130
CS-A1-02-U-10	4-pole M12 cable (axial) 10 m	95ASE1140
CS-A1-02-U-15	4-pole M12 cable (axial) 15 m	95ASE1150
CS-A1-02-U-25	4-pole M12 cable (axial) 25 m	95ASE1160
SP-40	fixed support for tubular M18 sensors	95ACC1370
SWING-18	adjustable support for plastic tubular M18 sensors	895000006
MICRO-18	support with micrometric regulation for tubular M18 sensors	95ACC1380
ST-5099	S300 FIXED BRACKET	95ACC2830
ST-5100	S300 FIXED BRACKET	95ACC2840
DataVS-MK-01	S300 MOUNTING KIT	95A901380

Note: for S5, SL5 fixing brackets and supports dimensional 2D dimensional drawings please refer to the corresponding datasheets

S300 ACCESSORY DRAWINGS

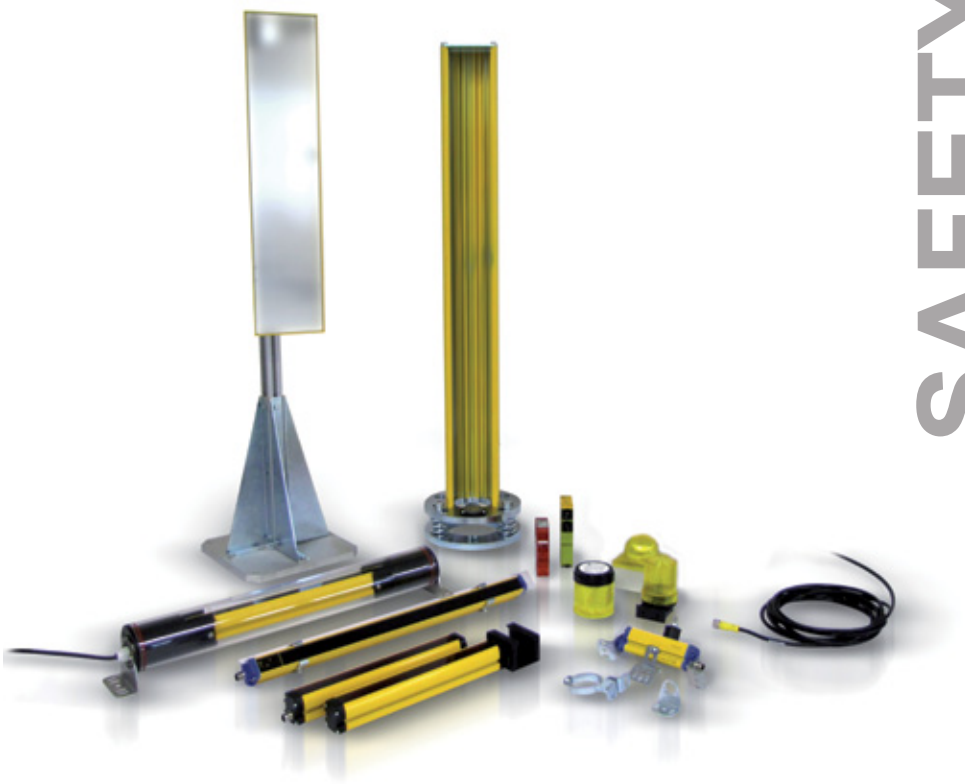




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SAFEASY™ ACCESSORIES

The accessory range for the **SAFEasy™** SE and SF2 safety light curtain series includes a complete offer of complementary parts for the installation and use of safety devices in plants and machinery. The deviating mirrors of the **SE-DM** series, useful to protect different sides of a machine, are available in different heights ranging from 150 mm to 1800 mm. The column and floor stands of safety light curtains and deviating mirrors of the **SE-S** series are available with heights ranging from 800 mm to 1800 mm. The protective stands of the **SE-P** series, ideal to guarantee device protection against shocks, also available in different heights ranging from 273 mm to 1743 mm. The laser pointer of the **SE-LP** series represents a valid support for the alignment and installation of the SE safety light curtain series, in particular for applications with long operating distances and / or using deviating mirrors. The **SE-SR2** safety relay guarantees the correct connection of the **SAFEasy™** safety light curtain series to machine stopping circuits. The series also includes Muting accessories: Muting signalling lamps of the **LMS** series and **SE-SRT** Muting connection box. The shielded cables of the **CV** series are available both in the standard axial version as well as in the 90° version; the latter particularly useful in applications that have reduced space. The fixing brackets, orientable, anti-vibration and anti-scratch supports of the **ST-K** series and the **TP** test pieces complete the offer.



HIGHLIGHTS

- Complete range of accessories for SAFEasy™ safety light curtains
- Deviating mirrors, fixing brackets and supports, protective stands
- Muting accessories: signalling lamps and Muting connection box
- Type 4 safety relays

APPLICATIONS

Safety accessories series are suitable for all the application where Datalogic Automation safety light curtains are used to protect dangerous part of automatic machine.

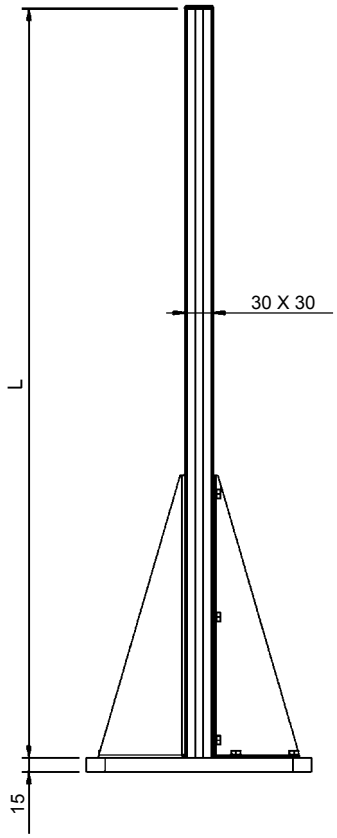




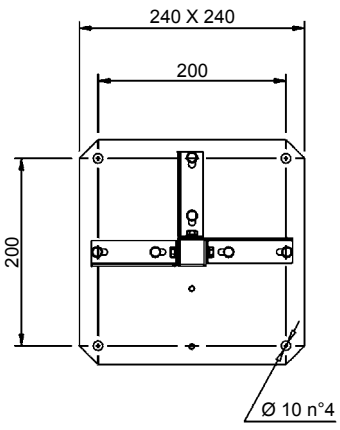


DEVIATING MIRRORS - SE-DM SERIES

The column and floor stands of the **SE-S** series, as well as being suitable for the **SAFEasy**™ - SE safety light curtain series, can be used also with the SF2 safety light curtain series and deviating mirrors of the SE-DM series.



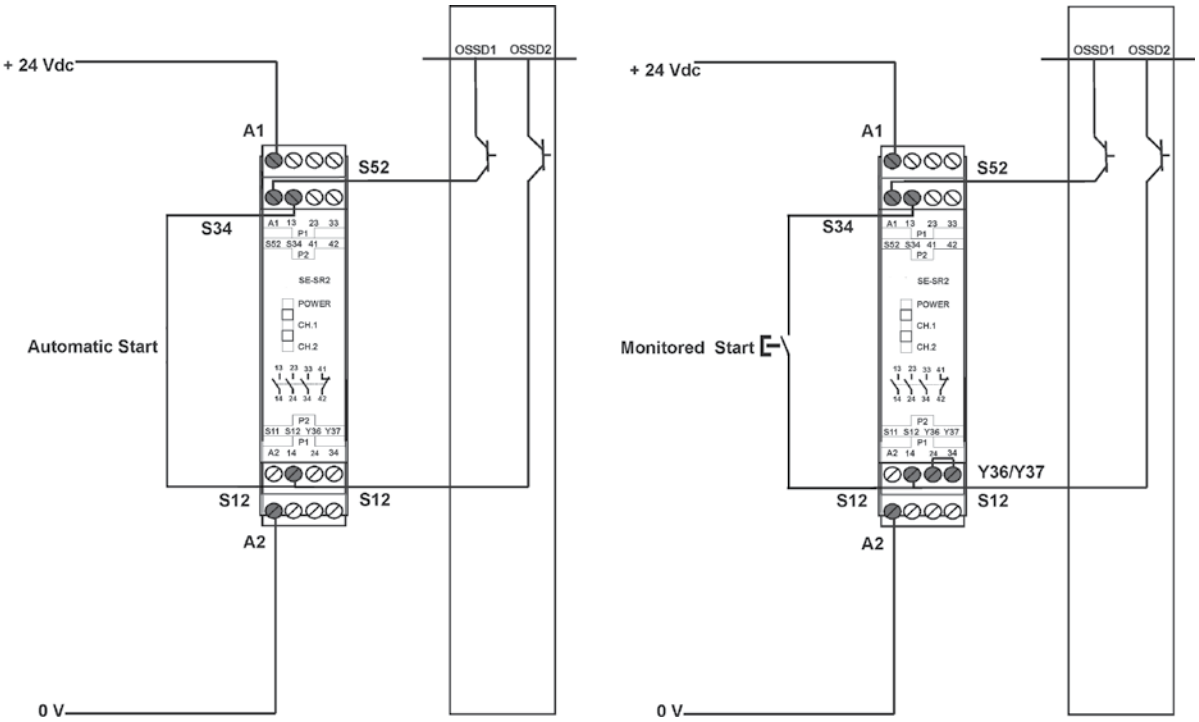
VERSION	L (mm)
SE-S 800	800
SE-S 1000	1000
SE-S 1200	1200
SE-S 1500	1500
SE-S 1800	1800



mm

* 30 x 30 mm profile dimensions for 800, 1000 and 1200 mm
  45 x 45 mm profile dimensions for 1500 and 1800 mm

SAFETY RELAYS - SE-SR2 SERIES



The drawings show the connection between SAFEasyTM safety light curtains and the type 4 safety relay of the SE-SR2 series operating in Automatic Start (left side) and Manual Start with monitoring (right side).

TEST PIECES - TP SERIES

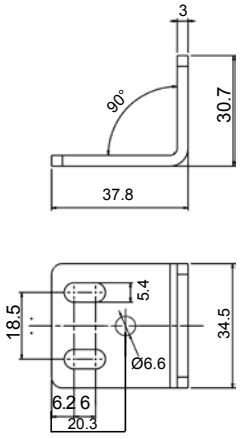
c UL US LISTED



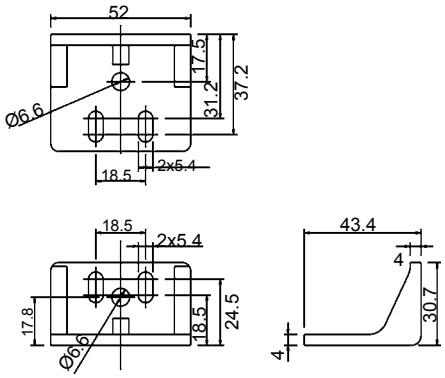
The test pieces of the TP series allow to verify if the resolution of the SAFEasyTM safety light curtains is guaranteed inside the entire detection field. Models with Ø 14, 20, 30, 35, 40, 50 and 90 mm are available.

FIXING BRACKETS - ST-K SERIES

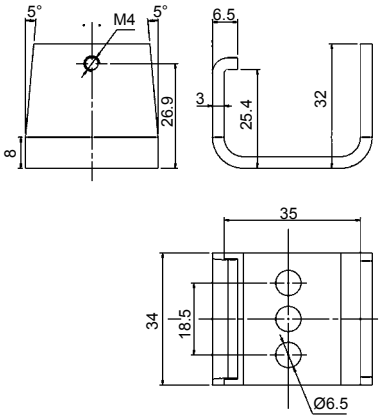
The **ST-KSTD** model represents the spare part kit composed of 4 standard fixing brackets for SE safety light curtains.
The **ST-K*OR** supports allow the orientation of the SE safety light curtains of ± 5°.
The **ST-K*AV** supports allow the absorption of the vibrations caused by the machinery where the SE safety light curtains are installed.
The **ST-KSF2STD** model represents the spare part kit composed of 12 standard fixing brackets for SF2 safety light curtains.
The **ST-KSF2** model represents the anti-scratch brackets (kit composed of 4 brackets) for SF2 safety light curtains.
The **ST-KP*MP** model represents the plastic fixing brackets for the SE safety light curtains.



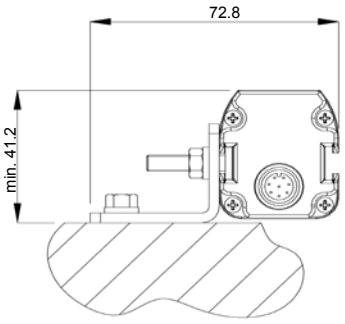
SE series: standard fixing bracket.



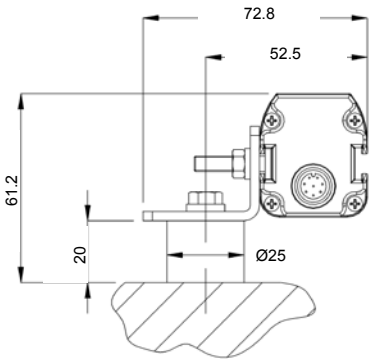
SE series: plastic fixing bracket.



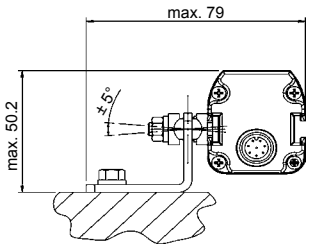
SF2 series: standard fixing bracket.



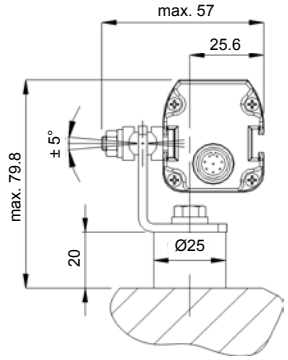
SE series: application with standard fixing bracket.



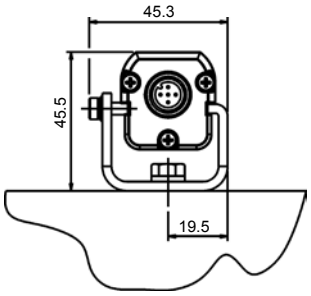
SE series: application with standard fixing bracket and ST-K*AV anti-vibration support.



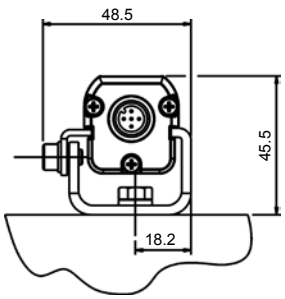
SE series: application with standard fixing bracket and ST-K*OR orientable support.



SE series: application with standard fixing bracket, ST-K*AV anti-vibration support and ST-K*OR orientable support.



SF2 series: application with standard fixing bracket. The standard fixing bracket is compatible with the SE standard bracket, ST-K*AV anti-vibration support.

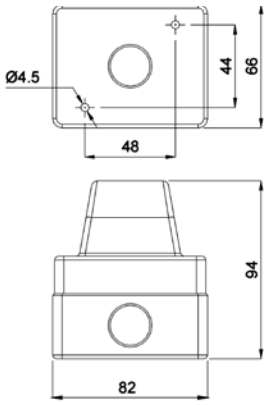


SF2 series: application with ST-KSF2 anti-scratch bracket.

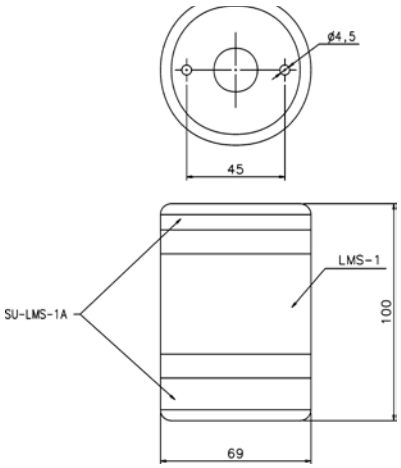
mm

MUTING SIGNALLING DEVICES - LMS SERIES

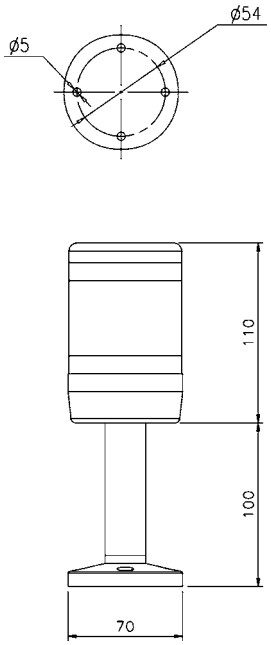
LMS



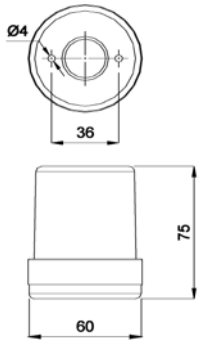
LMS-1 + SU-LMS-1A



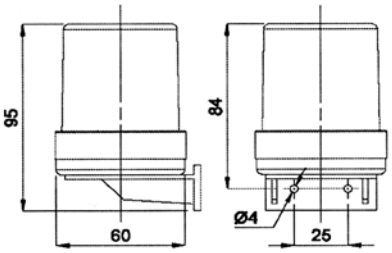
LMS-1 + SU-LMS-1B



LMS-2



LMS-3



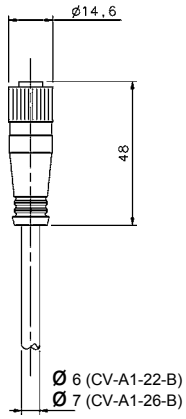
Use 24 V lamps

3 W min (125 mA)
7 W max. (300 mA)

mm

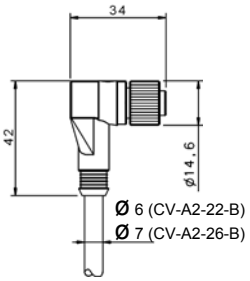
SHIELDED CABLES - CV SERIES

CV-A1-22-B
CV-A1-26-B



axial versions

CV-A2-22-B
CV-A2-26-B



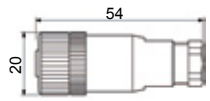
radial versions

mm

CONNECTORS - CS SERIES

CS-A1-06-B-NC

AXIAL M12 8-POLE
FEMALE CONNECTOR



accepts conductors with
0.25 ... 0.75mm² sections

mm

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	CODE N°
CS-A1-06-B-NC	axial M12-8 pole	95ACC2550
CV-A1-22-B-03	axial shielded 4-pin 3 m cable	95ACC1480
CV-A1-22-B-05	axial shielded 4-pin 5 m cable	95ACC1490
CV-A1-22-B-10	axial shielded 4-pin 10 m cable	95ACC1500
CV-A1-22-B-15	axial shielded 4-pin 15 m cable	95ACC2070
CV-A1-22-B-25	axial shielded 4-pin 25 m cable	95ACC2090
CV-A1-26-B-03	axial shielded 8-pin 3 m cable	95ACC1510
CV-A1-26-B-05	axial shielded 8-pin 5 m cable	95ACC1520
CV-A1-26-B-10	axial shielded 8-pin 10 m cable	95ACC1530
CV-A1-26-B-15	axial shielded 8-pin 15 m cable	95ACC2080
CV-A1-26-B-25	axial shielded 8-pin 25 m cable	95ACC2100
CV-A2-22-B-03	radial shielded 4-pin 3 m cable	95ACC1540
CV-A2-22-B-05	radial shielded 4-pin 5 m cable	95ACC1550
CV-A2-22-B-10	radial shielded 4-pin 10 m cable	95ACC1560
CV-A2-26-B-03	radial shielded 8-pin 3 m cable	95ACC1600
CV-A2-26-B-05	radial shielded 8-pin 5 m cable	95ACC1610
CV-A2-26-B-10	radial shielded 8-pin 10 m cable	95ACC1620
LMS	muting lamp	95ASE1830
LMS-1	modular muting lamp	95ACC1990
LMS-2	muting lamp - horizontal mounting	95ACC2000
LMS-3	muting lamp - vertical mounting	95ACC2010
SU-LMS-1A	basic module for LMS-1	95ACC2020
SU-LMS-1B	tower module for LMS-1	95ACC2030
SE-S 800	column and floor stand H=800 mm	95ACC1730
SE-S 1000	column and floor stand H=1000 mm	95ACC1740
SE-S 1200	column and floor stand H=1200 mm	95ACC1750
SE-S 1500	column and floor stand H=1500 mm	95ACC1760
SE-S 1800	ground support H=1800 mm	95ACC1770
SE-SR2	type 4 safety relay - 3 NO 1NC	95ACC6170
ST-KSF2	anti-scratch fixing bracket - 4 pcs kit	95ACC2320
ST-KSF2STD	SF2 fixing bracket - 12 pcs kit	95ASE1020
ST-KSF2-40R	SF2 orientable supports - 4 pcs kit	95ACC2580
ST-KSF2-60R	SF2 orientable supports - 6 pcs kit	95ACC2590
ST-KSTD	SE fixing bracket - 4 pcs kit	95ACC1670
ST-KP4MP	SE plastic fixing bracket - 4 pcs kit	95ASE1100
ST-KP6MP	SE plastic fixing bracket - 6 pcs kit	95ASE1110
ST-K4AV	anti-vibration supports - 4 pcs kit	95ACC1700
ST-K6AV	anti-vibration supports - 6 pcs kit	95ACC1710
ST-K4OR	orientable supports - 4 pcs kit	95ACC1680
ST-K6OR	orientable supports - 6 pcs kit	95ACC1690
TP-14	test piece Ø 14 mm	95ACC1630
TP-20	test piece Ø 20 mm	95ACC1640
TP-30	test piece Ø 30 mm	95ACC1650
TP-35	test piece Ø 35 mm	95ACC1660
TP-40	test piece Ø 40 mm	95ASE1820
TP-50	test piece Ø 50 mm	95ASE1790
TP-90	test piece Ø 90 mm	95ASE1800

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SAFETY

CS ME SERIES

This **compact relay box** is the ideal solution able to guarantee a cost advantage respect to using a double-channel Type 2 or Type 4 safety relay. The box **can be used with all the safety light curtains of the SG and SE series that have the EDM function** (External Device Monitoring, i.e. the control of the external counter status). It represents an efficient alternative to using a couple of force-guided relays. The front terminal blocks and DIN rail mounting guarantee extremely fast installation and cabling ease.

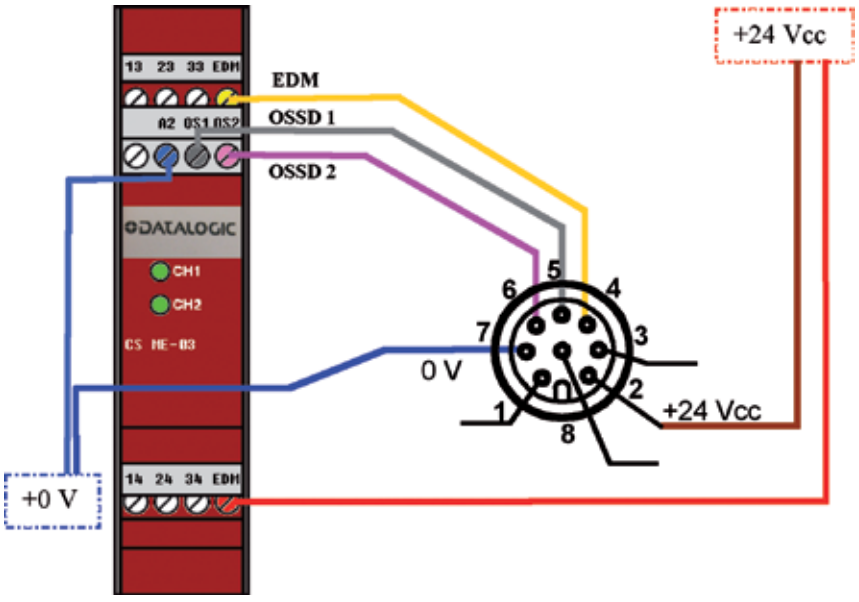


HIGHLIGHTS

- Module for Type 2 and Type 4 electrical light curtains
- 2 inputs for OSSD
- Output contacts: 3 NO safety contact and 1 NC feedback/EDM contact
- Standard terminal block for channel cabling

CONNECTIONS

Example of connecting the EDM module to the SE and SG series of safety light curtains with EDM function.



TECHNICAL DATA

HOUSING	Material:	Polyamide PA 6.6 class V0 (UL94)
	Protection degree:	IP40 (housing) IP20 (terminal block)
	Dimensions (L x H x D):	111.5 x 99.0 x 22.5mm
	Cable cross section:	0.2 … 2.5mm2 24 … 12AWG
	Terminal driving torque:	0.5 … 0.6Nm
GENERAL FEATURES	Safety category:	up to category 4 according to EN 954-1 (dependent from the base module)
	Ambient temperature:	-25 … + 55°C
	Mechanical endurance:	> 10 millions operations
	Electrical endurance:	> 100.000 operations
	Pollution degree:	outside 3, inside 2
	Pulse withstand voltage (Uimp):	2.5KV
	Rated insulation voltage:	250V
	Over-voltage category:	II
	Insulation type:	basic insulation
	Weight:	0.2Kg
POWER SUPPLY	Rated operating voltage (Un):	24Vdc*
	Max residual ripple in DC:	10%
	Supply voltage tolerance:	±20% di Un
	Rated power consumption DC:	< 2W*
	Start power consumption:	< 3W control circuit
CONTROL CIRCUIT	Operating time tA:	40ms
	Releasing time on de-energisation tR1:	15ms + output circuit
OUTPUT CIRCUIT	Output contacts:	3 NO safety contacts
		1 NC feedback contact
	Contact type:	forced guided contacts
	Contacts material:	Silver alloy, gold plated
	Max. switching voltage:	230 */240Vac; 300Vdc
	Max. switching current per contact:	6A*
	Simoltaneous currents sum of 3 outputs:	≤ 12A
	Conventional free air thermal current:	6A
	Contacts resistance:	≤100mW
	Protection fuse outside:	6A*
	Max. switching capacity:	1380 A/W
	Utilization category (EN 60947-5-1):	AC15, Ue= 230V, Ie= 3 A DC13, Ue= 24V, Ie= 6 A (6 operations/minute)
	Utilization category (UL508):	C300
STANDARD CONFORMITY	Standard conformity:	EN 60204-1, EN 954, EN 999, EN 1037, EN ISO 12100-1, EN ISO 12100-2, EN 418, EN 60529, EN 61000-6-2, EN 61000-6-3, EN 62326-1, EN 60664-1, EN 60947-1, UL 508, CSA C22.2 n°14-95
	Directory conformity:	2006/95/EC, 2006/42/EC, 2004/108/EC
	Clearance and creepage distances:	according to EN 60947-1
	Approvals:	UL file n° E131787

** Data type approved by UL conforms to the standard UL 508 (f le E131787)*
Notes (data type approved by UL):
- Use 60° or 75 °C copper (Cu) conductor and wire size No. 30-12 AWG.
- The terminal tightening torque of 5-7 Lb-In.
- Only for 24 VAC/DC version, supply from remote class 2 source or limited voltage and limited energy.

MODELS

MODEL	DESCRIPTION	ORDER N°
CS ME-03VU24-Y14	EDM RELAY BOX	95ASE1270

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DATALOGIC

SAFETY

SG-DM SERIES

Accessory deviating mirrors of SG-DM series can be used with all DATALOGIC AUTOMATION SF2, SE, SG2, SG4, SG BODY safety light curtain series and with Sx-F/G-SG-ST safety photocell series. Available in different lengths starting from **150mm (single mirrors for mono and multibeam applications) and reaching 1900mm,** making them ideal for classical perimeter protection. The **SG-DM** deviating mirrors can be mounted in a "stand alone" configuration directly on the machine or inside SG-PS protective stand series. Mirror mounting can be performed through dedicated accessory mounting kits: **ST-PS-DM** for protective stands mounting and **ST-DM** for "stand alone" mounting.

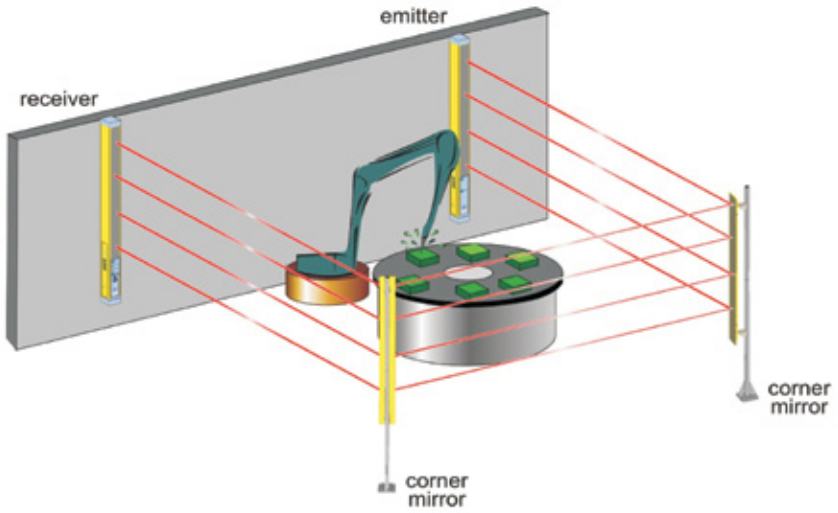


HIGHLIGHTS

- Suitable for all models SF2, SE, SG2, SG4, SG BODY safety light curtains series and Sx-F/G-SG-ST safety photocells series
- Suitable for stand alone mounting on the machines or inside protective stands SG-PS series
- Sturdy aluminum profile
- 80mm width

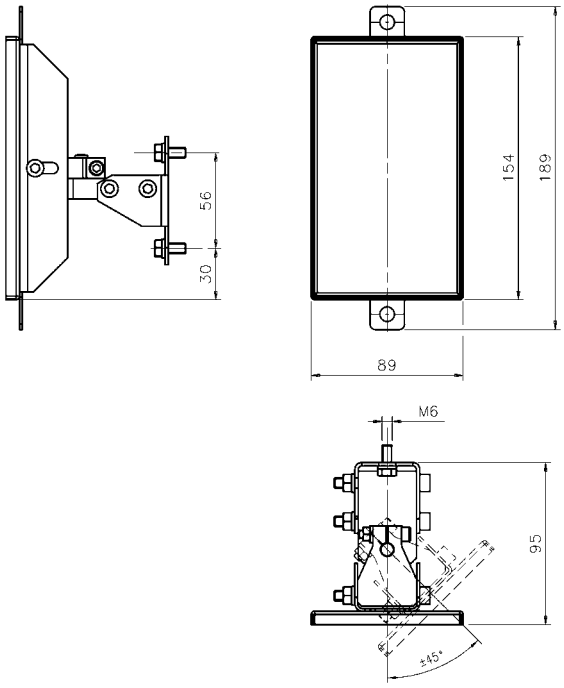
APPLICATIONS

Thanks to its extremely easy mounting, the SG-DM deviating mirrors are particularly suitable for all the applications that require the protection of more than one side of a machine.

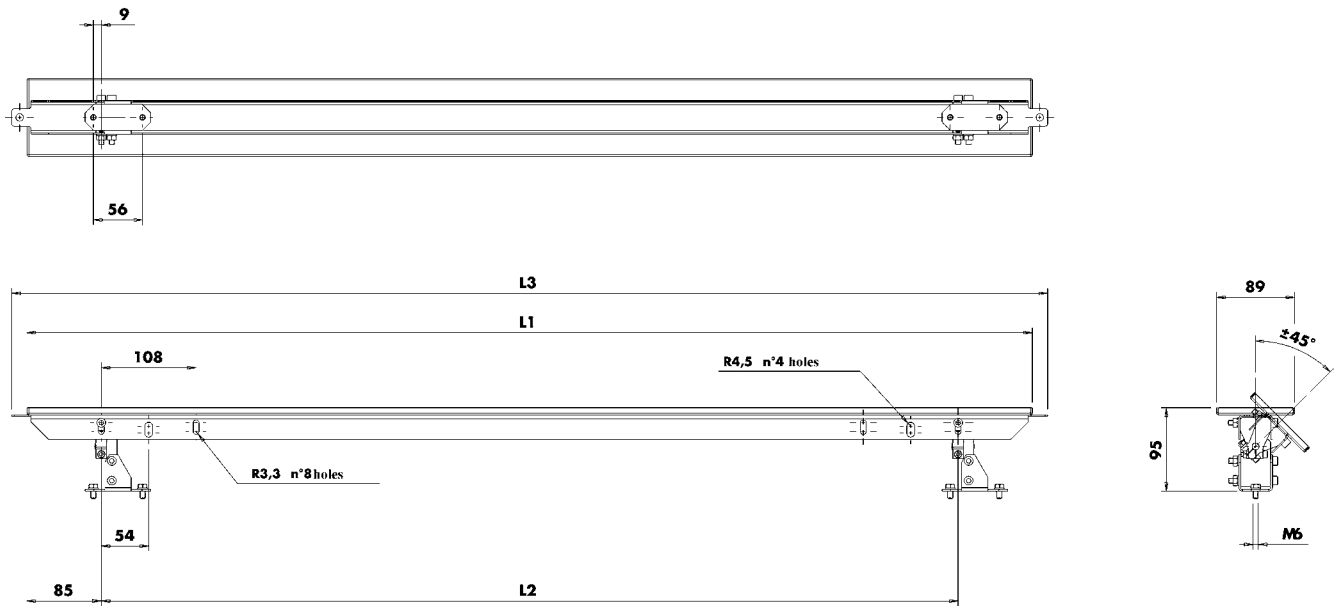


DIMENSIONS

Overall dimensions of 150 model



Overall dimensions of models from 600 to 1900



Model	L1 [mm]	L2 (mm)	L3 (mm)
SG-DM 600	545	376	580
SG-DM 900	845	676	880
SG-DM 1200	1145	976	1180
SG-DM 1650	1595	1426	1630
SG-DM 1900	1845	1676	1880

Note: the SG-DM couplet with the Protective Stand overall dimensions are available in the dedicated user manual.

MIRRORS – SAFETY LIGHT CURTAINS CORRESPONDANCE TABLE

MIRROR MODELS	CORRESPONDING SAFETY LIGHT CURTAINS MODELS
SG-DM 600	SEX-XX-015
SG-DM 600	SEX-XX-030
SG-DM 600	SGX-XX-015
SG-DM 600	SGX-XX-030
SG-DM 600	SGX-XX-015
SG-DM 600	SGX-XX-030
SG-DM 600	SGX-XX-045
SG-DM 600	SGX-XX-045
SG-DM 600	SGX-XX-045
SG-DM 900	SGX-XX-060
SG-DM 900	SGX-XX-060
SG-DM 900	SGX-XX-060
SG-DM 900	SGX-XX-075
SG-DM 900	SGX-XX-075
SG-DM 900	SGX-XX-075
2X SG-DM 150 / SG-DM 900	SEX-X2-050
2X SG-DM 150 / SG-DM 900	SG2-S2-050
2X SG-DM 150 / SG-DM 900	SG4-S2-050
2X SG-DM 150 / SG-DM 900	SG2-B2-050
2X SG-DM 150 / SG-DM 900	SG4-B2-050
2X SG-DM 150 / SG-DM 900	SG4-BLR2-050
2X SG-DM 150 / SG-DM 900	SG4-BSR2-050
SG-DM 900	SG4-40-060
SG-DM 1200	SEX-XX-090
SG-DM 1200	SGX-XX-090
SG-DM 1200	SGX-XX-090
SG-DM 1200	SEX-XX-105
SG-DM 1200	SGX-XX-105
SG-DM 1200	SGX-XX-105
3X SG-DM 150 / SG-DM 1200	SEX-X3-080
3X SG-DM 150 / SG-DM 1200	SG2-S3-080
3X SG-DM 150 / SG-DM 1200	SG4-S3-080
3X SG-DM 150 / SG-DM 1200	SG2-B3-080
3X SG-DM 150 / SG-DM 1200	SG4-B3-080
3X SG-DM 150 / SG-DM 1200	SG4-BLR3-080
3X SG-DM 150 / SG-DM 1200	SG4-BSR3-080
4X SG-DM 150 / SG-DM 1200	SEX-X4-090
4X SG-DM 150 / SG-DM 1200	SG2-S4-090
4X SG-DM 150 / SG-DM 1200	SG4-S4-090
4X SG-DM 150 / SG-DM 1200	SG2-B4-090
4X SG-DM 150 / SG-DM 1200	SG4-B4-090
4X SG-DM 150 / SG-DM 1200	SG4-BLR4-090
4X SG-DM 150 / SG-DM 1200	SG4-BSR4-090
SG-DM 1200	SG4-40-090
SG-DM 1650	SGX-XX-120
SG-DM 1650	SGX-XX-120
SG-DM 1650	SGX-XX-120
SG-DM 1650	SGX-XX-135
SG-DM 1650	SGX-XX-135
SG-DM 1650	SGX-XX-135
SG-DM 1650	SGX-XX-150
SG-DM 1650	SGX-XX-150
SG-DM 1650	SGX-XX-150
4X SG-DM 150 / SG-DM 1650	SEX-X4-120
4X SG-DM 150 / SG-DM 1650	SG2-S4-120
4X SG-DM 150 / SG-DM 1650	SG4-S4-120
4X SG-DM 150 / SG-DM 1650	SG2-B4-120
4X SG-DM 150 / SG-DM 1650	SG4-B4-120
4X SG-DM 150 / SG-DM 1200	SG4-BLR4-120
4X SG-DM 150 / SG-DM 1200	SG4-BSR4-120
SG-DM 1650	SG4-40-120
SG-DM 1900	SEX-XX-165
SG-DM 1900	SGX-XX-165
SG-DM 1900	SGX-XX-165
SG-DM 1900	SGX-XX-180
SG-DM 1900	SGX-XX-180

MODEL SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	ORDER N°
SG-DM 150	DEVIATING MIRROR H=150MM	950801160
SG-DM 600	DEVIATING MIRROR H=600MM	950801170
SG-DM 900	DEVIATING MIRROR H=900MM	950801200
SG-DM 1200	DEVIATING MIRROR H=1200MM	950801210
SG-DM 1650	DEVIATING MIRROR H=1650MM	950801240
SG-DM 1900	DEVIATING MIRROR H=1900MM	950801260

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-DM*	“STAND ALONE” MIRRORS MOUNTING KIT	95ASE1940

*** FIXING BRACKET ARE NOT INCLUDED IN THE PACKAGE BUT MUST BE ORDERED, IF REQUIRED, AS ACCESSORY**

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DATALOGIC

SAFETY

SG-IP69K SERIES

The **SG-IP69K** accessory, is a PMMA acrylic tube used to protect and seal the safety light curtains of **SG2, SG4** and **SG BODY COMPACT** series. Thanks to SGIP69K accessory the IP protection of the safety light curtain is increased from **IP65** to **IP67**, **IP68** and **IP69K**.
The **Gore-Tex membrane** on the caps prevents water or dirt entering as well as internal condensation. The connection cable for the light curtain is protected and kept in its place by a M16 metric chock that prevents the entry of water or dirt.



HIGHLIGHTS

- Guarantees IP67, IP68 and IP69K mechanical protection
- Acrylic tubular PMMA housing
- Available for all models of the different heights of the SG2, SG4 (150 – 1800 mm) and SG BODY Compact (2, 3 and 4 beams) series
- Does not compromise the performance of the light curtain in terms of alignment
- Do not change the EAA value

APPLICATIONS

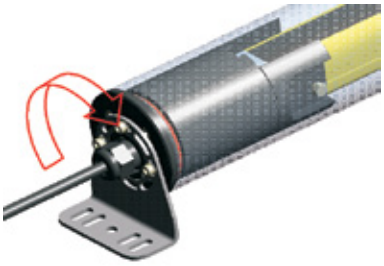
The SG-IP69K accessory is particularly used where high levels of humidity and temperature are present and machines or equipments are frequently washed with hot water (up to 80°C) at high pressure (up to 100 bar s) and / or cleaned with detergents. SG-IP69K is particularly suitable for FOOD industry applications:

- beverage production
- meat slaughter
- sausage production
- milk / cheese industry



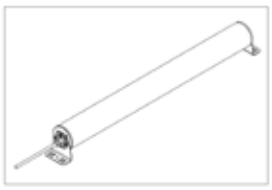


Two stainless steel rotating brackets, to be mounted on the product caps, are supplied and guarantee quick and easy installation. The PMMA Acrylic tube, thanks to its mechanical characteristics, **avoids the deterioration of the light curtain's Effective Aperture Angle (EAA) guaranteeing the alignment ease.**



DIMENSIONS

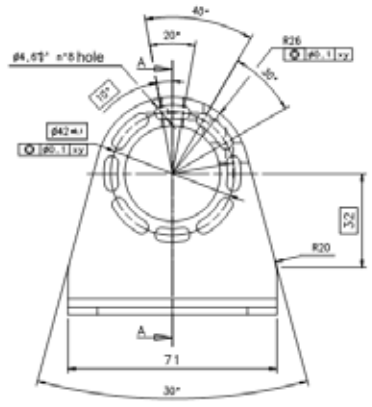




mm

MODEL	L (mm)
SG-IP69K 150	373,5
SG-IP69K 300	520,7
SG-IP69K 450	670,8
SG-IP69K 600	820,7
SG-IP69K 750	970,8
SG-IP69K 900	1120,7
SG-IP69K 1050	1270,7
SG-IP69K 1200	1420,8
SG-IP69K 1350	1570,7
SG-IP69K 1500	1720,8
SG-IP69K 1650	1870,8
SG-IP69K 1800	2020,8

FIXING BRACKET



TECHNICAL DATA

MECHANICAL DATA	
Housing material:	Weep-Spin-Dry Policril PMMA
Depth:	4mm
Protection degree:	IP67, IP68 and IP69K*
OPTICAL DATA	
Operative distance / reduction factor:	10% for each unit*
EAA aberration (Effective Aperture Angle):	None

** technical data refers to the safety light curtains installed inside the accessory*

CHEMICAL RESISTANCE TABLE

	CONCENTRATION	RESISTANCE
Inorganic Acid		
Boric acid		FR
Hydrochloric acid	< 40%	FR
Chromic acid	< 40%	FR
Chlorosulfuric acid		FR
Hydrogen fluoride	< 40%	MR
Phosphoric acid	< 30%	FR
Nitric Acid	< 20%	MR
Concentrate nitric acid		NR
Sulfuric acid	< 40%	FR
Sulfuric acid	< 80%	MR
Sulfuric acid	1%	FR
Acid for accumulators		FR
ALKALINE ACID		
Ammoniaca		FR
Barium hydrate, saturate solution		FR
Potassic Carbonate, saturate solution		MR
Soda Ash, saturate solution		FR
Milk of Lime		FR
Caustic Potassium, whatever concentration		MR
Sodium hydroxide, whatever concentration		FR
Inorganic Substances		
Chlorine water		FR
Hydrogen peroxide 40 volums		FR
Hydrogen peroxide 120 volums		NR
Aluminium Chloride		FR
Aluminium fluoride		MR
Aluminium oxalate		FR
Aluminium sulphate		FR
Potassium alum		FR
Ammonium carbonate		FR
Ammonium chloride		FR
Ammonium fluoride		FR
Ammonium nitrate		FR
Ammonium sulphate		FR
Argent nitrate		FR
Barium Chloride		FR
Barium sulphate		FR
Calcium Chloride		FR
Calcium hypochlorite		MR
Liquid Chlorine		NR
Sulfuryl chloride		NR
Ferric chloride (ico)		FR
Ferric chloride (oso)		FR
Ferric sulphate (oso)		FR
Magnesium Chloride		FR
Magnesium Sulphate		FR

LEGEND
FR = Full resistence
MR = Medium resistence
NR = No resistence

CHEMICAL RESISTANCE TABLE

SOLVENTS E ORGANIC COMPOUNDS	CONCENTRATION	RESISTANCE
Amyl acetate		NR
Manganese(II) sulfate		FR
Mercury sulphate		MR
Nickel sulphate		FR
Potassium bicarbonate		FR
Potassium dichromate		FR
Potassium carbonate		FR
Potassium cyanide		FR
Potassium ferricyanide		FR
Niter (saltpeter)		FR
Potassium permanganate		FR
Potassium sulfite		FR
Potassium sulfate		FR
Copper(II) chloride		FR
Copper sulphate		FR
Silicon tetrachloride		NR
Sodium bisulphite		FR
Sodium cyanide		FR
Sodium chlorate		FR
Sodium Cloryde		FR
Sodium fluoride		FR
Sodium phosphate		MR
Sodium hypoclorite		MR
Sodium nitrate		FR
Sodium sulphate		FR
Sodium sulphur		FR
Tin chloride (oso)		FR
Tin chloride (ico)		FR
Tin sulphate (ico)		FR
Zinc sulphate		FR
Zinc chloride		FR
Sulphur		FR

LEGEND
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MR = Medium resistence
NR = No resistence



CHEMICAL RESISTANCE TABLE

ORGANIC ACIDS	CONCENTRATION	RESISTANCE
Concentrated acetic acid		NR
Acetyl acid	< 10%	FR
Butyric acid	< 5%	FR
Formic acid		NR
Formic acid	< 2%	FR
Lactic acid	< 10%	FR
Oxalic acid		FR
Picric acid	1% (in water)	FR
Stearic acid		FR
Tartaric acid	< 20%	FR
Thioglycolic acid	< 10%	MR
Trichloroacetic acid		NR
Ethyl acetate		NR
Acetone		NR
Alcool allilico		NR
Alcool amilico		NR
N-Butanol		NR
Ethil alcohol	< 20%	FR
Ethyl alcohol		NR
Isopropyl alcohol		NR
Wood alcohol		NR
1-propyl alcohol		NR
Acetic aldehyde		NR
Acetic anhydride		NR
Formaldehyde		FR
Aniline		NR
Benzine		MR
Benzole		NR
Ethil bromide		NR
Butirrato di etile		NR
Chlorophenol		NR
Chloroform		NR
Ethil chloryde		NR
Aviation gasoline		MR
Cresol, methyl phenol		NR
Decalina		FR
Diacetonalcool		NR
1,4-Dioxane		NR
Ethylene bromide		NR
Bis(2-ethylhexyl) phthalate		MR
Heptane		FR
Esalina		FR
Hexane		FR
ThilChloroether		NR
Petroleum ether		FR
Phenol		FR
Ethyl ether		NR
Ftalato diamilico		NR
Ftalato dibutilico		NR
Glycerine		FR
2-etandiolo		FR
Butyl lactate		NR
Methyl ethyl ketone		NR
Monobromo naftalina		FR
Naphthalene		FR
Pyridine		NR
Propylene, methyl ethylene, propene		NR
Carbon disulfide		NR
Freon		NR
Tetrachloroethylene		NR
Carbon tetrachloride		NR
Tetrahydrofuran		NR
Tetralina		NR
Tolulo		NR

LEGEND
FR = Full resistence
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NR = No resistence

CHEMICAL RESISTANCE TABLE

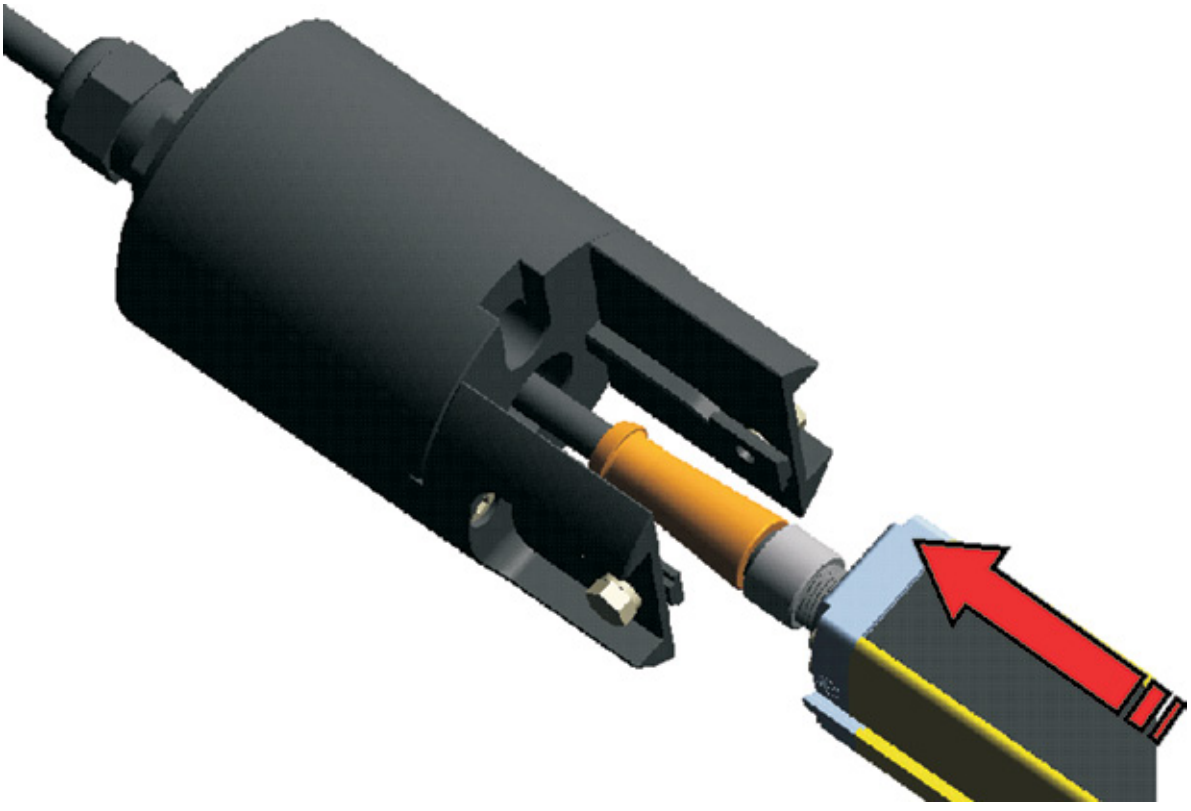
	CONCENTRATION	RESISTANCE
Disinfectants		
Hydrogen peroxide 100 volums		FR
Turpentine		FR
Trichloroethylene		NR
Tricresisolfato		NR
Trietillamina		FR
Xylol		NR
Gas		
Ammonia		FR
Carbon dioxide		FR
Sulfur trioxide		FR
Sulfur dioxide		FR
Nitrogen dioxide		FR
Gas illuminante		FR
Hydrogen sulfide		FR
Methane		FR
Carbon monoxide		FR
Oxygen		FR
Ozone		FR
Bromine vapors		MR
Chlorine vapors		MR
Foods		
Vinegar		FR
Water		FR
Mineral water		FR
Anise		FR
Beer		FR
Coffee		FR
Cinnamon		FR
Chocolate		FR
Onion		FR
Chamomile extract		FR
Lauro leaves		FR
Dianthus		NR
Milk of Lime		FR
Liquors		NR
Nutmeg		FR
Pepper		FR
Cider		FR
Juice		FR
Wine		FR

LEGEND
FR = Full resistence
MR = Medium resistence
NR = No resistence

CHEMICAL RESISTANCE TABLE

	CONCENTRATION	RESISTANCE
Fats, Oils, Wax		
Refining fatty acid		FR
Floor wax		MR
Diesel oil		FR
Vegetable oils and fats		FR
Mineral oils		FR
Moneral oils and fats		FR
Transformer oil		FR
Detergents		Fr
Alcool	< 20%	FR
Carbolic acid		NR
DDT (dichlorodiphenyltrichloroethane)		MR
Formalia (se è formalina = Formaldehyde)		FR
Pasta di cloramina		NR
Calcium hypochlorite pulp		FR
Ethanol denaturated		NR
Soluzione cloramina	< 2%	FR
Calcium chloride solution	< 2%	FR
Mercury(II) chloride		FR
Alcool anidro		NR
Pure gasoline		NR
Sodium hypochlorite		FR
Solvent stain remover		NR
Ammonia water solution		FR

LEGEND
FR = Full resistence
MR = Medium resistence
NR = No resistence



MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
SG-IP69K 150	Tubular IP69K H=150mm	95ASE1290
SG-IP69K 300	Tubular IP69K H=300mm	95ASE1300
SG-IP69K 450	Tubular IP69K H=450mm	95ASE1310
SG-IP69K 600	Tubular IP69K H=600mm	95ASE1320
SG-IP69K 750	Tubular IP69K H=750mm	95ASE1330
SG-IP69K 900	Tubular IP69K H=900mm	95ASE1340
SG-IP69K 1050	Tubular IP69K H=1050mm	95ASE1350
SG-IP69K 1200	Tubular IP69K H=1200mm	95ASE1360
SG-IP69K 1350	Tubular IP69K H=1350mm	95ASE1370
SG-IP69K 1500	Tubular IP69K H=1500mm	95ASE1380
SG-IP69K 1650	Tubular IP69K H=1650mm	95ASE1390
SG-IP69K 1800	Tubular IP69K H=1800mm	95ASE1400

NOTE: Each package contains what is necessary to protect a single unit (TX or RX). To protect both TX and RX, two pieces of the same code are needed

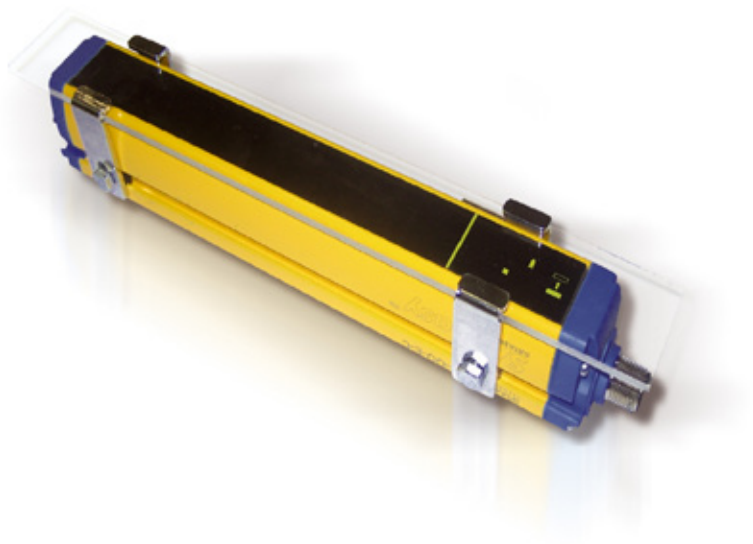
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DATALOGIC

SAFETY

SG-LS SERIES

The **LENS SHIELD** accessory for safety light curtains, composed of a PMMA Altuglas plate that can be mounted on the front glass of the safety light, ensures an effective protection against dust, chips and incandescent drops, deriving from material working near the safety light curtain.
Thanks to the unique profile, available in different lengths, the accessory **suits all the models of the SG2, SG4 and SE series.**
The accessory can be easily installed thanks to the fixing brackets supplied in the package that exploit the side groove of the safety light curtain. It can also be quickly replaced when the glass is damaged.



HIGHLIGHTS

- PMMAAltuglas 3mm plate
- Protects front glass of the light curtain from dust, chips and incandescent drops
- One profile available in different lengths ideal for all models of the SG2, SG4 and SE series (150–1800mm)
- Doesn't leave glue deposits or other residual material on the light curtain

APPLICATIONS

The SG-LS accessory is particularly suitable in working areas characterized by chips or incandescent drops deriving from material working or welding such as:

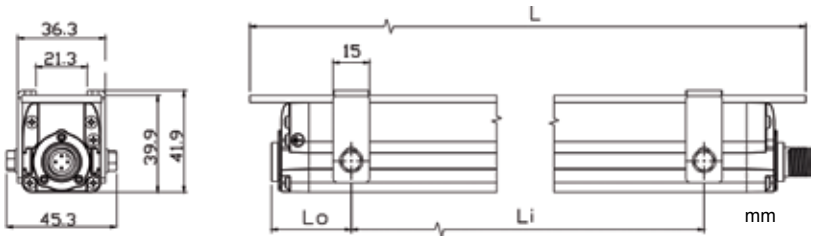
- Punching machines
- Milling machines
- Welding machines

Five plates are supplied in the package that supply adequate replacements even in presence of extremely high wear.

TECHNICAL DATA

Protected height*:	150..1800mm
	2, 3, 4 beams
Housing material:	PMMA Altuglas
Thickness	3 mm
Reduction factor of the op.distance*:	10 % for each Lens Shield installed
* technical data referred to safety light curtain where the accessory is mounted	

DIMENSIONS



Measurement in mm

	SG2, SG4B, SE Hand/Finger protection				SE Body protection				
	VERS.	L	Li	Lo	VERS.	L	Li	Lo	
n°2+2 BRACKETS	15	245	160	30	2r 050	642	490	75	n°2+2 BRACKETS
	30	392	345	45	3r 080	942	640	175	
	45	540	400	60	4r 090	1042	660	200	
	60	686	520	75					n°3+3 BRACKETS
	75	832	590	115					
	90	980	640	175	4r 120	1342	480	200	
	105	1126	740	200					
n°3+3 BRACKETS	120	1274	445	200					
	135	1422	520	200					
	150	1568	595	200					
	165	1715	670	200					
	180	1860	745	200					

MODELS

MODEL	DESCRIPTION	ORDER N°
SG-LS 150	lens shield 150	95ASE1450
SG-LS 300	lens shield 300	95ASE1460
SG-LS 450	lens shield 450	95ASE1470
SG-LS 600	lens shield 600	95ASE1480
SG-LS 750	lens shield 750	95ASE1490
SG-LS 900	lens shield 900	95ASE1500
SG-LS 1050	lens shield 1050	95ASE1510
SG-LS 1200	lens shield 1200	95ASE1520
SG-LS 1350	lens shield 1350	95ASE1530
SG-LS 1500	lens shield 1500	95ASE1540
SG-LS 1650	lens shield 1650	95ASE1550
SG-LS 1800	lens shield 1800	95ASE1560
SG-LS 2	lens shield 2	95ASE1570
SG-LS 3	lens shield 3	95ASE1580
SG-LS 4-900	lens shield 4-900	95ASE1590
SG-LS 4-120	lens shield 4-120	95ASE1600

NOTE:Each package contains what is necessary to protect a single unit (TX or RX). To protect both TX and RX, two pieces of the same code are needed

ACCESSORIES

MODEL	DESCRIPTION	ORDER N°
SG-LS-MC4	Elastic fastner for LENS SHIELD (kit 4pcs.)	95ASE1810

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SG-LP SERIES

Thanks to its completely new housing and fixing system **SG-LP laser pointer** can be installed in all safety light curtains profiles of **SE, SG2, SG4-B and SG Body series.** Exactly as the previous model SE-LP, the **installation is performed through one of two lateral grooves;** but, thanks to a specially designed CAMME fixing equipment the laser pointer can be inserted into the groove either from the top or from the side, depending on which kind of fixing brackets have been used to mount the safety light curtain (standard "L" or TOP-BOTTOM Rotating ones). One top and one lateral fixing brackets, together with two tightening knobs allow to adjust SG-LP laser pointer's position in both transversal and longitudinal directions and to have it constantly centred respect light curtain's optical axis, independently from housing width.



HIGHLIGHTS

- To be used to help the mechanical alignment of TX and RX unit of safety light curtain;
- Suitable for all SE, SG2, SG4-B and SG Body profiles;
- Installation performed through one of two lateral grooves of the safety light curtain housing;
- Insertion into the groove either from the top or from the side, depending on which kind of fixing brackets have been used;
- Double adjustment, transversal and longitudinal directions, thanks to one top and one lateral fixing brackets, together with two tightening knobs.

APPLICATIONS

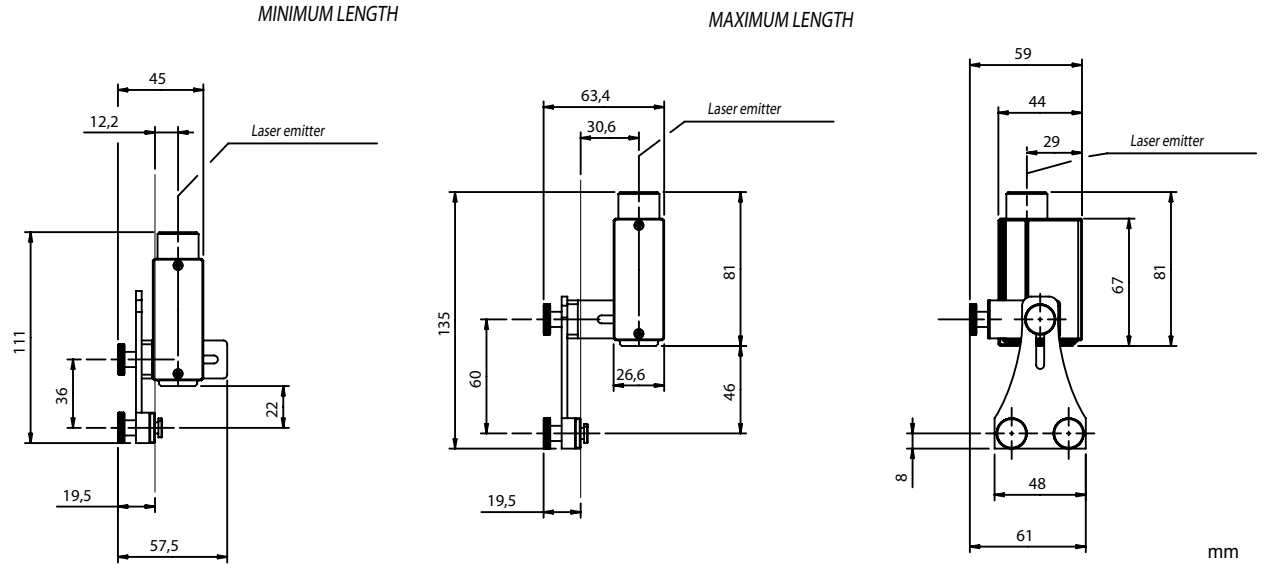
SG-LP laser pointer is advised to be used to ease TX and RX mechanical alignment process in the following installation conditions:
- Mutli-beam body/access protection safety light curtain;
- Mutli-beam body/access protection safety light curtain installed with deviating mirrors to perform perimetric protections;
- Finger or hand protection safety light curtains installed with deviating mirrors to protect different sides of a machine.

SAFETY PRECAUTIONS

The SG-LP laser pointer uses a red laser light beam that can be potentially dangerous to the human eye.

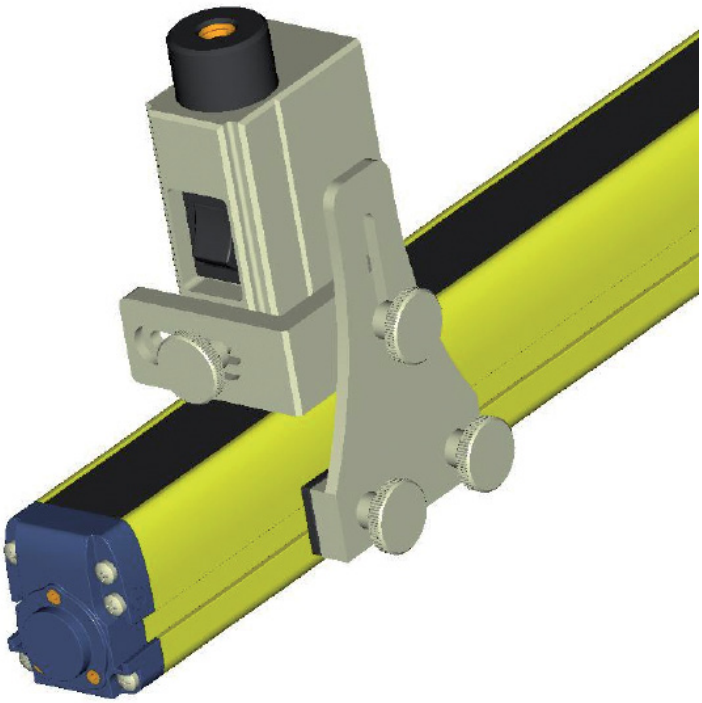


DIMENSIONS



AVAILABLE MODELS

MODEL	DESCRIPTION	ORDER N°
SG-LP	SG-LP LASER POINTER	95ASE5590



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DATALOGIC

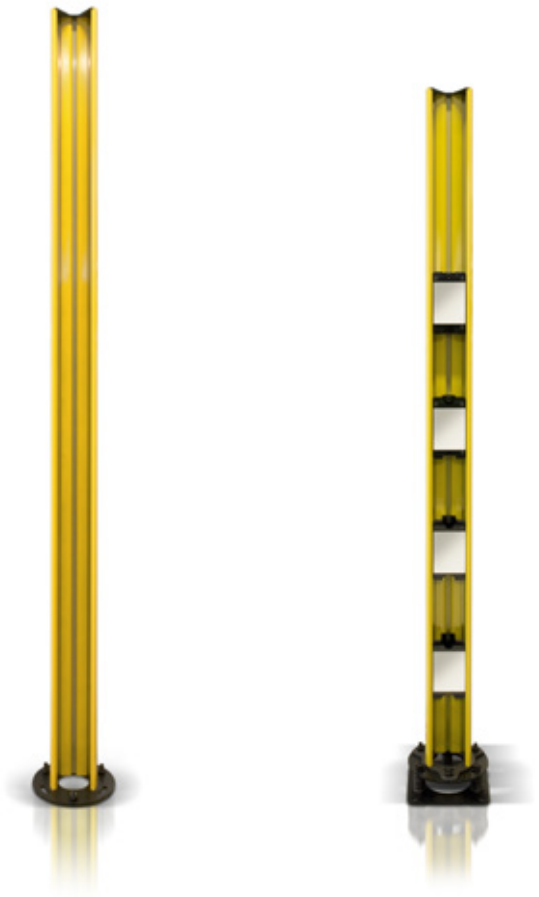
SAFETY

SG-PSB AND SG-PSM SERIES

The new **SG-PSB** and **SG-PSM** series are studied to improve the previous series SG-PS and to be used with all SG2, SG4, SG BODY BIG, SG BODY REFLECTOR and SG BODY COMPACT safety light curtains for finger, hand and body protection and access control.

Two complete new series are now available :
• **SG-PSB** version represents the natural replacement of SG-PS.
SG – PSB is a protective aluminium profile mounted on a steel base made by two plates. Five different models with heights from 600mm to 1900mm are available.
• **SG-PSM** version is completely new and integrates into SG-PSB single mirrors for typical body or access perimeter protection. Four different models for 2, 3, 4 beams body protection 500, 800, 900 and 1200 mm controlled height whose mirrors are positioned according to EN-999 standard.

SG-PSB and **SG-PSM** series drastically reduce the overall plant costs thanks to their extremely installation easiness.

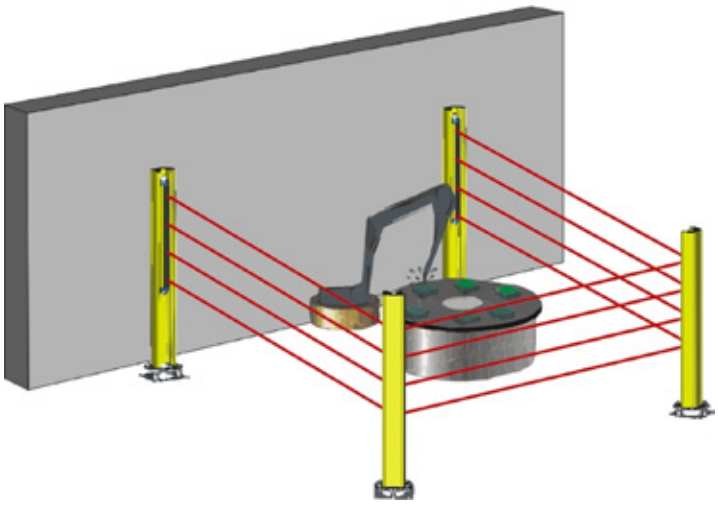


HIGHLIGHTS

- Safety light curtains protection against shocks and collisions
- Available for all SE, SG2, SG4-B, SG BODY and SG BODY REFLECTOR series
- Models for barriers and with integrated deviating single mirrors
- Suitable for mounting stand-alone full-length mirrors inside
- Single base with 2 disks for flatness regulation and angular adjustment
- Upper plate's grooves positioned at most common angles (30, 45, 60, 90 degrees)
- Spherical level ball
- Additional accessory kit of squared plate together with 3 load springs
- Double rear groove for mounting additional external muting sensor

TYPICAL APPLICATIONS

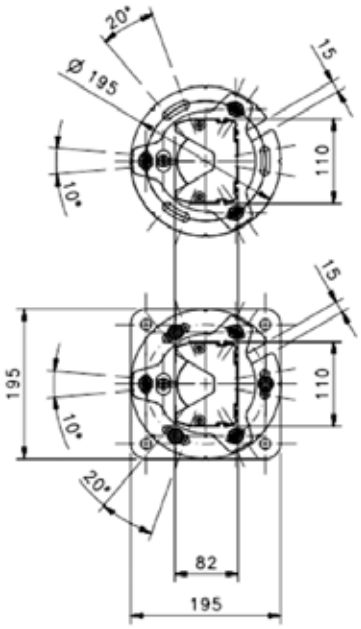
The combination of multiple light beam safety devices or safety light curtains with deflector mirrors is the right solution for perimeter protection.
The adjustment of the deflector mirrors mounted in sturdy columns is thereby very straightforward.
Here the unhindered access for loading as well as for changing tools and programs is a further advantage over mechanical fencing. The result is an increase in productivity.

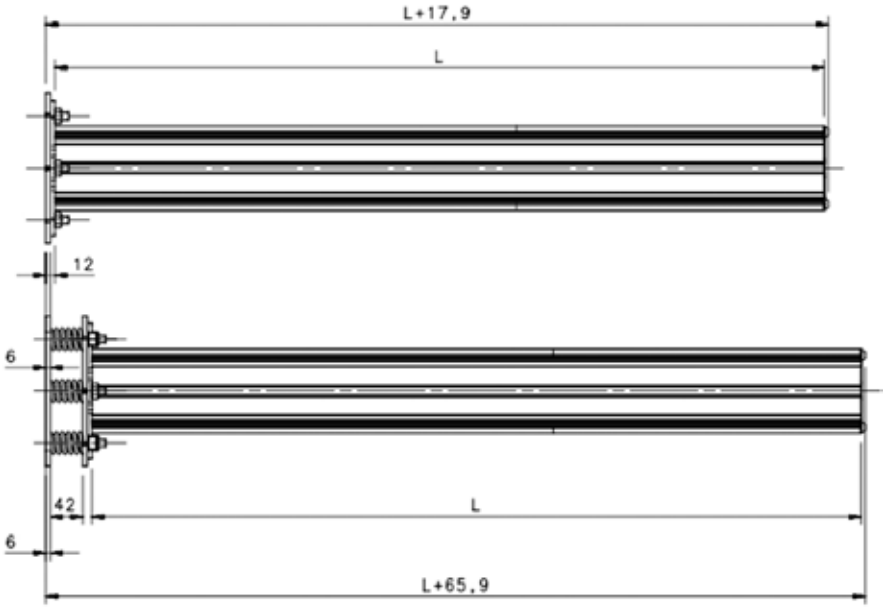


TECHNICAL SPECIFICATIONS

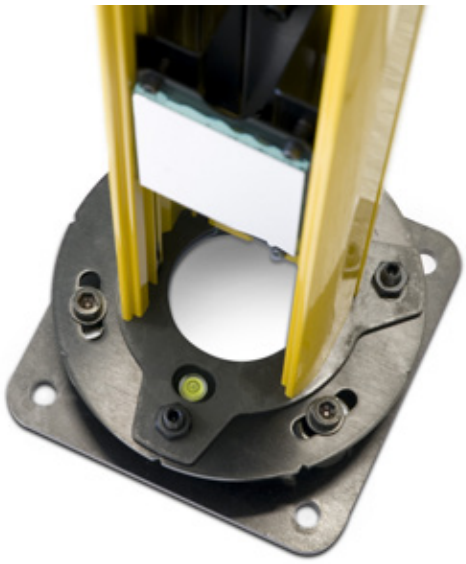
SPECIAL FEATURES	SG-PSB	SP-PSM	SG-P
Easy installation, quick vertical and axial allignement in just a few steps	•	•	
Easy height adjustment of the installed devices	•		
Individual mirrors can be exchanged and separately alligned		•	
Mirror distance according to EN 999 standard		•	
Additional upper plate with grooves positioned at most common angles	•	•	
Flattness regulation through 3 grains and spheric level ball	•	•	
Automatic resetting after mechanical impacts with special spring elements			•

SG-PSB DIMENSIONS

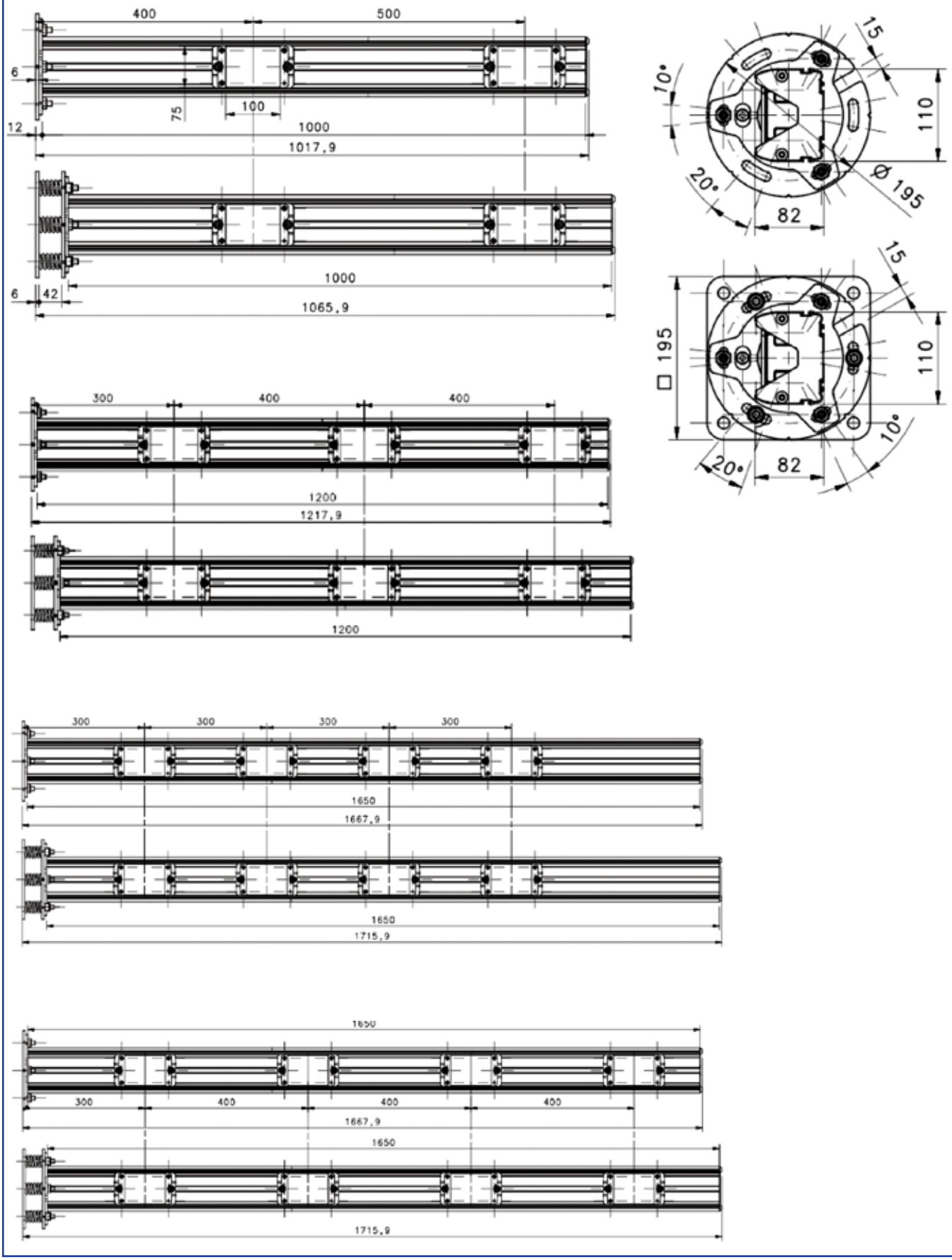




VERSION	L (mm)
SG-PSB 600	600
SG-PSB 1000	1000
SG-PSB 1200	1200
SG-PSB 1650	1650
SG-PSB 1900	1900



SG-PSM DIMENSIONS



SG-PSM AND SAFETY LIGHT CURTAIN CORRESPONDENCE

The following table lists safety light curtain models that can be combined with the SG-PSM corresponding ones for typical perimeter protection applications.

SG-PSM	CORRESPONDING CURTAIN	CONTROLLED HEIGHT
SG-PSM-2-500	SE2-P2-050#####	500 mm
	SE4-P2-050#####	500 mm
	SE4-Q2-050#####	500 mm
	SG2-S2-050#####	500 mm
	SG4-S2-050#####	500 mm
	SG2-B2-050#####	500 mm
	SG4-B2-050#####	500 mm
	SG4-BLR2-050#####	500 mm
	SG4-BSR2-050#####	500 mm
SG-PSM-3-800	SE2-P3-080#####	800 mm
	SE4-P3-080#####	800 mm
	SE4-Q3-080#####	800 mm
	SG2-S3-080#####	800 mm
	SG4-S3-080#####	800 mm
	SG2-B3-080#####	800 mm
	SG4-B3-080#####	800 mm
	SG4-BLR3-080#####	800 mm
	SG4-BSR3-080#####	800 mm
SG-PSM-4-900	SE2-P4-090#####	900 mm
	SE4-P4-090#####	900 mm
	SE4-Q4-090#####	900 mm
	SG2-S4-090#####	900 mm
	SG4-S4-090#####	900 mm
	SG2-B4-090#####	900 mm
	SG4-B4-090#####	900 mm
	SG4-BLR4-090#####	900 mm
	SG4-BSR4-090#####	900 mm
SG-PSM-4-1200	SE2-P4-120#####	1200 mm
	SE4-P4-120#####	1200 mm
	SE4-Q4-120#####	1200 mm
	SG2-S4-120#####	1200 mm
	SG4-S4-120#####	1200 mm
	SG2-B4-120#####	1200 mm
	SG4-B4-120#####	1200 mm
	SG4-BLR4-120#####	1200 mm
	SG4-BSR4-120#####	1200 mm

SG-PSB AND SAFETY LIGHT CURTAIN CORRESPONDENCE

The following table lists safety light curtain models that can be mounted inside the SG-PSB corresponding ones for typical perimeter protection applications. Fixing brackets column specifies the bracket accessory kit required to install TX or RX unit inside the protective stand.

SG-PSB	CURTAIN	CONTROLLED HEIGHT	FIXING BRACKETS
SG-PSB 600	SE2-35	150÷450 mm	ST-PS4-SG-SE
	SE4-14/20/30/35	150÷450 mm	ST-PS4-SG-SE
	SG2-30/50/90	150÷450 mm	ST-PS4-SG-SE
	SG4-14/30	150÷450 mm	ST-PS4-SG-SE
SG-PSB 1000	SE2-35	600÷750 mm	ST-PS4-SG-SE
	SE4-14/20/30/35	600÷750 mm	ST-PS4-SG-SE
	SE2-P2-050#####	500 mm	ST-PS4-SG-SE
	SE4-P2-050#####	500 mm	ST-PS4-SG-SE
	SE4-Q2-050#####	500 mm	ST-PS4-SG-SE
	SG2-30/50/90	600÷750 mm	ST-PS4-SG-SE
	SG4-14/30	600÷750 mm	ST-PS4-SG-SE
	SG2-S2-050#####	500 mm	ST-PS4-SG-SE
	SG4-S2-050#####	500 mm	ST-PS4-SG-SE
	SG2-B2-050#####	500 mm	ST-PS4-SG BODY
	SG4-B2-050#####	500 mm	ST-PS4-SG BODY
	SG4-BLR2-050#####	500 mm	ST-PS4-SG BODY
	SG4-BSR2-050#####	500 mm	ST-PS4-SG BODY
SG-PSB 1200	SE2-35	900÷1050 mm	ST-PS4-SG-SE
	SE4-14/20/30/35	900÷1050 mm	ST-PS4-SG-SE
	SE2-P3-080#####	800 mm	ST-PS4-SG-SE
	SE4-P3-080#####	800 mm	ST-PS4-SG-SE
	SE4-Q3-080#####	800 mm	ST-PS4-SG-SE
	SG2-30/50/90	900÷1050 mm	ST-PS4-SG-SE
	SG4-14/30	900÷1050 mm	ST-PS4-SG-SE
	SG2-S3-080#####	800 mm	ST-PS4-SG-SE
	SG4-S3-080#####	800 mm	ST-PS4-SG-SE
	SG2-B3-080#####	800 mm	ST-PS4-SG BODY
	SG4-B3-080#####	800 mm	ST-PS4-SG BODY
	SG4-BLR3-080#####	800 mm	ST-PS4-SG BODY
	SG4-BSR3-080#####	800 mm	ST-PS4-SG BODY

SG-PSB	CURTAIN	CONTROLLED HEIGHT	FIXING BRACKETS
SG-PSB 1650	SE2-35	1200÷1500 mm	ST-PS6-SG-SE
	SE4-14/20/30/35	1200÷1500 mm	ST-PS6-SG-SE
	SE2-P4-090#####	900 mm	ST-PS4-SG-SE
	SE4-P4-090#####	900 mm	ST-PS4-SG-SE
	SE4-Q4-090#####	900 mm	ST-PS4-SG-SE
	SE2-P4-120#####	1200 mm	ST-PS6-SG-SE
	SE4-P4-120#####	1200 mm	ST-PS6-SG-SE
	SE4-Q4-120#####	1200 mm	ST-PS6-SG-SE
	SG2-30/50/90	1200÷1500 mm	ST-PS6-SG-SE
	SG4-14/30	1200÷1500 mm	ST-PS6-SG-SE
	SG2-S4-090#####	900 mm	ST-PS4-SG-SE
	SG4-S4-090#####	900 mm	ST-PS4-SG-SE
	SG2-B4-090#####	900 mm	ST-PS4-SG BODY
	SG4-B4-090#####	900 mm	ST-PS4-SG BODY
	SG4-BLR4-090#####	900 mm	ST-PS4-SG BODY
	SG4-BSR4-090#####	900 mm	ST-PS4-SG BODY
	SG2-S4-120#####	1200 mm	ST-PS6-SG-SE
	SG4-S4-120#####	1200 mm	ST-PS6-SG-SE
	SG2-B4-120#####	1200 mm	ST-PS6-SG BODY
	SG4-B4-120#####	1200 mm	ST-PS6-SG BODY
	SG4-BLR4-120#####	1200 mm	ST-PS6-SG BODY
	SG4-BSR4-120#####	1200 mm	ST-PS6-SG BODY
SG-PSB 1900	SE2-35	1650 mm	ST-PS6-SG-SE
	SE4-20/30/35	1650 mm	ST-PS6-SG-SE
	SG2-30/50/90	1650÷1800 mm	ST-PS6-SG-SE
	SG4-14/30	1650÷1800 mm	ST-PS6-SG-SE

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
SG-PSB 600	SG-PSB 600 PROTECTIVE STAND H=600mm	95ASE2240
SG-PSB 1000	SG-PSB 1000 PROTECTIVE STAND H=1000mm	95ASE2250
SG-PSB 1200	SG-PSB 1200 PROTECTIVE STAND H=1200mm	95ASE2260
SG-PSB 1650	SG-PSB 1650 PROTECTIVE STAND H=1650mm	95ASE2270
SG-PSB 1900	SG-PSB 1900 PROTECTIVE STAND H=1900mm	95ASE2280
SG-PSM-2-500	SG-PSM-2-500 PROT STANDS 2 MIRRORS H500	95ASE2300
SG-PSM-3-800	SG-PSM-3-800 PROT STANDS 3 MIRRORS H800	95ASE2310
SG-PSM-4-900	SG-PSM-4-900 PROT STANDS 4 MIRRORS H900	95ASE2320
SG-PSM-4-1200	SG-PSM-4-1200 PROT STANDS 4 MIRRORS H1200	95ASE2330

NOTE: Each SG-PSB model contains what is necessary to protect a single unit (TX or RX). To protect both TX and RX, two pieces of the same part number are needed.

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
SG-P	SG-P PLATE KIT FOR PROTECTIVE STANDS	95ASE2290
ST-PS4-SG BODY	ST-PS4-SG BODY 4PCS PROTECTIVE STANDS MOUNTING KIT SG BODY BIG	95ASE1730
ST-PS6-SG BODY	ST-PS6-SG BODY 6PCS PROTECTIVE STANDS MOUNTING KIT SG BODY BIG	95ASE1740
ST-PS4-SG-SE	ST-PS4-SG-SE 4PCS PROTECTIVE STANDS MOUNTING KIT SG2/SG4/SE2/SE4	95ASE1750
ST-PS6-SG-SE	ST-PS6-SG-SE 6PCS PROTECTIVE STANDS MOUNTING KIT SG2/SG4/SE2/SE4	95ASE1760
ST-PS-DM	ST-PS-DM 4PCS PROTECTIVE STANDS MOUNTING KIT DEVIATING MIRRORS	95ASE1770

NOTE: Inside the SG-PSB profile many different safety lght curtain models can be mounted; for that reason 5 different accessory fixing bracket kits are available. According to the barrier supposed to be installed into the SG-PSB customer has to order the corresponding kit.

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SG-SRT

The new **SG-SRT** evolves and improves SE-SRT connection box. Based on Datalogic CBX800 GATEWAY housing SG-SRT is developed to fit the advanced functionalities of new SG BODY BIG, SG BODY REFLECTOR and SG BODY COMPACT safety light curtains guaranteeing easy installation, connection, configuration and use. SG-SRT is then provided in 2 different models :

- **SG-SRT-1** version represents the natural replacement of SE-SRT.
- **SG-SRT-2** is especially designed to work together with new SG BODY BIG and SG BODY REFLECTOR series exploiting their full functionalities.





HIGHLIGHTS

- CBX800 housing
- TOTAL COMPATIBILITY WITH SE-SRT
- Two models: SG-SRT-1 and SG-SRT-2
- Fairlead for passage of cables towards the machine
- Two Integrated FORCE GUIDED SAFETY RELAYS : 2 NO contact availabe on each relay
- Configuration performed setting the various jumpers and connectors on the same PCB

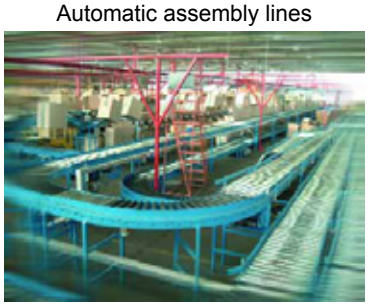
Automatic machines



Robots



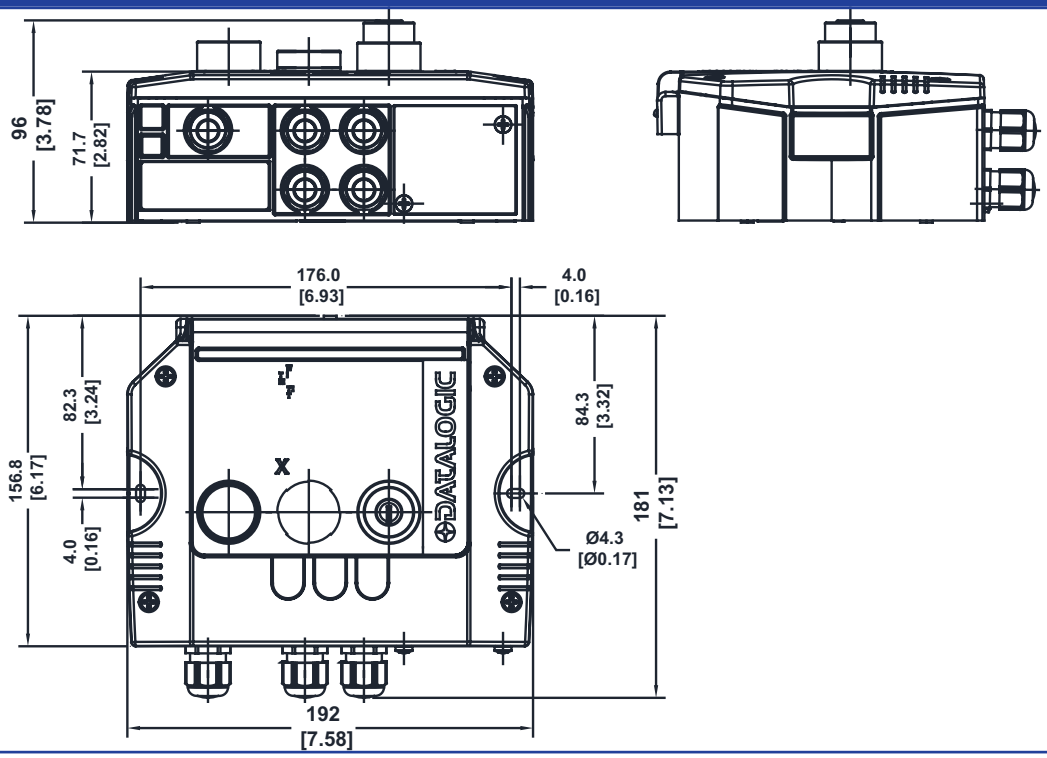
Automatic assembly lines



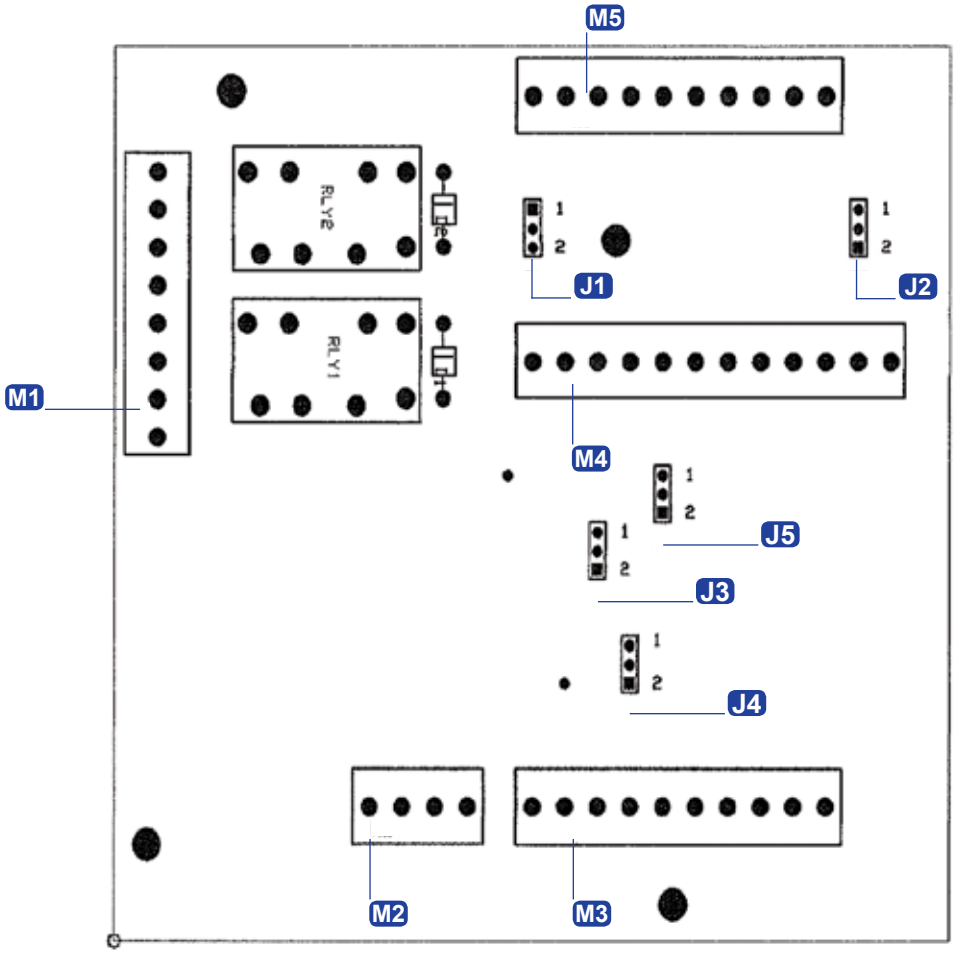
Palletizers and depalletizers



DIMENSIONS



ELECTRICAL CONNECTIONS



CONFIGURATION SELECTIONS

JUMPER	FUNCTION	POS	SELECTION	DEFAULT
J1	RESTART	1-2	AUTOMATIC RESTART (*)	X
		2-3	MANUAL RESTART	
J2	LAMP	1-2	LAMP ON BOX (**)	X
		2-3	EXTERNAL LAMP	
J3	OSSD2	1-2	RLY2 RELAY ENABLED	X
		2-3	OSSD2 ROUTED TO OUT	
J4	OSSD1	1-2	RLY1 RELAY ENABLED	X
		2-3	OSSD1 ROUTED TO OUT	
J5	EDM	1-2	EDM INTERNAL	X
		2-3	EDM EXTERNAL	
(*)	FORCED CONFIGURATION FOR SGBODY COMPACT (the selection of the Restart should be determined by the appropriate light curtain DIPswitches)			
(**)	ONLY FOR SG-SRT-2 MODELS			

CONN.	PIN	DESCRIPTION	
M1	**1**	K111	PIN 1 RLY1 - 1°NO CONTACT
	2	K112	PIN 2 RLY1 - 1°NO CONTACT
	3	K121	PIN 1 RLY1 - 2°NO CONTACT
	4	K122	PIN 2 RLY1 - 2°NO CONTACT
	5	K211	PIN 1 RLY2 - 1°NO CONTACT
	6	K212	PIN 2 RLY2 - 1°NO CONTACT
	7	K221	PIN 1 RLY2 - 2°NO CONTACT
	8	K222	PIN 2 RLY2 - 2°NO CONTACT
M2	**1**	VCC	TX Unit
	2	GND	TX Unit
	3	FE	TX Unit - not present on SG BODY COMPACT-
	4	TEST	TX Unit - not present on SG BODY COMPACT-
M3	**1**	VCC	24 VCC INPUT
	2	GND	GND INPUT
	3	OSSD2	OUT 2
	4	OSSD1	OUT 1
	5	EDM	OUT EDM
	6	MUTING E	MUTING ENABLE INPUT
	7	LAMP OUT	EXTERNAL LAMP OUT
	8	OVR STAT	OVERRIDE STATUS OUT
	9	FE	FUNCTIONAL EARTH GROUND
	10	TEST	TEST
M4	**1**	VCC	RX Unit
	2	GND	RX Unit
	3	RESTART	RX Unit
	4	OVR1	RX Unit
	5	OSSD2	RX Unit
	6	EDM	RX Unit
	7	MUTING E	RX Unit - not present on SG BODY COMPACT-
	8	OSSD1	RX Unit
	9	OVR2	RX Unit
	10	LAMP	RX Unit - not present on SG BODY COMPACT-
	11	OVE STAT	RX Unit - not present on SG BODY COMPACT-
	12	FE	RX Unit - not present on SG BODY COMPACT-
M5	**1**	M51	TO RESTART PUSHBUTTON
PRE-WIRED	**2**	M52	TO RESTART PUSHBUTTON
	3	M53	TO GND LAMP OF RESTART PUSH BUTTON
	4	M54	TO LAMP OF RESTART PUSH BUTTON
	5	M55	TO OVERRIDE OVR1 PUSH BUTTON
	6	M56	TO 24 VCC OVERRIDE OVR1 PUSH BUTTON
	7	M57	TO OVERRIDE OVR2 PUSH BUTTON
	8	M58	TO GND OVERRIDE OVR2 PUSH BUTTON
	9	M59	TO TEST LAMP
	10	M510	TO VCC OF TEST LAMP

FUNCTIONING

The SG-SRT connection boxes allow you to directly manage, without further action, the following functions according to the typical operation of the connected Safety Barrier model:

FUNCTION	THROUGH
TEST	TEST/START Push button
RESTART	TEST/START Push button
RESET	TEST/START Push button
EDM internal	Internal Selector
EDM external actuators	Internal Selector
OVERRIDE	Key Selector
MUTING STATE	Integrated Lamp (SG-SRT-2 only)

Please refer to the Safety Barrier Manuals for all information regarding connections, operations and options for the functions listed above.

OUTPUT RELAY BEHAVIOUR

The boxes use 2 safety guided relay contacts. These relays are specified by the manufacturer for higher voltages and currents as indicated by the technical data.
However, to ensure correct isolation and prevent premature damage for age drift, you need to protect each output line using a delayed 6A fuse and verify that the load characteristics comply with the instructions below:

Max. switchable voltage: 250 Vac
Max. switchable current: 2 A

CONNECTION BOX AND SAFETY LIGHT CURTAIN CORRESPONDENCE

SAFETY LIGH CURTAIN MODEL	CONNECTION BOX MODEL
SG2 BODY COMPACT BASE	-
SG2 BODY COMPACT MUTING	SG-SRT-1
SG4 BODY COMPACT BASE	-
SG4 BODY COMPACT MUTING	SG-SRT-1
SG2 BODY BIG BASE	-
SG2 BODY BIG MUTING	SG-SRT-1 / SG-SRT-2
SG4 BODY BIG BASE	-
SG4 BODY BIG MUTING	SG-SRT-1 / SG-SRT-2
SG4 BODY REFLECTOR BASE	-
SG4 BODY REFLECTOR MUTING	SG-SRT-1 / SG-SRT-2

MODEL SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
SG-SRT-1	SG-SRT-1 MUTING CONNECTION BOX	95ASE2050
SG-SRT-2	SG-SRT-2 MUTING CONNECTION BOX LAMP	95ASE2060

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