DATALOGIC™

jam

forwin3®

User and Configuration Manual

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ForWin™

User and configuration manual

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This manual refers to
software version 3.0
and later

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1 GENERAL INFORMATION

1.1 INTRODUCTION

The development of applications for radio frequency barcode readers has always been difficult because of the lack of an easy instrument to configure those readers. Normally, it is necessary to develop two compatible applications, one for the reader and another to be run under Windows.

ForWin™ was designed to overcome these difficulties. The development of RF reader applications is now easier and quicker.

The RF terminal readers are loaded with an interpreter program that transforms them into passive devices. Therefore, the screens are created and configured from the PC and the RF terminal application can be developed under Windows.

The advantage of ForWin™ is to allow the development of specific applications, as well as any modification of the data displaying and data entry, directly from the PC. Before this new concept, for each modification of the reader application it was necessary to modify the reader program source code, to recompile it and to re-load it onto the reader. Any modification can be now managed from the PC and immediately viewed on the reader.

ForWin™ is composed of two main modules:

- Generator
- ActiveX

ForWin™Generator allows you to create and concatenate the screens of the different mobile readers, to configure the data entry (barcode reading or keyboard) of each screen as well as the reader keys.

The ActiveX is integrated with your programming language (VBasic, VC++, C++, Delphi, Access, WinDev, Oracle 2000 etc…) and works in background as a communication manager between the PC and the RF readers through the serial port or the Ethernet network. You only have to edit your Windows application and the ActiveX will communicate to the readers.

The resulting Windows-based application (integrating the ActiveX control) is compatible with all kinds of databases (Oracle, Access, SQLServer etc). ForWin™ is not dedicated to any particular database: it only sends the data to the final application accessing the database.

The ForWin™ Generator is used only for creating the reader screens. Once the application is developed you no longer need to use the Generator.

1.2 SYSTEM REQUIREMENTS

The system requirements for the ForWin™ setup are the following:

- PC with Pentium processor
- Operating system: Windows 95-SR2/98/2000/ME/NT4.0
- 16 MB of memory for Windows 95/98 and 32 MB for Windows ME/2000/NT
- 40 MB of hard disk free space
- VGA video board
- STARGATE™
- Formula Narrow Band RF Basic Line Terminal(s)

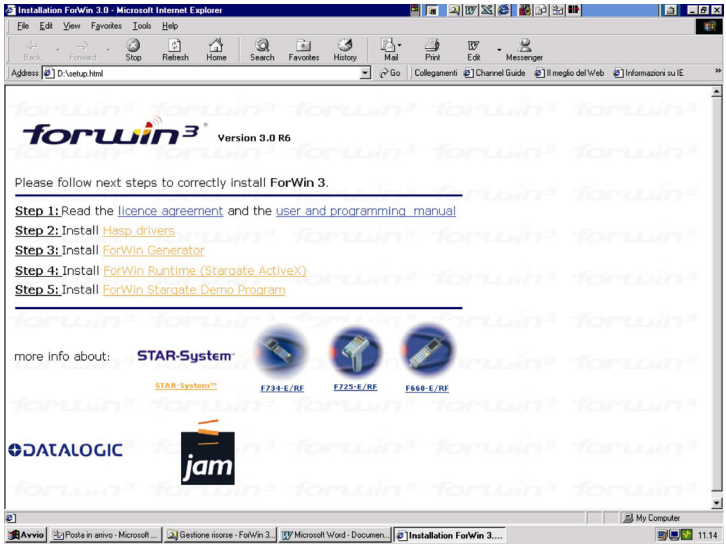
1.3 FORWIN™ SETUP

ForWin™ is composed of:

- one CD ROM
- one Dongle - protection key (used optionally)

Note: Since the ForWin™ packet provides an ActiveX component that is registered in Operating System Registry, you must have administrator rights to successfully complete the installation in Windows NT or Windows 2000.

When you first launch the ForWin™ CD the Setup procedure page is displayed:



Step 1: Read the license agreement and the User Manual.

This link contains the license agreement for the use of ForWin™ as well as the User and Configuration Manual (pdf files).

Step 2: Install the Hasp drivers.

ForWin™ Generator needs a protection dongle (Developer version) to be run. If you run it without the dongle (Evaluation mode), you will not be able to save any modification you make.
ForWin™ ActiveX (Stargate™ or 2.4 GHz) can be run with or without the dongle. If you use it without the dongle, you will be asked to enter an authorization number in each reader. This number depends on the reader serial number and must be provided by your ForWin™ sales rep. If you run ActiveX with the dongle (Developer version or Run-Time), you will not be asked to enter the authorization number and the licenses of each reader will be controlled by the dongle itself.

Use the ForWin™ CD to install the dongle drivers under Windows. To do this, select the **Step 2: Install Hasp drivers** (CD\Hasp\hdd32.exe). Please note that when you install your final application on the user's PC, you will be asked to install the dongle drivers and to connect the dongle to the parallel port of the new PC.

Step 3: Install ForWin™ Generator

The Generator setup is necessary to create new applications or modify existing ones.
The screen files created by Generator are compatible with ForWin™ Stargate™ ActiveX 433 MHz and ForWin™ ActiveX 2.4 GHz.
If you simply wish to run an existing application (e.g. Demo program) it is not necessary to install Generator.
To install Generator select **Step3: Install ForWin™ Generator**. (CD\Generator\Setup.exe).

Step 4: Install ForWin™ Runtime (Stargate™ ActiveX) (CD\ActiveX_Stargate\Setup.exe)

This option allows the installation of Stargate™ ActiveX using the Datalogic STARGATE™ radio base stations on a frequency of 433 MHz. The radio base stations are connected on the serial port of your PC. For more information about the STARGATE™ radio base stations, refer to the Datalogic STARGATE™ Manual.

This program must be installed on your PC in order to use the ForWin™ Stargate™ ActiveX and the ForWin™ Stargate™ Setup radio base station configuration program.

Step 5: Install ForWin™ Stargate™ Demo Program (CD\Demo_Stargate\Install\setup.exe)

This program shows all the possibilities of the ForWin™ system with the 433 MHz STARGATE™ radio base stations. To correctly run this program, first follow steps 2 and 4 above. In the ForWin™ 3 CD, you will find the Demo program sources in Visual Basic (CD\Demo_Stargate\Source).

1.4 FORWIN™ INTERPRETER INSTALLATION (TERMINAL MODE)

To use ForWin™, the ForWin™ Interpreter must be loaded onto each reader.

With ForWin™ version 3, it is possible to use the following Datalogic readers:

ForWin™ Stargate™ 433 MHz (*Basic Line Readers)*:
- Formula 660/RF
- Formula 725/RF
- Formula 734/RF

ForWin™ 2.4 GHz *(DOS readers)*:
- Formula 7400/RF: PROXIM OpenAir
- Formula 8500/RF: PROXIM OpenAir / CISCO 802.11b
- DL8600/RF: PROXIM OpenAir / CISCO 802.11b
- DL9600/RF: PROXIM OpenAir / CISCO 802.11b

In the ForWin™ CD, you will find the interpreter program for each of the above readers. (CD\Terminal_Mode\[reader model]\…).

Load ForWin™ interpreter onto your reader, if not already installed.
To do this, launch the *EasySend.exe* program to install the interpreter for the *Basic Line* readers or the *Install.bat* programs for the *DOS* readers.

2 HOW TO USE FORWIN™

ForWin™ is composed of a Generator, an ActiveX control and of an interpreter for each reader (Terminal Mode).

To create Windows applications using ForWin™ follow the steps below:

1. Create the screens using Generator to define the pages, the variable fields and the keyboard or barcode data entry parameters. It is also possible to define the screen transitions (concatenation) as well as the active and locked keys. For more details, see chapter 3.
2. Save the application created by Generator (extension file .ecr).
3. Using Generator, create the code for your Windows language (VBasic, VC++, C++, Delphi, Access, WinDev, Oracle Form 2000 etc…). Use this code to develop your application: it is a list of all the transitions to be managed by your application.
4. Integrate ActiveX (Stargate™ or 2.4 GHz) in your programming language.
5. Copy the code created by Generator in your application.
6. Complete the procedure by defining your data entry controls, the database accesses and the last transitions between the different screens directly from your Windows language.

If you use Stargate™ ActiveX, you have to use the Stargate™ Setup program to configure the radio base stations and to create the configuration file (extension .stg) used by ActiveX when launched.

The ActiveX 2.4 GHz does not use the radio base station configuration file. It is only necessary to specify the Ethernet communication port. The radio base station configuration is assured by standard programs (Hyperterminal, Telnet, Explorer) or by specific programs provided by the manufacturer.

3 FORWIN™ GENERATOR

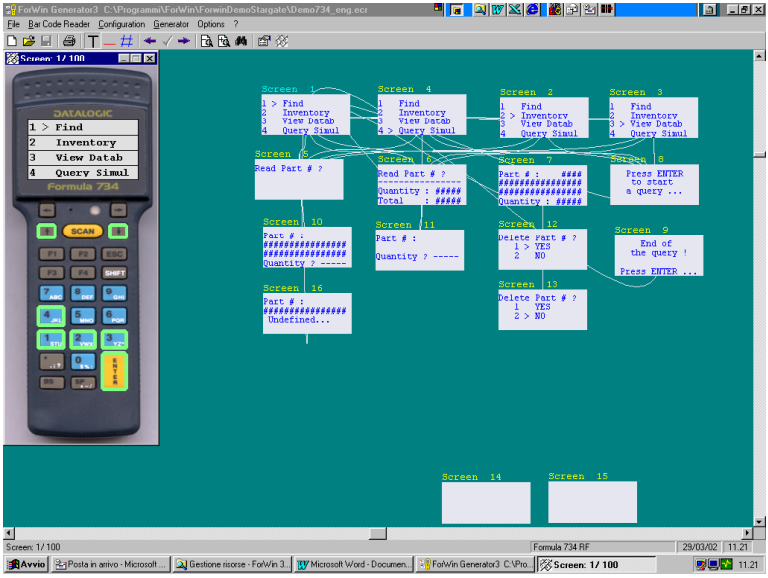
The Generator allows you to create the screens as well as their concatenation.
To write the screen text, type it in the appropriate screen fields.
The different field types are the following:

- **Fixed text field**: it is unchanging text (a fixed message). On the Generator, it is written in black.
- **Data entry field**: it is a field dedicated to the barcode or keyboard data entry. The data entry field length indicates the maximum number of characters. This field is colored in red. It is possible to configure several parameters for the data entry of each screen.
- **Variable fields**: it is dynamic information which will be modified when the software runs. It is possible to create a field displaying an item description or quantity when reading its barcode. This will be managed by the Windows application.

The Generator also allows you to define the screen concatenations. Thus, if you want to move from screen 1 to screen 2 by pressing the F1 key, from screen 1 click on the left button of your mouse to activate the F1 key, then click with the right mouse button on the F1 key and choose screen 2.
The screen concatenation is displayed on the right. It is represented by a line starting from the bottom side of the first screen to the upper side of the second one.

If the transition between two screens must be performed by the final application and not by the ActiveX, select Following Screen 0 in order to generate a transition event (see chapter 4). Each data entry generates a Transition event.

A completed application is visualized as shown in the figure below:



In the tool bar, the three icons to the right of the printer icon allow you to choose the text type for the screens. The right and left arrows allow you to move from one screen to another. “Enter” refreshes the screen visualization. It is also possible to zoom in and out and to search a particular screen. You can also select and move some screens by using the mouse. Use the last two buttons to configure the data entry of each screen and to display the reader’s image.

From the window representing the reader it is possible to toggle the keys on or off and to define to which screen ActiveX must make the transition when the selected key is pressed.
It is also possible to highlight a line by positioning the cursor on it and clicking the right mouse button (the line becomes grey).

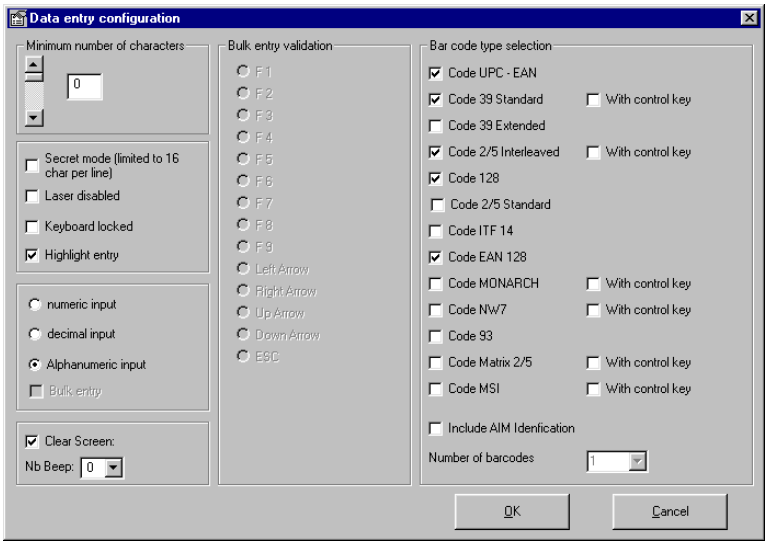
The main menu options are the following:

File: this menu allows you to open, save and rename the existing applications or to create new ones (extension file .ecr). The option **Save as…**, allows you to save a screen file in ForWin™ 2.0 format.
The option **Print** allows you to print the screens in graphics or in text mode with all the transitions and active keys.

Barcode reader: this option allows you to choose the RF barcode reader on which the application must be developed. You can switch from one reader to another at any

time; the functions are compatible with all the readers. If you switch to a reader with fewer lines than the original, the information in these lines will be lost.

Data entry configuration: this option allows you to configure the data entry field of the selected screen.



Minimum number of characters: defines the minimum number of characters the reader will accept during the keyboard or barcode data entry. Each data entry must have at least one character and a maximum of 64 characters.

Secret mode: displays the hash character "#" when pressing any key. It is useful when it is necessary to enter a password which should not be readable. The maximum number of secret characters is 16.
Laser disabled: disables barcode reading. Only keyboard data entry is allowed.
Keyboard locked: all the keys are locked. Only barcode data entry is allowed.
Highlight entry: the data entry field (red field) is highlighted.

Numeric input: only the numbers from 0 to 9 are valid.
Decimal input: also decimal numbers are valid.
Alphanumeric input: all the characters are valid.

Clear Screen: deletes a present screen before displaying a new one. If this option is not active, you can simply add new lines to the displayed screen.
Nb Beep: defines the number of beeps to be emitted when the new screen is displayed.

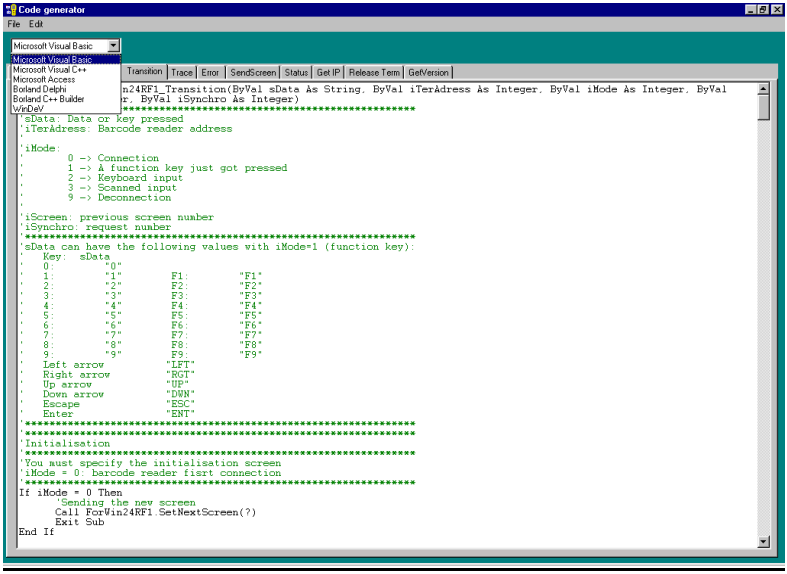
Bulk entry validation: this option is not used.

Barcode type selection: selects the barcode types to be accepted during the reading.

Include AIM identification: adds the AIM identifier (three characters before the code) to the barcode type read and the length of the barcode (two characters after the AIM identifier and before the code). See appendix B for AIM identifiers.

Number of barcodes: the *Basic Line* range (F725/F734 RF) can read up to four different barcodes on a single scan line. The data sent to the PC is formatted as follows: AIM code identifier (first three characters) followed by the length of the barcode (next two characters) and finally the barcode read.

Generator: generates the script for the development of the application in different Windows languages. It will contain all the transitions your Windows application must manage as well as the syntax, the returned values and comments of ActiveX methods and events. This operation may take several minutes.



Options: Dongle information: this option allows you to verify the serial number and the ForWin™ dongle type connected to the PC parallel port.
French / English: allows you to choose the Generator language. After any language change you will have to restart Generator for the changes to take effect.

4 STARGATE™ AND 2.4 GHZ ACTIVEX

ActiveX will allow you to develop applications with RF readers using your MS Windows programming language such as MS Visual Basic, MS Visual C++, MS Access, Borland Delphi, Borland C++ Builder, PC-Soft WinDev, Oracle Form 2000 or any other programming language supporting ActiveX components.

ForWin™ Stargate™ and ForWin™ 2.4 Ghz ActiveX have the same functions and function in the same way. The only difference is that in the first case the PC communicates with the terminals using radio base stations connected to the PC serial port, while in the second case the communication is made through the Ethernet network. Their full compatibility will allow you to copy any development from one RF system to another. The only differences concern the launching functions (one of the two parameters of the OpenRF function changes) and the RF readers address recovery procedure (GetID with Stargate™ becomes GetIP with 2.4 GHz version).

You can install both ActiveX controls in the same application. In this case, the same application will be able to manage 433 MHz readers and 2.4 GHz readers.

It is also possible to install the same ActiveX control several times in one application. This will allow you to launch different applications with different screen files created by the ForWin™ Generator.

A single ActiveX control includes:

Properties: defines the object features such as the dimensions, the name and its status (e.g. active or disabled).

Methods: High level functions allowing the performance of particular tasks.

Events: ActiveX triggered events to which the final application responds in an appropriate way. For example, clicking on a particular button will trigger the event “Click” in the application.

ForWin™ ActiveX gives you access to the following properties, methods and events:

Properties:

Name	Description
`Status`	Returns the ActiveX status.

Methods:

Name	Description
`CloseRF`	Closes RF communication.
`GetID`	Returns the RF terminal ID address (only for ForWin™ Stargate™ ActiveX).
`GetIP`	Returns the RF terminal IP address (only for the 2.4 GHz ForWin™ ActiveX).
`GetVersion`	Returns the ActiveX version used.
`OpenRF`	Opens RF communication.
`ReleaseTerminal Address`	Troubleshooting function deleting a particular terminal from the memory without closing communications
`SendScreen`	Sends a screen to a terminal in idle state, outside of a Transition event.
`SetDefaultInput`	Sets the data entry default value.
`SetLine`	Sets the line variable field.
`SetNextScreen`	Sets the number of the next screen to be sent.

Events:

Name	Description
`ErrorEvent`	Signals if an error occurred (only for ForWin™ Stargate™ ActiveX).
`Trace`	Traces all the events occurring in ActiveX.
`Transition`	Manages all the screen transitions.

4.1 PROPERTIES

PROPERTY ***STATUS***

FUNCTION

Returns ActiveX status.

IDL

```
Propget iStatus Status();
```

DESCRIPTION

Allows knowing ActiveX status at any time.

DATA TYPE

`iStatus`.

`iStatus` can include the following values:

rfClosed = 0	ActiveX is not running
rfOpened = 1	ActiveX is running
rfDongleNotConnected = 2	the dongle is not connected

EXAMPLE

```
…
If ForWin.Status =  rfClosed Then
ForWin.OpenRF( « test.ecr »,1001)
End if
…
```

4.2 METHODS

METHOD *CLOSERF*

FUNCTION

Closes the RF communication.

IDL

```
void CloseRF();
```

DESCRIPTION

For the Stargate™ ActiveX, this function closes the communication between the RF reader and the STARGATE™ base station.

For the 2.4 GHz ActiveX, this function closes the communication between the RF reader and the Access Point.

INPUT PARAMETERS

None.

RETURN VALUE

None.

EXAMPLE

```
…
ForWin.CloseRF()
…
```

METHOD **GETID**

FUNCTION

Allows you to obtain RF reader identification information. It is only valid for the ForWin™ Stargate™ ActiveX.

IDL

```
tID GetID([in, out] short* iTermAddress);
```

DESCRIPTION

For a given RF terminal software address, `GetID` gets the RF terminal identification information. The `tID` structure is used in the ActiveX to manage the terminal connections.

```
Struct tID
{
       short iDevID;
       short iSatID;
       BSTR sNoLicence;
       short iFlagLicence;
}
```

The return value is type `tID`. The return values are `iDevID` (= RF terminal physical address), `iSatID` (= address of the Stargate™ transmitting the occurring event), `sNoLicence` (=serial number last three characters of the reader generating the event), `iFlagLicence` (= this parameter is not used).

If `iDevID` = 9999, `iSatID` = 9999 and `sNoLicence` = «9999» then the terminal is not connected.

INPUT PARAMETERS

Terminal software address `iTermAddress` as Integer

RETURN VALUE

A structure of type `tID` containing the reader identification.

EXAMPLE

```
Dim iNoDuTerminal As Integer
Dim tMonlD As tID
…
iNoTerminal = 2
tMonID = ForWin.GetID(iNoTerminal)

if tMonID.iDevID = 9999 And tMonID.iSatID = 9999 And
tMonID.sNoLicence = « 9999 » Then

       'the terminal is not connected'
       …

Endif
```

METHOD ***GETIP***

FUNCTION

Gets the RF reader IP address. It is valid only for the ForWin™ 2.4 GHz ActiveX.

IDL

```
BSTR GetIP([in, out] short* iTermAddress);
```

DESCRIPTION

For a given RF terminal software address, `GetIP` gets the reader IP address. If the return value is empty the terminal is not connected.

INPUT PARAMETERS

Terminal software address `iTermAddress` as Integer

RETURN VALUE

A string value representing the reader IP address.

EXAMPLE

```
Dim iNoDuTerminal As Integer
Dim sMonAdresseIP As String
…
iNoTerminal = 2
sMonAdresseIP = ForWin.GetIP(iNoTerminal)
if sMonAdresseIP = « 192.168.2.31 » Then
…
End if
```

METHOD *GETVERSION*

FUNCTION

Returns the ActiveX version in use.

IDL

```
BSTR GetVersion();
```

DESCRIPTION

This function returns the ActiveX version at any time.

INPUT PARAMETERS

None.

RETURN VALUE

The return value is a string indicating the ActiveX version.

EXAMPLE

```
…
MsgBox ForWin.GetVersion()
…
```

METHOD *OPENRF*

FUNCTION

Opens RF communication

IDL

With ForWin™ Stargate™:

```
iConstOpenRF OpenRF([in] BSTR sCheminFichierECR,[in] BSTR
sCheminFichierSTG);
```

With ForWin™ 2.4GHz:

```
iConstOpenRF OpenRF([in] BSTR sCheminFichierECR, [in, out]
long* lLocalPort);
```

DESCRIPTION

Sets the path and filename of the *.ECR file, created with the ForWin™ Generator.

Sets the path and filename of the STARGATE™ radio base station configuration file (file *.STG) with ForWin™ Stargate™, or the IP port number with ForWin™ 2.4 GHz.
If you have two different applications using ForWin™ Stargate™ on the same device, you will have to use a different COM port for each application.
Similarly, if you have two different applications using ForWin™ 2.4 GHz on the same device, you will have to use different IP port numbers for each application.

INPUT PARAMETERS

`sCheminFichierECR` As String
`sCheminFichierSTG` As String (with ForWin™ Stargate™)
or
`lLocalPort` as long (with ForWin™ 2.4 GHz)

RETURN VALUES

An `iConstOpenRF` type value showing the function result.

`iConstOpenRF` may have the following values:

`orfOpenOk` = 0	'the function resutl is OK
`orfOpenFileError` = 1	'the file does not exist
`orfFileVersionError` = 2	'file version is not good
`orfSocketError` = 3	'problems when launching the ForWin™ socket (ForWin™ 2.4GHz)
`orfIsRunning` = 4	'ActiveX is already running
`orfNonECRFile` = 5	'the file is not an ECR file
`orfLoadFileError` = 6	'error during file loading
`orfStgFileError` = 7	'error in the SGT file (ForWin™ Stargate™)
`orfDongleNotConnected` = 8	'the dongle is not connected
`orfCheckTerminalTypeError` = 9	'the terminal type defined in the ECR file does not correspond to the ActiveX in use.

EXAMPLE

```
…
ForWin.OpenRF("C:\TEST\DEMO.ECR",   "C:\TEST\DEMO.STG")   'with
ForWin™ Stargate™
…
'or
…
ForWin.OpenRF("C:\TEST\DEMO.ECR", 1001) 'with ForWin™ 2.4Ghz
…
```

METHOD *RELEASETERMINALADDRESS*

FUNCTION

Deletes a terminal from the memory

IDL

```
iRtaStatus ReleaseTerminalAddress([in] short iTermAddress);
```

DESCRIPTION

In ForWin™ it is impossible to have two terminals with the same software address and the same physical address (Device ID for ForWin™ Stargate™ and IP address for ForWin™ 2.4 GHz). This function will be useful in special applications where it is not possible to close communications in order to replace a damaged reader. In the ActiveX memory the damaged reader has a software address and a physical address: an error message saying the connection is not possible will be displayed. To connect the new reader, use the function `ReleaseTerminalAddress` simulating a disconnection of the reader to be replaced.

INPUT PARAMETERS

Terminal software address `iTermAddress` as Integer

RETURN VALUE

An `iRtaStatus` type value showing the function result.
`iRtaStatus` can have the following values:

rtaOk = 0	'the function result is OK
rtaNotConnected = 1	'the terminal is not connected
rtaDongleNotConnected = 2	'the dongle is not connected

EXAMPLE

```
Dim iNoDuTerminal As Integer

…
iNoTerminal = 2

ForWin.ReleaseTermAddress( iNoTerminal )

…
```

METHOD ***SENDSCREEN***

FUNCTION

Sends a screen to a terminal out of a Transition event.

IDL

```
iSdScrStatus SendScreen( [in] short iTerAdress, [in] short
iNextScreen);
```

DESCRIPTION

Sets the terminal address and the screen number to be sent. This function works if the terminal is in idle state.
To set a terminal in idle state, it is necessary to send the screen number 0 from the Transition event. The screen number 0 is a screen where all the lines are variable fields. You must define the waiting screen from your application using the `SetLine` function. If you do not define it before sending the screen number 0 you will have an empty screen.
The `SendScreen` function allows refreshing this waiting screen if `NextScreen` = 0.

INPUT PARAMETERS

`iTerAdress` As Integer; `iNextScreen` As Integer

RETURN VALUE

An `iSdScrStatus` type value showing the function result.

`iSdScrStatus` can have the following values:

sdscrOk = 0	'the function result is OK
sdscrForwinClosed = 1	'ActiveX is not running
sdscrTermNotConnected = 2	'the terminal is not connected
sdscrDongleNotConnected = 3	'the dongle is not connected

EXAMPLE

```
Dim iNoDuTerminal As Integer

…
iNoTerminal = 2

if iRecherche = EN_COURS Then
       …
       ForWin.SetLine( 1, « RECHERCHE »)
       ForWin.SetLine( 2, « EN COURS… »)
       ForWin.SendScreen( iNoTerminal, 0)
       …
Else
       …
       'the search is over, the result screen is displayed
       ForWin.SendScreen( iNoTerminal,25)
Endif
```

METHOD ***SETDEFAULTINPUT***

FUNCTION

Initializes the data entry default value.

IDL

```
void SetDefaultInput([in] BSTR sDefaultInput);
```

DESCRIPTION

This function initializes the data entry default value.
This function can be used before the `SetNextScreen` function in the Transition event or before the `SendScreen` function (if the screen to be sent is different from 0).

INPUT PARAMETERS

`sDefaultInput` As String

RETURN VALUE

None.

EXAMPLE

```
…
ForWin.SetDefaultInput("123ABC")
…
```

METHOD ***SETLINE***

FUNCTION

Initializes a variable field in a specified line.

IDL

```
iSetLineStatus SetLine([in] short iLineNumber,[in] BSTR sMsg);
```

DESCRIPTION

Initializes the different variable fields of a screen. Use this function before using the `SetNextScreen` or `SendScreen` functions. The parameterized data are automatically placed and formatted in the ECR file.

INPUT PARAMETERS

`iLineNumber` As Integer
`sMsg` As String

RETURN VALUE

`iSetLineStatus` type value showing the function result.
`iSetLineStatus` can assume the following values:

slOk = 0	'OK
slLineNotValid = 1	'the line is not valid

EXAMPLE

```
…
ForWin.SetLine(1,"NOT VALID ARTICLE…")
…
```

METHOD *SETNEXTSCREEN*

FUNCTION

Initializes the following screen.

IDL

```
iSetNextScreenStatus SetNextScreen([in] short iScreenNumber);
```

DESCRIPTION

This function informs the ActiveX about the next screen to be sent.
Use this function after the Transition event to inform the ActiveX to which terminal the screen must be sent.

INPUT PARAMETERS

`iScreenNumber` As Integer

RETURN VALUE

`iSetNextScreenStatus` value type showing the function result.
`iSetNextScreenStatus` can assume the following values:

snsOk = 0	'OK
snsScreenNotValid = 1	'the screen is not valid

EXAMPLE

```
…
ForWin.SetNextScreen(10)
…
```

4.3 EVENTS

EVENT ***ERROREVENT***

FUNCTION

Informs you if an error occurred during the communication with the STARGATE™ radio base stations (only valid with ForWin™ Stargate™ ActiveX).

IDL

```
void ErrorEvent([in] short ErrorID,[in] BSTR ErrorDesc);
```

DESCRIPTION

This event is triggered each time an error occurs in the Datalogic STAR-Link™ ActiveX. The errors may occur in the case of frame loss in the ActiveX. Thanks to the ForWin™ protocol, running above the Datalogic protocol level, this has no negative effect on the transactions.

PARAMETERS

`ErrorID` = error number As Integer
`ErrorDesc` = error description As String

See Appendix A for the values of `ErrorID`.

EVENT ***TRACE***

FUNCTION

Visualizes what is happening in the ActiveX.

IDL

```
void Trace([in] BSTR sMsgTrace);
```

DESCRIPTION

This event occurs for each action of the ForWin™ ActiveX. Use it in order to verify the correct operation of your application. `sMsgTrace` is a string illustrating what happens when the ActiveX is running. This string can be displayed or saved in a log file.

PARAMETERS

`sMsgTrace` As String = the trace message

EVENT *TRANSITION*

FUNCTION

Manages the screen transactions.

IDL

```
void Transition([in] BSTR sData,[in] short iTerAdress,[in]
short iMode,[in] short iScreen,[in] short iSynchro);
```

DESCRIPTION

This event is triggered at every screen change.
The RF terminal needs a new screen when it is connected for the first time, when a button is pressed and an event is triggered, or when a barcode or keyboard data entry occurred.

PARAMETERS

`sData` As String = data entry or key pressed
`iTerAdress` As Integer = barcode reader address
`iMode` As Integer = defines the transition type.

- 0 -> Connection
- 1 -> A function key just got pressed
- 2 -> Keyboard input
- 3 -> Scanner input
- 9 -> Disconnection

`iScreen` As Integer = previous screen number
`iSynchro`: request number

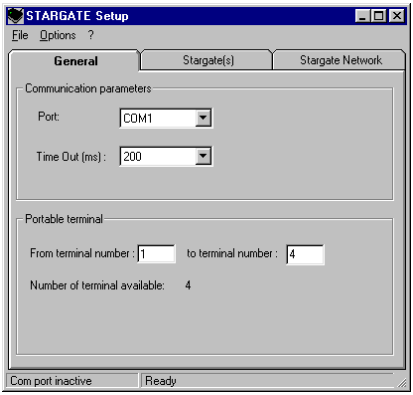
Note: With `iMode` = 1 (function key), `sData` can have the following values:

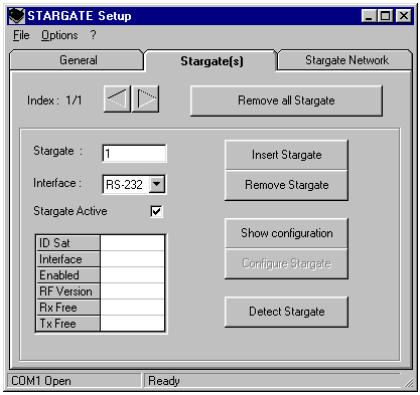
Keys	sData	Keys	sData
0	0	F1	F1
1	1	F2	F2
2	2	F3	F3
3	3	F4	F4
4	4	F5	F5
5	5	F6	F6
6	6	F7	F7
7	7	F8	F8
8	8	F9	F9
9	9		
Left Arrow	LFT		
Right Arrow	RGT		
Up Arrow	UP		
Down Arrow	DWN		
Escape	ESC		
Enter	ENT		

5 STARGATE™ SETUP

The ForWin™ Stargate™ ActiveX needs a radio base station configuration file which can be created using the Stargate™ Setup program. This program is installed in the same directory as the ForWin™ Stargate™ ActiveX (CD\ProgramFiles\ForWin\FWSTGRF\StargateSetup.exe).
This program allows you to configure the STARGATE™ radio base stations through the PC serial port and to create the configuration file (extension .stg) which will be used by Stargate™ ActiveX.

The following figures illustrate two of the Stargate™ Setup program windows:





Main menu options:

File: allows you to open, save and rename the existing files or to create new configurations (extension .stg).

Options: *French / English*: you can choose the language of your Stargate™ Setup.

Folders' options:

General:

Port: selects the serial port number for the connection of the STARGATE™ radio base stations.
Time Out: this value must not be modified. Use the default value: 200 ms.
Portable Terminal: specifies which readers the radio base stations must communicate with. This parameter is valid for all the radio base stations connected to the serial port (RS232 or RS485 network, see the Datalogic STARGATE™ manual).

Stargate(s): this option allows you to configure the STARGATE™ radio base stations by setting the following parameters for each radio base station:

Stargate™: *STARGATE*™ radio base station's number.
Interface: RS232 (only one radio base station) or RS485 (one or more radio base stations).
Stargate™ *Active*: enables or disables each radio base station.

Stargate™ Network / (Visualisation): visualizes the status of each radio base station connected to the serial port.

Note: each radio base station must have a different and consecutive number. The number 0 is not used. They start with the number 2000. The number 2047 is used for finding a radio base station whose number is unknown.

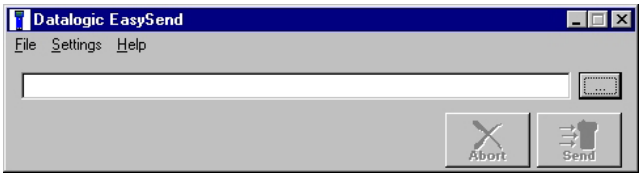
To find an unknown radio base station, delete the Stargate™ field (radio base station's number) and click on the **Detect Stargate™** button.

6 TERMINAL MODES

Each ForWin™ compatible reader must be loaded with its Terminal Mode Interpreter. In the ForWin™ CD you will find the Terminal Mode folder containing the Terminal Mode programs for each reader supported by ForWin™. To load the program on each device of the Basic Line (F660/F725/F725 RF) use the program EasySend (this program is installed in the directory CD\ProgramFiles\ForWin\FWSTGRF\EasySend.exe). To load the program on each DOS device use the BAT programs and follow the instructions.

6.1 FORMULA NARROW BAND BASIC LINE TERMINALS

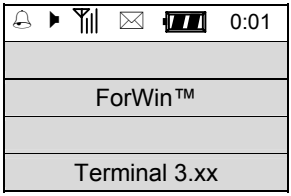
The EasySend™ utility program allows software downloading to any Formula Basic Line Terminal from the Windows environment.



It is fully functional for all Windows environments (95/98/ME/2000/NT and XP).

The Terminal Mode program names are different for each Formula Narrow Band RF Basic Line Terminal, but they function in the same way.
After loading the TM program, the readers display the following ForWin™ screen:

The icon descriptions are illustrated below:



- this icon is not used;
- indicates that the reader is waiting for a screen from the `SendScreen` method;
- indicates the radio transmission status for each transmission;
- ✉ indicates that the last message could not be sent because of an RF problem;
- indicates the battery level;
- 0:01 this number corresponds to the reader software address.

ForWin™ Terminal 3.xx: indicates the Terminal Mode version.

From the ForWin™ startup screen you can:

- connect to the ActiveX and to the final application by pressing ENTER;
- adjust the screen contrast by pressing the Up and Down Arrow keys;
- turn on the screen backlight by pressing the SHIFT key and then the F4 key. This function is available at any time.
- configure the reader parameters by pressing SHIFT and then ESC. The following screen will be displayed:

Password?

Enter your password and press ENTER.
Default password: none.

1> RADIO
2> TERMINAL
3> KEYBOARD RING
4> LASER RING
5>AUTHORIZATION
6>LANGUAGE

Select a menu option by using the arrow keys or by choosing the option number.

In each menu option, press ENTER to move from one field to another and ESC to return to the main menu. Press ESC again to return to the ForWin™ screen.

Option 1 - RADIO: allows you to configure the parameters for the radio connection.

Address: 01
STG start: 01
STG end
Nb PDC

- Reader address. Each reader must have a different address from 01 to 99.
- STG start and STG end allows you to define the range of STARGATE™ radio base stations the reader can connect to.
- Allows you to define the total number of readers used by the application in order to optimize the RF anti-collision protocol.

Option 2 - TERMINAL: allows you to configure the reader parameters

Shutdown:	05 m
TimeOutRF:	05 s
Nb retry:	03
Password:	

- Fixed period of time before the terminal shutdown.
- Default: 5 minutes
- Waiting period of time before a new connection retry.
- Number of retries before showing the icon ⊠ (RF communication failed).
- Allows you to set a password to access the configuration.

Note: The TimeOutRF and the Nb retries parameters are activated only when the reader does not receive any signal from the ActiveX (ActiveX is off or without radio signal).

Option 3 - KEYBOARD BEEP: allows you to configure the sound of the reader keyboard beep.

KEYBOARD RING	
NOTE	0-15 : 04
DURATION	0-7 : 7

- Allows you to choose the keyboard keys note. 0 = no beep.
- Allows you to set the beep duration.

Option 4 - LASER BEEP: allows you to configure the sound of the laser or pen barcode data entry beep.

LASER RING	
NOTE	0-15 : 04
DURATION	0-7 : 7

- Allows you to choose the laser data entry note. 0 = no beep.
- Allows you to set the beep duration.

Option 5 - AUTHORIZATION: allows you to enter the Authorization code for the ForWin™ licence.

FORMULA 734/RF
s/n: D00L06024
Authorization?

- Indicates the reader model.
- Indicates the reader serial number (compulsory to obtain the authorization).
- The authorization code can be entered through the keyboard or through barcode reading.

Option 6 - LANGUAGE: allows you to choose the language for the above screens.

CHOOSE LANGUAGE
1 – ENGLISH
2 - FRENCH

- Enter 1 to select English.
- Enter 2 to select French.

6.2 2.4 GHZ TERMINALS

The terminal mode names are different for each device, but they function in the same way. The only difference between F7400, F8500 and DL9600 is the LCD screen size. The following descriptions are based on the F7400 terminal mode.

At terminal startup, the ForWin™ Welcome screen is displayed. The very first time you launch the terminal mode, you must configure this screen. Press the F10 key to open the DOS prompt “C:\”. Type the “cfg” command to launch the configuration program which will allow you to set the Time-out parameters, the network and radio parameters, etc.

When you launch the configuration program, the following menu is displayed:

ForWin™ CFG v1.0.1
Reader Configuration
Server Configuration
PROXIM Configuration
FORWIN™ Configuration
License Configuration
Save and Exit
Exit without save

Use the Arrow keys to choose an option and select it by pressing ENTER.
Use ENTER and the Arrow keys to move from one field to another. Press F1 to confirm the selections and return to the main menu. Press ESC to return to the main menu without saving the selections.

Option 1: Reader Configuration

Reader Configuration	
IP Reader Address	← configure the reader IP address
192.168.3.175_ _ _	
Sub-network masque:	← configure the sub-network mask
255.255.255.0_ _ _	
IP address router:	← configure the default router
192.168.3.65	
F1 = Save ESC = Abort	

Option 2: Server configuration

Server Configuration	
IP Server Address:	← allows you to configure the server IP address (IP address of the device with the application using ForWin™ 2.4 GHz ActiveX).
192.168.3.188_ _ _	
Port N.	← allows you to configure the port used for ForWin™ (the same number as in the OpenRF function).
1001_	

Option 3: Radio configuration

This option depends on the radio type used. If you use an AIRONET Cisco card the parameter to set will be the SSID value (see CISCO documentation). If you use an OPENAIR Proxim card, the parameter to be set will be the radio domain number (see PROXIM documentation).

Option 4: ForWin™ Configuration

ForWin™ Configuration		
Terminal N.: 01	←	configures the terminal ForWin™ address (range 01 – 99, a different number for each reader)
TimeOut1 (ms): 500	←	TimeOut1 = maximum waiting time before an "ACK" refuse a frame (default: 500 ms).
TimeOut2 (ms): 5000	←	TimeOut2 = maximum waiting time for a valid frame after the "ACK" (default: 500 ms).
TimeOut3 (ms): 180000	←	TimeOut3 = RF maximum waiting time (default 180000 ms). If there is no answer from the ForWin™ 2.4 GHz ActiveX, an RF error will be signaled.
Laser Beep: 1	←	Enables or disables the laser beep (0 = OFF; 1 = ON).
F1 = Save ESC = Abort		

Option 5: License Configuration

License Configuration		
License N.:	←	enter the terminal license number. This license number is compulsory if you use the ForWin™ 2.4 GHz ActiveX without a protection dongle.
_ _ _ _ _ _ _ _ _ _ _ _		
F1 = Save ESC = Abort		

At the end of the configuration, select “Save and Close”, then restart the terminal. The ForWin™ Welcome screen will be displayed.
Press any key to launch the terminal mode. The first screen of your application should be displayed.

From the DOS prompt, type the “mt” command to launch the terminal mode.

When the system functions, press F10 to stop any transactions with your application using ForWin™ 2.4 GHz ActiveX. ForWin™ ActiveX must be running to correctly quit the application. If it is not running and you want to quit the application, press the F10 key again; the screen displays, “waiting for disconnection”. You will return to the ForWin™ Welcome screen.

7 DEMO PROGRAMS

There are two demo programs included in the ForWin™ 3.0 CD; one for the Stargate™ 433 Mhz and one for the 2.4 GHz solution. The two programs are identical in all aspects except for the ActiveX control used by each program.
These two programs allow users to see the main features of the ForWin™ system. After the demo is installed you will find the screen file (.ecr) generated by the Generator for this application in the ForWin™ installation folder.
The Visual Basic source code for these programs can be found in the ForWin™ installation CD at CD\Demo_Stargate\Sources or CD\Demo_24\Sources.

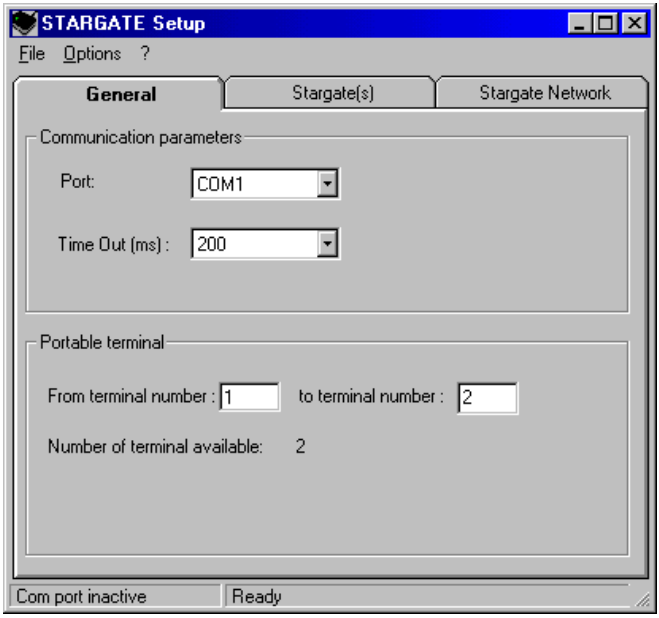
7.1 FORWIN™ DEMO STARGATE™

To launch ForWin™ Demo Stargate™ follow the procedure below:

1. **Load *ForWinDemoStarGate* on your PC**: refer to chapter 1 of this manual.
2. **Load the Terminal Mode Interpreter on the terminals**.
   To run DemoStargate it is necessary to have one or two terminals loaded with Terminal Mode Interpreter. To load a terminal with Terminal Mode Interpreter refer to chapter 6.
3. **Set the terminal IDs**.
   The terminal IDs must be 1 and 2.
   To set a terminal ID refer to chapter 6.
4. **Set STARGATE™**
   To run DemoStargate it is necessary to have a STARGATE™ connected to the COM1 serial port, baudrate 38400 and ID = 1.
   To set these parameters on your STARGATE™, connect it to the COM1 serial port and run the application StargateSetup.
   If you use a STARGATE™ with different settings, use the StargateSetup to set the desired settings and save them in the configuration file *Demo734.stg* (overwrite the existing one). This file is located in the folder containing *DemoForwinStarGate.exe*. To use StargateSetup refer to chapter 5.

CAUTION

Before saving, make sure that the terminal address range has been correctly set.



5. **Hasp Dongle**
   Connect the hardware key provided with the ForWin software to the parallel port of your PC.

6. **Launch ForWinDemo**
   Launch the demo by clicking "*Start – Programs – ForWin – ForWin Demo STAR-Gate"*

A ERROR CODES

FORWIN™ STARGATE™ ACTIVEX ERROR CODES

These codes are in fact from Datalogic's STAR-Link™ program. This program is used by ForWin™ to establish communication with STARGATE™ radio base stations.

0001	Error on closing network
0002	Error on opening serial line
0003	Error on opening network
0004	Error on initializing library functions
0005	Network already opened
0006	Timeout out of range
0007	Baud rate out of range
0008	Communication port out of range
0009	Wrong parameters
0010	Base station already exists
0011	Base station does not exist
0012	Network is still running
0013	Error on setting base station state
0014	Error on sending data
0015	Error on sending Alive command to base station
0016	Error on getting configuration
0017	Error on getting base station state
0018	Error no base station defined
0019	Error on sending configuration to base station
0020	Device already exists
0021	Error on getting status from base station
0022	Error on setting event timer
0023	Error on creating RF Network Protocol Handle
0024	Error on reading data from Pipe
0025	Error on adding device to the collection
0026	Error on adding base station to the collection
0027	Error on reading control configuration
0028	Error on writing control configuration
0029	Error base station is off
0032	Error on closing serial line

NETWORK LAYER DLL ERROR CODES

1000	Error on creating thread synchronization object
1001	Error on opening the serial communication
1002	Pipe error
1003	No base station is defined
1004	One or more base stations have a wrong address
1005	Error on creating thread
1006	Error on getting base station internal descriptor
1007	Error on getting device internal descriptor
1008	Wrong base station address
1009	Wrong device address
1010	Unknown frame type
1011	Polling error: frame length >0 and <5
1012	No longer in polling state
1013	Error: line closed
1014	Error on creating command thread
1015	Double Command Thread ==> Exit
1016	Command Alive NOT RIGHT
1017	Command Status NOT RIGHT
1018	Command Send Cfg NOT RIGHT
1019	Command Get Cfg NOT RIGHT
1020	Command HW test NOT RIGHT
1021	Unknown command
1022	Sent Data NOT RIGHT
1023	Initial data Get Configuration from base station NOT RIGHT
1024	Error on opening download file
1025	Error on setting base station in download state
1026	Poll or Data error for HW test
1027	Error during polling initial phase
1028	There is a base station with default address. Set new address.
4000	Base station returned error. Recovery failed.
4001	UNKNOWN SERVER answer. Base station is broken.

CLIENT ERROR CODES

2002	CLIENT error - Framing error
2003	CLIENT error - Wrong frame, incorrect format
2004	CLIENT error - Checksum failed
2005	CLIENT error - Unexpected sequence number/control value
2006	CLIENT error - Unexpected source
2007	CLIENT error - HEX file format error
2008	CLIENT error - File write error
2009	CLIENT error - File read error
2010	CLIENT error - Input parameters error
2011	UNEXPECTED CLIENT error returned

STARGATE™ RF BASE STATION ERROR CODES

3050	Out of sequence.
3051	Unsupported CMD.
3052	Wrong parameters.
3053	Unexpected pack.
3054	Out of memory.
3055	Too long data.
3056	Too short data.
3057	Descriptor does not exist.
3058	Flash failure.
3059	Add out of range.
3060	No program.
3061	Unsupported error code.

B AIM BARCODE IDENTIFIERS

CODE	AIM identifier
2/5 Interleaved	] I *y*
2/5 Industrial	
2/5 normal 5 bars	] S *y*
2/5 matrix 3 bars	
EAN 8	] E 4
EAN 13	] E 0
UPC A	
UPC E	
EAN 8 with 2 ADD ON	] E 5
EAN 8 with 5 ADD ON	] E 6
EAN 13 with 2 ADD ON	] E 1
EAN 13 with 5 ADD ON	] E 2
UPC A with 2 ADD ON	
UPC A with 5 ADD ON	
UPC E with 2 ADD ON	
UPC E with 5 ADD ON	
Code 39	] A *y*
Code 39 Full ASCII	] A *y*
CODABAR	] F *y*
ABC CODABAR	
Code 128	] C 0
EAN 128	] C 1
Code 93	] G *y*
CIP/39	
CIP/HR	
Code 32	

Note: The AIM identifier is not defined for all the codes ( ]Xy for codes not defined). The value “y” depends on the selected option (check digit, …).

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