



NLS-FM305X-2X

Fixed Mount Barcode Scanner

User Guide



Disclaimer

© 2017 Fujian Newland Auto-ID Tech. Co., Ltd. All rights reserved.

Please read through the manual carefully before using the product and operate it according to the manual. It is advised that you should keep this manual for future reference.

Do not disassemble the device or remove the seal label from the device, doing so will void the product warranty provided by Fujian Newland Auto-ID Tech. Co., Ltd.

All pictures in this manual are for reference only and actual product may differ. Regarding to the product modification and update, Fujian Newland Auto-ID Tech. Co., Ltd. reserves the right to make changes to any software or hardware to improve reliability, function, or design at any time without notice. The information contained herein is subject to change without prior notice.

The products depicted in this manual may include software copyrighted by Fujian Newland Auto-ID Tech. Co., Ltd or third party. The user, corporation or individual, shall not duplicate, in whole or in part, distribute, modify, decompile, disassemble, decode, reverse engineer, rent, transfer or sublicense such software without prior written consent from the copyright holders.

This manual is copyrighted. No part of this publication may be reproduced, distributed or used in any form without written permission from Newland.

Fujian Newland Auto-ID Tech. Co., Ltd. reserves the right to make final interpretation of the statement above.

Fujian Newland Auto-ID Tech. Co., Ltd.

3F, Building A, No.1, Rujiang West Rd., Mawei, Fuzhou, Fujian, China 350015

<http://www.newlandaidc.com>

Revision History

Version	Description	Date
V1.0.0	Initial release.	July 27, 2017
V1.0.1	Added the Enable/Disable PDF417 ECI Output , Enable/Disable QR ECI Output and Enable/Disable Data Matrix ECI Output features in Chapter 8. Note: Firmware version V1.00.088 or later is required for the new features above.	November 10, 2017

Table of Contents

Revision History	3
Chapter 1 Getting Started	1
Introduction	1
About This Guide	1
Unpacking	1
FM30 Scanner	2
Data Port Pinout.....	2
Dimensions (unit: mm)	3
FM3056-2X Scanner	3
FM3051-2X Scanner	4
IR Triggering Range.....	5
Optics.....	6
Connecting the FM30 to a Host Device	8
Using USB Cable	9
Using RS-232 Cable	10
Maintenance	11
Scanning Instructions.....	11
Barcode Programming	12
Factory Defaults.....	13
Custom Defaults	13
Query Product Information	13
Chapter 2 Communication Interfaces	14
RS-232 Interface	14
Baud Rate	15
Parity Check.....	16
Data Bits	16
Stop Bits.....	17
USB Interface	18
USB HID-KBW	18
USB Country Keyboard Types.....	19
Beep on Unknown Character.....	22
Inter-Keystroke Delay	22
Convert Case	23

Emulate ALT+Keypad	24
Function Key Mapping	25
Emulate Numeric Keypad	26
Code Page	26
Polling Rate	27
USB COM Port Emulation	28
USB HID-POS	28
Introduction	28
Access the Scanner with Your Program	29
Acquire Scanned Data	29
Send Data to the Scanner	29
VID/PID	30
Chapter 3 Scan Mode	31
Sense Mode	31
Decode Session Timeout	31
Image Stabilization Timeout	32
Timeout between Decodes	32
Timeout between Decodes (Same Barcode)	33
Sensitivity	34
Continuous Mode	35
Decode Session Timeout	35
Timeout between Decodes	35
Timeout between Decodes (Same Barcode)	36
Chapter 4 Scanning Preferences	37
Introduction	37
Decode Area	37
Whole Area Decoding	37
Specific Area Decoding	37
Specify Decoding Area	38
Chapter 5 Illumination	40
Illumination	40
Chapter 6 Notifications	41
Power On Beep	41
Good Read Beep	41
Beep Type	42
Beep Volume	42

Beep on Unknown Character	43
Good Read Voice Prompt Volume	43
Bad Read Message	44
Chapter 7 Prefix & Suffix	45
Global Settings	46
Enable/Disable All Prefixes/Suffixes	46
Prefix Sequences	46
Custom Prefix	47
Enable/Disable Custom Prefix	47
Set Custom Prefix	47
AIM ID Prefix	48
Code ID Prefix	48
Restore All Default Code IDs	48
Modify Code ID	49
Custom Suffix	52
Enable/Disable Custom Suffix	52
Set Custom Suffix	52
Terminating Character Suffix	53
Enable/Disable Terminating Character Suffix	53
Set Terminating Character Suffix	54
Chapter 8 Symbolologies	55
Global Settings	55
Enable/Disable All Symbolologies	55
Enable/Disable 1D Symbolologies	55
Enable/Disable 2D Symbolologies	55
Video Reverse	56
1D Symbolologies	57
Code 128	57
Restore Factory Defaults	57
Enable/Disable Code 128	57
Set Length Range for Code 128	57
GS1-128 (UCC/EAN-128)	58
Restore Factory Defaults	58
Enable/Disable GS1-128	58
Set Length Range for GS1-128	58
AIM-128	59
Restore Factory Defaults	59

Enable/Disable AIM-128	59
Set Length Range for AIM-128	59
EAN-8	60
Restore Factory Defaults	60
Enable/Disable EAN-8	60
Transmit Check Character	60
Add-On Code	61
Add-On Code Required	62
EAN-13	63
Restore Factory Defaults	63
Enable/Disable EAN-13	63
Transmit Check Character	63
Add-On Code	64
Add-On Code Required	64
EAN-13 Beginning with 290 Add-On Code Required.....	65
EAN-13 Beginning with 378/379 Add-On Code Required.....	65
EAN-13 Beginning with 414/419 Add-On Code Required.....	66
EAN-13 Beginning with 434/439 Add-On Code Required.....	66
EAN-13 Beginning with 977 Add-On Code Required.....	67
EAN-13 Beginning with 978 Add-On Code Required.....	67
EAN-13 Beginning with 979 Add-On Code Required.....	68
ISSN.....	69
Restore Factory Defaults	69
Enable/Disable ISSN	69
Add-On Code	70
Add-On Code Required	70
ISBN.....	71
Restore Factory Default.....	71
Enable/Disable ISBN	71
Set ISBN Format.....	71
Add-On Code	72
Add-On Code Required	72
UPC-E.....	73
Restore Factory Defaults	73
Enable/Disable UPC-E.....	73
Transmit Check Character	73
Add-On Code	74
Add-On Code Required	74
Transmit System Character	75

UPC-A.....	76
Restore Factory Defaults	76
Enable/Disable UPC-A.....	76
Transmit Check Character	76
Add-On Code	77
Add-On Code Required	77
Transmit Preamble Character	78
Interleaved 2 of 5	79
Restore Factory Defaults	79
Enable/Disable Interleaved 2 of 5	79
Set Length Range for Interleaved 2 of 5	79
Check Character Verification	80
Febraban.....	81
Disable/Enable Febraban	81
Transmit Delay.....	81
ITF-14	83
ITF-6	84
Matrix 2 of 5	85
Restore Factory Defaults	85
Enable/Disable Matrix 2 of 5	85
Set Length Range for Matrix 2 of 5	85
Check Character Verification	86
Industrial 2 of 5	87
Restore Factory Defaults	87
Enable/Disable Industrial 2 of 5	87
Set Length Range for Industrial 2 of 5	87
Check Character Verification	88
Standard 2 of 5 (IATA 2 of 5)	89
Restore Factory Defaults	89
Enable/Disable Standard 25	89
Set Length Range for Standard 25	89
Check Character Verification	90
Code 39	91
Restore Factory Defaults	91
Enable/Disable Code 39	91
Transmit Start/Stop Character	91
Set Length Range for Code 39	92
Check Character Verification	92
Enable/Disable Code 39 Full ASCII	92

Enable/Disable Code 32	93
Code 32 Prefix	93
Transmit Code 32 Check Character.....	94
Transmit Code 32 Start/Stop Character	94
Codabar	95
Restore Factory Defaults	95
Enable/Disable Codabar	95
Set Length Range for Codabar	95
Check Character Verification	96
Transmit Start/Stop Character	96
Start/Stop Character Format.....	97
Code 93	98
Restore Factory Defaults	98
Enable/Disable Code 93	98
Set Length Range for Code 93	98
Check Character Verification	99
GS1-Databar (RSS)	100
Restore Factory Defaults	100
Enable/Disable GS1 Databar	100
Transmit Application Identifier "01"	100
Code 11	101
Restore Factory Defaults	101
Enable/Disable Code 11	101
Set Length Range for Code 11	101
Transmit Check Character	102
Check Character Verification	102
Plessey	103
Restore Factory Defaults	103
Enable/Disable Plessey	103
Set Length Range for Plessey	103
Check Character Verification	104
MSI-Plessey	105
Restore Factory Defaults	105
Enable/Disable MSI-Plessey.....	105
Set Length Range for MSI-Plessey.....	105
Transmit Check Character	106
Check Character Verification	106
2D Symbolologies.....	107
PDF417	107

Restore Factory Defaults	107
Enable/Disable PDF417.....	107
Set Length Range for PDF417.....	107
PDF 417 Twin Code.....	108
Character Encoding	108
Enable/Disable PDF417 ECI Output.....	109
QR Code	110
Restore Factory Defaults	110
Enable/Disable QR Code.....	110
Set Length Range for QR Code.....	110
Micro QR.....	110
QR Twin Code	111
Character Encoding	111
Enable/Disable QR ECI Output.....	112
Data Matrix.....	113
Restore Factory Defaults	113
Enable/Disable Data Matrix	113
Set Length Range for Data Matrix.....	113
Rectangular Barcode	114
Data Matrix Twin Code	114
Character Encoding	115
Enable/Disable Data Matrix ECI Output.....	115
Chinese Sensible Code.....	116
Restore Factory Defaults	116
Enable/Disable Chinese Sensible Code	116
Set Length Range for Chinese Sensible Code	116
Chapter 9 Image Control.....	117
Image Flipping	117
Chapter 10 Data Formatter	119
Introduction	119
Add a Data Format.....	119
Enable/Disable Data Formatter.....	122
Non-Match Error Beep	123
Data Format Selection	124
Change Data Format for a Single Scan	124
Clear Data Format	125
Query Data Formats	125

Formatter Command Type 6.....	126
Send Commands	126
Move Commands	129
Search Commands	131
Miscellaneous Commands	134
Chapter 11 Batch Programming.....	139
Introduction	139
Create a Batch Command	140
Create a Batch Barcode.....	140
Use Batch Barcode	141
Chapter 12 Troubleshooting.....	142
FAQ	142
Appendix.....	144
Appendix 1: Factory Defaults Table	144
Appendix 2: AIM ID Table	153
Appendix 3: Code ID Table	155
Appendix 4: ASCII Table.....	156
Appendix 5: Parameter Programming Examples	160
a. Program the Decode Session Timeout	160
b. Program the Image Stabilization Timeout	160
c. Program the Timeout between Decodes (Same Barcode)	160
d. Program the Threshold Value of Illumination Change.....	161
e. Program the Timeout between Decodes	161
f. Program the Decoding Area.....	162
g. Program the Custom Prefix/Suffix	162
h. Program the Terminating Character Suffix.....	163
i. Program the Code ID	163
j. Program the Bad Read Message	163
k. Program the Length Range (Maximum/Minimum Lengths) for a Symbology	164
l. Program the Custom Inter-keystroke Delay	165
m. Program the scanner to get proper output for Russian encoded with Windows 1251	165
n. Program the scanner to get proper output for Russian encoded with UTF-8	165
o. Program the Custom Transmit Delay per Character for Febraban.....	166
Appendix 6: Digit Barcodes.....	167
Appendix 7: Save/Cancel Barcodes.....	169
Appendix 8: ASCII Function Key Mapping Table	170

Appendix 9: Code Pages List..... 172

Appendix 10: Symbology ID Number 173



@SETUPN1

Enter Setup

Chapter 1 Getting Started

Introduction

The NLS-FM305X-2X fixed mount barcode scanner (hereinafter referred to as “**FM30 scanner**” or “**the FM30**” or “**the scanner**”), armed with the world-leading Newland patented **UIMG**, a computerized image recognition system-on-chip, bring about a new era of 2D barcode scanner.

The FM30 supports all mainstream 1D and standard 2D barcode symbologies (e.g., PDF417, QR Code M1/M2/Micro, Data Matrix and Chinese Sensible Code) as well as GS1-DataBar™(RSS) (Limited/Stacked/Expanded versions). It can read barcodes on virtually any medium - paper, plastic card, mobile phones and LCD displays.

Designed for fixed mount integrations, this scanner is easy to fit into various equipment such as self-service cabinets, vending machines, ATMs, access control, retail POS and fast food self-ordering kiosks.

About This Guide

This guide provides programming instructions for FM30 scanner. Users can configure the scanner by scanning the programming barcodes included in this manual.

The scanner has been properly configured for most applications and can be put into use without further configuration. Users may check **Appendix 1: Factory Defaults Table** for reference. Throughout the manual, asterisks (**) indicate factory default values.

Unpacking

Open the package and take out the scanner and its accessories. Check to make sure everything on the packing list is present and intact. If any contents are damaged or missing, please keep the original package and contact your dealer immediately for after-sales service.



@SETUPN0

** Exit Setup

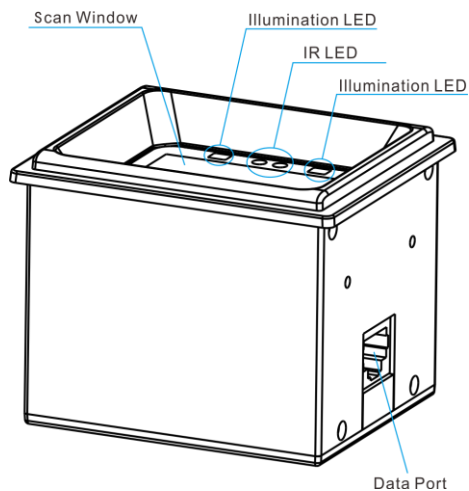


@SETUPN1

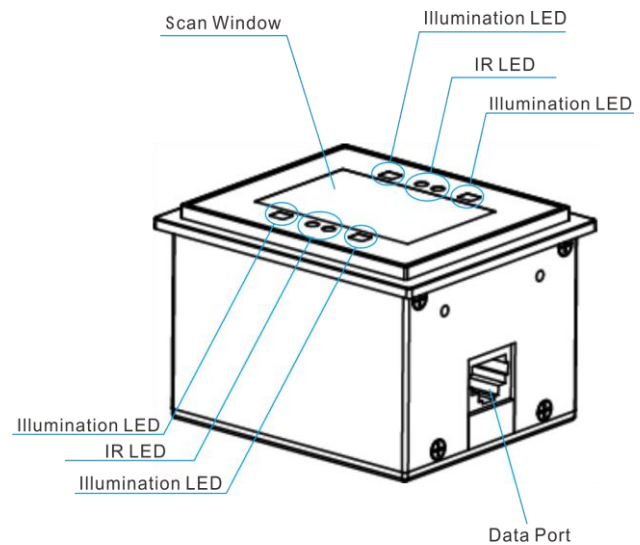
Enter Setup

FM30 Scanner

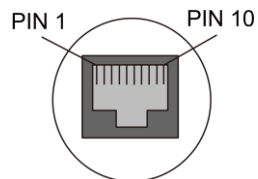
FM3051-2X



FM3056-2X



Data Port Pinout



PIN	Signal	Type	Function
1	NC	-	NC
2	NC	-	NC
3	VCC	P	Power+ (DC5V)
4	TXD	O	RS-232 output
5	RXD	I	RS-232 input
6	CTS	I/O	Clear to send (RS-232)
7	RTS	I/O	Request to send (RS-232)
8	GND	P	Ground
9	D-	I/O	USB signal
10	D+	I/O	



@SETUPN0

** Exit Setup

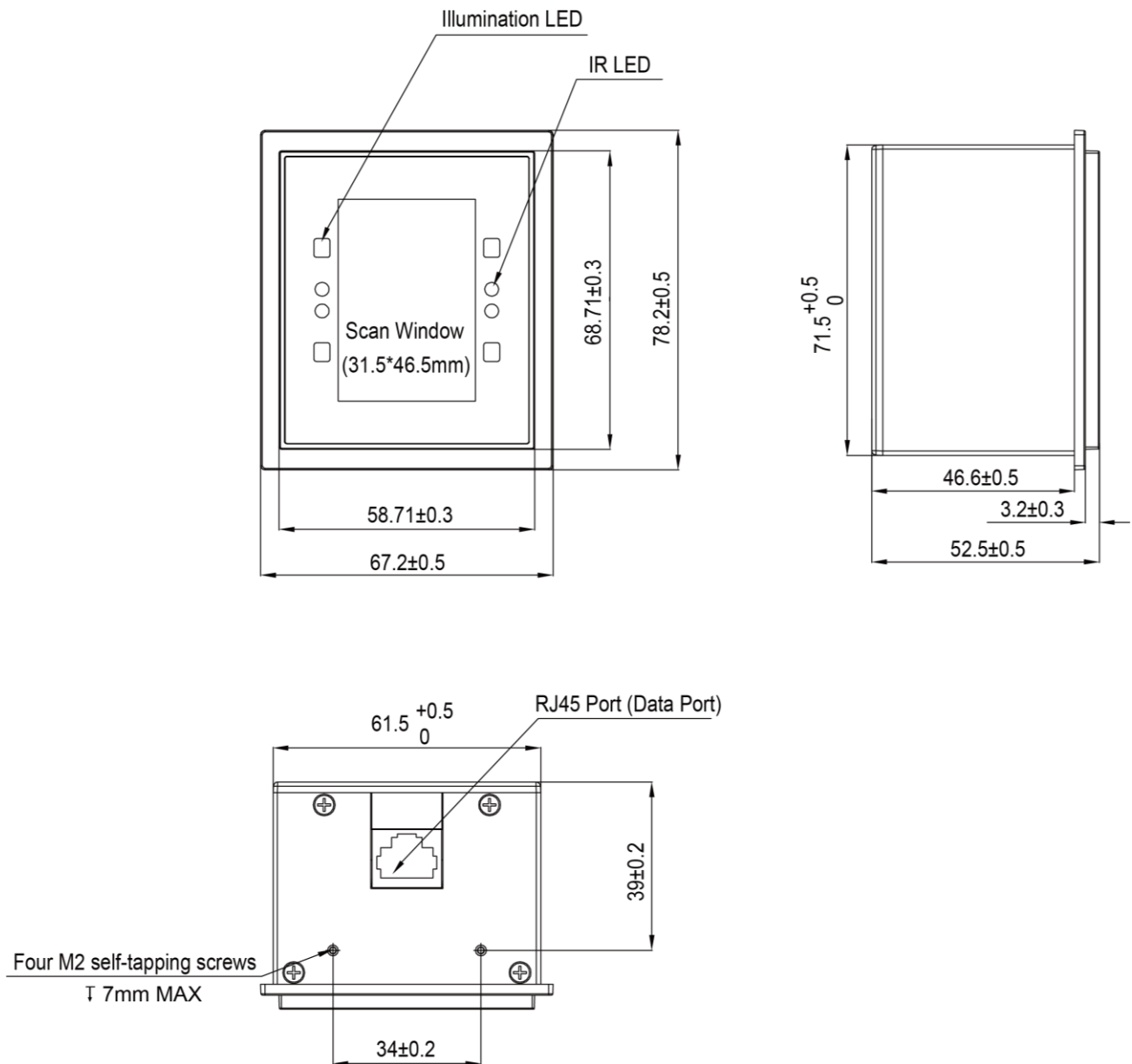


@SETUPN1

Enter Setup

Dimensions (unit: mm)

FM3056-2X Scanner



@SETUPN0

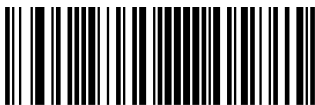
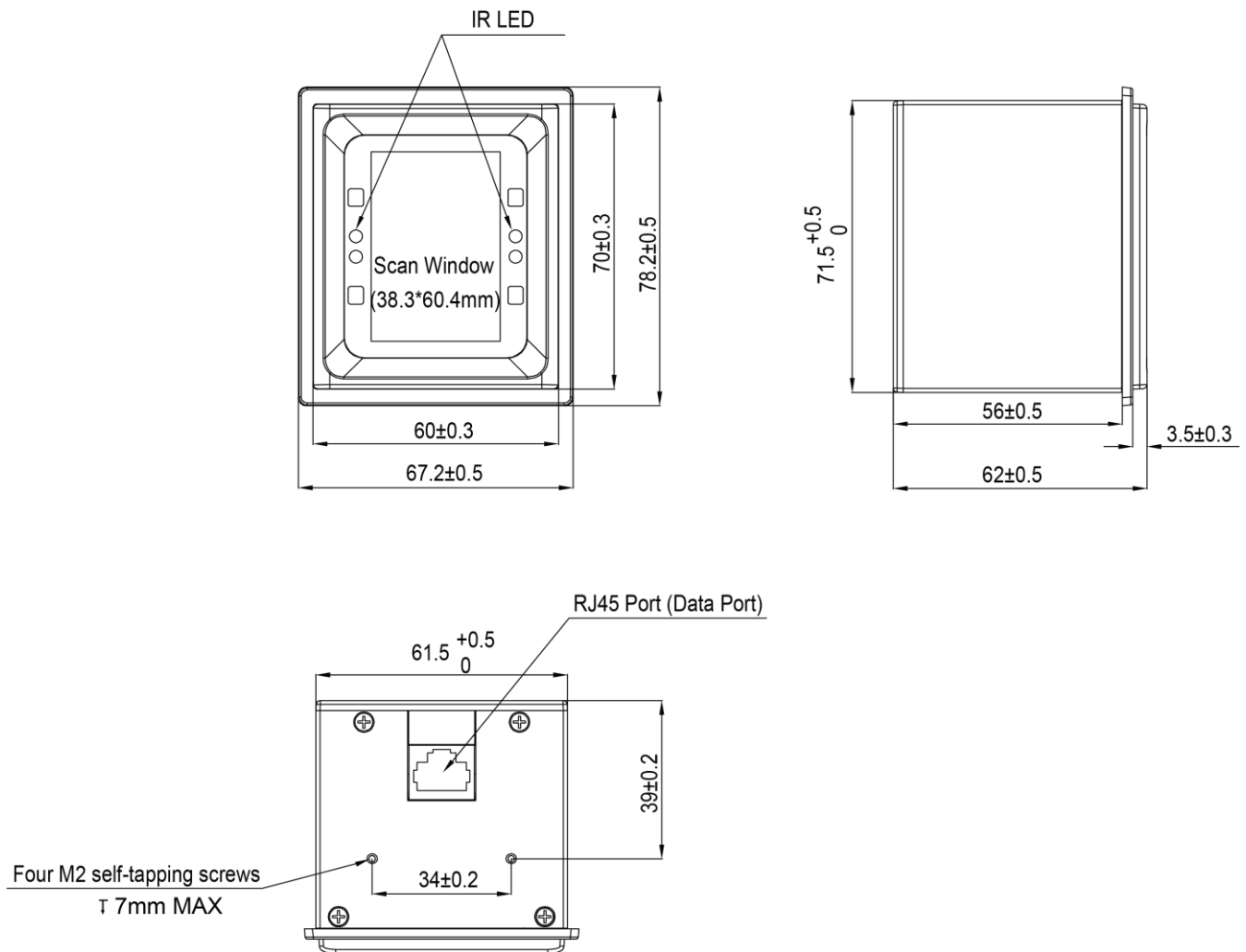
** Exit Setup



@SETUPN1

Enter Setup

FM3051-2X Scanner



@SETUPN0

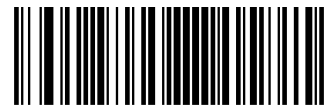
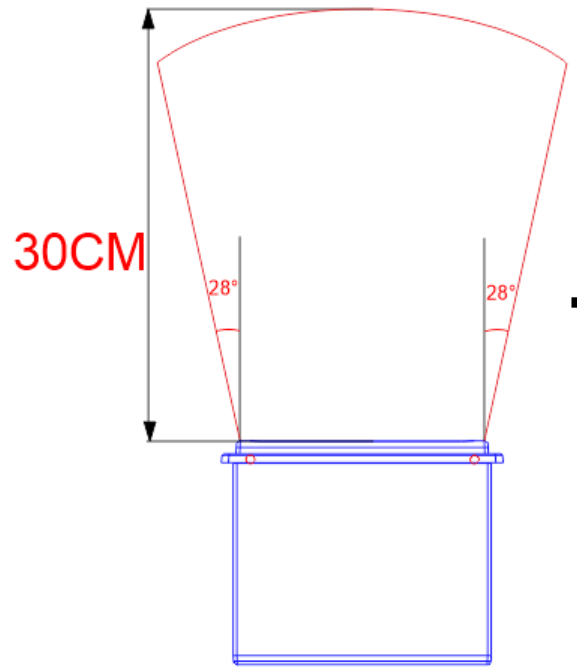
** Exit Setup



@SETUPN1

Enter Setup

IR Triggering Range



@SETUPN0

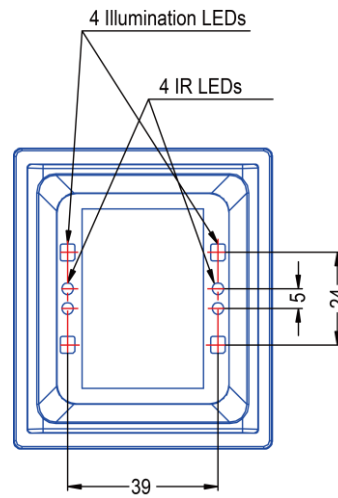
** Exit Setup



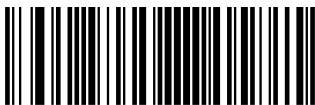
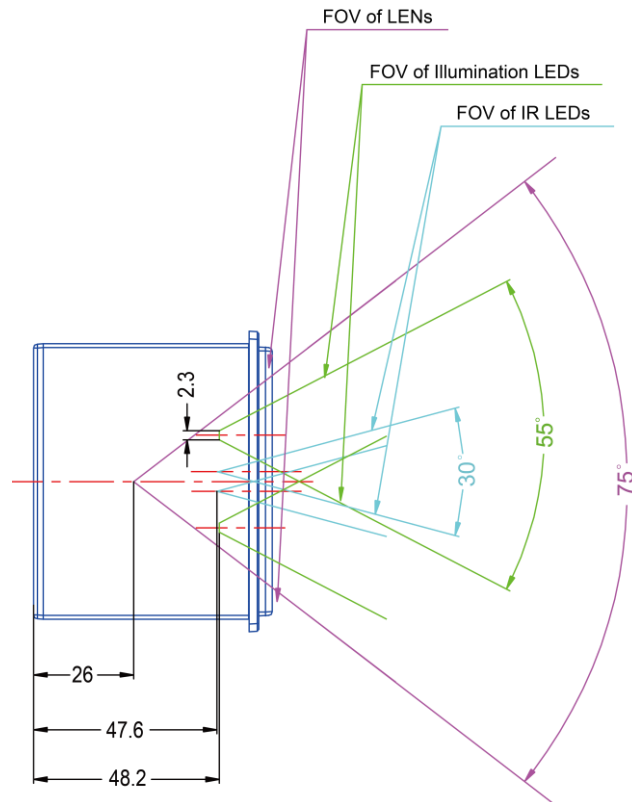
@SETUPN1

Enter Setup

Optics



Horizontal:



@SETUPN0

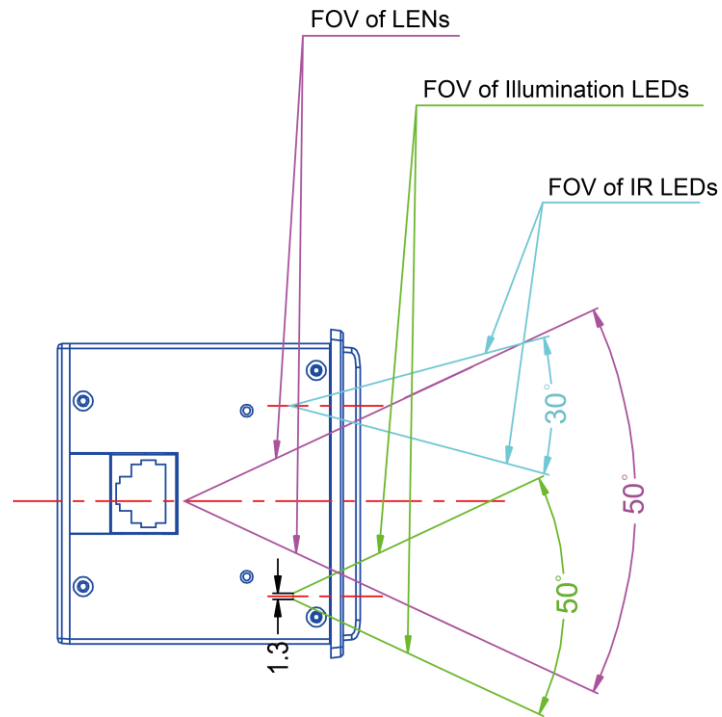
** Exit Setup



@SETUPN1

Enter Setup

Vertical:



@SETUPN0

** Exit Setup



@SETUPN1

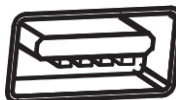
Enter Setup

Connecting the FM30 to a Host Device

The scanner must be connected to a host device in actual application, such as PC, POS or any intelligent terminal with USB or RS-232 port, using a USB or RS-232 cable.

USB

USB port on the host device



RS-232

RS-232 port on the host device



Note: Please check the port on the host device and purchase the cable accordingly.



@SETUPN0

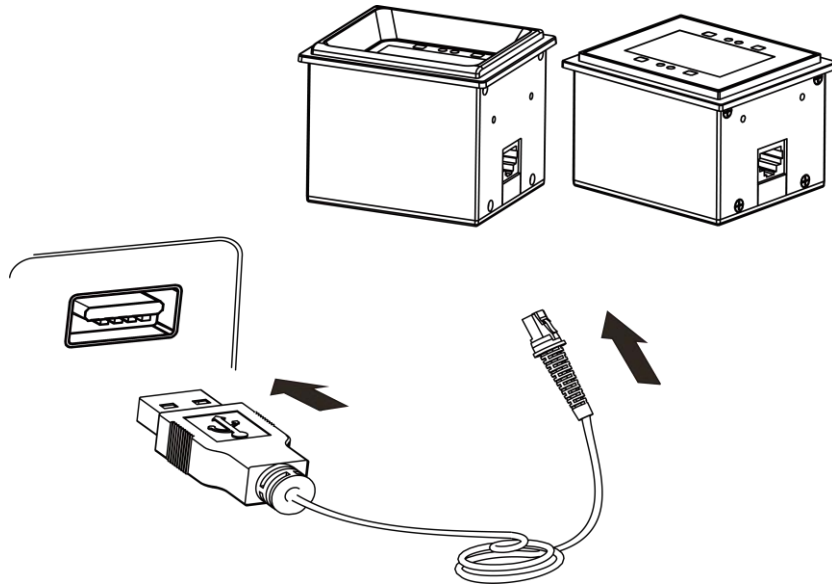
** Exit Setup



@SETUPN1

Enter Setup

Using USB Cable



Connect the scanner to a host device with a USB cable with RJ45 and USB connectors:

1. Plug the cable's RJ45 connector into the data port on the scanner.
2. Plug the cable's USB connector into the USB port on the host device.



@SETUPN0

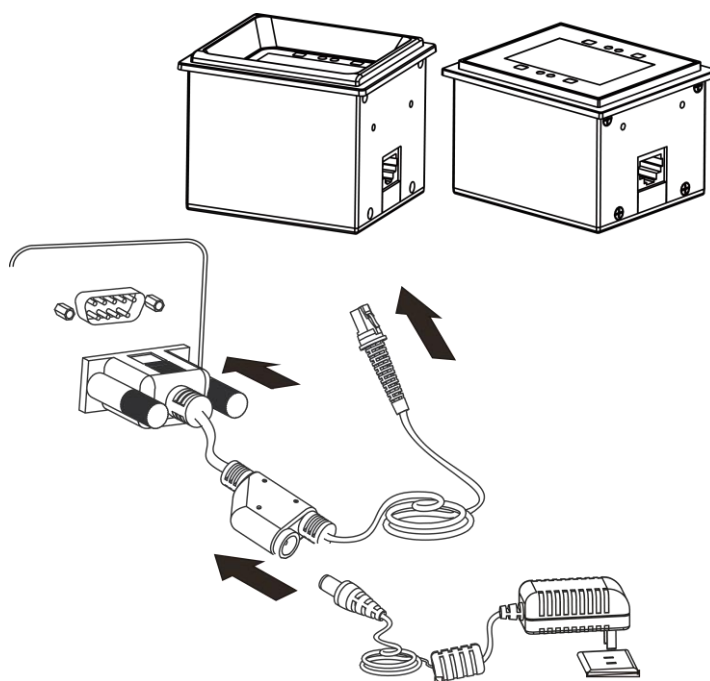
** Exit Setup



@SETUPN1

Enter Setup

Using RS-232 Cable



Connect the scanner to a host device with an RS-232 cable with RJ45, RS-232 connector and a power jack:

1. Plug the cable's RJ45 connector into the data port on the scanner.
2. Plug the cable's RS-232 connector into the RS-232 port on the host device.
3. Plug the power adapter into the power jack of the cable.
4. Connect the power adapter to a power outlet.



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Maintenance

- ✧ The scan window should be kept clean.
- ✧ Do not scratch the scan window.
- ✧ Use soft brush to remove the stain from the scan window.
- ✧ Use the soft cloth to clean the window, such as eyeglass cleaning cloth.
- ✧ Do not spray any liquid on the scan window.
- ✧ Do not use any detergent to clean other parts of the device except for water.

Note: The warranty DOES NOT cover damages caused by inappropriate care and maintenance.

Scanning Instructions

1. Present the barcode in front of the scan window of the scanner, adjusting the distance between them within the range of 1cm-5cm.
2. For a successful read, the scanner will beep and send the data to the host.



@SETUPN0

** Exit Setup



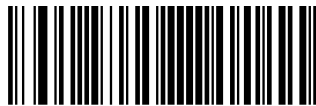
@SETUPN1

Enter Setup

Barcode Programming

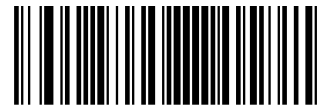
Scanning the **Enter Setup** barcode can enable the scanner to enter the setup mode. Then you can scan a number of programming barcodes to configure your scanner. To exit the setup mode, scan the **Exit Setup** barcode.

If the scanner has exited the setup mode, only some special programming barcodes, such as the **Enter Setup** barcode and **Restore All Factory Defaults** barcode, can be read.



@SETUPN1

Enter Setup



@SETUPN0

**** Exit Setup**

Programming barcode data (i.e. the characters under programming barcode) can be transmitted to the host device. Scan the appropriate barcode below to enable or disable the transmission of programming barcode data to the host device.

Restarting the scanner will automatically disable the transmission of programming barcode data to the host device.



#SETUPT1

Transmit Programming Barcode Data



#SETUPT0

**** Do Not Transmit Programming Barcode Data**



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Factory Defaults

Scanning the following barcode can restore the scanner to the factory defaults. See **Appendix 1: Factory Defaults Table** for more information.

Note: Use this feature with discretion.



@FACDEF

Restore All Factory Defaults

Custom Defaults

Custom defaults make it possible to save the frequently-used settings on the scanner.

Scanning the **Save as Custom Defaults** barcode can save the current settings as custom defaults. Once custom default settings are stored, they can be recovered at any time by scanning the **Restore All Custom Defaults** barcode.

Custom defaults are stored in the non-volatile memory. Restoring the scanner to the factory defaults will not remove the custom defaults from the scanner.



@CUSSAV

Save as Custom Defaults



@CUSDEF

Restore All Custom Defaults

Query Product Information

After scanning the barcode below, the product information (such as firmware version, model number, serial number and manufacturing date) will be sent to the host device.



@QRYSYS

Query Product Information



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Chapter 2 Communication Interfaces

The scanner provides an RS-232 interface and a USB interface to communicate with the host device. The host device can receive scanned data and send commands to control the scanner or to access/alter the configuration information of the scanner via the interface.

RS-232 Interface

When the scanner is connected to the RS-232 port of a host device, the scanner will automatically enable RS-232 communication. However, you need to set communication parameters (including baud rate, parity check, data bit and stop bit) to match the host device.

Default serial communication parameters are listed below. Make sure all parameters match the host requirements.

Parameter	Factory Default
Baud Rate	115200
Parity Check	None
Data Bits	8
Stop Bits	1
Hardware Flow Control	None



@SETUPN0

** Exit Setup

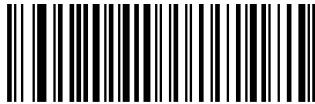


@SETUPN1

Enter Setup

Baud Rate

Baud rate is the number of bits of data transmitted per second. Set the baud rate to match the Host requirements.



@232BAD3

9600



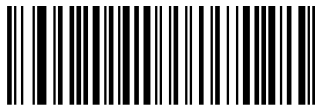
@232BAD0

1200



@232BAD5

19200



@232BAD1

2400



@232BAD6

38400



@232BAD2

4800



@232BAD7

57600



@232BAD4

14400



@232BAD8

** 115200



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Parity Check

When the number of data bits is set to 7, you can only select either **Even Parity** or **Odd Parity**. The **None** option will be regarded as **Even Parity** in this case.



@232PAR0

** None



@232PAR1

Even Parity



@232PAR2

Odd Parity

Data Bits

When the number of data bits is set to 7, you can only select either **Even Parity** or **Odd Parity**.



@232DAT1

7 Data Bits



@232DAT0

** 8 Data Bits



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Stop Bits



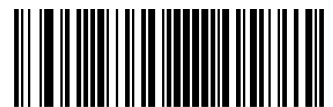
@232STP0

**** 1 Stop Bit**



@232STP1

2 Stop Bits



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

USB Interface

USB HID-KBW

When you connect the scanner to the host device via a USB connection, you can enable the **USB HID-KBW** feature by scanning the barcode below. Then scanner's transmission will be simulated as USB keyboard input. The host device receives keystrokes on the virtual keyboard. It works on a Plug and Play basis and no driver is required.



@INTERF3

**** USB HID-KBW**



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

USB Country Keyboard Types

Keyboard layouts vary from country to country. The default setting is U.S. keyboard.



@KBWCTY0

**** U.S.**



@KBWCTY1

Belgium



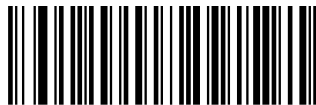
@KBWCTY2

Brazil



@KBWCTY3

Canada



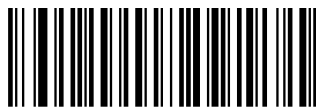
@KBWCTY4

Czechoslovakia



@KBWCTY5

Denmark



@KBWCTY6

Finland



@KBWCTY7

France



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup



@KBWCTY8

Germany, Austria



@KBWCTY9

Greece



@KBWCTY10

Hungary



@KBWCTY11

Israel



@KBWCTY12

Italy



@KBWCTY13

Latin America, South America



@KBWCTY14

Netherlands



@KBWCTY15

Norway



@KBWCTY16

Poland



@KBWCTY17

Portugal



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup



@KBWCTY18

Romania



@KBWCTY19

Russia



@KBWCTY21

Slovakia



@KBWCTY22

Spain



@KBWCTY23

Sweden



@KBWCTY24

Switzerland



@KBWCTY25

Turkey_F



@KBWCTY26

Turkey_Q



@KBWCTY27

UK



@KBWCTY28

Japan

Note: To program the scanner to get proper output for Russian encoded with Windows 1251 or UTF-8 (PDF417/QR Code/Data Matrix), see **Appendix 5**.



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Beep on Unknown Character

Due to the differences in keyboard layouts, some characters contained in barcode data may be unavailable on the selected keyboard. As a result, the scanner fails to transmit the unknown characters.

Scan the appropriate barcode below to enable or disable the emission of beep when an unknown character is detected.



@KBWBUC1

Beep on Unknown Character



@KBWBUC0

**** Do Not Beep on Unknown Character**

Inter-Keystroke Delay

This parameter specifies the delay between emulated keystrokes. It is programmable in 5ms increments from 0ms to 75ms. To learn how to set custom delay, see **Appendix 5**.



@KBWDLY0

0ms



@KBWDLY10

**** 10ms**



@KBWDLY20

20ms



@KBWDLY40

40ms



@KBWDLY

Custom Delay



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Convert Case

Scan the appropriate barcode below to convert barcode data to your desired case.



@KBWCAS0

**** No Case Conversion**



@KBWCAS1

Convert All to Upper Case



@KBWCAS2

Convert All to Lower Case

Example: When the **Convert All to Lower Case** feature is enabled, barcode data “AbC” is transmitted as “abc”.



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Emulate ALT+Keypad

This feature allows any ASCII character (0x00 - 0xFF) to be sent over the numeric keypad no matter which keyboard type is selected. Since sending a character involves multiple keystroke emulations, this method appears less efficient.

The following options are available:

- **Disable:** No ASCII character is sent in the ALT+Keypad way.
- **Mode 1:** ASCII characters not supported by the selected keyboard type but falling into 0x20~0xFF are sent in the ALT+Keypad way.
- **Mode 2:** ASCII characters falling into 0x20~0xFF are sent in the ALT+Keypad way.
- **Mode 3:** ASCII characters falling into 0x00~0xFF are sent in the ALT+Keypad way.

Note: In the event of a conflict between **Function Key Mapping** and **Mode 3, Function Key Mapping** shall govern.



@KBWALK0

**** Disable**



@KBWALK1

Mode 1



@KBWALK2

Mode 2



@KBWALK3

Mode 3

Example: Supposing US keyboard is selected, barcode data "ADF" (65/208/70) is sent as below:

(1) **Mode 1** is enabled:

"A" -- Keystroke "A"

"D" -- "ALT Make" + "208" + "ALT Break"

"F" -- Keystroke "F"

(2) **Mode 3** is enabled:

"A" -- "ALT Make" + "065" + "ALT Break"

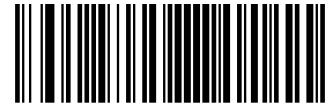
"D" -- "ALT Make" + "208" + "ALT Break"

"F" -- "ALT Make" + "070" + "ALT Break"



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Function Key Mapping

When Function Key Mapping is enabled, function characters (0x00 - 0x1F) are sent as ASCII sequences over the keypad. For more information, see **Appendix 8: ASCII Function Key Mapping Table**.



@KBWFKM1

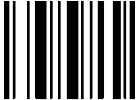
Enable Function Key Mapping

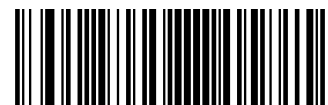


@KBWFKM0

** Disable Function Key Mapping

Example: Barcode data 0x16

 T	Enable Function Key Mapping	Ctrl+V
	Disable Function Key Mapping	F1



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Emulate Numeric Keypad

When this feature is disabled, sending barcode data is emulated as keystroke(s) on main keyboard.

To enable this feature, scan the **Emulate Numeric Keypad** barcode. Sending a number (0-9) is emulated as keystroke(s) on numeric keypad, whereas sending other characters like “+”, “-”, “*”, “/” and “.” is still emulated as keystrokes on main keyboard.



@KBWNUM0

**** Do Not Emulate Numeric Keypad**



@KBWNUM1

Emulate Numeric Keypad

Code Page

The **Code Page** programming feature is provided to support more international characters. This feature is only effective when ASCII characters are sent in the ALT+Keypad way.



@KBWCPG0

**** Windows 1252 (Latin I)**



@KBWCPG1

Windows 1251 (Cyrillic)



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Polling Rate

This parameter specifies the polling rate for a USB keyboard. If the Host drops characters, change the polling rate to a bigger value.



@KBWPOR0

**** 1ms**



@KBWPOR1

2ms



@KBWPOR2

3ms



@KBWPOR3

4ms



@KBWPOR4

5ms



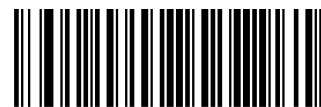
@KBWPOR5

6ms



@KBWPOR6

7ms



@KBWPOR7

8ms



@KBWPOR8

9ms



@KBWPOR9

10ms



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

USB COM Port Emulation

If you connect the scanner to the host device via a USB connection, the **USB COM Port Emulation** feature allows the Host to receive data in the way as a serial port does. A driver is required for this feature.



@INTERF2

USB COM Port Emulation

USB HID-POS

Introduction

The USB HID-POS interface is recommended for new application programs. It can send up to 56 characters in a single USB report and appears more efficient than keyboard emulation.

Features:

- ✧ HID based, no custom driver required.
- ✧ Way more efficient in communication than keyboard emulation and traditional RS-232 interface.

Note: USB HID-POS does not require a custom driver. However, a HID interface on Windows 98 does. All HID interfaces employ standard driver provided by the operating system. Use defaults when installing the driver.



@INTERF5

USB HID-POS



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Access the Scanner with Your Program

Use CreateFile to access the scanner as a HID device and then use ReadFile to deliver the scanned data to the application program. Use WriteFile to send data to the scanner.

For detailed information about USB and HID interfaces, go to www.USB.org.

Acquire Scanned Data

After scanning and decoding a barcode, the scanner sends the following input report:

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 0x02							
1	Length of the barcode							
2-57	Decoded data (1-56)							
58-60	AIM ID							
61-62	Reserved							
63	-	-	-	-	-	-	-	Decoded Data Continued

Send Data to the Scanner

This output report is used to send data to the device. All programming commands can be used.

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 0x04							
1	Length of the output data							
2-63	Output data (1-62)							



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

VID/PID

USB uses VID (Vendor ID) and PID (Product ID) to identify and locate a device. The VID is assigned by USB Implementers Forum. Newland's vendor ID is 1EAB (Hex). A PID is assigned to each interface.

Product	Interface	PID (Hex)	PID (Dec)
FM30	USB HID-KBW	1A03	6659
	USB COM Port Emulation	1A06	6662
	USB HID-POS	1A10	6672



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Chapter 3 Scan Mode

Sense Mode

The scanner waits for the image stabilization timeout to expire before activating a decode session every time it detects a change in ambient illumination. Decode session continues until the barcode is decoded or the decode session timeout expires.

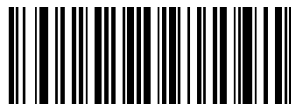


@SCNMOD2

**** Sense Mode**

Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1ms increments from 100ms to 3,600,000ms. When it is set to 0, the timeout is infinite. The default setting is 3,000ms. To learn how to program this parameter, see **Appendix 5**.



@ORTSET

Decode Session Timeout



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Image Stabilization Timeout

This parameter defines the amount of time that the scanner waits for the image to stabilize to a point that it can be decoded with more accuracy. It is programmable in 100ms increments from 0ms to 1,600ms. The default setting is 100ms. To learn how to program this parameter, see **Appendix 5**.



@SENIST

Image Stabilization Timeout

Timeout between Decodes

This parameter sets the timeout between decode sessions. When a decode session ends, next session will not happen until the timeout between decodes expires. It is programmable in 1ms increments from 0ms to 65,535ms. The default setting is 200ms. To learn how to program this parameter, see **Appendix 5**.



@SCNINV

Timeout between Decodes



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

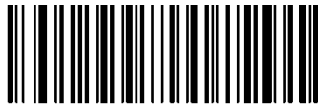
Timeout between Decodes (Same Barcode)

Timeout between Decodes (Same Barcode) can avoid undesired rereading of same barcode in a given period of time.

To enable/disable the Timeout between Decodes (Same Barcode), scan the appropriate barcode below.

Enable Timeout between Decodes (Same Barcode): Do not allow the scanner to re-read same barcode before the timeout between decodes (same barcode) expires.

Disable Timeout between Decodes (Same Barcode): Allow the scanner to re-read same barcode.



@RRDENA0

Disable Timeout between Decodes (Same Barcode)



@RRDENA1

** Enable Timeout between Decodes (Same Barcode)

The following parameter sets the timeout between decodes for same barcode. It is programmable in 1ms increments from 0ms to 65,535ms. The default setting is 1,500ms.

To learn how to program this parameter, see **Appendix 5**.



@RRDDUR

Timeout between Decodes (Same Barcode)



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Sensitivity

Sensitivity specifies the degree of acuteness of the scanner's response to changes in ambient illumination. The higher the sensitivity, the lower requirement in illumination change to trigger the scanner. You can select an appropriate degree of sensitivity that fits the ambient environment.



@SENLVL8

Medium Sensitivity (Threshold value: 8)



@SENLVL14

Low Sensitivity (Threshold value: 14)



@SENLVL5

**** High Sensitivity** (Threshold value: 5)



@SENLVL2

Enhanced Sensitivity (Threshold value: 2)

If the above four options fail to meet your needs, you may program the threshold value of illumination change.

Illumination changes that reach or surpass the predefined threshold value will cause the scanner to start a decode session. The lower the threshold value, the greater the sensitivity of the scanner.

To learn how to program this parameter, see **Appendix 5**.



@SENLVL

Threshold Value of Illumination Change (1-16)



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Continuous Mode

If the Continuous mode is enabled, the scanner automatically starts one decode session after another.



@SCNMOD3

Continuous Mode

Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1ms increments from 100ms to 3,600,000ms. When it is set to 0, the timeout is infinite. The default setting is 3,000ms. To learn how to program this parameter, see **Appendix 5**.



@ORTSET

Decode Session Timeout

Timeout between Decodes

This parameter sets the timeout between decode sessions. When a decode session ends, next session will not happen until the timeout between decodes expires. It is programmable in 1ms increments from 0ms to 65,535ms. The default setting is 200ms. To learn how to program this parameter, see **Appendix 5**.



@SCNINV

Timeout between Decodes



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

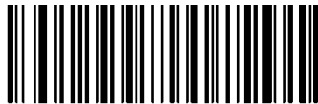
Timeout between Decodes (Same Barcode)

Timeout between Decodes (Same Barcode) can avoid undesired rereading of same barcode in a given period of time.

To enable/disable the Timeout between Decodes (Same Barcode), scan the appropriate barcode below.

Enable Timeout between Decodes (Same Barcode): Do not allow the scanner to re-read same barcode before the timeout between decodes (same barcode) expires.

Disable Timeout between Decodes (Same Barcode): Allow the scanner to re-read same barcode.



@RRDENA0

Disable Timeout between Decodes (Same Barcode)



@RRDENA1

** Enable Timeout between Decodes (Same Barcode)

The following parameter sets the timeout between decodes for same barcode. It is programmable in 1ms increments from 0ms to 65,535ms. The default setting is 1,500ms.

To learn how to program this parameter, see **Appendix 5**.



@RRDDUR

Timeout between Decodes (Same Barcode)



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Chapter 4 Scanning Preferences

Introduction

This chapter contains information as to how to adapt your scanner to various applications with preference setting. For instance, to narrow the field of view of the scanner to make sure it reads only those barcodes intended by the user.

Decode Area

Whole Area Decoding

When this option is enabled, the scanner attempts to decode barcode(s) within its field of view, from the center to the periphery, and transmits the barcode that has been first decoded.



@CADENA0

**** Whole Area Decoding**

Specific Area Decoding

The scanner attempts to read barcode(s) within a specified decoding area and transmits the barcode that has been first decoded. This option allows the scanner to narrow its field of view to make sure it reads only those barcodes intended by the user. For instance, if multiple barcodes are placed closely together, specific area decoding in conjunction with appropriate pre-defined decoding area will insure that only the desired barcode is read.



@CADENA1

Specific Area Decoding



@SETUPN0

**** Exit Setup**



@SETUPN1

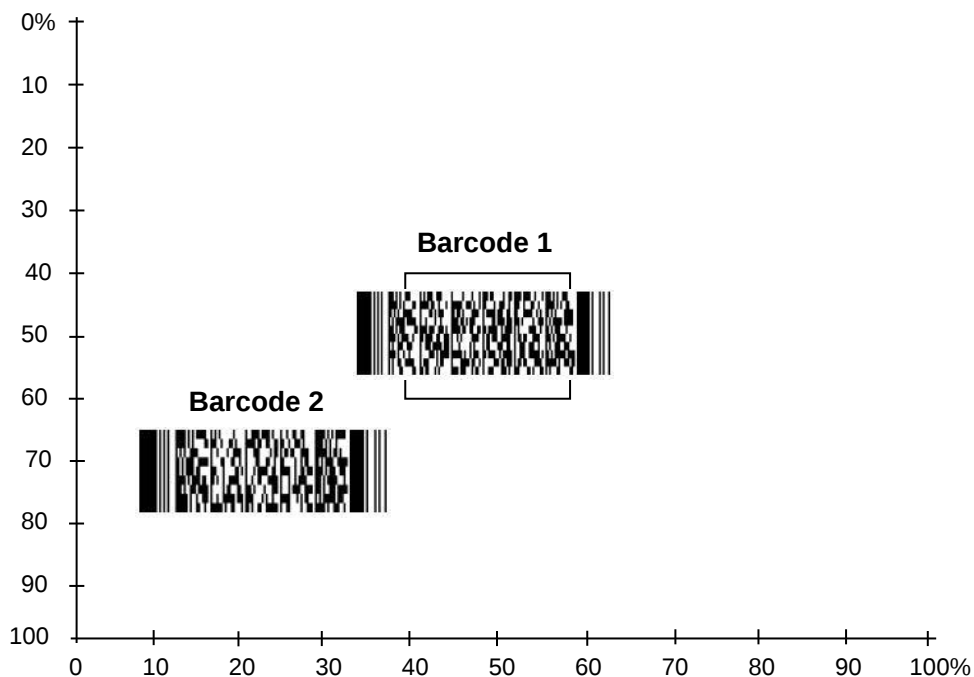
Enter Setup

Specify Decoding Area

If **Specific Area Decoding** is enabled, the scanner only reads barcodes that intersect the predefined decoding area.

The default decoding area is an area of 40% top, 60% bottom, 40% left and 60% right of the scanner's field of view, as shown in the figure below. In the following example, the white box is the decoding area. Since Barcode 1 passes through the decoding area, it will be read. Barcode 2 does not pass through the decoding area, so it will not be read.

You can define the decoding area using the **Top of Decoding Area**, **Bottom of Decoding Area**, **Left of Decoding Area** and **Right of Decoding Area** barcodes as well as numeric barcode(s) that represent(s) a desired percentage (0-100). To learn how to program decoding area, see **Appendix 5**.



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup



@CADTOP

Top of Decoding Area



@CADBOT

Bottom of Decoding Area



@CADLEF

Left of Decoding Area



@CADRIG

Right of Decoding Area



@SETUPN0

**** Exit Setup**



@SETUPN1
Enter Setup

Chapter 5 Illumination

Illumination

A couple of illumination options are provided to improve the lighting conditions during every image capture:

Normal: Illumination LEDs are turned on during image capture.

Always ON: Illumination LEDs keep ON after the scanner is powered on.

OFF: Illumination LEDs are OFF all the time.



@ILLSCN1
** Normal



@ILLSCN0
OFF



@ILLSCN2
Always ON



@SETUPN0
** Exit Setup



@SETUPN1

Enter Setup

Chapter 6 Notifications

Power On Beep

The scanner can be programmed to beep when it is powered on. Scan the **Off** barcode if you do not want a power on beep.



@PWBENA1

**** On**



@PWBENA0

Off

Good Read Beep

Scan the appropriate barcode below to enable or disable the emission of beep when a barcode is decoded. Beep type (frequency) and volume are also user programmable.



@GRBENA1

**** On**



@GRBENA0

Off



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Beep Type



@GRBFRQ4800

Type 1



@GRBFRQ2700

** Type 3



@GRBFRQ3940

Type 2

Beep Volume



@GRBVOL0

** Loud



@GRBVOL2

Low



@GRBVOL1

Medium



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Beep on Unknown Character

Due to the differences in keyboard layouts, some characters contained in barcode data may be unavailable on the selected keyboard (USB HID-KBW). As a result, the scanner fails to transmit the unknown characters.

Scan the appropriate barcode below to enable or disable the emission of beep when an unknown character is detected.



@KBWBUC1

Beep on Unknown Character



@KBWBUC0

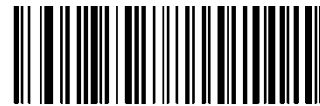
**** Do Not Beep on Unknown Character**

Good Read Voice Prompt Volume



@VOICEV0

**** Loud**



@VOICEV2

Low



@VOICEV1

Medium



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Bad Read Message

Scan a barcode below to select whether or not to transmit a user-defined bad read message when a barcode cannot be decoded.



@NGRENA1

Bad Read Message ON



@NGRENA0

** Bad Read Message OFF

To set a bad read message, scan the **Set Bad Read Message** barcode and the numeric barcodes corresponding to the ASCII hex values of desired characters and then scan the **Save** barcode.

A bad read message can contain 0-7 characters.



@NGRSET

Set Bad Read Message



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Chapter 7 Prefix & Suffix

In many applications, barcode data needs to be edited and distinguished from one another.

Usually AIM ID and Code ID can be used as identifiers, but in some special cases customized prefix and terminating character suffix like Carriage Return or Line Feed can also be the alternatives.

Data editing may include:

- ✧ Append AIM ID/Code ID/custom prefix before the decoded data
- ✧ Append custom suffix after the decoded data
- ✧ Append terminating character to the end of the data

The following formats can be used when editing barcode data:

- ✧ [Code ID] + [Custom Prefix] + [AIM ID] + [DATA] + [Custom Suffix] + [Terminating Character]
- ✧ [Custom Prefix] + [Code ID] + [AIM ID] + [DATA] + [Custom Suffix] + [Terminating Character]

Note: [DATA] must be transmitted while user can decide whether to transmit any of the rest parts.



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Global Settings

Enable/Disable All Prefixes/Suffixes

- ✧ **Disable All Prefixes/Suffixes:** Transmit barcode data with no prefix/suffix.
- ✧ **Enable All Prefixes/Suffixes:** Allow user to append Code ID prefix, AIM ID prefix, custom prefix/suffix and terminating character to the barcode data before the transmission.



@APSENA1

Enable All Prefixes/Suffixes



@APSENA0

Disable All Prefixes/Suffixes

Prefix Sequences



@PRESEQ0

Code ID+Custom Prefix+AIM ID



@PRESEQ1

** Custom Prefix+Code ID+AIM ID



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Custom Prefix

Enable/Disable Custom Prefix

If custom prefix is enabled, you are allowed to append to the data a user-defined prefix that cannot exceed 11 characters.



@CPRENA1

Enable Custom Prefix



@CPRENA0

** Disable Custom Prefix

Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode and the numeric barcodes representing the hexadecimal value(s) of a desired prefix and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of characters. To view a setting example, see **Appendix 5: Parameter Programming Examples**.

Note: A custom prefix cannot exceed 11 characters.



@CPRSET

Set Custom Prefix



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

AIM ID Prefix

AIM (Automatic Identification Manufacturers) IDs and ISO/IEC 15424 standards define symbology identifiers and data carrier identifiers. (For the details, see **Appendix 2: AIM ID Table**. If AIM ID prefix is enabled, the scanner will add the symbology identifier before the scanned data after decoding.



@AIDENA1

Enable AIM ID Prefix



@AIDENA0

** Disable AIM ID Prefix

Code ID Prefix

Code ID can also be used to identify barcode type. Unlike AIM ID, Code ID is user programmable. Code ID can only consist of one or two English letters.



@CIDENA1

Enable Code ID Prefix



@CIDENA0

** Disable Code ID Prefix

Restore All Default Code IDs

For the information of default Code IDs, see **Appendix 3: Code ID Table**.



@CIDDEF

Restore All Default Code IDs



@SETUPN0

** Exit Setup

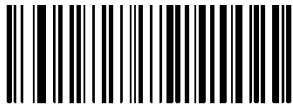


@SETUPN1

Enter Setup

Modify Code ID

To change the Code ID of a symbology, scan the appropriate **Modify Code ID** barcode below and the numeric barcodes representing the hexadecimal value of a desired Code ID and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of characters. To view a setting example, see **Appendix 5: Parameter Programming Examples**.



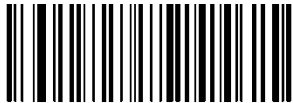
@CID032

Modify PDF417 Code ID



@CID035

Modify Data Matrix Code ID



@CID033

Modify QR Code Code ID



@CID039

Modify Chinese Sensible Code ID



@CID002

Modify Code 128 Code ID



@CID003

Modify GS1-128 Code ID



@CID020

Modify AIM-128 Code ID



@CID004

Modify EAN-8 Code ID



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup



@CID005

Modify EAN-13 Code ID



@CID006

Modify UPC-E Code ID



@CID007

Modify UPC-A Code ID



@CID024

Modify ISBN Code ID



@CID023

Modify ISSN Code ID



@CID013

Modify Code 39 Code ID



@CID017

Modify Code 93 Code ID



@CID008

Modify Interleaved 2 of 5 Code ID



@CID009

Modify ITF-14 Code ID



@CID010

Modify ITF-6 Code ID



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup



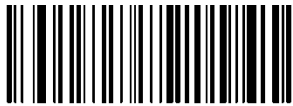
@CID015

Modify Codabar Code ID



@CID025

Modify Industrial 25 Code ID



@CID026

Modify Standard 25 Code ID



@CID011

Modify Matrix 25 Code ID



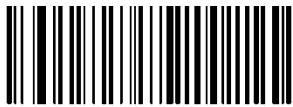
@CID028

Modify Code 11 Code ID



@CID027

Modify Plessey Code ID



@CID029

Modify MSI-Plessey Code ID



@CID031

Modify GS1 Databar Code ID



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Custom Suffix

Enable/Disable Custom Suffix

If custom suffix is enabled, you are allowed to append to the data a user-defined suffix that cannot exceed 11 characters.



@CSUENA1

Enable Custom Suffix



@CSUENA0

** Disable Custom Suffix

Set Custom Suffix

To set a custom suffix, scan the **Set Custom Suffix** barcode and the numeric barcodes representing the hexadecimal value(s) of a desired prefix and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of characters. To view a setting example, see **Appendix 5: Parameter Programming Examples**.

Note: A custom prefix cannot exceed 11 characters.



@CSUSET

Set Custom Suffix



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

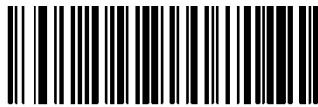
Terminating Character Suffix

A terminating character can be used to mark the end of data, which means nothing can be added after it.

A terminating character suffix can contain 1-7 characters.

Enable/Disable Terminating Character Suffix

To enable/disable terminating character suffix, scan the appropriate barcode below.



@TSUENA1

**** Enable Terminating Character Suffix**



@TSUENA0

Disable Terminating Character Suffix



@SETUPN0

**** Exit Setup**

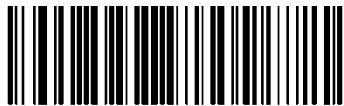


@SETUPN1

Enter Setup

Set Terminating Character Suffix

The scanner provides a shortcut for setting the terminating character suffix to CR (0x0D) or CRLF (0x0D,0x0A) and enabling it by scanning the appropriate barcode below.



@TSUSET0D

Terminating Character CR (0x0D)



@TSUSET0D0A

** Terminating Character CRLF (0x0D,0x0A)

To set a terminating character suffix, scan the **Set Terminating Character Suffix** barcode and the numeric barcodes representing the hexadecimal value(s) of a desired terminating character and then scan the **Save** barcode. Refer to **Appendix 4: ASCII Table** for hexadecimal values of terminating characters. To view a setting example, see **Appendix 5: Parameter Programming Examples**.

Note: A terminating character suffix cannot exceed 7 characters.



@TSUSET

Set Terminating Character Suffix



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Chapter 8 Symbologies

Global Settings

Enable/Disable All Symbologies

If the **Disable All Symbologies** feature is enabled, the scanner will not be able to read any non-programming barcodes except the programming barcodes.



@ALLENA1

Enable All Symbologies



@ALLENA0

Disable All Symbologies

Enable/Disable 1D Symbologies

If the **Disable 1D Symbologies** feature is enabled, the scanner will not be able to read any 1D barcodes.



@ALL1DC1

Enable 1D Symbologies



@ALL1DC0

Disable 1D Symbologies

Enable/Disable 2D Symbologies

If the **Disable 2D Symbologies** feature is enabled, the scanner will not be able to read any 2D barcodes.



@ALL2DC1

Enable 2D Symbologies



@ALL2DC0

Disable 2D Symbologies



@SETUPN0

** Exit Setup



@SETUPN1

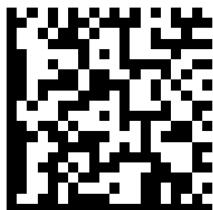
Enter Setup

Video Reverse

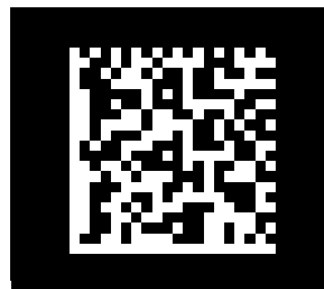
Regular barcode: Dark image on a bright background.

Inverse barcode: Bright image on a dark background.

The examples of regular barcode and inverse barcode are shown below.



Regular Barcode



Inverse Barcode

Video Reverse allows the scanner to read barcodes that are inverted.

Video Reverse ON: Read both regular barcodes and inverse barcodes.

Video Reverse OFF: Read regular barcodes only.

The scanner shows a slight decrease in scanning speed when Video Reverse is ON.



@ALLINV1

Video Reverse ON



@ALLINV0

**** Video Reverse OFF**



@SETUPN0

**** Exit Setup**



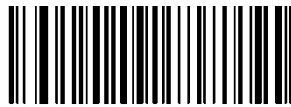
@SETUPN1

Enter Setup

1D Symbolologies

Code 128

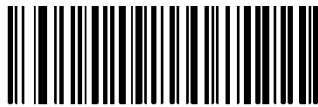
Restore Factory Defaults



@128DEF

Restore the Factory Defaults of Code 128

Enable/Disable Code 128



@128ENA1

**** Enable Code 128**



@128ENA0

Disable Code 128

Set Length Range for Code 128



@128MIN

Set the Minimum Length



@128MAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

GS1-128 (UCC/EAN-128)

Restore Factory Defaults



@GS1DEF

Restore the Factory Defaults of GS1-128

Enable/Disable GS1-128



@GS1ENA1

** Enable GS1-128



@GS1ENA0

Disable GS1-128

Set Length Range for GS1-128



@GS1MIN

Set the Minimum Length



@GS1MAX

Set the Maximum Length



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

AIM-128

Restore Factory Defaults



@AIMDEF

Restore the Factory Defaults of AIM-128

Enable/Disable AIM-128



@AIMENA1

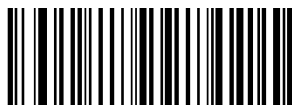
**** Enable AIM-128**



@AIMENA0

Disable AIM-128

Set Length Range for AIM-128



@AIMMIN

Set the Minimum Length



@AIMMAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

EAN-8

Restore Factory Defaults



@EA8DEF

Restore the Factory Defaults of EAN-8

Enable/Disable EAN-8



@EA8ENA1

**** Enable EAN-8**



@EA8ENA0

Disable EAN-8

Transmit Check Character

EAN-8 is 8 digits in length with the last one as its check character used to verify the integrity of the data.



@EA8CHK2

**** Transmit EAN-8 Check Character**



@EA8CHK1

Do Not Transmit EAN-8 Check Character



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Add-On Code

An EAN-8 barcode can be augmented with a two-digit or five-digit add-on code to form a new one. In the examples below, the part surrounded by blue dotted line is an EAN-8 barcode while the part circled by red dotted line is add-on code.



@EA8AD21

Enable 2-Digit Add-On Code



@EA8AD20

** Disable 2-Digit Add-On Code



@EA8AD51

Enable 5-Digit Add-On Code



@EA8AD50

** Disable 5-Digit Add-On Code

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of EAN-8 barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes EAN-8 and ignores the add-on code when presented with an EAN-8 plus add-on barcode. It can also decode EAN-8 barcodes without add-on codes.



@SETUPN0

** Exit Setup

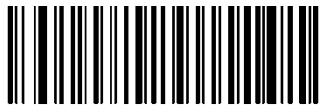


@SETUPN1

Enter Setup

Add-On Code Required

When **EAN-8 Add-On Code Required** is selected, the scanner will only read EAN-8 barcodes that contain add-on codes.



@EA8REQ1

EAN-8 Add-On Code Required



@EA8REQ0

**** EAN-8 Add-On Code Not Required**



@SETUPN0

**** Exit Setup**

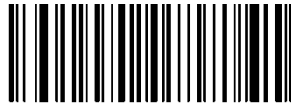


@SETUPN1

Enter Setup

EAN-13

Restore Factory Defaults



@E13DEF

Restore the Factory Defaults of EAN-13

Enable/Disable EAN-13



@E13ENA1

**** Enable EAN-13**



@E13ENA0

Disable EAN-13

Transmit Check Character



@E13CHK2

**** Transmit EAN-13 Check Character**



@E13CHK1

Do Not Transmit EAN-13 Check Character



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Add-On Code

An EAN-13 barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



@E13AD21

Enable 2-Digit Add-On Code



@E13AD20

** Disable 2-Digit Add-On Code



@E13AD51

Enable 5-Digit Add-On Code



@E13AD50

** Disable 5-Digit Add-On Code

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of EAN-13 barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes EAN-13 and ignores the add-on code when presented with an EAN-13 plus add-on barcode. It can also decode EAN-13 barcodes without add-on codes.

Add-On Code Required

When **EAN-13 Add-On Code Required** is selected, the scanner will only read EAN-13 barcodes that contain add-on codes.



@E13REQ1

EAN-13 Add-On Code Required



@E13REQ0

** EAN-13 Add-On Code Not Required



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

EAN-13 Beginning with 290 Add-On Code Required

This setting programs the scanner to require an add-on code (2-digit or 5-digit) on EAN-13 barcodes that begin with “290”. The following settings can be programmed:

Require Add-On Code: All EAN-13 barcodes that begin with “290” must have a 2-digit or 5-digit add-on code. The EAN-13 barcode with the add-on code is then transmitted. If the required add-on code is not found, the EAN-13 barcode is discarded.

Do Not Require Add-On Code: If you have selected **Require Add-On Code**, and you want to disable this feature, scan **Do Not Require Add-On Code**. EAN-13 barcodes are handled, depending on your selection for the “Add-On Code Required” feature.



@E132900

**** Do Not Require Add-On Code**



@E132901

Require Add-On Code

EAN-13 Beginning with 378/379 Add-On Code Required

This setting programs the scanner to require an add-on code (2-digit or 5-digit) on EAN-13 barcodes that begin with a “378” or “379”. The following settings can be programmed:

Require Add-On Code: All EAN-13 barcodes that begin with a “378” or “379” must have a 2-digit or 5-digit add-on code. The EAN-13 barcode with the add-on code is then transmitted. If the required add-on code is not found, the EAN-13 barcode is discarded.

Do Not Require Add-On Code: If you have selected **Require Add-On Code**, and you want to disable this feature, scan **Do Not Require Add-On Code**. EAN-13 barcodes are handled, depending on your selection for the “Add-On Code Required” feature.



@E133780

**** Do Not Require Add-On Code**



@E133781

Require Add-On Code



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

EAN-13 Beginning with 414/419 Add-On Code Required

This setting programs the scanner to require an add-on code (2-digit or 5-digit) on EAN-13 barcodes that begin with a “414” or “419”. The following settings can be programmed:

Require Add-On Code: All EAN-13 barcodes that begin with a “414” or “419” must have a 2-digit or 5-digit add-on code. The EAN-13 barcode with the add-on code is then transmitted. If the required add-on code is not found, the EAN-13 barcode is discarded.

Do Not Require Add-On Code: If you have selected **Require Add-On Code**, and you want to disable this feature, scan **Do Not Require Add-On Code**. EAN-13 barcodes are handled, depending on your selection for the “Add-On Code Required” feature.



@E134140

**** Do Not Require Add-On Code**



@E134141

Require Add-On Code

EAN-13 Beginning with 434/439 Add-On Code Required

This setting programs the scanner to require an add-on code (2-digit or 5-digit) on EAN-13 barcodes that begin with a “434” or “439”. The following settings can be programmed:

Require Add-On Code: All EAN-13 barcodes that begin with a “434” or “439” must have a 2-digit or 5-digit add-on code. The EAN-13 barcode with the add-on code is then transmitted. If the required add-on code is not found, the EAN-13 barcode is discarded.

Do Not Require Add-On Code: If you have selected **Require Add-On Code**, and you want to disable this feature, scan **Do Not Require Add-On Code**. EAN-13 barcodes are handled, depending on your selection for the “Add-On Code Required” feature.



@E134340

**** Do Not Require Add-On Code**



@E134341

Require Add-On Code



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

EAN-13 Beginning with 977 Add-On Code Required

This setting programs the scanner to require an add-on code (2-digit or 5-digit) on EAN-13 barcodes that begin with “977”. The following settings can be programmed:

Require Add-On Code: All EAN-13 barcodes that begin with “977” must have a 2-digit or 5-digit add-on code. The EAN-13 barcode with the add-on code is then transmitted. If the required add-on code is not found, the EAN-13 barcode is discarded.

Do Not Require Add-On Code: If you have selected **Require Add-On Code**, and you want to disable this feature, scan **Do Not Require Add-On Code**. EAN-13 barcodes are handled, depending on your selection for the “Add-On Code Required” feature.



@E139770

**** Do Not Require Add-On Code**



@E139771

Require Add-On Code

EAN-13 Beginning with 978 Add-On Code Required

This setting programs the scanner to require an add-on code (2-digit or 5-digit) on EAN-13 barcodes that begin with “978”. The following settings can be programmed:

Require Add-On Code: All EAN-13 barcodes that begin with “978” must have a 2-digit or 5-digit add-on code. The EAN-13 barcode with the add-on code is then transmitted. If the required add-on code is not found, the EAN-13 barcode is discarded.

Do Not Require Add-On Code: If you have selected **Require Add-On Code**, and you want to disable this feature, scan **Do Not Require Add-On Code**. EAN-13 barcodes are handled, depending on your selection for the “Add-On Code Required” feature.



@E139780

**** Do Not Require Add-On Code**



@E139781

Require Add-On Code



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

EAN-13 Beginning with 979 Add-On Code Required

This setting programs the scanner to require an add-on code (2-digit or 5-digit) on EAN-13 barcodes that begin with “979”. The following settings can be programmed:

Require Add-On Code: All EAN-13 barcodes that begin with “979” must have a 2-digit or 5-digit add-on code. The EAN-13 barcode with the add-on code is then transmitted. If the required add-on code is not found, the EAN-13 barcode is discarded.

Do Not Require Add-On Code: If you have selected **Require Add-On Code**, and you want to disable this feature, scan **Do Not Require Add-On Code**. EAN-13 barcodes are handled, depending on your selection for the “Add-On Code Required” feature.



@E139790

**** Do Not Require Add-On Code**



@E139791

Require Add-On Code



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

ISSN

Restore Factory Defaults



@ISSDEF

Restore the Factory Defaults of ISSN

Enable/Disable ISSN



@ISSENA1

Enable ISSN



@ISSENA0

**** Disable ISSN**



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Add-On Code

An ISSN barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



@ISSAD21

Enable 2-Digit Add-On Code



@ISSAD20

** Disable 2-Digit Add-On Code



@ISSAD51

Enable 5-Digit Add-On Code



@ISSAD50

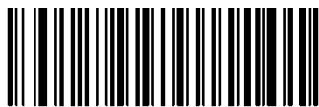
** Disable 5-Digit Add-On Code

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of ISSN barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes ISSN and ignores the add-on code when presented with an ISSN plus add-on barcode. It can also decode ISSN barcodes without add-on codes.

Add-On Code Required

When **ISSN Add-On Code Required** is selected, the scanner will only read ISSN barcodes that contain add-on codes.



@ISSREQ1

ISSN Add-On Code Required



@ISSREQ0

** ISSN Add-On Code Not Required



@SETUPN0

** Exit Setup

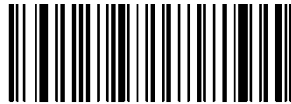


@SETUPN1

Enter Setup

ISBN

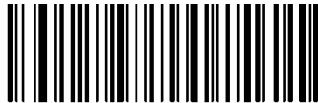
Restore Factory Default



@ISBDEF

Restore the Factory Defaults of ISBN

Enable/Disable ISBN



@ISBENA1

**** Enable ISBN**



@ISBENA0

Disable ISBN

Set ISBN Format



@SBT100

**** ISBN-13**



@SBT101

ISBN-10



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Add-On Code

An ISBN barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



@ISBAD21

Enable 2-Digit Add-On Code



@ISBAD20

** Disable 2-Digit Add-On Code



@ISBAD51

Enable 5-Digit Add-On Code



@ISBAD50

** Disable 5-Digit Add-On Code

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of ISBN barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes ISBN and ignores the add-on code when presented with an ISBN plus add-on barcode. It can also decode ISBN barcodes without add-on codes.

Add-On Code Required

When **ISBN Add-On Code Required** is selected, the scanner will only read ISBN barcodes that contain add-on codes.



@ISBREQ1

ISBN Add-On Code Required



@ISBREQ0

** ISBN Add-On Code Not Required



@SETUPN0

** Exit Setup

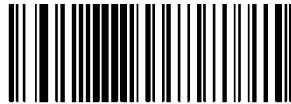


@SETUPN1

Enter Setup

UPC-E

Restore Factory Defaults



@UPEDEF

Restore the Factory Defaults of UPC-E

Enable/Disable UPC-E



@UPEENA1

**** Enable UPC-E**



@UPEENA0

Disable UPC-E

Transmit Check Character



@UPECHK2

**** Transmit UPC-E Check Character**



@UPECHK1

Do Not Transmit UPC-E Check Character



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Add-On Code

A UPC-E barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



@UPEAD21

Enable 2-Digit Add-On Code



@UPEAD20

** Disable 2-Digit Add-On Code



@UPEAD51

Enable 5-Digit Add-On Code



@UPEAD50

** Disable 5-Digit Add-On Code

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of UPC-E barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes UPC-E and ignores the add-on code when presented with a UPC-E plus add-on barcode. It can also decode UPC-E barcodes without add-on codes.

Add-On Code Required

When **UPC-E Add-On Code Required** is selected, the scanner will only read UPC-E barcodes that contain add-on codes.



@UPEREQ1

UPC-E Add-On Code Required



@UPEREQ0

** UPC-E Add-On Code Not Required



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Transmit System Character

The first character of UPC-E barcode is the system character "0".



@UPEPRE1

**** Transmit System Character**



@UPEPRE0

Do Not Transmit System Character



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

UPC-A

Restore Factory Defaults



@UPADEF

Restore the Factory Defaults of UPC-A

Enable/Disable UPC-A



@UPAENA1

** Enable UPC-A



@UPAENA0

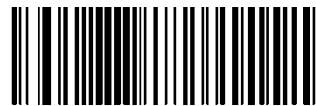
Disable UPC-A

Transmit Check Character



@UPACHK2

** Transmit UPC-A Check Character



@UPACHK1

Do Not Transmit UPC-A Check Character



@SETUPN0

** Exit Setup

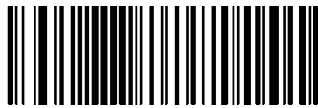


@SETUPN1

Enter Setup

Add-On Code

A UPC-A barcode can be augmented with a two-digit or five-digit add-on code to form a new one.



@UPAAD21

Enable 2-Digit Add-On Code



@UPAAD20

** Disable 2-Digit Add-On Code



@UPAAD51

Enable 5-Digit Add-On Code



@UPAAD50

** Disable 5-Digit Add-On Code

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of UPC-A barcodes with and without 2-digit/5-digit add-on codes.

Disable 2-Digit Add-On Code/ Disable 5-Digit Add-On Code: The scanner decodes UPC-A and ignores the add-on code when presented with a UPC-A plus add-on barcode. It can also decode UPC-A barcodes without add-on codes.

Add-On Code Required

When **UPC-A Add-On Code Required** is selected, the scanner will only read UPC-A barcodes that contain add-on codes.



@UPAREQ1

UPC-A Add-On Code Required



@UPAREQ0

** UPC-A Add-On Code Not Required



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

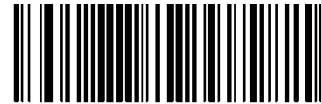
Transmit Preamble Character

Preamble characters (Country Code and System Character) can be transmitted as part of a UPC-A barcode. Select one of the following options for transmitting UPC-A preamble to the host device: transmit system character only or transmit system character and country code ("0" for USA).



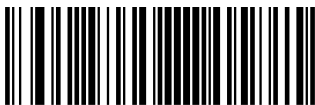
@UPAPRE1

System Character & Country Code



@UPAPRE0

**** System Character**



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Interleaved 2 of 5

Restore Factory Defaults



@I25DEF

Restore the Factory Defaults of Interleaved 2 of 5

Enable/Disable Interleaved 2 of 5



@I25ENA1

**** Enable Interleaved 2 of 5**



@I25ENA0

Disable Interleaved 2 of 5

Set Length Range for Interleaved 2 of 5



@I25MIN

Set the Minimum Length



@I25MAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Check Character Verification

A check character is optional for Interleaved 2 of 5 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

Disable: The scanner transmits Interleaved 2 of 5 barcodes as is.

Do Not Transmit Check Character After Verification: The scanner checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

Transmit Check Character After Verification: The scanner checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.



@I25CHK0

** Disable



@I25CHK1

Do Not Transmit Check Character After Verification



@I25CHK2

Transmit Check Character After Verification



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Febraban

Disable/Enable Febraban



@I25FBB0

**** Disable Febraban**



@I25FBB1

Enable Febraban, Do Not Expand



@I25FBB2

Enable Febraban, Expand

Transmit Delay

This feature is available only when USB HID-KBW is enabled. **Transmit Delay per Character** applies to both Expanded and Unexpanded Febraban while **Transmit Delay per 12 Characters** applies to Expanded Febraban only.



@FEBSEN0

**** Disable Transmit Delay per Character**



@FEBSEN1

Enable Transmit Delay per Character



@FEBMEN0

**** Disable Transmit Delay per 12 Characters**



@FEBMEN1

Enable Transmit Delay per 12 Characters



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Transmit Delay per Character: This parameter is programmable in 5ms increments from 0ms to 75ms. To set it, scan the **Set Transmit Delay per Character** barcode, numeric barcode(s) that represent a desired value and the **Save** barcode. See **Appendix 5** for more information. The default value is 70ms.



@FEBSDT

Set Transmit Delay per Character

Transmit Delay per 12 Characters: Set the transmit delay per 12 characters by scanning the appropriate barcode below, according to your actual needs.



@FEBMDT3

** Set Transmit Delay per 12 Characters to 500ms



@FEBMDT0

Set Transmit Delay per 12 Characters to 0ms



@FEBMDT1

Set Transmit Delay per 12 Characters to 300ms



@FEBMDT2

Set Transmit Delay per 12 Characters to 400ms



@FEBMDT4

Set Transmit Delay per 12 Characters to 600ms



@FEBMDT5

Set Transmit Delay per 12 Characters to 700ms



@FEBMDT6

Set Transmit Delay per 12 Characters to 800ms



@FEBMDT7

Set Transmit Delay per 12 Characters to 900ms



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

ITF-14

ITF-14 is a special kind of Interleaved 2 of 5 with a length of 14 characters and the last character as the check character.



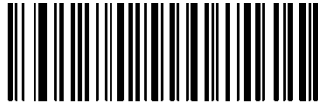
@I14DEF

Restore the Factory Defaults of ITF-14



@I14ENA0

Disable ITF-14



@I14ENA1

**** Enable ITF-14 But Do Not Transmit Check Character**



@I14ENA2

Enable ITF-14 and Transmit Check Character

Note: It is advisable not to enable ITF-14 and Interleaved 2 of 5 at the same time.



@SETUPN0

**** Exit Setup**

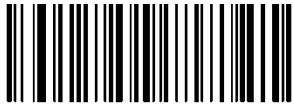


@SETUPN1

Enter Setup

ITF-6

ITF-6 is a special kind of Interleaved 2 of 5 with a length of 6 characters and the last character as the check character.



@IT6DEF

Restore the Factory Defaults of ITF-6



@IT6ENA0

** Disable ITF-6



@IT6ENA1

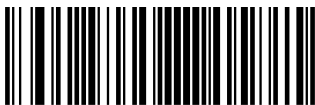
Enable ITF-6 But Do Not Transmit Check Character



@IT6ENA2

Enable ITF-6 and Transmit Check Character

Note: It is advisable not to enable ITF-6 and Interleaved 2 of 5 at the same time.



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Matrix 2 of 5

Restore Factory Defaults



@M25DEF

Restore the Factory Defaults of Matrix 2 of 5

Enable/Disable Matrix 2 of 5



@M25ENA1

Enable Matrix 2 of 5



@M25ENA0

**** Disable Matrix 2 of 5**

Set Length Range for Matrix 2 of 5



@M25MIN

Set the Minimum Length



@M25MAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Check Character Verification



@M25CHK0

Disable



@M25CHK1

**** Do Not Transmit Check Character After Verification**



@M25CHK2

Transmit Check Character After Verification



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Industrial 2 of 5

Restore Factory Defaults



@L25DEF

Restore the Factory Defaults of Industrial 2 of 5

Enable/Disable Industrial 2 of 5



@L25ENA1

**** Enable Industrial 2 of 5**



@L25ENA0

Disable Industrial 2 of 5

Set Length Range for Industrial 2 of 5



@L25MIN

Set the Minimum Length



@L25MAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Check Character Verification



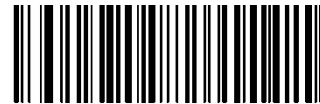
@L25CHK0

**** Disable**



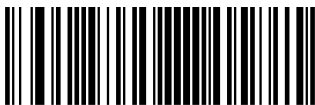
@L25CHK2

Transmit Check Character After Verification



@L25CHK1

Do Not Transmit Check Character After Verification



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Standard 2 of 5 (IATA 2 of 5)

Restore Factory Defaults



@S25DEF

Restore the Factory Defaults of Standard 25

Enable/Disable Standard 25



@S25ENA1

**** Enable Standard 25**



@S25ENA0

Disable Standard 25

Set Length Range for Standard 25



@S25MIN

Set the Minimum Length



@S25MAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Check Character Verification



@S25CHK0

**** Disable**



@S25CHK2

Transmit Check Character After Verification



@S25CHK1

Do Not Transmit Check Character After Verification



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Code 39

Restore Factory Defaults



@C39DEF

Restore the Factory Defaults of Code 39

Enable/Disable Code 39



@C39ENA1

**** Enable Code 39**



@C39ENA0

Disable Code 39

Transmit Start/Stop Character



@C39TSC1

Transmit Start/Stop Character



@C39TSC0

**** Do Not Transmit Start/Stop Character**



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Set Length Range for Code 39



@C39MIN

Set the Minimum Length



@C39MAX

Set the Maximum Length

Check Character Verification



@C39CHK0

** Disable



@C39CHK2

Transmit Check Character After Verification



@C39CHK1

Do Not Transmit Check Character After Verification

Enable/Disable Code 39 Full ASCII

The scanner can be configured to identify all ASCII characters by scanning the appropriate barcode below.



@C39ASC1

** Enable Code 39 Full ASCII



@C39ASC0

Disable Code 39 Full ASCII



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Enable/Disable Code 32

Code 32 is a variant of Code 39 used by the Italian pharmaceutical industry. Scan the appropriate bar code below to enable or disable Code 32. Code 39 must be enabled and Code 39 check character verification must be disabled for this parameter to function.



@C39E320

**** Disable Code 32**



@C39E321

Enable Code 32

Code 32 Prefix

Scan the appropriate barcode below to enable or disable adding the prefix character "A" to all Code 32 barcodes. Code 32 must be enabled for this parameter to function.



@C39S320

**** Disable Code 32 Prefix**



@C39S321

Enable Code 32 Prefix



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

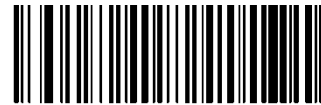
Transmit Code 32 Check Character

Code 32 must be enabled for this parameter to function.



@C39C320

**** Do Not Transmit Code 32 Check Character**



@C39C321

Transmit Code 32 Check Character

Transmit Code 32 Start/Stop Character

Code 32 must be enabled for this parameter to function.



@C39T320

**** Do Not Transmit Code 32 Start/Stop Character**



@C39T321

Transmit Code 32 Start/Stop Character



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Codabar

Restore Factory Defaults



@CBADEF

Restore the Factory Defaults of Codabar

Enable/Disable Codabar



@CBAENA1

**** Enable Codabar**



@CBAENA0

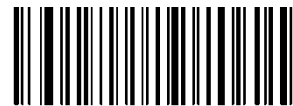
Disable Codabar

Set Length Range for Codabar



@CBAMIN

Set the Minimum Length



@CBAMAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Check Character Verification



@CBACHK0

**** Disable**



@CBACHK2

Transmit Check Character After Verification



@CBACHK1

Do Not Transmit Check Character After Verification

Transmit Start/Stop Character



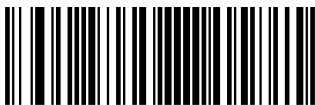
@CBATSC1

Transmit Start/Stop Character



@CBATSC0

**** Do Not Transmit Start/Stop Character**



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Start/Stop Character Format

You can choose your desired start/stop character format by scanning the appropriate barcode below.



@CBASCF0

**** ABCD/ABCD as the Start/Stop Character**



@CBASCF1

ABCD/TN*E as the Start/Stop Character



@CBASCF2

**** Start/Stop Character in Uppercase**



@CBASCF3

Start/Stop Character in Lowercase



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Code 93

Restore Factory Defaults



@C93DEF

Restore the Factory Defaults of Code 93

Enable/Disable Code 93



@C93ENA1

** Enable Code 93



@C93ENA0

Disable Code 93

Set Length Range for Code 93



@C93MIN

Set the Minimum Length



@C93MAX

Set the Maximum Length



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Check Character Verification



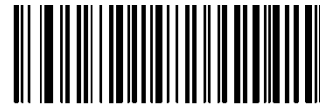
@C93CHK0

Disable



@C93CHK1

**** Do Not Transmit Check Character After Verification**



@C93CHK2

Transmit Check Character After Verification



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

GS1-Databar (RSS)

Restore Factory Defaults



@RSSDEF

Restore the Factory Defaults of GS1-Databar

Enable/Disable GS1 Databar



@RSSENA1

** Enable GS1-DataBar



@RSSENA0

Disable GS1-DataBar

Transmit Application Identifier "01"



@RSSTAI1

** Transmit Application Identifier "01"



@RSSTAI0

Do Not Transmit Application Identifier "01"



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Code 11

Restore Factory Defaults



@C11DEF

Restore the Factory Defaults of Code 11

Enable/Disable Code 11



@C11ENA1

**** Enable Code 11**



@C11ENA0

Disable Code 11

Set Length Range for Code 11



@C11MIN

Set the Minimum Length



@C11MAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Transmit Check Character



@C11TCK1

Transmit Check Character



@C11TCK0

** Do Not Transmit Check Character

Check Character Verification



@C11CHK0

Disable



@C11CHK1

** One Check Character, MOD11



@C11CHK2

Two Check Characters, MOD11/MOD11



@C11CHK3

Two Check Characters, MOD11/MOD9



@C11CHK4

One Check Character, MOD11 (Len<=10)
Two Check Characters, MOD11/MOD11 (Len>10)



@C11CHK5

One Check Character, MOD11 (Len<=10)
Two Check Characters, MOD11/MOD9 (Len>10)



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Plessey

Restore Factory Defaults



@PLYDEF

Restore the Factory Defaults of Plessey

Enable/Disable Plessey



@PLYENA1

**** Enable Plessey**



@PLYENA0

Disable Plessey

Set Length Range for Plessey



@PLYMIN

Set the Minimum Length



@PLYMAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Check Character Verification



@PLYCHK0

Disable



@PLYCHK1

**** Do Not Transmit Check Character After Verification**



@PLYCHK2

Transmit Check Character After Verification



@SETUPN0

**** Exit Setup**

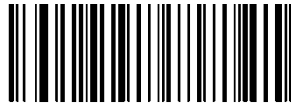


@SETUPN1

Enter Setup

MSI-Plessey

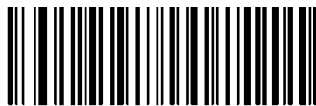
Restore Factory Defaults



@MSIDEF

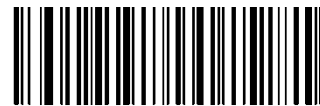
Restore the Factory Defaults of MSI-Plessey

Enable/Disable MSI-Plessey



@MSIENA1

**** Enable MSI-Plessey**



@MSIENA0

Disable MSI-Plessey

Set Length Range for MSI-Plessey



@MSIMIN

Set the Minimum Length



@MSIMAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Transmit Check Character



@MSITCK1

Transmit Check Character



@MSITCK0

** Do Not Transmit Check Character

Check Character Verification



@MSICLK0

Disable



@MSICLK1

** One Check Character, MOD10



@MSICLK2

Two Check Characters, MOD10/MOD10



@MSICLK3

Two Check Characters, MOD10/MOD11



@SETUPN0

** Exit Setup



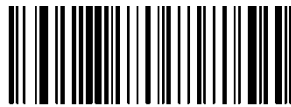
@SETUPN1

Enter Setup

2D Symbolologies

PDF417

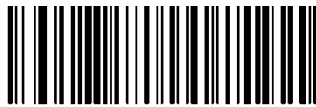
Restore Factory Defaults



@PDFDEF

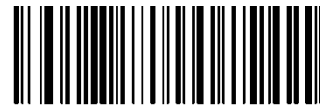
Restore the Factory Defaults of PDF417

Enable/Disable PDF417



@PDFENA1

** Enable PDF417



@PDFENA0

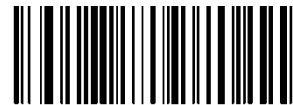
Disable PDF417

Set Length Range for PDF417



@PDFMIN

Set the Minimum Length



@PDFMAX

Set the Maximum Length



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

PDF 417 Twin Code

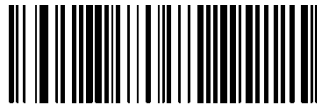
PDF417 twin code is 2 PDF417 barcodes paralleled vertically or horizontally. They must both be either regular or inverse barcodes. They must have similar specifications and be placed closely together.

There are 3 options for reading PDF417 twin codes:

Single PDF417 Only: Read either PDF417 code.

Twin PDF417 Only: Read both PDF417 codes.

Both Single & Twin: Read both PDF417 codes. If successful, transmit as twin PDF417 only. Otherwise, try single PDF417 only.



@PDFDOU0

**** Single PDF417 Only**



@PDFDOU1

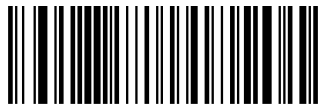
Twin PDF417 Only



@PDFDOU2

Both Single & Twin

Character Encoding



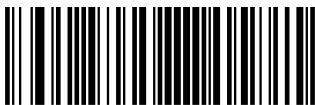
@PDFENC0

**** Default Character Encoding**



@PDFENC1

UTF-8



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Enable/Disable PDF417 ECI Output



@PDFECI0

Disable PDF417 ECI Output



@PDFECI1

**** Enable PDF417 ECI Output**



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

QR Code

Restore Factory Defaults



@QRCDEF

Restore the Factory Defaults of QR Code

Enable/Disable QR Code



@QRCENA1

** Enable QR Code



@QRCENA0

Disable QR Code

Set Length Range for QR Code



@QRCMIN

Set the Minimum Length



@QRCMAX

Set the Maximum Length

Micro QR



@QRCMCR1

** Enable Micro QR



@QRCMCR0

Disable Micro QR



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

QR Twin Code

QR twin code is 2 QR barcodes paralleled vertically or horizontally. They must both be either regular or inverse barcodes. They must have similar specifications and be placed closely together.

There are 3 options for reading QR twin codes:

Single QR Only: Read either QR code.

Twin QR Only: Read both QR codes.

Both Single & Twin: Read both QR codes. If successful, transmit as twin QR only. Otherwise, try single QR only.



@QRCDU0

**** Single QR Only**



@QRCDU1

Twin QR Only



@QRCDU2

Both Single & Twin

Character Encoding



@QRCENC0

**** Default Character Encoding**



@QRCENC1

UTF-8



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Enable/Disable QR ECI Output



@QRCECI0

Disable QR ECI Output



@QRCECI1

**** Enable QR ECI Output**



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Data Matrix

Restore Factory Defaults



@DMCDEF

Restore the Factory Defaults of Data Matrix

Enable/Disable Data Matrix



@DMCENA1

**** Enable Data Matrix**



@DMCENA0

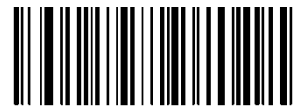
Disable Data Matrix

Set Length Range for Data Matrix



@DMCMIN

Set the Minimum Length



@DMCMAX

Set the Maximum Length



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Rectangular Barcode



@DMCREC1

**** Enable Rectangular Barcode**



@DMCREC0

Disable Rectangular Barcode

Data Matrix Twin Code

Data Matrix twin code is 2 Data Matrix barcodes paralleled vertically or horizontally. They must both be either regular or inverse barcodes. They must have similar specifications and be placed closely together.

There are 3 options for reading Data Matrix twin codes:

Single Data Matrix Only: Read either Data Matrix code.

Twin Data Matrix Only: Read both Data Matrix codes. Transmission order: Data Matrix code on the left (in the upper position) followed by the one on the right (in the lower position).

Both Single & Twin: Read both Data Matrix codes. If successful, transmit as twin Data Matrix only. Otherwise, try single Data Matrix only.



@DMCDOU0

**** Single Data Matrix Only**



@DMCDOU1

Twin Data Matrix Only



@DMCDOU2

Both Single & Twin



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Character Encoding



@DMCENC0

**** Default Character Encoding**



@DMCENC1

UTF-8

Enable/Disable Data Matrix ECI Output



@DMCEC0

Disable Data Matrix ECI Output



@DMCEC1

**** Enable Data Matrix ECI Output**



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Chinese Sensible Code

Restore Factory Defaults



@CSCDEF

Restore the Factory Defaults of Chinese Sensible Code

Enable/Disable Chinese Sensible Code



@CSCENA1

Enable Chinese Sensible Code



@CSCENA0

** Disable Chinese Sensible Code

Set Length Range for Chinese Sensible Code



@CSCMIN

Set the Minimum Length



@CSCMAX

Set the Maximum Length



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Chapter 9 Image Control

Image Flipping

You may flip the image captured by the scanner to meet actual need by scanning the appropriate barcode on the next page. The following figures illustrate original image and three flipped images.



Original Image



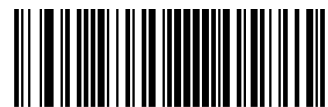
Image Flipped Horizontally



Image Flipped Vertically



Image Flipped Horizontally and Vertically



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup



@MIRROR0

**** Do Not Flip**



@MIRROR1

Flip Vertically



@MIRROR2

Flip Horizontally



@MIRROR3

Flip Horizontally and Vertically



@SETUPN0

**** Exit Setup**



@SETUPN1
Enter Setup

Chapter 10 Data Formatter

Introduction

You may use the Data Formatter to modify the scanner's output. For example, you can use the Data Formatter to insert characters at certain points in barcode data or to suppress/ replace/ send certain characters in barcode data as it is scanned.

Normally, when you scan a barcode, it gets outputted automatically; however, when you create a format, you must use a “send” command (see the “Send Commands” section in this chapter) within the format programming to output data. The maximum size of formatter commands in a data format is 112 characters. By default, the data formatter is disabled. Enable it when required. If you have changed data format settings, and wish to clear all formats and return to the factory defaults, scan the **Default Data Format** code below.

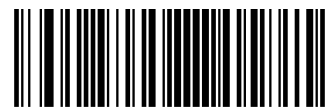


**** Default Data Format**

Add a Data Format

Data format is used to edit barcode data only. You can program up to four data formats, i.e. Format_0, Format_1, Format_2 and Format_3. When you create a data format, you must specify the application scope of your data format (such as barcode type and data length) and include formatter commands. When scanned data does not match your data format requirements, you will hear the non-match error beep (if the non-match error beep is ON).

The following explains how to program a data format by scanning the specific barcodes. Scanning any irrelevant barcode or failing to follow the setting procedure will result in programming failure. To find the alphanumeric barcodes needed to create a data format, see **Appendix 6: Digit Barcodes**.



@SETUPN0
**** Exit Setup**



@SETUPN1

Enter Setup

Step 1: Scan the **Enter Setup** barcode.

Step 2: Scan the **Add Data Format** barcode.



@DFMSET

Add Data Format

Step 3: Select data format.

Scan a numeric barcode **0** or **1** or **2** or **3** to set this to Format_0 or Format_1 or Format_2 or Format_3.

Step 4: Select formatter command type.

Specify what type of formatter commands will be used. Scan a numeric barcode “6” to select formatter command type 6. (See the “Formatter Command Type 6” section in this chapter for more information)

Step 5: Set interface type

Scan **999** for any interface type.

Step 6: Set Symbology ID Number

Refer to **Appendix 10: Symbology ID Number** and find the ID number of the symbology to which you want to apply the data format. Scan three numeric barcodes for the symbology ID number. If you wish to create a data format for all symbologies, scan **999**.

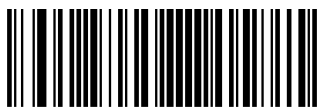
Step 7: Set barcode data length

Specify what length of data will be acceptable for this symbology. Scan the four numeric barcodes that represent the data length. 9999 is a universal number, indicating all lengths. For example, 32 characters should be entered as 0032.

Step 8: Enter formatter command

Refer to the “Formatter Command Type 6” section in this chapter. Scan the alphanumeric barcodes that represent the command you need to edit data. For example, when a command is F141, you should scan F141. A command can contain up to 112 characters.

Step 9: Scan the **Save** barcode from **Appendix 7: Save/Cancel Barcodes** to save your data format.



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

To streamline the programming process, you may as well generate a batch barcode by inputting the command (e.g. **@DFMSET069990020010F141;**) used to create a data format. See the “Use Batch Barcode” section in Chapter 11 to learn how to put a batch barcode into use.

Example: Program format_0 using formatter command type 6, Code 128 containing 10 characters applicable, send all characters followed by “A”.

- | | |
|---|---|
| 1. Scan the Enter Setup barcode | Enter the Setup mode |
| 2. Scan the Add Data Format barcode | Add a data format |
| 3. Scan the 0 barcode | Select format_0 |
| 4. Scan the 6 barcode | Select formatter command type 6 |
| 5. Scan the 9 barcode three times | All interface types applicable |
| 6. Scan the barcodes 002 | Only Code 128 applicable |
| 7. Scan the barcodes 0010 | Only a length of 10 characters applicable |
| 8. Scan the alphanumeric barcodes F141 | Send all characters followed by “A” (HEX: 41) |
| 9. Scan the Save barcode | Save the data format |



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Enable/Disable Data Formatter

When Data Formatter is disabled, the data format you have enabled becomes invalid.



@DFMENA0

**** Disable Data Formatter**

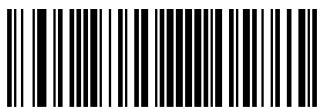
You may wish to require the data to conform to a data format you have created. The following settings can be applied to your data format:

Enable Data Formatter, Required, Keep Prefix/Suffix: Scanned data that meets your data format requirements is modified accordingly and gets outputted along with prefixes and suffixes (if prefix and suffix are enabled). Any data that does not match your data format requirements generates an error beep (if Non-Match Error Beep is turned ON) and the data in that barcode is not transmitted.

Enable Data Formatter, Required, Drop Prefix/Suffix: Scanned data that meets your data format requirements is modified accordingly and gets outputted without prefixes and suffixes (even if prefix and suffix are enabled). Any data that does not match your data format requirements generates an error beep (if Non-Match Error Beep is turned ON) and the data in that barcode is not transmitted.

Enable Data Formatter, Not Required, Keep Prefix/Suffix: Scanned data that meets your data format requirements is modified accordingly and gets outputted along with prefixes and suffixes (if prefix and suffix are enabled). Barcode data that does not match your data format requirements is transmitted as read along with prefixes and suffixes (if prefix and suffix are enabled).

Enable Data Formatter, Not Required, Drop Prefix/Suffix: Scanned data that meets your data format requirements is modified accordingly and gets outputted without prefixes and suffixes (even if prefix and suffix are enabled). Barcode data that does not match your data format requirements is transmitted as read along with prefixes and suffixes (if prefix and suffix are enabled).



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup



@DFMENA1

Enable Data Formatter, Required, Keep Prefix/Suffix



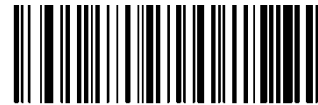
@DFMENA2

Enable Data Formatter, Required, Drop Prefix/Suffix



@DFMENA3

Enable Data Formatter, Not Required, Keep Prefix/Suffix



@DFMENA4

Enable Data Formatter, Not Required, Drop Prefix/Suffix

Non-Match Error Beep

If Non-Match Error Beep is turned ON, the scanner generates an error beep when a barcode is encountered that does not match your required data format.



@DFMTON1

**** Non-Match Error Beep ON**



@DFMTON0

Non-Match Error Beep OFF



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

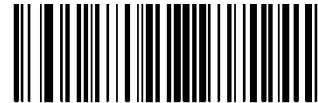
Data Format Selection

After enabling the Data Formatter, you may select a data format you want to use by scanning the appropriate barcode below.



@DFMUSE0

**** Format_0**



@DFMUSE1

Format_1



@DFMUSE2

Format_2



@DFMUSE3

Format_3

Change Data Format for a Single Scan

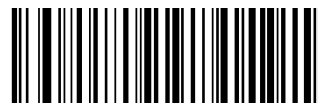
You can switch between data formats for a single scan. The next barcode is scanned using the data format selected here, then reverts to the format you have selected above. For example, you may have set your scanner to the data format you saved as Format_3. You can switch to Format_1 for a single scan by scanning the **Single Scan – Format_1** barcode below. The next barcode that is scanned uses Format_1, then reverts back to Format_3.

Note: This setting will be lost by removing power from the scanner, or turning off/ rebooting the device.



#DFMSIN0

Single Scan – Format_0



#DFMSIN1

Single Scan – Format_1



#DFMSIN2

Single Scan – Format_2



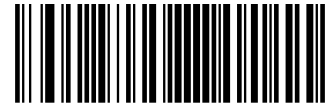
#DFMSIN3

Single Scan – Format_3



@SETUPN0

**** Exit Setup**



@SETUPN1

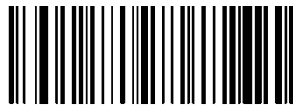
Enter Setup

Clear Data Format

There are two methods to remove data format from your scanner:

Delete one data format: Scan the **Clear One** barcode, a numeric barcode (0-3) and the **Save** barcode. For example, to delete Format_2, you should scan the **Clear One** barcode, the **2** barcode and the **Save** barcode.

Delete all data formats: Scan the **Clear All** barcode.



@DFMCAL

Clear All

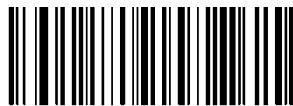


@DFMCLR

Clear One

Query Data Formats

You may scan the appropriate barcode below to get the information of data format(s) created by you or preset by manufacturer. For instance, if you have added Format_0 as per the example in the “Add a Data Format” section in this chapter, scanning the **Query Current Data Formats** barcode, you will get the result: **Data Format0:069990020010F141;**.



@DFMQCU

Query Current Data Formats



@DFMQFA

Query Preset Data Formats



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Formatter Command Type 6

When working with the Data Formatter, a virtual cursor is moved along your input data string. The following commands are used to both move this cursor to different positions, and to select, replace, and insert data into the final output. For the hex value of ASCII characters involved in the commands, refer to **Appendix 4: ASCII Table**.

Send Commands

F1 Send all characters

Syntax=F1xx (xx: The insert character's hex value)

Include in the output message all of the characters from the input message, starting from current cursor position, followed by an insert character.

F2 Send a number of characters

Syntax=F2nnxx (nn: The numeric value (00-99) for the number of characters; xx: The insert character's hex value)

Include in the output message a number of characters followed by an insert character. Start from the current cursor position and continue for "nn" characters or through the last character in the input message, followed by character "xx."

F2 Example: Send a number of characters



1234567890ABCDEFGHIJ

Send the first 10 characters from the barcode above, followed by a carriage return.

Command string: **F2100D**

F2 is the "Send a number of characters" command

10 is the number of characters to send

0D is the hex value for a CR

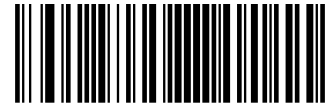
The data is output as: **1234567890**

<CR>



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

F3 Send all characters up to a particular character

Syntax=F3ssxx (ss: The particular character's hex value; xx: The insert character's hex value)

Include in the output message all characters from the input message, starting with the character at the current cursor position and continuing to, but not including, the particular character "ss," followed by character "xx." The cursor is moved forward to the "ss" character.

F3 Example: Send all characters up to a particular character



Using the barcode above, send all characters up to but not including "D," followed by a carriage return.

Command string: **F3440D**

F3 is the "Send all characters up to a particular character" command

44 is the hex value for a "D"

0D is the hex value for a CR

The data is output as: **1234567890ABC**

<CR>

E9 Send all but the last characters

Syntax=E9nn (nn: The numeric value (00-99) for the number of characters that will not be sent at the end of the message)

Include in the output message all but the last "nn" characters, starting from the current cursor position. The cursor is moved forward to one position past the last input message character included.

F4 Insert a character multiple times

Syntax=F4xxnn (xx: The insert character's hex value; nn: The numeric value (00-99) for the number of times it should be sent)

Send "xx" character "nn" times in the output message, leaving the cursor in the current position.



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

E9 and F4 Example: Send all but the last characters, followed by 2 tabs



Send all characters except for the last 8 from the barcode above, followed by 2 tabs.

Command string: **E908F40902**

E9 is the “Send all but the last characters” command

08 is the number of characters at the end to ignore

F4 is the “Insert a character multiple times” command

09 is the hex value for a horizontal tab

02 is the number of times the tab character is sent

The data is output as: **1234567890AB<tab><tab>**

B3 Insert symbology name

Insert the name of the barcode’s symbology in the output message, without moving the cursor.

B4 Insert barcode length

Insert the barcode’s length in the output message, without moving the cursor. The length is expressed as a numeric string and does not include leading zeros.



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

B3 and B4 Example: Insert the symbology name and length



Send the symbology name and length before the barcode data from the barcode above. Break up these insertions with spaces. End with a carriage return.

Command string: **B3F42001B4F42001F10D**

B3 is the "Insert symbology name" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of time the space character is sent

B4 is the "Insert barcode length" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of time the space character is sent

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **Code128 20 1234567890ABCDEFGHIJ**
<CR>

Move Commands

F5 Move the cursor forward a number of characters

Syntax=F5nn (nn: The numeric value (00-99) for the number of characters the cursor should be moved ahead)

Move the cursor ahead "nn" characters from current cursor position.



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

F5 Example: Move the cursor forward and send the data



Move the cursor forward 3 characters, then send the rest of the barcode data from the barcode above.
End with a carriage return.

Command string: **F503F10D**

F5 is the “Move the cursor forward a number of characters” command

03 is the number of characters to move the cursor

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **4567890ABCDEFGHIJ**

<CR>

F6 Move the cursor backward a number of characters

Syntax=F6nn (nn: The numeric value (00-99) for the number of characters the cursor should be moved back)

Move the cursor back “nn” characters from current cursor position.

F7 Move the cursor to the beginning

Syntax=F7

Move the cursor to the first character in the input message.

EA Move the cursor to the end

Syntax=EA

Move the cursor to the last character in the input message.



@SETUPN0

**** Exit Setup**



@SETUPN1

Enter Setup

Search Commands

F8 Search forward for a character

Syntax=F8xx (xx: The search character's hex value)

Search the input message forward for "xx" character from the current cursor position, leaving the cursor pointing to the "xx" character.

F8 Example: Send barcode data that starts after a particular character



Search for the letter "D" in barcodes and send all the data that follows, including the "D". Using the barcode above:

Command string: **F844F10D**

F8 is the "Search forward for a character" command

44 is the hex value for "D"

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **DEFGHIJ**

<CR>

F9 Search backward for a character

Syntax=F9xx (xx: The search character's hex value)

Search the input message backward for "xx" character from the current cursor position, leaving the cursor pointing to the "xx" character.



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

B0 Search forward for a string

Syntax=B0nnnnS (nnnn: The string length (up to 9999); S: The ASCII hex value of each character in the string)

Search forward for “S” string from the current cursor position, leaving cursor pointing to “S” string. For example, B0000454657374 will search forward for the first occurrence of the 4-character string “Test.”

B0 Example: Send barcode data that starts after a string of characters



1234567890ABCDEFGHIJ

Search for the letters “FGH” in barcodes and send all the data that follows, including “FGH.” Using the barcode above:

Command string: **B00003464748F10D**

B0 is the “Search forward for a string” command

0003 is the string length (3 characters)

46 is the hex value for “F”

47 is the hex value for “G”

48 is the hex value for “H”

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **FGHIJ**

<CR>

B1 Search backward for a string

Syntax=B1nnnnS (nnnn: The string length (up to 9999); S: The ASCII hex value of each character in the string)

Search backward for “S” string from the current cursor position, leaving cursor pointing to “S” string. For example, B1000454657374 will search backward for the first occurrence of the 4-character string “Test.”



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

E6 Search forward for a non-matching character

Syntax=E6xx (xx: The search character's hex value)

Search the input message forward for the first non-"xx" character from the current cursor position, leaving the cursor pointing to the non-"xx" character.

E6 Example: Remove zeros at the beginning of barcode data



This example shows a barcode that has been zero filled. You may want to ignore the zeros and send all the data that follows. E6 searches forward for the first character that is not zero, then sends all the data after, followed by a carriage return. Using the barcode above:

Command string: **E630F10D**

E6 is the "Search forward for a non-matching character" command

30 is the hex value for 0

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **37692**

<CR>

E7 Search backward for a non-matching character

Syntax=E7xx (xx: The search character's hex value)

Search the input message backward for the first non-"xx" character from the current cursor position, leaving the cursor pointing to the non-"xx" character.



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Miscellaneous Commands

FB Suppress characters

Syntax=FBnnxxyy..zz (nn: The numeric value (00-15) for the number of suppressed characters; xxyy..zz: The hex value of the characters to be suppressed)

Suppress all occurrences of up to 15 different characters, starting at the current cursor position, as the cursor is advanced by other commands.

FB Example: Remove spaces in barcode data



345 678 90

This example shows a barcode that has spaces in the data. You may want to remove the spaces before sending the data. Using the barcode above:

Command string: **FB0120F10D**

FB is the “Suppress characters” command

01 is the number of the characters to be suppressed

20 is the hex value for a space

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **34567890**

<CR>



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

E4 Replace characters

Syntax=E4nnxx₁xx₂yy₁yy₂...zz₁zz₂ (nn: The total count of the number of characters (characters to be replaced plus replacement characters; xx₁: The characters to be replaced, xx₂: The replacement characters, continuing through zz₁ and zz₂)

Replace up to 15 characters in the output message, without moving the cursor.

E4 Example: Replace zeros with CRs in barcode data



If the barcode has characters that the host application does not want included, you can use the E4 command to replace those characters with something else. In this example, you will replace the zeros in the barcode above with carriage returns.

Command string: **E402300DF10D**

E4 is the “Replace characters” command

02 is the total count of characters to be replaced, plus the replacement characters (0 is replaced by CR, so total characters=2)

30 is the hex value for 0

0D is the hex value for a CR (the character that will replace the 0)

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **1234**

5678

ABC

<CR>



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

BA Replace a string with another

Syntax=BA nn NN $_1$ SS $_1$ NN $_2$ SS $_2$

nn : The count of replacements to be made, if $nn=00$ or $nn>=$ the number of occurrences of a string to be replaced, then replace all occurrences of that string.

NN $_1$: The length of the string to be replaced, NN $_1>0$.

SS $_1$: The ASCII hex value of each character in the string to be replaced.

NN $_2$: The length of replacement string, NN $_2>=0$. To replace string "SS $_1$ " with NUL (i.e. delete string "SS $_1$ "), you should set NN $_2$ to 00 and leave out SS $_2$.

SS $_2$: The ASCII hex value of each character in the replacement string

From the current cursor position, search forward for the occurrence of "SS $_1$ " string (of length "NN $_1$ ") and replace the string with "SS $_2$ " string (of length "NN $_2$ ") in the output message until every "SS $_1$ " string is replaced or the count of replacements made reaches " nn " times, without moving the cursor.

BA Example: Replace "23"s with "ABC"s in barcode data



cd123abc23bc12ab232

If the barcode has a string of characters that the host application does not want included, you can use the BA command to replace the string with something else. In this example, you will replace the "23"s in the barcode above with "ABC"s.

Command string: **BA0002323303414243F100**

BA is the "Replace a string with another" command

00 is the count of replacements to be made, 00 means to replace all occurrences of that string

02 is the length of the string to be replaced



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

32 is the hex value for 2 (character in the string to be replaced)

33 is the hex value for 3 (character in the string to be replaced)

03 is the length of the replacement string

41 is the hex value for A (character in the replacement string)

42 is the hex value for B (character in the replacement string)

43 is the hex value for C (character in the replacement string)

F1 is the "Send all characters" command

00 is the hex value for a NUL

The data is output as: **cd1ABCabcABCbc12abABC2**

BA Example: Remove only the first occurrence of "23"s in barcode data

If the barcode has a string of characters that the host application wants removed, you can use the BA command to replace the string with NUL. In this example, you will remove the first occurrence of "23" in the barcode above.

Command string: **BA0102323300F100**

BA is the "Replace a string with another" command

01 is the count of replacements to be made

02 is the length of the string to be replaced

32 is the hex value for 2 (character in the string to be replaced)

33 is the hex value for 3 (character in the string to be replaced)

00 is the length of the replacement string, 00 means to replace the string to be replaced with NUL

F1 is the "Send all characters" command

00 is the hex value for a NUL

The data is output as: **cd1abc23bc12ab232**



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

EF Insert a delay

Syntax=EFnnnn (nnnn: The delay in 5ms increments, up to 9999)

Inserts a delay of up to 49,995 milliseconds (in multiples of 5), starting from the current cursor position. This command can only be used with USB HID-KBW.

EF Example: Insert a delay of 1s in between the 5th and 6th character

Send the first 5 characters in a barcode, wait for 1s, then send the rest of the barcode data.

Command string: **F20500EF0200E900**

F2 is the “Send a number of characters” command

05 is the number of characters to send

00 is the hex value for a Null character

EF is the “Insert a delay” command

0200 is the delay value (5msX200=1000ms=1s)

E9 is the “Send all but the last characters” command

00 is the number of characters that will not be sent at the end of the message



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Chapter 11 Batch Programming

Introduction

Batch programming enables users to integrate a batch of commands into a single batch barcode.

Listed below are batch programming rules:

1. Command format: Command + Parameter Value.
2. Each command is terminated by a semicolon (;). Note that there is no space between a command and its terminator semicolon.
3. Use the barcode generator software to generate a 2D batch barcode.

Example: Create a batch barcode for **ILLUMINATION Always On, Sense Mode, Decode Session Timeout = 2s**:

1. Input the commands:

@ILLSCN2;SCNMOD2;ORTSET2000;

2. Generate a batch barcode.

When setting up a scanner with the above configuration, scan the **Enable Batch Barcode** barcode and then the batch barcode generated.



@BATCHS

Enable Batch Barcode



@SETUPN0

** Exit Setup



@SETUPN1

Enter Setup

Create a Batch Command

A batch command may contain a number of individual commands each of which is terminated by a semicolon (;).

For more information, refer to the *Serial Programming Command Manual*.

Create a Batch Barcode

Batch barcodes can be produced in the format of PDF417, QR Code or Data Matrix.

Example: Create a batch barcode for **Illumination Always On, Sense Mode, Decode Session Timeout = 2s**:

1. Input the following commands:

@ILLSCN2;SCNMOD2;ORTSET2000;

2. Generate a PDF417 batch barcode.



@SETUPN0

** Exit Setup

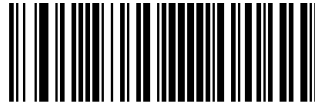


@SETUPN1

Enter Setup

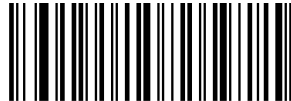
Use Batch Barcode

To put a batch barcode into use, scan the following barcodes. (Use the example above.)



@SETUPN1

Enter Setup



@BATCHS

Enable Batch Barcode



Batch Barcode



@SETUPN0

Exit Setup



@SETUPN0

**** Exit Setup**

Chapter 12 Troubleshooting

FAQ

Problem: Some barcodes cannot be read.

Solution:

1. Find out the barcode type and verify that the barcode type is enabled. If the barcode parameters include check character verification, select the Disable option.
2. If you do not know the barcode type, enable all symbologies.
3. If they are inverse barcodes (bright images on a dark background), enable the Video Reverse feature.

Problem: Incorrect output.

Solution:

1. If this problem happens to all barcodes and additional characters appear before/after barcode data, disable all prefix/suffix.
2. If this problem only happens to some barcodes and matches one of the following situations:
 - a) incomplete barcode data: Enable the check character verification.
 - b) both the first and last characters are asterisks (*): Disable the transmission of start/stop characters of Code 39.
 - c) "a" transmitted as "+A": Enable Code 39 Full ASCII.

Problem: Barcodes can be read, but cannot be displayed.

Solution: Verify that the serial port parameter (such as baud rate, data bit and stop bit) settings match the host requirements.

Problem: Illumination beam is OFF.

Solution:

1. Verify that the scanner is properly powered up.
2. Send “?” to the scanner. If the scanner returns a reply of “!”, then send programming commands to turn illumination on.

Problem: Carriage Return/Line Feed settings.

Solution: See the “Terminating Character Suffix” section in Chapter 7.

Appendix

Appendix 1: Factory Defaults Table

Parameter		Factory Default	Remark
Programming Barcode			
Barcode Programming		Disabled	
Programming Barcode Data		Do not send	
Communication Settings			
RS-232	Baud Rate	115200	
	Parity Check	None	
	Data Bits	8	
	Stop Bits	1	
HID-KBW	USB Country Keyboard Type	U.S.	
	Beep on Unknown Character	Do not beep	
	Inter-Keystroke Delay	10ms	
	Convert Case	No conversion	
	Emulate ALT + Keypad	Disabled	
	Function Key Mapping	Disabled	
	Emulate Numeric Keypad	Disabled	
	Code Page	Windows 1252 (Latin I)	
	Polling Rate	1ms	
Scan Mode			
Default Scan Mode		Sense mode	

Parameter		Factory Default	Remark
Sense Mode	Decode Session Timeout	3,000ms	Applicable to Sense mode and Continuous mode. 100~3,600,000ms; 0: Infinite
	Image Stabilization Timeout	100ms	0~1,600ms
	Timeout between Decodes	200ms	Applicable to Sense mode and Continuous mode. 0~65,535ms
	Timeout between Decodes (Same Barcode)	Enabled 1,500ms	Applicable to Sense mode and Continuous mode. 0~65,535ms
	Threshold Value of Illumination Change	5 ()	1~16
Continuous Mode	Decode Session Timeout	3,000ms	Applicable to Sense mode and Continuous mode. 100~3,600,000ms; 0: Infinite
	Timeout between Decodes	200ms	Applicable to Sense mode and Continuous mode. 0~65,535ms
	Timeout between Decodes (Same Barcode)	Enabled 1,500ms	Applicable to Sense mode and Continuous mode. 0~65,535ms
Scanning Preferences			
Decode Area		Whole Area Decoding	
Specify Decoding Area		40% top, 60% bottom, 40% left, 60% right	
Illumination			
Illumination		Normal	

Parameter		Factory Default	Remark
Notifications			
Power On Beep		On	
Good Read Beep	Notification	On	
	Beep Type	Type 3	
	Beep Volume	Loud	
Good Read Voice Prompt Volume		Loud	
Bad Read Message		Off	
		None	0-7 characters
Prefix & Suffix			
Prefix Sequence		Custom Prefix+Code ID+AIM ID	
Custom Prefix		Disabled	
		None	
AIM ID Prefix		Disabled	
Code ID Prefix		Disabled	
Custom Suffix		Disabled	
		None	
Terminating Character Suffix		Enabled	
		0x0D,0x0A (CRLF)	
Image Control			
Image Flipping		Do not flip	
Data Formatter			
Data Formatter		Disabled	
Data Format Selection		Format_0	
Non-Match Error Beep		On	

Parameter	Factory Default	Remark
Symbologies		
Video Reverse	Off	Applicable to all symbologies.
Code 128		
Code 128	Enabled	
Maximum Length	127	
Minimum Length	1	
GS1-128 (UCC/EAN-128)		
GS1-128	Enabled	
Maximum Length	127	
Minimum Length	1	
AIM-128		
AIM-128	Enabled	
Maximum Length	127	
Minimum Length	1	
EAN-8		
EAN-8	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	

Parameter	Factory Default	Remark
<i>EAN-13</i>		
EAN-13	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
EAN-13 Beginning with 290 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 378/379 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 414/419 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 434/439 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 977 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 978 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 979 Add-On Code Required	Do Not Require Add-On Code	
<i>ISSN</i>		
ISSN	Disabled	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
<i>ISBN</i>		
ISBN	Enabled	
ISBN Format	ISBN-13	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	

Parameter	Factory Default	Remark
UPC-E		
UPC-E	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
System Character "0"	Transmit	
UPC-A		
UPC-A	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
System Character	Transmit	
Country Code	Do not transmit	
Interleaved 2 of 5		
Interleaved 2 of 5	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	100	
Minimum Length	6	
Febraban		
Febraban	Disabled	
Transmit Delay per Character	Disabled	
	70ms	
Transmit Delay per 12 Characters	Disabled	
	500ms	
ITF-6		
ITF-6	Disabled	
Check Character	Do not transmit	

Parameter	Factory Default	Remark
ITF-14		
ITF-14	Enabled	
Check Character	Do not transmit	
Matrix 2 of 5		
Matrix 2 of 5	Disabled	
Check Character Verification	Enabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Industrial 2 of 5		
Industrial 2 of 5	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Standard 2 of 5		
Standard 2 of 5	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Code 39		
Code 39	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Start/Stop Character	Do not transmit	
Code 39 Full ASCII	Enabled	
Code 32	Disabled	
Code 32 Prefix	Disabled	
Code 32 Check Character	Do not transmit	
Code 32 Start/Stop Character	Do not transmit	
Maximum Length	127	
Minimum Length	2	

Parameter	Factory Default	Remark
Codabar		
Codabar	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Start/Stop Character	Do not transmit	
Start/Stop Character Format	ABCD/ABCD Uppercase	
Maximum Length	127	
Minimum Length	2	
Code 93		
Code 93	Enabled	
Check Character Verification	Enabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	3	
GS1 Databar		
GS1 Databar	Enabled	
Application Identifier "01"	Transmit	
Code 11		
Code 11	Enabled	
Check Character Verification	One check character,	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	2	
Plessey		
Plessey	Enabled	
Check Character Verification	Enabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	1	

Parameter	Factory Default	Remark
MSI-Plessey		
MSI-Plessey	Enabled	
Check Character Verification	One check character, MOD10	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	2	
PDF 417		
PDF 417	Enabled	
Maximum Length	2710	
Minimum Length	1	
PDF 417 Twin Code	Read single PDF417 only	
Character Encoding	Default Character Encoding	
PDF417 ECI Output	Enabled	
QR Code		
QR Code	Enabled	
Micro QR	Enabled	
Maximum Length	7089	
Minimum Length	1	
QR Twin Code	Read single QR only	
Character Encoding	Default Character Encoding	
QR ECI Output	Enabled	
Data Matrix		
Data Matrix	Enabled	
Rectangular Barcode	Enabled	
Mirror Image	Decode	
Maximum Length	3116	
Minimum Length	1	
DM Twin Code	Read single DM only	
Character Encoding	Default Character Encoding	
Data Matrix ECI Output	Enabled	
Chinese Sensible Code		
Chinese Sensible Code	Disabled	
Maximum Length	7827	
Minimum Length	1	

Appendix 2: AIM ID Table

Symbology	AIM ID	Remark
EAN-13	JE0	Standard EAN-13
	JE3	EAN-13 + 2/5-Digit Add-On Code
EAN-8	JE4	Standard EAN-8
	JE4...JE1...	EAN-8 + 2-Digit Add-On Code
	JE4...JE2...	EAN-8 + 5-Digit Add-On Code
UPC-E	JE0	Standard UPC-E
	JE3	UPC-E + 2/5-Digit Add-On Code
UPC-A	JE0	Standard UPC-A
	JE3	UPC-A + 2/5-Digit Add-On Code
Code 128	JC0	Standard Code 128
GS1-128 (UCC/EAN-128)	JC1	FNC1 is the character right after the start character
AIM-128	JC2	FNC1 is the 2nd character after the start character
ISBT-128	JC4	
Interleaved 2 of 5 Febraban	JI0	No check character verification
	JI1	Transmit check character after verification
	JI3	Do not transmit check character after verification
ITF-6	JI1	Transmit check character
	JI3	Do not transmit check character
ITF-14	JI1	Transmit check character
	JI3	Do not transmit check character
Industrial 2 of 5	JS0	Not specified
Standard 2 of 5	JR0	No check character verification
	JR8	MOD10; do not transmit check character
	JR9	MOD10; transmit check character
Code 39 Code 32	JA0	Transmit barcodes as is; Full ASCII disabled; no check character verification
	JA1	MOD43; transmit check character
	JA3	MOD43; do not transmit check character
	JA4	Full ASCII enabled; no check character verification
	JA5	Full ASCII enabled; transmit check character
	JA7	Full ASCII enabled; do not transmit check character
Codabar	JF0	Standard Codabar
	JF2	Transmit check character after verification
	JF4	Do not transmit check character after verification

Symbology	AIM ID	Remark
Code 93	JG0	Standard Code 93
Code 11	JH0	MOD11; transmit check character
	JH1	MOD11/MOD11; transmit check character
	JH3	Do not transmit check character after verification
	JH9	No check character verification
GS1-DataBar (RSS)	Je0	Standard GS1-DataBar
Plessey	JP0	Standard Plessey
MSI-Plessey	JM0	MOD10; transmit check character
	JM1	MOD10; do not transmit check character
	JM7	MOD10/ MOD11; do not transmit check character
	JM8	MOD10/ MOD11; transmit check character
	JM9	No check character verification
Matrix 2 of 5	JX0	Specified by the manufacturer
	JX1	No check character verification
	JX2	MOD10; transmit check character
	JX3	MOD11; do not transmit check character
ISBN	JX4	Standard ISBN
ISSN	JX5	Standard ISSN
PDF417	JL0	Comply with 1994 PDF417 specifications
Data Matrix	Jd0	ECC000 - ECC140
	Jd1	ECC200
	Jd2	ECC200, FNC1 is the 1st or 5th character after the start character
	Jd3	ECC200, FNC1 is the 2nd or 6th character after the start character
	Jd4	ECC200, ECI included
	Jd5	ECC200, FNC1 is the 1st or 5th character after the start character, ECI included
	Jd6	ECC200, FNC1 is the 2nd or 6th character after the start character, ECI included
QR Code	JQ0	QR1
	JQ1	2005 version, ECI excluded
	JQ2	2005 version, ECI included
	JQ3	QR Code 2005, ECI excluded, FNC1 is the 1st character after the start character
	JQ4	QR Code 2005, ECI included, FNC1 is the 1st character after the start character
	JQ5	QR Code 2005, ECI excluded, FNC1 is the 2nd character after the start character
	JQ6	QR Code 2005, ECI included, FNC1 is the 2nd character after the start character
Chinese Sensible Code	JX0	

Reference: ISO/IEC 15424:2008 Information technology – Automatic identification and data capture techniques – Data Carrier Identifiers (including Symbology Identifiers).

Appendix 3: Code ID Table

Symbology	Code ID
Code 128	j
GS1-128 (UCC/EAN-128)	j
AIM-128	f
EAN-8	d
EAN-13	d
ISSN	n
ISBN	B
UPC-E	c
UPC-A	c
Interleaved 2 of 5, Febraban	e
ITF-6	e
ITF-14	e
Matrix 2 of 5	v
Industrial 2 of 5	D
Standard 2 of 5	s
Code 39, Code 32	b
Codabar	a
Code 93	i
Code 11	H
Plessey	p
MSI-Plessey	m
GS1 Databar	R
PDF417	r
QR Code	Q
Data Matrix	u
Chinese Sensible Code	h

Appendix 4: ASCII Table

Hex	Dec	Char
00	0	NUL (Null char.)
01	1	SOH (Start of Header)
02	2	STX (Start of Text)
03	3	ETX (End of Text)
04	4	EOT (End of Transmission)
05	5	ENQ (Enquiry)
06	6	ACK (Acknowledgment)
07	7	BEL (Bell)
08	8	BS (Backspace)
09	9	HT (Horizontal Tab)
0a	10	LF (Line Feed)
0b	11	VT (Vertical Tab)
0c	12	FF (Form Feed)
0d	13	CR (Carriage Return)
0e	14	SO (Shift Out)
0f	15	SI (Shift In)
10	16	DLE (Data Link Escape)
11	17	DC1 (XON) (Device Control 1)
12	18	DC2 (Device Control 2)
13	19	DC3 (XOFF) (Device Control 3)
14	20	DC4 (Device Control 4)
15	21	NAK (Negative Acknowledgment)
16	22	SYN (Synchronous Idle)
17	23	ETB (End of Trans. Block)
18	24	CAN (Cancel)
19	25	EM (End of Medium)
1a	26	SUB (Substitute)
1b	27	ESC (Escape)
1c	28	FS (File Separator)
1d	29	GS (Group Separator)

Hex	Dec	Char
1e	30	RS (Request to Send)
1f	31	US (Unit Separator)
20	32	SP (Space)
21	33	! (Exclamation Mark)
22	34	" (Double Quote)
23	35	# (Number Sign)
24	36	\$ (Dollar Sign)
25	37	% (Percent)
26	38	& (Ampersand)
27	39	` (Single Quote)
28	40	((Left / Opening Parenthesis)
29	41	) (Right / Closing Parenthesis)
2a	42	* (Asterisk)
2b	43	+ (Plus)
2c	44	, (Comma)
2d	45	- (Minus / Dash)
2e	46	. (Dot)
2f	47	/ (Forward Slash)
30	48	0
31	49	1
32	50	2
33	51	3
34	52	4
35	53	5
36	54	6
37	55	7
38	56	8
39	57	9
3a	58	: (Colon)
3b	59	; (Semi-colon)
3c	60	< (Less Than)
3d	61	= (Equal Sign)

Hex	Dec	Char
3e	62	> (Greater Than)
3f	63	? (Question Mark)
40	64	@ (AT Symbol)
41	65	A
42	66	B
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
4d	77	M
4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5a	90	Z
5b	91	[(Left / Opening Bracket)
5c	92	\ (Back Slash)
5d	93	] (Right / Closing Bracket)

Hex	Dec	Char
5e	94	^ (Caret / Circumflex)
5f	95	_ (Underscore)
60	96	' (Grave Accent)
61	97	a
62	98	b
63	99	c
64	100	d
65	101	e
66	102	f
67	103	g
68	104	h
69	105	i
6a	106	j
6b	107	k
6c	108	l
6d	109	m
6e	110	n
6f	111	o
70	112	p
71	113	q
72	114	r
73	115	s
74	116	t
75	117	u
76	118	v
77	119	w
78	120	x
79	121	y
7a	122	z
7b	123	{ (Left/ Opening Brace)
7c	124	(Vertical Bar)
7d	125	} (Right/Closing Brace)
7e	126	~ (Tilde)
7f	127	DEL (Delete)

Appendix 5: Parameter Programming Examples

The following examples show you how to program parameters by scanning programming barcodes.

a. Program the Decode Session Timeout

Example: Set the decode session timeout to 1500ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Decode Session Timeout** barcode from the “Decode Session Timeout” section in Chapter 3.
3. Scan the numeric barcodes “1”, “5”, “0” and “0”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

b. Program the Image Stabilization Timeout

Example: Set the image stabilization timeout to 500ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Image Stabilization Timeout** barcode from the “Image Stabilization Timeout” section in Chapter 3.
3. Scan the numeric barcodes “5”, “0” and “0”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

c. Program the Timeout between Decodes (Same Barcode)

Example: Set the timeout between decodes (same barcode) to 1000ms

1. Scan the **Enter Setup** barcode.
 2. Scan the **Timeout between Decodes (Same Barcode)** barcode from the “Timeout between Decodes (Same Barcode)” section in Chapter 3.
 3. Scan the numeric barcodes “1”, “0”, “0” and “0”.
 4. Scan the **Save** barcode.
 5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)
-

d. Program the Threshold Value of Illumination Change

Example: Set the threshold value of illumination change to 4

1. Scan the **Enter Setup** barcode.
2. Scan the **Threshold Value of Illumination Change** barcode from the “Sensitivity” section in Chapter 3.
3. Scan the numeric barcode “4”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

e. Program the Timeout between Decodes

Example: Set the timeout between decodes to 500ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Timeout between Decodes** barcode from the “Timeout between Decodes” section in Chapter 3.
3. Scan the numeric barcodes “5”, “0” and “0”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

f. Program the Decoding Area

Example: Set the decoding area to 20% top, 80% bottom, 20% left and 80% right.

1. Scan the **Enter Setup** barcode.
2. Scan the **Specific Area Decoding** barcode from the “Specific Area Decoding” section in Chapter 4.
3. Scan the **Top of Decoding Area** barcode from the “Specify Decoding Area” section in Chapter 4.
4. Scan the numeric barcodes “2” and “0”.
5. Scan the **Save** barcode.
6. Scan the **Bottom of Decoding Area** barcode from the “Specify Decoding Area” section in Chapter 4.
7. Scan the numeric barcodes “8” and “0”.
8. Scan the **Save** barcode.
9. Scan the **Left of Decoding Area** barcode from the “Specify Decoding Area” section in Chapter 4.
10. Scan the numeric barcodes “2” and “0”.
11. Scan the **Save** barcode.
12. Scan the **Right of Decoding Area** barcode from the “Specify Decoding Area” section in Chapter 4.
13. Scan the numeric barcodes “8” and “0”.
14. Scan the **Save** barcode.
15. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

g. Program the Custom Prefix/Suffix

Example: Set the custom prefix to “CODE”

1. Check the hex values of “CODE” in the ASCII Table. (“CODE”: 43, 4F, 44, 45)
 2. Scan the **Enter Setup** barcode.
 3. Scan the **Set Custom Prefix** barcode from the “Set Custom Prefix” section in Chapter 6.
 4. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5”.
 5. Scan the **Save** barcode.
 6. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)
-

h. Program the Terminating Character Suffix

Example: Set the terminating character suffix to 0x0D

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Terminating Character Suffix** barcode from the “Set Terminating Character Suffix” section in Chapter 6.
3. Scan the numeric barcodes “0” and “D”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

i. Program the Code ID

Example: Set the Code ID of PDF 417 to “p”

1. Check the hex value of “p” in the ASCII Table. (“p”: 70)
2. Scan the **Enter Setup** barcode.
3. Scan the **Modify PDF417 Code ID** barcode from the “Modify Code ID” section in Chapter 6.
4. Scan the numeric barcodes “7” and “0”.
5. Scan the **Save** barcode.
6. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

j. Program the Bad Read Message

Example: Set the bad read message to “!ERR”

1. Check the hex values of “!ERR” in the ASCII Table. (“!ERR”: 21, 45, 52, 52)
 2. Scan the **Enter Setup** barcode.
 3. Scan the **Set Bad Read Message** barcode from the “Bad Read Message” section in Chapter 5.
 4. Scan the numeric barcodes “2”, “1”, “4”, “5”, “5”, “2”, “5” and “2”.
 5. Scan the **Save** barcode.
 6. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)
-

k. Program the Length Range (Maximum/Minimum Lengths) for a Symbology

Note: If minimum length is set to be greater than maximum length, the scanner only decodes barcodes with either the minimum or maximum length. If you only want to read barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

Example: Set the scanner to decode Code 128 barcodes containing between 8 and 12 characters

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode from the “Set Length Range for Code 128” section in Chapter 7.
3. Scan the numeric barcode “8”.
4. Scan the **Save** barcode.
5. Scan the **Set the Maximum Length** barcode from the “Set Length Range for Code 128” section in Chapter 7.
6. Scan the numeric barcodes “1” and “2”.
7. Scan the **Save** barcode.
8. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

I. Program the Custom Inter-keystroke Delay

Example: Set the inter-keystroke delay to 5ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom Delay** barcode from the “Inter-Keystroke Delay” section in Chapter 2.
3. Scan the numeric barcodes “5”.
4. Scan the **Save** barcode.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

m. Program the scanner to get proper output for Russian encoded with Windows 1251

1. Scan the **Enter Setup** barcode.
2. Scan the **Windows 1251 (Cyrillic)** barcode from the “Code Page” section in Chapter 2.
3. Scan the appropriate **Default Character Encoding** barcode according to the symbology your application needs from the “Character Encoding” section in Chapter 8.
4. Scan the **Mode 3** barcode from the “Emulate ALT+Keypad” section in Chapter 2.
5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

n. Program the scanner to get proper output for Russian encoded with UTF-8

1. Scan the **Enter Setup** barcode.
 2. Scan the **Windows 1251 (Cyrillic)** barcode from the “Code Page” section in Chapter 2.
 3. Scan the appropriate **UTF-8** barcode according to the symbology your application needs from the “Character Encoding” section in Chapter 8.
 4. Scan the **Mode 3** barcode from the “Emulate ALT+Keypad” section in Chapter 2.
 5. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)
-

o. Program the Custom Transmit Delay per Character for Febraban

Example: Set the transmit delay per character to 5ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Transmit Delay per Character** barcode from the “Transmit Delay” section in Chapter 8.
3. Scan the numeric barcode “5”.
4. Scan the **Save** barcode.
5. Scan the **Enable Transmit Delay per Character** barcode from the “Transmit Delay” section in Chapter 8.
6. Scan the **Exit Setup** barcode. (If you still need to program other parameter/feature, skip this step.)

Appendix 6: Digit Barcodes

0-9



A-F



@DIGITA

A



@DIGITB

B



@DIGITC

C



@DIGITD

D



@DIGITE

E



@DIGITF

F

Appendix 7: Save/Cancel Barcodes

After reading numeric barcode(s), you need to scan the **Save** barcode to save the data. If you scan the wrong digit(s), you can either scan the **Cancel** barcode and then start the configuration all over again, or scan the **Delete the Last Digit** barcode and then the correct digit, or scan the **Delete All Digits** barcode and then the digits you want.

For instance, after reading the **Maximum Length** barcode and numeric barcodes “1”, “2” and “3”, you scan:

- ✧ **Delete the Last Digit:** The last digit “3” will be removed.
- ✧ **Delete All Digits:** All digits “123” will be removed.
- ✧ **Cancel:** The maximum length configuration will be cancelled. And the scanner is still in the setup mode.



Appendix 8: ASCII Function Key Mapping Table

ASCII Function	ASCII Value (HEX)	No Function Key Mapping	Function Key Mapping
NUL (Null char.)	00	Null	Ctrl+2
SOH (Start of Header)	01	Keypad Enter	Ctrl+A
STX (Start of Text)	02	Caps Lock	Ctrl+B
ETX (End of Text)	03	Null	Ctrl+C
EOT (End of Transmission)	04	Null	Ctrl+D
ENQ (Enquiry)	05	Null	Ctrl+E
ACK (Acknowledgment)	06	Null	Ctrl+F
BEL (Bell)	07	Enter	Ctrl+G
BS (Backspace)	08	Left Arrow	Ctrl+H
HT (Horizontal Tab)	09	Horizontal Tab	Ctrl+I
LF (Line Feed)	0A	Down Arrow	Ctrl+J
VT (Vertical Tab)	0B	Vertical Tab	Ctrl+K
FF (Form Feed)	0C	Delete	Ctrl+L
CR (Carriage Return)	0D	Enter	Ctrl+M
SO (Shift Out)	0E	Insert	Ctrl+N
SI (Shift In)	0F	Esc	Ctrl+O
DLE (Data Link Escape)	10	F11	Ctrl+P
DC1 (XON) (Device Control 1)	11	Home	Ctrl+Q
DC2 (Device Control 2)	12	Print Screen	Ctrl+R
DC3 (XOFF) (Device Control 3)	13	Backspace	Ctrl+S
DC4 (Device Control 4)	14	tab+shift	Ctrl+T
NAK (Negative Acknowledgment)	15	F12	Ctrl+U
SYN (Synchronous Idle)	16	F1	Ctrl+V
ETB (End of Trans. Block)	17	F2	Ctrl+W
CAN (Cancel)	18	F3	Ctrl+X
EM (End of Medium)	19	F4	Ctrl+Y
SUB (Substitute)	1A	F5	Ctrl+Z
ESC (Escape)	1B	F6	See the following table
FS (File Separator)	1C	F7	
GS (Group Separator)	1D	F8	
RS (Request to Send)	1E	F9	
US (Unit Separator)	1F	F10	

ASCII Function Key Mapping Table (Continued)

The function key mappings of the last five characters in the previous table differ from one keyboard layout to another.

Country/ Keyboard Layout	Function Key Mapping				
	1B	1C	1D	1E	1F
United States	Ctrl+[	Ctrl+\	Ctrl+]	Ctrl+6	Ctrl+-
Belgium	Ctrl+[	Ctrl+<	Ctrl+]	Ctrl+6	Ctrl+-
Scandinavia	Ctrl+8	Ctrl+<	Ctrl+9	Ctrl+6	Ctrl+-
France	Ctrl+^	Ctrl+8	Ctrl+\$	Ctrl+6	Ctrl+=
Germany		Ctrl+Ã	Ctrl++	Ctrl+6	Ctrl+-
Italy		Ctrl+\	Ctrl++	Ctrl+6	Ctrl+-
Switzerland		Ctrl+<	Ctrl+.	Ctrl+6	Ctrl+-
United Kingdom	Ctrl+[	Ctrl+ ¢	Ctrl+]	Ctrl+6	Ctrl+-
Denmark	Ctrl+8	Ctrl+\	Ctrl+9	Ctrl+6	Ctrl+-
Norway	Ctrl+8	Ctrl+\	Ctrl+9	Ctrl+6	Ctrl+-
Spain	Ctrl+[	Ctrl+\	Ctrl+]	Ctrl+6	Ctrl+-

Appendix 9: Code Pages List

Numeric Barcode Needed	Code Page
0	Windows 1252 (Latin I)
1	Windows 1251 (Cyrillic)

Appendix 10: Symbology ID Number

Symbology	ID Number
Code 128	002
UCC/EAN128	003
EAN-8	004
EAN-13	005
UPC-E	006
UPC-A	007
Interleaved 2 of 5, Febraban	008
ITF-14	009
ITF-6	010
Matrix 2 of 5	011
Code 39, Code 32	013
Codabar	015
Code 93	017
AIM-128	020
ISSN	023
ISBN	024
Industrial 25	025
Standard 25	026
Plessey	027
Code11	028
MSI-Plessey	029
GS1 Databar	031
PDF417	032
QR Code	033
Data Matrix	035
Chinese Sensible Code	039



Newland Auto-ID Tech. Co., Ltd. (Headquarters)

3F, Building A, No.1, Rujiang West Rd., Mawei, Fuzhou,
Fujian, China 350015

Tel: +86 - (0) 591-83978605

Fax: +86 - (0) 591-83979216

E-mail: contact@nlscan.com

Web: www.newlandaidc.com

Newland Europe BV

Rolweg 25, 4104 AV Culemborg, The Netherlands

Tel: +31 (0) 345 87 00 33

Fax: +31 (0) 345 87 00 39

Email: info@newland-id.com

Web: www.newland-id.com

Tech Support: tech-support@newland-id.com

Newland North America Inc.

46559 Fremont Blvd., Fremont, CA 94538, USA

Tel: 510 490 3888

Fax: 510 490 3887

Email: info@newlandna.com

Web: www.newlandamerica.com

Newland Latin America

Tel: +1 (239) 598 0068

Fax: +1 (239) 280 1238

Email: info@newlandla.com

Web: www.newlandamerica.com

Newland Taiwan Inc.

7F-6, No. 268, Liancheng Rd., Jhonghe Dist. 235,
New Taipei City, Taiwan

Tel: +886 2 7731 5388

Fax: +886 2 7731 5389

Email: info@newland-id.com.tw

Web: www.newland-id.com.tw

Newland Korea

Biz. Center Best-one, Jang-eun

Medical Plaza 6F, Bojeong-dong 1261-4,

Kihung-gu, Yongin-City, Kyunggi-do, South Korea

Tel: +82 10 8990 4838

Fax: +82 70 4369 0009

Email: th.sung@newland-id.com.tw

Web: www.newlandaidc.com/kor/