



FR80

SALMON AI

Presentation Scanners

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Preface

Introduction

This manual provides detailed instructions for setting up and using the NLS-FR80 desktop barcode scanner (hereinafter referred to as “the FR80” or “the scanner”).

This guide provides programming instructions for the FR80. Users can configure the FR80 by scanning the programming barcodes included in this manual.

The FR80 has been properly configured for most applications and can be put into use without further configuration. Users may check Appendix: Factory Defaults Table for reference. Throughout the manual, programming barcodes marked with asterisks (**) are factory default values.

Chapter Description

- | | |
|---------------------------------------|--|
| ✧ Chapter 1, Getting Started | : Gives a general description of the FR80. |
| ✧ Chapter 2, Installation | : Describes how to install the scanner, including installation information, connector, cable, environmental considerations, and maintenance. |
| ✧ Chapter 3, Optics | : Provides parameters for optics and illumination. |
| ✧ Chapter 4 Electrical Specifications | : Includes the electrical characteristics for the scanner. |
| ✧ Chapter 5, Auxiliary Tools | : Introduces useful tools you can use to set up the FR80. |
| ✧ Chapter 6 Configuration | : Introduces the use of programming barcodes and product information query. |
| ✧ Chapter 7 Communication Interface | : Describes how to configure RS-232 and USB communication parameters. |
| ✧ Chapter 8, System Settings | : Describes how to configure general parameters of the FR80. |
| ✧ Chapter 9, Symbolologies | : Lists all compatible symbolologies and describes how to configure the relevant parameters. |
| ✧ Chapter 10, Data Formatter | : Explains how to customize scanned data with the advanced data formatter. |

-
- | | |
|---|--|
| ✧ Chapter 11, Prefix & Suffix | : Describes how to use prefix and suffix to customize scanned data. |
| ✧ Chapter 12 Programming Commands | : Introduces how to configure the FR80 by serial commands sent from the host. |
| ✧ Chapter 13, Batch Programming | : Explains how to integrate a complex programming task into a single barcode. |
| ✧ Chapter 14, Handheld Barcode Scanner Access | Introduces the requirements for connecting an external handheld barcode scanner to the FR80. |
| ✧ Appendix | : Provides factory defaults table and a bunch of frequently used programming barcodes. |

Explanation of Icons



This icon indicates something relevant to this manual.



This icon indicates this information requires extra attention from the reader.



This icon indicates handy tips that can help you use or configure the scanner with ease.



This icon indicates practical examples that can help you to acquaint yourself with operations.

Chapter 1 Getting Started

Introduction

The NLS-FR80 barcode scanner (hereinafter referred to as “the FR80” or “the scanner”), armed with the Newland patented **UIMG**, a computerized image recognition system, blends image recognition algorithm & manufacturing, which significantly simplifies application design and delivers superior performance and solid reliability.

Application Scenarios

The FR80 is mainly applied for the retail industry, such as supermarkets, convenience stores, tobacco and alcohol counters, commercial centers, etc.

Symbologies

The FR80 can easily read printed barcodes and on-screen barcodes, including:

1D	Code 11, Code 128, Code 39, GS1-128 (UCC/EAN 128), AIM 128, ISBT 128, Codabar, Code 93, UPC-A/UPC-E, Coupon, EAN-13, EAN-8, ISSN, ISBN, Interleaved 2/5, Matrix 2/5, Industrial 2/5, ITF-14, ITF-6, Standard 2/5, China Post 25, MSI-Plessey, Plessey, GS1 Composite, GS1 Databar (RSS)
2D	PDF 417, QR Code, Aztec, Data Matrix
OCR	Passport OCR, Chinese ID Card, China Travel Permit OCR

Features

- Supports Digimarc and AI-powered OCR recognition, as well as Lua script configuration; please contact technical support for configuration details.
- Support external handheld barcode scanner
- Volume and sound effect keys, support self-adjustment
- Multi-colored LED indicator, alarm function and real-time feedback of device status
- Fixed bracket, flexible to help users install and fix the scanner

FR80 Scanner

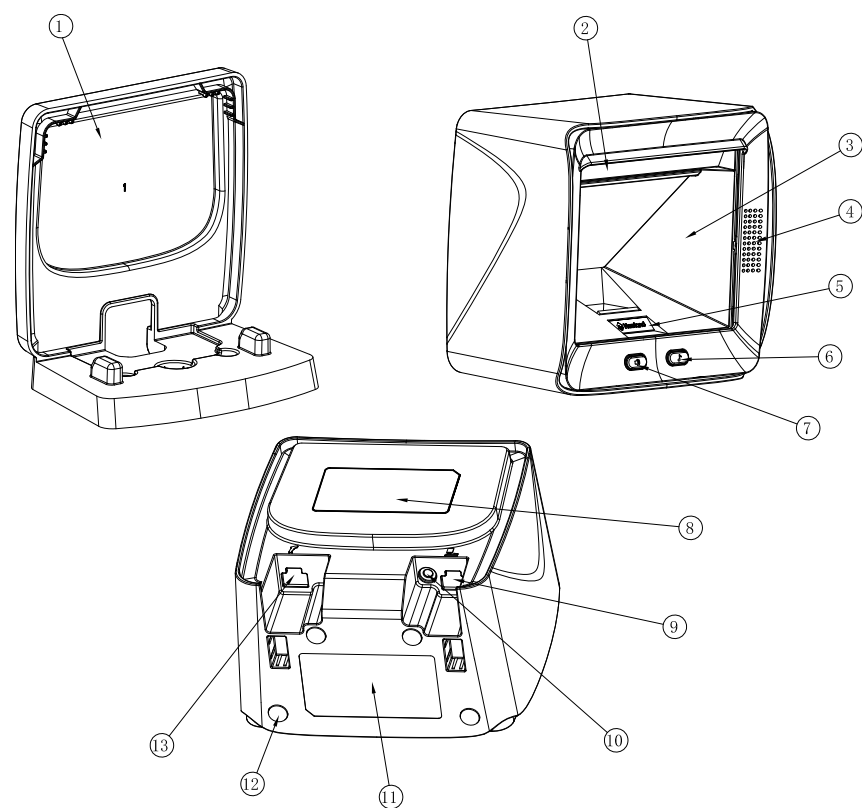


Figure 1-1

- ① Fixed seat
- ② Illumination LED
- ③ Scan Window
- ④ Sound hole
- ⑤ Status indicator
- ⑥ Sound effect key
- ⑦ Volume key
- ⑧ Position of logo
- ⑨ Main RJ45 port
- ⑩ DC port
- ⑪ Position of label
- ⑫ Position of pad
- ⑬ Secondary RJ45 port

Chapter 2 Installation

Introduction

This chapter mainly explains how to install the FR80.



Caution: Do not touch the imaging lens when installing the scanner. Be careful not to leave fingerprints on the lens.



Caution: Please do not disassemble the FR80 to avoid any damage to the device.

Dimensions (unit: mm)

With base: 151(W) × 156.5(H) × 108.5(D) (max.)

Without base 151(W) × 141.5(H) × 97.5(D) (max.)

Mounting

Front View

Without base

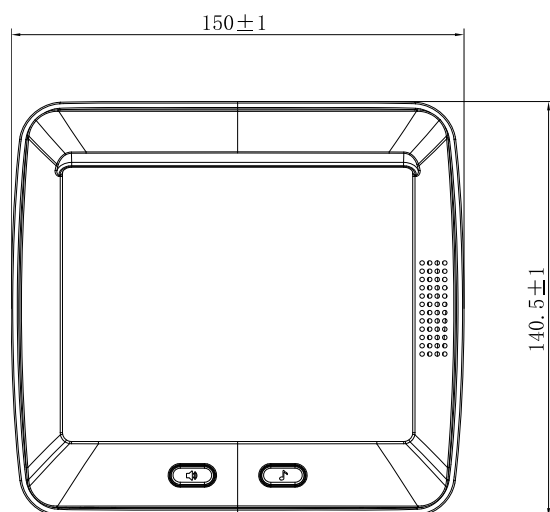


Figure 2-1

With base

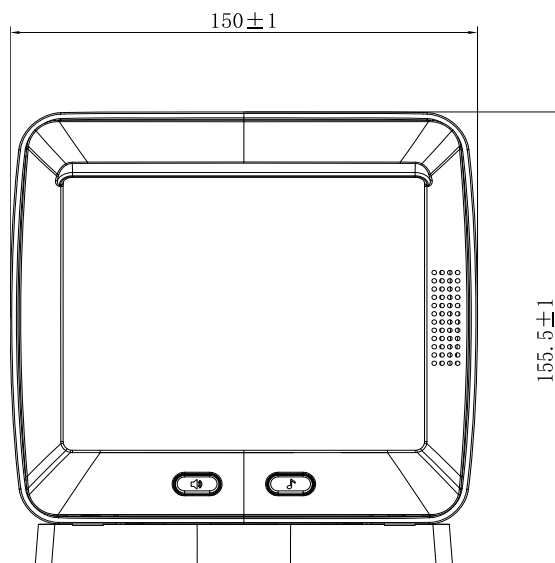


Figure 2-2

Side View

Without base

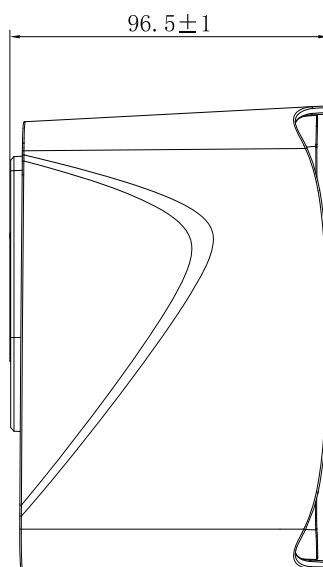


Figure 2-3

With base

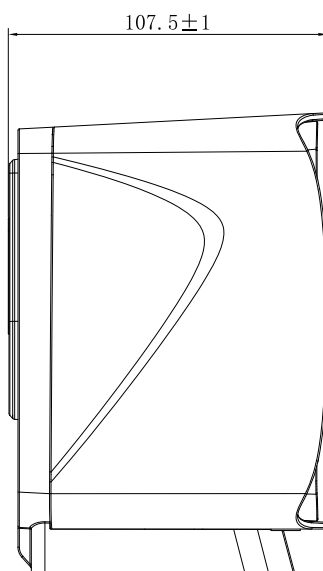


Figure 2-4

Interface Pinouts

NLS-FR80 has three external physical interfaces:

The DC interface is used to connect the 5V DC adapter for the FR80. The main RJ45 interface can be used to communicate with the host. The secondary RJ45 interface is used to connect the handheld barcode scanner.

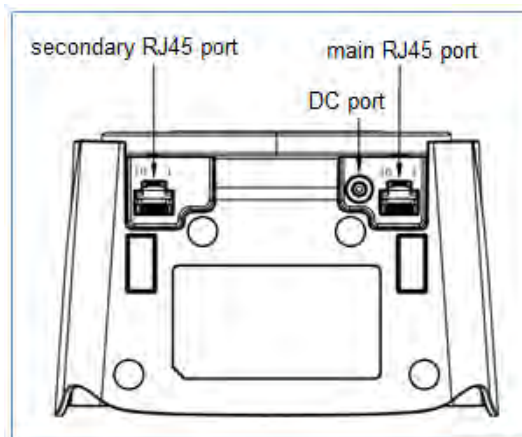


Figure 3-1

Adapter and DC Interface

The DC adapter for the FR80 has a power supply capability of 5V/1.5A.

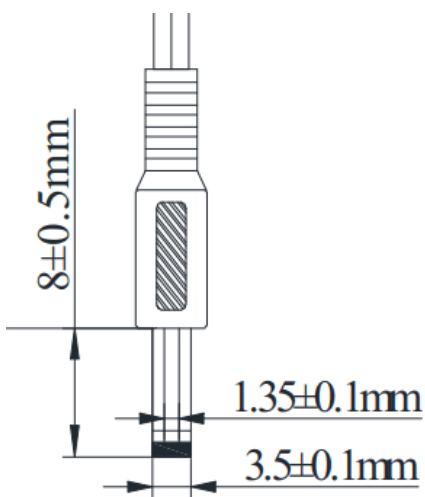


Figure 3-2

Connect to the Host

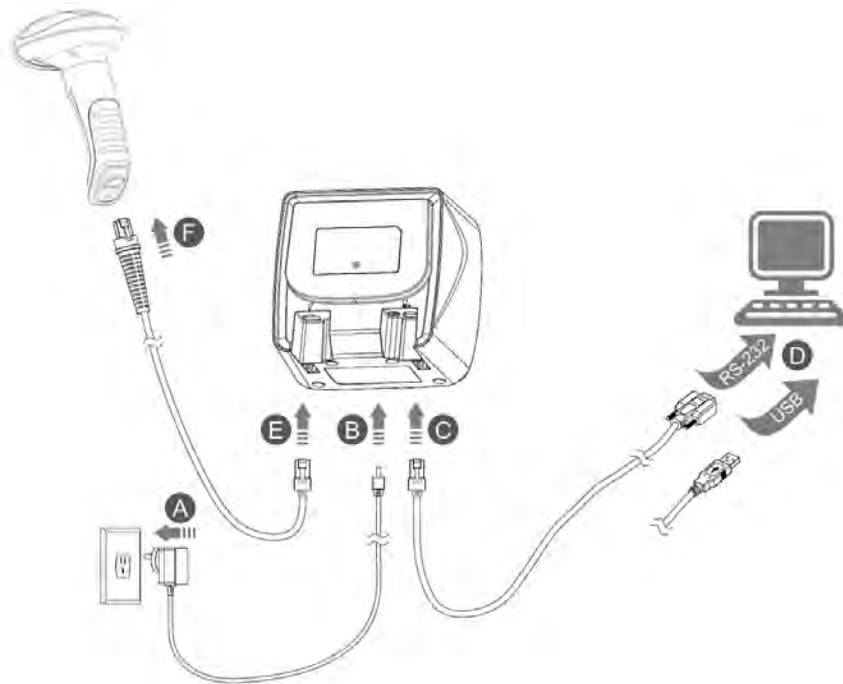


Figure 2-7

Power on

1. For the FR80 with the adapter, connect the adapter first and power on the FR80 according to step A and step B in Figure 2-7. Then connect the data cable (USB data cable or RS-232 data cable) according to step C and step D. Finally connect the handheld barcode scanner if needed, following step E and step F.
2. For the FR80 without the adapter, handheld barcode scanner access is not available. It supports power supply via the USB port according to step C and step D.
3. It is not allowed to connect the non-standard and damaged adapter and forbid conducting step B without step A.
4. The LED indicator turns blue about 5 seconds after power-on. The full power-on process takes approximately 6 seconds. If you do not hear the power-on beep after powering the device on for more than 30 seconds, it means that the power supply is insufficient and the device will emit an alarm.

Power off

1. For the FR80 with the adapter, disconnect the data cable (USB data cable or RS-232 data cable) firstly, then unplug the adapter and finally pull out the handheld barcode scanner.

2. For the FR80 without the adapter, directly disconnect the data cable.

RJ45 Port

The FR80 can be connected to the host with a cable with RJ45 connector.

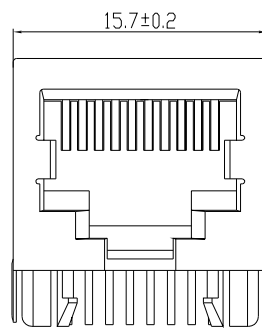


Figure 2-8

Cable

1. USB Cable

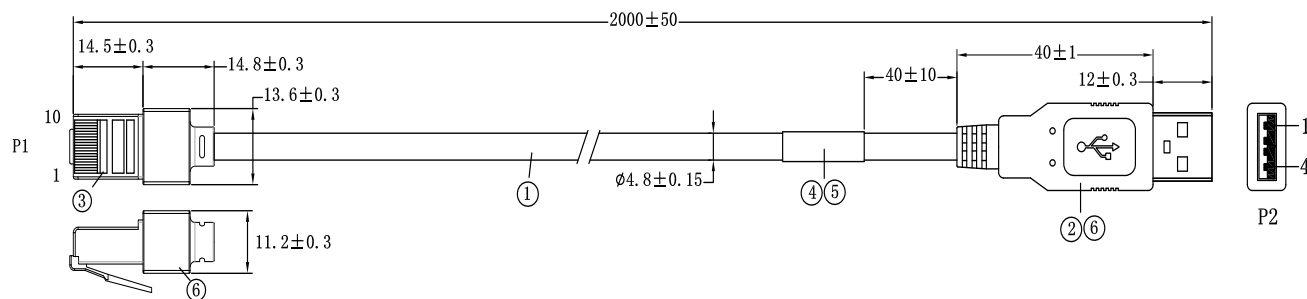


Figure 2-9

2. RS-232 Cable

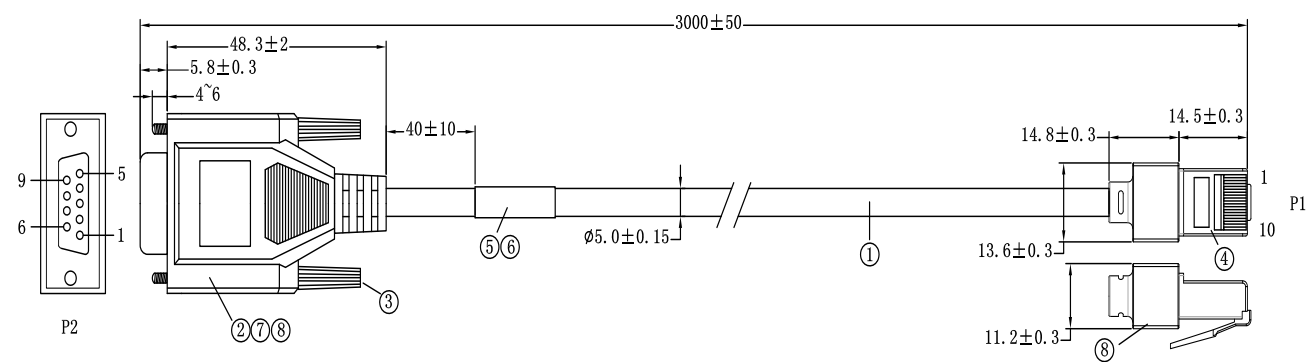


Figure 2-10

General Requirements

Prevention of Water

It is recommended to keep the scanner away from water when using it. Do not place cups filled with water and drink on the scanner and spray any liquid on the FR80.

Dust and Dirt

The FR80 should be used in a relatively clean environment and do not expose the device to dust and stain.

Ambient Environment

The following environmental requirements should be met to ensure good performance of the FR80.

Table 2-1

Operating Temperature	-20°C to 50°C
Storage Temperature	-40°C to 70°C
Humidity	5% to 95% (non-condensing)

Maintenance

- ✧ The scan window should be kept clean.
- ✧ Do not scratch 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.

Chapter 3 Optics

Introduction

The FR80 contains:

- a CMOS image sensor and its lens
- Seventeen white LEDs or eighteen red LEDs based illumination system

Sensor

Pixel: 1280×800 CMOS

Frame rate: 60fps

Illumination

The FR80 has twelve white LEDs for supplementary lighting, making it possible to scan barcodes even in complete darkness. The illumination can be programmed On or Off. Customers can add the external illumination system if needed. The spectral range should be within the visible light.

LED Indicator

Blue LED ON: Initialization or configuration in progress

Green LED ON: Successful decoding

Cyan LED ON: Successful configuration

Purple LED ON: Configuration error

Yellow LED ON: Decoding succeeded but data transmission failed, accompanied by an audible alarm. Please check if the data cable connection is loose.

Red LED ON: Scanner module abnormal— please contact technical support.

Red LED Flashing: Low input voltage — possibly due to insufficient power supply from the USB port.

Window Size

The window must not block the field of view and should be sized to accommodate FOV envelopes shown below.

Front View

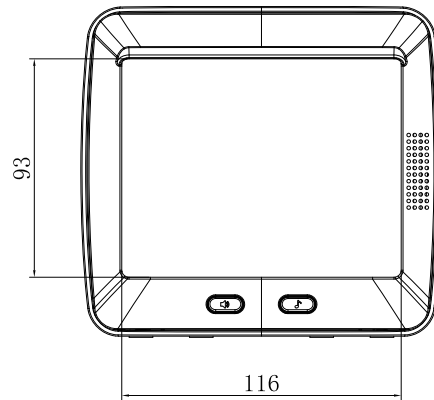


Figure 3-1

Horizontal

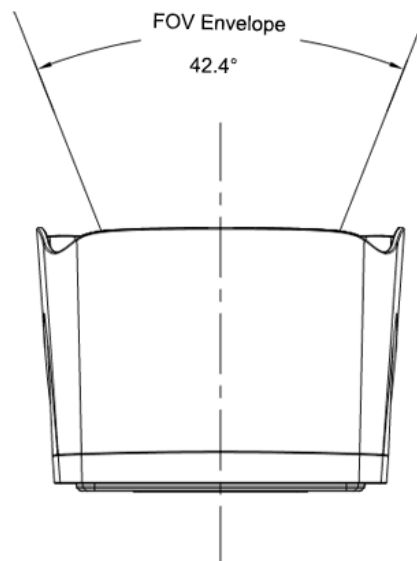


Figure 3-2

Vertical

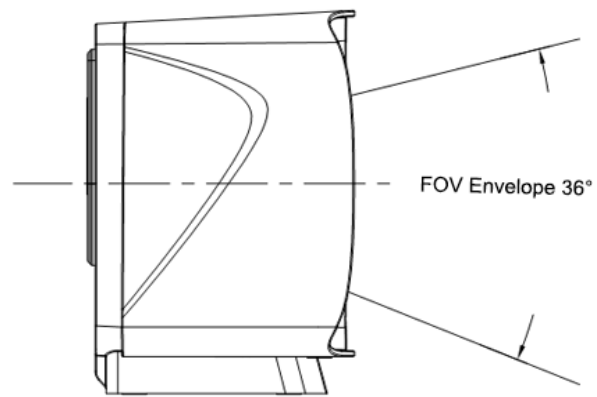


Figure 3-3

Ambient Light

The FR80 shows better performance with ambient light. However, high-frequency pulsed light can result in performance degradation.

Eye Safety

The FR80 has no lasers. It uses LEDs to produce illumination beam. The LEDs are bright, but testing has been done to demonstrate that the scanner is safe for its intended application under normal usage conditions. However, the user should avoid looking into the beam.

LED Compliance Statement



The FR80 complies with IEC 62471:2006 for LED safety.

Depth of Field

The tables below list the depth of view tested in the 0lx and 300lx natural light.

Table 3-1

FR80 Ambient light: 0lux

Symbology	Near	Far
EAN-13 (13mil)	0mm	140mm
EAN-13 (5mil)	50mm	90mm

Table 3-2

FR80 Ambient light: 300lux

Symbology	Near	Far
EAN-13 (13mil)	0mm	140mm
EAN-13 (5mil)	50mm	90mm

Chapter 4 Electrical Specifications

Power Supply

Do not power up the FR80 until it is properly connected. Be sure the power is cut off before connecting a cable to or disconnecting a cable from the host interface connector. Hot-plugging could damage the scanner.

Unstable power supply or sharp voltage drops or unreasonably short interval between power-ons may lead to unstable performance of the scanner. Do not resupply the power immediately after cutting it off.



1. Ensure that the input power drops below 0.5V before powering the FR80 on again, otherwise it will lead to abnormal function.
2. To ensure the image quality, a power supply with low ripple noise is needed. When powering the FR80 via the main RJ45 interface without the adapter, ensure that power supply has a load capacity of more than 500mA and the range of power supply voltage should be $5.0V \pm 5\%$. The power input ripple must not exceed 150mV.

Operating Instructions

Verify that the scanner, data cable, host device, and power supply are properly connected and that all devices are powered on.

Position the barcode within the scanner's field of view, aligning it with the reading window. Once the illumination light activates, a white illuminated area will appear, indicating the start of the scanning process.

A successful read is confirmed by an audible beep and a green status indicator. The decoded data will then be transmitted to the host device.

The optimal scanning distance is approximately 7 cm from the scanner window.

Interface Pinouts

The following table lists the pin functions of the 10-pin connector for the main RJ45 interface and secondary RJ45 interface.

Table 3-1

Main RJ45 interface

PIN#	Signal	I/O	Function	Remark
1	EF_3V3	O	Good read indicator/ for other functions	3.3V
2	EF_5V	O	Good read indicator/ for other functions	5V
3	VCC5V	I	5V power input	
4	RS232_TX	O	RS-232 level TX output	to connect the host
5	RS232_RX	I	RS-232 level RX input	to connect the host
6	RS232_CTS	I	RS-232 level CTS input	to connect the host
7	RS232_RTS	O	RS-232 level RTS output	to connect the host
8	GND	Ground	Ground	
9	USB_D-	I/O	USB_D-	
10	USB_D+	I/O	USB_D+	

Table 3-2

Secondary RJ45 interface

PIN#	Signal	I/O	Function	Remark
1	EF_IN#	I	Reserved interrupt signal input (low level is valid)	3.3V level
2	EF_OUT	O	Good read indicator/ for other functions	5V level
3	5V_OUT	O	5V power output (for the handheld barcode scanner)	
4	EX_RX	I	RS-232 level RX input	to connect the handheld barcode scanner
5	EX_TX	O	RS-232 level TX output	to connect the handheld barcode scanner
6	EX_RTS	O	RS-232 level RTS output	to connect the handheld barcode scanner
7	EX_CTS	I	RS-232 level CTS input	to connect the handheld barcode scanner
8	GND	Ground	Ground	
9	Antenna-	I/O	Reserved aerial interface	
10	Antenna+	I/O	Reserved aerial interface	

Note:

For the FR80, pins 9 and 10 of the secondary RJ45 port are reserved for the antenna interface.

DC Characteristics

Operating Voltage

Table 4-3

T=25°C

Parameter	Description	Minimum	Typical	Maximum	Unit
VCC	Input Voltage $\pm 5\%$ (5V)	4.75	5	5.25	V

Operating Current

Table 4-4

T=25°C

Mode	Typical	Maximum	Unit
Working Current	280	500	mA
Idle Current	155	-	mA

Chapter 5 Auxiliary Tools

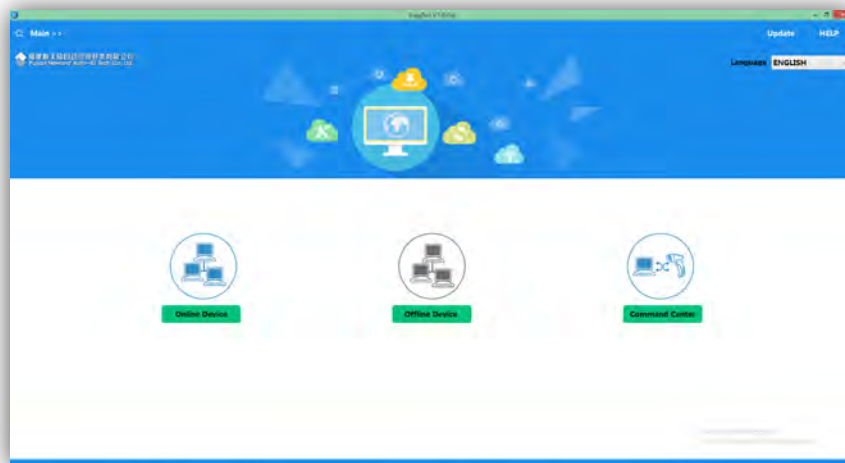
EasySet

EasySet, developed by Fujian Newland Auto-ID Tech. Co., Ltd., is a configuration tool for Newland's 1D/2D handheld barcode scanner, fixed mount barcode scanners and OEM scan engines. Its main features include:

- ✧ View device & configuration information of online device
- ✧ Configure device
- ✧ Update firmware of online device
- ✧ Load/modify existing XML configuration file; save current settings to an XML file
- ✧ Create/print/save programming barcodes to a PDF or Word file
- ✧ View/edit/save image stored on online device in the original image/BMP/JPG/TIFF format
- ✧ Send serial commands to online device and receive device response
- ✧ Supported languages: Chinese and English

EasySet supports 32-bit/64-bit Microsoft WinXP/Win7/Win 8/Win 8.1/Win 10 operating systems.

EasySet can communicate with device via one of the following interface: TTL-232, USB COM Port Emulation (UFCOM driver required), USB CDC (UFCOM driver required), USB DataPipe (UFCOM driver required), USB HID-POS.



UFCOM

UFCOM, developed by Fujian Newland Auto-ID Tech. Co., Ltd., is a virtual serial driver. It is used in conjunction with a USB scanner or a scan engine configured as virtual serial port to provide two-way communication between the scanner/ engine and the host. UFCOM can run on all versions of Windows XP ~ Windows 10 x86 & x64, including the contemporary versions of Windows Server. Users can download the driver from the website at: <http://down.nlscan.com:82/Release/UFCOM/>.



Chapter 6 System Settings

Introduction

There are three ways to configure the FR80: Barcode programming, command programming and Easyset programming.

Barcode Programming

The FR80 can be configured by scanning programming barcodes. All user programmable features/options are described along with their programming barcodes/commands in the following sections.

This programming method is most straightforward. However, it requires manually scanning barcodes. As a result, errors are more likely to occur.

Command Programming

The FR80 can also be configured by serial commands sent from the host device.

Users can design an application program to send those command strings to the scanners to perform device configuration.

For more information, refer to the *Programming Guide Based on Newland Unified Commands Set*.

EasySet Programming

Besides the two methods mentioned above, you can conveniently perform scanner configuration through EasySet too. EasySet is a Windows-based configuration tool particularly designed for Newland products, enabling users to gain access to decoded data and captured images and to configure scanners. For more information about this tool, refer to the *EasySet User Guide*.





@SETUPE1
Enter Setup

Programming Barcode/ Programming Command/Function



The figure above is an example that shows you the programming barcode and command for the Enter Setup function:

1. The **No Case Conversion** barcode.
2. The **No Case Conversion** command.
3. The description of feature/option.
4. ** indicates factory default settings.

Note: "@" included in the programming command indicates permanent setting which means the setting will not be lost by removing power from the scanner or turning off or rebooting it; whereas "#" included in the programming command indicates temporary setting which means the setting will be lost by removing power from the scanner or turning off or rebooting it.



@SETUPE0
** Exit Setup



Use of Programming Command

Besides the barcode programming method, the scanner can also be configured by serial commands (HEX) sent from the host device. **All commands must be entered in uppercase letters.**

Command Syntax

Prefix StorageType Tag SubTag {Data} [,SubTag {Data}] [;Tag SubTag {Data}] [...] Suffix

Prefix: "~<SOH>0000" (HEX: 7E 01 30 30 30 30), 6 characters.

StorageType: "@" (HEX: 40) or "#" (HEX: 23), 1 character. "@" means permanent setting which will not be lost by removing power from the scanner or rebooting it; "#" means temporary setting which will be lost by removing power from the scanner or rebooting it.

Tag: A 3-character case-sensitive field that identifies the desired command group. For example, all USB HID Keyboard configuration settings are identified with a Tag of KBW.

SubTag: A 3-character case-sensitive field that identifies the desired parameter within the tag group. For example, the SubTag for the keyboard layout is CTY.

Data: The value for a feature or parameter setting, identified by the Tag and SubTag.

Suffix: "<ETX>" (HEX: 3B 03), 2 characters.

Multiple commands can be issued within one Prefix/Suffix sequence. For configuration commands, only the **Tag**, **SubTag**, and **Data** fields must be repeated for each command in sequence. If an additional command is to be applied to the same Tag, then the command is separated with a comma (,) and only the **SubTag** and **Data** fields of the additional commands are issued. If the additional command requires a different **Tag** field, the command is separated from previous command by a semicolon (;).

Query Commands

For query commands, the entry in the **Data** field in the syntax above is one of the following characters means:

- * (HEX: 2A) What is the scanner's current value for the setting(s).
- & (HEX: 26) What is the factory default value for the setting(s).
- ^ (HEX: 5E) What is the range of possible values for the setting(s).





@SETUPE1
Enter Setup

The value of the **StoreType** field in a query command can be either "@" (HEX: 40) or "#" (HEX: 23).

A query command with the **SubTag** field omitted means to query all the settings concerning a tag. For example, to query all the current settings about Code 11, you should enter **7E 01 30 30 30 30 40 43 31 31 2A 3B 03** (i.e. ~<SOH>0000@C11*; <ETX>).

Responses

Different from command sequence, the prefix of a response consists of the six characters of "<STX><SOH>0000" (HEX: **02 01 30 30 30 30**).

The scanner responds to serial commands with one of the following three responses:

- <ACK> (HEX: **06**) Indicates a good command which has been processed.
- <NAK> (HEX: **15**) Indicates a good configuration command with its **Data** field entry out of the allowable range for this Tag and SubTag combination (e.g. an entry for an inter-keystroke delay of 100 when the field will only allow 2 digits), or an invalid query command.
- <ENQ> (HEX: **05**) Indicates an invalid Tag or SubTag command.

When responding, the scanner echoes back the command sequence with the status character above inserted directly before each of the punctuation marks (the comma or semicolon) in the command.

Examples

Example 1: Enable Code 11, set the minimum and maximum lengths to 12 and 22 respectively.

Enter: **7E 01 30 30 30 30 40 43 31 31 45 4E 41 31 2C 4D 49 4E 31 32 2C 4D 41 58 32 32 3B 03**
(~<SOH>0000@C11ENA1,MIN12,MAX22;<ETX>)

Response: **02 01 30 30 30 30 40 43 31 31 45 4E 41 31 06 2C 4D 49 4E 31 32 06 2C 4D 41 58 32 32 06 3B 03**
(<STX><SOH>0000@C11ENA1<ACK>,MIN12<ACK>,MAX22<ACK>;<ETX>)

Example 2: Query the current minimum and maximum lengths of Code 11.

Enter: **7E 01 30 30 30 30 40 43 31 31 4D 49 4E 2A 2C 4D 41 58 2A 3B 03**
(~<SOH>0000@C11MIN*,MAX*;<ETX>)

Response: **02 01 30 30 30 30 40 43 31 31 4D 49 4E 31 32 06 2C 4D 41 58 32 32 06 3B 03**
(<STX><SOH>0000@C11MIN12<ACK>,MAX22<ACK>;<ETX>)



@SETUPE0
** Exit Setup



Use of Programming Barcodes

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 or a non-programming barcode, or reboot the scanner.



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.



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



Transmit Programming Barcode Data





Default Settings

Factory Defaults

Scanning the following barcode can restore the scanner to the factory defaults.

You may need to reset all parameters to the factory defaults when:

- ✧ scanner is not properly configured so that it fails to decode barcodes.
- ✧ you forget previous configuration and want to avoid its impact.



Restore All Factory Defaults

Custom Defaults

Scanning the **Restore All Custom Defaults** barcode can reset all parameters to the custom defaults. Scanning the **Save as Custom Defaults** barcode can set the current settings as custom defaults.

Custom defaults are stored in the non-volatile memory.



Save as Custom Defaults



Restore All Custom Defaults



Restoring the scanner to the factory defaults will not remove the custom defaults from the scanner.





@SETUPE1
Enter Setup

Query Product Information

After scanning the barcode below, the product information (including product name, firmware version, decoder version, hardware version, product serial number, OEM serial number and manufacturing date) will be sent to the host device.



@QRYSYS
Query Product Information

Query Product Name



@QRYPDN
Query Product Name

Query Firmware Version



@QRYFWV
Query Firmware Version



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup

Query Decoder Version



@QRYDCV

Query Decoder Version

Query Hardware Version



@QRYHWW

Query Hardware Version

Query Product Serial Number



@QRYPSN

Query Product Serial Number



@SETUPE0

** Exit Setup



@SETUPE1
Enter Setup

Query Manufacturing Date



@QRYDAT
Query Manufacturing Date

Query OEM Serial Number



@QRYESN
Query OEM Serial Number

Query Data Formatter Version



@QRYDFM
Query Data Formatter Version



@SETUPE0
**** Exit Setup**



Chapter 7 Communication Interface

Introduction

- ✧ Serial communication interface is usually used when connecting the scanner to a host device (like PC, POS). You need to set communication parameters to match the host device.
- ✧ USB HID Keyboard: The scanner's transmission is simulated as USB keyboard input with no need for command configuration or a driver. Barcode data could be entered by the virtual keyboard directly and it is also convenient for the host device to receive data.
- ✧ USB CDC: It is compliant with the standard USB CDC class specifications defined by the USB-IF and allows the host device to receive data in the way as a serial port does. A driver is needed when using this feature.
- ✧ HID POS (POS HID Barcode Scanner): It is based on the HID interface, with no need for a custom driver. It excels virtual keyboard and traditional TTL-232 interface in transmission speed.
- ✧ IBM SurePOS: It conforms to IBM (now Toshiba Global Commerce Solutions) 4698 USB scanner interface specifications.

When the scanner is connected to both USB and RS-232 ports on a host device, it will select the USB connection by default.





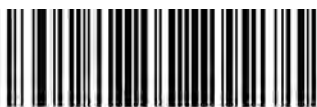
@SETUPE1

Enter Setup

Adaptive Wired Communication

When this feature is on, the scanner can automatically adapt its communication configuration to the way it is connected to the host device: Automatically enable USB/serial communication when connected to the host device via USB/serial port, respectively.

Note: You must restart the scanner before this setting will take effect.



@AUTOUR0

Off



@AUTOUR1

On



@SETUPE0

**** Exit Setup**



@SETUPE1

Enter Setup

RS-232 Interface

Serial communication interface is usually used when connecting the scanner to a host device (like PC, POS). However, to ensure smooth communication and accuracy of data, you need to set communication parameters (including baud rate, parity check, data bit and stop bit) to match the host device.



@INTERF0

RS-232



@SETUPE0

**** Exit Setup**



@SETUPE1

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.



@232BAD8

115200



@232BAD7

57600



@232BAD6

38400



@232BAD5

19200



@232BAD4

14400



@232BAD3

9600



@232BAD2

4800



@SETUPE0

**** Exit Setup**



@SETUPE1

Enter Setup



@232BAD1

2400



@232BAD0

1200

Parity Check

Set the parity type to match the host requirements.

Odd Parity: If the data contains an odd number of 1 bits, the parity bit value is set to 0.

Even Parity: If the data contains an even number of 1 bits, the parity bit value is set to 0.

None: Select this option when no parity bit is required.



@232PAR0

None



@232PAR1

Even Parity



@232PAR2

Odd Parity



@SETUPE0

**** Exit Setup**



Data Bit

Set the number of data bits to match the host requirements.



Stop Bit

The stop bit(s) at the end of each transmitted character marks the end of transmission of one character and prepares the receiving device for the next character in the serial data stream. Set the number of stop bits to match the host requirements.





@SETUPE1
Enter Setup

Hardware Auto Flow Control

If this feature is enabled, the scanner determines whether to transmit data based on CTS signal level. When CTS signal is at a low level which means the serial port's cache memory of receiving device (such as PC) is full, the scanner sends data through RS-232 port until CTS signal is set to high level by receiving device. When the scanner is not ready for receiving, it will set RTS signal to low level. When sending device (such as PC) detects it, it will not send data to the scanner any more to prevent data loss.

If this feature is disabled, reception/transmission of serial data will not be influenced by RTS/CTS signal.



**** Disable Hardware Auto Flow Control**



Enable Hardware Auto Flow Control



Before enabling this feature, make sure that RTS/CTS signal lines are contained in RS-232 cable. Without the signal lines, RS-232 communication errors will occur.



@SETUPE0
**** Exit Setup**



USB HID Keyboard

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



If the host device allows keyboard input, then no extra software is needed for HID Keyboard input.



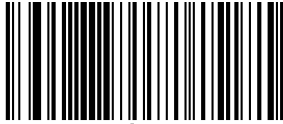


@SETUPE1

Enter Setup

USB Data Transmission Failure Alarm

Sounds a beep when USB data transmission times out.



@USB DFA0

**** Disable Notification**



@USB DFA1

Beep



@SETUPE0

**** Exit Setup**



@SETUP1

Enter Setup

USB Country Keyboard Types

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



@KBWCTY0

U.S. (English)



@KBWCTY1

Belgium



@KBWCTY2

Brazil



@KBWCTY3

Canada (French)



@KBWCTY4

Czechoslovakia



@KBWCTY5

Denmark



@KBWCTY6

Finland (Swedish)



@SETUP0

**** Exit Setup**



@SETUPE1

Enter Setup



@KBWCTY7

France



@KBWCTY8

Germany/ Austria



@KBWCTY9

Greece



@KBWCTY10

Hungary



@KBWCTY11

Israel (Hebrew)



@KBWCTY12

Italy



@KBWCTY13

Latin America/ South America



@KBWCTY14

Netherlands (Dutch)



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup



@KBWCTY15
Norway



@KBWCTY16
Poland



@KBWCTY17
Portugal



@KBWCTY18
Romania



@KBWCTY19
Russia



@KBWCTY21
Slovakia



@KBWCTY22
Spain



@KBWCTY23
Sweden



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup



@KBWCTY24

Switzerland (German)



@KBWCTY25

Turkey_F



@KBWCTY26

Turkey_Q



@KBWCTY27

UK



@KBWCTY28

Japan



@KBWCTY37

Vietnam 【Extra】



@SETUPE0

**** Exit Setup**



@SETUPE1
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.



Do Not Beep on Unknown Character



Beep on Unknown Character



Supposing French keyboard (Country Code: 7) is selected and barcode data "ADF" is being dealt with, the keyboard will fail to locate the "Ð" (0xD0) character and the scanner will ignore the character and continue to process the next one.

Do Not Beep on Unknown Character: The scanner does not beep and the Host receives "AF".

Beep on Unknown Character: The scanner beeps and the Host still receives "AF".



If **Emulate ALT+Keypad ON** is selected, **Beep on Unknown Character** does not function.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Emulate ALT+Keypad

When **Emulate ALT+Keypad** is turned on, ASCII characters (0x20 - 0xFF) are sent over the numeric keypad no matter which keyboard type is selected.

1. ALT Make
2. Enter the number corresponding to a desired character on the keypad.
3. ALT Break

After **Emulate ALT+Keypad ON** is selected, you need to choose the code page with which the barcodes were created and to turn **Unicode Encoding** On or Off depending on the encoding used by the application software.



Emulate ALT+Keypad OFF



Emulate ALT+Keypad ON



Since sending a character involves multiple keystroke emulations, this method appears less efficient.



Supposing **Emulate ALT+Keypad** is ON, **Unicode Encoding** is Off, **Code Page 1252 (West European Latin)** is selected, and **Emulate Keypad with Leading Zero** is Off, barcode data "ADF" (65/208/70) is sent as below:

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

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

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



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the barcode being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, select the code page with which the barcodes were created by scanning the appropriate barcode below. For PDF417, QR Code and Data Matrix, besides setting the code page, you also need to set the character encoding in the "Character Encoding" section in Chapter 6. This feature is only effective when **Emulate ALT+Keypad** is turned on.

Note: Code Page 932, Code Page 936 and Code Page 950 are selectable and respectively supported by different software versions.



Code Page 1252 (West European Latin)



Code Page 1251 (Cyrillic)



Code Page 1250 (Central and East European Latin)



Code Page 1253 (Greek)



Code Page 1254 (Turkish)



Code Page 1255 (Hebrew)



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup



@KBWCPCG6

Code Page 1256 (Arabic)



@KBWCPCG8

Code Page 1258 (Vietnamese)



@KBWCPCG10

Code Page 950 (Traditional Chinese, Big5)



@KBWCPCG12

Code Page 932 (Japanese, Shift-JIS)



@KBWCPCG7

Code Page 1257 (Baltic)



@KBWCPCG9

Code Page 936 (Simplified Chinese, GB2312,GBK)



@KBWCPCG11

Code Page 874 (Thai)



@SETUPE0

**** Exit Setup**



Unicode Encoding

Different host program may use different character encodings for handling incoming barcode data. For instance, Microsoft Office Word uses Unicode encoding and therefore you should turn **Unicode Encoding** on, whereas Microsoft Office Excel or Notepad uses Code Page encoding and therefore you should turn **Unicode Encoding** off. This feature is only effective when **Emulate ALT+Keypad** is turned on.



Emulate Keypad with Leading Zero

You may turn this feature on to send character sequences sent over the numeric keypad as ISO characters which have a leading zero. For example, ASCII A transmits as "ALT MAKE" 0065 "ALT BREAK". This feature is only effective when **Emulate ALT+Keypad** is enabled.





@SETUPE1
Enter Setup

Function Key Mapping

When **Ctrl+ASCII Mode** is selected, function characters (0x00 - 0x1F) are sent as ASCII sequences.



Disable



Ctrl+ASCII Mode



Alt+Keypad Mode



If **Ctrl+ASCII Mode** is selected and other parameters of USB HID Keyboard adopt factory defaults, barcode data "A<HT>(i.e. Horizontal Tab)F" (0x41/0x09/0x46) is sent as below:

"A" - Keystroke "A".

<HT> - "Ctrl Make" + Keystroke "I" + "Ctrl Break"

"F" - Keystroke "F"

For some text editors, "Ctrl I" means italic convert. So the output may be "AF".

If **Alt+Keypad Mode** is selected and other parameters of USB HID Keyboard adopt factory defaults, the data above is sent as below:

"A" - Keystroke "A".

<HT> - "Alt Make" + Keystrokes "009" + "Alt Break"

"F" - Keystroke "F"



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

ASCII Function Key Mapping Table

ASCII Function	ASCII Value (HEX)	Function Key Mapping Disabled	Ctrl+ASCII
NUL	00	Null	Ctrl+@
SOH	01	Keypad Enter	Ctrl+A
STX	02	Caps Lock	Ctrl+B
ETX	03	ALT	Ctrl+C
EOT	04	Null	Ctrl+D
ENQ	05	CTRL	Ctrl+E
ACK	06	Null	Ctrl+F
BEL	07	Enter	Ctrl+G
BS	08	Left Arrow	Ctrl+H
HT	09	Horizontal Tab	Ctrl+I
LF	0A	Down Arrow	Ctrl+J
VT	0B	Vertical Tab	Ctrl+K
FF	0C	Delete	Ctrl+L
CR	0D	Enter	Ctrl+M
SO	0E	Insert	Ctrl+N
SI	0F	Esc	Ctrl+O
DLE	10	F11	Ctrl+P
DC1	11	Home	Ctrl+Q
DC2	12	PrintScreen	Ctrl+R
DC3	13	Backspace	Ctrl+S
DC4	14	tab+shift	Ctrl+T
NAK	15	F12	Ctrl+U
SYN	16	F1	Ctrl+V
ETB	17	F2	Ctrl+W
CAN	18	F3	Ctrl+X
EM	19	F4	Ctrl+Y
SUB	1A	F5	Ctrl+Z
ESC	11	F6	Ctrl+[
FS	1C	F7	Ctrl+\
GS	1D	F8	Ctrl+]
RS	1E	F9	Ctrl+6
US	1F	F10	Ctrl+-



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

ASCII Function Key Mapping Table (Continued)

The last five characters (0x1B~0x1F) in the table above apply to US keyboard layout only. The following chart provides the equivalents of these five characters for other countries.

Country	Ctrl+ASCII					
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+ø	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+-	



@SETUPE0

** Exit Setup



@SETUPE1

Enter Setup

Inter-Keystroke Delay

This parameter specifies the delay between emulated keystrokes.



@KBWDLY0

No Delay



@KBWDLY40

Long Delay (40ms)



@KBWDLY20

Short Delay (20ms)



@SETUPE0

**** Exit Setup**



@SETUPE1

Enter Setup

Caps Lock

The **Caps Lock On** options can invert upper and lower case characters contained in barcode data. This inversion occurs regardless of the state of Caps Lock key on the host device's keyboard. To disable this feature, scan the appropriate **Caps Lock OFF** barcode below based on your keyboard.



@KBWCAP0

Caps Lock OFF, Non-Japanese Keyboard



@KBWCAP1

Caps Lock ON, Non-Japanese Keyboard



Emulate ALT+Keypad ON/ Convert All to Upper Case/ Convert All to Lower Case prevails over Caps Lock ON.



When the **Caps Lock ON** feature is selected, barcode data "AbC" is transmitted as "aBc".



@SETUPE0

** Exit Setup



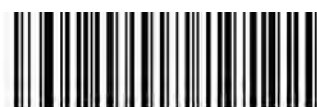
@SETUPE1
Enter Setup

Convert Case

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



@KBWCAS0
No Case Conversion



@KBWCAS1
Convert All to Upper Case



@KBWCAS2
Convert All to Lower Case



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



If **Emulate ALT+Keypad ON** is selected, **Convert All to Lower Case** and **Convert All to Upper Case** do not function.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Emulate Numeric Keypad



Do Not Emulate Numeric Keypad 1: Sending a number (0-9) is emulated as keystroke(s) on main keyboard.

Emulate Numeric Keypad 1: Sending a number (0-9) is emulated as keystroke(s) on numeric keypad. The state of Num Lock on the simulated numeric keypad is determined by its equivalent on the host device. If Num Lock on the host device is turned off, the output of simulated numeric keypad is function key instead of number.

Do Not Emulate Numeric Keypad 2: Sending "+", "-", "*", and "/" is emulated as keystroke(s) on main keyboard.

Emulate Numeric Keypad 2: Sending "+", "-", "*", and "/" is emulated as keystroke(s) on numeric keypad.



Do Not Emulate Numeric Keypad 1



Emulate Numeric Keypad 1



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup



Do Not Emulate Numeric Keypad 2



Emulate Numeric Keypad 2



Emulate ALT+Keypad ON prevails over **Emulate Numeric Keypad**.



Supposing the **Emulate Numeric Keypad 1** feature is enabled:

if Num Lock on the host device is ON, "A4.5" is transmitted as "A4.5";

if Num Lock on the host device is OFF, "A4.5" is transmitted as ".A":

1. "A" is sent on main keyboard;
2. "4" is sent as the function key "Cursor Move to Left";
3. "." is sent on main keyboard;
4. "5" is not sent as it does not correspond to any function key.



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup

Fast Mode

When **Fast Mode On** is selected, the scanner sends characters to the Host faster. If the Host drops characters, turn the Fast Mode off or change the polling rate to a bigger value.



@KBWFAS0

Fast Mode Off



@KBWFAS1

Fast Mode On



@SETUPE0

**** Exit Setup**



@SETUP1

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



@SETUP0

** Exit Setup



@SETUPE1

Enter Setup



@KBWPOR7

8ms



@KBWPOR8

9ms



@KBWPOR9

10ms



@SETUPE0

**** Exit Setup**



@SETUPE1

Enter Setup

USB CDC

If your scanner is connected to the USB port on a host device, the USB CDC feature allows the host device to receive data in the way as a serial port does. A driver is needed when using this feature. You may download it from our website at www.newlandaidc.com.



@INTERF8

USB CDC



@SETUPE0

**** Exit Setup**



HID POS (POS HID Barcode Scanner)

Introduction

The 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 TTL-232 interface.



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 a barcode is decoded, the scanner sends an input report as below:

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 0x02							
1	Barcode Length							
2-57	Decoded Data (1-56)							
58-61	Reserved							
62	Newland Symbology Identifier or N/C: 0x00							
63	-	-	-	-	-	-	-	Decoded data continued

Send Command to the Scanner

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

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 0x04							
1	Length of command							
2-63	Command (1-62)							





IBM SurePOS (Tabletop)



IBM SurePOS (Handheld)



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 range of PIDs are used for each Newland product family. Every PID contains a base number and interface type (keyboard, COM port, etc.).

Product	Interface	PID (Hex)	PID (Dec)
FM60	USB HID Keyboard	3522	13602
	USB CDC	3506	13574
	HID POS	3510	13584
	IBM SurePOS (Tabletop)	3520	13600
	IBM SurePOS(Handheld)	3521	13601





Datalogic Magellan Aux-RS232

Scan the following barcode when connecting to the Datalogic Magellan device, and the configuration of the scanner will be automatically changed accordingly as below.



Datalogic Magellan Aux-RS232

	Parameters	Default Settings
RS-232 Interface	Baud Rate	9600
	Parity Check	None
	Data Bits	8
	Stop Bits	1
	Hardware Auto Flow Control	Enabled
Code 128	Code ID	#
	Enable/Disable Code 128	Enabled
EAN-8	Code ID	FF
	Enable/Disable EAN-8	Enabled
	Check Character	Transmit
	2-Digit Add-On Code	Enabled
	5-Digit Add-On Code	Enabled
EAN-13	Code ID	F
	Enable/Disable EAN-13	Enabled
	Check Character	Transmit
	2-Digit Add-On Code	Enabled
	5-Digit Add-On Code	Enabled
UPC-E	Code ID	E
	Enable/Disable UPC-E	Enabled
	Check Character	Transmit
	2-Digit Add-On Code	Enabled
	5-Digit Add-On Code	Enabled
	Transmit Preamble Character	System Character





@SETUPE1

Enter Setup

UPC-A	Code ID	A
	Enable/Disable UPC-A	Enabled
	Check Character	Transmit
	2-Digit Add-On Code	Enabled
	5-Digit Add-On Code	Enabled
	Transmit Preamble Character	System Character
Interleaved 2 of 5	Code ID	i
	Enable/Disable Interleaved 2 of 5	Enabled
	Check Character Verification	Transmit Check Character After Verification
Code 39	Code ID	*
	Enable/Disable Code 39	Enabled
	Check Character Verification	Transmit Check Character After Verification
	Code 32 Start/Stop Character	Transmit
Codabar	Code ID	%
	Enable/Disable Codabar	Enabled
	Check Character Verification	Disabled
	Codabar Start/Stop Character	Transmit
		ABCD/ABCD
Code 93	Code ID	&
	Enable/Disable Code 93	Enabled
	Check Character Verification	Transmit Check Character After Verification
GS1 Databar	Code ID	R4
	Enable/Disable GS1 Databar	Enabled
	Application Identifier "01"	Transmit
Standard 25	Code ID	s
	Enable/Disable Standard 25	Enabled
	Check Character Verification	Transmit Check Character After Verification
MSI-Plessey	Code ID	@
	Enable/Disable MSI-Plessey	Enabled
	Check Character Verification	One Check Character, MOD10
	Check Character	Transmit
PDF417	Code ID	P
	Enable/Disable PDF417	Enabled
Prefix & Suffix	Code ID Prefix	Enabled
	Terminating Character Suffix	Disabled



@SETUPE0

** Exit Setup



@SETUPE1

Enter Setup



@SETUPE0

**** Exit Setup**



Chapter 8 System Settings

Scan Mode

Level Mode: A trigger pull activates a decode session. The decode session continues until a barcode is decoded or you release the trigger.

Sense Mode: The scanner activates a decode session every time it detects a barcode presented to it. The decode session continues until a barcode is decoded or the decode session timeout expires. **Reread Timeout** can avoid undesired rereading of same barcode in a given period of time. **Sensitivity** can change the Sense Mode's sensibility to changes in images captured. **Image Stabilization Timeout** gives the scanner time to adapt to ambient environment after it decodes a barcode and "looks" for another.

Continuous Mode: The scanner automatically starts one decode session after another. To suspend/resume barcode reading, simply press the trigger. **Reread Timeout** can avoid undesired rereading of same barcode in a given period of time.

Advanced Sense Mode: The scanner activates a decode session every time it detects a barcode presented to it. The decode session will continue after a barcode is decoded. If the undecoded duration reaches decode session timeout, the scanner will enter the sensor mode. When the scanner detects a barcode presented to it, it will start the decode session again. If rereading of same barcode is required, remove the barcode and then show the barcode on the scan window again.





Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1ms increments from 1ms to 3,600,000ms. When it is set to 0, the timeout is infinite. This feature is only applicable to the Pulse, Sense and Level modes.



Set the decode session timeout to 1,500ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Decode Session Timeout** barcode.
3. Scan the numeric barcodes "1", "5", "0" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.





@SETUPE1

Enter Setup

Enter the Detection/ Reading State (Sense Mode)

Scan appropriate barcodes below to enable the scanner to enter the detection state or reading state after a good read. This feature is only applicable to the Sense mode.

Enter the Detection State: The scanner stops reading after a barcode is decoded or the decode session timeout expires, and then it starts reading the new barcode presented to it after the Image stabilization timeout expires.

Enter the Reading State: The scanner continues reading after a barcode is decoded or the decode session timeout expires.



@SENAGR0

Enter the Detection State



@SENAGR1

Enter the Reading State



@SETUPE0

** Exit Setup



Image Stabilization Timeout (Sense Mode)

This parameter defines the amount of time the scanner will spend adapting to ambient environment after it decodes a barcode and “looks” for another. It is programmable in 1ms increments from 0ms to 3,000ms.



Set the image stabilization timeout to 800ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Image Stabilization Timeout** barcode.
3. Scan the numeric barcodes “8”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.





@SETUPE1
Enter Setup

Sensitivity (Sense Mode)

Sensitivity specifies the degree of acuteness of the scanner's response to changes in images captured. There are 20 levels to choose from. The smaller the value, the higher the sensitivity and the lower requirement in image change to trigger the scanner. You can select an appropriate degree of sensitivity that fits the application environment. This feature is only applicable to the Sense mode.



@SENLVL14
Low Sensitivity



@SENLVL11
Medium Sensitivity



@SENLVL8
High Sensitivity



@SENLVL5
Enhanced Sensitivity



@SENLVL
Custom Sensitivity (Level 1-20)



Set the sensitivity to Level 10:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom Sensitivity** barcode.
3. Scan the numeric barcodes "1" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



Enter Setup

Reread Timeout

Reread Timeout can avoid undesired rereading of same barcode in a given period of time. This feature is only applicable to the Sense and Continuous modes.

To enable/disable the Reread Timeout, scan the appropriate barcode below.

Enable Reread Timeout: Do not allow the scanner to re-read same barcode before the reread timeout expires.

Disable Reread Timeout: Allow the scanner to re-read same barcode.



Enable Reread Timeout



Disable Reread Timeout

The following parameter sets the time interval between two successive reads on same barcode. It is programmable in 1ms increments from 0ms to 3,600,000ms. When it is set to a value greater than 3,000, the timeout for rereading same programming barcode is limited to 3,000ms.



Reread Timeout



Set the reread timeout to 1,000ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Reread Timeout** barcode.
3. Scan the numeric barcodes "1", "0", "0" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.



**** Exit Setup**



@SETUPE1

Enter Setup

You may wish to restart the reread timeout when the scanner encounters the same barcode that was decoded in the last scan session before the reread timeout expires. To enable this feature, scan the **Reread Timeout Reset On** barcode. This feature is only effective when **Reread Timeout** is enabled.



@RRDREN1

Reread Timeout Reset On



@RRDREN0

Reread Timeout Reset Off



@SETUPE0

**** Exit Setup**



Reread - Ignore Symbology Type

When this option is enabled, if the barcode data is the same as the previously successfully decoded barcode, it is considered the same barcode regardless of the symbology.

When this option is disabled, both the barcode data and the barcode symbology must be identical to the previous successfully decoded barcode in order to be considered the same barcode.



Reread - Multiple Barcodes

This parameter allows you to configure the number of multiple barcodes that will not be reread within a specified period of time.



Reread Multiple Barcodes



Set the Reread Multiple Barcodes to 2:

1. Scan the **Enter Setup** barcode.
2. Scan the **Reread Multiple Barcodes** barcode.
3. Scan the numeric barcode “2” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.





Enter Setup

Good Read Delay

Good Read Delay sets the minimum amount of time before the scanner can read another barcode after a good read. This parameter is programmable in 1ms increments from 1ms to 3,600,000ms. Scan the appropriate barcode below to enable or disable the delay.



Enable Good Read Delay



Disable Good Read Delay

To set the good read delay, scan the barcode below, then set the delay (from 1 to 3,600,000ms) by scanning the digit barcode(s) then scanning the **Save** barcode from the Appendix.



Good Read Delay



Set the good read delay to 1,000ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Good Read Delay** barcode.
3. Scan the numeric barcodes “1”, “0”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.



**** Exit Setup**



1D Barcode Removal Timeout

Defines the timeout for a 1D barcode to be considered removed from the scan window in Advanced Sense Mode.



1D Barcode Removal Timeout



Set the 1D Barcode Removal Timeout to 1,000ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **1D Barcode Removal Timeout** barcode.
3. Scan the numeric barcodes “1”, “0”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.





2D Barcode Removal Timeout

Defines the timeout for a 2D barcode to be considered removed from the scan window in Advanced Sense Mode.



Set the 2D Barcode Removal Timeout to 1,000ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **2D Barcode Removal Timeout** barcode.
3. Scan the numeric barcodes “1”, “0”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.





Scanning Preference

Screen Mode: Select this mode when reading barcodes on paper and on the screen.

Barcode Pay Mode: Select this mode when reading barcodes to perform payment transactions.





Security Level

This parameter sets the number of decoding attempts required to correctly read the barcode. Higher security levels reduce misreads but slow down decoding speed.





@SETUP1
Enter Setup

Image Flipping



@MIRROR0
Do Not Flip



@MIRROR1
Flip Horizontally



@MIRROR2
Flip Vertically



@MIRROR3
Flip Horizontally & Vertically

Example of image not flipped



Example of image flipped horizontally



Example of image flipped vertically



Example of image flipped horizontally & vertically



@SETUP0
** Exit Setup



@SETUPE1

Enter Setup

Bad Read Message

Scan the appropriate barcode below to select whether or not to send a bad read message (user-programmable) when a good read does not occur before trigger release, or the decode session timeout expires, or the scanner receives the **Stop Scanning** command (For more information, see the “Serial Trigger Command” section in this Chapter).



@NGRENA0

Bad Read Message OFF



@NGRENA1

Bad Read Message ON



@SETUPE0

**** Exit Setup**



Set Bad Read Message

A bad read message can contain up to 7 characters (HEX values from 0x00 to 0xFF). To set a bad read message, scan the **Set Bad Read Message** barcode, the numeric barcodes representing the hexadecimal values of desired character(s) and the **Save** barcode.



Set the bad read message to "F" (HEX: 0x46):

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Bad Read Message** barcode.
3. Scan the numeric barcodes "4" and "6" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.





@SETUPE1
Enter Setup

Good Read Indicator Signal (OK Signal)

The SCAN_OK signal can be used to indicate a good read.

On: The SCAN_OK pin can be used to generate a good read indicator when a good read occurs.

Off: The SCAN_OK pin is unable to generate a good read indicator when a good read occurs.



@GRSENA0
Off



@GRSENA1
On

Good Read Indicator Signal Polarity

Low Level: The SCAN_OK pin produces low level output when a good read occurs.

High Level: The SCAN_OK pin produces high level output when a good read occurs.



@GRSAPL0
Low Level



@GRSAPL1
High Level



@SETUPE0
** Exit Setup



Good Read Indicator Duration

This parameter sets the amount of time that the Good Read Indicator to remain on following a good read. It is programmable in 1ms increments from 1ms to 10000ms.



Good Read Indicator Duration



Set the Good Read Indicator duration to 1500ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Good Read Indicator Duration** barcode.
3. Scan the numeric barcodes "1", "5", "0" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.





@SETUPE1

Enter Setup

Good Read Indicator Delay

This parameter sets the delay time for generating a good read indicator when a good read occurs. It is programmable in 1ms increments from 0ms to 10000ms.



@GRSODT

Good Read Indicator Delay



Set the Good Read Indicator delay to 1500ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Good Read Indicator delay** barcode.
3. Scan the numeric barcodes "1", "5", "0" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

EAS Good Read Indicator Signal

Enables or disables the good read indicator upon an EAS good read.

On: The scanner outputs a good read indicator when an EAS good read occurs.

Off: The scanner does not output a good read indicator when an EAS good read occurs.



@EASENA0
Off



@EASENA1
On

EAS Good Read Indicator Signal Polarity

Low Level: The Scanner produces low level output when an EAS good read occurs.

High Level: The Scanner pin produces high level output when an EAS good read occurs.



@EASSPL0
Low Level



@EASSPL1
High Level



@SETUPE0
** Exit Setup

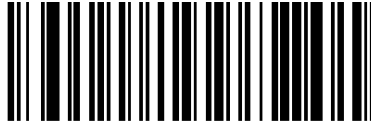


@SETUPE1

Enter Setup

EAS Good Read Indicator Duration

This parameter sets the amount of time that the EAS Good Read Indicator to remain on following a good read. It is programmable in 1ms increments from 1ms to 10000ms.



@EASSDU

EAS Good Read Indicator Duration



Set the Good Read Indicator duration to 1500ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **EAS Good Read Indicator Duration** barcode.
3. Scan the numeric barcodes “1”, “5”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

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.

Off: Illumination LEDs are off all the time.



@ILLSCN1
Normal



@ILLSCN0
Off

Illumination LED Brightness

This parameter sets the illumination LED brightness level. There are two options to choose from.



@ILLBRL1
【Level 1】



@ILLBRL2
【Level 2】



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup

Good Read LED

The green LED can be programmed to be On or Off to indicate good read.



@GRLENA1

On



@GRLENA0

Off



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

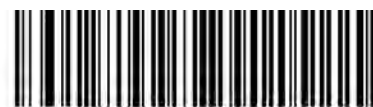
Good Read LED Duration

This parameter sets the amount of time that the Good Read LED to remain on following a good read. It is programmable in 1ms increments from 1ms to 2,500ms.



@GRLDUR20

Short (20ms)



@GRLDUR120

Medium (120ms)



@GRLDUR220

Long (220ms)



@GRLDUR320

Prolonged (320ms)



@GRLDUR

Custom (1 - 2,500ms)



Set the Good Read LED duration to 800ms:

6. Scan the **Enter Setup** barcode.
7. Scan the **Custom** barcode.
8. Scan the numeric barcodes "8", "0" and "0" from the "Digit Barcodes" section in Appendix.
9. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
10. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

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.



On



Off

Good Read Beep

Scanning the **Off** barcode can turn off the beep that indicates successful decode; scanning the **On** barcode can turn it back on.



On



Off



@SETUPE0
**** Exit Setup**



Good Read Beep Duration

This parameter sets the length of the beep the scanner emits on a good read. It is programmable in 1ms increments from 20ms to 300ms.



Set the Good Read Beep duration to 200ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom** barcode.
3. Scan the numeric barcodes “2”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.





@SETUPE1
Enter Setup

Good Read Beep Frequency

This parameter is programmable in 1Hz increments from 20Hz to 20,000Hz.



@GRBFRQ800
Extra Low (800Hz)



@GRBFRQ1600
Low (1600Hz)



@GRBFRQ2730
Medium (2730Hz)



@GRBFRQ4200
High (4200Hz)



@GRBFRQ
Custom (20 - 20,000Hz)



Set the Good Read Beep frequency to 2,000Hz:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom** barcode.
3. Scan the numeric barcodes "2", "0", "0" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



Good Read Beep Volume

There are 20 volume levels to choose from. The bigger the value, the louder the Good Read Beep.



Set the Good Read Beep volume to Level 8:

6. Scan the **Enter Setup** barcode.
7. Scan the **Custom Volume** barcode.
8. Scan the numeric barcode "8" from the "Digit Barcodes" section in Appendix.
9. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
10. Scan the **Exit Setup** barcode.





Chapter 9 Symbologies

Introduction

Every symbology (barcode type) has its own unique attributes. This chapter provides programming barcodes for configuring the scanner so that it can identify various symbologies. It is recommended to disable those that are rarely used to increase the efficiency of the scanner.

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.



Enable/Disable 1D Symbologies





@SETUPE1
Enter Setup

Enable/Disable 2D Symbologies



@ALL2DC1
Enable 2D Symbologies



@ALL2DC0
Disable 2D Symbologies

Inverse Code

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.

- ✧ **Regular 1D Code Only:** Read regular 1D code only.
- ✧ **Inverse 1D Code Only:** Read inverse 1D codes only.
- ✧ **Both Regular & Inverse:** Read both regular and inverse 1D codes.



@CCF1IV0
Regular 1D Code Only



@CCF1IV1
Inverse 1D Code Only



@CCF1IV2
Both Regular & Inverse



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

Surround GS1 Application Identifiers (AI's) with Parentheses

When **Surround GS1 AI's with Parentheses** is selected, each application identifier (AI) contained in scanned data will be enclosed in parentheses in the output message.



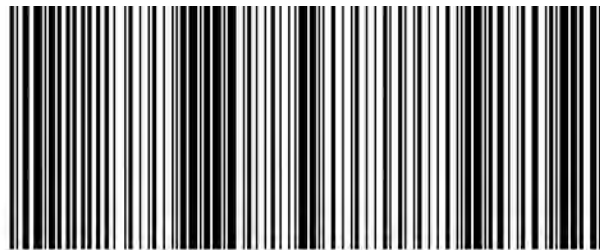
@GS1AIP0

Do Not Surround GS1 AI's with Parentheses



@GS1AIP1

Surround GS1 AI's with Parentheses



(01) 0 0614141 99999 6 (10) 10ABCEDF123456

If **Surround GS1 AI's with Parentheses** is selected, the barcode above is output as (01)00614141999996(10)10ABCEDF123456.

If **Do Not Surround GS1 AI's with Parentheses** is selected, the barcode above is output as 01006141419999961010ABCEDF123456.



@SETUPE0

** Exit Setup



Output GS1 Application Identifiers (AIs)



E
xample



If **Output GS1 AIs** is selected, the barcode above is output as 01006141419999961010ABCEDF123456
If **Do Not Output GS1 AIs** is selected, the barcode above is output as 0061414199999610ABCEDF123456





@SETUPE1

Enter Setup

GS1-128(UCC/EAN-128)



@GS1OA10

Do Not Output GS1 Als



@GS1OA11

** Output GS1 Als

GS1 Composite



@GS1OAC0

Do Not Output GS1 Als



@GS1OAC1

** Output GS1 Als



@SETUPE0

** Exit Setup



@SETUPE1
Enter Setup

GS1 Databar



@GS1OAR0

Do Not Output GS1 Als



@GS1OAR1

** Output GS1 Als

GS1 QR



@GS1OAQ0

Do Not Output GS1 Als



@GS1OAQ1

** Output GS1 Als

GS1 Data Matrix



@GS1OAD0

Do Not Output GS1 Als



@GS1OAD1

** Output GS1 Als



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

GS1 Check Character



@GS1OCK0

Disable GS1 Check Character



@GS1OCK1

Enable GS1 Check Character

GS1-128



@GS1OC10

Do Not Output GS1 Check Character



@GS1OC11

Output GS1 Check Character



@SETUPE0

** Exit Setup



@SETUPE1
Enter Setup

GS1 Composite



@GS1OC10

Do Not Output GS1 Check Character



@GS1OC11

Output GS1 Check Character

GS1 Databar



@GS1OCR0

Do Not Output GS1 Check Character



@GS1OCR1

Output GS1 Check Character



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

GS1 QR



@GS1OCQ0

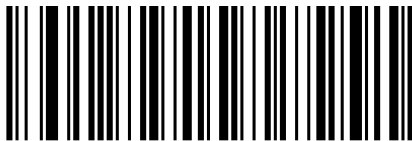
Do Not Output GS1 Check Character



@GS1OCQ1

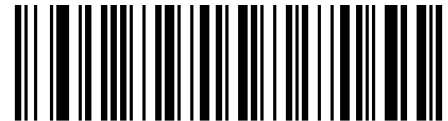
Output GS1 Check Character

GS1 Data Matrix



@GS1OCD0

Do Not Output GS1 Check Character



@GS1OCD1

Output GS1 Check Character



@SETUPE0

** Exit Setup



@SETUPE1
Enter Setup

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



If the scanner fails to identify Code 128 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 128** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for Code 128

The scanner can be configured to only decode Code 128 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes Code 128 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 128 barcodes with that length are to be decoded.



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.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
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



If the scanner fails to identify EAN-8 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable EAN-8** barcode.

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



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

2-Digit Add-On Code

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



**** Disable 2-Digit Add-On Code**



Enable 2-Digit Add-On Code



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

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



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

5-Digit Add-On Code

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



**** Disable 5-Digit Add-On Code**



Enable 5-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 5-digit add-on barcode. It can also decode EAN-8 barcodes without 5-digit add-on codes.

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



@SETUPE0
** Exit Setup



@SETUPE1
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.



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



EAN-8 Add-On Code Required

Convert EAN-8 to EAN-13

Convert EAN-8 to EAN-13: Convert EAN-8 decoded data to EAN-13 format before transmission. After conversion, the data follows EAN-13 format and is affected by EAN-13 programming selections (e.g., Check Character).

Do Not Convert EAN-8 to EAN-13: EAN-8 decoded data is transmitted as EAN-8 data, without conversion.



**** Do Not Convert EAN-8 to EAN-13**



Convert EAN-8 to EAN-13



@SETUPE0
**** Exit Setup**



@SETUPE1
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



If the scanner fails to identify EAN-13 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable EAN-13** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Transmit Check Character



@E13CHK2

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



@E13CHK1

Do Not Transmit EAN-13 Check Character

2-Digit Add-On Code

An EAN-13 barcode can be augmented with a two-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is an EAN-13 barcode while the part circled by red dotted line is a two-digit add-on code.



@E13AD20

**** Disable 2-Digit Add-On Code**



@E13AD21

Enable 2-Digit Add-On Code



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

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



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

5-Digit Add-On Code

An EAN-13 barcode can be augmented with a five-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is an EAN-13 barcode while the part circled by red dotted line is a five-digit add-on code.



** Disable 5-Digit Add-On Code



Enable 5-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 5-digit add-on barcode. It can also decode EAN-13 barcodes without 5-digit add-on codes.

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



** EAN-13 Add-On Code Not Required



EAN-13 Add-On Code Required



@SETUPE0
** Exit Setup



@SETUPE1
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.



** Do Not Require Add-On Code



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.



** Do Not Require Add-On Code



Require Add-On Code



@SETUPE0
** Exit 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.



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



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.



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



Require Add-On Code





@SETUPE1
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.



** Do Not Require Add-On Code



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.



** Do Not Require Add-On Code



Require Add-On Code



@SETUPE0
** Exit Setup



@SETUPE1
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.



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



Require Add-On Code



@SETUPE0
**** Exit Setup**



UPC-E

Restore Factory Defaults



Restore the Factory Defaults of UPC-E

Transmit Check Character

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



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



Do Not Transmit UPC-E Check Character

2-Digit Add-On Code

A UPC-E barcode can be augmented with a two-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is a UPC-E barcode while the part circled by red dotted line is a two-digit add-on code.





@SETUPE1
Enter Setup



** Disable 2-Digit Add-On Code



Enable 2-Digit Add-On Code



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

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

5-Digit Add-On Code

A UPC-E barcode can be augmented with a five-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is a UPC-E barcode while the part circled by red dotted line is a five-digit add-on code.



** Disable 5-Digit Add-On Code



Enable 5-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 5-digit add-on barcode. It can also decode UPC-E barcodes without 5-digit add-on codes.

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



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

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.



@UPEREQ0

**** UPC-E Add-On Code Not Required**



@UPEREQ1

UPC-E Add-On Code Required

Transmit Preamble Character

Preamble characters (Country Code and System Character) can be transmitted as part of a UPC-E barcode. Select one of the following options for transmitting UPC-E preamble to the host device: transmit system character only, transmit system character and country code ("0" for USA), or transmit no preamble.



@UPEPRE1

**** System Character**



@UPEPRE0

No Preamble



@UPEPRE2

System Character & Country Code



@SETUPE0

**** Exit Setup**



Convert UPC-E to UPC-A

Convert UPC-E to UPC-A: Convert UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Character).

Do Not Convert UPC-E to UPC-A: UPC-E decoded data is transmitted as UPC-E data, without conversion.



**** Do Not Convert UPC-E to UPC-A**



UPC-A

Restore Factory Defaults



Restore the Factory Defaults of UPC-A





@SETUPE1

Enter Setup

Enable/Disable UPC-A



@UPAENA1

**** Enable UPC-A**



@UPAENA0

Disable UPC-A



If the scanner fails to identify UPC-A barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable UPC-A** barcode.

Transmit Check Character

UPC-A is 13 digits in length with the last one as its check character used to verify the integrity of the data.



@UPACHK2

**** Transmit UPC-A Check Character**



@UPACHK1

Do Not Transmit UPC-A Check Character



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

2-Digit Add-On Code

A UPC-A barcode can be augmented with a two-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is a UPC-A barcode while the part circled by red dotted line is a two-digit add-on code.



** Disable 2-Digit Add-On Code



Enable 2-Digit Add-On Code



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

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



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

5-Digit Add-On Code

A UPC-A barcode can be augmented with a five-digit add-on code to form a new one. In the example below, the part surrounded by blue dotted line is a UPC-A barcode while the part circled by red dotted line is a five-digit add-on code.



@UPAAD50

** Disable 5-Digit Add-On Code



@UPAAD51

Enable 5-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 5-digit add-on barcode. It can also decode UPC-A barcodes without 5-digit add-on codes.

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



@SETUPE0

** Exit Setup



@SETUPE1
Enter Setup

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.



@UPAREQ0

**** UPC-A Add-On Code Not Required**



@UPAREQ1

UPC-A Add-On Code Required

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, transmit system character and country code ("0" for USA), or transmit no preamble.



@UPAPRE0

No Preamble



@UPAPRE1

**** System Character**



@UPAPRE2

System Character & Country Code



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Coupon

UPC-A/EAN-13 with Extended Coupon Code

The following three types of coupon code + extended coupon code are supported:

- ✧ UPC-A (starting with "5") + GS1-128
- ✧ UPC-A (starting with "5") + GS1 Databar
- ✧ EAN-13 (starting with "99") + GS1-128

Use the appropriate barcode below to enable or disable UPC-A/EAN-13 with Extended Coupon Code. When left on the default setting (**Off**), the scanner treats Coupon Codes and Extended Coupon Codes as single bar codes.

If you scan the **Allow Concatenation** code, when the scanner sees the coupon code and the extended coupon code in a single scan, it transmits both as separate symbologies. Otherwise, it transmits the first coupon code it reads.

If you scan the **Require Concatenation** code, the scanner must see and read the coupon code and extended coupon code in a single read to transmit the data. No data is output unless both codes are read.



** Off



Allow Concatenation



Require Concatenation



When using the UPC-A Coupon feature, please ensure that **System Character** or **System Character & Country Code** is selected for the "Transmit UPC-A Preamble Character" feature.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Coupon GS1 Databar Output

If you scan coupons that have both UPC and GS1 Databar codes, you may wish to scan and output only the data from the GS1 Databar code. Scan the **GS1 Output On** barcode below to scan and output only the GS1 Databar code data.

When **GS1 Output Off** is selected, coupons that have both UPC and GS1 Databar codes are transmitted depending on your selection for the "UPC-A/EAN-13 with Extended Coupon Code" feature.



**** GS1 Output Off**



GS1 Output On



When using the UPC-A Coupon feature, please ensure that **System Character** or **System Character & Country Code** is selected for the "Transmit UPC-A Preamble Character" feature.



@SETUPE0
**** Exit Setup**



@SETUPE1

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



If the scanner fails to identify Interleaved 2 of 5 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Interleaved 2 of 5** barcode.



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for Interleaved 2 of 5

The scanner can be configured to only decode Interleaved 2 of 5 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 6)



Set the Maximum Length (Default: 80)



If minimum length is set to be greater than maximum length, the scanner only decodes Interleaved 2 of 5 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Interleaved 2 of 5 barcodes with that length are to be decoded.



Set the scanner to decode Interleaved 2 of 5 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
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.

Since Interleaved 2 of 5 must always have an even number of digits, a zero may need to be added as the first digit when the check character is added. The check character is automatically generated when making Interleaved 2 of 5 barcodes.



@I25CHK0
** Disable



@I25CHK1

Do Not Transmit Check Character After Verification



@I25CHK2

Transmit Check Character After Verification



If the **Do Not Transmit Check Character After Verification** option is enabled, Interleaved 2 of 5 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Interleaved 2 of 5 barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Febraban

Disable/Enable Febraban



@I25FBB0
**** Disable Febraban**



@I25FBB1
Enable Febraban, Do Not Expand



@I25FBB2
Enable Febraban, Expand

Transmit Delay per Character

Transmit Delay per Character applies to both Expanded and Unexpanded Febraban. This feature is available only when USB HID Keyboard is enabled.



@FEBSN0
**** Disable Transmit Delay per Character**



@FEBSN1
Enable Transmit Delay per Character



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup

You may select an appropriate delay value from the options below as per your actual needs.



@FEBSDT0

0ms



@FEBSDT5

5ms



@FEBSDT10

10ms



@FEBSDT15

15ms



@FEBSDT20

20ms



@FEBSDT25

25ms



@FEBSDT30

30ms



@FEBSDT35

35ms



@SETUPE0

**** Exit Setup**



@SETUPE1

Enter Setup



@FEBSDT40

40ms



@FEBSDT45

45ms



@FEBSDT50

50ms



@FEBSDT55

55ms



@FEBSDT60

60ms



@FEBSDT65

65ms



@FEBSDT70

** 70ms



@FEBSDT75

75ms



@SETUPE0

** Exit Setup



@SETUPE1

Enter Setup

Transmit Delay per 12 Characters

Transmit Delay per 12 Characters applies to Expanded Febraban only. This feature is available only when USB HID Keyboard is enabled.



@FEBMEN0

** Disable Transmit Delay per 12 Characters



@FEBMEN1

Enable Transmit Delay per 12 Characters

You may select an appropriate delay value from the options below as per your actual needs.



@FEBMDT0

0ms



@FEBMDT1

300ms



@FEBMDT2

400ms



@SETUPE0

** Exit Setup



@SETUPE1
Enter Setup



@FEBMDT3
**** 500ms**



@FEBMDT4
600ms



@FEBMDT5
700ms



@FEBMDT6
800ms



@FEBMDT7
900ms



@SETUPE0
**** Exit Setup**



@SETUPE1
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.

ITF-14 priority principle: For the Interleaved 2 of 5 barcodes with a length of 14 characters and the last character as the check character, the ITF-14 configurations shall take precedence over the Interleaved 2 of 5 settings.

Restore Factory Defaults



Restore the Factory Defaults of ITF-14

Enable/Disable ITF-14



** Disable ITF-14



Enable ITF-14 But Do Not Transmit Check Character



Enable ITF-14 and Transmit Check Character



An example of the ITF-14 priority principle: when ITF-14 is enabled and Interleaved 2 of 5 is disabled, the scanner only decodes Interleaved 2 of 5 barcodes with a length of 14 characters and the last character as the check character.



** Exit Setup



@SETUPE1

Enter Setup



@SETUPE0

**** Exit Setup**



@SETUPE1
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.

ITF-6 priority principle: For the Interleaved 2 of 5 barcodes with a length of 6 characters and the last character as the check character, the ITF-6 configurations shall take precedence over the Interleaved 2 of 5 settings.

Restore Factory Defaults



Restore the Factory Defaults of ITF-6

Enable/Disable ITF-6



** Disable ITF-6



Enable ITF-6 But Do Not Transmit Check Character



Enable ITF-6 and Transmit Check Character



An example of the ITF-6 priority principle: when ITF-6 is enabled and Interleaved 2 of 5 is disabled, the scanner only decodes Interleaved 2 of 5 barcodes with a length of 6 characters and the last character as the check character.



@SETUPE0
** Exit Setup



@SETUPE1
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



If the scanner fails to identify Matrix 2 of 5 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Matrix 2 of 5** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for Matrix 2 of 5

The scanner can be configured to only decode Matrix 2 of 5 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



@M25MIN

Set the Minimum Length (Default: 4)



@M25MAX

Set the Maximum Length (Default: 80)



If minimum length is set to be greater than maximum length, the scanner only decodes Matrix 2 of 5 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Matrix 2 of 5 barcodes with that length are to be decoded.



Set the scanner to decode Matrix 2 of 5 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



Check Character Verification

A check character is optional for Matrix 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 Matrix 2 of 5 barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Matrix 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 Matrix 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.

Since Matrix 2 of 5 must always have an even number of digits, a zero may need to be added as the first digit when the check character is added. The check character is automatically generated when making Matrix 2 of 5 barcodes.



Do Not Transmit Check Character After Verification



Transmit Check Character After Verification



If the **Do Not Transmit Check Character After Verification** option is enabled, Matrix 2 of 5 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Matrix 2 of 5 barcodes with a total length of 4 characters including the check character cannot be read.)





@SETUPE1
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



If the scanner fails to identify Code 39 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 39** barcode.



@SETUPE0
**** Exit Setup**



Set Length Range for Code 39

The scanner can be configured to only decode Code 39 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes Code 39 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 39 barcodes with that length are to be decoded.



Set the scanner to decode Code 39 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.





@SETUPE1
Enter Setup

Check Character Verification

A check character is optional for Code 39 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 Code 39 barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Code 39 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 Code 39 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.



** Disable



Do Not Transmit Check Character After Verification



Transmit Check Character After Verification



If the **Do Not Transmit Check Character After Verification** option is enabled, Code 39 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Code 39 barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

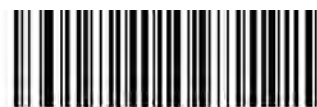
Transmit Start/Stop Character

Code 39 uses an asterisk (*) for both the start and the stop characters. You can choose whether or not to transmit the start/stop characters by scanning the appropriate barcode below.



@C39TSC0

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



@C39TSC1

Transmit Start/Stop Character

Enable/Disable Code 39 Full ASCII

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



@C39ASC0

**** Disable Code 39 Full ASCII**



@C39ASC1

Enable Code 39 Full ASCII



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Enable/Disable Code 32 (Italian Pharma Code)

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



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup

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

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



@SETUPE0

**** Exit Setup**



@SETUPE1

Enter Setup

Codabar

Restore Factory Defaults



@CBADEF

Restore the Factory Defaults of Codabar

Enable/Disable Codabar



@CBAENA1

Enable Codabar



@CBAENA0

**** Disable Codabar**



If the scanner fails to identify Codabar barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Codabar** barcode.



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for Codabar

The scanner can be configured to only decode Codabar barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



@CBAMIN

Set the Minimum Length (Default: 2)



@CBAMAX

Set the Maximum Length (Default: 60)



If minimum length is set to be greater than maximum length, the scanner only decodes Codabar barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Codabar barcodes with that length are to be decoded.



Set the scanner to decode Codabar barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Check Character Verification

A check character is optional for Codabar 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 Codabar barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Codabar 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 Codabar 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.



@CBACHK0
** Disable



Do Not Transmit Check Character After Verification



Transmit Check Character After Verification



If the **Do Not Transmit Check Character After Verification** option is enabled, Codabar barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Codabar barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0
** Exit Setup



@SETUP1
Enter Setup

Start/Stop Character

You can set the start/stop characters and choose whether or not to transmit the start/stop characters by scanning the appropriate barcode below.



@CBATSC0

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



@CBATSC1

Transmit Start/Stop Character



@CBASCF0

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



@CBASCF1

ABCD/TN*E as the Start/Stop Character



@CBASCF2

abcd/abcd as the Start/Stop Character



@CBASCF3

abcd/tn*e as the Start/Stop Character



@SETUP0
**** Exit Setup**



@SETUPE1
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**



If the scanner fails to identify Code 93 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 93** barcode.



@SETUPE0
**** Exit Setup**



Set Length Range for Code 93

The scanner can be configured to only decode Code 93 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes Code 93 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 93 barcodes with that length are to be decoded.



Set the scanner to decode Code 93 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.





@SETUPE1
Enter Setup

Check Character Verification

Check characters are optional for Code 93 and can be added as the last two characters, which are calculated values used to verify the integrity of the data.

- ✧ **Disable:** The scanner transmits Code 93 barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Code 93 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted except the last two digits, whereas those failing them will not be transmitted.
- ✧ **Transmit Check Character After Verification:** The scanner checks the integrity of all Code 93 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted, whereas those failing them will not be transmitted.



@C93CHK0
Disable



@C93CHK1

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



@C93CHK2

Transmit Check Character After Verification



If the **Do Not Transmit Check Character After Verification** option is enabled, Code 93 barcodes with a length that is less than the configured minimum length after having the two check characters excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Code 93 barcodes with a total length of 4 characters including the two check characters cannot be read.)



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

China Post 25

Restore Factory Defaults



@CHPDEF

Restore the Factory Defaults of China Post 25

Enable/Disable China Post 25



@CHPENA1

Enable China Post 25



@CHPENAO

**** Disable China Post 25**



If the scanner fails to identify China Post 25 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable China Post 25** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for China Post 25

The scanner can be configured to only decode China Post 25 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes China Post 25 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only China Post 25 barcodes with that length are to be decoded.



Set the scanner to decode China Post 25 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Check Character Verification

A check character is optional for China Post 25 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 China Post 25 barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all China Post 25 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 China Post 25 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.



@CHPCHK0
** Disable



@CHPCHK1

Do Not Transmit Check Character After Verification



@CHPCHK2

Transmit Check Character After Verification



If the **Do Not Transmit Check Character After Verification** option is enabled, China Post 25 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, China Post 25 barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0
** Exit Setup



@SETUPE1

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



If the scanner fails to identify GS1-128 barcodes, you may first try this solution by scanning the **EnterSetup** barcode and then **Enable GS1-128** barcode.



@SETUPE0

** Exit Setup



Set Length Range for GS1-128

The scanner can be configured to only decode GS1-128 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes GS1-128 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only GS1-128 barcodes with that length are to be decoded.



Set the scanner to decode GS1-128 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.





@SETUPE1
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



If the scanner fails to identify GS1 Databar barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable GS1 Databar** barcode.

Transmit Application Identifier "01"



@RSSTA1
Transmit Application Identifier "01"



@RSSTA0
Do Not Transmit Application Identifier "01"



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

GS1 DataBar Omnidirectional (RSS14)



@RSSE141

** Enable



@RSSE140

Disable

GS1 DataBar Limited



@RSSENL1

** Enable



@RSSENL0

Disable

GS1 DataBar Expand



@RSSENE1

** Enable



@RSSENE0

Disable



@SETUPE0

** Exit Setup



@SETUPE1

Enter Setup

GS1 Composite (EAN·UCC Composite)

Restore Factory Defaults



@CPTDEF

Restore the Factory Defaults of GS1 Composite

Enable/Disable GS1 Composite



@CPTENA1

Enable GS1 Composite



@CPTENA0

Disable GS1 Composite



If the scanner fails to identify GS1 Composite barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable GS1 Composite** barcode.



@SETUPE0

** Exit Setup



@SETUPE1

Enter Setup

Enable/Disable UPC/EAN Composite



@CPTUPC1

Enable UPC/EAN Composite



@CPTUPC0

Disable UPC/EAN Composite



@SETUPE0

**** Exit Setup**



@SETUPE1

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**



If the scanner fails to identify Code 11 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 11** barcode.



@SETUPE0

**** Exit Setup**



Set Length Range for Code 11

The scanner can be configured to only decode Code 11 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 4)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes Code 11 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 11 barcodes with that length are to be decoded.



Set the scanner to decode Code 11 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.





@SETUPE1
Enter Setup

Check Character Verification

Check characters are optional for Code 11 and can be added as the last one or two characters, which are calculated values used to verify the integrity of the data.

If the **Disable** option is enabled, the scanner transmits Code 11 barcodes as is.



@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)



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Transmit Check Character



@C11TCK0

Do Not Transmit Code 11 Check Character



@C11TCK1

** Transmit Code 11 Check Character



If you select a check character algorithm and the **Do Not Transmit Check Character** option, Code 11 barcodes with a length that is less than the configured minimum length after having the check character(s) excluded will not be decoded. (For example, when the **One Check Character, MOD11** and **Do Not Transmit Check Character** options are enabled and the minimum length is set to 4, Code 11 barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

ISBN

Restore Factory Defaults



@ISBDEF
Restore the Factory Defaults of ISBN

Enable/Disable ISBN



@ISBENA1
Enable ISBN



@ISBENA0
**** Disable ISBN**



If the scanner fails to identify ISBN barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable ISBN** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup

Set ISBN Format



@ISBT101

** ISBN-10



@ISBT100

ISBN-13



@SETUPE0

** Exit Setup



@SETUPE1
Enter Setup

ISSN

Restore Factory Defaults



@ISSDEF
Restore the Factory Defaults of ISSN

Enable/Disable ISSN



@ISSENA1
****Enable ISSN**



@ISSENA0
Disable ISSN



If the scanner fails to identify ISSN barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable ISSN** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Industrial 25

Restore Factory Defaults



@L25DEF

Restore the Factory Defaults of Industrial 25

Enable/Disable Industrial 25



@L25ENA1

Enable Industrial 25



@L25ENA0

**** Disable Industrial 25**



If the scanner fails to identify Industrial 25 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Industrial 25** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for Industrial 25

The scanner can be configured to only decode Industrial 25 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 6)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes Industrial 25 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Industrial 25 barcodes with that length are to be decoded.



Set the scanner to decode Industrial 25 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Check Character Verification

A check character is optional for Industrial 25 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 Industrial 25 barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Industrial 25 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 Industrial 25 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.



@L25CHK0
** Disable



Do Not Transmit Check Character After Verification



Transmit Check Character After Verification



If the **Do Not Transmit Check Character After Verification** option is enabled, Industrial 25 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Industrial 25 barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Standard 25

Restore Factory Defaults



@S25DEF

Restore the Factory Defaults of Standard 25

Enable/Disable Standard 25



@S25ENA1

****Enable Standard 25**



@S25ENA0

Disable Standard 25



If the scanner fails to identify Standard 25 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Standard 25** barcode.



@SETUPE0

**** Exit Setup**



Set Length Range for Standard 25

The scanner can be configured to only decode Standard 25 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 6)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes Standard 25 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Standard 25 barcodes with that length are to be decoded.



Set the scanner to decode Standard 25 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.





@SETUPE1
Enter Setup

Check Character Verification

A check character is optional for Standard 25 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 Standard 25 barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Standard 25 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 Standard 25 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.



** Disable



Do Not Transmit Check Character After Verification



Transmit Check Character After Verification



If the **Do Not Transmit Check Character After Verification** option is enabled, Standard 25 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Standard 25 barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Plessey

Restore Factory Defaults



@PLYDEF
Restore the Factory Defaults of Plessey

Enable/Disable Plessey



@PLYENA1
Enable Plessey



@PLYENA0
**** Disable Plessey**



If the scanner fails to identify Plessey barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Plessey** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for Plessey

The scanner can be configured to only decode Plessey barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



@PLYMIN

Set the Minimum Length (Default: 4)



@PLYMAX

Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes Plessey barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Plessey barcodes with that length are to be decoded.



Set the scanner to decode Plessey barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0

**** Exit Setup**



Check Character Verification

Check characters are optional for Plessey and can be added as the last two characters, which are calculated values used to verify the integrity of the data.

- ✧ **Disable:** The scanner transmits Plessey barcodes as is.
- ✧ **Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Plessey barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted except the last two digits, whereas those failing them will not be transmitted.
- ✧ **Transmit Check Character After Verification:** The scanner checks the integrity of all Plessey barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted, whereas those failing them will not be transmitted.



Do Not Transmit Check Character After Verification



Transmit Check Character After Verification



If the **Do Not Transmit Check Character After Verification** option is enabled, Plessey barcodes with a length that is less than the configured minimum length after having the check characters excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Plessey barcodes with a total length of 4 characters including the check characters cannot be read.)





@SETUPE1
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**



If the scanner fails to identify MSI-Plessey barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable MSI-Plessey** barcode.



@SETUPE0
**** Exit Setup**



Set Length Range for MSI-Plessey

The scanner can be configured to only decode MSI-Plessey barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 4)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes MSI-Plessey barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only MSI-Plessey barcodes with that length are to be decoded.



Set the scanner to decode MSI-Plessey barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.





@SETUP E1

Enter Setup

Check Character Verification

Check characters are optional for MSI-Plessey and can be added as the last one or two characters, which are calculated values used to verify the integrity of the data.

If the **Disable** option is enabled, the scanner transmits MSI-Plessey barcodes as is.



@MSIC HK0

Disable



@MSIC HK2

Two Check Characters, MOD10/MOD10



@MSIC HK1

** One Check Character, MOD10



@MSIC HK3

Two Check Characters, MOD10/MOD11



@SETUP E0

** Exit Setup



@SETUPE1
Enter Setup

Transmit Check Character



**** Transmit MSI-Plessey Check Character**



Do Not Transmit MSI-Plessey Check Character



If you select a check character algorithm and the **Do Not Transmit Check Character** option, MSI-Plessey barcodes with a length that is less than the configured minimum length after having the check character(s) excluded will not be decoded. (For example, when the **One Check Character, MOD10** and **Do Not Transmit Check Character** options are enabled and the minimum length is set to 4, MSI-Plessey barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0
**** Exit Setup**



@SETUPE1
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



If the scanner fails to identify AIM 128 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable AIM 128** barcode.



@SETUPE0

**** Exit Setup**



Set Length Range for AIM 128

The scanner can be configured to only decode AIM 128 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodes AIM 128 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only AIM 128 barcodes with that length are to be decoded.



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

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.





@SETUPE1
Enter Setup

ISBT 128

Restore Factory Defaults



@IBTDEF

Restore the Factory Defaults of ISBT 128

Enable/Disable ISBT 128



@IBTENA1

**** Enable ISBT 128**



@IBTENA0

Disable ISBT 128



If the scanner fails to identify ISBT 128 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable ISBT 128** barcode.



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

COOP 25

Restore Factory Defaults



@COPDEF

Restore the Factory Defaults of COOP 25

Enable/Disable COOP 25



@COPENA1

Enable COOP 25



@COPENA0

**** Disable COOP 25**



If the engine fails to identify COOP 25 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable COOP 25** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for COOP 25

The engine can be configured to only decode COOP 25 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



@COPMIN

Set the Minimum Length (Default: 4)



@COPMAX

Set the Maximum Length (Default: 80)



If minimum length is set to be greater than maximum length, the engine only decodes COOP 25 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only COOP 25 barcodes with that length are to be decoded.

Example

Set the engine to decode COOP 25 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUP1
Enter Setup

Check Character Verification



@COPCHK0
**** Disable**



@COPCHK1

Do Not Transmit Check Character After Verification



@COPCHK2

Transmit Check Character After Verification



@SETUP0
**** Exit Setup**



@SETUPE1

Enter Setup

PDF417

Restore Factory Defaults



@PDFDEF

Restore the Factory Defaults of PDF417

Enable/Disable PDF417



@PDFENA1

Enable PDF417



@PDFENA0

**** Disable PDF417**



If the scanner fails to identify PDF417 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable PDF417** barcode.



@SETUPE0

**** Exit Setup**



Set Length Range for PDF417

The scanner can be configured to only decode PDF417 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 2710)



Minimum length is not allowed to be greater than maximum length. If you only want to read PDF417 barcodes with a specific length, set both minimum and maximum lengths to be that desired length.



Set the scanner to decode PDF417 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.





@SETUPE1

Enter Setup

PDF417 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



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

PDF417 Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.



@PDFINV0

Decode Regular PDF417 Barcodes Only



@PDFINV1

Decode Inverse PDF417 Barcodes Only



@PDFINV2

** Decode Both

Character Encoding



@PDFENC0

** Default Character Encoding



@PDFENC1

UTF-8



@PDFENC2

Automatically Select UTF-8 or Code Page



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

PDF417 ECI Output



@PDFECI0

Disable PDF417 ECI Output



@PDFECI1

**** Enable PDF417 ECI Output**



@SETUPE0

**** Exit Setup**



@SETUPE1
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



If the scanner fails to identify QR Code barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable QR Code** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for QR Code

The scanner can be configured to only decode QR Code barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 6144)



Minimum length is not allowed to be greater than maximum length. If you only want to read QR Code barcodes with a specific length, set both minimum and maximum lengths to be that desired length.



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

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



QR Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.



Decode Regular QR Barcodes Only



Decode Inverse QR Barcodes Only



**** Decode Both**

Character Encoding



**** Default Character Encoding**



UTF-8



Automatically Select UTF-8 or Code Page





@SETUPE1

Enter Setup

QR ECI Output



@QRCECI0

**** Disable QR ECI Output**



@QRCECI1

Enable QR ECI Output



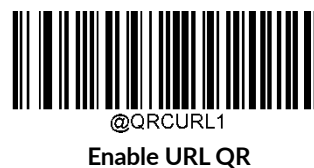
@SETUPE0

**** Exit Setup**



URL QR

URL QR code refers to QR code whose barcode data begins with the http or HTTP.



♦ Custom URL QR

You can append to the QR barcode data several user-defined strings (separated by "|") that cannot exceed 64 characters, including separators (HEX values from 0x00 to 0xFF). When URL QR is enabled, the scanner will not read the QR code whose barcode data starts with custom strings.





@SETUPE1

Enter Setup



@QRCURS

Custom URL QR



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

Aztec

Restore Factory Defaults



@AZTDEF

Restore the Factory Defaults of Aztec Code

Enable/Disable Aztec Code



@AZTENA1

Enable Aztec Code



@AZTENA0

**** Disable Aztec Code**



If the scanner fails to identify Aztec Code barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Aztec Code** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for Aztec Code

The scanner can be configured to only decode Aztec barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 6144)



Minimum length is not allowed to be greater than maximum length. If you only want to read Aztec barcodes with a specific length, set both minimum and maximum lengths to be that desired length.



Set the scanner to decode Aztec barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup

Read Multi-barcodes on an Image

There are three options:

- ✧ **Mode 1:** Read one barcode only.
- ✧ **Mode 2:** Read fixed number of barcodes only.
- ✧ **Mode 3:** Composite Reading. Read fixed number of barcodes first. If unsuccessful, read one barcode only.



@AZTMOD1

**** Mode 1**



@AZTMOD2

Mode 2



@AZTMOD3

Mode 3



@SETUPE0

**** Exit Setup**



@SETUPE1

Enter Setup

Set the Number of Barcodes



@AZTMUL1

** 1



@AZTMUL3

3



@AZTMUL5

5



@AZTMUL7

7



@AZTMUL2

2



@AZTMUL4

4



@AZTMUL6

6



@AZTMUL8

8



@SETUPE0

** Exit Setup



@SETUPE1

Enter Setup

Character Encoding



@AZTENC0

** Default Character Encoding



@AZTENC1

UTF-8



@AZTENC2

Automatically Select UTF-8 or Code Page

Aztec ECI Output



@AZTECI0

** Disable Aztec ECI Output



@AZTECI1

Enable Aztec ECI Output



@SETUPE0

** Exit Setup



@SETUPE1
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**



If the scanner fails to identify Data Matrix barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable Data Matrix** barcode.



@SETUPE0
**** Exit Setup**



Enter Setup

Set Length Range for Data Matrix

The scanner can be configured to only decode Data Matrix barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 6144)



Minimum length is not allowed to be greater than maximum length. If you only want to read Data Matrix barcodes with a specific length, set both minimum and maximum lengths to be that desired length.



Set the scanner to decode Data Matrix barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode “8” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Set the Maximum Length** barcode.
6. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
8. Scan the **Exit Setup** barcode.



**** Exit Setup**



@SETUPE1
Enter Setup

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 sequence: left (upper) Data Matrix code followed by right (lower) Data Matrix code.
- ✧ **Both Single & Twin:** Read both Data Matrix codes. If successful, transmit as twin Data Matrix only. Otherwise, try single Data Matrix only.



**** Single Data Matrix Only**



Twin Data Matrix Only



Both Single & Twin



@SETUPE0
**** Exit Setup**



Rectangular Barcode

Data Matrix has two formats:

Square barcodes having the same amount of modules in length and width: 10*10, 12*12.... 144*144.

Rectangular barcodes having different amounts of models in length and width: 6*16, 6*14...14*22.



Data Matrix Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.





@SETUPE1

Enter Setup

Character Encoding



@DMCENC0

** Default Character Encoding



@DMCENC1

UTF-8



@DMCENC2

Automatically Select UTF-8 or Code Page

Data Matrix ECI Output



@DMCEC10

** Disable Data Matrix ECI Output



@DMCEC11

Enable Data Matrix ECI Output



@SETUPE0

** Exit 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. Multiple data formats can be programmed into the scanner. The maximum size of all data formats created is 2048 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.



Add a Data Format

Data format is used to edit barcode data. When you create a data format, you must select one of the four labels (Format_0, Format_1, Format_2 and Format_3) for your data format, specify the application scope of data format (such as barcode type and data length) and include formatter commands. Multiple data formats may be created using the same label. 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).

There are two methods to program a data format: Programming with barcodes and programming with serial commands.

Programming with Barcodes

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 the "Digit Barcodes" section in Appendix.

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





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



Step 3: Select a label (Format_0 or Format_1 or Format_2 or Format_3).

Scan a numeric barcode **0** or **1** or **2** or **3** to label this data format 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 the “Symbology ID Number” section in Appendix 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.

Step 9: Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix to save your data format.





Example: Program a Format_0 data format 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 as the label |
| 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 |

To streamline the programming process, you may as well generate a batch barcode by inputting the command (e.g. **@DFMADD069990020010F141;**) used to create a data format. See the "Use Batch Barcode" section in Chapter 9 to learn how to put a batch barcode into use.

When creating multiple data formats sharing a label, the formats are separated from each other by a vertical bar (|) in the batch command, e.g. **@DFMADD069990029999F141|069990039999F142|169990049999F143;**





@SETUPE1
Enter Setup

Programming with Serial Commands

A data format can also be created by serial commands (HEX) sent from the host device. **All commands must be entered in uppercase letters.**

The syntax consists of the following elements:

Prefix: "~<SOH>0000" (HEX: 7E 01 30 30 30 30), 6 characters.

Storage type: "@" (HEX: 40) or "#" (HEX: 23), 1 character. "@" means permanent setting which will not be lost by removing power from the scanner or rebooting it; "#" means temporary setting which will be lost by removing power from the scanner or rebooting it.

Add Data Format Command: "DFMADD" (HEX: 44 46 4D 41 44 44), 6 characters.

Data format label: "0" (HEX: 30) or "1" (HEX: 31) or "2" (HEX: 32) or "3" (HEX: 33), 1 character. "0", "1", "2" and "3" represent Format_0, Format_1, Format_2 and Format_3 respectively.

Formatter command type: "6" (HEX: 36), 1 character.

Interface type: "999" (HEX: 39 39 39), 3 characters.

Symbology ID Number: The ID number of the symbology to which you want to apply the data format, 3 characters. 999 indicates all symbologies.

Data length: The length of data that will be acceptable for this symbology, 4 characters. 9999 indicates all lengths. For example, 32 characters should be entered as 0032.

Formatter commands: The command string used to edit data. For more information, see the "Formatter Command Type 6" section in this chapter.

Suffix: "<ETX>" (HEX: 3B 03), 2 characters.

Example: Program a Format_0 data format using formatter command type 6, Code 128 containing 10 characters applicable, send all characters followed by "A".

Enter: 7E 01 30 30 30 30 40 44 46 4D 41 44 44 30 36 39 39 39 30 30 33 39 39 39 39 46 31 34 31 3B 03
(~<SOH>0000@DFMADD069990020010F141;<ETX>)

Response: 02 01 30 30 30 30 40 44 46 4D 41 44 44 30 36 39 39 39 30 30 33 39 39 39 39 46 31 34 31 06 3B 03
(<STX><SOH>0000@DFMADD069990020010F141<ACK>;<ETX>)

When creating multiple data formats sharing a label, the formats are separated from each other by a vertical bar (|) in the serial command.

Example: ~<SOH>0000@DFMADD069990020010F141|069990039999F142|069990049999F143;<ETX>



@SETUPE0
** Exit Setup



Enable/Disable Data Formatter

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



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).





@SETUPE1
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.



@DFMTON0
Non-Match Error Beep Off



@DFMTON1
** Non-Match Error Beep On



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

Data Format Selection

After enabling the Data Formatter, you can 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



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

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 use the data format you saved as Format_3. You can switch to Format_1 for a single trigger pull 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



@SETUPE0
** Exit Setup



Clear Data Format

There are two methods to remove data format created 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.



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;**





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 the “ASCII Table” in Appendix.

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



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>





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.





@SETUPE1

Enter Setup

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



1234567890ABCDEFGHIJ

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 time 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.



@SETUPE0

**** Exit 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.





@SETUPE1
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.



@SETUPE0
** Exit 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.





@SETUPE1
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



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."



@SETUPE0
** Exit 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.





@SETUPE1
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



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>

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.



@SETUPE0
** Exit Setup



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>





@SETUPE1

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



@SETUPE0

** Exit Setup



@SETUPE1
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**



@SETUPE0
** Exit Setup



@SETUPE1

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 Keyboard.

EF Example: Insert a delay of 1s 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



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

B5 Insert key strokes

Syntax=B5nnssxx (nn: The number of keys pressed (without key modifiers); ss: the key modifier from the table below; xx: the key number from the “Unicode Key Maps” in Appendix.)

Insert a key stroke or combination of key strokes. Key strokes are dependent on your keyboard (see the “Unicode Key Maps” in Appendix). This command can only be used with USB HID Keyboard.

Key Modifiers	
No Key Modifier	00
Shift Left	01
Shift Right	02
Alt Left	04
Alt Right	08
Control Left	10
Control Right	20

For example, B501001F inserts an “a” on a U.S. style keyboard. B5 = the command, 01 = number of keys pressed (without the key modifier), 00 is No Key Modifier, and 1F is the “a” key. If an “A” were to be inserted, B501011F or B501021F would be entered.

If there are two keystrokes, the syntax would change from Syntax=B5nnssxx for one keystroke to Syntax=B5nnssxxssxx. An example that would insert “aA” is as follows: B502001F011F.

Note: Key modifiers can be added together when needed. Example: Shift Left + Alt Left + Control Left =15.



@SETUPE0
** Exit Setup



Chapter 11 Prefix & Suffix

Introduction

A 1D barcode could contain digits, letters, symbols, etc. A 2D barcode could contain more data, such as Chinese characters and other multi-byte characters. However, in real applications, they do not and should not have all information we need, such as barcode type, data acquisition time and delimiter, in order to keep the barcodes short and flexible.

Prefix and suffix are how to fulfill the needs mentioned above. They can be added, removed and modified while the original barcode data remains intact.



Barcode processing procedure:

1. Edit data with Data Formatter
2. Append prefix/suffix
3. Pack data
4. Append terminating character





@SETUPE1
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 to append Code ID prefix, AIM ID prefix, custom prefix/suffix and terminating character to the barcode data before the transmission.



** Disable All Prefixes/Suffixes



Enable All Prefixes/Suffixes

Prefix Sequence



** Code ID+ Custom +AIM ID



Custom + Code ID + AIM ID



@SETUPE0
** Exit Setup



@SETUPE1
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 10 characters. For example, if the custom prefix is "AB" and the barcode data is "123", the Host will receive "AB123".



** Disable Custom Prefix



Enable Custom Prefix

Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode then the numeric barcodes corresponding to the hexadecimal value of a desired prefix then the **Save** barcode.

Note: A custom prefix cannot exceed 10 characters.



Set Custom Prefix

E
xample

Set the custom prefix to "CODE" (HEX: 0x43/0x4F/0x44/0x45):

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Custom Prefix** barcode.
3. Scan the numeric barcodes "4", "3", "4", "F", "4", "4", "4" and "5" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Enable Custom Prefix** barcode.
6. Scan the **Exit Setup** barcode.



@SETUPE0
** Exit Setup



Enter Setup

AIM ID Prefix

AIM (Automatic Identification Manufacturers) ID defines symbology identifier (For the details, see the "AIM ID Table" section in Appendix). If AIM ID prefix is enabled, the scanner will add the symbology identifier before the scanned data after decoding.



**** Disable AIM ID Prefix**



Enable AIM ID Prefix



AIM ID is not user programmable.



**** Exit Setup**



@SETUPE1
Enter Setup

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.



@CIDENA0
**** Disable Code ID Prefix**



@CIDENA1
Enable Code ID Prefix

Restore All Default Code IDs

For the information of default Code IDs, see the “Code ID Table” section in Appendix.



@CIDDEF
Restore All Default Code IDs

Modify Code ID

See the examples below to learn how to modify a Code ID and restore the default Code IDs of all symbologies.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

E
sample

Modify PDF417 Code ID to be "p" (HEX: 0x70):

1. Scan the **Enter Setup** barcode.
2. Scan the **Modify PDF417 Code ID** barcode.
3. Scan the numeric barcodes "7" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.

Restore the default Code IDs of all symbologies:

1. Scan the **Enter Setup** barcode.
2. Scan the **Restore All Default Code IDs** barcode.
3. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup

1D symbologies:



@CID002

Modify Code 128 Code ID



@CID003

Modify GS1-128 Code ID



@CID004

Modify EAN-8 Code ID



@CID005

Modify EAN-13 Code ID



@CID006

Modify UPC-E Code ID



@CID007

Modify UPC-A Code ID



@CID008

Modify Interleaved 2 of 5 Code ID



@SETUPE0

**** Exit Setup**



@SETUP1
Enter Setup



@CID009
Modify ITF-14 Code ID



@CID010
Modify ITF-6 Code ID



@CID011
Modify Matrix 2 of 5 Code ID



@CID013
Modify Code 39 Code ID



@CID015
Modify Codabar Code ID



@CID017
Modify Code 93 Code ID



@CID019
Modify China Post 25 Code ID



@CID020
Modify AIM 128 Code ID



@SETUP0
**** Exit Setup**



@SETUPE1

Enter Setup



@CID022

Modify COOP 25 Code ID



@CID024

Modify ISBN Code ID



@CID026

Modify Standard 25 Code ID



@CID028

Modify Code 11 Code ID



@CID021

Modify ISBT 128 Code ID



@CID023

Modify ISSN Code ID



@CID025

Modify Industrial 25 Code ID



@CID027

Modify Plessey Code ID



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup



@CID029
Modify MSI-Plessy Code ID



@CID030
Modify GS1 Composite Code ID



@CID031
Modify GS1 Databar Code ID



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup

2D symbologies:



@CID032

Modify PDF417 Code ID



@CID034

Modify Aztec Code ID



@CID033

Modify QR Code ID



@CID035

Modify Data Matrix Code ID



@SETUPE0

**** Exit 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 10 characters. For example, if the custom suffix is “AB” and the barcode data is “123”, the Host will receive “123AB”.



Set Custom Suffix

To set a custom suffix, scan the **Set Custom Suffix** barcode then the numeric barcodes corresponding to the hexadecimal value of a desired suffix then the **Save** barcode.

Note: A custom suffix cannot exceed 10 characters.



E
sample

Set the custom suffix to “CODE” (HEX: 0x43/0x4F/0x44/0x45):

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Custom Suffix** barcode.
3. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Enable Custom Suffix** barcode.
6. Scan the **Exit Setup** barcode.





Data Packing

Introduction

Data packing is designed for a specific group of users who want to have the data packed before transmission. Data packing influences data format, so it is advised to disable this feature when it is not required.

Data Packing Options

- ✧ **Disable Data Packing:** Transmit decoded data in raw format (unpacked).
- ✧ **Enable Data Packing, Format 1:** Transmit decoded data with the packet format 1 defined below.

Packet format 1: [STX + ATTR + LEN] + [AL_TYPE + DATA] + [LRC]

STX: 0x02

ATTR: 0x00

LEN: Barcode data length is expressed in 2 bytes ranging from 0x0000 (0) to 0xFFFF (65535).

AL_TYPE: 0x36

DATA: Raw barcode data.

LRC: Check digit.

LRC calculation algorithm: computation sequence: 0xFF+LEN+AL_TYPE+DATA; computation method is XOR, byte by byte.

- ✧ **Enable Data Packing, Format 2:** Transmit decoded data with the packet format 2 defined below.

Packet format 2: [STX + ATTR + LEN] + [AL_TYPE] + [Symbology_ID + DATA] + [LRC]

STX: 0x02

ATTR: 0x00

LEN: Barcode data length is expressed in 2 bytes ranging from 0x0000 (0) to 0xFFFF (65535).

AL_TYPE: 0x3B

Symbology_ID: The ID number of symbology, 1 byte.

DATA: Raw barcode data.

LRC: Check digit.

LRC calculation algorithm: computation sequence: 0xFF+LEN+AL_TYPE+Symbology_ID+DATA; computation method is XOR, byte by byte.





@SETUPE1
Enter Setup



@PACKAG0
**** Disable Data Packing**



@PACKAG1
Enable Data Packing, Format 1



@PACKAG2
Enable Data Packing, Format 2



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Terminating Character Suffix

Enable/Disable Terminating Character Suffix

A terminating character such as carriage return (CR) or carriage return/line feed pair (CRLF) can only be used to mark the end of data, which means nothing can be added after it.



@TSUENA0
Disable Terminating Character Suffix



@TSUENA1
** Enable Terminating Character Suffix

Set Terminating Character Suffix

To set a terminating character suffix, scan the **Set Terminating Character Suffix** barcode then the numeric barcodes corresponding to the hexadecimal value of a desired terminating character then the **Save** barcode.

Note: A terminating character suffix cannot exceed 2 characters.



@TSUSET
Set Terminating Character Suffix



@TSUSET0D
** Set Terminating Character to CR (0x0D)



@TSUSET0D0A
Set Terminating Character to CRLF (0x0D,0x0A)



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

E
sample

Set the terminating character suffix to 0x0A:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Terminating Character Suffix** barcode.
3. Scan the numeric barcodes "0" and "A" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Enable Terminating Character Suffix** barcode.
6. Scan the **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Chapter 12 Programming Commands

Use of Programming Command

Besides the barcode programming method, the scanner can also be configured by serial commands (HEX) sent from the host device. **All commands must be entered in uppercase letters.**

Command Syntax

Prefix StorageType Tag SubTag {Data} [,SubTag {Data}] [;Tag SubTag {Data}] [...] Suffix

Prefix: "~<SOH>0000" (HEX: 7E 01 30 30 30 30), 6 characters.

StorageType: "@" (HEX: 40) or "#" (HEX: 23), 1 character. "@" means permanent setting which will not be lost by removing power from the scanner or rebooting it; "#" means temporary setting which will be lost by removing power from the scanner or rebooting it.

Tag: A 3-character case-sensitive field that identifies the desired command group. For example, all USB HID Keyboard configuration settings are identified with a Tag of KBW.

SubTag: A 3-character case-sensitive field that identifies the desired parameter within the tag group. For example, the SubTag for the keyboard layout is CTY.

Data: The value for a feature or parameter setting, identified by the Tag and SubTag.

Suffix: "<ETX>" (HEX: 3B 03), 2 characters.

Multiple commands can be issued within one Prefix/Suffix sequence. For configuration commands, only the **Tag**, **SubTag**, and **Data** fields must be repeated for each command in sequence. If an additional command is to be applied to the same Tag, then the command is separated with a comma (,) and only the **SubTag** and **Data** fields of the additional commands are issued. If the additional command requires a different **Tag** field, the command is separated from previous command by a semicolon (;).

Query Commands

For query commands, the entry in the **Data** field in the syntax above is one of the following characters means:

* (HEX: 2A) What is the scanner's current value for the setting(s).

& (HEX: 26) What is the factory default value for the setting(s).



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

^ (HEX: 5E) What is the range of possible values for the setting(s).

The value of the **StoreType** field in a query command can be either "@" (HEX: 40) or "#" (HEX: 23).

A query command with the **SubTag** field omitted means to query all the settings concerning a tag. For example, to query all the current settings about Code 11, you should enter **7E 01 30 30 30 30 40 43 31 31 2A 3B 03** (i.e. ~<SOH>0000@C11*; <ETX>).

Responses

Different from command sequence, the prefix of a response consists of the six characters of "<STX><SOH>0000" (HEX: 02 01 30 30 30 30).

The scanner responds to serial commands with one of the following three responses:

<ACK> (HEX: 06) Indicates a good command which has been processed.

<NAK> (HEX: 15) Indicates a good configuration command with its **Data** field entry out of the allowable range for this Tag and SubTag combination (e.g. an entry for an inter-keystroke delay of 100 when the field will only allow 2 digits), or an invalid query command.

<ENQ> (HEX: 05) Indicates an invalid Tag or SubTag command.

When responding, the scanner echoes back the command sequence with the status character above inserted directly before each of the punctuation marks (the comma or semicolon) in the command.

Examples

Example 1: Enable Code 11, set the minimum and maximum lengths to 12 and 22 respectively.

Enter: **7E 01 30 30 30 30 40 43 31 31 45 4E 41 31 2C 4D 49 4E 31 32 2C 4D 41 58 32 32 3B 03**
(~<SOH>0000@C11ENA1,MIFM232,MAX22;<ETX>)

Response: **02 01 30 30 30 30 40 43 31 31 45 4E 41 31 06 2C 4D 49 4E 31 32 06 2C 4D 41 58 32 32 06 3B 03**
(<STX><SOH>0000@C11ENA1<ACK>,MIFM232<ACK>,MAX22<ACK>;<ETX>)

Example 2: Query the current minimum and maximum lengths of Code 11.

Enter: **7E 01 30 30 30 30 40 43 31 31 4D 49 4E 2A 2C 4D 41 58 2A 3B 03**
(~<SOH>0000@C11MIN*,MAX*;<ETX>)

Response: **02 01 30 30 30 30 40 43 31 31 4D 49 4E 31 32 06 2C 4D 41 58 32 32 06 3B 03**
(<STX><SOH>0000@C11MIFM232<ACK>,MAX22<ACK>;<ETX>)



@SETUPE0
** Exit Setup



Read Barcode On/Off

Sending the Read Barcode Off command `~<SOH>0000#SCNENA0;<ETX>` to the scanner can disable it from reading barcode, and the scanner is unable to scan barcode unless you send the Read Barcode On command `~<SOH>0000#SCNENA1;<ETX>` to it or power cycle it. By default, Read Barcode is On.

Make a Beeping Sound

You may wish to force the scanner to beep upon a command sent from the host. A beeping sound is made to gain a user's attention to an error or other important event.

BEEPONxxxFyyyTnnV (xxx: The desired frequency, 1-20,000Hz; yyy: The desired duration, 1-10,000ms; nn: The desired volume level, 1-20 (lowest-loudest))

Example: Make a 50ms beep at 2,000Hz with volume level set to 20

Enter: `~<SOH>0000#BEEPON2000F50T20V;<ETX>`

Response: `<STX><SOH>0000#BEEPON2000F50T20V<ACK>;<ETX>`





Chapter 13 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.





@SETUPE1

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 “Use of Programming Command” section in Chapter 3.

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.



@SETUPE0

** Exit Setup



Use Batch Barcode

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



Batch Barcode



Chapter 14 Handheld Barcode Scanner Access

Introduction

The external handheld barcode scanner must comply with the following protocol before it is connected to the FR80.

Protocol

This chapter provides format requirements of the input data from the handheld barcode scanner connected to the secondary RJ45 port.

1. Communication: serial port, 9600 baud rate, 8 data bits, 1 stop bit, no parity check, hardware auto flow control.
2. Data format requirements of the handheld barcode scanner (when the barcode data is 12345).

A, barcode data with code prefix

SETUP128/CODE128/ AIM 128/ ISBT 128: barcode data with prefix # required, the scanned data is #123456.

EAN-128: barcode data with prefix j required, the scanned data is j123456.

EAN-8: barcode data with prefix FF required, the scanned data is FF123456.

EAN-13: barcode data with prefix F required, the scanned data is F6931234567890.

UPC-E: barcode data with prefix E required, the scanned data is E123456.

UPC-A: barcode data with prefix A required, the scanned data is A12345678901.

Interleaved 2 of 5: barcode data with prefix i required, the scanned data is i123456.

ITF-14/ ITF-6/ ISBN: barcode data with prefix e required, the scanned data is e123456.

Matrix 2 of 5: barcode data with prefix v required, the scanned data is v123456.

Code 39: barcode data with prefix * required, the scanned data is *123456.

Codabar: barcode data with prefix % required, the scanned data is %123456.

Code 93: barcode data with prefix & required, the scanned data is &123456.

China Post 25: barcode data with prefix X required, the scanned data is X123456.

ISSN: barcode data with prefix g required, the scanned data is g123456.

Industrial 25: barcode data with prefix I required, the scanned data is I123456.

Standard 25: barcode data with prefix f required, the scanned data is f123456.

Plessey: barcode data with prefix n required, the scanned data is n123456.

Code 11: barcode data with prefix H required, the scanned data is H123456.

MSI Plessey: barcode data with prefix @ required, the scanned data is @123456.

GS1 Composite: barcode data with prefix y required, the scanned data is y123456.

GS1 Databar(RSS) : barcode data with prefix R4 required, the scanned data is R4123456.

QR Code: barcode data with prefix s required, the scanned data is s123456.

B, barcode data with 3-bit AIMID prefix

SETUP128/CODE128: barcode data with prefix]C0 required, the scanned data is]C0123456.

EAN-128: barcode data with prefix]C1 required, the scanned data is]C1123456.

EAN-8: barcode data with prefix]E4 required, the scanned data is]E4123456.

EAN-13/ UPC-A: barcode data with prefix]E0 required, the scanned data is]E06931234567890.

UPC-E: barcode data with prefix]E3 required, the scanned data is]E3123456.

Interleaved 2 of 5: barcode data with prefix]I0 required, the scanned data is]I0123456.

ITF-14: barcode data with prefix]I1 required, the scanned data is]I1123456.

ITF-6: barcode data with prefix]I3 required, the scanned data is]I3123456.

Matrix 2 of 5: barcode data with prefix]X0 required, the scanned data is]X0123456.

Code 39: barcode data with prefix]A0 required, the scanned data is]A0123456.

Codabar: barcode data with prefix]F0 required, the scanned data is]F0123456.

Code 93: barcode data with prefix]G0 required, the scanned data is]G0123456.

AIM 128: barcode data with prefix]C2 required, the scanned data is]C2123456.

ISBT 128: barcode data with prefix]C4 required, the scanned data is]C4123456.

Industrial 25: barcode data with prefix]S0 required, the scanned data is]S0123456.

Standard 25: barcode data with prefix]R0 required, the scanned data is]R0123456.

Plessey: barcode data with prefix]P0 required, the scanned data is]P0123456.

Code 11: barcode data with prefix]H0 required, the scanned data is]H0123456.

MSI Plessey: barcode data with prefix]M0 required, the scanned data is]M0123456.

GS1 Composite/GS1 Databar(RSS) : barcode data with prefix]e0 required, the scanned data is]e0123456.

QR Code: barcode data with prefix]Q0 required, the scanned data is]Q0123456.

Connect Handheld Barcode Scanner to the FR80

1. After the handheld barcode scanner is connected, you need to set communication interface as RS-232 interface first, set communication parameters (including baud rate, parity check, data bit and stop bit) by scanning barcodes below and enable AIM ID prefix so that two devices can communicate with each other.



2. Good read indicators of the FR80 can be programmed on or off according to actual needs after the FR80 receives data from the handheld barcode scanner.

Batch Barcode



Enter Setup



Enable Batch Barcode



@232BAD3;232PAR0;232STP0;232DAT0;AIDENA1;

Batch Barcode



Exit Setup

1D Barcode



Data Bit



Enable AIM ID Prefix



Exit Setup

Good read indicators of the FR80 is programmed to be off after the device receives data from the handheld barcode scanner.



Enter Setup



Off



Exit Setup

Good read indicators of the FR80 is programmed to be on after the device receives data from the handheld barcode scanner.



Supported Handheld Barcode Scanner

Handheld barcode scanners below which support the Datalogic Magellan interface can be connected to the FR80 after the communication interface is set as Datalogic Magellan interface. Following steps above, you can also connect Newland handheld barcode scanners of the CPU type to the FR80.

Product	Hardware Version
HR2081/HR2180/HR2280	HR2081_E_V1.01.008.EN
FR4080	Added (verified and not tested)
HR2260/HR2270	OY22_V1.01.021.B1
HR5280	1.01.050.B1 (tested and not released)
HR3280	HR32 PLUS V5_V1.01.051
HR1580-BT	HR15-BT_V1.01.015
HR3280-BT	HR32-BT_V1.01.019
HR5280-BT/HR5280RT-BT	HR52-BT_V1.01.016
HR1150P	HR11+_V1.14.012



Appendix

Digit Barcodes

0~9





A~F



@DIGITA

A



@DIGITB

B



@DIGITC

C



@DIGITD

D



@DIGITE

E



@DIGITF

F

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.



Factory Defaults Table

Parameter	Factory Default	Remark
System Settings		
Barcode Programming	Disabled (Exit Setup)	
Programming Barcode Data	Do not transmit	
Communication Interface		
Adaptive Wired Communication	On	
Communication Interface	USB-CDC	
RS-232 Interface		
Baud Rate	9600	
Parity Check	None	
Data Bits	8	
Stop Bits	1	
Hardware Auto Flow Control	Disabled	
USB Interface		
USB Country Keyboard	US keyboard	USB HID Keyboard
Beep on Unknown Character	Off	USB HID Keyboard
Emulate ALT+Keypad	Off	USB HID Keyboard
Code Page	Code Page 1252 (West European Latin)	USB HID Keyboard
Unicode Encoding	Off	USB HID Keyboard
Emulate Keypad with Leading Zero	On	USB HID Keyboard
Function Key Mapping	Disabled	USB HID Keyboard
Inter-Keystroke Delay	No Delay	USB HID Keyboard
Caps Lock	Caps Lock OFF, non-Japanese Keyboard	USB HID Keyboard
Convert Case	No Case Conversion	USB HID Keyboard
Emulate Numeric Keypad 1	Off	USB HID Keyboard
Emulate Numeric Keypad 2	Off	USB HID Keyboard
Fast Mode	Off	USB HID Keyboard

Polling Rate	4ms	USB HID Keyboard
Basic Settings		
Scan Mode	Advanced Sense Mode	
Decode Session Timeout	3000ms	1-3,600,000ms; 0: Infinite
Scanning Preference	Screen Mode	
Image Flipping	Normal	
Transmit Not Good Read Message	Disabled	
Edit NGR Message	NG	
Good Read LED	On	
Good Read LED Duration	120	
Power On Beep	On	
Good Read Beep	On	
Good Read Beep Volume	Loud	
Button Tone	On	
Bar External Scanner Indication	On	

Symbologies		
Global Settings		
Enable All Symbologies		
Enable 1D Symbologies		
Enable 2D Symbologies		
1D Inverse		
Parentheses Surround GS1 Application Identifiers	Enabled	
GS1-128 Parentheses Surround GS1 Application Identifiers	Output	
GS1Composite Parentheses Surround GS1 Application Identifiers	Output	
GS1 Databar Parentheses Surround GS1 Application Identifiers	Output	
GS1 QR Parentheses Surround GS1 Application Identifiers	Output	

GS1 Data Matrix Parentheses Surround GS1 Application Identifiers	Output	
GS1-128 Check Character	Transmit	
GS1Composite Check Character	Transmit	
GS1 Databar Check Character	Transmit	
GS1 QR Check Character	Transmit	
GS1 Data Matrix Check Character	Transmit	
Code 128		
Code 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	
Convert EAN-8 to EAN-13	Disabled	
EAN-13		
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	
UPC-E		
UPC-E	Disabled	
UPC-E0	Enabled	
UPC-E1	Disabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not Required	
Transmit Preamble Character	System Character	
Convert UPC-E to UPC-A	Disabled	
UPC-A		
UPC-A	Disabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not Required	
Transmit Preamble Character	System Character	
Coupon		
UPC-A/EAN-13 with Extended Coupon Code	Disabled	
Coupon GS1 DataBar Output	Disabled	
Interleaved 2 of 5		

Interleaved 2 of 5	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
Febraban		
Febraban	Disabled	
Transmit Delay per Character	Disabled	
	70ms	
Transmit Delay per 12 Characters	Disabled	
	500ms	
ITF-14		
ITF-14	Disabled	
ITF-6		
ITF-6	Disabled	
Matrix 2 of 5		
Matrix 2 of 5	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
Code 39		
Code 39	Enabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
Start/Stop Character	Do not transmit	
Code 39 Full ASCII	Enabled	
Code 32 Pharmaceutical (PARAF)	Disabled	
Code 32 Prefix	Disabled	
Code 32 Start/Stop Character	Do not transmit	
Code 32 Check Character	Do not transmit	
Codabar		

Codabar	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
Start/Stop Character	Do not transmit	
	ABCD/ABCD	
Code 93		
Code 93	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Enable, but do not transmit check character	
China Post 25		
China Post 25	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
GS1-128 (UCC/EAN-128)		
GS1-128	Enabled	
Maximum Length	127	
Minimum Length	1	
GS1 Databar		
GS1 Databar	Disabled	
Application Identifier "01"	Transmit	
EAN•UCC Composite		
GS1 Composite	Disabled	
UPC/EAN Composite	Disabled	
Code 11		
Code 11	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Do not transmit check character	

Check Character	Transmit	
ISBN		
ISBN	Disabled	
Set ISBN Format	ISBN-10	
ISSN		
ISSN	Disabled	
Industrial 25		
Industrial 25	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
Standard 25		
Standard 25	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
Plessey		
Plessey	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
MSI-Plessey		
MSI-Plessey	Disabled	
Maximum Length	127	
Minimum Length	1	Not less than 1
Check Character Verification	One Check Character, MOD10	
Check Character	Transmit	
AIM 128		
AIM 128	Disabled	
Maximum Length	127	
Minimum Length	1	

ISBT 128		
ISBT 128	Disabled	
COOP 25		
Code 49	Disabled	
Maximum Length	127	
Minimum Length	1	
Check Character	Disabled	
PDF417		
PDF417	Disabled	
Maximum Length	2710	
Minimum Length	1	
PDF417 Twin Code	Single PDF417 Only	
PDF417 Inverse	Decode Regular PDF417 Barcodes	
Character Encoding	Default Character Encoding	
PDF417 ECI Output	Disabled	
QR Code		
QR Code	Enabled	
Maximum Length	6144	
Minimum Length	1	
QR Twin Code	Single QR Only	
QR Inverse	Decode Both Regular and Inverse QR Barcodes	
Character Encoding	Default Character Encoding	
QR ECI Output	Disabled	
Website QR Code	Disabled	
Aztec		
Aztec Code	Disabled	
Maximum Length	3832	
Minimum Length	1	
Aztec Inverse	Decode Regular Aztec Barcodes	
Character Encoding	Default Character Encoding	
Aztec ECI Output	Enabled	

Data Matrix		
Data Matrix	Disabled	
Maximum Length	3116	
Minimum Length	1	
Data Matrix Twin Code	Single Data Matrix Only	
Rectangular Barcode	Enabled	
Data Matrix Inverse	Decode Both Regular Data Matrix Barcodes	
Data Matrix ECI Output	Enabled	
Character Encoding	Default Character Encoding	
Data Formatter		
Data Formatter	Disabled	
Non-Match Error Beep	Off	
Data Format Selection	Format_0	
Prefix & Suffix		
All Prefixes/Suffixes	Disabled	
Prefix Sequence	Code ID+ Custom +AIM ID	
Custom Prefix	Disabled	
AIM ID Prefix	Disabled	
Code ID Prefix	Disabled	
Custom Suffix	Disabled	
Data Packing	Disable Data Packing	
Terminating Character Suffix	Enabled 0x0D (Carriage Return)	

AIM ID Table

Symbology	AIM ID	Possible AIM ID Modifiers (m)
Code 128	]C0	
GS1-128 (UCC/EAN-128)	]C1	
EAN-8	]E4	
EAN-8 with Addon	]E3	
EAN-13	]E0	
EAN-13 with Addon	]E3	
UPC-E	]E0	
UPC-E with Addon	]E3	
UPC-A	]E0	
UPC-A with Addon	]E3	
Interleaved 2 of 5	]Im	0, 1, 3
ITF-14	]Im	1, 3
ITF-6	]Im	1, 3
Matrix 2 of 5	]X0	
Code 39	]Am	0, 1, 3, 4, 5, 7
Codabar	]Fm	0, 2, 4
Code 93	]G0	
China Post 25	]X0	
AIM 128	]C2	
ISBT 128	]C4	
ISSN	]X0	
ISBN	]X0	
Industrial 25	]S0	
Standard 25	]R0	
Plessey	]P0	
Code 11	]Hm	0, 1, 3
MSI Plessey	]Mm	0, 1
GS1 Composite	]em	0-3
GS1 Databar (RSS)	]e0	
COOP 25	]X0	
PDF417	]Lm	0-2
Aztec	]zm	0-9, A-C

QR Code	]Qm	0-6
Data Matrix	]dm	0-6

Note: “m” represents the AIM modifier character. Refer to ISO/IEC 15424:2008 Information technology – Automatic identification and data capture techniques – Data Carrier Identifiers (including Symbology Identifiers) for AIM modifier character details.

Code ID Table

Symbology	Code ID
Code 128	j
GS1-128 (UCC/EAN-128)	j
EAN-8	d
EAN-13	d
UPC-E	c
UPC-A	c
Interleaved 2 of 5	e
ITF-14	e
ITF-6	e
Matrix 2 of 5	v
Code 39	b
Codabar	a
Code 93	i
China Post 25	X
AIM 128	X
ISBT 128	X
ISSN	g
ISBN	B
Industrial 25	l
Standard 25	f
Plessey	n
Code 11	H
MSI Plessey	m
GS1 Composite	y
GS1 Databar (RSS)	R
COOP 25	X
PDF417	r
QR Code	s
Aztec	z
Data Matrix	u
GS1QR	s
GS1DM	u

Symbology ID Number

Symbology	ID Number
Code 128	002
GS1-128 (UCC/EAN-128)	003
EAN-8	004
EAN-13	005
UPC-E	006
UPC-A	007
Interleaved 2 of 5	008
ITF-14	009
ITF-6	010
Matrix 2 of 5	011
Code 39	013
Codabar	015
Code 93	017
China Post 25	019
AIM 128	020
ISBT 128	021
COOP 25	022
ISSN	023
ISBN	024
Industrial25	025
Standard25	026
Plessey	027
Code11	028
MSI-Plessey	029
GS1 Composite	030
GS1 Databar (RSS)	031
PDF417	032
QR Code	033
Aztec	034
Data Matrix	035

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)

Unicode Key Maps

6E	70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E					
01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0F	4B	50	55	5A	5F	64	69
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	4C	51	56	5B	60	65	6A
1E	1F	20	21	22	23	24	25	26	27	28	29	2B					5C	61	66	
2C	2E	2F	30	31	32	33	34	35	36	37	39				53		5D	62	67	6C
3A	3B	3C	3D					3E	3F	38	40		4F	54	59		63	68		

104 Key U.S. Style Keyboard

6E	70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D	7E					
01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0F	4B	50	55	5A	5F	64	69
10	11	12	13	14	15	16	17	18	19	1A	1B	1C	2B	4C	51	56	5B	60	65	6A
1E	1F	20	21	22	23	24	25	26	27	28	29	1D					5C	61	66	
2C	2D	2E	2F	30	31	32	33	34	35	36	37	39			53		5D	62	67	6C
3A	3B	3C	3D					3E	3F	38	40		4F	54	59		63	68		

105 Key European Style Keyboard

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