



Newland AIDC
Scanning Made Simple



Desktop Barcode Scanner

NLS-FR4070

**User
Guide**

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Revision History

Version	Description	Date
V1.0.0	Initial release.	Jun 29, 2026

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Preface

Introduction

This manual provides detailed instructions for setting up and using the NLS-FR4070 desktop barcode scanner (hereinafter referred to as “**the FR4070**” or “**the scanner**”).

Chapter Description

- ❖ *Chapter 1, Getting Started* : Gives a general description of the FR4070.
- ❖ *Chapter 2, EasySet* : Introduces a useful tool you can use to set up the FR4070.
- ❖ *Chapter 3, System Settings* : Introduces three configuration methods and describes how to configure general parameters of the FR4070.
- ❖ *Chapter 4, USB Interface* : Describes how to configure USB communication parameters.
- ❖ *Chapter 5, Symbologies* : Lists all compatible symbologies and describes how to configure the relevant parameters.
- ❖ *Chapter 6, Data Formatter* : Explains how to customize scanned data with the advanced data formatter.
- ❖ *Chapter 7, Prefix & Suffix* : Describes how to use prefix and suffix to customize scanned data.
- ❖ *Chapter 8, Batch Programming* : Explains how to integrate a complex programming task into a single barcode.
- ❖ *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-FR4070 scanner, armed with the world-leading Newland patented **UIMG**[®], a computerized image recognition system-on-chip, bring about a new era of 2D barcode scanner.

The NLS-FR4070 supports all mainstream 1D and standard 2D barcode symbologies (e.g., PDF417, QR Code, and Data Matrix). It can read barcodes on virtually any medium - paper, plastic card, mobile phones and LCD displays.

With its integrated, compact and lightweight design, this scanner can be easily incorporated into a wide range of applications.

About This Guide

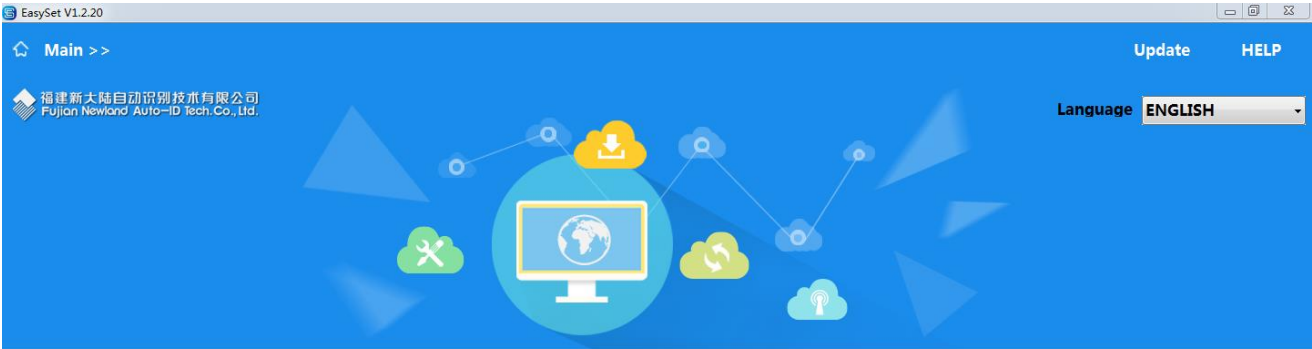
This guide provides programming instructions for NLS-FR4070 scanner. Users can configure the scanner by scanning the programming barcodes included in this manual.

The scanner has been properly configured for most applications and can be put into use without further configuration.

Users may check the “Factory Defaults Table” section in Appendix for reference. Throughout the manual, asterisks (**) indicate factory default values.

Chapter 2 EasySet

EasySet supports Windows operating systems. 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 includes View device & configuration information of online device and send serial commands to online device and receive device response.



Online Device



Offline Device



Command Center



Batch update

Chapter 3 System Settings

Introduction

There are three ways to configure the scanner: barcode programming, command programming and EasySet programming.

Barcode Programming

The scanner 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 scanner 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.

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*.



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 settin



** Exit Setup



@SETUPE1

Enter 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.**

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.



@SETUPE0

**** Exit Setup**



@SETUPE1

Enter Setup

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



#SETUPT0

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



#SETUPT1

Transmit Programming Barcode Data



@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



@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)

E *xample*

Set the Good Read LED duration to 800ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom** 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.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup



@GRLDUR100
100ms



@GRLDUR200
200ms



@GRLDUR300
300ms



@GRLDUR400
400ms



@GRLDUR500
500ms



@GRLDUR600
600ms



@GRLDUR700
700ms



@GRLDUR800
800ms



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup



@GRLDUR900
900ms



@GRLDUR1000
1000ms



@GRLDUR1100
1100ms



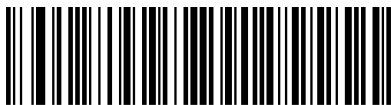
@GRLDUR1200
1200ms



@GRLDUR1300
1300ms



@GRLDUR1400
1400ms



@GRLDUR1500
1500ms



@GRLDUR1600
1600ms



@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.



@PWBENA1
**** On**



@PWBENA0
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.



@GRBENA1
**** On**



@GRBENA0
Off



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter 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.



@GRBDUR40
Short (40ms)



@GRBDUR80
** Medium (80ms)



@GRBDUR120
Long (120ms)



@GRBDUR
Custom (20 – 300ms)

E
xample

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.



@SETUPE0
** Exit Setup



@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)

E *Example*

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**



@SETUPE1
Enter Setup

Good Read Beep Volume

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



@GRBVLL20
**** Loud**



@GRBVLL7
Medium



@GRBVLL2
Low



@GRBVLL
Custom Volume (Level 1-20)

E
sample

Set the Good Read Beep volume to Level 8:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom Volume** 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 **Exit Setup** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Scan Mode

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. **Image Stabilization Timeout** gives the scanner time to adapt to ambient environment after it decodes a barcode and “looks” for another. **Image Change Trigger Sensitivity** can change the Sense Mode’s sensibility to changes in images captured, while **IR Proximity Trigger Sensitivity** can adjust the Sense Mode’s sensibility in detecting barcodes presented to the scanner.

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.



@SCNMOD2
** Sense Mode



@SCNMOD3
Continuous Mode



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

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. The default setting is 3,000ms.



@ORTSET
Decode Session Timeout

E
xample

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.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter 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. The default setting is 300ms.



@SENIST
Image Stabilization Timeout

E
sample

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.



@SETUPE0
**** Exit Setup**



@SETUPE1
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.

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

Disable Reread Timeout: Allow the scanner to reread same barcode.



@RRDENA1
**** Enable Reread Timeout**



@RRDENA0
Disable Reread Timeout

The following parameter sets the time interval between two successive reads on same barcode. It is programmable in 1ms increments from 1ms to 3,600,000ms. The default setting is 500ms.



@RRDDUR
Set Reread Timeout

E
example

Set the reread timeout to 1,000ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set 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.



@SETUPE0
**** 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**



@SETUPE1
Enter Setup

Good Read Delay

Good Read Delay sets the minimum amount of time before the scanner can read another barcode. This parameter is programmable in 1ms increments from 1ms to 3,600,000ms. The default setting is 500ms. Scan the appropriate barcode below to enable or disable the delay.



@GRDENA1
Enable Good Read Delay



@GRDENA0
** 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.



@GRDDUR
Good Read Delay

E
example

Set the good read delay to 1,000ms:

1. Scan the **Good Read Delay** barcode.
2. Scan the numeric barcodes "1", "0", "0" and "0" from the "Digit Barcodes" section in Appendix.
3. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Image Decoding Timeout

Image Decoding Timeout specifies the maximum time the scanner will spend decoding an image. This parameter is programmable in 1ms increments from 1ms to 3,000ms. The default timeout is 500ms.



@DETSET
Image Decoding Timeout

E
example

Set the image decoding timeout to 1,000ms:

4. Scan the **Enter Setup** barcode.
5. Scan the **Image Decoding Timeout** barcode.
6. Scan the numeric barcodes "1", "0", "0" and "0" 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

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, 1~20)

Example: Make a 50ms beep at 2,000Hz, 20V

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

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



@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

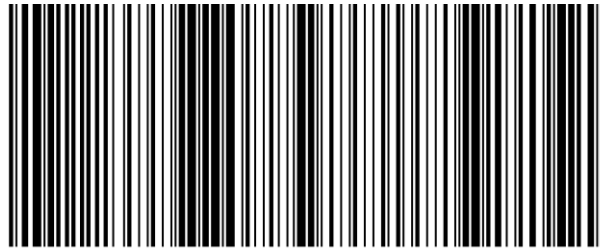
**** Do Not Surround GS1 AI's with Parentheses**



@GS1AIP1

Surround GS1 AI's with Parentheses

E
xample



(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**



@SETUPE1
Enter Setup

Sensitivity

Sensitivity specifies the degree of acuteness of the scanner's response to changes in images captured. The higher the sensitivity, the lower requirement in image change to trigger the scanner. You can select an appropriate degree of sensitivity that fits the application environment. The feature is only applicable to the Sense mode. It is programmable from 1 to 20. The default setting is Medium (5).



@SENLVL14
Low Sensitivity



@SENLVL11
Medium Sensitivity



@SENLVL8
High Sensitivity



@SENLVL5
**** Enhanced Sensitivity**



@SENLVL
Custom Sensitivity (1-20)

E
sample

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**



@SETUPE1
Enter 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.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Decode Area

Whole Area Decoding: The scanner attempts to decode barcode(s) within its field of view, from the center to the periphery, and transmits the barcode that has been first decoded.

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



** Whole Area Decoding



Specific Area Decoding

If **Specific Area Decoding** is enabled, the scanner only reads barcodes that intersect the predefined decoding area. The default decoding area is an area of 40% top, 60% bottom, 40% left and 60% right of the scanner's field of view

You can define the decoding area using the **Top of Decoding Area**, **Bottom of Decoding Area**, **Left of Decoding Area** and **Right of Decoding Area** barcodes as well as numeric barcode(s) that represent(s) a desired percentage (0-100). The value of Bottom must be greater than that of Top; the value of Right must be greater than that of Left.



Top of Decoding Area



Bottom of Decoding Area



Left of Decoding Area



Right of Decoding Area



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup



Example

Program the scanner to only read Barcode 1 in the figure above by setting the decoding area to 10% top, 45% bottom, 15% left and 30% right:

1. Scan the **Enter Setup** barcode.
2. Scan the **Top of Decoding Area** barcode.
3. Scan the numeric barcode "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Bottom of Decoding Area** barcode.
6. Scan the numeric barcodes "4" and "5" from the "Digit Barcodes" section in Appendix.
7. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
8. Scan the **Top of Decoding Area** barcode.
9. Scan the numeric barcodes "1" and "0" from the "Digit Barcodes" section in Appendix.
10. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
11. Scan the **Left of Decoding Area** barcode.
12. Scan the numeric barcode "0" from the "Digit Barcodes" section in Appendix.
13. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
14. Scan the **Right of Decoding Area** barcode.
15. Scan the numeric barcodes "3" and "0" from the "Digit Barcodes" section in Appendix.
16. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
17. Scan the **Left of Decoding Area** barcode.
18. Scan the numeric barcodes "1" and "5" from the "Digit Barcodes" section in Appendix.
19. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
20. Scan the **Exit Setup** barcode.



@SETUPE0
** Exit Setup



@SETUPE1
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



@SETUPE0
** 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

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. The default setting is “NG”.



@NGRSET
Set Bad Read Message

E
xample

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.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

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.



@FACDEF
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.



@CUSSAV
Save as Custom Defaults



@CUSDEF
Restore All Custom Defaults



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



@SETUPE0
**** Exit Setup**



@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**



@SETUPE1
Enter Setup

Chapter 4 USB Interface

Introduction

There are four options for USB connection:

- ✧ 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 emulates virtual keyboard and traditional RS-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.



@SETUPE0
** Exit Setup



@SETUPE1
Enter 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.



@INTERF3
**** USB HID Keyboard**



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



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

USB Country Keyboard Types

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



@KBWCTY0
**** U.S. (English)**



@KBWCTY2
Brazil



@KBWCTY4
Czechoslovakia



@KBWCTY6
Finland (Swedish)



@KBWCTY1
Belgium



@KBWCTY3
Canada (French)



@KBWCTY5
Denmark



@SETUPE0
**** 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



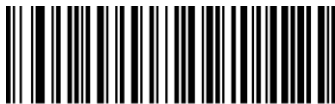
@KBWCTY19
Russia



@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



@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.



@KBWBUC0

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



@KBWBUC1

Beep on Unknown Character

Example

Supposing French keyboard (Country Code: 7) is selected and barcode data "AÐF" 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, any character whose ASCII value is greater than or equal to 0x20 is 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.



@KBWALTO
**** Emulate ALT+Keypad OFF**



@KBWALT1
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, Aztec 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.



@KBWCPG0

**** Code Page 1252 (West European Latin)**



@KBWCPG1

Code Page 1251 (Cyrillic)



@KBWCPG2

Code Page 1250 (Central and East European Latin)



@KBWCPG3

Code Page 1253 (Greek)



@KBWCPG4

Code Page 1254 (Turkish)



@KBWCPG5

Code Page 1255 (Hebrew)



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup



@KBWCPG6
Code Page 1256 (Arabic)



@KBWCPG7
Code Page 1257 (Baltic)



@KBWCPG8
Code Page 1258 (Vietnamese)



@KBWCPG9
Code Page 936 (Simplified Chinese, GB2312,GBK)



@KBWCPG10
Code Page 950 (Traditional Chinese, Big5)



@KBWCPG11
Code Page 874 (Thai)



@KBWCPG12
Code Page 932 (Japanese, Shift-JIS)



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter 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.



@KBWCPU0
** Off



@KBWCPU1
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.



@KBWALZ1
** On



@KBWALZ0
Off



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Function Key Mapping

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



@KBWFKM0
** Disable



@KBWFKM1
Ctrl+ASCII Mode



@KBWFKM2
Alt+Keypad Mode

Example

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	1B	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+∅	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



@KBWCAP2

Caps Lock OFF, Japanese Keyboard



@KBWCAP3

Caps Lock ON, Japanese Keyboard



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

E
xample

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

E
xample

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.



@KBWNUM0

**** Do Not Emulate Numeric Keypad 1**



@KBWNUM1

Emulate Numeric Keypad 1



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup



@KBWNCH0
**** Do Not Emulate Numeric Keypad 2**



@KBWNCH1
Emulate Numeric Keypad 2



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

E
sample

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**



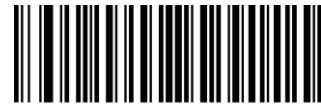
@SETUPE1
Enter Setup

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



@SETUPE0
** 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**



@SETUPE1
Enter 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 RS-232 interface.



@INTERF5
USB HID-POS

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.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

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)							



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

VID/PID

USB uses VID (Vendor ID) and PID (Product ID) to identify and locate a device. The VID is assigned by USB Implementers Forum. Newland's vendor ID is 1EAB (Hex). A 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)
FR4080	USB HID Keyboard	3222	12834
	USB CDC	3206	12806
	HID POS	3210	12816



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Chapter 5 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.



@ALLENA1
Enable All Symbologies



@ALLENA0
Disable All Symbologies

Enable/Disable 1D Symbologies



@ALL1DC1
Enable 1D Symbologies



@ALL1DC0
Disable 1D Symbologies



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Enable/Disable 2D Symbologies



@ALL2DC1
Enable 2D Symbologies



@ALL2DC0
Disable 2D Symbologies

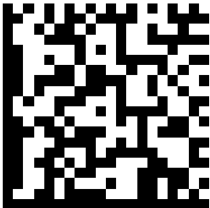


@SETUPE1
Enter Setup

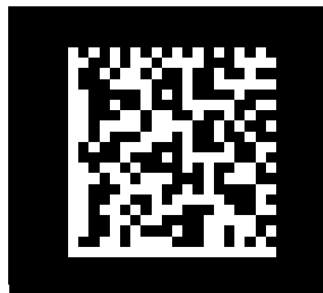
Inverse Code

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.

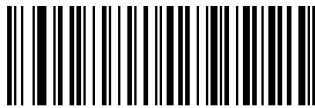


Regular Barcode



Inverse Barcode

- ✧ **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

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.



@128MIN

Set the Minimum Length (Default: 1)



@128MAX

Set the Maximum Length (Default: 127)



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.

Example

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

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
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

Transmit Check Character



@128CHK2

Transmit Code 128 Check Character



@128CHK1

**** Do Not Transmit Code 128 Check Character**

FNC1 Output



@128FNC0
Off



@128FNC1
**** On**



@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



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

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.



@EA8AD20
**** Disable 2-Digit Add-On Code**



@EA8AD21
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.



@EA8REQ0
**** EAN-8 Add-On Code Not Required**



@EA8REQ1
EAN-8 Add-On Code Required



@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.



@E132900

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



@E132901

Require Add-On Code

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

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

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

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



@E133780

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



@E133781

Require Add-On Code



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

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

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

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

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



** 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



@SETUPE0
** Exit Setup



@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.



@E139770

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



@E139771

Require Add-On Code

EAN-13 Beginning with 978 Add-On Code Required

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

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

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



@E139780

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



@E139781

Require Add-On Code



@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.



@E139790

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



@E139791

Require Add-On Code



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

UPC-E

Restore Factory Defaults



@UPEDEF
Restore the Factory Defaults of UPC-E

Enable/Disable UPC-E



@UPEEN01
**** Enable UPC-E0**



@UPEEN00
Disable UPC-E0



@UPEEN11
Enable UPC-E1



@UPEEN10
**** Disable UPC-E1**



If the scanner fails to identify UPC-E0/UPC-E1 barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable UPC-E0/UPC-E1** barcode.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

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.



@UPECHK2

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



@UPECHK1

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.



@UPEAD20

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



@UPEAD21

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.



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

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.



@UPEAD50
**** Disable 5-Digit Add-On Code**



@UPEAD51
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.



@UPAREQ0

** UPC-E Add-On Code Not Required



@UPAREQ1

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



@SETUPE1
Enter 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.



@UPEEXP0
**** Do Not Convert UPC-E to UPC-A**



@UPEEXP1
Convert UPC-E to UPC-A



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

UPC-A

Restore Factory Defaults



@UPADEF
Restore the Factory Defaults of UPC-A

Enable/Disable UPC-A



@UPAENA1
**** Enable UPC-A**



@UPAENA0
Disable UPC-A



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.



@UPAAD20
**** Disable 2-Digit Add-On Code**



@UPAAD21
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

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: 100)



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



@I25FBB2
Enable Febraban, Expand



@I25FBB1
** Enable Febraban, Do Not 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.



@FEBSENO
** Disable Transmit Delay per Character



@FEBSEN1
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.



@FEBMENO

** 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



@I14DEF
Restore the Factory Defaults of ITF-14

Enable/Disable ITF-14



@I14ENA0
** Disable ITF-14



@I14ENA1
Enable ITF-14 But Do Not Transmit Check Character



@I14ENA2
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.



@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



@IT6DEF

Restore the Factory Defaults of ITF-6

Enable/Disable ITF-6



@IT6ENA0

**** Disable ITF-6**



@IT6ENA1

Enable ITF-6 But Do Not Transmit Check Character



@IT6ENA2

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.



Set the Minimum Length (Default: 6)



Set the Maximum Length (Default: 127)



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**



@SETUPE1
Enter 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.



@M25CHK0
Disable



@M25CHK1

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



@M25CHK2

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.)



@SETUPE0
**** Exit Setup**



@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**



@SETUPE1
Enter 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.



@C39MIN

Set the Minimum Length (Default: 1)



@C39MAX

Set the Maximum Length (Default: 127)



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.



@SETUPE0
** Exit Setup



@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.



@C39CHK0
** Disable



@C39CHK1
Do Not Transmit Check Character After Verification



@C39CHK2
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.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 127)



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



@CBACHK1

Do Not Transmit Check Character After Verification



@CBACHK2

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



@SETUPE1
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



@SETUPE0
**** 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**



@SETUPE1
Enter 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: 3)



Set the Maximum Length (Default: 127)



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.



@SETUPE0
** Exit Setup



@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

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



@SETUPE1
Enter 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.



@GS1MIN

Set the Minimum Length (Default: 1)



@GS1MAX

Set the Maximum Length (Default: 127)



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.

E
sample

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.



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Transmit Check Character



@GS1CHK2

Transmit Check Character



@GS1CHK1

**** Do Not Transmit Check Character**

FNC1 Output



@GS1FNC0

Off



@GS1FNC1

**** On**



@SETUPE0
**** Exit Setup**



@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

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**



@SETUPE1
Enter 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.



@C11MIN
Set the Minimum Length (Default: 2)



@C11MAX
Set the Maximum Length (Default: 127)



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.



@SETUPE0
** Exit Setup



@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

2-Digit Add-on Code



@ISBAD20
** Disabled 2-Digit Add-on Code



@ISBAD21
Enable 2-Digit Add-on Code



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

5-Digit Add-on Code



@ISBAD50

** Disabled 5-Digit Add-on Code



@ISBAD51

Enabled 5-Digit Add-on Code



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

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

Add-on Code Required



@ISBREQ0

** Not Required Add-on Code



@ISBREQ1

Required Add-on Code



@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

2-Digit Add-on Code



@ISSAD20

** Disabled 2-Digit Add-on Code



@ISSAD21

** Enabled 2-Digit Add-on Code

5-Digit Add-on Code



@ISSAD50

** Disabled 5-Digit Add-on Code



@ISSAD51

Enabled 5-Digit Add-on Code



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

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



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Add-on Code Required



@ISSREQ0
**** Not Required Add-on Code**



@ISSREQ1
**** Required Add-on Code**



@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: 1)



Set the Maximum Length (Default: 127)



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.

E *sample*

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**



@SETUPE1
Enter 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: 127)



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.



@SETUPE0
** Exit Setup



@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.



@S25CHK0
** Disable



@S25CHK1

Do Not Transmit Check Character After Verification



@S25CHK2

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.



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 127)



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**



@SETUPE1
Enter 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.



@PLYCHK0
** Disable



@PLYCHK1

Do Not Transmit Check Character After Verification



@PLYCHK2

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.)



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

MSI-Plessey

Restore Factory Defaults



@MSIDF

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**



@SETUPE1
Enter 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: 2)



Set the Maximum Length (Default: 127)



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.



@SETUPE0
** Exit Setup



@SETUPE1
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.



@MSICLK0
**** Disable**



@MSICLK1
One Check Character, MOD10



@MSICLK2
Two Check Characters, MOD10/MOD10



@MSICLK3
Two Check Characters, MOD10/MOD11



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Transmit Check Character



@MSITCK1
** Transmit MSI-Plessey Check Character



@MSITCK0
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**



@SETUPE1
Enter 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: 127)



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.



@SETUPE0
** Exit Setup



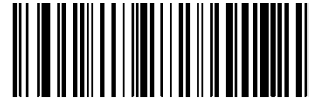
@SETUPE1
Enter Setup

Transmit Check Character



@AIMCHK2

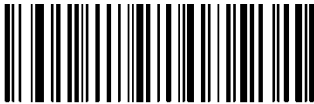
Transmit Check Character



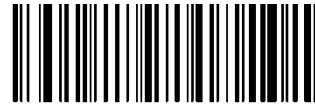
@AIMCHK1

** Do Not Transmit Check Character

FNC1 Output



@AIMFNC0
Off



@AIMFNC1
** On



@SETUPE0
** 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



@SETUPE1
Enter 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.



@SETUPE0
**** Exit Setup**



@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

Character Encoding



@PDFENC0
**** Default Character Encoding**



@PDFENC1
UTF-8



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.



@QRCPMIN

Set the Minimum Length (Default: 1)



@QRCPMAX

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.

Example

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**



@SETUPE1
Enter Setup

QR Twin Code

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

There are 3 options for reading QR twin codes:

- ◇ **Single QR Only:** Read either QR code.
- ◇ **Twin QR Only:** Read both QR codes. Transmission sequence: left (upper) QR code followed by right (lower) QR code.
- ◇ **Both Single & Twin:** Read both QR codes. If successful, transmit as twin QR only. Otherwise, try single QR only.



@QRCDU0
**** Single QR Only**



@QRCDU1
Twin QR Only



@QRCDU2
Both Single & Twin



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Character Encoding



@QRCENC0
Default Character Encoding



@QRCENC3
Automatically Select UTF-8 or Code Page



@QRCENC1
UTF-8



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

QR ECI Output



@QRCEC10
Disable QR ECI Output



@QRCEC11
**** Enable QR ECI Output**

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.



@QRCURS
Custom URL QR



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Micro QR Code

Restore Factory Defaults



@MQRDEF
Restore the Factory Defaults of Micro QR

Enable/Disable Micro QR



@MQRENA1
**** Enable Micro QR**



@MQRENA0
Disable Micro QR



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



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Set Length Range for Micro QR

The scanner can be configured to only decode Micro QR 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 Micro QR barcodes with a specific length, set both minimum and maximum lengths to be that desired length.



Set the scanner to decode Micro 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**



@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



@SETUPE1
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: 3116)



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.

Example

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.



@SETUPE0
** 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.



@DMCDOU0

**** Single Data Matrix Only**



@DMCDOU1

Twin Data Matrix Only



@DMCDOU2

Both Single & Twin



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter 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.



@DMCREC1
**** Enable Rectangular Barcode**



@DMCREC0
Disable Rectangular Barcode



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Character Encoding



@DMCENC0
Default Character Encoding



@DMCENC1
UTF-8



@DMCENC2
Automatically Select UTF-8 or Code Page



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Data Matrix ECI Output



@DMCEC10
Disable Data Matrix ECI Output



@DMCEC1
**** Enable Data Matrix ECI Output**



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Chapter 6 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.



@DFMDEF
Default Data Format

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.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

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



Add Data Format

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.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

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|069990049999F143;**.



@SETUPE0
**** Exit Setup**



@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



@SETUPE1
Enter Setup

Enable/Disable Data Formatter

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



@DFMENA0
**** Disable Data Formatter**

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

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

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

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

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



@SETUPE0
**** Exit Setup**



@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**



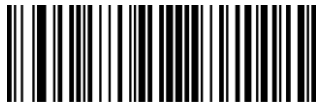
@SETUPE1
Enter Setup

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**



@DFMUSE2
Format_2



@DFMUSE1
Format_1



@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**



@SETUPE1
Enter 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.



@DFMCAL
Clear All



@DFMCLR
Clear One

Query Data Formats

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



@DFMQCU
Query Current Data Formats



@DFMQFA
Query Preset Data Formats



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Formatter Command Type 6

When working with the Data Formatter, a virtual cursor is moved along your input data string. The following commands are used to both move this cursor to different positions, and to select, replace, and insert data into the final output. For the hex value of ASCII characters involved in the commands, refer to 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=F2nxx (nn: The numeric value (00-99) for the number of characters; xx: The insert character’s hex value)

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

F2 Example: Send a number of characters



1234567890ABCDEFGHIJ

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

Command string: **F2100D**

F2 is the “Send a number of characters” command

10 is the number of characters to send

0D is the hex value for a CR

The data is output as: **1234567890**

<CR>



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

F3 Send all characters up to a particular character

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

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

F3 Example: Send all characters up to a particular character



1234567890ABCDEFGHIJ

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>



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

B9 Send all characters up to a particular string

Syntax=B9nnns...s (nnnn: The length of the particular string; s...s: The hex value of each character in the particular string)

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 string “s...s.” The cursor is moved forward to the beginning of the “s...s” string.

B9 Example: Send all characters up to a particular string



1234567890ABCDEFGHIJ

Using the barcode above, send all characters up to but not including “AB.”

Command string: **B900024142**

B9 is the “Send all characters up to a particular string” command

0002 is the length of the particular string (2 characters)

41 is the hex value for a “A” (character in the string)

42 is the hex value for a “B” (character in the string)

The data is output as: **1234567890**

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.



@SETUPE0
** Exit Setup



@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 times the tab character is sent

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

B3 Insert symbology name

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

B4 Insert barcode length

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



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

B3 and B4 Example: Insert the symbology name and length



1234567890ABCDEFGHIJ

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 times 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 times 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.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

F5 Example: Move the cursor forward and send the data



1234567890ABCDEFGHIJ

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**



@SETUPE1
Enter Setup

Search Commands

F8 Search forward for a character

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

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

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



1234567890ABCDEFGHIJ

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.



@SETUPE0
** Exit Setup



@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



1234567890ABCDEFGHIJ

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

Command string: **B00003464748F10D**

B0 is the “Search forward for a string” command

0003 is the string length (3 characters)

46 is the hex value for “F”

47 is the hex value for “G”

48 is the hex value for “H”

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **FGHIJ**

<CR>

B1 Search backward for a string

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

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



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

E6 Search forward for a non-matching character

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

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

E6 Example: Remove zeros at the beginning of barcode data



0000123abc

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: **123abc**

<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.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Comparison Command

B2 string comparison

Syntax= B2nnnnSS1SSn (nnnn: the length of character string, SS1- SSn: the hex value of character string)

The comparison starts from the right side of the current cursor position, and the cursor moves nnnn characters to the right. If the string within the cursor movement range is equal to SS1SSn, the instruction continues to execute; otherwise, it exits.

B2 example: Send data after the specified string of character



Test123456

The above barcode starts with the "Test" string, and requires the content of the Test string to be sent, and finally a carriage return.

Command string: B2000454657374F10D

B2 is the comparison of the character string" command

0004 is the string length (4 characters)

54 is the hex value for T

65 is the hex value for e

73 is the hex value for s

74 is the hex value for t

F1 is the "Send all characters" command

0D is the hex value of carriage return

The data is output as 123456<CR>

EC Check if the character to the right of the cursor is number

This command takes no parameters. If the right side of the cursor is a non-numeric, the current command is exited, otherwise execution continues.

EC example: Send barcode data that starts with number characters



0000123abc

The above barcode starts with number characters, requires to send barcode data, and finally sends a carriage return

Command string: ECF10D

EC is the "Check if the character to the right of the cursor is a number" command

F1 is the "Send All Characters" command

0D is the hex value for CR

The data is output as 0000123abc<CR>



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

ED Check if the character to the right of the cursor is non-numeric

This command takes no parameters. If the right side of the cursor is a number, the current command is exited, otherwise execution continues.

ED example: Send barcode data that starts with non-numeric characters



The above barcode starts with non-numeric characters, requires to send barcode data, and finally sends a carriage return

Command string: EDF10D

EC is the "Check if the character to the right of the cursor is a number" command

F1 is the "Send All Characters" command

0D is the hex value of carriage return

The data is output as Test123456 <CR>

FE Character Comparison

Syntax = FExx (xx is the hex value of the character)

If the character to the right of the current cursor position is xx, execution continues; otherwise exit.

FE example: The example is a barcode that starts with the character "1" and send the first 6 bytes of the barcode.



The above barcode starts with the character "1", and requires to send the character "1" and the next 5 characters

Command string: FE31F7F2060D

FE is the "Character Compare" command

31 is the hex of the character "1"

F7 is the "Move cursor to starting position" command

F2 is the "Send several characters" command

06 is the "Send character length"

0D is the hex value of carriage return

The data is output as 123456 <CR>



@SETUPE0
** Exit Setup



@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



12 34_5*6 78

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: **1234_5*678**

<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



@SETUPE1
Enter Setup

E4 Example: Replace zeros with CRs in barcode data



12304560780AB

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: **123**

456

78

AB

<CR>



@SETUPE0
** Exit Setup



@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 $nn \geq$ 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 $_2 \geq 0$. 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



1234Abc23R0123U

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

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



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

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: **1ABC4AbcABCR01ABCU**

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: **14Abc23R0123U**



@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.

EE Loop execution

Syntax= EEEnnCMD1CMDm (the length of command to be loop execution; CMD1CMDm: the command string to be looped. Starting loop execution from the right of the current cursor station until the cursor moves to the end of the barcode or the conditions for search, replace, and segmentation are not met

EE example: insert a null character and delay 1 second after every 3 characters.



1234567890ABCDEFGHIJ

Command string: EE12F20300EF0200F100



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup

EE is the "Loop execution" command.

12 is the length of command to be loop execution. Decimal

(F20300EF0200: command string to be loop execution)

F2 is "Send several characters" command

03 is send the length of command

00 is null character

EF is "Delay time between characters" command

0200 is the delay time

F1 is "Send all characters" command

00 is null character

The result is output as 123{1s delay} 456 {1s delay} 789 {1s delay} 0AB {1s delay} CDE {1s delay} FGH {1s delay} IJ



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

B8 abandon some type of barcode

This command has no parameters. It is generally used in combination with the comparison command and must be after all commands.

B8 Example: Prevent the output of barcodes beginning with T, and other barcodes are normally output.



Test123456

Two command strings are required to implement this function:

The first command string: FE54B8

FE is the "Character Comparison" command

54 is the hexadecimal of the character "T"

B8 is "Block" command

The second command string: F100

F1 is "Send All Characters" command

00 is null character

The result is output as: The above example barcode has no output, and other barcodes are output normally.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

Chapter 7 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



@SETUPE0
** Exit Setup



@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”.



@CPRENA0
** Disable Custom Prefix



@CPRENA1
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.



@CPRSET
Set Custom Prefix

E
Example

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



@SETUPE1

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.



@AIDENA0

**** Disable AIM ID Prefix**



@AIDENA1

Enable AIM ID Prefix



AIM ID is not user programmable.



@SETUPE0

**** 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 *xample*

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



@CID004
Modify EAN-8 Code ID



@CID006
Modify UPC-E Code ID



@CID008
Modify Interleaved 2 of 5 Code ID



@CID003
Modify GS1-128 Code ID



@CID005
Modify EAN-13 Code ID



@CID007
Modify UPC-A Code ID



@SETUPE0
**** Exit Setup**



@SETUPE1

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



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup



@CID021
Modify ISBT 128 Code ID



@CID023
Modify ISSN Code ID



@CID024
Modify ISBN Code ID



@CID025
Modify Industrial 25 Code ID



@CID026
Modify Standard 25 Code ID



@CID027
Modify Plessey Code ID



@CID028
Modify Code 11 Code ID



@CID029
Modify MSI-Plessey Code ID



@SETUPE0
**** Exit Setup**



@SETUPE1

Enter Setup



@CID030

Modify GS1 Composite Code ID



@CID031

Modify GS1 Databar Code ID



@CID132

Modify Code 49 Code ID



@CID133

Modify Code 16K Code ID



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

2D symbologies:



@CID032
Modify PDF417 Code ID



@CID034
Modify Aztec Code ID



@CID036
Modify Maxicode Code ID



@CID041
Modify GM Code ID



@CID033
Modify QR Code ID



@CID035
Modify Data Matrix Code ID



@CID039
Modify Chinese Sensible Code ID



@SETUPE0
** Exit Setup



@SETUPE1

Enter Setup



@CID042

Modify Micro PDF417 Code ID



@CID043

Modify Micro QR Code ID



@CID048

Modify Code One Code ID



@SETUPE0

**** Exit Setup**



@SETUPE1
Enter Setup

Postal symbologies:



@CID096
Modify USPS Postnet Code ID



@CID098
Modify Royal Mail Code ID



@CID100
Modify KIX Post Code ID



@CID097
Modify USPS Intelligent Mail Code ID



@CID099
Modify USPS Planet Code ID



@CID101
Modify Australian Postal Code ID



@SETUPE0
**** Exit Setup**



@SETUPE1
Enter Setup

Custom Suffix

Enable/Disable Custom Suffix

If custom suffix is enabled, you are allowed to append to the data a user-defined suffix that cannot exceed 10 characters. For example, if the custom suffix is “AB” and the barcode data is “123”, the Host will receive “123AB”.



@CSUENA0
** Disable Custom Suffix



@CSUENA1
Enable Custom Suffix

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.



@CSUSET
Set Custom Suffix

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.



@SETUPE0
** Exit Setup



@SETUPE1
Enter Setup

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.



@SETUPE0
** Exit Setup



@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.



@TSUENAO
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 8 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 the scanner with the above configuration, scan the **Enable Batch Barcode** barcode and then the batch barcode generated.



@BATCHS
Enable Batch Barcode



@SETUPE0
** Exit Setup



@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



@SETUPE1
Enter Setup

Use Batch Barcode

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



@SETUPE1
Enter Setup



@BATCHS
Enable Batch Barcode



Batch Barcode



@SETUPE0
Exit Setup



@SETUPE0
** Exit Setup

Appendix

Digit Barcodes

0~9



@DIGIT0

0



@DIGIT1

1



@DIGIT2

2



@DIGIT3

3



@DIGIT4

4



@DIGIT5

5



@DIGIT6

6



@DIGIT8

8



@DIGIT7

7



@DIGIT9

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	
Illumination	On	
Aiming	On	
Good Read LED	On	
Good Read LED Duration	Short (20ms)	
Power On Beep	On	
Good Read Beep	On	
Good Read Beep Duration	Medium (80ms)	
Good Read Beep Frequency	Medium (2730Hz)	
Good Read Beep Volume	Loud	
Scan Mode	Level Mode	
Decode Session Timeout	3,000ms.	1-3,600,000ms
Image Stabilization Timeout (Sense Mode)	200ms	0-3,000ms
Reread Timeout	Disabled	
	1,500ms	1-3,600,000ms
Reread Timeout Reset	Off	
Good Read Delay	Off	
Good Read Delay Time	500ms	1-3,000ms
Decoding Timeout	500ms	
Surround GS1 AI's with Parenthese	Off	
Sensitivity	Medium(11)	
Trigger Commands	Disabled	
Auto Idle	On	
	500ms	
Scanning Preference	Normal	
Read Barcode After Power On	On	
Read Barcode	On	
Decode Area	Whole Area Decoding	
Image Flipping	Do Not Flip	
Bad Read Message	Off	
	NG	

Default Interface	USB KBW	
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	Disable	USB HID Keyboard
Inter-Keystroke Delay	No Delay	USB HID Keyboard
Caps Lock	Off(Non Japanese Keypad)	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
Symbologies		
Global Settings		
1D Twin Code	Single 1D Code Only	
Code 128		
Code 128	Enabled	
<u>Maximum Length</u>	127	
Minimum Length	1	
Check Character	Do Not Transmit	
EAN-8		
EAN-8	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code Required	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	

EAN-13 Beginning with 290 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 378/379 Add-On Code Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 414/419 Add-On Code Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 434/439 Add-On Code 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	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code Required	Not Required	
Transmit Preamble Character	System Character	
Convert UPC-E to UPC-A	Disabled	
UPC-A		
UPC-A	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code Required	Not Required	
Transmit Preamble Character	System Character	
Interleaved 2 of 5		
Interleaved 2 of 5	Enabled	
Maximum Length	100	
Minimum Length	6	

Check Character Verification	Do not transmit check digit after verification	
Febraban		
Febraban	Disable	
Transmit Delay per Character	Disable	
	70ms	
Transmit Delay per 12 Character	Disable	
	500ms	
ITF-14		
ITF-14	Enable, But Do Not Transmit Check Character	
ITF-6		
ITF-6	Enable, But Do Not Transmit Check Character	
Matrix 2 of 5		
Matrix 2 of 5	Enable	
Maximum Length	127	
Minimum Length	6	No less than 4
Check Character Verification	Do not transmit check digit after verification	
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	Disabled	
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	Enabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
Start/Stop Character	Do not transmit	
	ABCD/ABCD	All capital
Code 93		

Code 93	Enabled	
Maximum Length	127	
Minimum Length	3	
Check Character Verification	Enable, But Do Not Transmit Check Character	
UCC/EAN-128		
UCC/EAN-128	Enabled	
Maximum Length	127	
Minimum Length	1	
GS1 Databar		
GS1 Databar	Enabled	
Application Identifier "01"	Transmit	
Code 11		
Code 11	Enabled	
Maximum Length	127	
Minimum Length	2	No less than 4
Check Character Verification	Disabled	
Check Character	Do Not Transmit	
ISBN		
ISBN	Enabled	
Set ISBN Format	ISBN-13	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code Required	Not Required	
ISSN		
ISSN	Enabled	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code Required	Not Required	
Industrial 25		
Industrial 25	Enabled	
Maximum Length	127	
Minimum Length	1	
Check Character Verification	Disabled	
Standard 25		
Standard 25	Enabled	
Maximum Length	127	
Minimum Length	6	

Check Character Verification	Do Not Transmit Check Character After Verification	
Plessey		
Plessey	Enabled	
Maximum Length	127	
Minimum Length	1	
Transmit Check Character	Transmit	
MSI-Plessey		
MSI-Plessey	Enabled	
Maximum Length	127	
Minimum Length	2	
Check Character Verification	One Check Character, MOD10	
Check Character	Enabled	
AIM 128		
AIM 128	Enabled	
Maximum Length	127	
Minimum Length	1	
Transmit Check Character	Do Not Transmit	
PDF417		
PDF417	Enabled	
Maximum Length	2710	
Minimum Length	1	
PDF417 Twin Code	Single PDF417 Only	
Character Encoding	Default Character Encoding	
PDF417 ECI Output	Enabled	
QR Code		
QR Code	Enabled	
Maximum Length	6144	
Minimum Length	1	
QR Twin Code	Single QR Only	
Character Encoding	Default Character Encoding	
QR ECI Output	Enabled	
Micro QR Code		
Micro QR Code	Enabled	
Maximum Length	6144	
Minimum Length	1	
Data Matrix		

Data Matrix	Enabled	
Maximum Length	3116	
Minimum Length	1	
Data Matrix Twin Code	Single Data Matrix Only	
Rectangular Barcode	Enabled	
Character Encoding	Default Character Encoding	
Data Matrix ECI Output	Enabled	
Data Formatter		
Data Formatter	Disabled	
Data Format Selection	Format_0	
Non-Match Error Beep	Disabled	
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 CR (0x0D)	

AIM ID Table

Symbology	AIM ID	Possible AIM ID Modifiers (m)
Code128	JC0	
GS1-128 (UCC/EAN-128)	JC1	
EAN-8	JE4	
EAN-8 with Addon	JE4	
EAN-13	JE0	
EAN-13 with Addon	JE3	
UPC-E	JE0	
UPC-E with Addon	JE3	
UPC-A	JE0	
UPC-A with Addon	JE3	
Interleaved 2 of 5	JIm	0, 1, 3
ITF-14	JIm	1, 3
ITF-6	JIm	1, 3
Matrix 2 of 5	JX0	
Code 39	JAm	0, 1, 3, 4, 5, 7
Codabar	JFm	0, 2, 3
Code 93	JG0	
AIM 128	JC2	
ISSN	JX0	
ISBN	JX0	
Industrial 25	JS0	
Standard 25	JRm	0, 1, 3
Plessey	JP0	
Code 11	JHm	0, 1, 3
MSI Plessey	JMm	0, 1
GS1 Databar (RSS)	Je0	
PDF417	JL0	
QR Code	JQm	0-6
Aztec	Jzm	0-9, A-C
Data Matrix	Jdm	0-2
Micro QR	JQ1	

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
Code128	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
AIM 128	X
ISSN	g
ISBN	B
Industrial 25	l
Standard 25	f
Plessey	n
Code 11	H
MSI Plessey	m
GS1 Databar (RSS)	R
PDF417	r
QR Code	s
Aztec	z
Data Matrix	u
Micro QR	X

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
AIM 128	020
ISSN	023
ISBN	024
Industrial25	025
Standard25	026
Plessey	027
Code11	028
MSI-Plessey	029
GS1 Databar (RSS)	031
PDF417	032
QR Code	033
Aztec	034
Data Matrix	035
Micro QR	043

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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