



# WD4 RING SCANNER

Nwear

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## Revision History

Version	Description	Date
1.0.0	Initial release.	Aug 19, 2020

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# Preface

## Introduction

This manual provides detailed instructions for setting up and using the BS20 wireless barcode scanner (hereinafter referred to as “**the scanner**”).

## Chapter Description

<i>Chapter 1 Getting Started</i>	: Gives a general description of BS20 scanner.
<i>Chapter 2 EasySet</i>	: Introduces a useful tool you can use to set up BS20 scanner and develop new applications.
<i>Chapter 3 System Settings</i>	: Introduces three configuration methods and describes how to configure general parameters of BS20 scanner.
<i>Chapter 4 USB Interface</i>	: Describes how to configure USB communication parameters.
<i>Chapter 5 Wireless Communication</i>	: Describes how to configure the parameters necessary for wireless communication between the scanner and host device.
<i>Chapter 6 Symbologies</i>	: Lists all compatible symbologies and describes how to configure the relevant parameters.
<i>Chapter 7 Data Formatter</i>	: Explains how to customize scanned data with the data formatter.
<i>Chapter 8 Prefix &amp; Suffix</i>	: Describes how to use prefix and suffix to customize scanned data.
<i>Chapter 9 Batch Programming</i>	: Explains how to integrate a complex programming task into a single barcode.
<i>Appendix</i>	: 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 scanner reads a 1D or 2D barcode by capturing its image. Adopting the advanced technology independently developed by Newland Auto-ID Tech and 2d image embedding application barcode engine, it begins a new era of 2d image embedding application barcode engine.

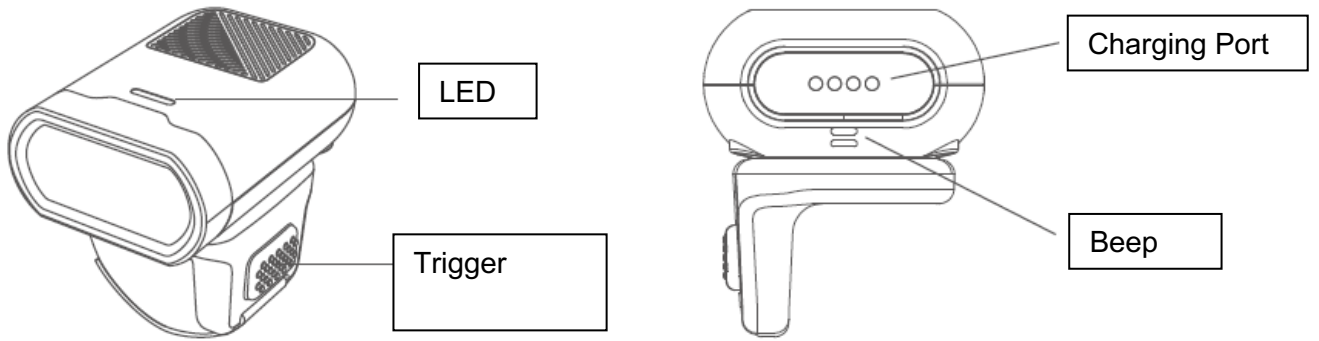
Newland 2d decode IC combines advanced UIMG and IC designation and manufacturing technology, simplifying the difficulties of designation of 2d decode products, establishing remarks of high quality, high reliability and low consumption products.

The scanner can read kinds of mainstream 1D barcodes, standard 2D barcodes.( all versions of PDF417,QR Code M1/M2/Micro and Data Matrix) and GS1-DataBar™ (RSS) barcodes, including Limited, Stacked, Expanded and so on.

The scanner can read barcodes in papers, plastic cards, LCD and other kinds of mediums of printing and displaying. It has great performance. All-in-one design is extremely light and only needs small operation space It can be embedded in varieties of application.



## BS20



Good Read LED:

Red LED flashes slowly - Low battery alert.

Red LED on – On charging.

Red LED off and green LED on - Full charged

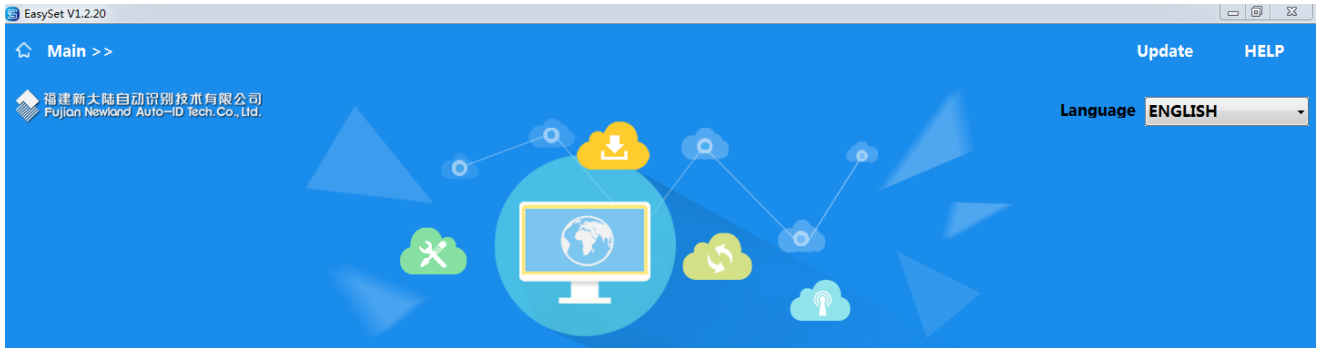
Blue LED flashes slowly – Bluetooth disconnected

Blue LED on – Bluetooth connected.

Green LED flashes once - Good read.

## 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 including 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 Setting

### 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*.



@SETUPE1  
Enter Setup

## Programming Barcode/ Programming Command/Function



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

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



@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**



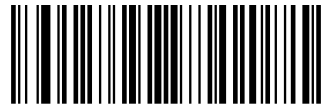
@SETUPE1  
**Enter Setup**

---

## Illumination



@ILLSCN1  
**\*\* On**



@ILLSCN2  
**Always lighting**



@ILLSCN0  
**Off**

## Aiming



@AMLENA1  
**\*\* On**



@AMLENA2  
**Always lighting**



@AMLENA0  
**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 2,000ms.



@GRLDUR20

**\*\* Short (20ms)**



@GRLDUR120

**Medium (120ms)**



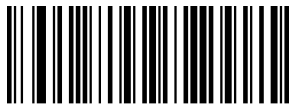
@GRLDUR220

**Long (220ms)**



@GRLDUR320

**Prolonged (320ms)**



@GRLDUR

**Custom (1 - 2,000ms)**

**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**



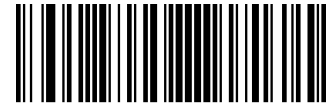
@GRLDUR800

**800ms**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

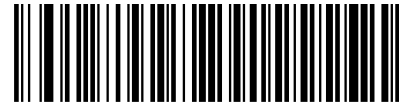
**Enter Setup**

---



@GRLDUR900

**900ms**



@GRLDUR1000

**1000ms**



@GRLDUR1100

**1100ms**



@GRLDUR1200

**1200ms**



@GRLDUR1300

**1300ms**



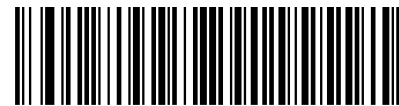
@GRLDUR1400

**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)**



@GRBFRQ1600

**\*\* Medium (2730Hz)**



@GRBFRQ4200

**High (4200Hz)**



@GRBFRQ

**Custom (20 - 20,000Hz)**

**E**  
*sample*

**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

This parameter is programmable in 1 increments from 1 to 20



@GRBVLL20  
**\*\* Loud**



@GRBVLL7  
**Medium**



@GRBVLL2  
**Low**



@GRBVLL  
**Custom(1-20)**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Vibration

### Good Read Vibration



@GRVENA1

**On**



@GRVENA0

**\*\* Off**

### Good Read Vibration Duration

This parameter is programmable in **1ms** increments from **100ms** to **2000ms**



@GRVDUR

**Vibration Duration**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

Enter Setup

---

## Scan Mode

- ◇ **Level Mode:** A trigger pull activates a decode session. The decode session continues until a barcode is decoded or you release the trigger.
- ◇ **Trigger Mode:** A trigger pull activates a decode session. The decode session continues until a barcode is decoded, either you release the trigger or decode session timeout.
- ◇ **Sense Mode:** The scanner waits for the image stabilization timeout to expire before activating a decode session everytime it detects a change in ambient illumination. Decode session continues until a barcode is decoded or the decode session timeout expires. In this mode, a trigger pull can also activate a decode session. The decode session continues until a barcode is decoded or the trigger is released. When the session ends, the scanner continues to monitor ambient illumination. **Timeout between Decodes (Same Barcode)** can avoid undesired rereading of same barcode in a given period of time. **Sensitivity** can change the Sense Mode's sensibility to changes in ambient illumination.
- ◇ **Continuous Mode:** The scanner automatically starts one decode session after another. To suspend/resume barcode reading, simply press the trigger. **Timeout between Decodes (Same Barcode)** can avoid undesired rereading of same barcode in a given period of time.
- ◇ **Pulse Mode:** When the trigger is pulled and released, scanning is activated until a barcode is decoded or the decode session timeout expires (The decode session timeout begins when the trigger is released).
- ◇ **Batch Mode:** When the trigger is pulled and released, scanning is activated until the trigger is released. During pulling the trigger, good read barcodes will beep and output barcode information. As long as unrelease the trigger, it will continues decoding. During pulling the trigger, same code can be read only once.



@SETUPE0

\*\* Exit Setup





@SETUPE1

**Enter Setup**

---



@SCNMOD0

**\*\* Level Mode**



@SCNMOD2

**Sense Mode**



@SCNMOD4

**Pulse Mode**



@SCNMOD1

**Trigger Mode**



@SCNMOD3

**Continuous Mode**



@SCNMOD7

**Batch Mode**



@SETUPE0

**\*\* Exit Setup**



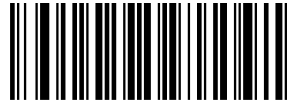
@SETUPE1

**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 100ms.



@SENIST  
**Image Stabilization Timeout**

**E**  
*xample*

### 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

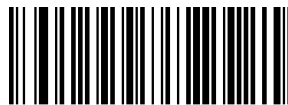
**Enable Reread Timeout**



@RRDENA0

**\*\*Disable Reread Timeout**

The following parameter sets the timeout between decodes for same barcode. It is programmable in 1ms increments from 0ms to 3,600ms. The default setting is 1,500ms.



@RRDDUR

**Set Reread Timeout**

**E**  
*sample*

**Set the reread timeout to 1,000ms:**

1. Scan the **Enter Setup** barcode.
2. Scan the **Timeout between Decodes (Same Barcode)** 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**



\*\* **Reread Timeout Reset Off**

## 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**  
*xample*

**Set the image decoding timeout to 1,000ms:**

1. Scan the **Enter Setup** barcode.
2. Scan the **Image Decoding 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

---

## Scanning Preference

**Normal Mode:** Select this mode when reading barcodes on paper.

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

**Barcode Pay Mode:** Select this mode when reading the payment barcode.



@EXPLVL0

\*\* Normal Mode



@EXPLVL2

Screen Mode



@EXPLVL5

Barcode Pay Mode



@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

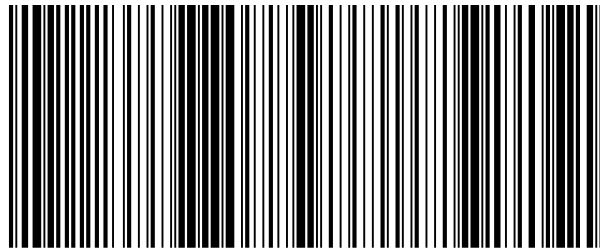
**\*\* Do Not Surround GS1 AI's with Parentheses**



@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**



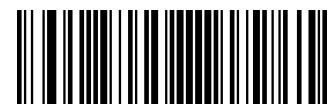
@SENLVL

**Custom Sensitivity (1-20)**

**E**  
*xample*

**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

## Trigger Commands

When **Enable Trigger Commands** is selected, you can activate and deactivate the scanner in the Level mode with serial trigger commands. Sending the **Start Scanning** command (default: **<SOH> T <EOT>**, user-programmable) to the scanner in the Level mode activates a decode session. The decode session continues until a barcode is decoded or the decode session timeout or the scanner receives the **Stop Scanning** command (default: **<SOH> P <EOT>**, user-programmable).



@SCNTCE0  
**\*\* Disable Trigger Commands**



@SCNTCE1  
**Enable Trigger Commands**

## Modify Start Scanning Command

The **Start Scanning Command** can stimulate the trigger unreleased and consist of 1-10 characters (HEX values from 0x01 to 0xFF). In this command, the character “?” (HEX: 0x3F) cannot be the first character. The default **Start Scanning** command is **<SOH> T <EOT>**.



@SCNTCT  
**Modify Start Scanning Command**

**E**  
*xample*

**Set the Start Scanning command to “\*T”:**

1. Scan the **Enter Setup** barcode.
2. Scan the **Modify Start Scanning Command** barcode.
3. Scan the numeric barcodes “2”, “A”, “5” and “4” 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**

---

## Modify Stop Scanning Command

The **Stop Scanning Command** can stimulate the trigger unreleased and consist of 1-10 characters (HEX values from 0x01 to 0xFF). In this command, the character “?” (HEX: 0x3F) cannot be the first character. The default **Stop Scanning** command is **<SOH> P <EOT>**.



@SCNTCP

**Modify Stop Scanning Command**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
Enter Setup

---

## Read Barcode after Power On

**Disable:** The scanner can not decode barcodes after power on. The illumination and aiming are off. You can send Read Barcode Command to the scanner to activate it.

**Enable:** The scanner can decode barcodes after power on.

This feature is disabled when the interface is USB Keyboard



@SCNPEN1  
\*\* Enable



@SCNPEN0  
Disable

## 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.



@CADENA0

**\*\* Whole Area Decoding**



@CADENA1

**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.



@CADTOP

**Top of Decoding Area**



@CADBOT

**Bottom of Decoding Area**



@CADLEF

**Left of Decoding Area**



@CADRIG

**Right of Decoding Area**

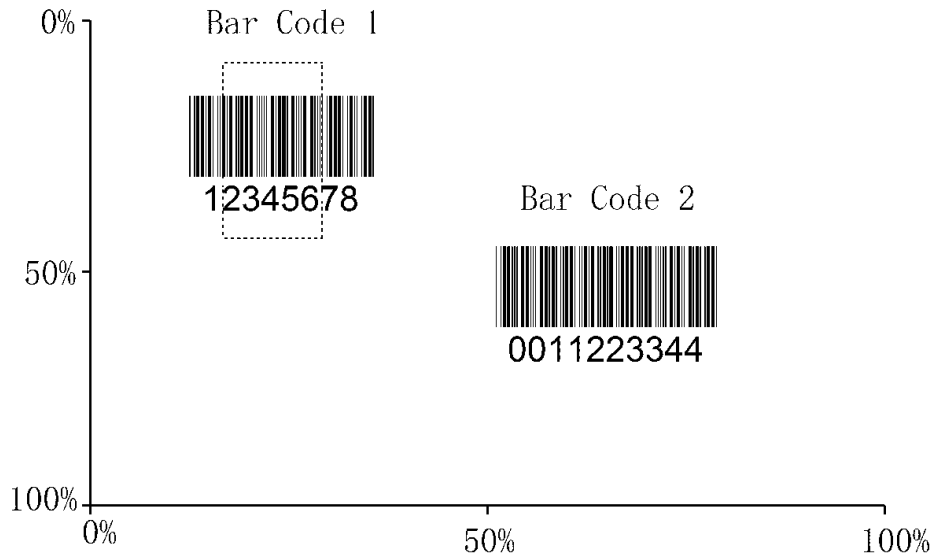


@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
Enter Setup



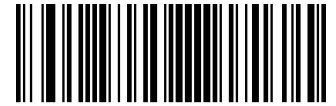
## Example

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**  
*sample*

### 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**



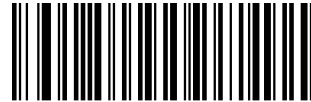
@SETUPE1  
Enter Setup

---

## Power Off/Battery Off



@PWROFF  
Power Off Scanner



@TESTMD3  
Battery Off

(For Long-term Storage/Shipping)

Note: After scanning the **Battery Off** barcode, you MUST press the trigger for 6~7 seconds or connect the host via USB to turn it on. The scanner will beep when it is powered on.

## 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:

1. The scanner is not properly configured so that it fails to decode barcodes.
2. 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.



@SETUPE0  
**\*\* Exit Setup**





@SETUPE1

**Enter Setup**

---



@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, manufacturing date and data formatter version) will be sent to the host device.



@QRYSYS

**Query Product Information**

## Query Product Name



@QRYPDN

**Query Product Name**

## Query Firmware Version



@QRYFW

**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 OEM Serial Number**



@QRYESN  
**Query OEM Serial Number**

**Query Manufacturing Date**



@QRYDAT  
**Query Manufacturing Date**

**Query Data Formatter Version**



@QRYDFM  
**Query Data Formatter Version**



@SETUPE0  
**\*\* Exit 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 excels virtual keyboard interface in transmission speed.



@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)**



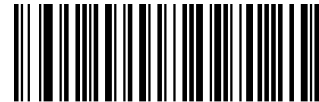
@KBWCTY2  
**Brazil**



@KBWCTY4  
**Czechoslovakia**



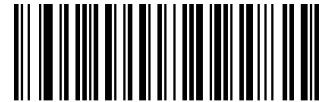
@KBWCTY6  
**Finland (Swedish)**



@KBWCTY1  
**Belgium**



@KBWCTY3  
**Canada (French)**



@KBWCTY5  
**Denmark**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---



@KBWCTY7  
**France**



@KBWCTY8  
**Germany/ Austria**



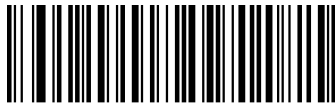
@KBWCTY9  
**Greece**



@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**

**E**  
*sample*

Supposing French keyboard (Country Code: 7) is selected and barcode data "ADF" is being dealt with, the keyboard will fail to locate the "D" (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.



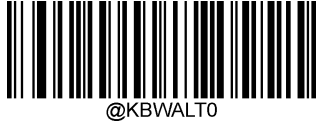
@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
Enter Setup

## Emulate ALT+Keypad

When **Emulate ALT+Keypad** is turned on, any character is sent via the numeric keypad and overlook USB country keyboard type. This mode need to set **Code Page Option** and **Unicode Output**. **Code Page** determines the target language. **Unicode Output** determines the ASCII input to the host device.



\*\* Emulate ALT+Keypad OFF



Emulate ALT+Keypad ON



ASCII characters between 0x00~0x1F will be input in way of Function Key Mapping Set.



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



Supposing **Emulate ALT+Keypad** is ON, **Unicode Encoding** is Off, and **Code Page 1252 (West European Latin)** is selected, 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. The default setting is Code Page 1252(West European, Latin)



@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)**



@KBWCPG11  
**Code Page 874(Thai)**



---

@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. The default setting is Off



@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

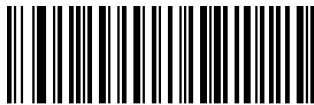
When **Ctrl+ASCII Mode** is selected, function characters (0x00 - 0x1F) are sent as ASCII sequences. The default setting is Off.



@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

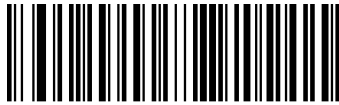
This parameter specifies the delay between emulated keystrokes. Scanning below barcodes to delay longer when the host device needs slower data transmission. The default setting is No Delay.



@KBWDLY0  
\*\* No Delay



@KBWDLY40  
Long Delay (40ms)



@KBWDLY20  
Short Delay (20ms)

### Caps Lock

The **Caps Lock ON** option 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.



\*\* Caps Lock OFF (Non-Japanese keyboard)



Caps Lock ON (Non-Japanese keyboard)



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



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



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

## Convert Case

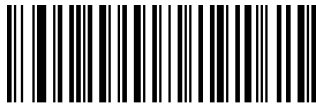
Scan the appropriate barcode below to convert all barcode data to your desired case.



@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** and **Emulate Numeric Keypad 2** features are 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 follows:

1. "A" is sent as is because it is not included in numeric keypad;
2. "4" is sent as the function key "Cursor Move to Left";
3. "." is sent;
4. "5" is not sent as it does not correspond to any function key.

Finally the host device will get ".A"



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
Enter Setup

---

### Character "+", "-", "\*", "/" Adopt Numeric Keypad



@KBWNCH0  
\*\* Off



@KBWNCH1  
On



@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**

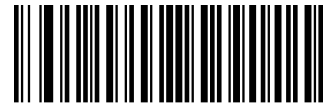
---

## Polling Rate

This parameter specifies the polling rate for a USB keyboard. The smaller value rate is, the faster characters transmission from scanner to the host. If the host drops characters, change the polling rate to a bigger value.



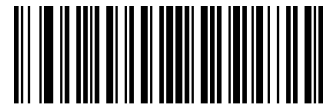
@KBWPOR0  
**1ms**



@KBWPOR1  
**2ms**



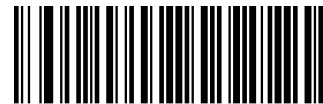
@KBWPOR2  
**3ms**



@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](http://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:

1. HID based, no custom driver required.
2. More efficient in communication than keyboard emulation 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](http://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)
BS20	USB HID Keyboard	0022	0034
	USB CDC	0006	0006
	HID POS	0010	0016
	Dongle HID Keyboard	3322	13090
	Dongle CDC	3306	13062
	Dongle HID POS	3310	13072



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
Enter Setup

## Chapter 5 Wireless Communication

### Operating Modes

The scanner provides the following operating modes. Scanning the Enter Setup Barcode to change the operating mode. The default setting is Dongle KBW Mode:

**Bluetooth HID Mode** allows your scanner to communicate with a remote host using Bluetooth. You must first pair your scanner to the host before these two Bluetooth devices can communicate with each other. All features available for USB HID Keyboard are applicable to Bluetooth HID.

**Note:** The pairing information in the scanner and the host need to be cleared before connecting with other Bluetooth devices

**Bluetooth BLE Mode:** The Bluetooth low energy communication mode can communicate with the host app developed based on the Bluetooth SDK. In this mode, the scanner provides a serial transparent transmission service based on GATT service.

**2.4G Mode/Bluetooth Dongle CDC/Bluetooth Dongle KBW/Bluetooth Dongle HID POS:** Putting Dongle into the data port and connecting automatically to the host.



@SETUPE0  
\*\* Exit Setup



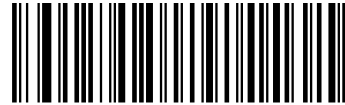
@SETUPE1

**Enter Setup**

---



@INTERF10  
**Bluetooth HID**



@INTERF11  
**Bluetooth BLE**



@INTERF18  
**Bluetooth Dongle HID POS**  
**(Only Bluetooth Dongle Supported)**



@INTERF17  
**Bluetooth Dongle CDC**  
**(Only Bluetooth Dongle Supported)**



@INTERF19  
**\*\* Bluetooth Dongle KBW**  
**(Only Bluetooth Dongle Supported)**



@SETUPE0

**\*\* Exit Setup**





@SETUPE1  
Enter Setup

---

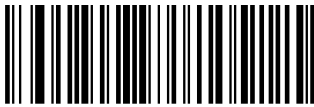
## Batch Mode

### Batch Mode Options

**Off:** The scanner attempts to transmit every barcode you scan. When you are out of service range, the scanned data will be lost.

**Automatic Batch Mode:** When in service range, the scanner attempts to transmit every barcode you scan. When out of range, the scanner stores the scanned data in the flash memory. Once you are back to service range, the scanner will automatically transmit the stored data and then remove it from the flash memory after transmission is done.

**Manual Batch Mode:** Scanned data will be stored in the flash memory no matter whether you are in service range or not. You may send the stored data to the host in the following ways: scan the Transmit Stored Data barcode. The scanner will automatically remove the stored data from the flash memory after transmission is done if the Auto Clear Stored Data after Transmission feature is turned on.



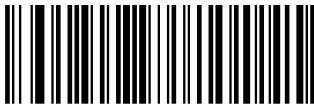
@WLSBAT0

\*\*Off



@WLSBAT1

**Automatic Batch Mode**



@WLSBAT2

**Manual Batch Mode**



@SETUPE0  
\*\* Exit Setup



@SETUPE1

**Enter Setup**

---

## Prevent Same Barcode Storage

This feature is available only when scanning barcodes in the Automatic or Manual Batch mode.

**On:** The scanner discards the data and generates an error beep when encountering a barcode that has existed in the flash memory.

**Off:** The scanner stores the data when encountering a barcode that has existed in the flash memory.



@WLSSE0

**\*\* Off**



@WLSSE1

**On**



@SETUPE0

**\*\* Exit Setup**

---

## Batch Mode Transmit Delay

Sometimes when multiple barcodes stored in the flash memory are sent to the host, the transmission of those barcodes is too fast for the application to process. To program a transmit delay between barcodes, scan one of the following delays.



@WLSBTD0

**\*\* No Transmit Delay (0ms)**



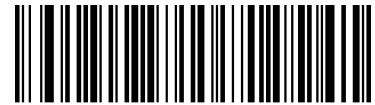
@WLSBTD50

**Short Transmit Delay (50ms)**



@WLSBTD100

**Medium Transmit Delay (100ms)**



@WLSBTD150

**Long Transmit Delay (150ms)**



@WLSBTD

**Custom Transmit Delay (0-10,000ms)**

**Set the batch mode transmit delay to 200ms:**

**E**  
*xample*

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



@SETUPE1

**Enter Setup**

## End of Transmission Message for Batch Mode

You may scan the appropriate barcode below to select whether or not to send an end of transmission message (user-programmable) to notify the host when transmission of all stored data is done. This feature is only available to data transmission initiated manually under the Manual Batch mode.



@WLSBTT0

**\*\* End of Transmission Message Off**



@WLSBTT1

**End of Transmission Message On**

An end of transmission message can contain up to 10 characters (HEX values from 0x00 to 0xFF). To set an end of transmission message, scan the **Set End of Transmission Message** barcode, the numeric barcodes representing the hexadecimal values of desired character(s) and the **Save** barcode. The default setting is "EOT".



@WLSBTC

**Set End of Transmission Message**

**E**  
*sample*

**Set the end of transmission message to "END" (HEX: 0x45, 0x4E, 0x44):**

1. Scan the **Enter Setup** barcode.
2. Scan the **Set End of Transmission Message** barcode.
3. Scan the numeric barcodes "4", "5", "4", "E", "4" and "4" 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**

### Transmit Stored Data

You may scan the barcode below to send the stored data in the flash memory to the host. This feature is only available to the Manual Batch mode.



@WLSST  
**Transmit Stored Data**

### Auto Clear Stored Data after Transmission

You may scan the appropriate barcode below to choose whether to clear or keep the stored data in the flash memory after transmission. This feature is only available to the Manual Batch mode.



@WLSCLE0  
**\*\* Off**



@WLSCLE1  
**On**

### Query/Clear Stored Data in Flash



@WLSQFC  
**Query the Number of Stored Barcodes**



@WLSCLF  
**Clear All Stored Data**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

### **Clear Pairing Info on Scanner**



@WLSCLP

### **Clear Pairing Info on Scanner**

Note: Clear Pairing Info on Scanner is available for Bluetooth HID and Bluetooth KBW Mode.



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Auto Power-Off Timeout

Auto Power-off Timeout specifies the amount of time it takes before the scanner automatically powers off from inactivity.



@WLSAPO0  
**\*\* 5 Minutes**



@WLSAPO1  
**10 Minutes**



@WLSAPO2  
**20 Mintues**



@WLSAPO3  
**30 Mintues**



@WLSAPO4  
**60 Minutes**



@WLSAPO5  
**Disable Auto Power-off**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1

Enter Setup

---

## Set Scanner Name

You may scan the below barcode to set the name of your scanner. The maximum length is 5 characters (HEX values from 0x20 to 0x7E). The default scanner name is "00000".



@WLSNAM

Scanner Name

**E**  
*example*

If setting the scanner name as "0AB00":

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

## Set Date and Time

You may scan the below barcode to set the date and time on your scanner:



@WLSTMS

**\*\* Set Date and Time**

**E**  
*example*

Set Date and Time to "20201021010101":

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Date and Time** barcode.
3. Scan the numeric barcodes "2", "0", "2", "0", "1", "0", "2", "1", "0", "1", "0", "1", "0" and "1" 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**

---

## Query the Battery Power of Scanner

After scanning the barcode below, the battery power of scanner will be sent to the host device.



@WLSQPW

**Query the Battery Power of Scanner**

## Time Stamp

You can select whether or not to send date & time before each scanned data by scanning the appropriate barcode below.



@WLSTSE0

**\*\* Do Not Send Time Stamp**



@WLSTSE1

**Send Time Stamp**



@SETUPE0

**\*\* Exit Setup**

---

## Set Time Stamp Format



@WLSTSF0

**\*\* Format 1: (YYYY/MM/DD, HH: MM: SS)**

(example: 2018/01/23, 10:30:20)



@WLSTSF1

**Format 2: (DD/MM/YYYY/, HH: MM: SS)**

(example: 23/01/2018, 10:30:20)



@WLSTSF2

**Format 3: (MM/DD/YYYY,HH:MM:SS)**

(example: 01/23/2018, 10:30:20)



@SETUPE1  
Enter Setup

## Chapter 6 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**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
Enter Setup

---

## 1D Twin Code

1D twin code is two 1D barcodes of a symbology or of different symbologies paralleled vertically. Both barcodes must have similar specifications and be placed closely together.

There are 3 options for reading 1D twin code:

**Single 1D Code Only:** Read either 1D code.

**Twin 1D Code Only:** Read both 1D codes. Transmission sequence: upper 1D code followed by lower 1D code.

**Both Single & Twin:** Read both 1D codes. If successful, transmit as twin 1D code only. Otherwise, try single 1D code only.



@A1DDOU0  
**\*\* Single 1D Code Only**



@A1DDOU2  
**Twin 1D Code Only**



@A1DDOU1  
**Both Single & Twin**



@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: 48)**



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

**E**  
*xample*

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

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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
Enter Setup

---

## EAN-8

### Restore Factory Defaults



@EA8DEF

Restore the Factory Defaults of EAN-8

### Enable/Disable EAN-8



@EA8ENA1

\*\* Enable EAN-8



@EA8ENA0

Disable EAN-8



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

### Transmit Check Character

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



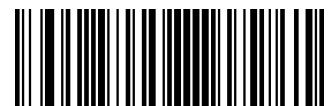
@EA8CHK2

\*\* Transmit EAN-8 Check Character



@EA8CHK1

Do Not Transmit EAN-8 Check Character



@SETUPE0

\*\* Exit Setup





@SETUPE1  
Enter Setup

---

## 2-Digit Add-On Code

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



@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**



**EAN-8 Add-On Code Required**

### Convert EAN-8 to EAN-13

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

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



@EA8EXP0  
**\*\* Do Not Convert EAN-8 to EAN-13**



**Convert EAN-8 to EAN-13**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## EAN-13

### Restore Factory Defaults



@E13DEF

**Restore the Factory Defaults of EAN-13**

### Enable/Disable EAN-13



@E13ENA1

**\*\* Enable EAN-13**



@E13ENA0

**Disable EAN-13**



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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
Enter Setup

### Transmit Check Character



@E13CHK2

\*\* Transmit EAN-13 Check Character



@E13CHK1

Do Not Transmit EAN-13 Check Character

### 2-Digit Add-On Code

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



@E13AD20

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



@E13AD21

Enable 2-Digit Add-On Code



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

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



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
Enter Setup

## 5-Digit Add-On Code

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



@E13AD50  
**\*\* Disable 5-Digit Add-On Code**



@E13AD51  
**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.



@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.



@E134140

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



@E134141

**Require Add-On Code**



@SETUPE0

**\*\* Exit Setup**





@SETUPE1  
Enter Setup

---

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

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

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

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



@E134340

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



@E134341

**Require Add-On Code**



@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



@UPEENA1

\*\* Enable UPC-E



@UPEENA0

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-E/UPC-E0/UPC-E1** barcodes, you may first try this solution by scanning the **Enter Setup** barcode and then **Enable UPC-E/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

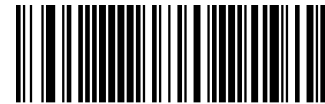
**Convert UPC-E to UPC-A:** Convert UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Character).

**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

---

## Coupon

### UPC-A/EAN-13 with Extended Coupon Code

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

1. UPC-A (starting with "5") + GS1-128
2. UPC-A (starting with "5") + GS1 Databar
3. EAN-13 (starting with "99") + GS1-128

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

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

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



@CPNENA0  
\*\* Off



@CPNENA1  
**Allow Concatenation**



@CPNENA2  
**Require Concatenation**



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



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

### Coupon GS1 Databar Output

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

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



@CPNGS10  
**\*\* GS1 Output Off**



@CPNGS11  
**GS1 Output On**



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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Interleaved 2 of 5

### Restore Factory Defaults



@I25DEF  
**Restore the Factory Defaults of Interleaved 2 of 5**

### Enable/Disable Interleaved 2 of 5



@I25ENA1  
**\*\* Enable Interleaved 2 of 5**



@I25ENA0  
**Disable Interleaved 2 of 5**



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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Set Length Range for Interleaved 2 of 5

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



**Set the Minimum Length (Default: 6)**



**Set the Maximum Length (Default: 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.

**E**  
*example*

**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.



@FEBSNO  
**\*\* Disable Transmit Delay per Character**



@FEBSN1  
**Enable Transmit Delay per Character**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

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



@FEBSDT0  
**0ms**



@FEBSDT5  
**5ms**



@FEBSDT10  
**10ms**



@FEBSDT15  
**15ms**



@FEBSDT20  
**20ms**



@FEBSDT25  
**25ms**



@FEBSDT30  
**30ms**



@FEBSDT35  
**35ms**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
Enter Setup

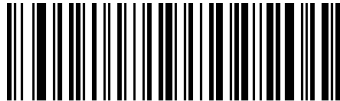
---



@FEBSDT40  
40ms



@FEBSDT45  
45ms



@FEBSDT50  
50ms



@FEBSDT55  
55ms



@FEBSDT60  
60ms



@FEBSDT65  
65ms



@FEBSDT70  
\*\* 70ms



@FEBSDT75  
75ms



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
Enter Setup

---

### Transmit Delay per 12 Characters

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



@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**

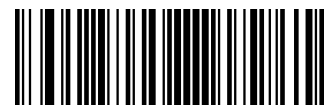


@IT6ENA2

**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.



@M25MIN

**Set the Minimum Length (Default: 6)**



@M25MAX

**Set the Maximum Length (Default: 80)**

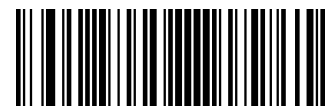


If minimum length is set to be greater than maximum length, the scanner only decodes Matrix 2 of 5 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Matrix 2 of 5 barcodes with that length are to be decoded.

**E**  
*xample*

**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: 48)**



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



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

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



@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.



@CBAMIN  
Set the Minimum Length (Default: 2)



@CBAMAX  
Set the Maximum Length (Default: 60)



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



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

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



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
Enter Setup

## Check Character Verification

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

**Disable:** The scanner transmits Codabar barcodes as is.

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

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



@CBACHK0  
\*\* Disable



@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.



@C93MIN  
**Set the Minimum Length (Default: 1)**



@C93MAX  
**Set the Maximum Length (Default: 48)**



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



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

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



@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**

---

## China Post 25

### Restore Factory Defaults

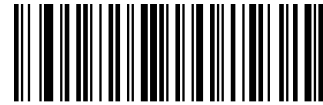


@CHPDEF  
**Restore the Factory Defaults of China Post 25**

### Enable/Disable China Post 25



@CHPENA1  
**Enable China Post 25**



@CHPENA0  
**\*\* Disable China Post 25**



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



@SETUPE0  
**\*\* Exit Setup**



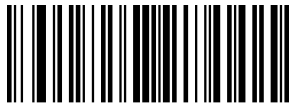
@SETUPE1

**Enter Setup**

---

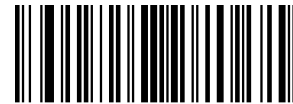
## Set Length Range for China Post 25

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



@CHPMIN

**Set the Minimum Length (Default: 1)**



@CHPMAX

**Set the Maximum Length (Default: 48)**



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

**E**  
*xample*

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

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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
Enter Setup

---

## Check Character Verification

A check character is optional for China Post 25 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

**Disable:** The scanner transmits China Post 25 barcodes as is.

**Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all China Post 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

**Transmit Check Character After Verification:** The scanner checks the integrity of all China Post 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.



@CHPCHK0  
**\*\* Disable**



@CHPCHK1

**Do Not Transmit Check Character After Verification**



@CHPCHK2

**Transmit Check Character After Verification**



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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## GS1-128 (UCC/EAN-128)

### Restore Factory Defaults



@GS1DEF

**Restore the Factory Defaults of GS1-128**

### Enable/Disable GS1-128



@GS1ENA1

**\*\* Enable GS1-128**



@GS1ENA0

**Disable GS1-128**



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



@SETUPE0

**\*\* Exit Setup**



@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: 48)**



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



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

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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

## GS1 Databar (RSS)

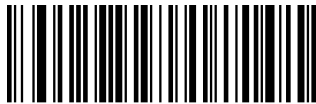
### Restore Factory Defaults



@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

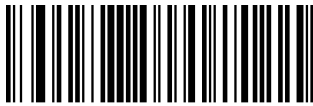
## GS1 Composite (EAN-UCC Composite)

### Restore Factory Defaults



@CPTDEF  
Restore the Factory Defaults of GS1 Composite

### Enable/Disable GS1 Composite



@CPTENA1  
Enable GS1 Composite



@CPTENA0  
**\*\* Disable GS1 Composite**



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

### Enable/Disable UPC/EAN Composite



@CPTUPC1  
Enable UPC/EAN Composite



@CPTUPC0  
**\*\* Disable UPC/EAN Composite**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Code 11

### Restore Factory Defaults



@C11DEF

**Restore the Factory Defaults of Code 11**

### Enable/Disable Code 11



@C11ENA1

**\*\* Enable Code 11**



@C11ENA0

**Disable Code 11**



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



@SETUPE0

**\*\* Exit Setup**





@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: 4)**



@C11MAX  
**Set the Maximum Length (Default: 48)**



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



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

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



@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**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## ISSN

### Restore Factory Defaults



@ISSDEF

**Restore the Factory Defaults of ISSN**

### Enable/Disable ISSN



@ISSENA1

**Enable ISSN**



@ISSENA0

**\*\* Disable ISSN**



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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Industrial 25

### Restore Factory Defaults



@L25DEF  
**Restore the Factory Defaults of Industrial 25**

### Enable/Disable Industrial 25



@L25ENA1  
**\*\* Enable Industrial 25**



@L25ENA0  
**Disable Industrial 25**



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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Set Length Range for Industrial 25

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



@L25MIN

**Set the Minimum Length (Default: 6)**



@L25MAX

**Set the Maximum Length (Default: 48)**



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



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

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



@SETUPE0

**\*\* Exit Setup**





@SETUPE1  
Enter Setup

---

### Check Character Verification

A check character is optional for Industrial 25 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

**Disable:** The scanner transmits Industrial 25 barcodes as is.

**Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Industrial 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

**Transmit Check Character After Verification:** The scanner checks the integrity of all Industrial 25 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.



@L25CHK0  
\*\* Disable



Do Not Transmit Check Character After Verification



Transmit Check Character After Verification



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



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

## Standard 25

### Restore Factory Defaults



@S25DEF

**Restore the Factory Defaults of Standard 25**

### Enable/Disable Standard 25



@S25ENA1

**Enable Standard 25**



@S25ENA0

**\*\* Disable Standard 25**



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



@SETUPE0

**\*\* Exit Setup**



@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.



@S25MIN

**Set the Minimum Length (Default: 6)**



@S25MAX

**Set the Maximum Length (Default: 48)**



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

**E**  
*xample*

**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: 4)**



**Set the Maximum Length (Default: 48)**



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



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

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



@SETUPE0  
**\*\* Exit Setup**



@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.

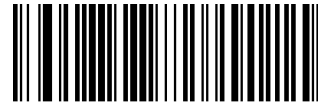
**Disable:** The scanner transmits Plessey barcodes as is.

**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.



@MSIMIN  
**Set the Minimum Length (Default: 4)**



@MSIMAX  
**Set the Maximum Length (Default: 48)**



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



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

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



@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**



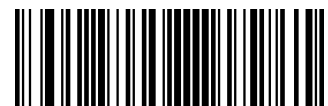
@MSICLK1  
**\*\* One Check Character, MOD10**



@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



**\*\* 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.



@AIMMIN  
**Set the Minimum Length (Default: 1)**



@AIMMAX  
**Set the Maximum Length (Default: 48)**



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



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

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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## ISBT 128

### Restore Factory Defaults



@IBTDEF

**Restore the Factory Defaults of ISBT 128**

### Enable/Disable ISBT 128



@IBTENA1

**Enable ISBT 128**



@IBTENA0

**\*\* Disable ISBT 128**



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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

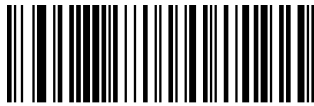
## PDF417

### 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.

**E**  
*xample*

**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

---

## PDF417 Inverse

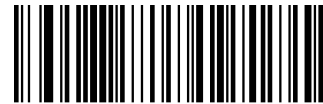
Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.



@PDFINV0

**\*\* Decode Regular PDF417 Barcodes Only**



@PDFINV1

**Decode Inverse PDF417 Barcodes Only**



@PDFINV2

**Decode Both**

## Character Encoding



@PDFENC0

**\*\* Default Character Encoding**



@PDFENC1

**UTF-8**



@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**

---

## Micro PDF417

### Restore Factory Defaults



@MPDDEF

**Restore the Factory Defaults of Micro PDF417**

### Enable/Disable Micro PDF417



@MPDENA1

**Enable Micro PDF417**

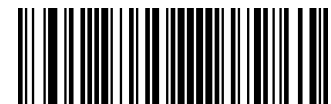


@MPDENA0

**\*\* Disable Micro PDF417**



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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
Enter Setup

## Set Length Range for Micro PDF417

The scanner can be configured to only decode Micro 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.



@MPDMIN  
Set the Minimum Length (Default: 1)



@MPDMAX  
Set the Maximum Length (Default: 366)



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

**E**  
*xample*

**Set the scanner to decode Micro 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**

---

## 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.



@QRDMIN

**Set the Minimum Length (Default: 1)**



@QRDMAX

**Set the Maximum Length (Default: 7089)**



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



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

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



@SETUPE0  
**\*\* Exit Setup**



@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

---

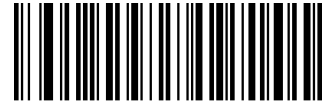
### QR Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.



@QRCINV0  
**\*\* Decode Regular QR Barcodes Only**



@QRCINV1  
**Decode Inverse QR Barcodes Only**



@QRCINV2  
**Decode Both**

### Character Encoding



@QRCENC0  
**\*\* Default Character Encoding**



@QRCENC1  
**UTF-8**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## QR ECI Output



@QRCEC10  
**Disable QR ECI Output**



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



@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: 35)**



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.

## **E***xample*

**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**

---

## Aztec

### Restore Factory Defaults



@AZTDEF  
**Restore the Factory Defaults of Aztec Code**

### Enable/Disable Aztec Code



@AZTENA1  
**Enable Aztec Code**



**\*\* Disable Aztec Code**



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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

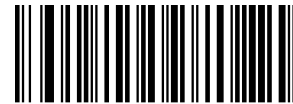
## Set Length Range for Aztec Code

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



@AZTMIN

**Set the Minimum Length (Default: 1)**



@AZTMAX

**Set the Maximum Length (Default: 3832)**



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

**E**  
*xample*

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

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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

### Read Multi-barcodes on an Image

There are three options:

**Mode 1:** Read one barcode only.

**Mode 2:** Read fixed number of barcodes only.

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



@AZTMOD1  
**\*\* Mode 1**



@AZTMOD2  
**Mode 2**



@AZTMOD3  
**Mode 3**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
Enter Setup

---

### Set the Number of Barcodes



@AZTMUL1  
\*\* 1



@AZTMUL2  
2



@AZTMUL3  
3



@AZTMUL4  
4



@AZTMUL5  
5



@AZTMUL6  
6



@AZTMUL7  
7



@AZTMUL8  
8



@SETUPE0  
\*\* Exit Setup





@SETUPE1  
**Enter Setup**

---

## Character Encoding

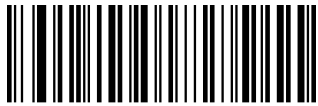


@AZTENC0  
**\*\* Default Character Encoding**



@AZTENC1  
**UTF-8**

## Aztec ECI Output



@AZTEC0  
**Disable Aztec ECI Output**



@AZTEC1  
**\*\* Enable Aztec ECI Output**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Data Matrix

### Restore Factory Defaults



@DMCDEF  
**Restore the Factory Defaults of Data Matrix**

### Enable/Disable Data Matrix



@DMCENA1  
**\*\* Enable Data Matrix**



@DMCENA0  
**Disable Data Matrix**



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



@SETUPE0  
**\*\* Exit Setup**



@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.



@DMCMIN  
Set the Minimum Length (Default: 1)



@DMCMAX  
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.

**E**  
*xample*

**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**

## Data Matrix Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.



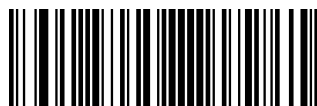
@DMCINV0  
**\*\* Decode Regular Data Matrix Barcodes Only**



@DMCINV1  
**Decode Inverse Data Matrix Barcodes Only**



@DMCINV2  
**Decode Both**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Character Encoding



@DMCENC0  
**\*\* Default Character Encoding**



@DMCENC1  
**UTF-8**

## Data Matrix ECI Output



@DMCEC10  
**Disable Data Matrix ECI Output**



@DMCEC11  
**\*\* Enable Data Matrix ECI Output**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
Enter Setup

## Chapter 7 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.



**\*\*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**



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



**Step 3:** Select a label (Format\_0 or Format\_1 or Format\_2 or Format\_3).

Scan a numeric barcode **0** or **1** or **2** or **3** to label this data format Format\_0 or Format\_1 or Format\_2 or Format\_3.

**Step 4:** Select formatter command type.

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

**Step 5:** Set interface type

Scan **999** for any interface type.

**Step 6:** Set Symbology ID Number

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

**Step 7:** Set barcode data length

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

**Step 8:** Enter formatter command

Refer to the "Formatter Command Type 6" section in this chapter. Scan the alphanumeric barcodes that represent the command you need to edit data. For example, when a command is F141, you should scan F141.

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







@SETUPE1  
**Enter Setup**

---

## **E** *xample*

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
2. Scan the **Add Data Format** barcode
3. Scan the **0** barcode
4. Scan the **6** barcode
5. Scan the **9** barcode three times
6. Scan the barcodes **002**
7. Scan the barcodes **0010**
8. Scan the alphanumeric barcodes **F141**
9. Scan the **Save** barcode

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

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



@SETUPE0  
**\*\* Exit Setup**



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.

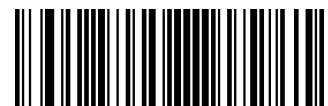
**Example:** Program a Format\_0 data format using formatter command type 6, Code 128 containing 10 characters applicable, send all characters followed by “A”.

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>



\*\* Exit Setup



@SETUPE1  
Enter Setup

---

## Enable/Disable Data Formatter

When Data Formatter is disabled, the barcode data is outputted to the host as read, including prefixes and suffixes.



@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.

The default setting is Format\_0.



@DFMUSE0  
**\*\* Format\_0**



@DFMUSE1  
**Format\_1**



@DFMUSE2  
**Format\_2**



@DFMUSE3  
**Format\_3**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Change Data Format for a Single Scan

You can switch between data formats for a single scan. The next barcode is scanned using the data format selected here, then reverts to the format you have selected above.

For example, you may have set your scanner to use the data format you saved as Format\_3. You can switch to Format\_1 for a single trigger pull by scanning the **Single Scan – Format\_1** barcode below. The next barcode that is scanned uses Format\_1, then reverts back to Format\_3.

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



@DFMSIN0  
**Single Scan – Format\_0**



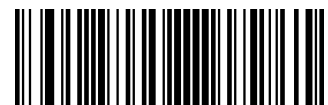
@DFMSIN2  
**Single Scan – Format\_2**



@DFMSIN1  
**Single Scan – Format\_1**



@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



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>**

### B9 Send all characters up to a particular string

Syntax=B9nnnns...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



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

“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**



Send all characters except for the last 9 from the barcode above, followed by 2 tabs.

Command string: **E908F40902**

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

08 is the number of characters at the end to ignore

F4 is the “Insert a character multiple times” command

09 is the hex value for a horizontal tab

02 is the number of time the tab character is sent

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

### **B3 Insert symbology name**

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

### **B4 Insert barcode length**

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



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
Enter Setup

---

### B3 and B4 Example: Insert the symbology name and length



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

Command string: **B3F42001B4F42001F10D**

B3 is the “Insert symbology name” command

F4 is the “Insert a character multiple times” command

20 is the hex value for a space

01 is the number of time the space character is sent

B4 is the “Insert barcode length” command

F4 is the “Insert a character multiple times” command

20 is the hex value for a space

01 is the number of time the space character is sent

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **Code128 20 1234567890ABCDEFGHIJ**

**<CR>**

## Move Commands

### F5 Move the cursor forward a number of characters

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

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



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
Enter Setup

---

#### F5 Example: Move the cursor forward and send the data



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

Command string: **F503F10D**

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

03 is the number of characters to move the cursor

F1 is the “Send all characters” command

0D is the hex value for a CR

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

**<CR>**

#### F6 Move the cursor backward a number of characters

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

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

#### F7 Move the cursor to the beginning

Syntax=F7

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

#### EA Move the cursor to the end

Syntax=EA

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



@SETUPE0  
\*\* Exit Setup



@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



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



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

Command string: **B0003464748F10D**

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



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

Command string: **E630F10D**

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

30 is the hex value for 0

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **37692**

**<CR>**

### E7 Search backward for a non-matching character

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

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



@SETUPE0  
\*\* Exit Setup





@SETUPE1  
Enter Setup

## Comparison Command

### B2 string is compared with B@

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



Test123456

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.



1234567890ABCDEFGHIJ

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>

### 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)



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

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 and other characters in barcode data**



This example shows a barcode that has spaces, “\_” and “\*” in the data. You may want to remove the three kinds of characters before sending the data. Using the barcode above:

Command string: **FB03205F2AF10D**

FB is the “Suppress characters” command

03 is the number of the characters to be suppressed

20 is the hex value for a space

5F is the hex value for a “\_”

2A is the hex value for a “\*”

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **12345678**

**<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



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

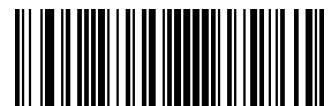
0D is the hex value for a CR

The data is output as: **123**

**456**

**78**

**AB<CR>**



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
Enter Setup

---

### BA Replace a string multiple times

Syntax = BAnnNN<sub>1</sub>SS<sub>1</sub>NN<sub>2</sub>SS<sub>2</sub>

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

NN<sub>1</sub>: The length of the string to be replaced, NN<sub>1</sub>>0.

SS<sub>1</sub>: The ASCII hex value of each character in the string to be replaced.

NN<sub>2</sub>: The length of replacement string, NN<sub>2</sub>>=0. To replace string "SS<sub>1</sub>" with NUL (i.e. delete string "SS<sub>1</sub>"), you should set NN<sub>2</sub> to 00 and leave out SS<sub>2</sub>.

SS<sub>2</sub>: The ASCII hex value of each character in the replacement string.

From the current cursor position, search forward for the occurrence of "SS<sub>1</sub>" string (of length "NN<sub>1</sub>") and replace the string with "SS<sub>2</sub>" string (of length "NN<sub>2</sub>") in the output message until every "SS<sub>1</sub>" string is replaced or the count of replacements made reaches "nn" times, without moving the cursor.

### BA Example: Replace "23"s with "XYZ"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 "XYZ"s.

Command string: **BA020232330358595AF100**

BA is the "Replace a string multiple times" command

02 is the count of replacements to be made

02 is the length of the string to be replace



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
Enter Setup

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

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

03 is the length of XYZ

58595A is the hex value for XYZ

F1 is the "Send all characters" command

00 is the hex value for a NUL

The data is output as: **1XYZ4AbcXYZR0123U**

### EF Insert a delay

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

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 after the 5<sup>th</sup> and 7<sup>th</sup> character



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

Command string: **F20500EF0200F20200EF0200F100**

F2 is the "Send a number of characters" command

05 is the number of characters to send (start output from the current cursor)

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 hex value for a Null character

EF is the "Insert a delay" command

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

The data is output as **12345{1s delay} 67 {1s delay}890ABCDEFGHIJ**



@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

### B5 example, Inserting an “abc” on a U.S. style keyboard.



12345678

Command string: **B503001F01320030F100**

B5 is the “inserted key” command,

03 is number of keys inserted (without the key modifier),

00 is No Key Modifier

1F is the “a” key.

01 is Shift Left

32 is the “b” key

00 is No Key Modifier

30 is the “c” key

F1 is sending all characters

00 is the hex for a Nul

The Data is output as **abc12345678**



@SETUPE0  
\*\* Exit Setup



@SETUPE1  
Enter Setup

## Chapter 8 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.



@APSENA0  
**\*\* Disable All Prefixes/Suffixes**



@APSENA1  
**Enable All Prefixes/Suffixes**

## Prefix Sequence



@PRESEQ0  
**\*\* Code ID+ Custom +AIM ID**



@PRESEQ1  
**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.

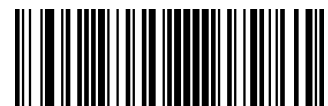


@CPRSET  
Set Custom Prefix

**E**  
*xample*

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

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



@SETUPE0  
\*\* Exit Setup



@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**

---

**Modify PDF417 Code ID to be “p” (HEX: 0x70):**

**E**  
*xample*

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**



@SETUP1  
Enter Setup

---

## Modify 1D symbologies



@CID002  
Modify Code 128 Code ID



@CID003  
Modify GS1-128 Code ID



@CID004  
Modify EAN-8 Code ID



@CID005  
Modify EAN-13 Code ID



@CID006  
Modify UPC-E Code ID



@CID007  
Modify UPC-A Code ID



@CID008  
Modify Interleaved 2 of 5 Code ID



@SETUP0  
\*\* 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**



@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**

---



@CID023

**Modify ISSN Code ID**



@CID025

**Modify Industrial 25 Code ID**



@CID027

**Modify Plessey Code ID**



@CID029

**Modify MSI Plessey Code ID**



@CID021

**Modify ISBT 128 Code ID**



@CID024

**Modify ISBN Code ID**



@CID026

**Modify Standard 25 Code ID**



@CID028

**Modify Code 11 Code ID**



@SETUPE0

**\*\* Exit Setup**





@SETUPE1  
**Enter Setup**

---



@CID030  
**Modify GS1 Composite Code ID**



@CID031  
**Modify GS1 Databar (RSS) Code ID**



@SETUPE0  
**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

**Modify 2D symbologies:**



@CID034  
**Modify Aztec Code ID**



@CID032  
**Modify PDF417 Code ID**



@CID033  
**Modify QR Code ID**



@CID035  
**Modify Data Matrix 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**

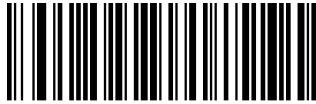


@SETUPE1  
Enter Setup

## 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.



@TSUENA0

\*\* Disable Terminating Character Suffix



@TSUENA1

Enable Terminating Character Suffix

### Set Terminating Character Suffix

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

**Note:** A terminating character suffix cannot exceed 2 characters.



@TSUSET

Set Terminating Character Suffix



@TSUSET0D

\*\* Set Terminating Character to CR (0x0D)



@TSUSET0D0A

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



@SETUPE0

\*\* Exit Setup



@SETUPE1

**Enter Setup**

---

**E**  
*sample*

**Set the terminating character suffix to 0x0A:**

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



@SETUPE0

**\*\* Exit Setup**

# Appendix

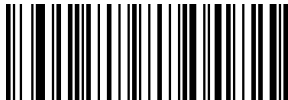
## Digit Barcodes

0~9



@DIGIT0

0



@DIGIT1

1



@DIGIT2

2



@DIGIT3

3



@DIGIT4

4



@DIGIT5

5





@DIGIT6

**6**



@DIGIT8

**8**



@DIGIT7

**7**



@DIGIT9

**9**

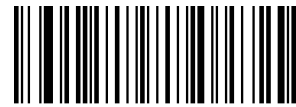
---

A~F



@DIGITA

A



@DIGITB

B



@DIGITC

C



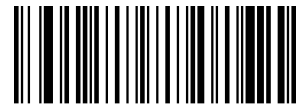
@DIGITD

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
<b>System Settings</b>		
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	
Good Read Vibration	Off	
Good Read Vibration Duration	300ms	
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
Reset Reread Timeout	Off	
Image Decoding Timeout	800ms	1-3,000ms
Surround GS1 AI's with Parentheses	Off	
Sensitivity	Medium Sensitivity	
Trigger Commands	Disabled	
Scanning Preference	Normal	
Read Barcode	On	
Decode Area	Whole Area Decoding	
Image Flipping	Do Not Flip	
Bad Read Message	Off	
	NG	
Operating Mode	Bluetooth Dongle KBW Mode	
Default Interface	Bluetooth HID Keyboard	

<b>USB Interface</b>		
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
<b>Wireless Communication</b>		
Batch Mode	Off	
Prevent Same Barcode Storage	Off	
Batch Mode Transmit Delay	Off	
Auto Clear Stored Data after Transmission	Off	
End of Transmission Message for Batch Mode	Off	
Auto Power-off	5 minutes	
Time Stamp	Off	
Time Stamp Format	Format 1: (YYYY/MM/DD, HH: MM: SS)	
<b>Symbologies</b>		
<b>Global Settings</b>		
1D Twin Code	Single 1D Code Only	
<b>Code 128</b>		
Code 128	Enabled	
Maximum Length	48	
Minimum Length	1	
<b>EAN-8</b>		
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	
<b><i>EAN-13</i></b>		
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 Required	Do Not Require Add-On Code	
EAN-13 Beginning with 414/419 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 434/439 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 977 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 978 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 979 Add-On Code Required	Do Not Require Add-On Code	
<b><i>UPC-E</i></b>		
<b><i>UPC-E</i></b>	Enabled	
UPC-E0	Enabled	
UPC-E1	Disable	
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	
<b><i>UPC-A</i></b>		
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	
<b>Coupon</b>		
UPC-A/EAN-13 with Extended Coupon Code	Off	
Coupon GS1 DataBar Output	Off	
<b>Interleaved 2 of 5</b>		
Interleaved 2 of 5	Enabled	
Maximum Length	80	
Minimum Length	6	
Check Character Verification	Do not transmit check digit after verification	
<b>Febraban</b>		
Febraban	Disable	
Transmit Delay per Character	Disable	
Transmit Delay per 12 Character	Disable	
<b>ITF-14</b>		
ITF-14	Enabled	
<b>ITF-6</b>		
ITF-6	Disabled	
<b>Matrix 2 of 5</b>		
Matrix 2 of 5	Disabled	
Maximum Length	80	
Minimum Length	6	No less than 4
Check Character Verification	Do not transmit check digit after verification	
<b>Code 39</b>		
Code 39	Enabled	
Maximum Length	48	
Minimum Length	1	
Check Character Verification	Do not transmit check digit after verification	
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	
<b>Codabar</b>		
Codabar	Enabled	
Maximum Length	60	
Minimum Length	2	
Check Character Verification	Disabled	
Start/Stop Character	Do not transmit	
	ABCD/ABCD	All capital
<b>Code 93</b>		
Code 93	Enabled	
Maximum Length	48	
Minimum Length	1	
Check Character Verification	Do Not Transmit Check Character After Verification	
<b>China Post 25</b>		
China Post 25	Disabled	
Maximum Length	48	
Minimum Length	1	
Check Character Verification	Disabled	
<b>UCC/EAN-128</b>		
UCC/EAN-128	Enabled	
Maximum Length	48	
Minimum Length	1	
<b>GS1 Databar</b>		
GS1 Databar	Enabled	
Application Identifier "01"	Transmit	
<b>EAN•UCC Composite</b>		
GS1 Composite	Disabled	
UPC/EAN Composite	Disabled	
<b>Code 11</b>		
Code 11	Disabled	
Maximum Length	48	
Minimum Length	4	No less than 4
Check Character Verification	One Check Character, MOD11	



Check Character	Do Not Transmit Check Character	
<b>ISBN</b>		
ISBN	Disabled	
Set ISBN Format	ISBN-10	
<b>ISSN</b>		
ISSN	Disabled	
<b>Industrial 25</b>		
Industrial 25	Enabled	
Maximum Length	48	
Minimum Length	6	No less than 4
Check Character Verification	Disabled	
<b>Standard 25</b>		
Standard 25	Disabled	
Maximum Length	48	
Minimum Length	6	No less than 4
Check Character Verification	Do Not Transmit Check Character After Verification	
<b>Plessey</b>		
Plessey	Disabled	
Maximum Length	48	
Minimum Length	4	No less than 4
Check Character Verification	Do Not Transmit Check Character After Verification	
<b>MSI-Plessey</b>		
MSI-Plessey	Enabled	
Maximum Length	48	
Minimum Length	4	No less than 4
Check Character Verification	One Check Character, MOD10	
Check Character	Transmit	
<b>AIM 128</b>		
AIM 128	Disabled	
Maximum Length	48	
Minimum Length	1	
<b>ISBT 128</b>		
ISBT 128	Disabled	
<b>PDF417</b>		
PDF417	Disabled	

Maximum Length	2710	
Minimum Length	1	
PDF417 Twin Code	Single PDF417 Only	
PDF417 Inverse	Decode Regular PDF417 Barcodes Only	
Character Encoding	Default Character Encoding	
PDF417 ECI Output	Enabled	
<b>Micro PDF 417</b>		
Micro PDF417	Enabled	
Maximum Length	366	
Minimum Length	1	
<b>QR Code</b>		
QR Code	Enabled	
Maximum Length	7089	
Minimum Length	1	
QR Twin Code	Single QR Only	
QR Inverse	Decode Regular QR Barcodes Only	
Character Encoding	Default Character Encoding	
QR ECI Output	Disabled	
<b>Micro QR Code</b>		
Micro QR Code	Enable	
Maximum Length	35	
Minimum Length	1	
<b>Aztec</b>		
Aztec Code	Disabled	
Maximum Length	3832	
Minimum Length	1	
Read Multi-barcodes on an Image	Mode 1	
Character Encoding	Default Character Encoding	
Aztec ECI Output	Enabled	
<b>Data Matrix</b>		
Data Matrix	Enabled	
Maximum Length	3116	
Minimum Length	1	
Data Matrix Twin Code	Single Data Matrix Only	
Rectangular Barcode	Enabled	
Data Matrix Inverse	Decode Regular Data Matrix Barcodes Only	

Character Encoding	Default Character Encoding	
Data Matrix ECI Output	Enabled	
<b>Data Formatter</b>		
Data Formatter	Disabled	
Data Format Selection	Format_0	
Non-Match Error Beep	On	
Multiple Data Format Setting	Disabled	
<b>Prefix &amp; Suffix</b>		
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	Disable	

## AIM ID Table

Symbology	AIM ID	Possible AIM ID Modifiers (m)
Code128	]C0	
GS1-128 (UCC/EAN-128)	]C1	
EAN-8	]E4	
EAN-8 with Addon	]E3	
EAN-13	]E0	
EAN-13 with Addon	]E3	
UPC-E	]E0	
UPC-E with Addon	]E3	
UPC-A	]E0	
UPC-A with Addon	]E3	
Interleaved 2 of 5, Febraban	]Im	0, 1, 3
ITF-14	]Im	1, 3
ITF-6	]Im	1, 3
Matrix 2 of 5	]X0	
Code 39	]Am	0, 1, 3, 4, 5, 7
Codabar	]Fm	0, 2, 4
Code 93	]G0	
China Post 25	]X0	
AIM 128	]C2	
ISSN	]X0	
ISBT 128	]C4	
ISBN	]X0	
Industrial 25	]S0	
Standard 25	]R0	
Plessey	]P0	
Code 11	]Hm	0, 1, 3
MSI Plessey	]Mm	0, 1
GS1 Composite	]em	0-3
GS1 Databar (RSS)	]e0	
PDF417	]Lm	0-2

Micro PDF 417	]L0	
QR Code	]Qm	0-6
Micro QR Code	]Q1	
Aztec	]zm	0-9, A-C
Data Matrix	]dm	0-6

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

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## 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
China Post 25	X
AIM 128	X
ISBT 128	X
ISSN	g
ISBN	B
Industrial 25	l
Standard 25	f
Plessey	n
Code 11	H
MSI Plessey	m
GS1 Composite	y
GS1 Databar (RSS)	R
PDF417	r
Micro PDF 417	R
QR Code	s
Micro QR Code	X
Aztec	z
Data Matrix	u
MaxiCode	x

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## 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
China Post 25	019
ISBT 128	021
ISSN	023
ISBN	024
Industrial 25	025
Standard 25	026
Plessey	027
Code11	028
MSI-Plessey	029
GS1 Composite	030
GS1 Databar (RSS)	031
PDF417	032
Micro PDF 417	042
QR Code	033
Micro QR Code	043
Aztec	034
Data Matrix	035
Maxicode	036

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## 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)

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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)

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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)

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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**

# SCANNING MADE SIMPLE

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