



**NLS-HR22**

**2D Handheld Barcode Scanner**

**User Guide**

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## Revision History

| Version | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Date               |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| V1.0.0  | Initial release.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | April 25, 2016     |
| V1.0.1  | Added the <b>Transmit Delay</b> feature for Febraban in Chapter 8.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | May 16, 2016       |
| V1.0.2  | <ol style="list-style-type: none"> <li>Added the <b>Inquire Product Information</b> feature in Chapter 1.</li> <li>Added the <b>Specify Decoding Area (Top, Bottom, Left, Right)</b> feature in Chapter 4.</li> <li>Added the <b>EAN-13 Beginning with 290 Add-On Code Required, EAN-13 Beginning with 378/379 Add-On Code Required, EAN-13 Beginning with 414/419 Add-On Code Required, EAN-13 Beginning with 434/439 Add-On Code Required, EAN-13 Beginning with 977 Add-On Code Required, EAN-13 Beginning with 978 Add-On Code Required, EAN-13 Beginning with 979 Add-On Code Required</b> features in Chapter 8.</li> <li>Added the <b>EF</b> command (Insert a delay) in Chapter 10.</li> <li>Added <b>Chapter 11 Batch Programming</b>.</li> <li>Removed the “<b>Continue after Good Read</b>” section in Chapter 3.</li> </ol> <p>Note: You must have firmware version V1.00.050 or later to use the new features above.</p> | August 29, 2016    |
| V1.0.3  | <ol style="list-style-type: none"> <li>Added the <b>IBM SurePOS (Tabletop)</b> and <b>IBM SurePOS (Handheld)</b> features in Chapter 2.</li> <li>Changed the range of Decode Session Timeout to 100ms - 3,600,000ms and the programming barcodes of the Timeout between Decodes (Same Barcode) for Continuous mode to that of the Timeout between Decodes (Same Barcode) for Sense mode in Chapter 3.</li> <li>Added the <b>Code 32 (Italian Pharma Code), Code 32 Prefix, Transmit Code 32 Check Character</b> and <b>Transmit Code 32 Start/Stop Character</b> features in Chapter 8.</li> <li>Added the <b>BA</b> command (Replace a string with another) in Chapter 10.</li> </ol> <p>Note: You must have firmware version V1.00.081 or later to use the new features above.</p>                                                                                                                                                  | November 17, 2016  |
| V1.0.4  | <ol style="list-style-type: none"> <li>Added the Windows 874 (Thai) code page.</li> <li>Added the <b>Enable/Disable PDF417 ECI Output, Enable/Disable QR ECI Output, Enable/Disable Data Matrix ECI Output</b> and <b>Enable/Disable</b></li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | September 14, 2017 |

|        |                                                                                                                                                                                                                                               |                |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
|        | <p><b>Chinese Sensible Code ECI Output</b> features in Chapter 8.</p> <p>3. Added the <b>B5</b> command (Insert key strokes) in Chapter 10.</p> <p>Note: You must have firmware version V1.00.099 or later to use the new features above.</p> |                |
| V2.0.0 | <p>Updated the manual with Newland unified command based programming barcodes and supported features.</p> <p>Note: You must have firmware version V1.01.010 or later to use the new features above.</p>                                       | April 12, 2018 |

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# Preface

## Introduction

This manual provides detailed instructions for setting up and using the NLS-HR22 handheld barcode scanner (hereinafter referred to as “**the HR22**” or “**the scanner**”).

## Chapter Description

|                                      |                                                                                                             |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <i>Chapter 1 Getting Started</i>     | : Gives a general description of HR22 scanner.                                                              |
| <i>Chapter 2 EasySet</i>             | : Introduces a useful tool you can use to set up HR22 scanner and develop new applications.                 |
| <i>Chapter 3 System Settings</i>     | : Introduces three configuration methods and describes how to configure general parameters of HR22 scanner. |
| <i>Chapter 4 RS-232 Interface</i>    | : Describes how to configure RS-232 communication parameters.                                               |
| <i>Chapter 5 USB Interface</i>       | : Describes how to configure USB communication parameters.                                                  |
| <i>Chapter 6 PS/2 Interface</i>      | : Describes how to configure PS/2 communication parameters.                                                 |
| <i>Chapter 7 Symbologies</i>         | : Lists all compatible symbologies and describes how to configure the relevant parameters.                  |
| <i>Chapter 8 Data Formatter</i>      | : Explains how to customize scanned data with the data formatter.                                           |
| <i>Chapter 9 Prefix &amp; Suffix</i> | : Describes how to use prefix and suffix to customize scanned data.                                         |
| <i>Chapter 10 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 HR22 barcode scanner reads a 1D or 2D barcode by capturing its image. Adopting the advanced **UIMG** technology independently developed by Newland Auto-ID Tech, it provides four scan modes, including Level mode, Sense mode, Continuous mode, Pulse mode and Batch mode, tailored to different scanning needs.

An illustrated introduction to the HR22 is included in this chapter. If you have an HR22 scanner at hand, make good use of it to develop a better understanding of this manual. This chapter is written for normal users, maintenance staff and software developers.

## Features of the HR22

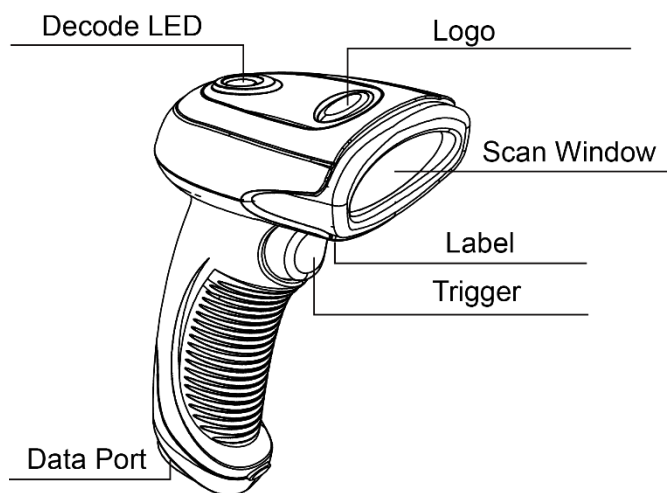
- Outstanding performance
- Cost-effective solution
- Elegant appearance
- Durable construction
- Improved sensibility

## Unpacking

Open the package and take out HR22 scanner and its accessories. Check to make sure everything on the packing list is present and intact. If any contents are damaged or missing, please keep the original package and contact your dealer immediately for after-sales service.

---

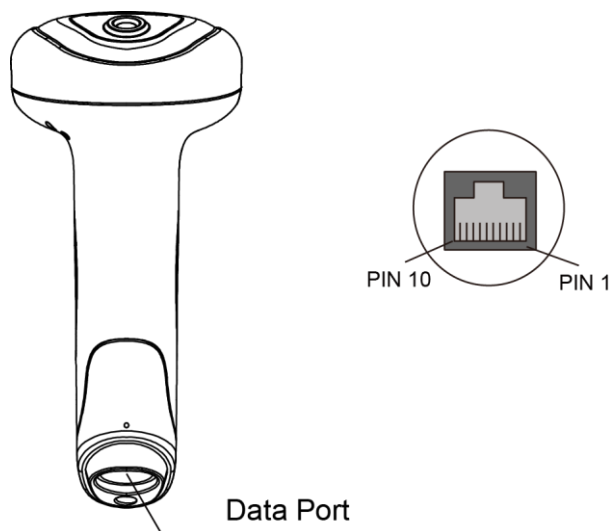
## HR22 Scanner



### Decode LED:

Green: Barcode is decoded successfully.

## Data Port



---

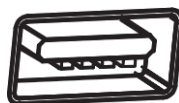
| PIN | Signal        | Type | Function                                         |
|-----|---------------|------|--------------------------------------------------|
| 1   | KB_CLK        | I/O  | Keyboard clock signal (PS/2)                     |
| 2   | KB_DATA       | I/O  | Keyboard data signal (PS/2)                      |
| 3   | VCC           | P    | Power+ (DC5V)                                    |
| 4   | TXD           | O    | RS-232 output                                    |
| 5   | RXD           | I    | RS-232 input                                     |
| 6   | PC_CLK / CTS  | I/O  | PC clock signal (PS/2) / Clear to send (RS-232)  |
| 7   | PC_DATA / RTS | I/O  | PC data signal (PS/2) / Request to send (RS-232) |
| 8   | GND           | P    | Ground                                           |
| 9   | D-            | I/O  | USB signal                                       |
| 10  | D+            | I/O  |                                                  |

## Connecting the Scanner to a Host

The scanner must be connected to a Host in actual application, such as PC, POS or any intelligent terminal with USB or RS-232 or PS/2 port, using a communication cable (USB or RS-232 or PS/2 cable).

### USB

USB port on the Host



### RS-232

RS-232 port on the Host



### PS/2

PS/2 port on the Host

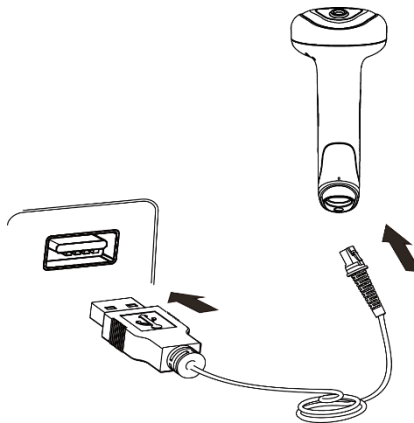


**Note:** Please check the port on the host and purchase the cable accordingly.

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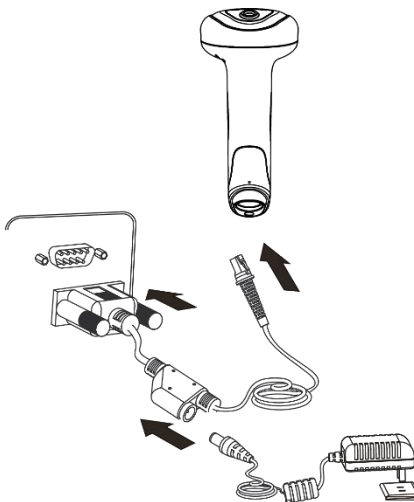
## Using USB Cable



Connect the scanner to a Host through a USB cable with RJ45 and USB connectors:

1. Plug the RJ45 connector into the data port on the scanner.
2. Plug the USB connector into the USB port on the Host.

## Using RS-232 Cable

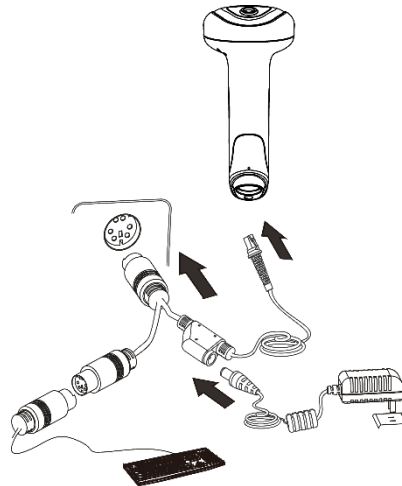


Connect the scanner to a Host through an RS-232 cable with RJ45 and RS-232 connectors and a power jack:

1. Plug the RJ45 connector into the data port on the scanner.
  2. Plug the RS-232 connector into the RS-232 port on the Host.
  3. Plug the supplied power adapter into the power jack on the RS-232 cable.
-

---

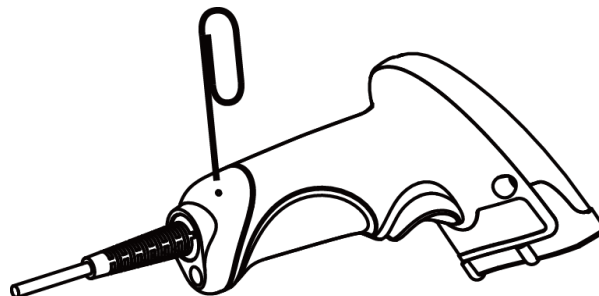
## Using PS/2 Cable



Connect the scanner to a Host through a PS/2 cable with RJ45 and PS/2 connectors and a power jack:

1. Plug the RJ45 connector into the data port on the scanner.
2. Plug the PS/2 connector into the PS/2 port on the Host.
3. When required, plug the power adapter into the power jack on the PS/2 cable.
4. When required, connect the PS/2 cable to a keyboard via its PS/2 port.

## Removing Communication Cable



Get an appropriate needle or a straightened paper clip and then follow the steps below:

1. Disconnect the power adaptor from mains if there is one.
  2. Insert the needle into the hole.
  3. Pull out the cable slowly from the scanner while pressing the needle in.
  4. Remove the needle.
  5. Disconnect the cable from the Host.
-

---

## Power On, Sleep, Power Off, Reboot

### Power on the scanner

Connect the scanner to a Host. Then the scanner will be turned on and automatically enter the sleep mode.

### Enter the sleep mode

If no operation is performed on the device for some time, the device will automatically enter the sleep state.

### Power off the scanner

Remove the communication cable from the scanner; or remove the communication cable from the Host; or disconnect the power adaptor from mains.

### Reboot the scanner

If the scanner stops responding to input or runs abnormally, turn off the scanner and then turn it back on.

## Maintenance

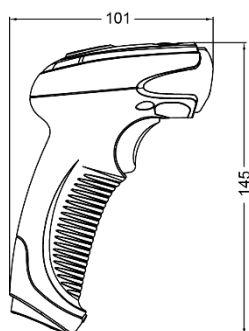
- ✧ The scan window should be kept clean.
- ✧ Do not scratch the scan window.
- ✧ Use soft brush to remove the stain from the scan window.
- ✧ Use the soft cloth to clean the window, such as eyeglass cleaning cloth.
- ✧ Do not spray any liquid on the scan window.
- ✧ Do not use any detergent to clean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

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

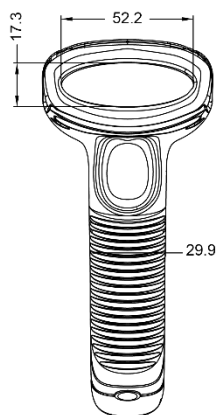
---

## Dimensions (unit: mm)

### Left View



### Front View



### Top View



---

## Scanning Instructions

When the scanner is in the Level scan mode, you can follow the steps below to scan a barcode:

1. Press and hold the Trigger. Then the scanner will project a red aiming beam.
2. Aim the red beam across the center of barcode.
3. Release the Trigger when the red beam goes off. If the barcode is decoded successfully, the scanner will emit a good read beep and the decoded data will be sent to the Host.

**Note:** For barcodes of the same batch, the scanner keeps a very high success ratio in certain distance which is regarded as the optimal scanning distance.



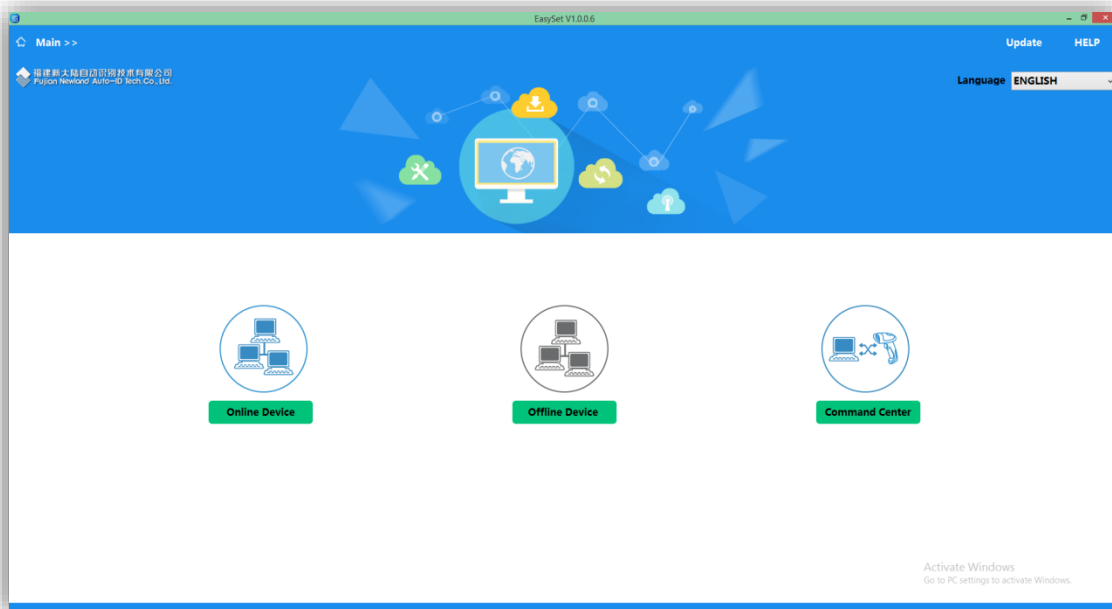
## Chapter 2 EasySet

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

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

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

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





@SETUPE1  
**Enter Setup**

## Chapter 3 System Settings

### Introduction

There are three ways to configure the HR22: Barcode programming, command programming and Easyset programming.

#### Barcode Programming

The HR22 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 HR22 can also be configured by serial commands (HEX) 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*.



\*\* **Exit Setup**



@SETUPE1

Enter Setup

## Programming Barcode/ Programming Command/Function



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

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

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



@SETUPE0

\*\* Exit Setup



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.**

### Command Syntax

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

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

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

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

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

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

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

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

### Query Commands

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

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



\*\* Exit Setup



@SETUPE1

Enter Setup

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

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

## Responses

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

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

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

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

## Examples

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

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

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

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

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

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



@SETUPE0

\*\* Exit Setup



@SETUPE1

**Enter Setup**

---

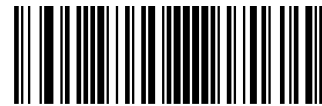
## Use of Programming Barcodes

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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

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



#SETUPT0

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



#SETUPT1

**Transmit Programming Barcode Data**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

Enter Setup

---

## Illumination

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

**Normal:** Illumination LEDs are turned on during image capture.

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

**Off:** Illumination LEDs are OFF all the time.



@ILLSCN1

**\*\* Normal**



@ILLSCN0

**Off**



@ILLSCN2

**Always On**



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

---

## Aiming

When scanning/capturing image, the scanner projects an aiming pattern which allows positioning the target barcode within its field of view and thus makes decoding easier.

**Normal:** The scanner projects an aiming pattern only during barcode scanning/capture.

**Always On:** Aiming pattern is constantly on after the scanner is powered on.

**Off:** Aiming pattern is off all the time.



**\*\* Normal**



**Off**



**Always On**

## Good Read LED

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



**\*\* On**



**Off**



**\*\* 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.



@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**



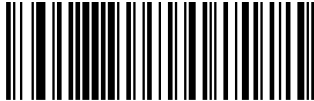
@SETUPE1

**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.



@GRBDUR50

**50ms**



@GRBDUR100

**\*\* 100ms**



@GRBDUR150

**150ms**



@GRBDUR200

**200ms**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

Enter Setup

---

## Good Read Beep Frequency



@GRBFRQ930

Extra Low (930Hz)



@GRBFRQ2700

\*\* Low (2700Hz)



@GRBFRQ3940

Medium (3940Hz)



@GRBFRQ4800

High (4800Hz)

## Good Read Beep Volume



@GRBVOL0

\*\* Loud



@GRBVOL1

Medium



@GRBVOL2

Low



@SETUPE0

\*\* Exit Setup



**Enter Setup**

## Scan Mode

- ✧ **Level Mode:** A trigger pull activates a decode session. The decode session continues until a barcode is decoded or the decode session timeout expires or you release the trigger.
- ✧ **Sense Mode:** The scanner activates a decode session every time it detects a barcode presented to it. The decode session continues until a barcode is decoded or the decode session timeout expires. **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 images captured. **Image Stabilization Timeout** gives the scanner time to adapt to ambient environment after it decodes a barcode and "looks" for another.
- ✧ **Continuous Mode:** The scanner automatically starts one decode session after another. To suspend/resume barcode reading, simply press the trigger. **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:** A trigger pull activates a round of multiple decode sessions. This round of multiple scans continues until you release the trigger. Rereading the same barcode is not allowed in the same round.



**\*\* Level Mode**



**Sense Mode**



**Continuous Mode**



**Pulse Mode**



**Batch Mode**



**\*\* Exit Setup**



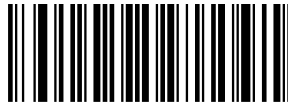
@SETUPE1

**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 100ms 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.



@SENIST100

**100ms**



@SENIST200

**200ms**



@SENIST300

**300ms**



@SENIST400

**400ms**



@SENIST500

**\*\* 500ms**



@SENIST600

**600ms**



@SENIST700

**700ms**



@SETUPE0

**\*\* Exit Setup**





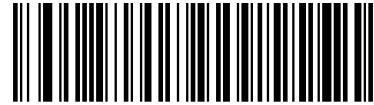
@SETUPE1

**Enter Setup**



@SENIST900

**900ms**



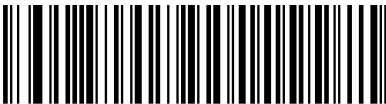
@SENIST800

**800ms**



@SENIST1000

**1000ms**



@SENIST1100

**1100ms**



@SENIST1200

**1200ms**



@SENIST1300

**1300ms**



@SENIST1400

**1400ms**



@SENIST1500

**1500ms**



@SENIST1600

**1600ms**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Timeout between Decodes (Continuous Mode)

This parameter sets the timeout between decode sessions. When a decode session ends, next session will not happen until the timeout between decodes expires. It is programmable in 1ms increments from 0ms to 65,535ms. The default setting is 1,000ms.



@SCNINV

**Timeout between Decodes**

**E**  
*xample*

**Set the timeout between decodes to 1,500ms:**

1. Scan the **Enter Setup** barcode.
2. Scan the **Timeout between Decodes** 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

## Timeout between Decodes (Same Barcode)

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

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

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

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



@RRDENA1

**Enable Timeout between Decodes (Same Barcode)**



@RRDENA0

**\*\* Disable Timeout between Decodes (Same Barcode)**

The following parameter sets the timeout between decodes for same barcode. It is programmable in 1ms increments from 1ms to 65,535ms. **When it is set to a value greater than 3,000, the timeout for rereading same programming barcode is limited to 3,000ms.** The default setting is 1,500ms.



@RRDDUR

**Timeout between Decodes (Same Barcode)**

**E**  
*xample*

**Set the timeout between decodes (same barcode) 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**

## 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.



@SENLVL14

**Low Sensitivity**



@SENLVL8

**Medium Sensitivity**



@SENLVL5

**High Sensitivity**



@SENLVL2

**\*\* Enhanced Sensitivity**



@SENLVL

**Custom Sensitivity (Level 1-16)**

**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**

## Auto Sleep

Auto Sleep allows the scanner in the Level/Pulse Mode to automatically enter the sleep or low power mode if no operation or communication is performed for a time period (user programmable). When the scanner is in the sleep mode, pressing the Trigger or receiving command from the host device can awake the scanner. The scanner returns to full operation within 200ms.



@ATIDLE0

**Disable Auto Sleep**



@ATIDLE1

**\*\* Enable Auto Sleep**

The parameter below specifies how long the scanner remains idle (no operation or communication occurs) before it is put into sleep mode. It is programmable in 1ms increments from 0ms to 65,535ms. The default setting is 500ms.



@ATIDUR

**Time Period from Idle to Sleep**

**E**  
*xample*

**Set the time period from idle to sleep to 1,000ms:**

1. Scan the **Enter Setup** barcode.
2. Scan the **Time Period from Idle to Sleep** 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



@EXPLVL3

**\*\* Normal Motion Tolerance**



@EXPLVL4

**High Motion Tolerance**

## 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.

## 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**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

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**



**Enter Setup**



**E**  
*xample*

**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.



**\*\* Exit Setup**





@SETUPE1

Enter Setup

## Image Flipping



@MIRROR0

**\*\* Do Not Flip**



@MIRROR2

**Flip Vertically**



@MIRROR1

**Flip Horizontally**



@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**

---

## Smart Stand Mode

After this feature is turned on, the scanner will switch from its current scan mode to the Sense mode when it is inserted in the stand, and it will operate in its previous scan mode when it is removed from the stand.



@SMTENA0

**Off**



@SMTENA1

**\*\* On**



@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 the decode session timeout expires.



@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 none.



@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**



**Enter Setup**

---

## Default Settings

### Factory Defaults

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

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

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



**Restore All Factory Defaults**

### Custom Defaults

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

Custom defaults are stored in the non-volatile memory.



**Save as Custom Defaults**



**Restore All Custom Defaults**



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

---



**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Query Product Information

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



@QRYSYS

**Query Product Information**

## Query Product Name



@QRYPDN

**Query Product Name**

## Query Firmware Version



@QRYFWV

**Query Firmware Version**



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

---

**Query Decoder Version**



**Query Decoder Version**

**Query Hardware Version**



**Query Hardware Version**

**Query Product Serial Number**



**Query Product Serial Number**



**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

**Query Manufacturing Date**



@QRYDAT

**Query Manufacturing Date**

**Query OEM Serial Number**



@QRYESN

**Query OEM Serial Number**



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

## Chapter 4 RS-232 Interface

### Introduction

When the scanner is connected to the RS-232 port of a host device, you need to set communication parameters (including baud rate, parity check, data bit and stop bit) on the scanner to match the host device so that two devices can communicate with each other.



**RS-232**



**\*\* Exit Setup**



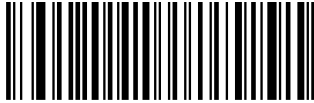


@SETUPE1

**Enter Setup**

## Baud Rate

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



@232BAD8

**115200**



@232BAD7

**57600**



@232BAD6

**38400**



@232BAD5

**19200**



@232BAD4

**14400**



@232BAD3

**\*\* 9600**



@232BAD2

**4800**



@232BAD1

**2400**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Parity Check

Set the parity type to match the host requirements.

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

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

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



@232PAR0

**\*\* None**



@232PAR1

**Even Parity**



@232PAR2

**Odd Parity**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Data Bit

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



@232DAT1

**7 Data Bits**

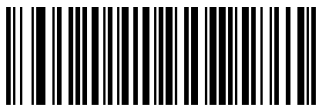


@232DAT0

**\*\* 8 Data Bits**

## Stop Bit

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



@232STP0

**\*\* 1 Stop Bit**



@232STP1

**2 Stop Bits**



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

## Hardware Auto Flow Control

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

If **No Flow Control** is selected, reception/transmission of serial data will not be influenced by RTS/CTS signal.



**\*\* No Flow Control**



**CTS Flow Control**



**RTS Flow Control**



**CTS/RTS Flow Control**



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



**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

## Chapter 5 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 and traditional RS-232 interface in transmission speed.
- ✧ **IBM SurePOS:** It conforms to IBM (now Toshiba Global Commerce Solutions) 4698 USB scanner interface specifications.



@SETUPE0

**\*\* Exit Setup**



**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.



**\*\* USB HID Keyboard**



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



**\*\* 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)**



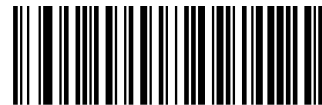
@KBWCTY1

**Belgium**



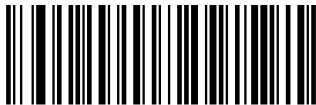
@KBWCTY2

**Brazil**



@KBWCTY3

**Canada (French)**



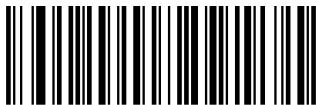
@KBWCTY4

**Czechoslovakia**



@KBWCTY5

**Denmark**



@KBWCTY6

**Finland (Swedish)**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

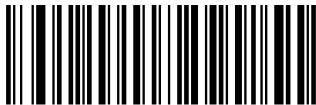
**Enter Setup**

---



@KBWCTY7

**France**



@KBWCTY8

**Germany/ Austria**



@KBWCTY9

**Greece**



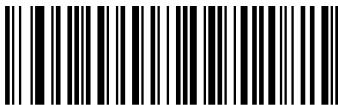
@KBWCTY10

**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

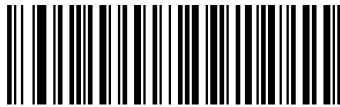
**Enter Setup**

---



@KBWCTY24

**Switzerland (German)**



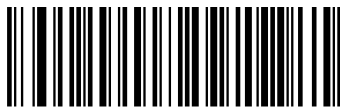
@KBWCTY25

**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**  
*xample*

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

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

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



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



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

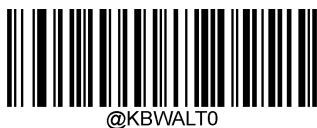
---

## Emulate ALT+Keypad

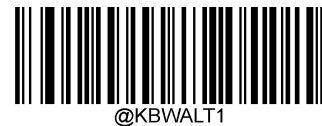
When **Emulate ALT+Keypad** is turned on, any character whose ASCII value is greater than or equal to 0x20 is sent over the numeric keypad no matter which keyboard type is selected.

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

After **Emulate ALT+Keypad ON** is selected, you need to choose the code page with which the barcodes were created.



**\*\* Emulate ALT+Keypad OFF**



**Emulate ALT+Keypad ON**



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



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

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

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

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



**\*\* Exit Setup**



@SETUPE1

Enter Setup

### 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

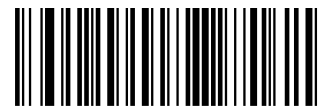
### Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the barcode being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, select the code page with which the barcodes were created by scanning the appropriate barcode below. For PDF417, QR Code and Data Matrix, besides setting the code page, you also need to set the character encoding in the "Character Encoding" section in Chapter 7. This feature is only effective when **Emulate ALT+Keypad** is turned on.



@KBWCPG0

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



@KBWCPG1

Code Page 1251 (Cyrillic)



@SETUPE0

\*\* Exit Setup



**Enter Setup**

## Function Key Mapping

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



**\*\* Disable**



**Ctrl+ASCII Mode**



**Alt+Keypad Mode**

**E**  
*xample*

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”



**\*\* Exit Setup**



@SETUPE1

Enter Setup

## ASCII Function Key Mapping Table

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



@SETUPE0

\*\* Exit Setup



**Enter Setup**

## ASCII Function Key Mapping Table (Continued)

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

| Country        | Ctrl+ASCII |        |         |        |        |  |
|----------------|------------|--------|---------|--------|--------|--|
| United States  | Ctrl+[     | Ctrl+\ | Ctrl+]  | Ctrl+6 | Ctrl+- |  |
| Belgium        | Ctrl+[     | Ctrl+< | Ctrl+]  | Ctrl+6 | Ctrl+- |  |
| Scandinavia    | Ctrl+8     | Ctrl+< | Ctrl+9  | Ctrl+6 | Ctrl+- |  |
| France         | Ctrl+^     | Ctrl+8 | Ctrl+\$ | Ctrl+6 | Ctrl+= |  |
| Germany        |            | Ctrl+Ã | Ctrl++  | Ctrl+6 | Ctrl+- |  |
| Italy          |            | Ctrl+\ | Ctrl++  | Ctrl+6 | Ctrl+- |  |
| Switzerland    |            | Ctrl+< | Ctrl+.. | Ctrl+6 | Ctrl+- |  |
| United Kingdom | Ctrl+[     | Ctrl+ø | Ctrl+]  | Ctrl+6 | Ctrl+- |  |
| Denmark        | Ctrl+8     | Ctrl+\ | Ctrl+9  | Ctrl+6 | Ctrl+- |  |
| Norway         | Ctrl+8     | Ctrl+\ | Ctrl+9  | Ctrl+6 | Ctrl+- |  |
| Spain          | Ctrl+[     | Ctrl+\ | Ctrl+]  | Ctrl+6 | Ctrl+- |  |



**\*\* Exit Setup**





@SETUP1

Enter Setup

## Inter-Keystroke Delay

This parameter specifies the delay between emulated keystrokes.



@KBWDLY0

0ms



@KBWDLY5

5ms



@KBWDLY10

\*\* 10ms



@KBWDLY15

15ms



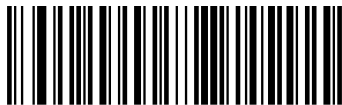
@KBWDLY20

20ms



@KBWDLY25

25ms



@KBWDLY30

30ms



@SETUP0

\*\* Exit Setup



@SETUPE1

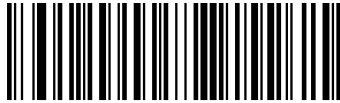
**Enter Setup**

---



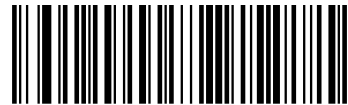
@KBWDLY35

**35ms**



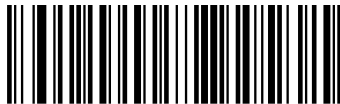
@KBWDLY40

**40ms**



@KBWDLY45

**45ms**



@KBWDLY50

**50ms**



@KBWDLY55

**55ms**



@KBWDLY60

**60ms**



@KBWDLY65

**65ms**



@KBWDLY70

**70ms**



@KBWDLY75

**75ms**

---



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

Enter Setup

---

## Convert Case

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



@KBWCAS0

**\*\* No Case Conversion**



@KBWCAS1

**Convert All to Upper Case**



@KBWCAS2

**Convert All to Lower Case**

**E**  
*xample*

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



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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
Enter Setup

---

## Emulate Numeric Keypad



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

**Emulate Numeric Keypad:** Sending a number (0-9) is emulated as keystroke(s) on numeric keypad.



@KBWNUM0  
**\*\* Do Not Emulate Numeric Keypad**



@KBWNUM1  
**Emulate Numeric Keypad**



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



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



@SETUP1

Enter Setup

---

## Polling Rate

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



@KBWPOR0

**\*\* 1ms**



@KBWPOR1

**2ms**



@KBWPOR2

**3ms**



@KBWPOR3

**4ms**



@KBWPOR4

**5ms**



@KBWPOR5

**6ms**



@KBWPOR6

**7ms**



@SETUP0

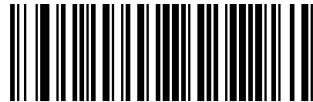
**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---



@KBWPOR7

**8ms**



@KBWPOR8

**9ms**



@KBWPOR9

**10ms**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## USB CDC

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



@INTERF8

**USB CDC**



@SETUPE0

**\*\* Exit Setup**



**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. Way more efficient in communication than keyboard emulation and traditional RS-232 interface.



**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).



**\*\* 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



**Enter Setup**

## IBM SurePOS (Tabletop)



@INTERF6

**IBM SurePOS (Tabletop)**

## IBM SurePOS (Handheld)



@INTERF7

**IBM SurePOS (Handheld)**

## VID/PID

USB uses VID (Vendor ID) and PID (Product ID) to identify and locate a device. The VID is assigned by USB Implementers Forum. Newland's vendor ID is 1EAB (Hex). A range of PIDs are used for each Newland product family. Every PID contains a base number and interface type (keyboard, HID POS, etc.).

| Product | Interface              | PID (Hex) | PID (Dec) |
|---------|------------------------|-----------|-----------|
| HR22    | USB HID Keyboard       | 1A03      | 6659      |
|         | USB CDC                | 1A06      | 6662      |
|         | HID POS                | 1A10      | 6672      |
|         | IBM SurePOS (Tabletop) | 1A20      | 6688      |
|         | IBM SurePOS(Handheld)  | 1A21      | 6689      |



**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

## Chapter 6 PS/2 Interface

When the scanner is connected to the PS/2 port of a host device, scan the **PS/2** barcode below to enable the interface. If there is no external keyboard connected, the **External Keyboard Not Connected** option should be selected.



@INTERF4

**PS/2**



@PS2SLV0

**External Keyboard Not Connected**



@PS2SLV1

**\*\* External Keyboard Connected**



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

## Chapter 7 Symbologies

### Introduction

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

### Global Settings

#### Enable/Disable All Symbologies

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



**Enable All Symbologies**



**Disable All Symbologies**

#### Enable/Disable 1D Symbologies



**Enable 1D Symbologies**



**Disable 1D Symbologies**



**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## **Enable/Disable 2D Symbologies**



@ALL2DC1

**Enable 2D Symbologies**



@ALL2DC0

**Disable 2D Symbologies**



@SETUPE0

**\*\* Exit Setup**



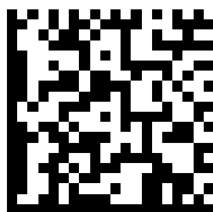
**Enter Setup**

## Video Reverse

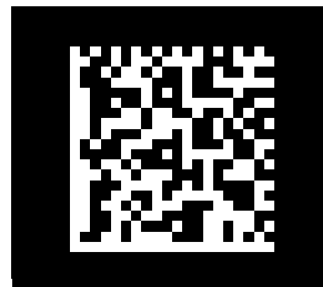
Regular barcode: Dark image on a bright background.

Inverse barcode: Bright image on a dark background.

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



**Regular Barcode**



**Inverse Barcode**

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

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

**Video Reverse OFF:** Read regular barcodes only.

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



**\*\* Video Reverse OFF**



**Video Reverse ON**



**\*\* 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**



**Enter Setup**

---

## Set Length Range for Code 128

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



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



**Set the Maximum Length (Default: 127)**



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



**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.



**\*\* Exit Setup**





@SETUPE1

**Enter Setup**

---

**Transmit Check Character**



@128CHK2

**Transmit Code 128 Check Character**



@128CHK1

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



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

## EAN-8

### Restore Factory Defaults



**Restore the Factory Defaults of EAN-8**

### Enable/Disable EAN-8



**\*\* Enable EAN-8**



**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.



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



**Do Not Transmit EAN-8 Check Character**



**\*\* 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**



**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.



**\*\* Exit Setup**



@SETUPE1

Enter Setup

---

### Add-On Code Required

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



@EA8REQ0

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



@EA8REQ1

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

### 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**



@EA8EXP1

**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**



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.



**\*\* Exit Setup**



**Enter Setup**

## 5-Digit Add-On Code

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



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



**Enable 5-Digit Add-On Code**



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

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

## Add-On Code Required

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



**\*\* EAN-13 Add-On Code Not Required**



**EAN-13 Add-On Code Required**



**\*\* Exit Setup**





@SETUPE1  
Enter Setup

## EAN-13 Beginning with 290 Add-On Code Required

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

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

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



\*\* Do Not Require Add-On Code



Require Add-On Code

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

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

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

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



\*\* Do Not Require Add-On Code



Require Add-On Code



@SETUPE0  
\*\* Exit Setup



**Enter Setup**

---

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

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

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

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



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



**Require Add-On Code**

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

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

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

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



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



**Require Add-On Code**

---



**\*\* Exit Setup**



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**



**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

### **EAN-13 Beginning with 979 Add-On Code Required**

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

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

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



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



**Require Add-On Code**



**\*\* 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**



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

### 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**



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

---

## 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.



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



**Enable 2-Digit Add-On Code**



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

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



**\*\* 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.

## Add-On Code Required

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



@UPEREQ0

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



@UPEREQ1

**UPC-E Add-On Code Required**



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

---

### Transmit System Character



**\*\* Transmit System Character**



**Do Not Transmit System Character**

### Convert UPC-E to UPC-A

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

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



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



**Convert UPC-E to UPC-A**



**\*\* 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**



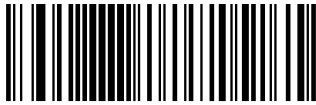
@SETUPE1

**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.

## 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**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

### **Transmit Preamble Character**

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



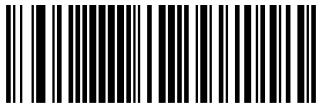
@UPAPRE0

**\*\* No Preamble**



@UPAPRE1

**System Character**



@UPAPRE2

**System Character & Country Code**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Interleaved 2 of 5

### Restore Factory Defaults



@I25DEF

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

### Enable/Disable Interleaved 2 of 5



@I25ENA1

**\*\* Enable Interleaved 2 of 5**



@I25ENA0

**Disable Interleaved 2 of 5**



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



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

---

## Set Length Range for Interleaved 2 of 5

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



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



**Set the Maximum Length (Default: 100)**



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



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

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



**\*\* Exit Setup**



@SETUPE1

Enter Setup

## Check Character Verification

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

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

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



@I25CHK0

**\*\* Disable**



@I25CHK1

**Do Not Transmit Check Character After Verification**



@I25CHK2

**Transmit Check Character After Verification**



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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Febraban

### Disable/Enable Febraban



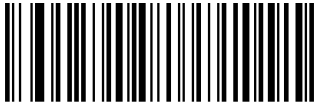
@I25FBB0

**\*\* Disable Febraban**



@I25FBB1

**Enable Febraban, Do Not Expand**



@I25FBB2

**Enable Febraban, Expand**

### Transmit Delay per Character

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



@FEBSEN0

**\*\* Disable Transmit Delay per Character**



@FEBSEN1

**Enable Transmit Delay per Character**

---



@SETUPE0

**\*\* Exit Setup**





@SETUPE1

**Enter Setup**

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



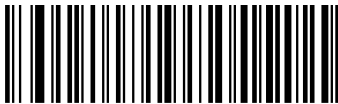
@FEBSDT0

**0ms**



@FEBSDT5

**5ms**



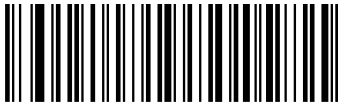
@FEBSDT10

**10ms**



@FEBSDT15

**15ms**



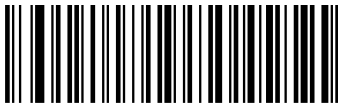
@FEBSDT20

**20ms**



@FEBSDT25

**25ms**



@FEBSDT30

**30ms**



@FEBSDT35

**35ms**



@SETUPE0

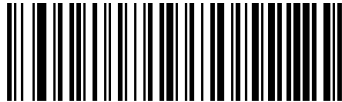
**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---



@FEBSDT40

**40ms**



@FEBSDT45

**45ms**



@FEBSDT50

**50ms**



@FEBSDT55

**55ms**



@FEBSDT60

**60ms**



@FEBSDT65

**65ms**



@FEBSDT70

**\*\* 70ms**



@FEBSDT75

**75ms**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

## Transmit Delay per 12 Characters

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



@FEBMEN0

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



@FEBMEN1

**Enable Transmit Delay per 12 Characters**

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



@FEBMDT0

**0ms**



@FEBMDT1

**300ms**



@FEBMDT2

**400ms**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---



@FEBMDT4

**600ms**



@FEBMDT6

**800ms**



@FEBMDT3

**\*\* 500ms**



@FEBMDT5

**700ms**



@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**



**Enter Setup**

## ITF-6

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

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

### Restore Factory Defaults



**Restore the Factory Defaults of ITF-6**

### Enable/Disable ITF-6



**\*\* Disable ITF-6**



**Enable ITF-6 But Do Not Transmit Check Character**



**Enable ITF-6 and Transmit Check Character**



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



**\*\* 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**



**Enter Setup**

## Set Length Range for Matrix 2 of 5

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



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



**Set the Maximum Length (Default: 127)**



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



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

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



**\*\* Exit Setup**





@SETUPE1

Enter Setup

## Check Character Verification

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

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

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



@M25CHK0

**Disable**



@M25CHK1

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



@M25CHK2

**Transmit Check Character After Verification**



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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Code 39

**Restore Factory Defaults**



@C39DEF

**Restore the Factory Defaults of Code 39**

**Enable/Disable Code 39**



@C39ENA1

**\*\* Enable Code 39**



@C39ENA0

**Disable Code 39**



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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

## Set Length Range for Code 39

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



@C39MIN

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



@C39MAX

**Set the Maximum Length (Default: 127)**



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



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

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



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

---

## Check Character Verification

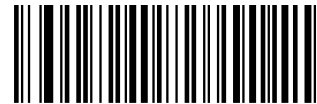
A check character is optional for Code 39 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- ✧ **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.)



**\*\* 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**





**Enter Setup**

## Set Length Range for Codabar

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



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



**Set the Maximum Length (Default: 127)**



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



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

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



**\*\* Exit Setup**



**Enter Setup**

---

## Check Character Verification

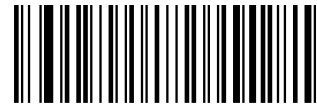
A check character is optional for Codabar and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- ✧ **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.)



**\*\* 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: 3)**



@C93MAX

**Set the Maximum Length (Default: 127)**



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

**E**  
*xample*

**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**



**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**



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



**Transmit Check Character After Verification**



If the **Do Not Transmit Check Character After Verification** option is enabled, Code 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.)



**\*\* 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**



**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.



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



**Set the Maximum Length (Default: 127)**



If minimum length is set to be greater than maximum length, the scanner only decodes 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.



**\*\* Exit Setup**





@SETUPE1

**Enter Setup**

---

**Transmit Check Character**



@GS1CHK2

**Transmit GS1-128 Check Character**



@GS1CHK1

**\*\* Do Not Transmit GS1-128 Check Character**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## GS1 Databar (RSS)

### Restore Factory Defaults



@RSSDEF  
**Restore the Factory Defaults of GS1 Databar**

### Enable/Disable GS1 Databar



@RSSENA1  
**\*\* Enable GS1 Databar**



@RSSENA0  
**Disable GS1 Databar**



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

### Transmit Application Identifier “01”



@RSSTA1  
**\*\* Transmit Application Identifier “01”**



@RSSTA0  
**Do Not Transmit Application Identifier “01”**

---



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



@SETUPE1

**Enter Setup**

---

## Code 11

### Restore Factory Defaults



@C11DEF

**Restore the Factory Defaults of Code 11**

### Enable/Disable Code 11



@C11ENA1

**\*\* Enable Code 11**



@C11ENA0

**Disable Code 11**



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



@SETUPE0

**\*\* Exit Setup**



**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.



**Set the Minimum Length (Default: 2)**



**Set the Maximum Length (Default: 127)**



If minimum length is set to be greater than maximum length, the scanner only decodes 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.
- 



**\*\* 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<=11)**

**Two Check Characters, MOD11/MOD11 (Len>11)**



@C11CHK5

**One Check Character, MOD11 (Len<=11)**

**Two Check Characters, MOD11/MOD9 (Len>11)**



@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**



**Enter Setup**

## Set ISBN Format



**ISBN-10**



**\*\* ISBN-13**

## 2-Digit Add-On Code

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



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



**Enable 2-Digit Add-On Code**



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

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



**\*\* Exit Setup**





Enter Setup

## 5-Digit Add-On Code

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



@ISBAD50

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



@ISBAD51

**Enable 5-Digit Add-On Code**



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

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

## Add-On Code Required

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



@ISBREQ0

**\*\* ISBN Add-On Code Not Required**



@ISBREQ1

**ISBN Add-On Code Required**



**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## ISSN

### Restore Factory Defaults



@ISSDEF

**Restore the Factory Defaults of ISSN**

### Enable/Disable ISSN



@ISSENA1

**Enable ISSN**



@ISSENA0

**\*\* Disable ISSN**



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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

Enter Setup

## 2-Digit Add-On Code

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



@ISSAD20

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



@ISSAD21

**Enable 2-Digit Add-On Code**



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

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

## 5-Digit Add-On Code

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



@ISSAD50

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



@ISSAD51

**Enable 5-Digit Add-On Code**



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

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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

### **Add-On Code Required**

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



@ISSREQ0

**\*\* ISSN Add-On Code Not Required**



@ISSREQ1

**ISSN Add-On Code Required**



@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**



**Enter Setup**

## Set Length Range for Industrial 25

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



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



**Set the Maximum Length (Default: 127)**



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

**E**  
*xample*

**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.



**\*\* 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**



@L25CHK1

**Do Not Transmit Check Character After Verification**



@L25CHK2

**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: 127)**



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



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

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



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

---

## Check Character Verification

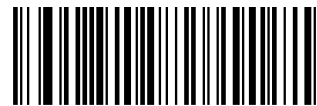
A check character is optional for Standard 25 and can be added as the last character. It is a calculated value used to verify the integrity of the data.

- ✧ **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.)



**\*\* 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**



**Enter Setup**

---

## Set Length Range for Plessey

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



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



**Set the Maximum Length (Default: 127)**



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



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

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



**\*\* 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**



@MSIDEF

**Restore the Factory Defaults of MSI-Plessey**

**Enable/Disable MSI-Plessey**



@MSIENA1

**\*\* Enable MSI-Plessey**



@MSIENA0

**Disable MSI-Plessey**



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



@SETUPE0

**\*\* Exit Setup**



@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: 2)**



@MSIMAX

**Set the Maximum Length (Default: 127)**



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



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

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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Check Character Verification

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

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



@MSICLK0

**Disable**



@MSICLK1

**\*\* One Check Character, MOD10**



@MSICLK2

**Two Check Characters, MOD10/MOD10**



@MSICLK3

**Two Check Characters, MOD10/MOD11**



@SETUPE0

**\*\* Exit Setup**





@SETUPE1

Enter Setup

---

## Transmit Check Character



@MSITCK1

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



@MSITCK0

**Do Not Transmit MSI-Plessey Check Character**



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



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

## AIM 128

### Restore Factory Defaults



**Restore the Factory Defaults of AIM 128**

### Enable/Disable AIM 128



**\*\* Enable AIM 128**



**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.

### Transmit Check Character



**Transmit AIM 128 Check Character**



**\*\* Do Not Transmit AIM 128 Check Character**



**\*\* 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: 127)**



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



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

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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## 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.



@PDFMIN

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



@PDFMAX

**Set the Maximum Length (Default: 2710)**



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



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

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



@SETUPE0

**\*\* Exit Setup**



**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.



**\*\* Single PDF417 Only**



**Twin PDF417 Only**



**Both Single & Twin**

## Character Encoding



**\*\* Default Character Encoding**



**UTF-8**

---



**\*\* 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.



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



@QRCMAX  
**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**

---

## Character Encoding



@QRCENC0

**\*\* Default Character Encoding**



@QRCENC1

**UTF-8**

## Micro QR



@QRCMCR0

**Disable Micro QR**



@QRCMCR1

**\*\* Enable Micro QR**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Data Matrix

### Restore Factory Defaults



@DMCDEF

**Restore the Factory Defaults of Data Matrix**

### Enable/Disable Data Matrix



@DMCENA1

**\*\* Enable Data Matrix**



@DMCENA0

**Disable Data Matrix**



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



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

---

## Set Length Range for Data Matrix

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



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



**Set the Maximum Length (Default: 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.



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

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



**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Data Matrix Twin Code

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

There are 3 options for reading Data Matrix twin codes:

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



@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**

## Character Encoding



@DMCENC0

**\*\* Default Character Encoding**



@DMCENC1

**UTF-8**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Chinese Sensible Code

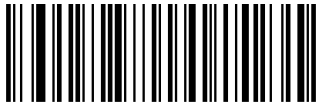
### Restore Factory Defaults



@CSCDEF

**Restore the Factory Defaults of Chinese Sensible Code**

### Enable/Disable Chinese Sensible Code



@CSCENA1

**Enable Chinese Sensible Code**



@CSCENA0

**\*\* Disable Chinese Sensible Code**



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



@SETUPE0

**\*\* Exit Setup**



**Enter Setup**

---

## Set Length Range for Chinese Sensible Code

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



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



**Set the Maximum Length (Default: 7827)**



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



**Set the scanner to decode Chinese Sensible 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.
- 



**\*\* Exit Setup**





@SETUPE1

Enter Setup

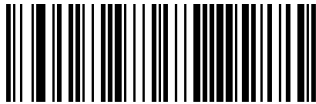
---

## Chinese Sensible Twin Code

Chinese Sensible twin code is 2 Chinese Sensible 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 Chinese Sensible twin codes:

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



@CSCDOU0

**\*\* Single Chinese Sensible Code Only**



@CSCDOU1

**Twin Chinese Sensible Code Only**



@CSCDOU2

**Both Single & Twin**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

## Chapter 8 Data Formatter

### Introduction

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

Normally, when you scan a barcode, it gets outputted automatically; however, when you create a format, you must use a "send" command (see the "Send Commands" section in this chapter) within the format programming to output data. The maximum size of all data formats (up to four data formats) created is 496 characters. By default, the data formatter is disabled. Enable it when required. If you have changed data format settings, and wish to clear all formats and return to the factory defaults, scan the **Default Data Format** code below.



@DFMDEF  
**Default Data Format**

### Add a Data Format

Data format is used to edit barcode data only. You can program up to four data formats, i.e. Format\_0, Format\_1, Format\_2 and Format\_3. When you create a data format, you must specify the application scope of your data format (such as barcode type and data length) and include formatter commands. When scanned data does not match your data format requirements, you will hear the non-match error beep (if the non-match error beep is ON).

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

### Programming with Barcodes

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

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



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



@SETUPE1

Enter Setup

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



@DFMADD

**Add Data Format**

**Step 3:** Select data format.

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

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

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

**Step 5:** Set interface type

Scan **999** for any interface type.

**Step 6:** Set Symbology ID Number

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

**Step 7:** Set barcode data length

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

**Step 8:** Enter formatter command

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

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



@SETUPE0

**\*\* Exit Setup**



## Enter Setup

---

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

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

To streamline the programming process, you may as well generate a batch barcode by inputting the batch command (e.g. **@DFMADD069990020010F141;**) used to create a data format. See the “**Use Batch Barcode**” section in Chapter 10 to learn how to put a batch barcode into use.



## \*\* 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:** "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 format\_0 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>)



\*\* Exit Setup



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.



**\*\* 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).



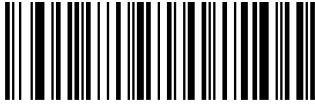
**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---



@DFMENA1

**Enable Data Formatter, Required, Keep Prefix/Suffix**



@DFMENA2

**Enable Data Formatter, Required, Drop Prefix/Suffix**



@DFMENA3

**Enable Data Formatter, Not Required, Keep Prefix/Suffix**



@DFMENA4

**Enable Data Formatter, Not Required, Drop Prefix/Suffix**

## Non-Match Error Beep

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



@DFMTON0

**Non-Match Error Beep Off**



@DFMTON1

**\*\* Non-Match Error Beep On**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Data Format Selection

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



@DFMUSE0

**\*\* Format\_0**



@DFMUSE2

**Format\_2**



@DFMUSE1

**Format\_1**



@DFMUSE3

**Format\_3**



@SETUPE0

**\*\* Exit Setup**





@SETUPE1

Enter Setup

---

## Change Data Format for a Single Scan

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

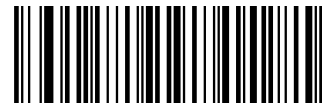
For example, you may have set your scanner to use the data format you saved as Format\_3. You can switch to Format\_1 for a single trigger pull by scanning the **Single Scan – Format\_1** barcode below. The next barcode that is scanned uses Format\_1, then reverts back to Format\_3.

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



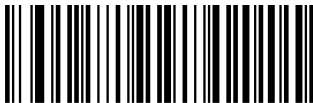
@DFMSIN0

Single Scan – Format\_0



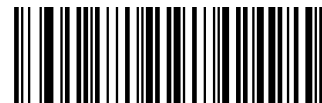
@DFMSIN1

Single Scan – Format\_1



@DFMSIN2

Single Scan – Format\_2



@DFMSIN3

Single Scan – Format\_3



@SETUPE0

\*\* Exit Setup



@SETUPE1

**Enter Setup**

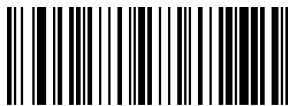
---

## Clear Data Format

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

Delete one data format: Scan the **Clear One** barcode, a numeric barcode (0-3) and the **Save** barcode. For example, to delete Format\_2, you should scan the **Clear One** barcode, the **2** barcode and the **Save** barcode

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



@DFMCAL

**Clear All**



@DFMCLR

**Clear One**

## Query Data Formats

You may scan the appropriate barcode below to get the information of data format(s) created by you or preset by manufacturer. For instance, if you have added Format\_0 as per the example in the “Add a Data Format” section in this chapter, scanning the **Query Current Data Formats** barcode, you will get the result: **Data Format0:069990020010F141;**



@DFMQCU

**Query Current Data Formats**



@DFMQFA

**Query Preset Data Formats**



@SETUPE0

**\*\* Exit Setup**



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

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

#### F2 Example: Send a number of characters



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

Command string: **F2100D**

F2 is the “Send a number of characters” command

10 is the number of characters to send

0D is the hex value for a CR

The data is output as: **1234567890**

**<CR>**



\*\* Exit Setup



## Enter Setup

---

### F3 Send all characters up to a particular character

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

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

#### F3 Example: Send all characters up to a particular character



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

Command string: **F3440D**

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

44 is the hex value for a "D"

0D is the hex value for a CR

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

**<CR>**

### E9 Send all but the last characters

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

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

### F4 Insert a character multiple times

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

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



## \*\* Exit Setup



@SETUPE1

Enter Setup

---

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



1234567890ABCDEFGHIJ

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

Command string: **E908F40902**

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

08 is the number of characters at the end to ignore

F4 is the “Insert a character multiple times” command

09 is the hex value for a horizontal tab

02 is the number of 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**



**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.

---



**\*\* Exit Setup**



@SETUPE1

Enter Setup

---

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



1234567890ABCDEFGHIJ

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

Command string: **F503F10D**

F5 is the "Move the cursor forward a number of characters" command

03 is the number of characters to move the cursor

F1 is the "Send all characters" command

0D is the hex value for a CR

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

**<CR>**

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

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

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

#### F7 Move the cursor to the beginning

Syntax=F7

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

#### EA Move the cursor to the end

Syntax=EA

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



@SETUPE0

\*\* Exit Setup



**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

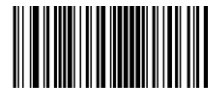
Syntax=F9xx(xx: The search character's hex value)

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



**\*\* 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: **B00003464748F10D**

B0 is the "Search forward for a string" command

0003 is the string length (3 characters)

46 is the hex value for "F"

47 is the hex value for "G"

48 is the hex value for "H"

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **FGHIJ**

**<CR>**

### B1 Search backward for a string

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

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



@SETUPE0

\*\* Exit Setup



**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.



**\*\* Exit Setup**



@SETUPE1

Enter Setup

---

## Miscellaneous Commands

### FB Suppress characters

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

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

#### FB Example: Remove spaces in barcode data



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

Command string: **FB0120F10D**

FB is the "Suppress characters" command

01 is the number of the characters to be suppressed

20 is the hex value for a space

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **34567890**

**<CR>**

### E4 Replace characters

Syntax = E4nnxx<sub>1</sub>xx<sub>2</sub>yy<sub>1</sub>yy<sub>2</sub>...zz<sub>1</sub>zz<sub>2</sub>(nn: The total count of the number of characters (characters to be replaced plus replacement characters; xx<sub>1</sub>: The characters to be replaced, xx<sub>2</sub>: The replacement characters, continuing through zz<sub>1</sub> and zz<sub>2</sub>)

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



@SETUPE0

\*\* Exit Setup



**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: **1234**

**5678**

**ABC**

**<CR>**



**\*\* Exit Setup**



@SETUPE1

Enter Setup

### BA Replace a string with another

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

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

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

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

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

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

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

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



cd123abc23bc12ab232

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

Command string: **BA0002323303414243F100**

BA is the "Replace a string with another" command

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

02 is the length of the string to be replaced



@SETUPE0

\*\* Exit Setup



## Enter Setup

---

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

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

03 is the length of the replacement string

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

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

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

F1 is the "Send all characters" command

00 is the hex value for a NUL

The data is output as: **cd1ABCabcABCbc12abABC2**

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

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

Command string: **BA0102323300F100**

BA is the "Replace a string with another" command

01 is the count of replacements to be made

02 is the length of the string to be replaced

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

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

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

F1 is the "Send all characters" command

00 is the hex value for a NUL

The data is output as: **cd1abc23bc12ab232**



## \*\* Exit Setup



@SETUPE1

Enter Setup

---

### EF Insert a delay

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

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

### EF Example: Insert a delay of 1s between the 5<sup>th</sup> and 6<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: **F20500EF0200E900**

F2 is the "Send a number of characters" command

05 is the number of characters to send

00 is the hex value for a Null character

EF is the "Insert a delay" command

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

E9 is the "Send all but the last characters" command

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



@SETUPE0

\*\* Exit Setup



## Enter Setup

---

### B5 Insert key strokes

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

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

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

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

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

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



## \*\* Exit Setup





@SETUPE1

**Enter Setup**

## Chapter 9 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**



**Enter Setup**

---

## Global Settings

### Enable/Disable All Prefixes/Suffixes

**Disable All Prefixes/Suffixes:** Transmit barcode data with no prefix/suffix.

**Enable All Prefixes/Suffixes:** Allow to append Code ID prefix, AIM ID prefix, custom prefix/suffix and terminating character to the barcode data before the transmission.



**\*\* Disable All Prefixes/Suffixes**



**Enable All Prefixes/Suffixes**

## Prefix Sequence



**Code ID+ Custom +AIM ID**



**\*\* Custom + Code ID + AIM ID**



**\*\* 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 11 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**



**Enter Setup**

---

## AIM ID Prefix

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



**\*\* Disable AIM ID Prefix**



**Enable AIM ID Prefix**



AIM ID is not user programmable.



**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

## Code ID Prefix

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



@CIDENA0

**\*\* Disable Code ID Prefix**



@CIDENA1

**Enable Code ID Prefix**

## Restore All Default Code IDs

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



@CIDDEF

**Restore All Default Code IDs**

## Modify Code ID

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



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

## Enter Setup

---

**E**  
*xample*

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

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

### Restore the default Code IDs of all symbologies:

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



@SETUPE0

## \*\* Exit Setup



@SETUPE1

**Enter Setup**

---

**1D symbologies:**



@CID002

**Modify Code 128 Code ID**



@CID003

**Modify GS1-128 Code ID**



@CID004

**Modify EAN-8 Code ID**



@CID005

**Modify EAN-13 Code ID**



@CID006

**Modify UPC-E Code ID**



@CID007

**Modify UPC-A Code ID**



@CID008

**Modify Interleaved 2 of 5 Code ID**



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---



@CID009

**Modify ITF-14 Code ID**



@CID010

**Modify ITF-6 Code ID**



@CID011

**Modify Matrix 2 of 5 Code ID**



@CID013

**Modify Code 39 Code ID**



@CID015

**Modify Codabar Code ID**



@CID017

**Modify Code 93 Code ID**



@CID020

**Modify AIM 128 Code ID**



@SETUPE0

**\*\* Exit Setup**





@SETUPE1

**Enter Setup**

---



@CID023

**Modify ISSN Code ID**



@CID024

**Modify ISBN Code ID**



@CID025

**Modify Industrial 25 Code ID**



@CID026

**Modify Standard 25 Code ID**



@CID027

**Modify Plessey Code ID**



@CID028

**Modify Code 11 Code ID**



@CID029

**Modify MSI-Plessey Code ID**



@CID031

**Modify GS1 Databar Code ID**

---



@SETUPE0

**\*\* Exit Setup**



@SETUPE1

**Enter Setup**

---

**2D symbologies:**



@CID032

**Modify PDF417 Code ID**



@CID035

**Modify Data Matrix Code ID**



@CID033

**Modify QR Code ID**



@CID039

**Modify Chinese Sensible 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**



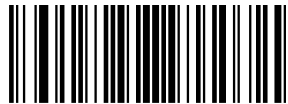
@CSUENA1

**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 11 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**

---



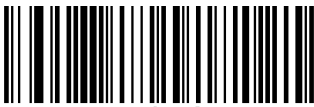
@PACKAG0

**\*\* 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 7 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**  
*Example*

**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**



**Enter Setup**

## Chapter 10 Batch Programming

### Introduction

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

Listed below are batch programming rules:

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

Example: Create a batch barcode for **Normal Illumination, Sense Mode, Decode Session Timeout = 2s, Disable Interleaved 2 of 5:**

1. Input the commands:

@ILLSCN1;SCNMOD2;ORTSET2000;I25ENA0;

2. Generate a batch barcode.

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



**Enable Batch Barcode**



**\*\* Exit Setup**





@SETUPE1

Enter Setup

---

## Create a Batch Command

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

For more information, refer to the “Use of Programming Command” section in Chapter 3.

## Create a Batch Barcode

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

Example: Create a batch barcode for **Normal Illumination, Sense Mode, Decode Session Timeout = 2s, Disable Interleaved 2 of 5**:

1. Input the following commands:

```
@ILLSCN1;SCNMOD2;ORTSET2000;I25ENA0;
```

2. Generate a PDF417 batch barcode.



@SETUPE0

\*\* Exit Setup



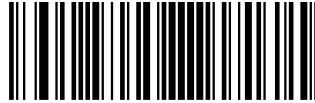
@SETUPE1

**Enter Setup**

---

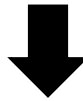
## Use Batch Barcode

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



@SETUPE1

**Enter Setup**

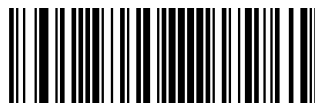


@BATCHS

**Enable Batch Barcode**



**Batch Barcode**



@SETUPE0

**Exit Setup**



@SETUPE0

**\*\* Exit Setup**

# Appendix

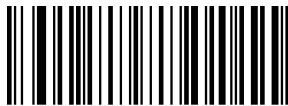
## Digit Barcodes

0~9



@DIGIT0

0



@DIGIT2

2



@DIGIT4

4



@DIGIT1

1



@DIGIT3

3



@DIGIT5

5



@DIGIT6

6



@DIGIT7

7



@DIGIT8

8



@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.



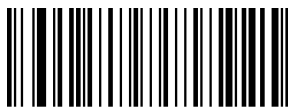
@DIGSAV

**Save**



@DIGCAN

**Cancel**



@DIGDEL

**Delete the Last Digit**



@DIGDAL

**Delete All Digits**

---

## Factory Defaults Table

| Parameter                                 | Factory Default                          | Remark                       |
|-------------------------------------------|------------------------------------------|------------------------------|
| <b>System Settings</b>                    |                                          |                              |
| Barcode Programming                       | Disabled (Exit Setup)                    |                              |
| Programming Barcode Data                  | Do not transmit                          |                              |
| Illumination                              | Normal                                   |                              |
| Good Read LED                             | On                                       |                              |
| Power On Beep                             | On                                       |                              |
| Good Read Beep                            | On                                       |                              |
| Good Read Beep Duration                   | 100ms                                    |                              |
| Good Read Beep Frequency                  | Low (2700Hz)                             |                              |
| Good Read Beep Volume                     | Loud                                     |                              |
| Scan Mode                                 | Level Mode                               |                              |
| Decode Session Timeout                    | 3,000ms                                  | 100-3,600,000ms; 0: Infinite |
| Image Stabilization Timeout (Sense Mode)  | 500ms                                    |                              |
| Timeout between Decodes (Continuous Mode) | 1,000ms                                  | 0-65,535ms                   |
| Timeout between Decodes (Same Barcode)    | Disabled                                 |                              |
|                                           | 1,500ms                                  | 0-65,535ms                   |
| Sensitivity                               | Enhanced Sensitivity                     | Level 1-16                   |
| Auto Sleep                                | Enabled                                  |                              |
| Time Period from Idle to Sleep            | 500ms                                    | 0-65,535ms                   |
| Scanning Preference                       | Normal Motion Tolerance                  |                              |
| Read Barcode                              | On                                       |                              |
| Decode Area                               | Whole Area Decoding                      |                              |
| Specify Decoding Area                     | 40% top, 60% bottom, 40% left, 60% right |                              |
| Image Flipping                            | Do Not Flip                              |                              |
| Smart Stand Mode                          | On                                       |                              |
| Bad Read Message                          | Off                                      |                              |
|                                           | none                                     | Up to 7 characters           |
| Default Interface                         | USB HID Keyboard                         |                              |
| <b>RS-232 Interface</b>                   |                                          |                              |
| Baud Rate                                 | 9600                                     |                              |
| Parity Check                              | None                                     |                              |
| Data Bits                                 | 8                                        |                              |

|                                                    |                                      |                  |
|----------------------------------------------------|--------------------------------------|------------------|
| Stop Bits                                          | 1                                    |                  |
| Hardware Auto Flow Control                         | No Flow Control                      |                  |
| <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 |
| Emulate Keypad with Leading Zero                   | Off                                  | USB HID Keyboard |
| Code Page                                          | Code Page 1252 (West European Latin) | USB HID Keyboard |
| Function Key Mapping                               | Disable                              | USB HID Keyboard |
| Inter-Keystroke Delay                              | 10ms                                 | USB HID Keyboard |
| Convert Case                                       | No Case Conversion                   | USB HID Keyboard |
| Emulate Numeric Keypad                             | Off                                  | USB HID Keyboard |
| Polling Rate                                       | 1ms                                  | USB HID Keyboard |
| <b>Symbologies</b>                                 |                                      |                  |
| Video Reverse                                      | Off                                  |                  |
| <b>Code 128</b>                                    |                                      |                  |
| Code 128                                           | Enabled                              |                  |
| Maximum Length                                     | 127                                  |                  |
| Minimum Length                                     | 1                                    |                  |
| Check Character                                    | Do not transmit                      |                  |
| <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                                        | Not Required                         |                  |
| Convert EAN-8 to EAN-13                            | Disabled                             |                  |
| <b>EAN-13</b>                                      |                                      |                  |
| EAN-13                                             | Enabled                              |                  |
| Check Character                                    | Transmit                             |                  |
| 2-Digit Add-On Code                                | Disabled                             |                  |
| 5-Digit Add-On Code                                | Disabled                             |                  |
| Add-On Code                                        | Not Required                         |                  |
| EAN-13 Beginning with 290 Add-On Code Required     | Do Not Require Add-On Code           |                  |
| EAN-13 Beginning with 378/379 Add-On Code Required | Do Not Require Add-On Code           |                  |
| EAN-13 Beginning with 414/419 Add-On Code Required | Do Not Require Add-On Code           |                  |



|                                                    |                            |                |
|----------------------------------------------------|----------------------------|----------------|
| EAN-13 Beginning with 434/439 Add-On Code Required | Do Not Require Add-On Code |                |
| EAN-13 Beginning with 977 Add-On Code Required     | Do Not Require Add-On Code |                |
| EAN-13 Beginning with 978 Add-On Code Required     | Do Not Require Add-On Code |                |
| EAN-13 Beginning with 979 Add-On Code Required     | Do Not Require Add-On Code |                |
| <b>UPC-E</b>                                       |                            |                |
| UPC-E                                              | Enabled                    |                |
| Check Character                                    | Transmit                   |                |
| 2-Digit Add-On Code                                | Disabled                   |                |
| 5-Digit Add-On Code                                | Disabled                   |                |
| Add-On Code                                        | Not required               |                |
| System Character                                   | Transmit                   |                |
| Convert UPC-E to UPC-A                             | Disabled                   |                |
| <b>UPC-A</b>                                       |                            |                |
| UPC-A                                              | Enabled                    |                |
| Check Character                                    | Transmit                   |                |
| 2-Digit Add-On Code                                | Disabled                   |                |
| 5-Digit Add-On Code                                | Disabled                   |                |
| Add-On Code                                        | Not required               |                |
| Transmit Preamble Character                        | System Character           |                |
| <b>Interleaved 2 of 5</b>                          |                            |                |
| Interleaved 2 of 5                                 | Enabled                    |                |
| Maximum Length                                     | 100                        |                |
| Minimum Length                                     | 6                          | No less than 4 |
| Check Character Verification                       | Disabled                   |                |
| <b>Febraban</b>                                    |                            |                |
| Febraban                                           | Disabled                   |                |
| Transmit Delay per Character                       | Disabled                   |                |
|                                                    | 70ms                       |                |
| Transmit Delay per 12 Characters                   | Disabled                   |                |
|                                                    | 500ms                      |                |
| <b>ITF-14</b>                                      |                            |                |
| ITF-14                                             | Enabled                    |                |
| Check Character                                    | Do not transmit            |                |
| <b>ITF-6</b>                                       |                            |                |
| ITF-6                                              | Disabled                   |                |
| <b>Matrix 2 of 5</b>                               |                            |                |

|                                |                                                    |                |
|--------------------------------|----------------------------------------------------|----------------|
| Matrix 2 of 5                  | Disabled                                           |                |
| Maximum Length                 | 127                                                |                |
| Minimum Length                 | 6                                                  | No less than 4 |
| Check Character Verification   | Do Not Transmit Check Character After Verification |                |
| <b>Code 39</b>                 |                                                    |                |
| Code 39                        | Enabled                                            |                |
| Maximum Length                 | 127                                                |                |
| Minimum Length                 | 1                                                  |                |
| Check Character Verification   | Disabled                                           |                |
| Start/Stop Character           | Do not transmit                                    |                |
| Code 39 Full ASCII             | Enabled                                            |                |
| Code 32 Pharmaceutical (PARAF) | Disabled                                           |                |
| Code 32 Prefix                 | Disabled                                           |                |
| Code 32 Start/Stop Character   | Do not transmit                                    |                |
| Code 32 Check Character        | Do not transmit                                    |                |
| <b>Codabar</b>                 |                                                    |                |
| Codabar                        | Enabled                                            |                |
| Maximum Length                 | 127                                                |                |
| Minimum Length                 | 1                                                  |                |
| Check Character Verification   | Disabled                                           |                |
| Start/Stop Character           | Do not transmit                                    |                |
|                                | ABCD/ABCD                                          |                |
| <b>Code 93</b>                 |                                                    |                |
| Code 93                        | Enabled                                            |                |
| Maximum Length                 | 127                                                |                |
| Minimum Length                 | 3                                                  | No less than 1 |
| Check Character Verification   | Do Not Transmit Check Character After Verification |                |
| <b>GS1-128 (UCC/EAN-128)</b>   |                                                    |                |
| GS1-128                        | Enabled                                            |                |
| Maximum Length                 | 127                                                |                |
| Minimum Length                 | 1                                                  |                |
| Check Character                | Do not transmit                                    |                |
| <b>GS1 Databar</b>             |                                                    |                |
| GS1 Databar                    | Enabled                                            |                |

|                              |                                                    |                |
|------------------------------|----------------------------------------------------|----------------|
| Application Identifier "01"  | Transmit                                           |                |
| <b>Code 11</b>               |                                                    |                |
| Code 11                      | Enabled                                            |                |
| Maximum Length               | 127                                                |                |
| Minimum Length               | 2                                                  |                |
| Check Character Verification | One Check Character, MOD11                         |                |
| Check Character              | Do not transmit                                    |                |
| <b>ISBN</b>                  |                                                    |                |
| ISBN                         | Disabled                                           |                |
| Set ISBN Format              | ISBN-13                                            |                |
| 2-Digit Add-On Code          | Disabled                                           |                |
| 5-Digit Add-On Code          | Disabled                                           |                |
| Add-On Code                  | Not required                                       |                |
| <b>ISSN</b>                  |                                                    |                |
| ISSN                         | Disabled                                           |                |
| 2-Digit Add-On Code          | Disabled                                           |                |
| 5-Digit Add-On Code          | Disabled                                           |                |
| Add-On Code                  | Not required                                       |                |
| <b>Industrial 25</b>         |                                                    |                |
| Industrial 25                | Enabled                                            |                |
| Maximum Length               | 127                                                |                |
| Minimum Length               | 6                                                  | No less than 4 |
| Check Character Verification | Disabled                                           |                |
| <b>Standard 25</b>           |                                                    |                |
| Standard 25                  | Enabled                                            |                |
| Maximum Length               | 127                                                |                |
| Minimum Length               | 6                                                  | No less than 4 |
| Check Character Verification | Disabled                                           |                |
| <b>Plessey</b>               |                                                    |                |
| Plessey                      | Enabled                                            |                |
| Maximum Length               | 127                                                |                |
| Minimum Length               | 1                                                  |                |
| Check Character Verification | Do Not Transmit Check Character After Verification |                |
| <b>MSI-Plessey</b>           |                                                    |                |
| MSI-Plessey                  | Enabled                                            |                |

|                              |                                   |  |
|------------------------------|-----------------------------------|--|
| Maximum Length               | 127                               |  |
| Minimum Length               | 2                                 |  |
| Check Character Verification | One Check Character, MOD10        |  |
| Check Character              | Transmit                          |  |
| <b>AIM 128</b>               |                                   |  |
| AIM 128                      | Enabled                           |  |
| Maximum Length               | 127                               |  |
| Minimum Length               | 1                                 |  |
| Check Character              | Do not transmit                   |  |
| <b>PDF417</b>                |                                   |  |
| PDF417                       | Enabled                           |  |
| Maximum Length               | 2710                              |  |
| Minimum Length               | 1                                 |  |
| PDF417 Twin Code             | Single PDF417 Only                |  |
| Character Encoding           | Default Character Encoding        |  |
| <b>QR Code</b>               |                                   |  |
| QR Code                      | Enabled                           |  |
| Maximum Length               | 7089                              |  |
| Minimum Length               | 1                                 |  |
| QR Twin Code                 | Single QR Only                    |  |
| Character Encoding           | Default Character Encoding        |  |
| Micro QR                     | 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                           |  |
| Character Encoding           | Default Character Encoding        |  |
| <b>Chinese Sensible Code</b> |                                   |  |
| Chinese Sensible Code        | Disabled                          |  |
| Maximum Length               | 7827                              |  |
| Minimum Length               | 1                                 |  |
| Chinese Sensible Twin Code   | Single Chinese Sensible Code Only |  |
| <b>Data Formatter</b>        |                                   |  |
| Data Formatter               | Disabled                          |  |

---

|                              |                         |                     |
|------------------------------|-------------------------|---------------------|
| Non-Match Error Beep         | On                      |                     |
| Data Format Selection        | Format_0                |                     |
| <b>Prefix &amp; Suffix</b>   |                         |                     |
| All Prefixes/Suffixes        | Disabled                |                     |
| Prefix Sequence              | Custom +Code ID+ AIM ID |                     |
| Custom Prefix                | Disabled                | Up to 11 characters |
| AIM ID Prefix                | Disabled                |                     |
| Code ID Prefix               | Disabled                |                     |
| Custom Suffix                | Disabled                | Up to 11 characters |
| Data Packing                 | Disable Data Packing    |                     |
| Terminating Character Suffix | Enabled<br>CR (0x0D)    | Up to 7 characters  |

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## 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 2-Digit Addon | ]E4...]E1... |                               |
| EAN-8 with 5-Digit Addon | ]E4...]E2... |                               |
| EAN-13                   | ]E0          |                               |
| EAN-13 with Addon        | ]E3          |                               |
| UPC-E                    | ]E0          |                               |
| UPC-E with Addon         | ]E3          |                               |
| UPC-A                    | ]E0          |                               |
| UPC-A with Addon         | ]E3          |                               |
| Interleaved 2 of 5       | ]Im          | 0, 1, 3                       |
| ITF-14                   | ]Im          | 1, 3                          |
| ITF-6                    | ]Im          | 1, 3                          |
| Matrix 2 of 5            | ]Xm          | 0, 1, 3, 4                    |
| Code 39                  | ]Am          | 0, 1, 3, 4, 5, 7              |
| Codabar                  | ]Fm          | 0, 2, 4                       |
| Code 93                  | ]G0          |                               |
| AIM 128                  | ]C2          |                               |
| ISSN                     | ]X5          |                               |
| ISBN                     | ]X4          |                               |
| Industrial 25            | ]S0          |                               |
| Standard 25              | ]Rm          | 0, 8, 9                       |
| Plessey                  | ]P0          |                               |
| Code 11                  | ]Hm          | 0, 1, 3, 9                    |
| MSI Plessey              | ]Mm          | 0, 1, 8, 9                    |
| GS1 Databar (RSS)        | ]e0          |                               |
| PDF417                   | ]L0          |                               |
| QR Code                  | ]Qm          | 0-6                           |
| Data Matrix              | ]dm          | 0-6                           |
| Chinese Sensible Code    | ]X0          |                               |

**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, Febraban | e       |
| ITF-14                       | e       |
| ITF-6                        | e       |
| Matrix 2 of 5                | v       |
| Code 39, Code 32             | b       |
| Codabar                      | a       |
| Code 93                      | i       |
| AIM 128                      | f       |
| ISSN                         | n       |
| ISBN                         | B       |
| Industrial 25                | D       |
| Standard 25                  | s       |
| Plessey                      | p       |
| Code 11                      | H       |
| MSI Plessey                  | m       |
| GS1 Databar (RSS)            | R       |
| PDF417                       | r       |
| QR Code                      | Q       |
| Data Matrix                  | u       |
| Chinese Sensible Code        | h       |

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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, Febraban | 008       |
| ITF-14                       | 009       |
| ITF-6                        | 010       |
| Matrix 2 of 5                | 011       |
| Code 39, Code 32             | 013       |
| Codabar                      | 015       |
| Code 93                      | 017       |
| AIM 128                      | 020       |
| ISSN                         | 023       |
| ISBN                         | 024       |
| Industrial 25                | 025       |
| Standard 25                  | 026       |
| Plessey                      | 027       |
| Code11                       | 028       |
| MSI-Plessey                  | 029       |
| GS1 Databar (RSS)            | 031       |
| PDF417                       | 032       |
| QR Code                      | 033       |
| Data Matrix                  | 035       |
| Chinese Sensible Code        | 039       |

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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)             |

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Unicode Key Maps

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

104 Key U.S. Style Keyboard

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

105 Key European Style Keyboard



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