



# Newland

SCANNING MADE SIMPLE



## HR11+ Aringa

## 1D handheld barcode scanner

user guide

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## Revision History

| Version | Description   | Date            |
|---------|---|-----------------|
| V1.0.0  | Initial release.  | June 5, 2017    |
| V1.0.1  | 1. Changed the default settings of the following parameters to:<br>Timeout between Decodes      0ms<br>Febraban                          Enable Febraban, Expand<br>2. Modified Chapter 7 Data Formatter.<br>Note: Firmware version V1.07.003 or later is required for the changes above. | June 26, 2017   |
| V1.0.2  | Added the <b>Video Reverse</b> feature in Chapter 6.<br>Note: Firmware version V1.07.004 or later is required for the new feature above.  | August 23, 2017 |



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# Preface

## Introduction

This manual provides detailed instructions for setting up and using the NLS-HR11 Plus hand-held barcode scanner (hereinafter referred to as “**the HR11**” or “**the scanner**”).

## Chapter Description

- ✧ *Chapter 1, Getting Started* : This chapter gives a general description of the scanner including wiring instructions and basic operations.
- ✧ *Chapter 2, General Settings* : This chapter introduces three methods to configure the scanner: barcode programming, command programming and EasySet programming.
- ✧ *Chapter 3, Query Commands* : This chapter describes how to obtain the information of the scanner by scanning programming barcodes.
- ✧ *Chapter 4, Communication Settings*: This chapter describes how to configure RS-232 and USB parameters.
- ✧ *Chapter 5, Prefix & Suffix* : This chapter describes how to use prefix and suffix to customize scanned data.
- ✧ *Chapter 6, Symbolologies* : This chapter lists all compatible symbolologies and describes how to configure the relevant parameters.
- ✧ *Chapter 7, Data Formatter* : This chapter explains how to customize scanned data with the data formatter.
- ✧ *Appendix* : This chapter offers factory defaults table and a bunch of frequently used programming barcodes.

---

## Document Set

The documentation set for the HR11 scanner provides information for specific user needs and includes:

***Quick Start Guide***

Describes how to get the scanner up and running, and introduces some basic operations.

***User Guide***

Describes how to use and set the scanner.

# Chapter 1 Getting Started

## Introduction

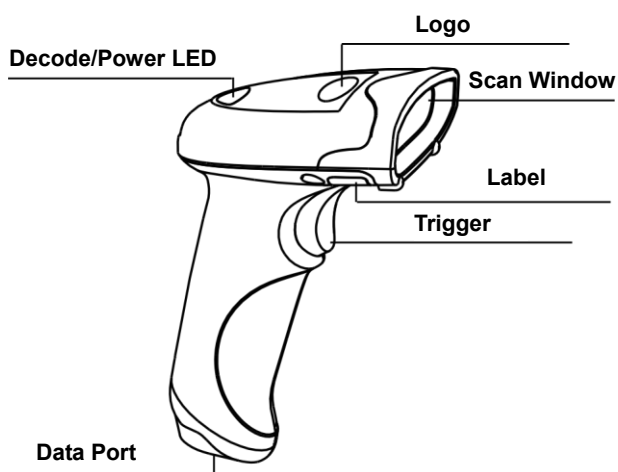
HR11 scanner is a 1D barcode scanner with excellent performance, which supports all common 1D symbologies. Based on the **UIMG**® technology independently developed by Newland, HR11 scanner is able to deliver rapid image acquisition and accurate decoding; it can provide customers with best services. HR11 scanner boasts the ergonomical design that ensures easy and comfortable operation.

An illustrated introduction to the HR11 scanner is included in this chapter. If you have an HR11 device 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.

## Unpacking

Open the package and take out HR11 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.

## HR11 Scanner



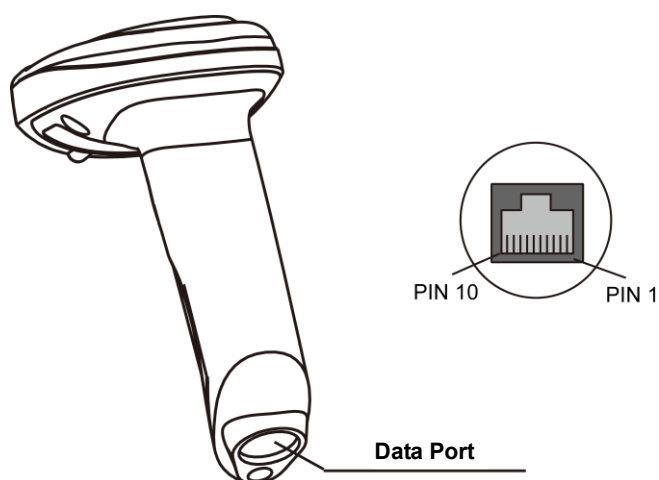
Decode/Power LED:

Red : The device is powered on.

Green: Barcode is decoded successfully.

---

## Data Port Pinout



Data port pinout (factory default):

| PIN | Signal | Type | Description         |
|-----|--------|------|---------------------|
| 1   | NC     | -    | Not connected       |
| 2   | NC     | -    | Not connected       |
| 3   | VCC    | P    | Power+ (+5V)        |
| 4   | TXD    | O    | RS-232 Output       |
| 5   | RXD    | I    | RS-232 Input        |
| 6   | CTS    | I    | Flow control signal |
| 7   | RTS    | O    |                     |
| 8   | GND    | P    | Ground              |
| 9   | D-     | I/O  | USB signal          |
| 10  | D+     | I/O  |                     |



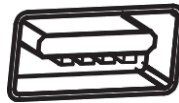
---

## Connecting the Scanner to a Host Device

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

### USB

USB port on the host device



### RS-232

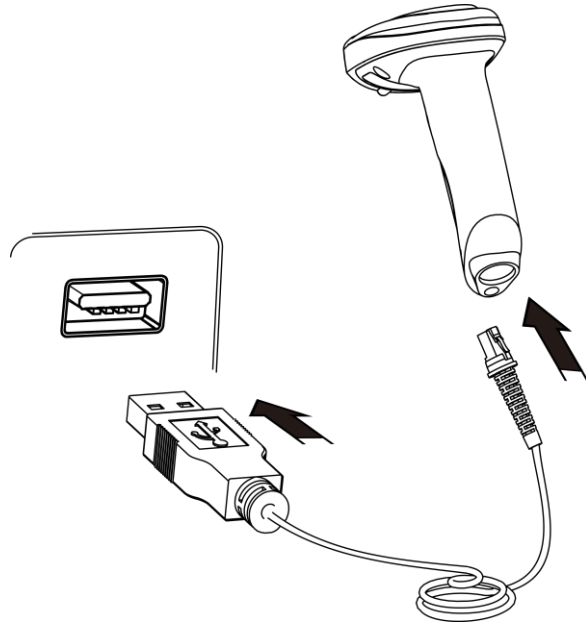
RS-232 port on the host device



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

---

## Using USB Cable

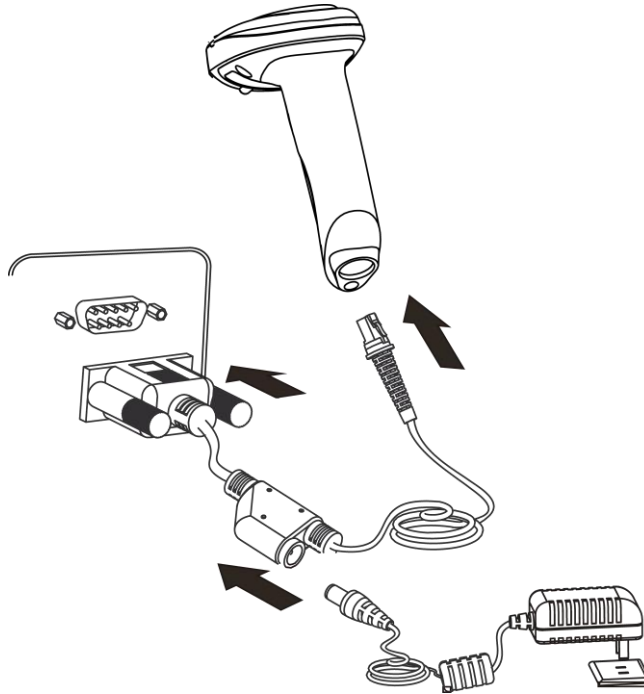


Connect the scanner to a host device through a USB cable with RJ45 and USB connectors:

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

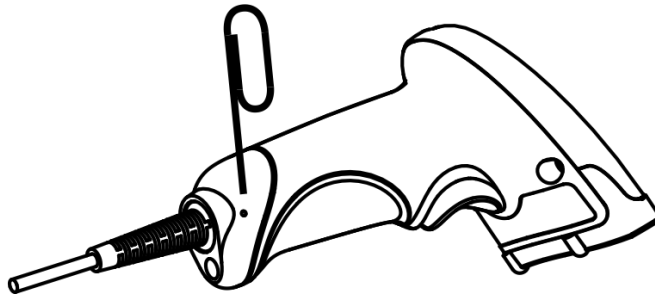


Connect the scanner to a host device through an RS-232 cable with RJ45, RS-232 and power connectors:

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. Connect the supplied power adaptor to the power connector of the RS-232 cable.

---

## 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/Off, Sleep, Reboot

### Power on the scanner

Connect the scanner to a host device. Then the scanner will be turned on and automatically go into the sleep mode.

### Power off the scanner

There are four ways to turn off the scanner:

- ✧ Remove the communication cable from the scanner; or
- ✧ remove the communication cable from the host device; or
- ✧ disconnect the power adaptor from mains; or
- ✧ Scan the **Power Off** barcode from the “Operating Mode Options” section in Chapter 2.

### Enter the sleep mode

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

### Reboot the scanner

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

## Maintenance

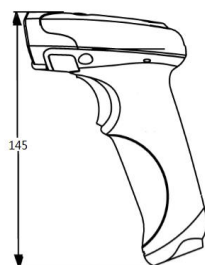
1. The scan window should be kept clean.
2. Do not scratch the scan window.
3. Use soft brush to remove the stain from the scan window.
4. Use the soft cloth to clean the window, such as eyeglass cleaning cloth.
5. Do not spray any liquid on the scan window.
6. Do not use any detergent to clean other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

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

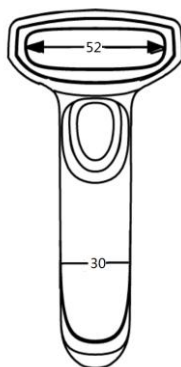
---

## Dimensions (unit: mm)

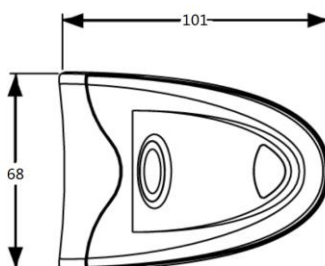
### Side View



### Front View



### Top View



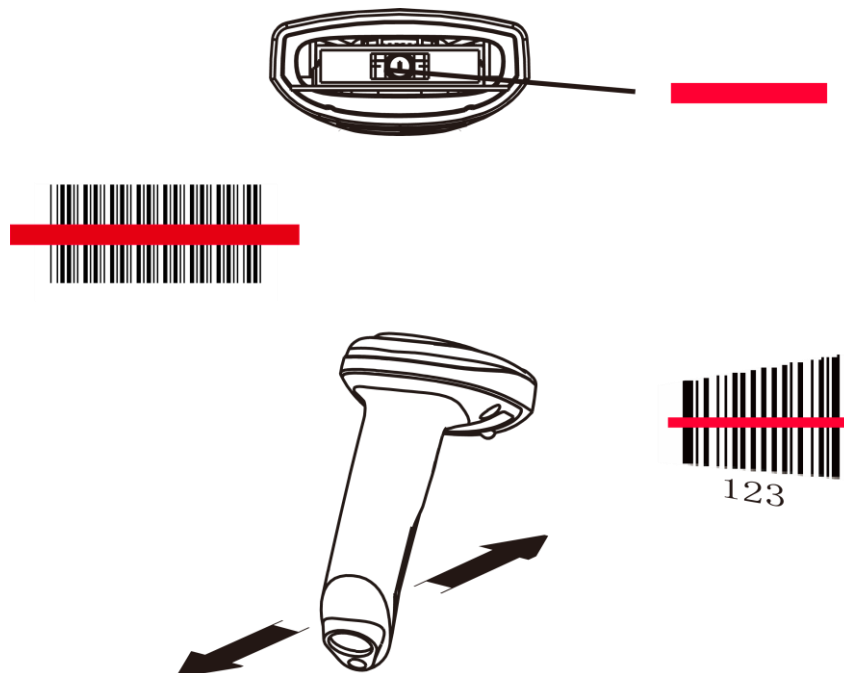
---

## Scanning Instructions

When the scanner is in the Manual 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, as shown below.
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 device.

**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.





@SETUPN1  
**\*\* Enter Setup**

## Chapter 2 General Settings

### Introduction

There are three ways to configure the HR11 Plus: Barcode programming, command programming and Easyset programming.

#### Barcode Programming

The HR11 Plus 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 HR11 Plus 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*.



@SETUPN0  
**Exit 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 **Enter Setup** barcode.
2. The **Enter Setup** command.
3. The description of feature.
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.





@SETUPN1  
\*\* 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-KBW 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).



@SETUPN0  
Exit 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>)





**\*\* Enter Setup**

---

## Beep on BEL Character

You may wish to force the scanner to beep upon a command sent from the host. If you turn the feature on with the following command, the scanner will beep every time a <BEL> character is received from the host. <BEL> is issued to gain a user's attention to an error or other important event. This setting is for temporary use and will be lost after removing the power from the scanner, or turning off or rebooting it.

BEEPONxxFyyT (xx: The desired frequency, 1-20000Hz; yy: The The desired duration, 1-20000ms)

### Example: Set the frequency of the beep to 2000Hz and the duration to 50ms

Enter: **7E 01 30 30 30 30 40 42 45 45 50 4F 4E 32 30 30 30 46 35 30 54 3B 03**  
(~<SOH>0000# BEEPON2000F50T;<ETX>)

Response: **02 01 30 30 30 30 40 42 45 45 50 4F 4E 32 30 30 30 46 35 30 54 06 3B 03**  
(<STX><SOH>0000# BEEPON2000F50T<ACK>;<ETX>)



**Exit Setup**



---

## Use of Programming Barcodes

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

The HR11 Plus is in the setup mode by default. In real application, programming barcodes hardly overlap with non-programming barcodes, so it is unnecessary to exit the setup mode each time you finish the configuration.

Some functions or options may involve parameter value settings that require scanning numeric barcodes. To find the numeric barcodes, see the “Digit Barcodes” section in Appendix.

The scanner can be configured to send or not to send programming barcode data (i.e. programming command) to the host device by scanning the appropriate barcode below. By default, the **Do Not Send the Programming Barcode Data** option is enabled. Note that restarting/rebooting the scanner will reset this parameter to its default value.



**\*\* Do Not Send the Programming Barcode Data**



**Send the Programming Barcode Data**

## Factory Defaults

Scanning the following barcode can restore the scanner to the factory defaults. See the “Factory Defaults Table” in Appendix for more information.

Note: Use this feature with discretion.



**Restore All Factory Defaults**





**\*\* Enter Setup**

---

## Custom Defaults

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

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

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

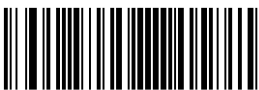


**Save as Custom Defaults**



**Restore All Custom Defaults**

Note: If custom defaults use a different communication interface (e.g. USB HID-KBW, but the scanner is currently using USB COM Port Emulation), you need to reboot the scanner to make the change effective after scanning the **Restore All Custom Defaults** barcode.



**Exit Setup**



@SETUPN1  
\*\* Enter Setup

---

## Operating Mode Options



@PWROFF  
**Power Off<sup>1</sup>**



@PWRDSP  
**Deep Sleep Mode<sup>2</sup>**



@PWRSLP  
**Light Sleep Mode<sup>3</sup>**



@REBOOT  
**Reboot Scanner**

### Note:

<sup>1</sup> The scanner that has been turned off in this way cannot be awakened. To turn it back on, disconnect it from the host device and reconnect it.

<sup>2</sup> To awaken the scanner, press the trigger.

<sup>3</sup> To awaken the scanner, press the trigger or communicate with the scanner.

**The Deep Sleep mode and Light Sleep mode are available for temporary use only. They will become invalid after the scanner is turned off or rebooted.**



@SETUPN0  
**Exit Setup**



**\*\* Enter Setup**

---

## Scan Mode

### Manual Mode

**Manual Mode (default):** A trigger pull activates a decode session. The decode session continues until the barcode is decoded or you release the trigger or the decode session timeout expires (default: 15 seconds; user programmable).



**\*\* Manual Mode**

### Decode Session Timeout

**Decode Session Timeout:** This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1,000ms increments from 1,000ms to 15,000ms. When it is set to 0, the timeout is infinite. The default timeout is 15,000ms.

To program this parameter, scan the **Decode Session Timeout** barcode, the numeric barcodes and the **Save** barcode. To find the numeric barcodes, see the “Digit Barcodes” section in Appendix.



**Decode Session Timeout**

### Example: Set the decode session timeout to 2,000ms

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



**Exit Setup**





@SETUPN1

**\*\* Enter Setup**

---

## Auto Sleep

Auto Sleep allows the scanner in the Manual mode to automatically enter the light sleep mode if no operation or communication is performed for a time period (user programmable). When the scanner is in the light sleep mode, pressing the trigger or receiving command from the host device can awaken the scanner.



@ATIDLE1

**\*\* Enable Auto Sleep**



@ATIDLE0

**Disable Auto Sleep**

The parameter below specifies how long the scanner remains idle (no operation or communication occurs) before it is put into the light sleep mode. It is programmable in 1ms increments from 0ms to 6,000ms. The default setting is 500ms.



@ATIDUR

**Time Period from Idle to Sleep**

### Example: Set the time period from idle to sleep to 1000ms

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.



@SETUPN0

**Exit Setup**



**\*\* Enter Setup**

---

## 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.

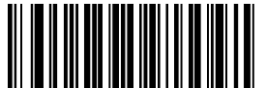


**Batch Mode**

## Decode Session Timeout

**Decode Session Timeout:** This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1,000ms increments from 1,000ms to 15,000ms. When it is set to 0, the timeout is infinite. The default timeout is 15,000ms.

To program this parameter, scan the **Decode Session Timeout** barcode, the numeric barcodes and the **Save** barcode. To find the numeric barcodes, see the “Digit Barcodes” section in Appendix.



**Decode Session Timeout**

### Example: Set the decode session timeout to 2,000ms

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



**Exit Setup**



---

## Auto Mode

**Auto Mode:** Pressing the trigger activates a decode session. The decode session continues until the barcode is decoded or the decode session timeout expires (default: 15 seconds; user programmable). The scanner automatically starts one session after another until you press the trigger a second time.



**Auto Mode**

## Decode Session Timeout

**Decode Session Timeout:** This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1,000ms increments from 1,000ms to 15,000ms. When it is set to 0, the timeout is infinite. The default timeout is 15,000ms.

To program this parameter, scan the **Decode Session Timeout** barcode, the numeric barcodes and the **Save** barcode. To find the numeric barcodes, see the “Digit Barcodes” section in Appendix.



**Decode Session Timeout**

### Example: Set the decode session timeout to 2,000ms

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





**\*\* 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, ignoring the timeout between decodes (same barcode).



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



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

The following parameter sets the timeout between decodes for same barcode. It is programmable in 100ms increments from 0ms to 12,000ms. When it is set to 12700, the timeout is infinite. The default setting is 400ms.



**Timeout between Decodes (Same Barcode)**

### Example: 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.



**Exit Setup**



## Blink Mode

**Blink Mode:** The scanner automatically activates a decode session. The decode session continues until the barcode is decoded or the decode session timeout expires (100ms; non-programmable). When a decode session is completed, the scanner waits until the timeout between decodes expires (default: 1s, user programmable) and then starts next session. The scanner continues to work in this pattern.

Pressing the trigger can also activate a decode session; holding down the trigger can suspend decode session.



**Blink Mode**

## Timeout between Decodes

**Timeout between Decodes:** This parameter sets the time period between the end of one decode session and the start of next session. It is programmable in 500ms increments from 0ms to 7,500ms. The default timeout is 0ms. To program this parameter, scan the **Timeout between Decodes** barcode, the numeric barcodes and the **Save** barcode.



**Timeout between Decodes**

### Example: Set the timeout between decodes to 1,000ms

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





**\*\* Enter Setup**

---

## Sense Mode

**Sense Mode:** The scanner activates a decode session every time when it detects a change in ambient illumination (excluding the situation when change is detected before the timeout between decodes expires). Decode session continues until the barcode is decoded or the decode session timeout expires.

In the Sense mode, a trigger pull can also activate a decode session. The decode session continues until the barcode is decoded or the trigger is released. When the session ends, the scanner continues to monitor ambient illumination.



**Sense Mode**

## Decode Session Timeout

**Decode Session Timeout:** This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1,000ms increments from 1,000ms to 15,000ms. When it is set to 0, the timeout is infinite. The default timeout is 15,000ms.

To program this parameter, scan the **Decode Session Timeout** barcode, the numeric barcodes and the **Save** barcode. To find the numeric barcodes, see the “Digit Barcodes” section in Appendix.



**Decode Session Timeout**

### Example: Set the decode session timeout to 2,000ms

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



**Exit Setup**



---

## Timeout between Decodes

**Timeout between Decodes:** This parameter sets the time period between the end of one decode session and the start of next session. It is programmable in 500ms increments from 0ms to 7,500ms. The default timeout is 0ms. To program this parameter, scan the **Timeout between Decodes** barcode, the numeric barcodes and the **Save** barcode.



**Timeout between Decodes**

### Example: Set the timeout between decodes to 1,000ms

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





**\*\* Enter Setup**

---

## Sensitivity

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



**\*\* High Sensitivity**



**Low Sensitivity**



**Medium Sensitivity**



**Custom Sensitivity**

It is recommended not to set the custom sensitivity when one of the other three options can meet your needs.

**Note: Sensitivity: Level 0-15;** the smaller the number, the higher the sensitivity.

### Example: Set the sensitivity to level 5

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



**Exit Setup**





---

### Timeout between Decodes (Same Barcode)

Timeout between Decodes (Same Barcode) can avoid undesired rereading of same barcode in a given period of time. It is programmable in 100ms increments from 0ms to 12,000ms. When it is set to 12700, the timeout is infinite. The default setting is 400ms.



### Timeout between Decodes (Same Barcode)

#### Example: 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.





**\*\* Enter Setup**

---

## Continuous Mode

**Continuous Mode:** The scanner automatically activates decode sessions one after another. The decode session continues until the barcode is decoded. For a good read, the scanner waits until the timeout between decodes expires and then starts next session. For a bad read, the scanner continues to decode the barcode until it is decoded.

Holding down the trigger can also activate the scanner to decode continuously, but with no intervals (i.e. timeout between decodes will be ignored).



**Continuous Mode**

## Timeout between Decodes

**Timeout between Decodes:** This parameter sets the time period between the end of one decode session and the start of next session. It is programmable in 500ms increments from 0ms to 7,500ms. The default timeout is 0ms. To program this parameter, scan the **Timeout between Decodes** barcode, the numeric barcodes and the **Save** barcode.



**Timeout between Decodes**

### Example: Set the timeout between decodes to 1,000ms

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



**Exit Setup**



### 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, ignoring the timeout between decodes (same barcode).



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



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

The following parameter sets the timeout between decodes for same barcode. It is programmable in 100ms increments from 0ms to 12,000ms. When it is set to 12700, the timeout is infinite. The default setting is 400ms.



**Timeout between Decodes (Same Barcode)**

#### **Example: 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.





**\*\* Enter Setup**

## Command Trigger Mode

**Command Trigger Mode:** The scanner activates a decode session when receiving the command string of “**7E 01 30 30 30 30 40 53 43 4E 43 54 4D 31 3B 03**” (~<SOH>0000@SCNCTM1;<ETX>) or scanning the **Start Trigger Simulation** barcode. The decode session continues until the barcode is decoded, or the decode session timeout expires, or the scanner receives the command string of “**7E 01 30 30 30 30 40 53 43 4E 43 54 4D 30 3B 03**” (~<SOH>0000@SCNCTM0;<ETX>) or scans the **Stop Trigger Simulation** barcode.

If the scanner receives the command string of “**7E 01 30 30 30 30 40 53 43 4E 43 54 4D 30 3B 03**” (~<SOH>0000@SCNCTM0;<ETX>) or scans the **Stop Trigger Simulation** barcode during a decode session, it will stop the decode session right away.



**Command Trigger Mode**



**Start Trigger Simulation**



**Stop Trigger Simulation**

Note: Command Trigger mode is available only when the scanner uses RS-232 or USB COM Port Emulation. If you select this scan mode while using USB HID-KBW, USB HID-POS or IBM SurePOS communication, the scanner will ignore this setting and automatically switch to the Blink mode.



**Exit Setup**



---

## Decode Session Timeout

**Decode Session Timeout:** This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1,000ms increments from 1,000ms to 15,000ms. When it is set to 0, the timeout is infinite. The default timeout is 15,000ms.

To program this parameter, scan the **Decode Session Timeout** barcode, the numeric barcodes and the **Save** barcode. To find the numeric barcodes, see the “Digit Barcodes” section in Appendix.



**Decode Session Timeout**

### Example: Set the decode session timeout to 2,000ms

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





**\*\* Enter Setup**

## Bad Read Message

Scan the appropriate barcode below to select whether or not to send a bad read message (user-programmable) when a good read does not occur before trigger release, or the decode session timeout expires, or the scanner receives the command string of “**7E 01 30 30 30 30 40 53 43 4E 43 54 4D 30 3B 03**” (~<SOH>0000@SCNCTM0;<ETX>). This feature is **NOT** available in the Continuous mode.



**\*\* Bad Read Message OFF**



**Bad Read Message ON**

A bad read message can contain two characters. To set a bad read message, scan the **Set Bad Read Message** barcode, the numeric barcodes and the **Save** barcode. The default setting is none.



**Set Bad Read Message**

### Example: Set the bad read message to “F”

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.



**Exit Setup**



@SETUPN1  
**\*\* Enter Setup**

---

## Security Setup

This parameter specifies the number of times to decode a barcode during a scan attempt. The higher the security level, the lower the error rate and decoding efficiency.



**Set Security Level to 1**



**Set Security Level to 3**



**Set Security Level to 2**



**\*\* Set Security Level to 4**

## Power On Beep

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



**\*\* On**



**Off**



@SETUPN0  
**Exit Setup**



**@SETUPN1**  
**\*\* Enter Setup**

---

## Good Read Beep



**@GRBENA1**  
**\*\* Good Read Beep ON**



**@GRBENA0**  
**Good Read Beep OFF**

## Good Read Beep Frequency



**Low**



**\*\* Medium**



**High**

## Good Read Beep Volume



**\*\* Loud**



**Medium**



**Low**

---



**@SETUPN0**  
**Exit Setup**





@SETUPN1  
**\*\* Enter Setup**

---

## Good Read Beep Duration



@GRBDUR80  
**Medium (80ms)**



@GRBDUR40  
**Short (40ms)**



@GRBDUR120  
**\*\* Long (120ms)**



@SETUPN0  
**Exit Setup**



**\*\* Enter Setup**

## Good Read LED



**\*\* Good Read LED ON**



**Good Read LED OFF**

## Good Read LED Duration

Good Read LED Duration is programmable in 100ms increments from 0ms to 25,500ms. The default duration is 100ms. To program this parameter, scan the **Good Read LED Duration** barcode, the numeric barcodes and the **Save** barcode.



**\*\* Short (100ms)**



**Medium (200ms)**



**Long (300ms)**



**Prolonged (400ms)**



**Custom Duration**

### Example: Set the good read LED duration to 500ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom Duration** barcode.
3. Scan the numeric barcodes “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.



**Exit Setup**



@SETUPN1  
**\*\* Enter Setup**

---

## Good Read Indicator Timing

This sets the good read indicators (such as beep and LED) to occur either before or after successfully transmitting data.



**Indicate after Data Transmission**



**\*\* Indicate before Data Transmission**



@SETUPN0  
**Exit Setup**



**\*\* Enter Setup**

## ACK/NAK Options

This enables/disables the ability of the scanner to support the RS-232 ACK/NAK protocol. When enabled, the scanner and/or the host sends an ACK (Default: <ACK>) when it receives data properly, and sends an NAK (Default: <NAK>) when the data is in error. This setting is valid only when the scanner uses RS-232 or USB COM or USB HID-POS communication.

4 options are provided:

### Disable

**Enable for Barcode Transmission:** The scanner expects an ACK or NAK response from the host when a barcode is sent.

**Enable for Host-command Acknowledgment:** The scanner will respond with an ACK when the host sends the Enable Character (Default: "E", user-programmable) or Disable Character (Default: "D", user-programmable) and an NAK when it sends other character.

### Enable for Barcode Transmission & Host-command Acknowledgment

Note: Do not enable this feature unless required.



**\*\* Disable**



**Enable for Barcode Transmission**



**Enable for Host-command Acknowledgment**



**Enable for Barcode Transmission & Host-command Acknowledgment**



**Exit Setup**



---

## ACK/NAK Error Handling

You can specify the method the scanner uses to handle receive errors detected while waiting for an ACK character from the host.

3 options are provided:

**Ignore Errors Detected:** After a barcode is sent, the scanner will respond with an ACK if the host sends the Enable or Disable Character; the scanner will no longer wait for an ACK or NAK response if receiving any other character from the host.

**Process Error as Valid ACK Character:** After a barcode is sent, the scanner will process it as a valid ACK if the host sends any other character instead of an ACK or NAK response.

**Process Error as Valid NAK Character:** After a barcode is sent, the scanner will process it as a valid NAK if the host sends any other character instead of an ACK or NAK response.



**\*\* Ignore Errors Detected**



**Process Error as Valid ACK Character**



**Process Error as Valid NAK Character**





**\*\* Enter Setup**

## ACK/NAK Character

You can specify an ASCII character or hex value to be used as the ACK/NAK character. ASCII characters or any hex value can be selected. Default ACK character=<ACK> (HEX: 06); default NAK character=<NAK> (HEX: 15).



**Set ACK Character**



**Set NAK Character**

### Example: Set the ACK character to 0x11

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

## ACK/NAK Transmit Error Beep

This specifies whether or not the scanner will issue a beep (200Hz, lasting for 400ms) when it receives an NAK response from the host following barcode transmission.



**ACK/NAK Transmit Error Beep ON**



**\*\* ACK/NAK Transmit Error Beep OFF**



**Exit Setup**



---

## ACK/NAK Retry Count

This parameter specifies the number of times the scanner retries a barcode transmission when it awaits an ACK or NAK response from the host. The selection range is from 1 to 254 retries. A selection of 0 disables the count; a selection of 255 means unlimited retries. The default value is 3 (retries).



Set ACK/NAK Retry Count

### Example: Set the ACK/NAK Retry Count to 200

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

## ACK/NAK Timeout

This parameter specifies the amount of time the scanner waits for an ACK character from the host following a barcode transmission. A selection of 0 disables the timeout.

**ACK/NAK Timeout: 0-75**, corresponding to 0ms, 200ms (**default**), ..., 15,000ms, in 200ms increments



Set ACK/NAK Timeout

### Example: Set the ACK/NAK Timeout to 400ms

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





@SETUPN1  
**\*\* Enter Setup**

---

## Enable/Disable Character

You can specify the value of the RS-232 host command used to enable or disable the scanner's ability to read barcode. ASCII characters or any hex value can be selected. Default Enable character= "E" (HEX: 45); default Disable character= "D" (HEX: 44).



@ANPECH  
**Set Enable Character**



@ANPDCH  
**Set Disable Character**

### Example: Set the Enable character to "K" (0x4B)

1. Scan the **Enter Setup** barcode.
2. Scan the **Set Enable Character** barcode.
3. Scan the numeric barcodes "4" and "B" 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.



@SETUPN0  
**Exit Setup**





@SETUPN1  
\*\* Enter Setup

## Chapter 3 Query Commands

You can scan one of the barcodes below to inquire the scanner information. The results will be sent to the Host.



**Query Product Information**



**Query the Decoder Version**



**Query the Firmware Version**



**Query the Hardware Version**



**Query the Manufacturing Date**



**Query the Product Name**



@SETUPN0  
**Exit Setup**



@SETUPN1

**\*\* Enter Setup**

## Chapter 4 Communication Settings

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

### RS-232 Interface

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



@SETUPN0

**Exit Setup**



@SETUPN1  
**\*\* Enter Setup**

---

## Baud Rate

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



@232BAD3

**\*\* 9600**



@232BAD0

**1200**



@232BAD1

**2400**



@232BAD2

**4800**



@232BAD4

**14400**



@232BAD5

**19200**



@232BAD6

**38400**



@232BAD7

**57600**



@232BAD8

**115200**



@SETUPN0  
**Exit Setup**



**\*\* Enter Setup**

---

## Parity Check



**\*\* None**



**Even Parity**



**Odd Parity**

## Stop Bit



**\*\* 1 Stop Bit**



**2 Stop Bits**

## Data Bit

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



**\*\* 8 Data Bits**



**7 Data Bits**

---



**Exit Setup**



## 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 high 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 low level by receiving device and discards data 100ms later if receiving device still remains unprepared for receiving it. In the case of **CTS Flow Control** or **RTS\_CTS Flow Control<sup>1</sup>**, scanning may resume after the scanner sends or discards data; in the case of **RTS\_CTS Flow Control<sup>2</sup>**, scanning may resume only when CTS signal is at low level after the scanner sends or discards data.

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 high 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**



**RTS\_CTS Flow Control<sup>1</sup>**



**RTS\_CTS Flow Control<sup>2</sup>**

**Note:** If **RTS\_CTS Flow Control<sup>2</sup>** is selected, but the serial cable used does not contain RTS/CTS pins or is faulty, the scanner may stop responding (unable to read barcode or communicate). To troubleshoot this problem, connect the scanner to a host device with a USB cable and then scan any other flow control option programming barcode.





**\*\* Enter Setup**

---

## USB Interface

### USB Suspend

This feature allows the scanner to suspend its USB interface to conserve power when host PC goes into sleep or hibernate mode. To wake up the suspended device, disconnect and then connect the USB cable or awaken the host PC.



**\*\* Disable USB Suspend**



**Enable USB Suspend**

### USB HID-KBW

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



**\*\* USB HID-KBW**



**Exit Setup**



@SETUPN1  
\*\* Enter Setup

---

## Keyboard Layout



**\*\* 1 – US (English)**



**7 – Finland (Swedish)**



**2 – Belgium (French)**



**8 - France**



**3 – Brazil (Portuguese)**



**9 – German (Austria)**



**4 – Canada (French)**



**10 – Greece (Greek)**



**5 - Czechoslovakia (Czech)**



**11 – Hungary (Hungarian)**



**6 - Danmark**



**12 – Israel (Hebrew)**



@SETUPN0  
**Exit Setup**



@SETUPN1

**\*\* Enter Setup**

---



@KBWCTY12

**13 - Italy**



@KBWCTY19

**19 - Russia**



@KBWCTY14

**14 – Netherlands (Dutch)**



@KBWCTY22

**20 – Spain (Spanish\_International Sort)**



@KBWCTY15

**15 – Norwegian (Norway)**



@KBWCTY23

**21 – Swedish (Sweden)**



@KBWCTY16

**16 – Polish (Poland)**



@KBWCTY24

**22 – German (Switzerland)**



@KBWCTY17

**17 – Portuguese (Portugal)**



@KBWCTY25

**23 - Turkey\_F**



@KBWCTY18

**18 - Romania**



@KBWCTY26

**24 – Turkey\_Q**



@KBWCTY27

**25 - UK**



@KBWCTY28

**26 - Japan**

---



@SETUPN0

**Exit Setup**





## Inter-Keystroke Delay

This parameter specifies the delay between emulated keystrokes. It is programmable in 5ms increments from 0ms to 75ms.



**Custom Delay**



**\*\* No Delay**



**Short Delay (20ms)**



**Long Delay (40ms)**

### Example: Set the inter-keystroke delay to 5ms

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom Delay** barcode.
3. Scan the numeric barcode “5” 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.

## Convert Case

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



**\*\* No Case Conversion**



**Convert All to Lower Case**



**Convert All to Upper Case**





**\*\* Enter Setup**

## Emulate ALT+Keypad

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

The following options are available:

**Disable:** No ASCII character is sent in the ALT+Keypad way.

**Mode 1:** ASCII characters not supported by the selected keyboard type but falling into 0x20~0xFF are sent in the ALT+Keypad way.

**Mode 2:** ASCII characters falling into 0x20~0xFF are sent in the ALT+Keypad way.

**Mode 3:** All ASCII characters (0x00~0xFF) are sent in the ALT+Keypad way.

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



**\*\* Disable**



**Mode 1**



**Mode 2**



**Mode 3**

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

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

"A" -- Keystroke "A"

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

"F" -- Keystroke "F"

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

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

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

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



**Exit Setup**



## Function Key Mapping

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




**Enable Function Key Mapping**



**\*\* Disable Function Key Mapping**

**Example:** Barcode data 0x16

|  |                              |        |
|--|------------------------------|--------|
| <br>T | Enable Function Key Mapping  | Ctrl+V |
|  | Disable Function Key Mapping | F1     |

## Emulate Numeric Keypad

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

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



**\*\* Do Not Emulate Numeric Keypad**



**Emulate Numeric Keypad**





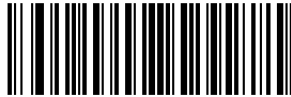
@SETUPN1

**\*\* Enter Setup**

---

## Polling Rate

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



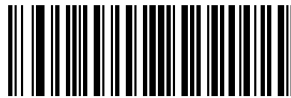
@KBWPOR0

**\*\* 1ms**



@KBWPOR1

**2ms**



@KBWPOR2

**3ms**



@KBWPOR3

**4ms**



@KBWPOR4

**5ms**



@KBWPOR5

**6ms**



@KBWPOR6

**7ms**



@KBWPOR7

**8ms**



@KBWPOR8

**9ms**



@KBWPOR9

**10ms**



@SETUPN0

**Exit Setup**



@SETUPN1  
\*\* Enter Setup

---

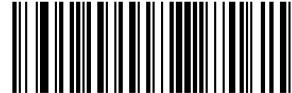
## Code Page

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



@KBWCPG0

\*\* Code Page 1252 (Latin I)



@KBWCPG1

Code Page 1251 (Cyrillic)



@SETUPN0  
Exit Setup



@SETUPN1  
**\*\* Enter Setup**

---

## **USB COM Port Emulation**

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



@INTERF2  
**USB COM Port Emulation**



@SETUPN0  
**Exit Setup**



## USB HID-POS

### Introduction

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

Features:

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

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



### USB HID-POS

### Acquire Scanned Data

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

| Byte  | Bit                   |   |   |   |   |   |   |                        |
|-------|-----------------------|---|---|---|---|---|---|------------------------|
|       | 7                     | 6 | 5 | 4 | 3 | 2 | 1 | 0                      |
| 0     | Report ID = 0x02      |   |   |   |   |   |   |                        |
| 1     | Length of the barcode |   |   |   |   |   |   |                        |
| 2-57  | Decoded data (1-56)   |   |   |   |   |   |   |                        |
| 58-61 | Reserved (1-4)        |   |   |   |   |   |   |                        |
| 62    | 0x00                  |   |   |   |   |   |   |                        |
| 63    | -                     | - | - | - | - | - | - | Decoded Data Continued |





**\*\* Enter Setup**

## IBM SurePOS



**IBM SurePOS (Tabletop)**



**IBM SurePOS (Handheld)**

## VID/PID

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

| Product   | Interface              | PID (Hex) | PID (Dec) |
|-----------|------------------------|-----------|-----------|
| HR11 Plus | USB HID-KBW            | 0C03      | 3075      |
|           | USB COM Port Emulation | 0C06      | 3078      |
|           | USB HID-POS            | 0C10      | 3088      |
|           | IBM SurePOS (Tabletop) | 0C20      | 3104      |
|           | IBM SurePOS (Handheld) | 0C21      | 3105      |



**Exit Setup**





## Chapter 5 Prefix & Suffix

### Introduction

In real applications, barcode data may be found insufficient for your needs. You may wish to include additional information such as barcode type, data acquisition time or delimiter in data being scanned.

Adding extra information to printed barcodes does not seem like a sensible solution since that will increase the barcode size and make them inflexible. Instead, we come up with the idea of appending prefix and suffix to the data without making any change to barcodes. We will show you how to conduct the configuration in this chapter.

**Note:** Customized data: <Prefix> <Data><Suffix><Terminating Character>

### Prefix Sequence



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



**Custom+Code ID+AIM ID**

### Custom Prefix

#### Enable/Disable Custom Prefix

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

For example, if barcode data is “123” and custom prefix is “AB”, the host device will receive “AB123”.



**\*\* Disable Custom Prefix**



**Enable Custom Prefix**





**\*\* Enter Setup**

## Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode and the numeric barcodes representing the hexadecimal value(s) of a desired prefix and then scan the **Save** barcode. Refer to the “ASCII Table” in Appendix for hexadecimal values of characters.

**Note:** A custom prefix cannot exceed 11 characters.



**Set Custom Prefix**

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

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

## AIM ID Prefix

AIM (Automatic Identification Manufacturers) IDs and ISO/IEC 15424 standards define symbology identifiers and data carrier identifiers. (For the details, see the “AIM ID Table” 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**



**Exit 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 characters (0x01~0xFF).



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



**Enable Code ID Prefix**

## Restore All Default Code IDs

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



**Restore All Default Code IDs**

## Modify Code ID

To change the Code ID of a symbology, scan the appropriate **Modify Code ID** barcode below and the numeric barcodes representing the hexadecimal value of a desired Code ID and then scan the **Save** barcode.





@SETUPN1

**\*\* Enter Setup**

---



@CID002

**Modify Code 128 Code ID**



@CID003

**Modify UCC/EAN-128 Code ID**



@CID020

**Modify AIM 128 Code ID**



@CID004

**Modify EAN-8 Code ID**



@CID005

**Modify EAN-13 Code ID**



@CID023

**Modify ISSN Code ID**



@CID024

**Modify ISBN Code ID**



@CID006

**Modify UPC-E Code ID**



@CID007

**Modify UPC-A Code ID**



@CID008

**Modify Interleaved 2 of 5 Code ID**

---



@SETUPN0

**Exit Setup**



@SETUPN1  
\*\* Enter Setup



@CID010

**Modify ITF-6 Code ID**



@CID009

**Modify ITF-14 Code ID**



@CID128

**Modify Deutsche 14 Code ID**



@CID129

**Modify Deutsche 12 Code ID**



@CID022

**Modify COOP 25 Code ID**



@CID011

**Modify Matrix 2 of 5 Code ID**



@CID025

**Modify Industrial 25 Code ID**



@CID026

**Modify Standard 25 Code ID**



@CID013

**Modify Code 39 Code ID**



@CID015

**Modify Codabar Code ID**



@SETUPN0  
Exit Setup



@SETUPN1

**\*\* Enter Setup**

---



@CID017

**Modify Code 93 Code ID**



@CID028

**Modify Code 11 Code ID**



@CID027

**Modify Plessey Code ID**



@CID029

**Modify MSI-Plessey Code ID**



@CID031

**Modify GS1 Databar Code ID**

**Example: Set PDF417 Code ID to “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.

**Example: 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.



@SETUPN0

**Exit Setup**



---

## Custom Suffix

### Enable/Disable Custom Suffix

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

For example, if barcode data is “123” and custom suffix is “AB”, the host device will receive “123AB”.



**\*\* Disable Custom Suffix**



**Enable Custom Suffix**

### Set Custom Suffix

To set a custom suffix, scan the **Set Custom Suffix** barcode and the numeric barcodes representing the hexadecimal value(s) of a desired prefix and then scan the **Save** barcode. Refer to the “ASCII Table” in Appendix for hexadecimal values of characters.

**Note:** A custom prefix cannot exceed 11 characters.



**Set Custom Suffix**

#### **Example: Set the custom suffix to “AGE” (HEX: 0x41/0x47/0x45)**

1. Scan the **Enter Setup** barcode.
  2. Scan the **Set Custom Suffix** barcode.
  3. Scan the numeric barcodes “4”, “1”, “4”, “7”, “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.
- 





**\*\* Enter Setup**

## Terminating Character Suffix

### Enable/Disable Terminating Character Suffix

A terminating character can be used to mark the end of data.

A terminating character suffix can contain 1 or 2 characters.



**Disable Terminating Character Suffix**



**\*\* Enable Terminating Character Suffix**

### Set Terminating Character Suffix

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



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



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

To set a terminating character suffix, scan the **Set Terminating Character Suffix** barcode and the numeric barcodes representing the hexadecimal value(s) of a desired terminating character and then scan the **Save** barcode. Refer to the “ASCII Table” in Appendix for hexadecimal values of terminating characters.



**Set Terminating Character Suffix**

#### Example: Set the terminating character to LF (HEX: 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 **Exit Setup** barcode.



**Exit Setup**





## Chapter 6 Symbologies

### Introduction

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

### Global Settings

#### Enable/Disable All Symbologies

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



**Enable All Symbologies**



**Disable All Symbologies**

#### Video Reverse

Regular barcode: Dark image on a bright background.

Inverse barcode: Bright image on a dark background.

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 ON**



**\*\* Video Reverse OFF**



**Exit Setup**



@SETUPN1  
**\*\* 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**



@SETUPN0  
**Exit 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.

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 Minimum Length**



**Set the Maximum Length**

**Example: Set the scanner to decode Code128 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**



@SETUPN1  
**\*\* Enter Setup**

---

## UCC/EAN-128

### Restore Factory Defaults



@GS1DEF  
**Restore the Factory Defaults of UCC/EAN-128**

### Enable/Disable UCC/EAN-128



@GS1ENA1  
**\*\* Enable UCC/EAN-128**



@GS1ENA0  
**Disable UCC/EAN-128**



@SETUPN0  
**Exit Setup**



---

## Set Length Range for UCC/EAN-128

The scanner can be configured to only decode UCC/EAN-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.

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



**Set the Minimum Length**



**Set the Maximum Length**

**Example: Set the scanner to decode UCC/EAN-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**



**@SETUPN1**  
**\*\* Enter Setup**

---

## **AIM 128**

### **Restore Factory Defaults**



**@AIMDEF**  
**Restore the Factory Defaults of AIM 128**

### **Enable/Disable AIM 128**



**@AIMENA1**  
**Enable AIM 128**



**@AIMENA0**  
**\*\* Disable AIM128**



**@SETUPN0**  
**Exit Setup**



---

## Set Length Range for AIM 128

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

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 Minimum Length



Set the Maximum Length

### Example: 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.



Exit Setup



**@SETUPN1**  
**\*\* Enter Setup**

---

## **EAN-8**

### **Restore Factory Defaults**



**@EA8DEF**  
**Restore the Factory Defaults of EAN-8**

### **Enable/Disable EAN-8**



**@EA8ENA1**  
**\*\* Enable EAN-8**



**@EA8ENA0**  
**Disable EAN-8**

### **Transmit Check Character**

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



**@EA8CHK2**  
**\*\* Transmit EAN-8 Check Character**



**@EA8CHK1**  
**Do Not Transmit EAN-8 Check Character**



**@SETUPN0**  
**Exit Setup**





---

## Add-On Code

An EAN-8 barcode can be augmented with a two-digit or five-digit add-on code to form a new one.

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

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



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



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



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



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



**Exit Setup**



**\*\* Enter Setup**

## Add-On Code Required

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



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



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

## Convert EAN-8 to EAN-13

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

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



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



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



**Exit Setup**



**\*\* Enter Setup**

## EAN-13

### Restore Factory Defaults



@E13DEF

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

### Enable/Disable EAN-13



@E13ENA1

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



@E13ENA0

**Disable EAN-13**

### Transmit Check Character

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



@E13CHK2

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



@E13CHK1

**Do Not Transmit EAN-13 Check Character**



@SETUPN0

**Exit Setup**



**\*\* Enter Setup**

## Add-On Code

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

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

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



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



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



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



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

## 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 Required**



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



**Exit 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**



**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**



## EAN-13 Beginning with 977 Add-On Code Required

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

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

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



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



**Require Add-On Code**

## EAN-13 Beginning with 978 Add-On Code Required

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

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

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



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



**Require Add-On Code**



**Exit Setup**



**\*\* 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**





@SETUPN1

**\*\* Enter Setup**

## ISSN

### Restore Factory Defaults



@ISSDEF

**Restore the Factory Defaults of ISSN**

### Enable/Disable ISSN



@ISSENA1

**Enable ISSN**



@ISSENA0

**\*\* Disable ISSN**



@SETUPN0

**Exit Setup**



**@SETUPN1**  
**\*\* Enter Setup**

---

## ISBN

### Restore Factory Defaults



**@ISBDEF**  
**Restore the Factory Defaults of ISBN**

### Enable/Disable ISBN



**@ISBENA1**  
**Enable ISBN**



**@ISBENA0**  
**\*\* Disable ISBN**

### Set ISBN Format



**@ISBT100**  
**\*\* ISBN-13**



**@ISBT101**  
**ISBN-10**



**@SETUPN0**  
**Exit Setup**



@SETUPN1

**\*\* Enter Setup**

## UPC-E

### Restore Factory Defaults



@UPEDEF

**Restore the Factory Defaults of UPC-E**

### Enable/Disable UPC-E0

This setting enables or disables the scanner to read UPC-E barcodes that lead with the 0 number system.



@UPEENA1

**\*\* Enable UPC-E0**



@UPEENA0

**Disable UPC-E0**

### Enable/Disable UPC-E1

This setting enables or disables the scanner to read UPC-E barcodes that lead with the 0 number system.



@UPEEN1

**Enable UPC-E1**



@UPEEN0

**\*\* Disable UPC-E1**



@SETUPN0

**Exit Setup**



**\*\* Enter Setup**

## Transmit Check Character

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



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



**Do Not Transmit UPC-E Check Character**

## Add-On Code

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

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

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



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



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



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



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



**Exit Setup**



---

## Add-On Code Required

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



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



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

## Transmit Preamble Character

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



**\*\* No Preamble**



**System Character**



**System Character & Country Code**



**Exit Setup**



@SETUPN1  
**\*\* Enter Setup**

---

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

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

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



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



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



@SETUPN0  
**Exit Setup**



**\*\* Enter Setup**

## UPC-A

### Restore Factory Defaults



**Restore the Factory Defaults of UPC-A**

### Enable/Disable UPC-A



**\*\* Enable UPC-A**



**Disable UPC-A**

### 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.



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



**Do Not Transmit UPC-A Check Character**



**Exit Setup**



**\*\* Enter Setup**

## Add-On Code

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

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

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



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



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



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



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

## 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.



**UPC-A Add-On Code Required**



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



**Exit 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).



**No Preamble**



**\*\* System Character**



**System Character & Country Code**



**Exit Setup**



**@SETUPN1**  
**\*\* Enter Setup**

---

## Interleaved 2 of 5

### Restore Factory Defaults



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

### Enable/Disable Interleaved 2 of 5



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



**@I25ENA0**  
**Disable Interleaved 2 of 5**



**@SETUPN0**  
**Exit 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.



Disable



\*\* Do Not Transmit Check Character After Verification



Transmit Check Character After Verification

**Note:** 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 6, Interleaved 2 of 5 barcodes with a total length of 6 characters including the check character cannot be read.)



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.

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 Minimum Length**



**Set the Maximum Length**

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

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



**Exit Setup**



@SETUPN1  
\*\* Enter Setup

## Febraban

### Enable/Disable Febraban



Disable Febraban



Enable Febraban, Do Not Expand



\*\* Enable Febraban, Expand

### Transmit Delay

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



\*\* Disable Transmit Delay per Character



Enable Transmit Delay per Character



\*\* Disable Transmit Delay per 12 Characters



Enable Transmit Delay per 12 Characters



Exit Setup



**\*\* Enter Setup**

---

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

**Custom Transmit Delay per 12 Characters:** To set this parameter, scan the **Custom Transmit Delay per 12 Characters** barcode and a numeric barcode (0-7, which represent 0ms, 300ms, 400ms, 500ms, 600ms, 700ms, 800ms and 900ms, respectively). The default value is 500ms.



**Custom Transmit Delay per Character**



**Custom Transmit Delay per 12 Characters**

**Example: Set the transmit delay per character to 5ms**

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom Transmit Delay per Character** barcode.
3. Scan the numeric barcode “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 Transmit Delay per Character** barcode.
6. Scan the **Exit Setup** barcode.

**Example: Set the transmit delay per 12 characters to 600ms**

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom Transmit Delay per 12 Characters** barcode.
3. Scan the numeric barcodes “4” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Enable Transmit Delay per 12 Characters** barcode.
6. Scan the **Exit Setup** barcode.



**Exit Setup**



@SETUPN1  
\*\* Enter Setup

## ITF-6

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

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.



@IT6DEF

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



@IT6ENA0

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



@IT6ENA1

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



@IT6ENA2

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

**Note:** 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.



@SETUPN0

**Exit Setup**



**\*\* 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 the Factory Defaults of ITF-14**



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



**\*\* Disable ITF-14**



**Enable ITF-14 and Transmit Check Character**

**Note:** 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.

In the events that the ITF-14 configuration clashes with the Deutsche14 settings, the former shall prevail.



**Exit Setup**





@SETUPN1  
\*\* Enter Setup

---

## Deutsche 14

### Restore Factory Defaults



@D14DEF

Restore the Factory Defaults of Deutsche 14

### Enable/Disable Deutsche 14



@D14ENA1

Enable Deutsche 14 But Do Not Transmit Check Character



@D14ENA0

\*\* Disable Deutsche 14



@D14ENA2

Enable Deutsche 14 and Transmit Check Character

**Note:** It is advised not to enable Deutsche 14 unless necessary, because Deutsche 14, ITF-14 and Interleaved 2 of 5 use the same encoding method and enabling them at the same time can easily cause confusion with each other when decoding.



@SETUPN0

Exit Setup



**@SETUPN1**  
**\*\* Enter Setup**

---

## Deutsche 12

### Restore Factory Defaults



**@D12DEF**  
**Restore the Factory Defaults of Deutsche 12**

### Enable/Disable Deutsche 12



**@D12ENA1**  
**Enable Deutsche 12 But Do Not Transmit Check Character**



**@D12ENA0**  
**\*\* Disable Deutsche 12**



**@D12ENA2**  
**Enable Deutsche 14 and Transmit Check Character**

**Note:** It is advised not to enable Deutsche 12 unless necessary, because Deutsche 12, ITF-12 and Interleaved 2 of 5 use the same encoding method and enabling them at the same time can easily cause confusion with each other when decoding.



**@SETUPN0**  
**Exit Setup**



---

## COOP 25 (Japanese Matrix 2 of 5)

### Restore Factory Defaults



Restore the Factory Defaults of COOP 25

### Enable/Disable COOP 25



Enable COOP 25



**\*\* Disable COOP 25**

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





**\*\* Enter Setup**

---

## Check Character Verification

A check character is optional for COOP 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 COOP 25 barcodes as is.

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



**\*\* Disable**



**Transmit Check Character After Verification**



**Do Not Transmit Check Character After Verification**

**Note:** If the **Do Not Transmit Check Character After Verification** option is enabled, COOP 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, COOP 25 barcodes with a total length of 4 characters including the check character cannot be read.)



**Exit Setup**



---

## Set Length Range for COOP 25

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

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



**Set the Minimum Length**



**Set the Maximum Length**

### Example: Set the scanner to decode COOP 25 barcodes containing between 8 and 12 characters

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





**\*\* Enter Setup**

---

## Matrix 2 of 5 (European Matrix 2 of 5)

### Restore Factory Defaults



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

### Enable/Disable Matrix 2 of 5



**\*\* Enable Matrix 2 of 5**



**Disable Matrix 2 of 5**

**Note:** 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.



**Exit Setup**



## Check Character Verification

A check character is optional for COOP 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 COOP 25 barcodes as is.

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



**\*\* Disable**



**Transmit Check Character After Verification**



**Do Not Transmit Check Character After Verification**

**Note:** If the **Do Not Transmit Check Character After Verification** option is enabled, COOP 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, COOP 25 barcodes with a total length of 4 characters including the check character cannot be read.)



**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.

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 Minimum Length**



**Set the Maximum Length**

### Example: 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**





---

## Industrial 25

### Restore Factory Defaults



Restore the Factory Defaults of Industrial 25

### Enable/Disable Industrial 25



**\*\* Enable Industrial 25**



**Disable Industrial 25**

**Note:** 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.





**\*\* 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.



**\*\* Disable**



**Transmit Check Character After Verification**



**Do Not Transmit Check Character After Verification**

**Note:** 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.)



**Exit 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.

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



**Set the Minimum Length**



**Set the Maximum Length**

**Example: 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**



**\*\* Enter Setup**

---

## Standard 25

### Restore Factory Defaults



**Restore the Factory Defaults of Standard 25**

### Enable/Disable Standard 25



**\*\* Enable Standard 25**



**Disable Standard 25**

**Note:** 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.



**Exit Setup**

## Check Character Verification

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

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

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

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



**\*\* Disable**



**Transmit Check Character After Verification**



**Do Not Transmit Check Character After Verification**

**Note:** 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.)



**\*\* 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.

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 Minimum Length**



**Set the Maximum Length**

**Example: 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.



**Exit Setup**



## Code 39

### Restore Factory Defaults



Restore the Factory Defaults of Code 39

### Enable/Disable Code 39



**\*\* Enable Code 39**



**Disable Code 39**

**Note:** 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.





**\*\* Enter Setup**

---

## Check Character Verification

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

**Disable:** The scanner transmits Code 39 barcodes as is.

**Do Not Transmit Check Character After Verification:** The scanner checks the integrity of all Code 39 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted except the last digit, whereas those failing it will not be transmitted.

**Transmit Check Character After Verification:** The scanner checks the integrity of all Code 39 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.



**\*\* Disable**



**Transmit Check Character After Verification**



**Do Not Transmit Check Character After Verification**

**Note:** 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**





@SETUPN1

**\*\* 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.



@C39TSC1

**Transmit Start/Stop Character**



@C39TSC0

**\*\* Do not 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**



@SETUPN0

**Exit Setup**



**\*\* 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.

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 Minimum Length**



**Set the Maximum Length**

**Example: 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.



**Exit Setup**



@SETUPN1  
**\*\* 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.



**\*\* Disable Code 32**



**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.



**\*\* Disable Code 32 Prefix**



**Enable Code 32 Prefix**



@SETUPN0  
**Exit Setup**



**\*\* Enter Setup**

---

## Transmit Code 32 Start/Stop Character

Code 32 must be enabled for this parameter to function.



@C39T321

**Transmit Code 32 Start/Stop Character**



@C39T320

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

## Transmit Code 32 Check Character

Code 32 must be enabled for this parameter to function.



@C39C321

**Transmit Code 32 Check Character**



@C39C320

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



**Exit Setup**



**\*\* Enter Setup**

## Codabar

### Restore Factory Defaults



**Restore the Factory Defaults of Codabar**

### Enable/Disable Codabar



**\*\* Enable Codabar**



**Disable Codabar**

**Note:** 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.



**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.



**\*\* Disable**



**Transmit Check Character After Verification**



**Do Not Transmit Check Character After Verification**

**Note:** 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**



@SETUPN1

**\*\* Enter Setup**

---

## Start/Stop Character



@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**



@SETUPN0

**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.

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 Minimum Length**



**Set the Maximum Length**

### Example: 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**





---

## Code 93

### Restore Factory Defaults



Restore the Factory Defaults of Code 93

### Enable/Disable Code 93



**\*\* Enable Code 93**



**Disable Code 93**

**Note:** 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.





**\*\* 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. By default, the scanner does not transmit check characters after verification.

**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.



**Disable**



**Transmit Check Character After Verification**



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

**Note:** 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 Characters 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**



---

## 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.

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



**Set the Minimum Length**



**Set the Maximum Length**

### Example: 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.





**\*\* 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**

**Note:** 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.



@SETUPN0  
**Exit 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.



**Disable**



**\*\* One Check Character, MOD11**



**Two Check Characters, MOD11/MOD11**



**Two Check Characters, MOD11/MOD9**



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



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



**\*\* Do Not Transmit Check Character**



**Transmit Check Character**

**Note:** 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.)



**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.

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 Minimum Length**



**Set the Maximum Length**

### Example: 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**



## Plessey

### Restore Factory Defaults



**Restore the Factory Defaults of Plessey**

### Enable/Disable Plessey



**Enable Plessey**



**\*\* Disable Plessey**

**Note:** 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.



**Exit Setup**



**\*\* 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.



**Disable**



**Transmit Check Character After Verification**



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

**Note:** 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.)



**Exit 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.

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 Minimum Length**



**Set the Maximum Length**

### Example: 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**



**\*\* Enter Setup**

---

## MSI-Plessey

### Restore Factory Defaults



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

### Enable/Disable MSI-Plessey



**Enable MSI-Plessey**



**\*\* Disable MSI-Plessey**

**Note:** 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.



**Exit 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.



**Disable**



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



**Two Check Characters, MOD10/MOD10**



**Two Check Characters, MOD10/MOD11**



**\*\* Do Not Transmit Check Character**



**Transmit Check Character**

**Note:** 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.)



**Exit Setup**



**\*\* 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.

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 Minimum Length**



**Set the Maximum Length**

**Example: 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.



**Exit Setup**



@SETUPN1

**\*\* Enter Setup**

---

## GS1 Databar

### Restore Factory Defaults



@RSSDEF

**Restore the Factory Defaults of GS1 Databar**

### Enable/Disable GS1 Databar



@RSSENA1

**\*\* Enable GS1 Databar**



@RSSENA0

**Disable GS1 Databar**

**Note:** 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.



@SETUPN0

**Exit Setup**



**\*\* Enter Setup**

## Chapter 7 Data Formatter

### Introduction

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

Normally, when you scan a barcode, it gets outputted automatically; however, when you create a format, you must use a "send" command (see the "Send Commands" section in this chapter) within the format programming to output data. The maximum size of formatter commands in a data format is 116 characters.

### 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.

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



**Add Data Format**



**Exit Setup**



**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 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 “Data Formatter Commands” 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 “F”, “1”, “4” and “1”. A command can contain up to 116 characters.

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

**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                          |





**\*\* 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:** “DFMSET” (HEX: **44 46 4D 53 45 54**), 6 character.

**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, max. 116 characters. 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 53 45 54 30 36 39 39 39 30 30 33 39 39 39 39 46 31 34 31 3B 03**  
 (~<SOH>0000@DFMSET069990020010F141;<ETX>)

Response: **02 01 30 30 30 30 40 44 46 4D 53 45 54 30 36 39 39 39 30 30 33 39 39 39 39 46 31 34 31 06 3B 03**  
 (<STX><SOH>0000@DFMSET069990020010F141<ACK>;<ETX>)



**Exit 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**



@SETUPN1

**\*\* Enter Setup**

---



@DFMENA1

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



@DFMENA2

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



@DFMENA3

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



@DFMENA4

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

## **Non-Match Error Beep**

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



@DFMTON0

**Non-Match Error Beep OFF**



@DFMTON1

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



@SETUPN0

**Exit Setup**



---

## Multiple Data Formats

After the Data Formatter is enabled, you can set the scanner to use one or multiple data formats by scanning the appropriate barcode below.

**Multiple Data Formats Off:** Only one data format (default: Format\_0) is put into use. To learn how to switch to another data format, see the “Data Format Selection” section below.

**Multiple Data Formats On:** The scanner toggles from Format\_0 through Format\_3 until scanned data matches the requirements of one data format. If no match is found, the scanner generates an error beep (if Non-Match Error Beep is turned ON) and the data is not transmitted.



**\*\* Multiple Formats Off**



**Multiple Formats On**

## Data Format Selection

You can select a data format you want to use by scanning the appropriate barcode below. Note that this setting is valid only when the **Multiple Data Formats** feature is turned off.



**\*\* Format\_0**



**Format\_1**



**Format\_2**



**Format\_3**



**Exit Setup**



@SETUPN1  
**\*\* 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. This setting is valid only when the **Multiple Data Formats** feature is turned off.

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.



**Single Scan – Format\_0**



**Single Scan – Format\_1**



**Single Scan – Format\_2**



**Single Scan – Format\_3**



@SETUPN0  
**Exit Setup**



---

## Clear Data Format

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

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

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



**Clear All**



**Clear One**

## Query Data Formats

You may scan the following barcode to get the information of data format(s) you have created. For instance, if you have added Format\_0 as per the example in the “Programming with Barcodes” section in this chapter, then the query result will be **Data Format 0:069990020010F141;**.



**Query Data Formats**



**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**



### **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**



**\*\* Enter Setup**

---

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



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

Command string: **E908F40902**

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

08 is the number of characters at the end to ignore

F4 is the “Insert a character multiple times” command

09 is the hex value for a horizontal tab

02 is the number of times the tab character is sent

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

### **B3 Insert symbology name**

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

### **B4 Insert barcode length**

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



**Exit Setup**





---

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



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

Command string: **B3F42001B4F42001F10D**

B3 is the "Insert symbology name" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of time the space character is sent

B4 is the "Insert barcode length" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of time the space character is sent

F1 is the "Send all characters" command

0D is the hex value for a CR

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





**\*\* 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-KBW.

| 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**

---

## 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.

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



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

Command string: **F503F10D**

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

03 is the number of characters to move the cursor

F1 is the “Send all characters” command

0D is the hex value for a CR

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

**<CR>**

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

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

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

### F7 Move the cursor to the beginning

Syntax=F7

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



**\*\* Enter Setup**

## **EA Move the cursor to the end**

Syntax=EA

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

## **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**



## 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.”



@SETUPN0

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**

---

## 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>**



**\*\* Enter Setup**

## 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.

### 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**





## 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





**\*\* 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**



## **EF Insert a delay**

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

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

### **EF Example: Insert a delay of 1s 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



## Appendix

### Factory Defaults Table

| Parameter                |   | Factory Default   | Remark                        |
|--------------------------|---|-------------------|-------------------------------|
| <b>General Settings</b>  |   |                   |                               |
| Barcode Programming      |   | Enabled           |                               |
| Programming Barcode Data |   | Do not send       |                               |
| Default Scan Mode        |   | Manual Mode       |                               |
| Manual Mode              | Decode Session Timeout                    | 15,000ms          | 1,000~15,000ms<br>0: Infinite |
|                          | Auto Sleep                                | Enabled           |                               |
|                          | Time Period from Idle to Sleep            | 500ms             | 0~6,000ms                     |
| Batch Mode               | Decode Session Timeout                    | 15,000ms          | 1,000~15,000ms<br>0: Infinite |
| Auto Mode                | Decode Session Timeout                    | 15,000ms          | 1,000~15,000ms<br>0: Infinite |
|                          | Timeout between Decodes<br>(Same Barcode) | Disabled<br>400ms | 0~12,000ms<br>12700: Infinite |
| Blink Mode               | Timeout between Decodes                   | 0ms               | 0~7,500ms                     |
| Sense Mode               | Decode Session Timeout                    | 15,000ms          | 1,000~15,000ms<br>0: Infinite |
|                          | Timeout between Decodes                   | 0ms               | 0~7,500ms                     |
|                          | Timeout between Decodes<br>(Same Barcode) | 400ms             | 0~12,000ms<br>12700: Infinite |
|                          | Sensibility                               | High              | Level 0~15                    |
| Continous Mode           | Timeout between Decodes                   | 0ms               | 0~7,500ms                     |
|                          | Timeout between Decodes<br>(Same Barcode) | Disabled<br>400ms | 0~12,000ms<br>12700: Infinite |
| Command Trigger Mode     | Decode Session Timeout                    | 15,000ms          | 1,000~15,000ms<br>0: Infinite |

| Parameter                     |                       | Factory Default                   | Remark                  |
|-------------------------------|-----------------------|-----------------------------------|-------------------------|
| Bad Read Message              |                       | Off<br>None                       | Max. 2 chars            |
| Security                      |                       | Level 4                           |                         |
| Power On Beep                 |                       | On                                |                         |
| Good Read Beep                |                       | On                                |                         |
| Good Read Beep Frequency      |                       | Medium                            |                         |
| Good Read Beep Volume         |                       | Loud                              |                         |
| Good Read Beep Duration       |                       | Long (120ms)                      | 0~25,500ms              |
| Good Read LED                 |                       | On                                |                         |
| Good Read LED Duration        |                       | Short (100ms)                     | 0~25,500ms              |
| Good Read Indicator Timing    |                       | Indicate before Data Transmission |                         |
| ACK/NAK                       |                       | Disabled                          |                         |
| ACK/NAK Error Handling        |                       | Ignore Errors Detected            |                         |
| ACK Character                 |                       | <ACK> (0x06)                      |                         |
| NAK Character                 |                       | <NAK> (0x15)                      |                         |
| ACK/NAK Transmit Error Beep   |                       | Off                               |                         |
| ACK/NAK Retry Count           |                       | 3                                 | 0~254<br>255: Unlimited |
| ACK/NAK Timeout               |                       | 200ms                             | 0~15,000ms              |
| Enable Character              |                       | E (0x45)                          |                         |
| Disable Character             |                       | D (0x44)                          |                         |
| <b>Communication Settings</b> |                       |                                   |                         |
| Default Interface             |                       | USB HID-KBW                       |                         |
| RS-232                        | Baud Rate             | 9600 bps                          |                         |
|                               | Parity Check          | None                              |                         |
|                               | Stop Bit              | 1                                 |                         |
|                               | Data Bit              | 8                                 |                         |
|                               | Flow Control          | No Flow Control                   |                         |
| USB                           | USB Suspend           | Disabled                          |                         |
|                               | Keyboard Layout       | 1 – US (English)                  | USB HID-KBW             |
|                               | Inter-Keystroke Delay | 0ms                               | USB HID-KBW<br>0~75ms   |
|                               | Convert Case          | No Case Conversion                | USB HID-KBW             |
|                               | Emulate ALT+Keypad    | Disabled                          | USB HID-KBW             |

| Parameter                    |                        | Factory Default          | Remark                         |
|------------------------------|------------------------|--------------------------|--------------------------------|
|                              | Function Key Mapping   | Disabled                 | USB HID-KBW                    |
|                              | Emulate Numeric Keypad | Disabled                 | USB HID-KBW                    |
|                              | Polling Rate           | 1ms                      | USB HID-KBW                    |
|                              | Code Page              | Code Page 1252 (Latin I) | USB HID-KBW                    |
| <b>Prefix &amp; Suffix</b>   |                        |                          |                                |
| Prefix Sequence              |                        | Code ID+Custom+AIM ID    |                                |
| AIM ID Prefix                |                        | Disabled                 |                                |
| Code ID Prefix               |                        | Disabled                 | Max. 2 chars<br>(0x01-0xFF)    |
| Custom Prefix                |                        | Disabled                 | Max. 11 chars                  |
| Custom Suffix                |                        | Disabled                 | Max. 11 chars                  |
| Terminating Character Suffix |                        | Enabled<br>CR (0x0D)     | Max. 2 chars                   |
| <b>Symbologies</b>           |                        |                          |                                |
| Video Reverse                |                        | Off                      | Applicable to all symbologies. |
| <b>Code 128</b>              |                        |                          |                                |
| Code 128                     |                        | Enabled                  |                                |
| Maximum Length               |                        | 255                      |                                |
| Minimum Length               |                        | 1                        |                                |
| <b>UCC/EAN-128</b>           |                        |                          |                                |
| UCC/EAN-12                   |                        | Enabled                  |                                |
| Maximum Length               |                        | 255                      |                                |
| Minimum Length               |                        | 1                        |                                |
| <b>AIM 128</b>               |                        |                          |                                |
| AIM 128                      |                        | Disabled                 |                                |
| Maximum Length               |                        | 255                      |                                |
| Minimum Length               |                        | 1                        |                                |
| <b>EAN-8</b>                 |                        |                          |                                |
| EAN-8                        |                        | Enabled                  |                                |
| Check Character              |                        | Transmit                 |                                |
| 2-Digit Add-On Code          |                        | Disabled                 |                                |

| Parameter  | Factory Default            | Remark |
|--|----------------------------|--------|
| 5-Digit Add-On Code                                | Disabled                   |        |
| Add-On Code  | Not required               |        |
| Convert EAN-8 to EAN-13                            | Disabled                   |        |
| <b><i>EAN-13</i></b>                               |                            |        |
| EAN-13   | Enabled                    |        |
| Check Character                                    | Transmit                   |        |
| 2-Digit Add-On Code                                | Disabled                   |        |
| 5-Digit Add-On Code                                | Disabled                   |        |
| 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><i>ISSN</i></b>                                 |                            |        |
| ISSN   | Disabled                   |        |
| <b><i>ISBN</i></b>                                 |                            |        |
| ISBN   | Disabled                   |        |
| ISBN Format  | ISBN-13                    |        |
| <b><i>UPC-E</i></b>                                |                            |        |
| UPC-E0   | Enabled                    |        |
| UPC-E1   | Disabled                   |        |
| Check Character                                    | Transmit                   |        |
| 2-Digit Add-On Code                                | Disabled                   |        |
| 5-Digit Add-On Code                                | Disabled                   |        |
| Add-On Code  | Not required               |        |
| Convert UPC-E to UPC-A                             | Disabled                   |        |
| Transmit Preamble Character                        | No Preamble                |        |
| <b><i>UPC-A</i></b>                                |                            |        |
| UPC-A  | Enabled                    |        |
| Check Character                                    | Transmit                   |        |

| Parameter                              | Factory Default         | Remark         |
|--|-------------------------|----------------|
| 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                 |                |
| Check Character Verification           | Enabled                 |                |
| Check Character                        | Do not transmit         |                |
| Maximum Length                         | 255                     |                |
| Minimum Length                         | 6                       | No less than 5 |
| <b>Febraban</b>                        |                         |                |
| Febraban                               | Enable Febraban, Expand |                |
| Transmit Delay per Character           | Disabled, 70ms          |                |
| Transmit Delay per 12 Characters       | Disabled, 500ms         |                |
| <b>ITF-6</b>                           |                         |                |
| ITF-6                                  | Disabled                |                |
| Check Character                        | Do not transmit         |                |
| <b>ITF-14</b>                          |                         |                |
| ITF-14                                 | Disabled                |                |
| Check Character                        | Do not transmit         |                |
| <b>Deutsche 14</b>                     |                         |                |
| Deutsche 14                            | Disabled                |                |
| Check Character                        | Do not transmit         |                |
| <b>Deutsche 12</b>                     |                         |                |
| Deutsche 12                            | Disabled                |                |
| Check Character                        | Do not transmit         |                |
| <b>COOP 25(Japanese Matrix 2 of 5)</b> |                         |                |
| COOP 25                                | Disabled                |                |
| Check Character Verification           | Disabled                |                |
| Check Character                        | Do not transmit         |                |
| Maximum Length                         | 255                     |                |
|  |                         |                |



| Parameter                                    | Factory Default | Remark         |
|--|-----------------|----------------|
| Minimum Length                               | 6               | No less than 3 |
| <b>Matrix 2 of 5(European Matrix 2 of 5)</b> |                 |                |
| Matrix 2 of 5                                | Enabled         |                |
| Check Character Verification                 | Disabled        |                |
| Check Character                              | Do not transmit |                |
| Maximum Length                               | 255             |                |
| Minimum Length                               | 6               | No less than 3 |
| <b>Industrial 25</b>                         |                 |                |
| Industrial 25                                | On              |                |
| Check Character Verification                 | Disabled        |                |
| Check Character                              | Do not transmit |                |
| Maximum Length                               | 255             |                |
| Minimum Length                               | 6               | No less than 4 |
| <b>Standard 25</b>                           |                 |                |
| Standard 25                                  | Enabled         |                |
| Check Character Verification                 | Disabled        |                |
| Check Character                              | Do not transmit |                |
| Maximum Length                               | 255             |                |
| Minimum Length                               | 6               | No less than 4 |
| <b>Code 39</b>                               |                 |                |
| Code 39                                      | Enabled         |                |
| Check Character Verification                 | Disabled        |                |
| Check Character                              | Do not transmit |                |
| Code 39 Start/Stop Character                 | Do not transmit |                |
| Code 39 Full ASCII                           | Enabled         |                |
| Code 32                                      | Disabled        |                |
| Code 32 Prefix                               | Disabled        |                |
| Code 32 Start/Stop Character                 | Do not transmit |                |
| Code 32 Check Character                      | Do not transmit |                |

| Parameter                    | Factory Default          | Remark   |
|------------------------------|--------------------------|--|
| Maximum Length               | 255                      |  |
| Minimum Length               | 4                        | No less than 4<br>(including<br>start/stop<br>characters and<br>check character) |
| <b>Codabar</b>               |                          |  |
| Codabar                      | Enabled                  |  |
| Check Character Verification | Disabled                 |  |
| Check Character              | Do not transmit          |  |
| Start/Stop Character         | ABCD/ABCD<br>Transmit    |  |
| Maximum Length               | 255                      |  |
| Minimum Length               | 4                        | No less than 1   |
| <b>Code 93</b>               |                          |  |
| Code 93                      | Enabled                  |  |
| Check Character Verification | Enabled                  |  |
| Check Character              | Do not transmit          |  |
| Maximum Length               | 255                      |  |
| Minimum Length               | 2                        | No less than 1   |
| <b>Code 11</b>               |                          |  |
| Code 11                      | Disabled                 |  |
| Check Character              | Do not transmit          |  |
| Check Character Verification | 1 Check Character, MOD11 |  |
| Maximum Length               | 255                      |  |
| Minimum Length               | 4                        | No less than 3   |
| <b>Plessey</b>               |                          |  |
| Plessey                      | Disabled                 |  |
| Check Character Verification | Enabled                  |  |

| Parameter                    | Factory Default          | Remark         |
|------------------------------|--------------------------|----------------|
| Check Character              | Do not transmit          |                |
| Maximum Length               | 255                      |                |
| Minimum Length               | 4                        | No less than 4 |
| <b>MSI-Plessey</b>           |                          |                |
| MSI-Plessey                  | Disabled                 |                |
| Check Character              | Do not transmit          |                |
| Check Character Verification | 1 Check Character, MOD10 |                |
| Maximum Length               | 255                      |                |
| Minimum Length               | 4                        | No less than 3 |
| <b>GS1 Databar</b>           |                          |                |
| GS1 Databar                  | Enabled                  |                |
| <b>Data Formatter</b>        |                          |                |
| Data Formatter               | Disabled                 |                |
| Multiple Formats             | Off                      |                |
| Data Format Selection        | Format_0                 |                |
| Non-Match Error Beep         | On                       |                |

## AIM ID Table

| Symbology                              | AIM ID | Possible AIM ID Modifiers (m) |
|--|--------|-------------------------------|
| Code 128                               | JC0    |                               |
| UCC/EAN-128                            | JC1    |                               |
| AIM 128                                | JC2    |                               |
| EAN-8                                  | JE4    |                               |
| EAN-13                                 | JE0    |                               |
| EAN-13 with Add-On                     | JE3    |                               |
| ISSN                                   | JX0    |                               |
| ISBN                                   | JX0    |                               |
| UPC-E                                  | JE0    |                               |
| UPC-E with Add-On                      | JE3    |                               |
| UPC-A                                  | JE0    |                               |
| UPC-A with Add-On                      | JE3    |                               |
| Interleaved 2 of 5, Febraban           | JIm    | 0, 1, 3                       |
| ITF-6                                  | JIm    | 1, 3                          |
| ITF-14                                 | JIm    | 1, 3                          |
| Deutsche 14                            | JX0    |                               |
| Deutsche 12                            | JX0    |                               |
| COOP 25 (Japanese Matrix 2 of 5)       | JX0    |                               |
| Matrix 2 of 5 (European Matrix 2 of 5) | JX0    |                               |
| Industrial 25                          | JS0    |                               |
| Standard 25                            | JR0    |                               |
| Code 39, Code 32                       | JAm    | 0, 1, 3, 4, 5, 7              |
| Codabar                                | JFm    | 0, 2, 4                       |
| Code 93                                | JG0    |                               |
| Code 11                                | JHm    | 0, 1, 3                       |
| Plessey                                | JP0    |                               |
| MSI-Plessey                            | JMm    | 0, 1                          |
| GS1 Databar                            | Je0    |                               |

**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 |
|--|---------|
| Code 128                               | j       |
| UCC/EAN-128                            | u       |
| AIM 128                                | f       |
| EAN-8                                  | g       |
| EAN-13                                 | d       |
| ISSN                                   | n       |
| ISBN                                   | B       |
| UPC-E                                  | h       |
| UPC-A                                  | c       |
| Interleaved 2 of 5, Febraban           | e       |
| ITF-6                                  | r       |
| ITF-14                                 | q       |
| Deutsche 14                            | w       |
| Deutsche 12                            | l       |
| COOP 25 (Japanese Matrix 2 of 5)       | o       |
| Matrix 2 of 5 (European Matrix 2 of 5) | v       |
| Industrial 25                          | i       |
| Standard 25                            | s       |
| Code 39, Code 32                       | b       |
| Codabar                                | a       |
| Code 93                                | y       |
| Code 11                                | z       |
| Plessey                                | p       |
| MSI-Plessey                            | m       |
| GS1 Databar                            | R       |

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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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## ASCII Function Key Mapping Table

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

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## ASCII Function Key Mapping Table (Continued)

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

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

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## Symbology ID Number

| Symbology                    | ID Number |
|------------------------------|-----------|
| Code 128                     | 002       |
| 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       |
| COOP 25                      | 022       |
| ISSN                         | 023       |
| ISBN                         | 024       |
| Industrial 25                | 025       |
| Standard 25                  | 026       |
| Plessey                      | 027       |
| Code 11                      | 028       |
| MSI-Plessey                  | 029       |
| GS1 Databar                  | 031       |
| Deutsche 14                  | 128       |
| Deutsche 12                  | 129       |

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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 |    |    |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 1A | 1B | 1C | 1D |    |    |
| 1E | 1F | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 2B |    |    |    |
| 2C | 2E | 2F | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 39 |    |    |    |    |
| 3A | 3B | 3C |    |    | 3D |    |    |    | 3E | 3F | 38 | 40 | 4B | 50 | 55 |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 4C | 51 | 56 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 53 |    |
|    |    |    |    |    |    |    |    |    |    |    |    |    | 4F | 54 | 59 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 5A | 5F |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 64 | 69 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 5B | 60 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 65 | 6A |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 5C | 61 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 66 |    |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 5D | 62 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 67 |    |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    | 63 | 68 |
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 6C |

104 Key U.S. Style Keyboard

---

## Digit Barcodes

0~9



@DIGIT0

0



@DIGIT5

5



@DIGIT1

1



@DIGIT6

6



@DIGIT2

2



@DIGIT7

7



@DIGIT3

3



@DIGIT8

8



@DIGIT4

4



@DIGIT9

9

---

## A~F



A



D



B



E



C



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.



**Delete the Last Digit**



**Delete All Digits**





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