NLS-BS80

Pocket Bluetooth Barcode Scanner

User Guide

■Newland NLS-BS80スタートアップガイド

■各部の名称と機能

1	充電/バッテリLED	**7**	Micro USB(通信/充電)
2	スキャン状態表示LED	**8**	製造ラベル
3	データLED	**9**	スキャンウィンドウ

4 SCANボタン （スキャン/電源ON）
ボタンを押すとバーコードがスキャンされます。 3秒間押すと電源ONとなります。

5 DELETEボタン (データ消去/リセット)
1. 7秒間押すと再起動(リセット)します(バッチモードの場合、FLASHメモリのデータは残ります)。
2. 押しながら削除対象バーをスキャンするとFLASHメモリから該当データを削除します(バッチモード)

6 ファンクションボタン/LED
1.HIDキーボードをオン/オフします(iOSデバイス/リアルタイムモード時(Android未対応))
2.USB経由でデータ転送開始(3秒間/バッチモード時:事前にPCにドライバをインストール下さい)
3.ペアリング解除(8秒間/リアルタイムモード時:他のBluetoothデバイスが検出できるようになります)

■初期設定 （ホスト機器との接続）

1 ホスト機器(PC/タブレット)のBluetoothを「OFF→ON」し新しいデバイスの検索をします。
2 BS80のSCANボタンを押し電源ON。 ファンクションLEDの青色点滅(接続待ち)を確認します。
3 ホスト機器に「BS80□□」「Bluetoothキーボード」が表示されたら接続(ペアリング設定)を選択します。
4 BS80ファンクションLEDが青色点灯し長音鳴動で接続(ペアリング)完了です。
※BS80は再接続機能があります。別機器と接続する場合、「ホスト機器とBS80の両方をペア解除]して下さい。
※BS80のペアリング解除は次頁のペアリング解除バーコードをスキャンして下さい。
※工場出荷設定バーをスキャンした場合、「ホスト機器もデバイス削除」の上、改めて1番より設定下さい。

■LED通知

1.充電/バッテリLED （充電器に接続中）		
	赤色点灯	充電中
	緑色点灯	満充電
	赤色点滅	残量低下(警告)
	赤色と緑色が交互点滅	バッテリー故障
1.充電/バッテリLED （充電器から外しSCAN/DELETEボタンを同時に押した場合）		
	緑色点灯	満充電
	赤色と緑色点灯	残量/中
	赤色点灯	残量/低
2.スキャンLED表示		
	緑色点滅	バースキャン完了(正常読み取り完了)
3.データLED		
	赤色点滅	フラッシュメモリにデータが残っています
	赤色点灯	フラッシュメモリが一杯です
7.ファンクションLED		
	青色遅い点滅	リアルタイムモード/BS80は検出可能(接続待ち)です
	青色点灯	リアルタイムモード/接続が確立されました
	青色速く点滅	リアルタイムモード/データ送信中です
	赤色点灯	バッチモードが有効です
	赤色速く点滅	バッチモード/USB経由でバッチデータ転送中

■その他の機能

・SCAN+DELETEボタン同時押し	バッテリー残量表示
・SCAN+Functionボタン同時押し	3秒間/リアルタイムモード・バッチモード切換え

■主な設定バーコード

工場出荷設定(※ペア設定も解除されます)

Restore Factory Defaults

ペアリング解除(※必ずホスト機器も解除下さい)

Delete Bluetooth Pairing

接続設定

Real-Time Mode: HID (default)
Batch Mode: USB HID-KBW (default)

Real-Time Mode: SPP
Batch Mode: USB COM Port Emulation

電源OFF(通常、電源OFFはオートパワーオフのみです)

Power Off

動作音設定

Sound Notifications On (default)

Sound Notifications Off

バイブレーター設定

Vibration Notifications On

Vibration Notifications Off (default)

2D/BS8060-2Tの設定

ターミネート設定

Terminating Character CR (0x0D) (default)

Terminating Character CRLF (0x0D,0x0A)

Disable Terminating Character Suffix

オートパワーオフ設定

Set Auto Power-Off Timer

上記をスキャンしてから設定値をスキャンして下さい

5 Minutes

30 Minutes (default)

60 Minutes

連続動作

Permanent

Bluetooth Mode (default)

USB HID(KBW有線) Mode

※USB HIDはスキャン後、PCに有線接続下さい

1D/BS8060-3Vの設定

ターミネート設定

Terminating Character 0x0D (CR)

Terminating Character 0x0D,0x0A (CRLF)

Disable Terminating Character Suffix (default)

Code39スタートストップコード(*)を出力しない

Do Not Transmit Start/Stop Character

NW-7(CodaBar)スタートストップコード(a)を出力しない

Do Not Transmit Start/Stop Character

※その他、様々な動作設定が可能です。 弊社までお問い合わせ下さい

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Revision History

Version	Description	Date
V1.0	Initial release.	March 18, 2015
V1.1	Added the content concerning the 2D version.	May 19, 2015
V1.2	1. Added the Enable/Disable USB HID-KBW feature in Chapter 2. 2. Added barcode parameters in Chapter 3.	September 16, 2015
V1.3	Added the USB country keyboard types in Chapter 2. **Note:** Firmware version V1.00.006 or later is required for the new feature above.	October 13, 2015
V1.4	1. Added Chapter 4 Prefix & Suffix. 2. Added the “Code ID Table (1D Scanner)” and “Code ID Table (2D Scanner)” sections in Appendix. **Note:** Firmware version V1.00.011 or later is required for the new feature above.	January 21, 2016
V1.4.1	Updated the programming barcodes in the “Digit Barcodes (1D Scanner)” and “Save/Cancel Barcodes (1D Scanner)” sections in Appendix.	May 5, 2016
V2.0.0	User Guide V2.0.0 or higher is written for the NLS-BS8060 only.	September 26, 2016
V2.0.1	1. Modified the description of the **Product Serial Number** and **Time Stamp** features in Chapter 2. 2. Added the **EAN-13 Beginning with 290 Add-On Code Required**, **EAN-13 Beginning with 378/379 Add-On Code Required**, **EAN-13 Beginning with 414/419 Add-On Code Required**, **EAN-13 Beginning with 434/439 Add-On Code Required**, **EAN-13 Beginning with 977 Add-On Code Required**, **EAN-13 Beginning with 978 Add-On Code Required**, **EAN-13 Beginning with 979 Add-On Code Required**, **Code 32 (Italian Pharma Code)**, **Code 32 Prefix**, **Transmit Code 32 Check Character** and **Transmit Code 32 Start/Stop Character** features for 1D & 2D scanners in Chapter 3. 3. Changed the default settings of the following parameter to: Time Stamp Disabled **Note:** Firmware version V3.00.002 or later is required for the new features above.	November 28, 2016
V2.0.2	1. Added the **0ms** option for the **Inter-Character Delay for Bluetooth HID** feature in Chapter 2. 2. Modified the firmware upgrade procedure in Chapter 2. **Note:** Firmware version V3.00.004 or later is required for the new feature above.	February 14, 2017

V2.1.0	1. Added the **Bluetooth Device Name**, **Barcode Separator**, **Packet Mode**, **ACK/NAK Retry Count** and **ACK/NAK Timeout** features, and modified the **Inter-Keystroke Delay for KBW** options in Chapter 2. 2. Added Chapter 6 Data Formatter. 3. Modified the “Factory Defaults Table”, and added the “Digit Barcodes”, “Save/Cancel Barcodes” and “Symbology ID Number” sections in Appendix. 4. Modified the “Parameters of USB HID-KBW/ Bluetooth HID” section in Chapter 2. **Note:** Firmware version BS80+_V3.00.005 or later is required for the new features above. For the Data Formatter feature, scan engine firmware version EM1300_BS80_V1.00.000/ EM3396_BS80_V1.00.001 or later is also required.	October 11, 2017
V2.1.1	Added the **Response for Invalid Host Data** feature in Chapter 2. **Note:** Firmware version BS80+_V3.00.012 or later is required for the new feature above.	January 4, 2019

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Preface

Introduction

This manual provides detailed instructions for setting up and using the NLS-BS80 barcode scanner (hereinafter referred to as **“the BS80”** or **“the scanner”**).

Chapter Descriptions

- ✧ *Chapter 1, Getting Started* : This chapter provides information on getting the scanner up and running for the first time.
- ✧ *Chapter 2, System Settings* : This chapter describes the barcode programming procedure and shows you how to configure system parameters.
- ✧ *Chapter 3, Symbologies* : This chapter lists all compatible symbologies and describes how to configure the relevant parameters.
- ✧ *Chapter 4, Prefix & Suffix* : This chapter describes how to use prefix and suffix to customize scanned data.
- ✧ *Chapter 5, Scanning Preferences* : This chapter describes how to adapt your scanner to various applications with preference setting.
- ✧ *Chapter 6, 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.

Safety Instructions

Read the operating instructions carefully and especially observe the safety information. If you do not follow the safety instructions on proper handling in this manual, we assume no liability for any resulting personal injury or damage to property.

- ✧ Don’t put the scanner in places with excessively high temperatures, such as exposure to direct sunlight.
- ✧ Don’t use the scanner in extremely humid area or drastic temperature change.
- ✧ The rechargeable battery is permanently built into the scanner and cannot be replaced.
- ✧ Never damage the rechargeable battery. Damaging the casing of the rechargeable battery might cause an explosion or a fire!

Chapter 1 Getting Started

Introduction

The BS80 is a wireless pocket barcode scanner equipped with 1D or 2D scan engine to meet different needs. It is a great space-saver for busy or limited workspaces. It also supports iOS, Android, and Windows devices through Bluetooth HID or SPP or BLE communication.

An illustrated introduction to the BS80 is included in this chapter. If you have the scanner at hand, make good use of it to develop a better understanding of this manual. This chapter is written for normal users, maintenance staff and software developers.

Unpacking

Open the package and take out the 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.

BS80 Scanner

1	Charging/Battery LED	**2**	Good Read LED
3	Data LED	**4**	Scan/Power Button
5	Delete/Reset Button	**6**	Function Button/Function LED
7	Micro USB Port	**8**	Product Label
9	Scan Window*		

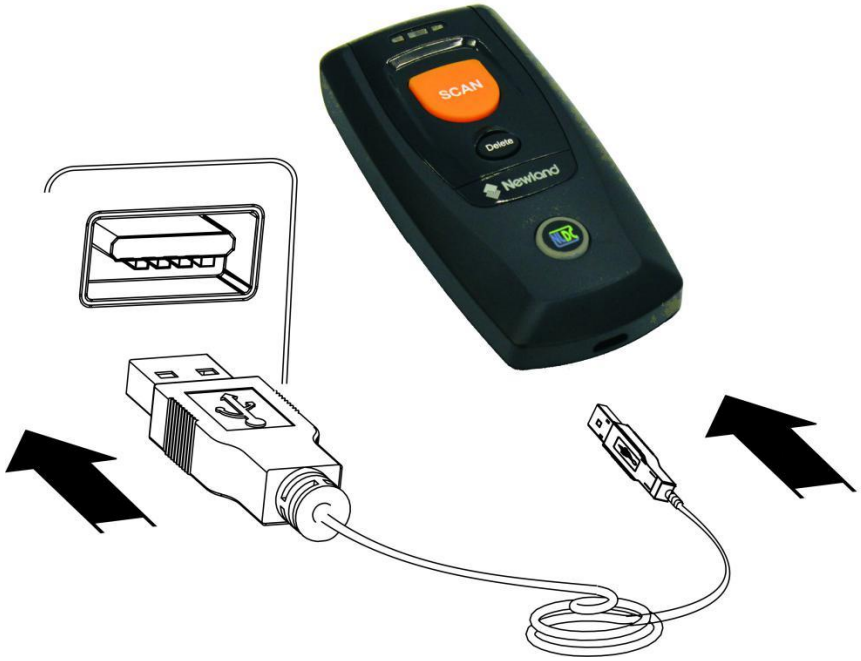
*Note: Please peel off the protective film from the scan window before reading barcodes.

Button Functions

Scan/Power Button
*Press the button to scan barcode. *Hold down the button for 3 seconds to power the scanner on.
Delete/Reset Button
*Press the button to remove the corresponding data from the flash memory in one of the following conditions before scanning the barcode to be deleted: (i) Bluetooth mode enabled but no Bluetooth connection established; (ii) Bluetooth mode & Batch Transmission enabled; (iii) USB mode enabled but no USB cable connection made; or (iv) USB mode & Batch Transmission enabled. *Hold down the button for 7 seconds to reset it.
Function Button
*Press the button to turn on or off the HID keyboard of the connected iOS device in the Bluetooth mode. *Hold down the button for 3s to start data transmission in either of the following conditions: (i) Bluetooth mode & Batch Transmission enabled; or (ii) USB mode enabled and the scanner connected to PC via USB cable.
Scan/Power Button + Function Button
*Hold down the two buttons at the same time for 3 seconds to toggle between the Bluetooth mode and USB mode.
Delete/Reset Button + Function Button
*Press the two buttons at the same time to unpair the paired Bluetooth device from the scanner in Bluetooth mode and to make the scanner discoverable by other Bluetooth device. *Hold down the two buttons at the same time until the green Good Read LED lights up to enable the scanner to enter the update status. Note: If the update fails or you accidentally enter the update status, you need to hold down the Delete/Reset button for 7s to reset the scanner.
Scan/Power Button + Delete/Reset Button
*Press the two buttons at the same time to check the battery level with the Charging/Battery LED. *Hold down the two buttons at the same time for 3s to delete all stored data in the flash memory in either of the conditions: (i) Bluetooth mode enabled, Bluetooth connection established, and Batch Transmission & Require Data Transmission Confirmation enabled; or (ii) USB mode enabled, the scanner connected to PC via USB cable and Require Data Transmission Confirmation enabled.

Charging the Battery

Charge the scanner by connecting it to a host device with Micro USB cable, as shown below.



Note: Low battery may result in failure or misoperation of the scanner. Before your first use, charge the battery for 3-4 hours.

Connecting the BS80 to Smartphone/Tablet

1. Make sure your device has HID or SPP or BLE profile.
2. If the red Function LED on the scanner is on, hold down the Scan/Power button and Function button at the same time for 3 seconds or scan the **Bluetooth Mode** barcode to switch to the Bluetooth mode. Hold down the Delete/Reset button and Function button at the same time or scan the **Delete Bluetooth Pairing** barcode to remove existing pairing information from the scanner.

Bluetooth Mode

Delete Bluetooth Pairing

3. Turn off the Power-Saving mode on your smartphone/tablet.
4. Scan the appropriate barcode below to choose HID or SPP or BLE profile before connecting the scanner to smartphone/tablet. If you don't know what profile your device is using, please try HID profile first, then SPP, at last BLE profile.

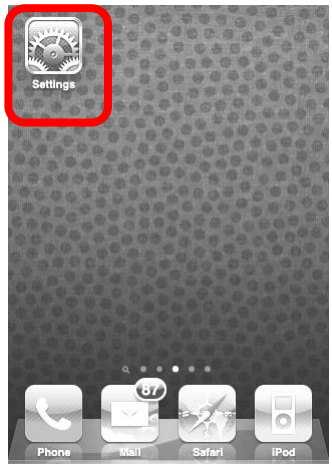
HID (default)

SPP

BLE

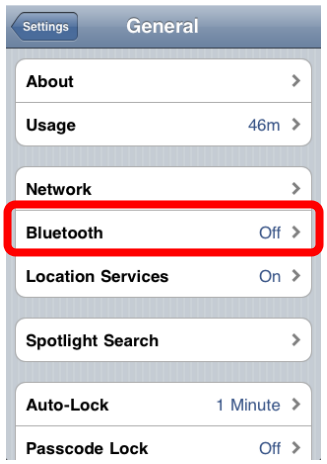
5. Complete the following connection procedure (example: pairing with iPhone).

(1) Click “Settings”.

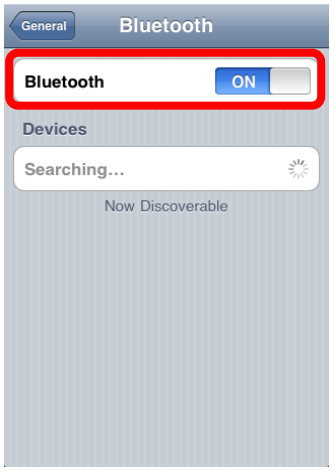


(2) Click “General”.

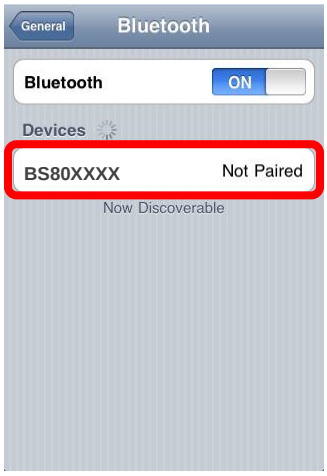
(3) Click “Bluetooth”.



(4) Turn it on and search the devices.



(5) Select “BS80XXXX” to connect.



(6) The “Connected” message means the connection is OK.

6. After the connection is completed, the blue Function LED on the scanner will illuminate.

7. Before using WordPad file or relative APP, set keyboard language of the device to US English. Then, scan barcodes and the barcode data will show before current cursor position. If the data cannot be sent to smartphone/tablet, please scan the **Restore Factory Defaults** barcode (see Chapter 2).

Note: This product complies with Bluetooth standards. The device that communicates with this product must support the same SPP or HID or BLE. For other Bluetooth devices with other profiles, we cannot guarantee a connection before the product has been tested.

The communication speed and range of the product may vary due to obstacles and radio wave condition between the product and device to which it is connected. Condition on the host device may also affect the communication speed and range of the scanner.

LED Notifications

Charging/Battery LED	
Red LED on	Charging in progress.
Green LED on	Fully charged.
Red and green LEDs flash alternately	Battery not found.
Red LED flashes	Low battery alert.
When the scanner is on, pressing the Scan/Power button and Delete/Reset button at the same time for 3 seconds can display the battery level with the Charging/Battery LED.	
Green LED on	Battery level is high.
Red and green LEDs on	Battery level is medium.
Red LED on	Battery level is low.

When the battery voltage is too low, the scanner will beep with flashing red Charging/Battery LED. Please charge it immediately before the scanner shuts down mandatorily. When it shuts down, please charge it fully before turning it back on.

Good Read LED	
Green LED flashes	Good read.
Data LED	
Red LED flashes	There is data in flash memory.
Red LED on	Flash memory depleted.
Function LED	
Blue LED flashes slowly with long OFF state	Bluetooth mode enabled, but no Bluetooth connection established and the BS80 undiscoverable.
Blue LED flashes slowly with long ON state	Bluetooth mode enabled, but no Bluetooth connection established and the BS80 discoverable.
Blue LED on	Bluetooth connection established.
Blue LED flashes quickly	Data transmission via Bluetooth in progress.
Red LED on	USB mode enabled.
Red LED flashes quickly	Data transmission via USB in progress.

Turning the BS80 On/Off

Turn the scanner on: Press the Scan/Power button for 3 seconds.

Turn the scanner off: By default, the scanner automatically powers off if no operation is performed on the scanner for 30 minutes. You can adjust the auto power-off timer. You can also turn off the scanner by scanning the **Power Off** barcode. For more information, see the “Automatic/Manual Power-Off” section in Chapter 2.

Scanning Instructions

Scanning 1D Barcode

Adjust the scan angle (Do not read barcode at vertical degree) or the distance between barcode and the scanner to ensure that the length of the scan line is roughly 8mm greater than that of the barcode, as shown below.

Right	Wrong

Scanning 2D Barcode

Adjust the scan angle and the distance between barcode and the scanner to make them fall into the following ranges:

1. Aim the scan line across the center of the barcode.

2. Optimum scan distances: 5-20cm.

Chapter 2 System Settings

Introduction

This chapter describes how to configure the basic system parameters on the scanner.

Restore Factory Defaults

Restore Factory Defaults

Operating Modes

The scanner provides two operating modes: Bluetooth mode and USB mode. To switch between these two modes, press the Scan/Power and Function buttons for 3 seconds at the same time or scan the **USB Mode** or **Bluetooth Mode** barcode.

Bluetooth Mode

Bluetooth Mode (default)

When the scanner is in the Bluetooth mode, you can select a desired profile by scanning the appropriate barcode below.

HID (default)

SPP

BLE

There are three types of data transmission via Bluetooth: Synchronous transmission, Asynchronous transmission and Batch transmission.

(1) **Synchronous transmission (default):** When you scan barcodes, the data will be sent to smartphone/tablet directly. If you are out of Bluetooth service range, scanned data will be lost.

(2) **Asynchronous transmission:** When you are out of Bluetooth service range, scanned data will be stored in the flash memory. Once you are back to service range, the data will be sent to smartphone/tablet automatically. The scanner will automatically remove it from the flash memory after smartphone/tablet receives the data.

(3) **Batch transmission:** Scanned data will be stored in the flash memory no matter whether you are in Bluetooth service range or not. You may send the stored data to smartphone/tablet in one of the following ways: (i) hold down the Function button on the scanner for 3 seconds (Note: To suspend/resume data transmission, press the Function button briefly.); (ii) scan the **Transmit Stored Data** barcode; or (iii) send the corresponding serial command to the scanner (See the “Serial Programming Commands” manual).

Synchronous Transmission, Bluetooth (default)

Asynchronous Transmission, Bluetooth

Batch Transmission, Bluetooth

Transmit Stored Data

The following feature is enabled automatically when the scanner is in Bluetooth Batch mode.

Verify Receipt of Data: The scanner will keep all the stored data after transmission, which offers users the opportunity to verify if the data is properly received and to resend the data when needed. To delete all stored data in the flash memory, hold down the Scan/Power Button and Delete/Reset Button at the same time for 3 seconds or scan the **Clear All Stored Data** barcode or send the corresponding serial command to the scanner.

USB Mode

USB Mode

When the scanner is in the USB mode, you can select a desired protocol by scanning the appropriate barcode below.

USB HID-KBW (default)

USB CDC

There are two types of data transmission via USB: Asynchronous transmission and Batch transmission.

(1) **Asynchronous transmission (default):** When the scanner is not connected to PC via USB cable, scanned data will be stored in the flash memory. When the scanner is connected to PC via USB cable, scanned data will be sent to PC directly.

(2) **Batch transmission:** Scanned data will be stored in the flash memory no matter whether the scanner is connected to PC or not.

You can sync the data from the flash memory to your PC via USB by following the procedure described below.

Step 1: If USB CDC is enabled, download UFCOM driver from Newland website at www.newlandaidc.com and Install it on your PC; If USB HID-KBW is enabled, no driver is needed.

Step 2: Connect the scanner to your PC with USB cable. The scanner beeps when the connection between them is established.

Step 3: If USB CDC is enabled, open a COM tool on your PC and make sure that your cursor is always positioned in it; If USB HID-KBW is enabled, open Notepad or Office Word on your PC and make sure that your cursor is always positioned in it. Hold down the Function button on the scanner for 3 seconds or scan the **Transmit Stored Data** barcode to start data transmission from the flash memory to your PC. The scanner beeps when the transmission is completed.

Batch Transmission, USB

Asynchronous Transmission, USB (default)

Transmit Stored Data

The following feature is enabled automatically when the scanner is in USB Batch mode. Moreover, you can scan the appropriate barcode below to enable or disable this feature for USB Asynchronous mode.

Verify Receipt of Data: The scanner will keep all the stored data after transmission, which offers users the opportunity to verify if the data is properly received and to resend the data when needed. To delete all stored data in the flash memory, hold down the Scan/Power Button and Delete/Reset Button at the same time for 3 seconds or scan the **Clear All Stored Data** barcode or send the corresponding serial command to the scanner.

Do Not Verify Receipt of Data: All the stored data will be automatically deleted after transmission.

Do Not Verify Receipt of Data (default)

Verify Receipt of Data

Notes:

1. When the scanner switches from one operating mode to the other, it beeps along with corresponding LED notification (For more information, see the “LED Notifications” section in Chapter 1)
2. Besides the method mentioned above, you can also hold down the Scan/Power button and Function button at the same time for 3 seconds to toggle between the Bluetooth mode and USB mode.

Query Product Information

Query the Firmware Version of Embedded Scan Engine

Query the Manufacture Date of Product

Query the Serial Number of Product

Query the Firmware & Hardware Versions of Product

Query/Delete Stored Data in Flash

Query the Number of Stored Barcodes

Clear All Stored Data

Sound Notifications

Turn sound notifications on or off by scanning the appropriate barcode below. After this feature is enabled, the scanner beeps when one of the following events occurs:

1. The scanner is turned on.
2. The scanner resets.
3. A barcode is decoded (including good read for removing barcode data from the flash memory).
4. The scanner switched to the Bluetooth mode or USB mode.
5. Transmitting data over Bluetooth failed.
6. iOS soft keyboard is turned on or off.
7. Batch data transmission via Bluetooth or USB starts.
8. Batch data transmission via Bluetooth or USB is interrupted.
9. Batch data transmission via Bluetooth or USB is completed.
10. The paired Bluetooth device is unpaired from the scanner.
11. The scanner is turned off.
12. USB connection between the scanner and the host device established.
13. USB connection between the scanner and the host device lost.
14. Bluetooth connection between the scanner and the host device established or lost.

Sound Notifications On (default)

Sound Notifications Off

Vibration Notifications

Turn vibration notifications on or off by scanning the appropriate barcode below. After this feature is enabled, the scanner vibrates when one of the following events occurs:

1. A barcode is decoded (including good read for removing barcode data from the flash memory).
2. The scanner switched to the Bluetooth mode or USB mode.
3. iOS soft keyboard is turned on or off.
4. The paired Bluetooth device is unpaired from the scanner.
5. Batch data transmission via Bluetooth or USB starts.
6. The scanner is turned off.

Vibration Notifications On

Vibration Notifications Off (default)

Delete Bluetooth Pairing

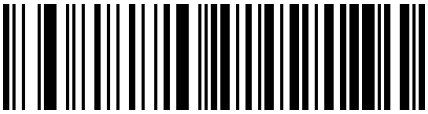
Delete Bluetooth Pairing

Automatic/Manual Power-Off

By default, the scanner automatically powers off if no operation is performed on the scanner for 30 minutes. This feature can help to extend battery life.

Query Auto Power-Off Timer

Set the auto power-off timer: Scan the **Set Auto Power-Off Timer** barcode then one of the timers listed below.



Set Auto Power-Off Timer

5 Minutes

10 Minutes

20 Minutes

30 Minutes (default)

60 Minutes

Permanent

You can power off your scanner manually by scanning the barcode below.

Power Off

Note: After the **Power Off** barcode is scanned, the scanner emits a long beep and then turns off.

Bluetooth Device Name

The default Bluetooth device name for a BS80 scanner combines the model name "BS80+" (user-programmable) with the last 4 characters of the MAC address of the device (for example, BS80+E4AC). You can configure the model name with length up to 20 characters. To change the model name, scan the **Change Bluetooth Device Name** barcode, the numeric barcodes that represent the hexadecimal value of each character contained in your desired name and the **Save** barcode.

Change Bluetooth Device Name

Example: Change the Bluetooth device name (model name) to "NLS1" (Hex: 0x4E/0x4C/0x53/0x31)

1. Scan the **Change Bluetooth Device Name** barcode.
2. Scan the numeric barcodes "4", "E", "4", "C", "5", "3", "3" and "1" from the "Digit Barcodes" section in Appendix.
3. Scan the **Save** barcode from the Save/Cancel Barcodes" section in Appendix.

Response for Invalid Host Data

By default, the scanner returns **\r\n$$%~ER\r\n** when receiving an invalid command from the host. You may disable the scanner from sending this message by scanning the appropriate barcode below.

For the list of supported commands, refer to the *BS80 Serial Programming Commands*.

**** Enable Response for Invalid Host Data**

Disable Response for Invalid Host Data

Barcode Separator

A separator with length up to 10 characters (default: none) can be inserted between barcodes. This feature is only available when the following two conditions are met: Bluetooth or USB batch transmission is selected and Packet mode is off. Scan the appropriate barcode below to enable or disable this feature. When barcode separator is enabled, the preset separator will be inserted between barcodes and it will be sent three times after batch transmission is completed.

Enable Barcode Separator

Disable Barcode Separator (default)

To set the barcode separator, scan the **Set Barcode Separator** barcode, the numeric barcodes that represent the hexadecimal value of each character contained in your desired separator and the **Save** barcode.

Set Barcode Separator

Query Barcode Separator

Example: Set the barcode separator to "*" (Hex: 0x2A)

1. Scan the **Set Barcode Separator** barcode.
2. Scan the numeric barcodes "2" and "A" from the "Digit Barcodes" section in Appendix.
3. Scan the **Save** barcode from the Save/Cancel Barcodes" section in Appendix.

Packet Mode

When Packet mode is off, data is sent in raw format (unpacketed).

When Packet mode is on, data is sent with the packet format defined below to ensure integrity of data when received by the host or the scanner. For batch transmission, the scanner sends **0x7E, 0x01, 0x30, 0x30, 0x30, 0x30, 0x00, 0x00, 0x3B, 0x03, 0x00** to notify the host of the completion of batch transmission.

Note that this feature is only available when using Bluetooth SPP/BLE or USB CDC.

Packet format: {Header} {LEN} {DATA} {Trailer} {Checksum}

Header: 0x7E 0x01 0x30 0x30 0x30 0x30

LEN: Length of DATA, 2 bytes

DATA: Barcode data sent by the scanner or programming command sent by the host device

Trailer: 0x3B 0x03

Checksum: Computation sequence: 0x00+DATA; computation method is XOR, byte by byte

Host Response: {Header} {Response Value} {Response Method} {Trailer}

Header: 0x02 0x01

Response Value: 0x06 (ACK) or 0x15 (NAK)

Response Method: 0x00 (No operation), or

0x01 (2 short high-frequency beeps for ACK; 1 low-frequency beep for NAK), or

0x02 (200ms-long vibration for ACK; 1s-long vibration for NAK)

Trailer: 0x3B 0x03

Scanner Response: {Header} {Response Value} {Trailer}

Header: 0x02 0x01

Response Value: 0x06 (ACK) or 0x15 (NAK)

Trailer: 0x3B 0x03

Packet Mode On

Packet Mode Off (default)

NAK/ACK Retry Count

This parameter specifies the number of times the scanner retries a barcode transmission when it awaits an ACK response from the host. Note that Packet mode must be turned on for this parameter to function. The selection range is from 1 to 8 retries. The default value is 2 (retries).

Set ACK/NAK Retry Count

Example: Set the ACK/NAK retry count to 1

1. Scan the **Set ACK/NAK Retry Count** barcode.
2. Scan the numeric barcode “1” from the “Digit Barcodes” section in Appendix.
3. Scan the **Save** barcode from the Save/Cancel Barcodes” section in Appendix.

NAK/ACK Timeout

This parameter specifies the amount of time the scanner waits for an ACK response from the host following a barcode transmission. It is programmable in 1ms increments from 0ms to 15,000ms. A selection of 0 disables the timeout. The default timeout is 200ms. Note that Packet mode must be turned on for this parameter to function.

.

Set ACK/NAK Timeout

Example: Set the ACK/NAK timeout to 100ms

1. Scan the **Set ACK/NAK Timeout** barcode.
2. Scan the numeric barcodes “1”, “0” and “0” from the “Digit Barcodes” section in Appendix.
3. Scan the **Save** barcode from the Save/Cancel Barcodes” section in Appendix.

Product Serial Number

You can select whether to send product serial number or not by enabling or disabling it.

Enable Product Serial Number

Disable Product Serial Number (default)

Time Stamp

You can select whether to send date & time or not by enabling or disabling time stamp.

Enable Time Stamp

Disable Time Stamp (default)

Set Date Format

Format 1: mm/dd/yyyy
(example: 01/23/2011)

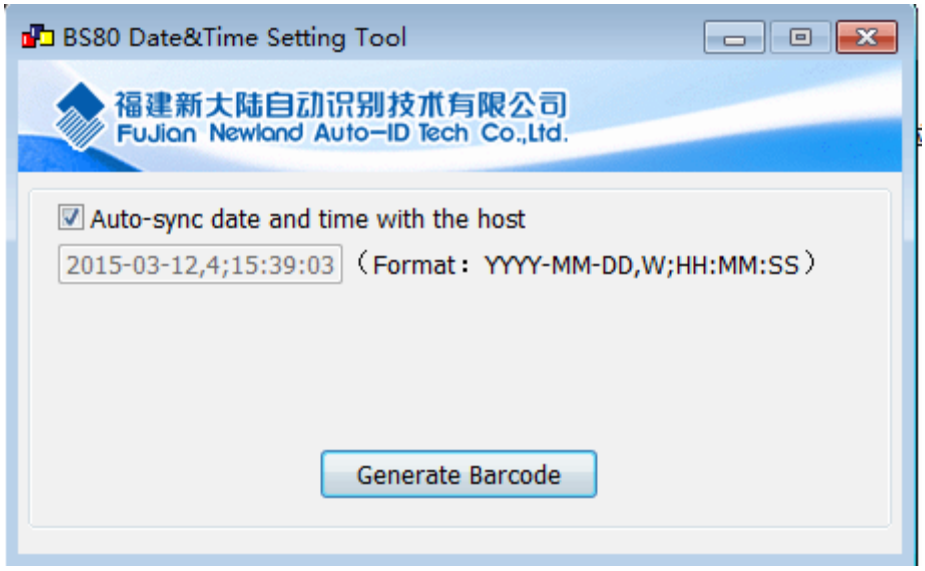
Format 2: dd/mm/yyyy
(example: 23/01/2011)

Format 3: yyyy/mm/dd (default)
(example: 2011/01/23)

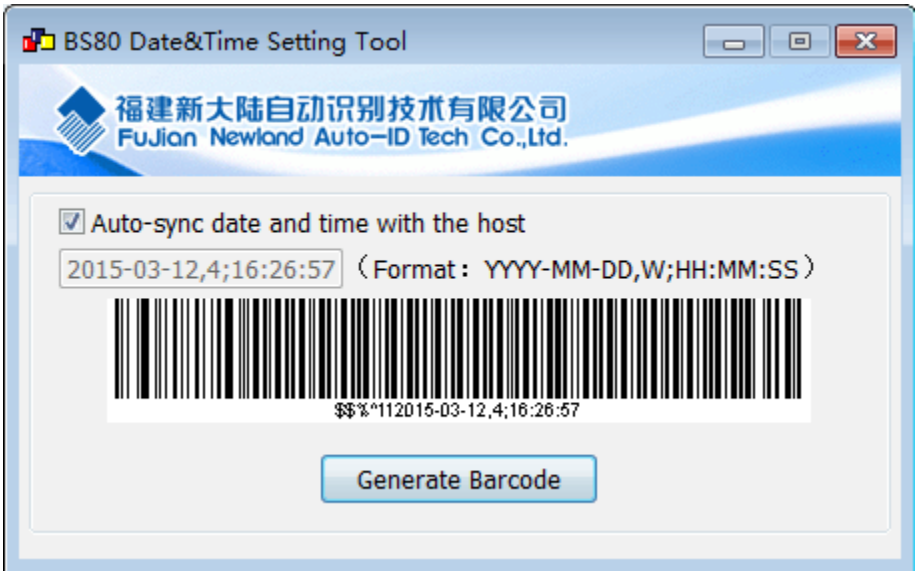
Query Current Date & Time

Set Date & Time

Step 1: Double click on BS80Setting.exe to run BS80 Date&Time Setting Tool. Then check the “Auto-sync date and time with the host” item on it.



Step 2: After the time in the box is in sync with the system clock, click the “Generate Barcode” button.



Step 3: Scan the barcode generated to set the date and time on the scanner.

Note: You need to run this tool on the Windows XP or WIN7 operating system.

Parameters of USB HID-KBW/ Bluetooth HID

Keyboard Types

US English (default)

Belgium

Brazil

Canada

Czech

Danmark

Finland

France

Germany, Austria

Greece

Hungary

Israel

Italy

Latin America, South America

Netherland

Norway

Poland

Portugal

Romania

Russia

Slovakia

Spain

Sweden

Switzerland

Turkey_F

Turkey_Q

UK

Japan

Character Encoding

ISO-8859-1 (default)

UTF-8

Convert Case

No Case Conversion (default)

Convert All to Upper Case

Convert All to Lower Case

Invert Upper and Lower Case Characters

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. **This feature is not available for Android/ iOS devices.**

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:** ASCII characters falling into 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 (default)

Mode 1

Mode 2

Mode 3

Example: Supposing US keyboard is selected, barcode data ”AĐF” (65/208/70) is sent as below:
(1) **Mode 1** is enabled:
“A” -- Keystroke “A”
“Đ” -- “ALT Make” + “208” + “ALT Break”
“F” -- Keystroke “F”
(2) **Mode 3** is enabled:
“A” – “ALT Make” + “065” + “ALT Break”
“Đ” -- “ALT Make” + “208” + “ALT Break”
“F” -- “ALT Make” + “070” + “ALT Break”

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. **This feature is not available for Android/ iOS devices.**

Enable Function Key Mapping

Disable Function Key Mapping (default)

Example: Barcode data 0x16

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.

This feature is not available for Android/ iOS devices.

Emulate Numeric Keypad

Do Not Emulate Numeric Keypad (default)

Code Page

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

Windows 1252 (Latin I) (default)

Windows 1251 (Cyrillic)

Example 1: Set the scanner to get proper output for Russian encoded with ISO-8859-1

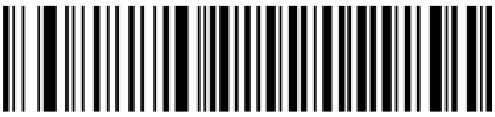
1. Scan the **Windows 1251 (Cyrillic)** barcode.
2. Scan the **Mode 3** barcode from the “Emulate ALT+Keypad” section in this chapter.
3. Scan the **ISO-8859-1** barcode from the “Character Encoding” section in this chapter.

Example 2: Set the scanner to get proper output for Russian encoded with UTF-8

1. Scan the **Windows 1251 (Cyrillic)** barcode.
2. Scan the **Mode 3** barcode from the “Emulate ALT+Keypad” section in this chapter.
3. Scan the **UTF-8** barcode from the “Character Encoding” section in this chapter.

Inter-Character Delay for Bluetooth HID

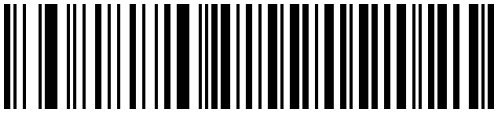
Select an appropriate inter-character delay to avoid data loss during transmission. This parameter is only valid in the Bluetooth HID mode.



0ms

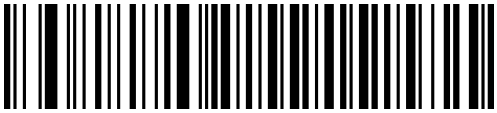
5ms

15ms (default)



25ms

35ms



45ms

Query Inter-Character Delay

Inter-Keystroke Delay for USB HID-KBW

To set the inter-keystroke delay, scan the **Set Inter-Keystroke Delay** barcode and a desired value barcode below.

Set Inter-Keystroke Delay

0ms (default)

1ms

2ms

3ms

4ms

5ms

6ms

7ms

8ms

9ms

10ms

11ms

12ms

13ms

14ms

15ms

Upgrading BS80 Firmware

Upgrading BS80 firmware includes upgrading system firmware and scan engine firmware.

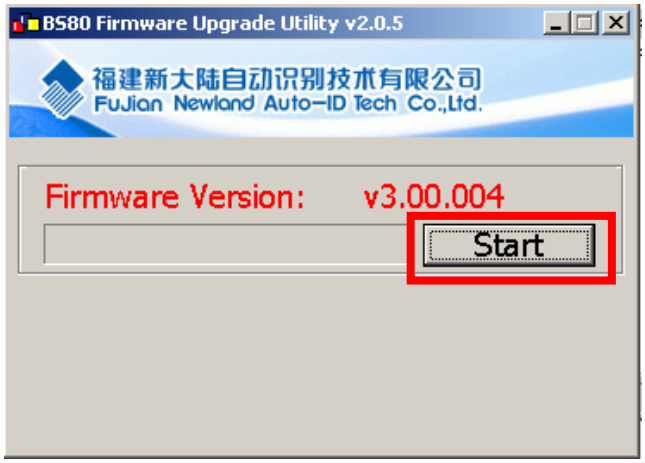
Upgrading System Firmware

Step 1: Contact the technical support to get the BS80 Firmware Upgrade Utility and the latest system firmware.

Step 2: Download UFCOM driver from the Newland website at www.newlandaidc.com. Install it on PC by following the on-screen instructions. (Skip this step if it is already installed on your PC.) Make sure that the driver is properly installed. You cannot upgrade the firmware without it.

Step 3: Turn on the scanner. Hold down the Function button and the Delete/Reset button on the scanner at the same time until the green Good Read LED lights up.

Step 4: Run the BS80Update program. Then click “Start”.

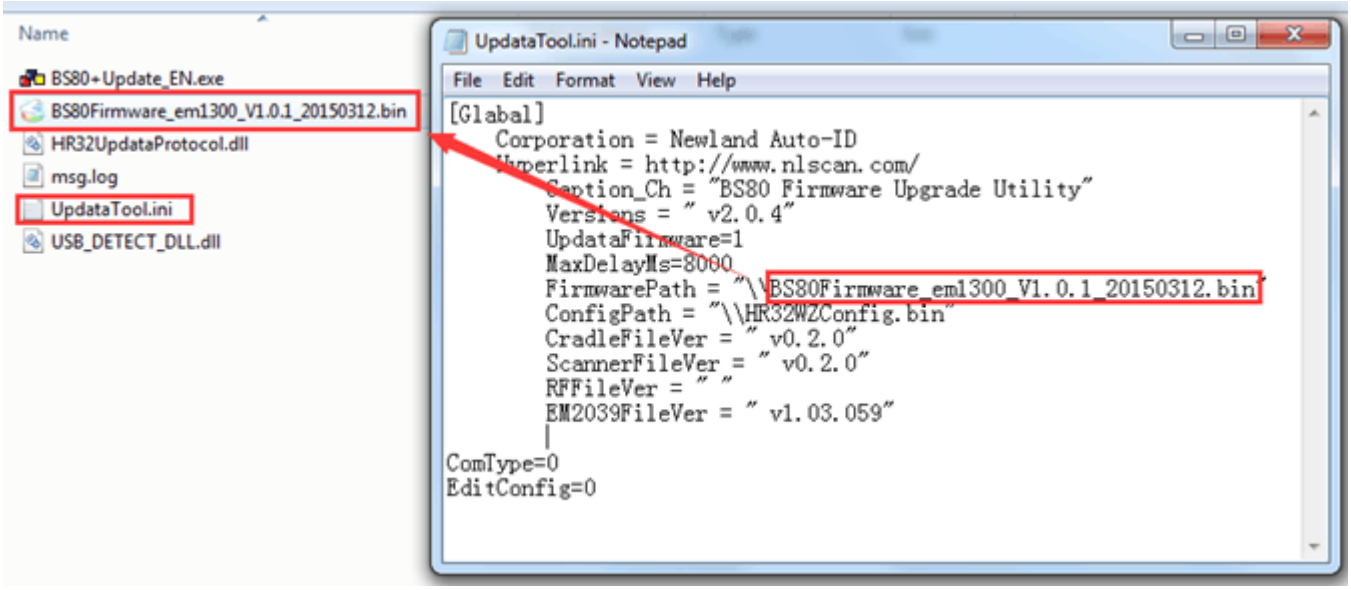


Step 5: Connect the scanner to your PC with the USB cable. Then the update begins. The red and blue Function LEDs flash alternately during the updating process.

Step 6: Wait for the “Firmware upgraded!” window to pop up and click “OK” to exit the program.

Notes:

1. If this utility does not operate normally, check to see if the FirmwarePath in the UpdataTool.ini file is correct (its value should be identical with the name of the .bin file). If there is a higher version of firmware, replace the .bin file.



2. If the update fails or you accidentally enter the update status, you need to hold down the Delete/Reset button for 7s to reset the scanner.

Upgrading Scan Engine Firmware

Step 1: Contact the technical support to get the MCU Kernel Update Tool (**McuUpdateTool.exe**) and the latest scan engine firmware for BS80 (.pak).

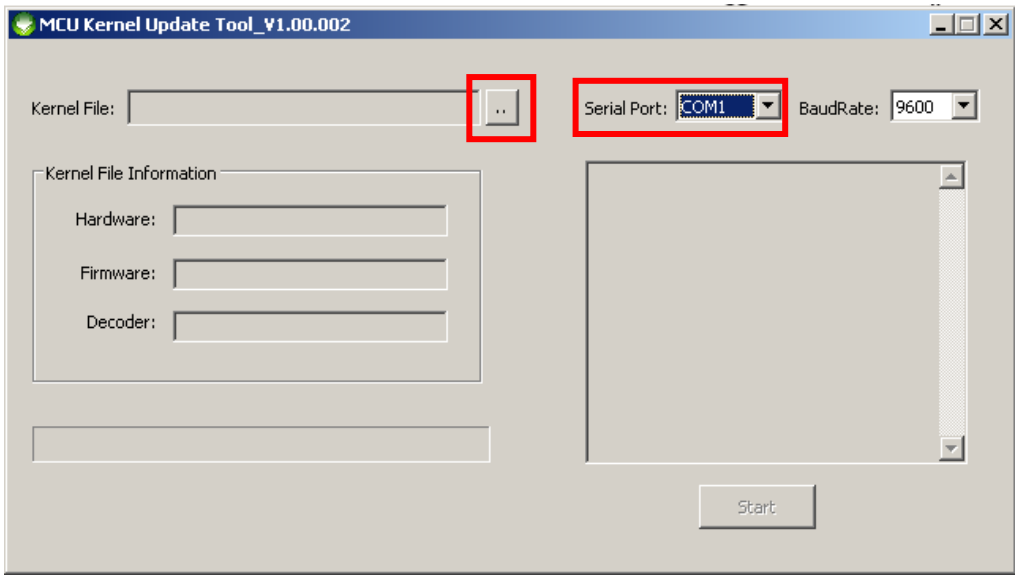
Step 2: Download UFCOM driver from the Newland website at www.newlandaidc.com. Install it on PC by following the on-screen instructions. (Skip this step if it is already installed on your PC.) Make sure that the driver is properly installed. You cannot upgrade the firmware without it.

Step 3: Ensure that your BS80's system firmware version is V3.00.005 or later. Scan the following barcode. Then the red and blue Function LEDs flash alternately.

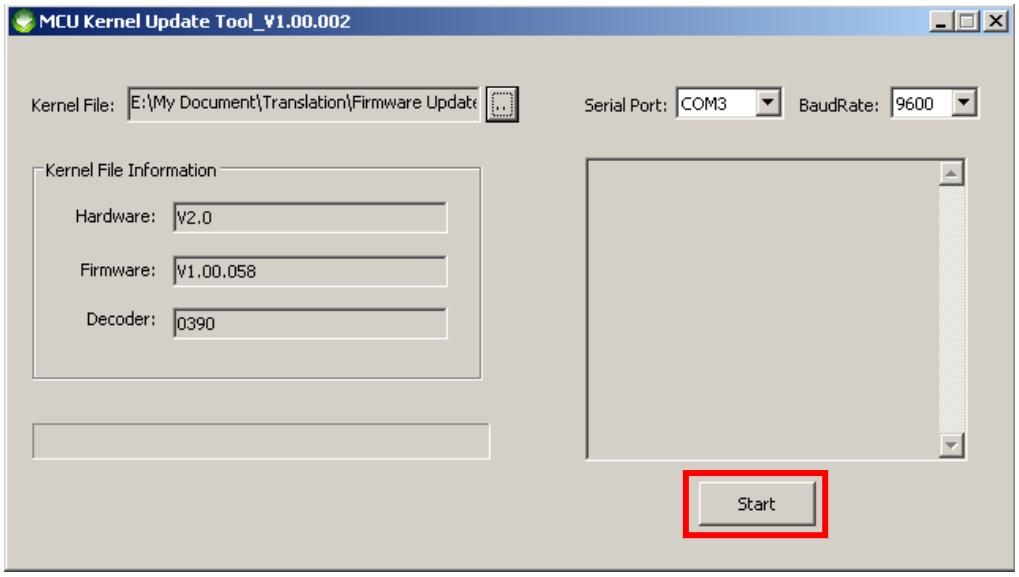
$$%^5800

Step 4: Connect the scanner to your PC with the USB cable.

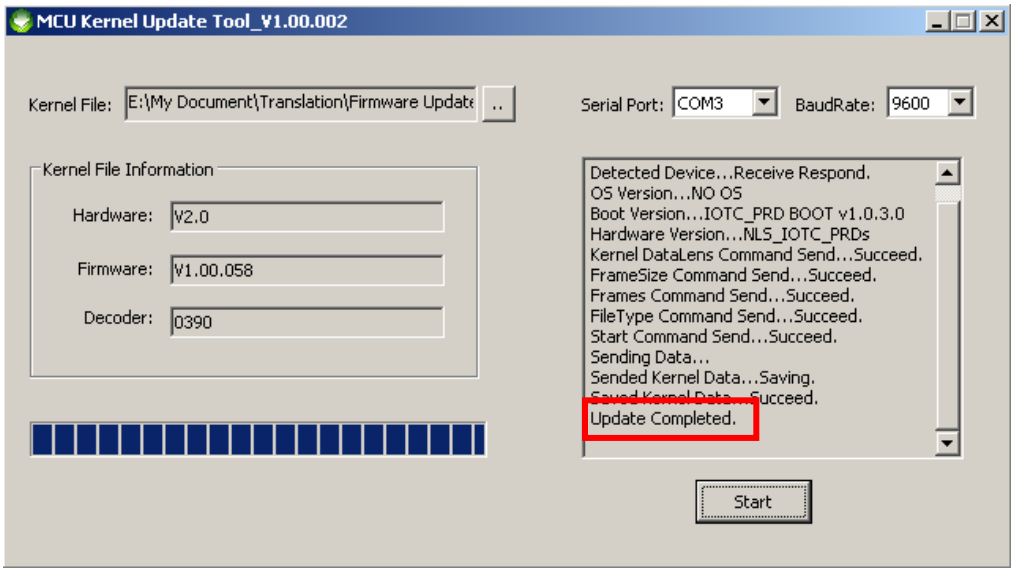
Step 5: Double-click the **McuUpdateTool.exe** file to run the firmware upgrade tool. Click .. and choose the firmware file (.pak). Check your device manager for the COM port connected to the scanner and set the COM port on the tool accordingly.



Step 6: Click the **Start** button to start upgrading the firmware.



Step 7: Wait for the upgrading to complete **(Warning: It is NOT allowed to turn off your device or cut off the power when the upgrading is in progress)**. When the “Update Completed” message occurs, the upgrade has been done successfully. Note that the BS80 will automatically reboot after the update.



Chapter 3 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 barcode symbologies. It is recommended to disable those that are rarely used to increase the efficiency of the scanner.

Note: Maximum barcode length supported by the scanner is 3072 bytes.

1D Scanner

Enable/Disable All Symbologies

Enable All Symbologies

Disable All Symbologies

Code 128

Restore Factory Defaults

Restore the Factory Defaults of Code 128

Enable/Disable Code 128

Enable Code 128 (default)

Disable Code 128

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 Code 128 barcodes containing between 8 and 12 characters

1. Scan the **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

UCC/EAN-128

Restore Factory Defaults

Restore the Factory Defaults of UCC/EAN-128

Enable/Disable UCC/EAN-128

Enable UCC/EAN-128 (default)

Disable UCC/EAN-128

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

AIM 128

Restore Factory Defaults

Restore the Factory Defaults of AIM 128

Enable/Disable AIM 128

Enable AIM 128

Disable AIM 128 (default)

Set Length Range for AIM 128

The scanner can be configured to only decode AIM128 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 AIM128 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only AIM128 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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

EAN-8

Restore Factory Defaults

Restore the Factory Defaults of EAN-8

Enable/Disable EAN-8

Enable EAN-8 (default)

Disable EAN-8

2-Digit Add-On Code

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

- **Disable 2-Digit Add-On Code:** The scanner decodes EAN-8 and ignores the add-on code when presented with an EAN-8 plus 2-digit add-on barcode. It can also decode EAN-8 barcodes without 2-digit add-on codes.
- **Enable 2-Digit Add-On Code:** The scanner decodes a mix of EAN-8 barcodes with and without 2-digit add-on codes.
- **Decode EAN-8 + 2-Digit Add-On Code Only:** The scanner only decodes EAN-8 barcodes that contain 2-digit add-on codes.

Disable 2-Digit Add-On Code (default)

Enable 2-Digit Add-On Code

Decode EAN-8 + 2-Digit Add-On Code Only

5-Digit Add-On Code

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

- **Disable 5-Digit Add-On Code:** The scanner decodes EAN-8 and ignores the add-on code when presented with an EAN-8 plus 5-digit add-on barcode. It can also decode EAN-8 barcodes without 5-digit add-on codes.
- **Enable 5-Digit Add-On Code:** The scanner decodes a mix of EAN-8 barcodes with and without 5-digit add-on codes.
- **Decode EAN-8 + 5-Digit Add-On Code Only:** The scanner only decodes EAN-8 barcodes that contain 5-digit add-on codes.

Disable 5-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Decode EAN-8 + 5-Digit Add-On Code Only

EAN-8 Extension

- ✧ **Disable EAN-8 Zero Extend:** Transmit EAN-8 barcodes as is.
- ✧ **Enable EAN-8 Zero Extend:** Add five leading zeros to decoded EAN-8 barcodes to extend to13 digits.
- ✧ **Convert EAN-8 to EAN-13:** Add five leading zeros to decoded EAN-8 barcodes to make them compatible in format to EAN-13 barcodes.

Disable EAN-8 Zero Extend (default)

Enable EAN-8 Zero Extend

Convert EAN-8 to EAN-13

Transmit Check Character

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

Transmit EAN-8 Check Character (default)

Do Not Transmit EAN-8 Check Character

EAN-13

Restore Factory Defaults

Restore the Factory Defaults of EAN-13

Enable/Disable EAN-13

Enable EAN-13 (default)

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.

Transmit EAN-13 Check Character (default)

Do Not Transmit EAN-13 Check Character

2-Digit Add-On Code

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

- **Disable 2-Digit Add-On Code:** The scanner decodes EAN-13 and ignores the add-on code when presented with an EAN-13 plus 2-digit add-on barcode. It can also decode EAN-13 barcodes without 2-digit add-on codes.
- **Enable 2-Digit Add-On Code:** The scanner decodes a mix of EAN-13 barcodes with and without 2-digit add-on codes.
- **Decode EAN-13 + 2-Digit Add-On Code Only:** The scanner only decodes EAN-13 barcodes that contain 2-digit add-on codes.

Disable 2-Digit Add-On Code (default)

Enable 2-Digit Add-On Code

Decode EAN-13 + 2-Digit Add-On Code Only

5-Digit Add-On Code

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

- **Disable 5-Digit Add-On Code:** The scanner decodes EAN-13 and ignores the add-on code when presented with an EAN-13 plus 5-digit add-on barcode. It can also decode EAN-13 barcodes without 5-digit add-on codes.
- **Enable 5-Digit Add-On Code:** The scanner decodes a mix of EAN-13 barcodes with and without 5-digit add-on codes.
- **Decode EAN-13 + 5-Digit Add-On Code Only:** The scanner only decodes EAN-13 barcodes that contain 5-digit add-on codes.

Disable 5-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Decode EAN-13 + 5-Digit Add-On Code Only

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 “2 or 5-Digit Add-On Code” feature.

Do Not Require Add-On Code (default)

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 “2 or 5-Digit Add-On Code” feature.

Do Not Require Add-On Code (default)

Require Add-On Code

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 “2 or 5-Digit Add-On Code” feature.

Do Not Require Add-On Code (default)

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 “2 or 5-Digit Add-On Code” feature.

Do Not Require Add-On Code (default)

Require Add-On Code

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 “2 or 5-Digit Add-On Code” feature.

Do Not Require Add-On Code (default)

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 “2 or 5-Digit Add-On Code” feature.

Do Not Require Add-On Code (default)

Require Add-On Code

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 “2 or 5-Digit Add-On Code” feature.

Do Not Require Add-On Code (default)

Require Add-On Code

ISSN

Restore Factory Defaults

Restore the Factory Defaults of ISSN

Enable/Disable ISSN

Enable ISSN

Disable ISSN (default)

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ISBN

Restore Factory Defaults

Restore the Factory Defaults of ISBN

Enable/Disable ISBN

Enable ISBN

Disable ISBN (default)

Set ISBN Format

ISBN-13 (default)

ISBN-10

UPC-E

Restore Factory Defaults

Restore the Factory Defaults of UPC-E

Enable/Disable UPC-E

Enable UPC-E (default)

Disable UPC-E

Transmit Check Character

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

Transmit UPC-E Check Character (default)

Do Not Transmit UPC-E Check Character

2-Digit Add-On Code

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

- **Disable 2-Digit Add-On Code:** The scanner decodes UPC-E and ignores the add-on code when presented with a UPC-E plus 2-digit add-on barcode. It can also decode UPC-E barcodes without 2-digit add-on codes.
- **Enable 2-Digit Add-On Code:** The scanner decodes a mix of UPC-E barcodes with and without 2-digit add-on codes.
- **Decode UPC-E + 2-Digit Add-On Code Only:** The scanner only decodes UPC-E barcodes that contain 2-digit add-on codes.

Disable 2-Digit Add-On Code (default)

Enable 2-Digit Add-On Code

Decode UPC-E + 2-Digit Add-On Code Only

5-Digit Add-On Code

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

- **Disable 5-Digit Add-On Code:** The scanner decodes UPC-E and ignores the add-on code when presented with a UPC-E plus 5-digit add-on barcode. It can also decode UPC-E barcodes without 5-digit add-on codes.
- **Enable 5-Digit Add-On Code:** The scanner decodes a mix of UPC-E barcodes with and without 5-digit add-on codes.
- **Decode UPC-E + 5-Digit Add-On Code Only:** The scanner only decodes UPC-E barcodes that contain 5-digit add-on codes.

Disable 5-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Decode UPC-E + 5-Digit Add-On Code Only

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 (default)

System Character

System Character & Country Code

UPC-E Extension

- **Disable UPC-E Extend:** Transmit UPC-E barcodes as is.
- **Enable UPC-E Extend:** Extend UPC-E barcodes to make them compatible in length to UPC-A.
- **Convert UPC-E to UPC-A:** Extend UPC-E barcodes to make them compatible in format to UPC-A.

Disable UPC-E Extend (default)

Enable UPC-E Extend

Convert UPC-E to UPC-A

UPC-A

Restore Factory Defaults

Restore the Factory Defaults of UPC-A

Enable/Disable UPC-A

Enable UPC-A (default)

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 (default)

Do Not Transmit UPC-A Check Character

Transmit Preamble Character

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

No Preamble

System Character (default)

System Character & Country Code

2-Digit Add-On Code

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

- **Disable 2-Digit Add-On Code:** The scanner decodes UPC-A and ignores the add-on code when presented with a UPC-A plus 2-digit add-on barcode. It can also decode UPC-A barcodes without 2-digit add-on codes.
- **Enable 2-Digit Add-On Code:** The scanner decodes a mix of UPC-A barcodes with and without 2-digit add-on codes.
- **Decode UPC-A + 2-Digit Add-On Code Only:** The scanner only decodes UPC-A barcodes that contain 2-digit add-on codes.

Disable 2-Digit Add-On Code (default)

Enable 2-Digit Add-On Code

Decode UPC-A + 2-Digit Add-On Code Only

5-Digit Add-On Code

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

- **Disable 5-Digit Add-On Code:** The scanner decodes UPC-A and ignores the add-on code when presented with a UPC-A plus 5-digit add-on barcode. It can also decode UPC-A barcodes without 5-digit add-on codes.
- **Enable 5-Digit Add-On Code:** The scanner decodes a mix of UPC-A barcodes with and without 5-digit add-on codes.
- **Decode UPC-A + 5-Digit Add-On Code Only:** The scanner only decodes UPC-A barcodes that contain 5-digit add-on codes.

Disable 5-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Decode UPC-A + 5-Digit Add-On Code Only

Interleaved 2 of 5

Restore Factory Defaults

Restore the Factory Defaults of Interleaved 2 of 5

Enable/Disable Interleaved 2 of 5

Enable Interleaved 2 of 5 (default)

Disable Interleaved 2 of 5

Check Character Verification

Disable

Do Not Transmit Check Character After Verification (default)

Transmit Check Character After Verification

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

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.

Restore the Factory Defaults of ITF-6

Disable ITF-6 (default)

Enable ITF-6, Do Not Transmit Check Character

Enable ITF-6, Transmit Check Character

Note: It is advisable not to enable ITF-6 and Interleaved 2 of 5 at the same time.

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.

Restore the Factory Defaults of ITF-14

Enable ITF-14, Do Not Transmit Check Character

Disable ITF-14 (default)

Enable ITF-14, Transmit Check Character

Note: It is advisable not to enable ITF-14 and Interleaved 2 of 5 at the same time.

Deutsche 14

Restore Factory Defaults

Restore the Factory Defaults of Deutsche 14

Enable/Disable Deutsche 14

Enable Deutsche 14, Do Not Transmit Check Character

Disable Deutsche 14 (default)

Enable Deutsche 14, 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.

Deutsche 12

Restore Factory Defaults

Restore the Factory Defaults of Deutsche 12

Enable/Disable Deutsche 12

Enable Deutsche 12, Do Not Transmit Check Character

Disable Deutsche 12 (default)

Enable Deutsche 12, 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.

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 (default)

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

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 (default)

Disable Matrix 2 of 5

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

Industrial 25

Restore Factory Defaults

Restore the Factory Defaults of Industrial 25

Enable/Disable Industrial 25

Enable Industrial 25 (default)

Disable Industrial 25

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

Standard 25

Restore Factory Defaults

Restore the Factory Defaults of Standard 25

Enable/Disable Standard 25

Enable Standard 25 (default)

Disable Standard 25

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

Code 39

Restore Factory Defaults

Restore the Factory Defaults of Code 39

Enable/Disable Code 39

Enable Code 39 (default)

Disable Code 39

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

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.

Transmit Start/Stop Character (default)

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.

Disable Code 39 Full ASCII

Enable Code 39 Full ASCII (default)

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

Enable/Disable Code 32

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 (default)

Enable Code 32

Code 32 Prefix

Scan the appropriate bar code 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 (default)

Enable Code 32 Prefix

Transmit Code 32 Check Character

Code 32 must be enabled for this parameter to function.

Do Not Transmit Code 32 Check Character (default)

Transmit Code 32 Check Character

Transmit Code 32 Start/Stop Character

Code 32 must be enabled for this parameter to function.

Do Not Transmit Code 32 Start/Stop Character (default)

Transmit Code 32 Start/Stop Character

Codabar

Restore Factory Defaults

Restore the Factory Defaults of Codabar

Enable/Disable Codabar

Enable Codabar (default)

Disable Codabar

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

Transmit Start/Stop Character

Do Not Transmit Start/Stop Character

Transmit Start/Stop Character (default)

ABCD/ABCD as the Start/Stop Character (default)

ABCD/TN*E as the Start/Stop Character

abcd/abcd as the Start/Stop Character

abcd/tn*e as the Start/Stop Character

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

Code 93

Restore Factory Defaults

Restore the Factory Defaults of Code 93

Enable/Disable Code 93

Enable Code 93 (default)

Disable Code 93

Check Character Verification

Disable

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification (default)

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

Code 11

Restore Factory Defaults

Restore the Factory Defaults of Code 11

Enable/Disable Code 11

Enable Code 11

Disable Code 11 (default)

Check Character Verification

Disable

One Check Character, MOD11 (default)

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 (default)

Transmit Check Character

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

Plessey

Restore Factory Defaults

Restore the Factory Defaults of Plessey

Enable/Disable Plessey

Enable Plessey

Disable Plessey (default)

Check Character Verification

Disable

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification (default)

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

MSI-Plessey

Restore Factory Defaults

Restore the Factory Defaults of MSI-Plessey

Enable/Disable MSI-Plessey

Enable MSI-Plessey

Disable MSI-Plessey (default)

Check Character Verification

Disable

One Check Character, MOD10 (default)

Two Check Characters, MOD10/MOD10

Two Check Characters, MOD10/MOD11

Do Not Transmit Check Character (default)

Transmit Check Character

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (1D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

GS1 Databar

Restore Factory Defaults

Restore the Factory Defaults of GS1 Databar

Enable/Disable GS1 Databar

Enable GS1 Databar (default)

Disable GS1 Databar

2D Scanner

Global Settings

Enable/Disable All Symbologies

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

Enable All Symbologies

Disable All Symbologies

Enable/Disable 1D Symbologies

If the **Disable 1D Symbologies** feature is enabled, the scanner will not be able to read any 1D barcodes.

Enable 1D Symbologies

Disable 1D Symbologies

Enable/Disable 2D Symbologies

If the **Disable 2D Symbologies** feature is enabled, the scanner will not be able to read any 2D barcodes.

Enable 2D Symbologies

Disable 2D Symbologies

Video Reverse

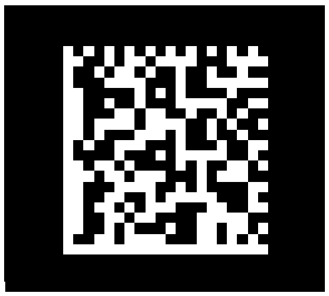
The **Video Reverse** feature only applies to 2D barcodes.

Regular barcode: Dark image on a bright background.

Inverse barcode: Bright image on a dark background.

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

Regular Barcode



Inverse Barcode

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

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

Video Reverse OFF: Read regular barcodes only.

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

Video Reverse ON

Video Reverse OFF (default)

Code 128

Restore Factory Defaults

Restore the Factory Defaults of Code 128

Enable/Disable Code 128

Enable Code 128 (default)

Disable Code 128

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 Code 128 barcodes containing between 8 and 12 characters

1. Scan the **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

GS1-128 (UCC/EAN-128)

Restore Factory Defaults

Restore the Factory Defaults of GS1-128

Enable/Disable GS1-128

Enable GS1-128 (default)

Disable GS1-128

Set Length Range for GS1-128

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

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

Set the Minimum Length

Set the Maximum Length

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

1. Scan the **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

AIM-128

Restore Factory Defaults

Restore the Factory Defaults of AIM-128

Enable/Disable AIM-128

Enable AIM-128 (default)

Disable AIM-128

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

EAN-8

Restore Factory Defaults

Restore the Factory Defaults of EAN-8

Enable/Disable EAN-8

Enable EAN-8 (default)

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.

Transmit EAN-8 Check Character (default)

Do Not Transmit EAN-8 Check Character

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. In the examples below, the part surrounded by blue dotted line is an EAN-8 barcode while the part circled by red dotted line is add-on code.

Enable 2-Digit Add-On Code

Disable 2-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code (default)

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.

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 (default)

EAN-8 Extension

Disable EAN-8 Zero Extend: Transmit EAN-8 barcodes as is.

Enable EAN-8 Zero Extend: Add five leading zeros to decoded EAN-8 barcodes to extend to13 digits.

Enable EAN-8 Zero Extend

Disable EAN-8 Zero Extend (default)

EAN-13

Restore Factory Defaults

Restore the Factory Defaults of EAN-13

Enable/Disable EAN-13

Enable EAN-13 (default)

Disable EAN-13

Transmit Check Character

Transmit EAN-13 Check Character (default)

Do Not Transmit EAN-13 Check Character

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

Disable 2-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code (default)

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.

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 (default)

EAN-13 Beginning with 290 Add-On Code Required (For BS8060-2T)

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 (default)

Require Add-On Code

EAN-13 Beginning with 378/379 Add-On Code Required (For BS8060-2T)

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 (default)

Require Add-On Code

EAN-13 Beginning with 414/419 Add-On Code Required (For BS8060-2T)

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 (default)

Require Add-On Code

EAN-13 Beginning with 434/439 Add-On Code Required (For BS8060-2T)

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 (default)

Require Add-On Code

EAN-13 Beginning with 977 Add-On Code Required (For BS8060-2T)

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 (default)

Require Add-On Code

EAN-13 Beginning with 978 Add-On Code Required (For BS8060-2T)

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 (default)

Require Add-On Code

EAN-13 Beginning with 979 Add-On Code Required (For BS8060-2T)

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 (default)

Require Add-On Code

ISSN

Restore Factory Defaults

Restore the Factory Defaults of ISSN

Enable/Disable ISSN

Enable ISSN

Disable ISSN (default)

Add-On Code

An ISSN 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

Disable 2-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code (default)

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of ISSN 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 ISSN and ignores the add-on code when presented with an ISSN plus add-on barcode. It can also decode ISSN barcodes without add-on codes.

Add-On Code Required

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

ISSN Add-On Code Required

ISSN Add-On Code Not Required (default)

ISBN

Restore Factory Default

Restore the Factory Defaults of ISBN

Enable/Disable ISBN

Enable ISBN (default)

Disable ISBN

Set ISBN Format

ISBN-13 (default)

ISBN-10

Add-On Code

An ISBN 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

Disable 2-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code (default)

Enable 2-Digit Add-On Code/ Enable 5-Digit Add-On Code: The scanner decodes a mix of ISBN 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 ISBN and ignores the add-on code when presented with an ISBN plus add-on barcode. It can also decode ISBN barcodes without add-on codes.

Add-On Code Required

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

ISBN Add-On Code Required

ISBN Add-On Code Not Required (default)

UPC-E

Restore Factory Defaults

Restore the Factory Defaults of UPC-E

Enable/Disable UPC-E

Enable UPC-E (default)

Disable UPC-E

Transmit Check Character

Transmit UPC-E Check Character (default)

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

Disable 2-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code (default)

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.

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 (default)

Transmit System Character “0”

The first character of UPC-E barcode is the system character “0”.

Transmit System Character “0” (default)

Do Not Transmit System Character “0”

UPC-E Extension

Disable UPC-E Extend: Transmit UPC-E barcodes as is.

Enable UPC-E Extend: Extend UPC-E barcodes to make them compatible in length to UPC-A.

Enable UPC-E Extend

Disable UPC-E Extend (default)

UPC-A

Restore Factory Defaults

Restore the Factory Defaults of UPC-A

Enable/Disable UPC-A

Enable UPC-A (default)

Disable UPC-A

Transmit Check Character

Transmit UPC-A Check Character (default)

Do Not Transmit UPC-A Check Character

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

Disable 2-Digit Add-On Code (default)

Enable 5-Digit Add-On Code

Disable 5-Digit Add-On Code (default)

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.

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 (default)

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).

System Character & Country Code

System Character (default)

Interleaved 2 of 5

Restore Factory Defaults

Restore the Factory Defaults of Interleaved 2 of 5

Enable/Disable Interleaved 2 of 5

Enable Interleaved 2 of 5 (default)

Disable Interleaved 2 of 5

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

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 (default)

Do Not Transmit Check Character After Verification

Transmit Check Character After Verification

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.

Restore the Factory Defaults of ITF-14

Disable ITF-14

Enable ITF-14 But Do Not Transmit Check Character (default)

Enable ITF-14 and Transmit Check Character

Note: It is advisable not to enable ITF-14 and Interleaved 2 of 5 at the same time.

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.

Restore the Factory Defaults of ITF-6

Disable ITF-6 (default)

Enable ITF-6 But Do Not Transmit Check Character

Enable ITF-6 and Transmit Check Character

Note: It is advisable not to enable ITF-6 and Interleaved 2 of 5 at the same time.

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 (default)

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Check Character Verification

Disable

Do Not Transmit Check Character After Verification (default)

Transmit Check Character After Verification

Industrial 2 of 5

Restore Factory Defaults

Restore the Factory Defaults of Industrial 2 of 5

Enable/Disable Industrial 2 of 5

Enable Industrial 2 of 5 (default)

Disable Industrial 2 of 5

Set Length Range for Industrial 2 of 5

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

Standard 25 (IATA 2 of 5)

Restore Factory Defaults

Restore the Factory Defaults of Standard 25

Enable/Disable Standard 25

Enable Standard 25 (default)

Disable Standard 25

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

Code 39

Restore Factory Defaults

Restore the Factory Defaults of Code 39

Enable/Disable Code 39

Enable Code 39 (default)

Disable Code 39

Transmit Start/Stop Character

Transmit Start/Stop Character

Do not Transmit Start/Stop Character (default)

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

Enable/Disable Code 39 Full ASCII

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

Enable Code 39 Full ASCII (default)

Disable Code 39 Full ASCII

Enable/Disable Code 32 (For BS8060-2T)

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 (default)

Enable Code 32

Code 32 Prefix (For BS8060-2T)

Scan the appropriate bar code 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 (default)

Enable Code 32 Prefix

Transmit Code 32 Check Character (For BS8060-2T)

Code 32 must be enabled for this parameter to function.

Do Not Transmit Code 32 Check Character (default)

Transmit Code 32 Check Character

Transmit Code 32 Start/Stop Character (For BS8060-2T)

Code 32 must be enabled for this parameter to function.

Do Not Transmit Code 32 Start/Stop Character (default)

Transmit Code 32 Start/Stop Character

Codabar

Restore Factory Defaults

Restore the Factory Defaults of Codabar

Enable/Disable Codabar

Enable Codabar (default)

Disable Codabar

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Check Character Verification

Disable (default)

Transmit Check Character After Verification

Do Not Transmit Check Character After Verification

Transmit Start/Stop Character

Transmit Start/Stop Character

Do not Transmit Start/Stop Character (default)

Start/Stop Character Format

You can choose your desired start/stop character format by scanning the appropriate barcode below.

ABCD/ABCD as the Start/Stop Character (default)

ABCD/TN*E as the Start/Stop Character

Start/Stop Character in Uppercase

Start/Stop Character in Lowercase

Code 93

Restore Factory Defaults

Restore the Factory Defaults of Code 93

Enable/Disable Code 93

Enable Code 93 (default)

Disable Code 93

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Check Character Verification

Disable

Do Not Transmit Check Character After Verification (default)

Transmit Check Character After Verification

GS1-Databar (RSS)

Restore Factory Defaults

Restore the Factory Defaults of GS1-Databar

Enable/Disable GS1 Databar

Enable GS1-DataBar (default)

Disable GS1-DataBar

Transmit Application Identifier “01”

Transmit Application Identifier “01” (default)

Do Not Transmit Application Identifier “01”

Code 11

Restore Factory Defaults

Restore the Factory Defaults of Code 11

Enable/Disable Code 11

Enable Code 11 (default)

Disable Code 11

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Transmit Check Character

Transmit Check Character

Do Not Transmit Check Character (default)

Check Character Verification

Disable

One Check Character, MOD11 (default)

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)

Plessey

Restore Factory Defaults

Restore the Factory Defaults of Plessey

Enable/Disable Plessey

Enable Plessey (default)

Disable Plessey

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Check Character Verification

Disable

Do Not Transmit Check Character After Verification (default)

Transmit Check Character After Verification

MSI-Plessey

Restore Factory Defaults

Restore the Factory Defaults of MSI-Plessey

Enable/Disable MSI-Plessey

Enable MSI-Plessey (default)

Disable MSI-Plessey

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 **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Transmit Check Character

Transmit Check Character

Do Not Transmit Check Character (default)

Check Character Verification

Disable

One Check Character, MOD10 (default)

Two Check Characters, MOD10/MOD10

Two Check Characters, MOD10/MOD11

PDF 417

Restore Factory Defaults

Restore the Factory Defaults of PDF 417

Enable/Disable PDF 417

Enable PDF 417 (default)

Disable PDF 417

Set Length Range for PDF 417

The scanner can be configured to only decode PDF 417 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 PDF 417 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only PDF 417 barcodes with that length are to be decoded.

Set the Minimum Length

Set the Maximum Length

Example: Set the scanner to decode PDF 417 barcodes containing between 8 and 12 characters

1. Scan the **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

PDF 417 Twin Code

PDF417 twin code is 2 PDF417 barcodes paralleled vertically or horizontally. They must both be either regular or inverse barcodes. They must have similar specifications and be placed closely together.

There are 3 options for reading PDF417 twin codes:

Single PDF417 Only: Read either PDF417 code.

Twin PDF417 Only: Read both PDF417 codes.

Both Single & Twin: Read both PDF417 codes. If successful, transmit as twin PDF417 only. Otherwise, try single PDF417 only.

Single PDF417 Only (default)

Twin PDF417 Only

Both Single & Twin

QR Code

Restore Factory Defaults

Restore the Factory Defaults of QR Code

Enable/Disable QR Code

Enable QR Code (default)

Disable QR Code

Micro QR

Enable Micro QR (default)

Disable Micro QR

Set Length Range for QR Code

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

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

Set the Minimum Length

Set the Maximum Length

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

1. Scan the **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

QR Twin Code

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

There are 3 options for reading QR twin codes:

Single QR Only: Read either QR code.

Twin QR Only: Read both QR codes.

Both Single & Twin: Read both QR codes. If successful, transmit as twin QR only. Otherwise, try single QR only.

Single QR Only (default)

Twin QR Only

Both Single & Twin

Data Matrix

Restore Factory Defaults

Restore the Factory Defaults of Data Matrix

Enable/Disable Data Matrix

Enable Data Matrix (default)

Disable Data Matrix

Set Length Range for Data Matrix

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

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

Set the Minimum Length

Set the Maximum Length

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

1. Scan the **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Rectangular Barcode

Enable Rectangular Barcode (default)

Disable Rectangular Barcode

Mirror Image

Decode Mirror Images (default)

Do Not Decode Mirror Images

Data Matrix Twin Code

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

There are 3 options for reading Data Matrix twin codes:

Single Data Matrix Only: Read either Data Matrix code.

Twin Data Matrix Only: Read both Data Matrix codes. Transmission order: Data Matrix code on the left (in the upper position) followed by the one on the right (in the lower position).

Both Single & Twin: Read both Data Matrix codes. If successful, transmit as twin Data Matrix only. Otherwise, try single Data Matrix only.

Single Data Matrix Only (default)

Twin Data Matrix Only

Both Single & Twin

Chinese Sensible Code

Restore Factory Defaults

Restore the Factory Defaults of Chinese Sensible Code

Enable/Disable Chinese Sensible Code

Enable Chinese Sensible Code

Disable Chinese Sensible Code (default)

Set Length Range for Chinese Sensible Code

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

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

Set the Minimum Length

Set the Maximum Length

Example: Set the scanner to decode Chinese Sensible Code barcodes containing between 8 and 12 characters

1. Scan the **Set the Minimum Length** barcode.
2. Scan the numeric barcode “8” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Set the Maximum Length** barcode.
5. Scan the numeric barcodes “1” and “2” from the “Digit Barcodes (2D Scanner)” section in Appendix.
6. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Chapter 4 Prefix & Suffix

1D Scanner

After a successful barcode reading, a string containing numbers, letters or symbols will be returned.

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 the following sections.

The scanner can be configured to transmit barcode data in the following format:

[Code ID] + [Custom Prefix] + [DATA] + [Custom Suffix] + [Terminating Character]

Note: [DATA] must be transmitted while user can decide whether to transmit any of the rest parts.

Prefix Sequence

Code ID+Custom+AIM ID (default)

Custom+Code ID+AIM ID

Custom Prefix

Enable/Disable Custom Prefix

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

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

Disable Custom Prefix (default)

Enable Custom Prefix

Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode, the numeric barcodes that represent the hexadecimal value of desired prefix(es) and the **Save** barcode.

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 **Set Custom Prefix** barcode.
2. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the Save/Cancel Barcodes (1D Scanner)” section in Appendix.

AIM ID Prefix

AIM (Automatic Identification Manufacturers) ID defines symbology identifier (For the details, see the “AIM ID Table (1D Scanner)” section in Appendix). If AIM ID prefix is enabled, the scanner will add the symbology identifier before the scanned data after decoding.

Enable AIM ID Prefix

Disable AIM ID Prefix(default)

Code ID Prefix

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

Disable Code ID Prefix (default)

Enable Code ID Prefix

Restore All Default Code IDs

For the information of default Code IDs, see the “Code ID Table (1D Scanner)**”** section in Appendix.

Restore Default Code IDs

Modify Code ID

Code ID of each symbology can be programmed separately. See the following example to learn how to program a Code ID.

Example: Set the Code ID of Code 128 to “p”

1. Check the hex value of “p” in the ASCII Table. (“p”: 70)
2. Scan the **Modify Code 128 Code ID** barcode.
3. Scan the numeric barcodes “7” and “0” from the “Digit Barcodes (1D Scanner)” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

Modify Code 128 Code ID

Modify UCC/EAN 128 Code ID

Modify AIM 128 Code ID

Modify EAN-8 Code ID

Modify EAN-13 Code ID

Modify ISSN Code ID

Modify ISBN Code ID

Modify UPC-E Code ID

Modify UPC-A Code ID

Modify Interleaved 2 of 5 Code ID

Modify ITF-6 Code ID

Modify ITF-14 Code ID

Modify Deutsche 14 Code ID

Modify Deutsche 12 Code ID

Modify COOP25 Code ID

Modify Matrix 2 of 5 Code ID

Modify Industrial 25 Code ID

Modify Standard 25 Code ID

Modify Code 39 Code ID

Modify Codabar Code ID

Modify Code 93 Code ID

Modify Code 11 Code ID

Modify Plessey Code ID

Modify MSI-Plessey Code ID

Modify GS1 Databar Code ID

Custom Suffix

Enable/Disable Custom Suffix

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

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

Disable Custom Suffix (default)

Enable Custom Suffix

Set Custom Suffix

To set a custom suffix, scan the **Set Custom Suffix** barcode, the numeric barcodes that represent the hexadecimal value of desired suffix(es) and the **Save** barcode.

Note: A custom suffix cannot exceed 11 characters.

Set Custom Suffix

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

1. Scan the **Set Custom Suffix** barcode.
2. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

Terminating Character Suffix

Enable/Disable Terminating Character Suffix

A terminating character such as carriage return (CR) or carriage return/line feed pair (CRLF) can only be used to mark the end of data, which means nothing can be added after it. A terminating character suffix cannot exceed 7 characters.

Disable Terminating Character Suffix (default)

Enable Terminating Character Suffix

Set Terminating Character Suffix

To set a terminating character suffix, scan the **Set Terminating Character Suffix** barcode, the numeric barcodes that represent the hexadecimal value of desired terminating character(s) and the **Save** barcode.

You can also quickly set the terminating character suffix to 0x0D (CR) or 0x0D,0x0A (CRLF) and enable the transmission of it by scanning the **Terminating Character 0x0D (CR)** or **Terminating Character 0x0D,0x0A (CRLF)** barcode below.

Terminating Character 0x0D (CR)

Terminating Character 0x0D,0x0A (CRLF)

Set Terminating Character Suffix

Example: Set the terminating character to “0x0A” (LF)

1. Scan the **Set Terminating Character Suffix** barcode.
2. Scan the numeric barcodes “0” and “A” from the “Digit Barcodes (1D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (1D Scanner)” section in Appendix.

2D Scanner

In many applications, barcode data needs to be edited and distinguished from one another.

Usually AIM ID and Code ID can be used as identifiers, but in some special cases customized prefix and terminating character suffix like Carriage Return or Line Feed can also be the alternatives.

Data formatting may include:

- Append AIM ID/Code ID/custom prefix before the decoded data
- Append custom suffix after the decoded data
- Append terminating character to the end of the data

The following formats can be used when editing barcode data:

- [Code ID] + [Custom Prefix] + [AIM ID] + [DATA] + [Custom Suffix] + [Terminating Character]
- [Custom Prefix] + [Code ID] + [AIM ID] + [DATA] + [Custom Suffix] + [Terminating Character]

Prefix Sequences

Code ID+Custom Prefix+AIM ID

Custom Prefix+Code ID+AIM ID (default)

Custom Prefix

Enable/Disable Custom Prefix

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

Enable Custom Prefix

Disable Custom Prefix (default)

Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode and the numeric barcodes representing the hexadecimal values 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”

1. Check the hex values of “CODE” in the ASCII Table. (“CODE”: 43, 4F, 44, 45)
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 (2D Scanner)” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

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 (2D Scanner)” section in Appendix. If AIM ID prefix is enabled, the scanner will add the symbology identifier before the scanned data after decoding.

Enable AIM ID Prefix

Disable AIM ID Prefix(default)

Code ID Prefix

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

Enable Code ID Prefix

Disable Code ID Prefix (default)

Restore All Default Code IDs

For the information of default Code IDs, see the “Code ID Table (2D Scanner)” section in Appendix.

Restore All Default Code IDs

Modify Code ID

Code ID of each symbology can be programmed separately. See the following example to learn how to program a Code ID.

Example: Set the Code ID of PDF417 to “p”

1. Check the hex value of “p” in the ASCII Table. (“p”: 70)
2. Scan the **Modify PDF417 Code ID** barcode.
3. Scan the numeric barcodes “7” and “0” from the “Digit Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Modify PDF417 Code ID

Modify Data Matrix Code ID

Modify QR Code ID

Modify Chinese Sensible Code ID

Modify Code 128 Code ID

Modify GS1-128 Code ID

Modify AIM-128 Code ID

Modify EAN-8 Code ID

Modify EAN-13 Code ID

Modify UPC-E Code ID

Modify UPC-A Code ID

Modify ISBN Code ID

Modify ISSN Code ID

Modify Code 39 Code ID

Modify Code 93 Code ID

Modify Interleaved 2 of 5 Code ID

Modify ITF-14 Code ID

Modify ITF-6 Code ID

Modify Codabar Code ID

Modify Industrial 25 Code ID

Modify Standard 25 Code ID

Modify Matrix 25 Code ID

Modify COOP 25 Code ID

Modify Code 11 Code ID

Modify Plessey Code ID

Modify MSI/Plessey Code ID

Modify GS1 Databar Code ID

Custom Suffix

Enable/Disable Custom Suffix

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

Enable Custom Suffix

Disable Custom Suffix (default)

Set Custom Suffix

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

Note: A custom suffix cannot exceed 11 characters.

Set Custom Suffix

Example: Set the custom suffix to “CODE”

1. Check the hex values of “CODE” in the ASCII Table. (“CODE”: 43, 4F, 44, 45)
2. Scan the **Set Custom Suffix** barcode.
3. Scan the numeric barcodes “4”, “3”, “4”, “F”, “4”, “4”, “4” and “5” from the “Digit Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Terminating Character Suffix

A terminating character can be used to mark the end of data, which means nothing can be added after it.

A terminating character suffix can contain 1-7 characters.

Enable/Disable Terminating Character Suffix

To enable/disable terminating character suffix, scan the appropriate barcode below.

Enable Terminating Character Suffix (default)

Disable 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) (default)

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 of a desired terminating character and then scan the **Save** barcode. Refer to the “ASCII Table” in Appendix for hexadecimal values of terminating characters.

Note: A terminating character suffix cannot exceed 7 characters.

Set Terminating Character Suffix

Example: Set the terminating character suffix to 0x0A

1. Scan the **Set Terminating Character Suffix** barcode.
2. Scan the numeric barcodes “0” and “A” from the “Digit Barcodes (2D Scanner)” section in Appendix.
3. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Chapter 5 Scanning Preferences (For 2D Scanner Only)

Introduction

This chapter contains information as to how to adapt your scanner to various applications with preference setting. For instance, to narrow the field of view of the scanner to make sure it reads only those barcodes intended by the user.

Decode Area

Whole Area Decoding

When this option is enabled, the scanner attempts to decode barcode(s) within its field of view, from the center to the periphery, and transmits the barcode that has been first decoded.

Whole Area Decoding (default)

Specific Area Decoding

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

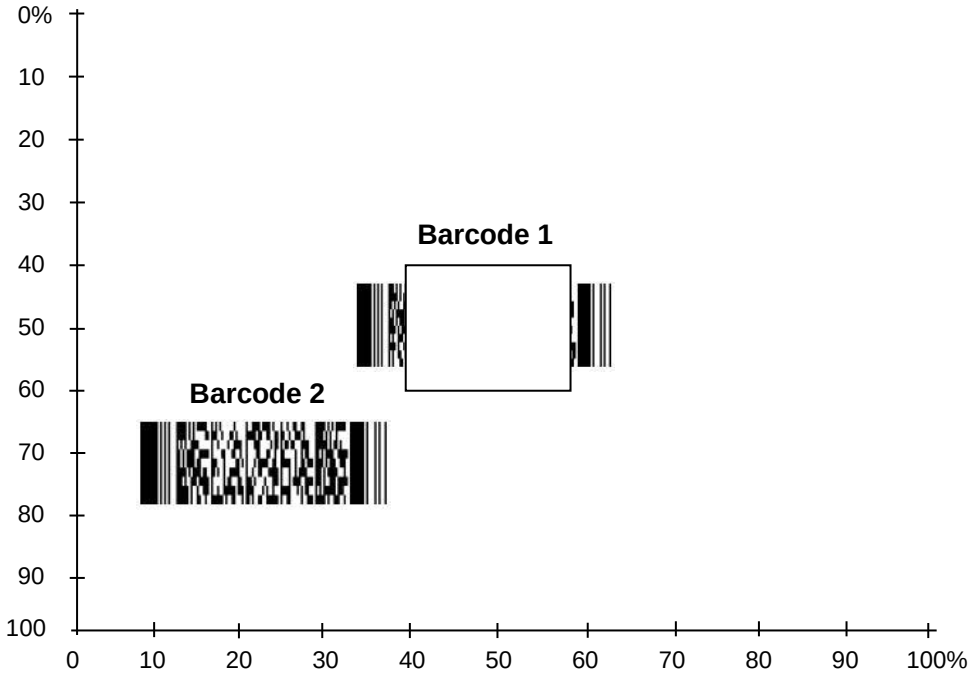
Specific Area Decoding

Specify Decoding Area

If **Specific Area Decoding** is enabled, the scanner only reads barcodes that intersect the predefined decoding area.

The default decoding area is an area of 40% top, 60% bottom, 40% left and 60% right of the scanner's field of view, as shown in the figure below. In the following example, the white box is the decoding area. Since Barcode 1 passes through the decoding area, it will be read. Barcode 2 does not pass through the decoding area, so it will not be read.

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



Top of Decoding Area

Bottom of Decoding Area

Left of Decoding Area

Right of Decoding Area

Example: Set the decoding area to 20% top, 80% bottom, 20% left and 80% right:

1. Scan the **Specific Area Decoding** barcode.
2. Scan the **Top of Decoding Area** barcode.
3. Scan the numeric barcodes “2” and “0” from the “Digit Barcodes (2D Scanner)” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
5. Scan the **Bottom of Decoding Area** barcode.
6. Scan the numeric barcodes “8” and “0” from the “Digit Barcodes (2D Scanner)” section in Appendix.
7. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
8. Scan the **Left of Decoding Area** barcode.
9. Scan the numeric barcodes “2” and “0” from the “Digit Barcodes (2D Scanner)” section in Appendix.
10. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.
11. Scan the **Right of Decoding Area** barcode.
12. Scan the numeric barcodes “8” and “0” from the “Digit Barcodes (2D Scanner)” section in Appendix.
13. Scan the **Save** barcode from the “Save/Cancel Barcodes (2D Scanner)” section in Appendix.

Chapter 6 Data Formatter

Introduction

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

Normally, when you scan a barcode, it gets outputted automatically; however, when you create a format, you must use a "send" command (see the "Send Commands" section in this chapter) within the format programming to output data. The maximum size of formatter commands in a data format is 128 characters. By default, the data formatter is disabled. Enable it when required. If you have changed data format settings, and wish to clear all formats and return to the factory defaults, scan the **Default Data Format** code below.

Default Data Format

Add a Data Format

Data format is used to edit barcode data 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 **Add Data Format** barcode.

Add Data Format

Step 2: 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 3: 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 4: Set interface type
Scan **999** for any interface type.

Step 5: Set Symbology ID Number
Refer to the “Symbology ID Number” section in Appendix and find the ID number of the symbology to which you want to apply the data format. Scan three numeric barcodes for the symbology ID number. If you wish to create a data format for all symbologies, scan **999**.

Step 6: 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 7: Enter formatter command
Refer to the “Formatter Command Type 6” section in this chapter. Scan the alphanumeric barcodes that represent the command you need to edit data. For example, when a command is F141, you should scan F141. A command can contain up to 112 characters.

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

Programming with Serial Commands

A data format can also be created by serial commands sent from the host device. The maximum size of a command string is 128 characters. The syntax consists of the following elements:

Add Data Format Command: $$%^5917 (8 characters).

Data format: 0~3 (1 character). 0, 1, 2 and 3 represent Format_0, Format_1, Format_2 and Format_3 respectively.

Formatter command type: 6 (1 character).

Interface type: 999 (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 symbologyrs (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. 128 characters). For more information, see the “Formatter Command Type 6” section.

Note: Serial command used to create a data format must conform to the syntax above. Returning “\r\n$$%~OK\r\n\” indicates success; returning “\r\n$$%~ER\r\n” indicates failure.

Example: Program format_0 using formatter command type 6, Code 128 containing 10 characters applicable, send all characters followed by “A”.

Serial command: **$$%^5917069990020010F141**

Enable/Disable Data Formatter

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

**** 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).

Enable Data Formatter, Required, Keep Prefix/Suffix

Enable Data Formatter, Required, Drop Prefix/Suffix

Enable Data Formatter, Not Required, Keep Prefix/Suffix

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.

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

Non-Match Error Beep OFF

Enable Data Format

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

**** Format_0**

Format_1

Format_2

Format_3

Change Data Format for a Single Scan

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

Clear Data Format

To delete all data formats, scan the barcode below.

Clear All

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

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

1234567890ABCDEFGHIJ

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

Command string: **F2100D**

F2 is the “Send a number of characters” command

10 is the number of characters to send

0D is the hex value for a CR

The data is output as: **1234567890**
<CR>

F3 Send all characters up to a particular character

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

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

F3 Example: Send all characters up to a particular character

1234567890ABCDEFGHIJ

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

Command string: **F3440D**

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

44 is the hex value for a "D"

0D is the hex value for a CR

The data is output as: **1234567890ABC**
<CR>

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.

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

1234567890ABCDEFGHIJ

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

Command string: **E908F40902**

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

08 is the number of characters at the end to ignore

F4 is the “Insert a character multiple times” command

09 is the hex value for a horizontal tab

02 is the number of times the tab character is sent

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

B3 Insert symbology name

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

B4 Insert barcode length

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

B3 and B4 Example: Insert the symbology name and length

1234567890ABCDEFGHIJ

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

Command string: **B3F42001B4F42001F10D**

B3 is the “Insert symbology name” command

F4 is the “Insert a character multiple times” command

20 is the hex value for a space

01 is the number of time the space character is sent

B4 is the “Insert barcode length” command

F4 is the “Insert a character multiple times” command

20 is the hex value for a space

01 is the number of time the space character is sent

F1 is the “Send all characters” command

0D is the hex value for a CR

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

Move Commands

F5 Move the cursor forward a number of characters

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

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

F5 Example: Move the cursor forward and send the data

1234567890ABCDEFGHIJ

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

Command string: **F503F10D**

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

03 is the number of characters to move the cursor

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **4567890ABCDEFGHIJ**
<CR>

F6 Move the cursor backward a number of characters

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

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

F7 Move the cursor to the beginning

Syntax＝F7

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

EA Move the cursor to the end

Syntax＝EA

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

Search Commands

F8 Search forward for a character

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

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

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

1234567890ABCDEFGHIJ

Search for the letter "D" in barcodes and send all the data that follows, including the "D". Using the barcode above:

Command string: **F844F10D**

F8 is the "Search forward for a character" command

44 is the hex value for "D"

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **DEFGHIJ**

<CR>

F9 Search backward for a character

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

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

B0 Search forward for a string

Syntax=B0nnnnS (nnnn: The string length (up to 9999); S: The ASCII hex value of each character in the string)

Search forward for “S” string from the current cursor position, leaving cursor pointing to “S” string. For example, B0000454657374 will search forward for the first occurrence of the 4-character string “Test.”

B0 Example: Send barcode data that starts after a string of characters

1234567890ABCDEFGHIJ

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

Command string: **B00003464748F10D**

B0 is the “Search forward for a string” command

0003 is the string length (3 characters)

46 is the hex value for “F”

47 is the hex value for “G”

48 is the hex value for “H”

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **FGHIJ**
<CR>

B1 Search backward for a string

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

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

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.

Miscellaneous Commands

FB Suppress characters

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

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

FB Example: Remove spaces in barcode data

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

Command string: **FB0120F10D**

FB is the “Suppress characters” command

01 is the number of the characters to be suppressed

20 is the hex value for a space

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **34567890**

<CR>

E4 Replace characters

Syntax＝E4nn$xx_1xx_2yy_1yy_2$…zz_1zz_2 (nn: The total count of the number of characters (characters to be replaced plus replacement characters; xx_1: The characters to be replaced, xx_2: The replacement characters, continuing through zz_1 and zz_2)

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>

BA Replace a string with another

Syntax＝BAnn$NN_1SS_1NN_2SS_2$

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

NN_1: The length of the string to be replaced, NN_1>0.

SS_1: The ASCII hex value of each character in the string to be replaced.

NN_2: The length of replacement string, NN_2>=0. To replace string "SS_1" with NUL (i.e. delete string "SS_1"), you should set NN_2 to 00 and leave out SS_2.

SS_2: The ASCII hex value of each character in the replacement string

From the current cursor position, search forward for the occurrence of "SS_1" string (of length "NN_1") and replace the string with "SS_2" string (of length "NN_2") in the output message until every "SS_1" string is replaced or the count of replacements made reaches "nn" times, without moving the cursor.

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

cd123abc23bc12ab232

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

Command string: **BA0002323303414243F100**

BA is the "Replace a string with another" command

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

02 is the length of the string to be replaced

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**

Appendix

Factory Defaults Table

Parameter	Factory Default	Remark
System Settings		
Operating Mode	Bluetooth mode	
Bluetooth Profile	HID	
Data Transmission via Bluetooth	Synchronous transmission	
USB Interface Type	USB HID-KBW	
Data Transmission via USB	Asynchronous transmission	
Verify Receipt of Data	Disabled	
Sound Notifications	Enabled	
Vibration Notifications	Disabled	
Bluetooth Device Name	“BS80+” with the last 4 characters of MAC address	
Response for Invalid Host Data	Enabled	
Barcode Separator	Disabled, None	
Packet Mode	Disabled	
ACK/NAK Retry Count	2	
ACK/NAK Timeout	200ms	
Auto Power-Off Timer	30 minutes	
Product Serial Number	Disabled	
Time Stamp	Disabled	
Date Format	Format 3: yyyy/mm/dd	
Keyboard Types	US English	USB HID-KBW/ BT HID
Character Encoding	ISO-8859-1	USB HID-KBW/ BT HID
Convert Case	No case conversion	USB HID-KBW/ BT HID
Emulate ALT + Keypad	Disabled	USB HID-KBW/ BT HID
Function Key Mapping	Disabled	USB HID-KBW/ BT HID
Emulate Numeric Keypad	Disabled	USB HID-KBW/ BT HID
Code Page	Windows 1252 (Latin I)	USB HID-KBW/ BT HID
Inter-Character Delay for Bluetooth HID	15ms	BT HID

Inter-Keystroke Delay for USB HID-KBW	0ms	USB HID-KBW

Parameter	Factory Default	Remark
Prefix & Suffix		
1D Scanner		
Prefix Sequence	Code ID+Custom Prefix+AIM ID	
AIM ID Prefix	Disabled	
Code ID Prefix	Disabled	1 or 2 English letters
Custom Prefix	Disabled None	Max: 11 characters
Custom Suffix	Disabled None	Max: 11 characters
Terminating Character Suffix	Disabled None	Max: 7 characters
2D Scanner		
Prefix Sequence	Custom Prefix+Code ID+AIM ID	
Custom Prefix	Disabled None	Max: 11 characters
AIM ID Prefix	Disabled	
Code ID Prefix	Disabled	1 or 2 English letters
Custom Suffix	Disabled None	Max: 11 characters
Terminating Character Suffix	Enabled 0x0D (CR)	Max: 7 characters
Scanning Preferences (For 2D scanner only)		
Decode Area	Whole Area Decoding	
Specify Decoding Area	40% top, 60% bottom, 40% left, 60% right	
Data Formatter		
Data Formatter	Disabled	
Data Format	Format_0	
Non-Match Error Beep	On	

Parameter	Factory Default	Remark
Symbologies		
1D Scanner		
Code 128		
Code 128	Enabled	
Maximum Length	255	
Minimum Length	1	
UCC/EAN-128		
UCC/EAN-128	Enabled	
Maximum Length	255	
Minimum Length	1	
AIM 128		
AIM 128	Disabled	
Maximum Length	255	
Minimum Length	1	
EAN-8		
EAN-8	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Decode EAN-8 + 2-digit Add-On Code Only	Disabled	
Decode EAN-8 + 5-digit Add-On Code Only	Disabled	
Extend to EAN-13	Disabled	
Convert to EAN-13	Disabled	
EAN-13		
EAN-13	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Decode EAN-13 + 2-digit Add-On Code Only	Disabled	
Decode EAN-13 + 5-digit Add-On Code Only	Disabled	
EAN-13 Beginning with 290 Add-On Code Required	Do Not Require Add-On Code	

EAN-13 Beginning with 378/379 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 414/419 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 434/439 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 977 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 978 Add-On Code Required	Do Not Require Add-On Code	
EAN-13 Beginning with 979 Add-On Code Required	Do Not Require Add-On Code	
ISSN		
ISSN	Disabled	
ISBN		
ISBN	Disabled	
ISBN Format	ISBN-13	
UPC-E		
UPC-E	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Decode UPC-A + 2-digit Add-On Code Only	Disabled	
Decode UPC-A + 5-digit Add-On Code Only	Disabled	
Extend to UPC-A	Disabled	
Convert to UPC-A	Disabled	
System Character	Do not transmit	
Country Code	Do not transmit	
UPC-A		
UPC-A	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Decode UPC-A + 2-digit Add-On Code Only	Disabled	
Decode UPC-A + 5-digit Add-On Code Only	Disabled	

System Character	Transmit	
Country Code	Do not transmit	
Interleaved 2 of 5		
Interleaved 2 of 5	Enabled	
Check Character Verification	Enabled	
Check Character	Do not transmit	
Maximum Length	255	
Minimum Length	6	No less than 2
ITF-6		
ITF-6	Disabled	
Check Character	Do not transmit	
ITF-14		
ITF-14	Disabled	
Check Character	Do not transmit	
Deutshe 14		
Deutshe 14	Disabled	
Check Character	Do not transmit	
Deutshe 12		
Deutshe 12	Disabled	
Check Character	Do not transmit	
COOP 25 (Japanese Matrix 2 of 5)		
COOP 25	Disabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	255	
Minimum Length	6	No less than 3
Matrix 25 (European Matrix 2 of 5)		
Matrix 25	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	255	
Minimum Length	6	No less than 3
Industrial 25		
Industrial 25	Enabled	

Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	255	
Minimum Length	6	No less than 4
Standard 25		
Standard 25	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	255	
Minimum Length	6	No less than 4
Code 39		
Code 39	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Start/Stop Character	Transmit	
Code 39 Full ASCII	Enabled	
Code 32	Disabled	
Code 32 Prefix	Disabled	
Code 32 Check Character	Do not transmit	
Code 32 Start/Stop Character	Do not transmit	
Maximum Length	255	
Minimum Length	4	No less than 1
Codabar		
Codabar	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Start/Stop Character	ABCD/ABCD format Transmit	
Maximum Length	255	
Minimum Length	4	No less than 2
Code 93		
Code 93	Enabled	
Check Character Verification	Enabled	
Check Character	Do not transmit	
Maximum Length	255	

Minimum Length	2	No less than 1
Code 11		
Code 11	Disabled	
Check Character	Do not transmit	
Check Character Verification	Enabled 1 Check Character, MOD11	
Maximum Length	255	
Minimum Length	4	No less than 3
Plessey		
Plessey	Disabled	
Check Character Verification	Enabled	
Check Character	Do not transmit	
Maximum Length	255	
Minimum Length	4	No less than 4
MSI-Plessey		
MSI-Plessey	Disabled	
Check Character	Do not transmit	
Check Character Verification	Enabled 1 Check Character, MOD10	
Maximum Length	255	
Minimum Length	4	No less than 4
GS1 Databar (RSS)		
GS1 Databar	Enabled	
Maximum Length	255	
Minimum Length	1	

Parameter	Factory Default	Remark
2D Scanner		
Video Reverse	Disabled	Applicable to all symbologies.
Code 128		
Code 128	Enabled	
Maximum Length	127	
Minimum Length	1	
GS1-128 (UCC/EAN-128)		
GS1-128	Enabled	
Maximum Length	127	
Minimum Length	1	
AIM 128		
AIM 128	Enabled	
Maximum Length	127	
Minimum Length	1	
EAN-8		
EAN-8	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Extend to EAN-13	Disabled	
EAN-13		
EAN-13	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
EAN-13 Beginning with 290 Add-On Code Required	Do Not Require Add-On Code	For BS8060-2T
EAN-13 Beginning with 378/379 Add-On Code Required	Do Not Require Add-On Code	For BS8060-2T
EAN-13 Beginning with 414/419 Add-On Code Required	Do Not Require Add-On Code	For BS8060-2T
EAN-13 Beginning with 434/439 Add-On Code Required	Do Not Require Add-On Code	For BS8060-2T

EAN-13 Beginning with 977 Add-On Code Required	Do Not Require Add-On Code	For BS8060-2T
EAN-13 Beginning with 978 Add-On Code Required	Do Not Require Add-On Code	For BS8060-2T
EAN-13 Beginning with 979 Add-On Code Required	Do Not Require Add-On Code	For BS8060-2T
ISSN		
ISSN	Disabled	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
ISBN		
ISBN	Enabled	
ISBN Format	ISBN-13	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
UPC-E		
UPC-E	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
Extend to UPC-A	Disabled	
System Character “0”	Transmit	
UPC-A		
UPC-A	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not required	
System Character	Transmit	
Country Code	Do not transmit	
Interleaved 2 of 5		
Interleaved 2 of 5	Enabled	
Check Character Verification	Disabled	

Check Character	Do not transmit	
Maximum Length	100	
Minimum Length	6	
ITF-6		
ITF-6	Disabled	
Check Character	Do not transmit	
ITF-14		
ITF-14	Enabled	
Check Character	Do not transmit	
Matrix 2 of 5		
Matrix 2 of 5	Disabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Industrial 25		
Industrial 25	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Standard 25		
Standard 25	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	6	
Code 39		
Code 39	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Start/Stop Character	Do not transmit	
Code 39 Full ASCII	Enabled	
Code 32	Disabled	For BS8060-2T
Code 32 Prefix	Disabled	For BS8060-2T

Code 32 Check Character	Do not transmit	For BS8060-2T
Code 32 Start/Stop Character	Do not transmit	For BS8060-2T
Maximum Length	127	
Minimum Length	2	
Codabar		
Codabar	Enabled	
Check Character Verification	Disabled	
Check Character	Do not transmit	
Start/Stop Character	Do not transmit	
Start/Stop Character Format	ABCD/ABCD	
Maximum Length	127	
Minimum Length	2	
Code 93		
Code 93	Enabled	
Check Character Verification	Enabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	3	
Code 11		
Code 11	Enabled	
Check Character Verification	Enabled 1 check character, MOD11	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	2	
Plessey		
Plessey	Enabled	
Check Character Verification	Enabled	
Check Character	Do not transmit	
Maximum Length	127	
Minimum Length	1	
MSI-Plessey		
MSI-Plessey	Enabled	
Check Character Verification	Enabled 1 check character, MOD10	
Check Character	Do not transmit	

Maximum Length	127	
Minimum Length	2	
PDF417		
PDF417	Enabled	
Maximum Length	2710	
Minimum Length	1	
PDF 417 Twin Code	Read single PDF417 only	
QR Code		
QR Code	Enabled	
Micro QR	Enabled	
Maximum Length	7089	
Minimum Length	1	
QR Twin Code	Read single QR only	
Data Matrix		
Data Matrix	Enabled	
Rectangular Barcodes	Enabled	
Mirror Images	Decode	
Maximum Length	3116	
Minimum Length	1	
DM Twin Code	Read single DM only	
Chinese Sensible Code		
Chinese Sensible Code	Disabled	
Maximum Length	7827	
Minimum Length	1	

Digit Barcodes (1D Scanner)

0 ~ 9

0

1

2

3

4

5

6

7

8

9

A ~ F

A

B

C

D

E

F

Digit Barcodes (2D Scanner)

0 ~ 9

0

5

1

6

2

7

3

8

4

9

A ~ F

A

B

C

D

E

F

Digit Barcodes

0 ~ 9

0

5

1

6

2

7

3

8

4

9

A ~ F

A

B

C

D

E

F

Save/Cancel Barcodes (1D Scanner)

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 **Set 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 canceled.

Save

Cancel

Delete the Last Digit

Delete All Digits

Save/Cancel Barcodes (2D Scanner)

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.

Save

Delete the Last Digit

Delete All Digits

Cancel

Save/Cancel Barcodes

Save

Cancel

Delete the Last Digit

Delete All Digits

AIM ID Table (1D Scanner)

Symbology	AIM ID	Possible AIM ID Modifiers (m)
Code 128	]C0	
UCC/EAN-128	]C1	
AIM 128	]C2	
ISBT 128	]C4	
EAN-8	]E4	
EAN-13	]E0	
EAN-13 with Addon	]E3	
ISSN	]X0	
ISBN	]X0	
UPC-E	]E0	
UPC-E with Addon	]E3	
UPC-A	]E0	
UPC-A with Addon	]E3	
Interleaved 2 of 5	]Im	0,1,3
ITF-6	]Im	1,3
ITF-14	]Im	1,3
Deutsche 14	]X0	
Deutsche 12	]X0	
COOP 25 (Japanese Matrix 2 of 5)	]X0	
Matrix 2 of 5(European Matrix 2 of 5)	]X0	
Industrial 25	]S0	
Standard 25	]R0	
Code 39	]Am	0,1,3,4,5,7
Codabar	]Fm	0,2,4
Code 93	]G0	
Code 11	]Hm	0,1,3
Plessey	]P0	
MSI-Plessey	]Mm	0,1
GS1 Databar	]e0	
PDF417	]Lm	0,1,2
MicroPDF417	]Lm	3,4,5

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.

AIM ID Table (2D Scanner)

Symbology	AIM ID	Remark
EAN-13	]E0	Standard EAN-13
	]E3	EAN-13 + 2/5-Digit Add-On Code
EAN-8	]E4	Standard EAN-8
	]E4…]E1…	EAN-8 + 2-Digit Add-On Code
	]E4…]E2…	EAN-8 + 5-Digit Add-On Code
UPC-E	]E0	Standard UPC-E
	]E3	UPC-E + 2/5-Digit Add-On Code
UPC-A	]E0	Standard UPC-A
	]E3	UPC-A + 2/5-Digit Add-On Code
Code 128	]C0	Standard Code 128
GS1-128 (UCC/EAN-128)	]C1	FNC1 is the character right after the start character
AIM-128	]C2	FNC1 is the 2nd character after the start character
ISBT-128	]C4	
Interleaved 2 of 5	]I0	No check character verification
	]I1	Transmit check character after verification
	]I3	Do not transmit check character after verification
ITF-6	]I1	Transmit check character
	]I3	Do not transmit check character
ITF-14	]I1	Transmit check character
	]I3	Do not transmit check character
Industrial 2 of 5	]S0	Not specified
Standard 2 of 5	]R0	No check character verification
	]R8	MOD10; do not transmit check character
	]R9	MOD10; transmit check character
Code 39	]A0	Transmit barcodes as is; Full ASCII disabled; no check character verification
	]A1	MOD43; transmit check character
	]A3	MOD43; do not transmit check character
	]A4	Full ASCII enabled; no check character verification
	]A5	Full ASCII enabled; transmit check character
	]A7	Full ASCII enabled; do not transmit check character
Codabar	]F0	Standard Codabar
	]F2	Transmit check character after verification
	]F4	Do not transmit check character after verification
Code 93	]G0	Standard Code 93

Symbology	AIM ID	Remark
Code 11	]H0	MOD11; transmit check character
	]H1	MOD11/MOD11; transmit check character
	]H3	Do not transmit check character after verification
	]H9	No check character verification
GS1-DataBar (RSS)	]e0	Standard GS1-DataBar
Plessey	]P0	Standard Plessey
MSI-Plessey	]M0	MOD10; transmit check character
	]M1	MOD10; do not transmit check character
	]M7	MOD10/ MOD11; do not transmit check character
	]M8	MOD10/ MOD11; transmit check character
	]M9	No check character verification
Matrix 2 of 5	]X0	Specified by the manufacturer
	]X1	No check character verification
	]X2	MOD10; transmit check character
	]X3	MOD11; do not transmit check character
ISBN	]X4	Standard ISBN
ISSN	]X5	Standard ISSN
PDF417	]L0	Comply with 1994 PDF417 specifications
Data Matrix	]d0	ECC000 - ECC140
	]d1	ECC200
	]d2	ECC200, FNC1 is the 1st or 5th character after the start character
	]d3	ECC200, FNC1 is the 2nd or 6th character after the start character
	]d4	ECC200, ECI included
	]d5	ECC200, FNC1 is the 1st or 5th character after the start character,ECI included
	]d6	ECC200, FNC1 is the 2nd or 6th character after the start character,ECI included
QR Code	]Q0	QR1
	]Q1	2005 version, ECI excluded
	]Q2	2005 version, ECI included
	]Q3	QR Code 2005, ECI excluded, FNC1 is the 1st character after the start character
	]Q4	QR Code 2005, ECI included, FNC1 is the 1st character after the start character
	]Q5	QR Code 2005,ECI excluded,FNC1 is the 2nd character after the start character
	]Q6	QR Code 2005, ECI included, FNC1 is the 2nd character after the start character
Chinese Sensible Code	]X0	

Reference: ISO/IEC 15424:2008 Information technology – Automatic identification and data capture techniques – Data Carrier Identifiers (including Symbology Identifiers).

Code ID Table (1D Scanner)

Barcode	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	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	b
Codabar	a
Code 93	y
Code 11	z
Plessey	p
MSI-Plessey	m
GS1 Databar	R

Code ID Table (2D Scanner)

Symbology	Code ID
Code 128	j
GS1-128(UCC/EAN-128)	j
AIM-128	f
EAN-8	d
EAN-13	d
ISSN	n
ISBN	B
UPC-E	c
UPC-A	c
Interleaved 2 of 5	e
ITF-6	e
ITF-14	e
Matrix 2 of 5	v
Industrial 2 of 5	D
Standard 2 of 5	s
Code 39	b
Codabar	a
Code 93	i
Code 11	H
Plessey	p
MSI-Plessey	m
GS1 Databar	R
PDF417	r
QR Code	Q
Data Matrix	u
Chinese Sensible Code	h

ASCII Table

Hex	Dec	Char
00	0	NUL (Null char.)
01	1	SOH (Start of Header)
02	2	STX (Start of Text)
03	3	ETX (End of Text)
04	4	EOT (End of Transmission)
05	5	ENQ (Enquiry)
06	6	ACK (Acknowledgment)
07	7	BEL (Bell)
08	8	BS (Backspace)
09	9	HT (Horizontal Tab)
0a	10	LF (Line Feed)
0b	11	VT (Vertical Tab)
0c	12	FF (Form Feed)
0d	13	CR (Carriage Return)
0e	14	SO (Shift Out)
0f	15	SI (Shift In)
10	16	DLE (Data Link Escape)
11	17	DC1 (XON) (Device Control 1)
12	18	DC2 (Device Control 2)
13	19	DC3 (XOFF) (Device Control 3)
14	20	DC4 (Device Control 4)
15	21	NAK (Negative Acknowledgment)
16	22	SYN (Synchronous Idle)
17	23	ETB (End of Trans. Block)
18	24	CAN (Cancel)
19	25	EM (End of Medium)
1a	26	SUB (Substitute)
1b	27	ESC (Escape)
1c	28	FS (File Separator)
1d	29	GS (Group Separator)

Hex	Dec	Char
1e	30	RS (Request to Send)
1f	31	US (Unit Separator)
20	32	SP (Space)
21	33	! (Exclamation Mark)
22	34	" (Double Quote)
23	35	# (Number Sign)
24	36	$ (Dollar Sign)
25	37	% (Percent)
26	38	& (Ampersand)
27	39	` (Single Quote)
28	40	((Left/ Opening Parenthesis)
29	41	) (Right / Closing Parenthesis)
2a	42	* (Asterisk)
2b	43	+ (Plus)
2c	44	, (Comma)
2d	45	- (Minus / Dash)
2e	46	. (Dot)
2f	47	/ (Forward Slash)
30	48	0
31	49	1
32	50	2
33	51	3
34	52	4
35	53	5
36	54	6
37	55	7
38	56	8
39	57	9
3a	58	: (Colon)
3b	59	; (Semi-colon)
3c	60	< (Less Than)
3d	61	= (Equal Sign)

Hex	Dec	Char
3e	62	> (Greater Than)
3f	63	? (Question Mark)
40	64	@ (AT Symbol)
41	65	A
42	66	B
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
4d	77	M
4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5a	90	Z
5b	91	[(Left / Opening Bracket)
5c	92	\ (Back Slash)
5d	93	] (Right / Closing Bracket)

Hex	Dec	Char
5e	94	^ (Caret / Circumflex)
5f	95	_ (Underscore)
60	96	' (Grave Accent)
61	97	a
62	98	b
63	99	c
64	100	d
65	101	e
66	102	f
67	103	g
68	104	h
69	105	i
6a	106	j
6b	107	k
6c	108	l
6d	109	m
6e	110	n
6f	111	o
70	112	p
71	113	q
72	114	r
73	115	s
74	116	t
75	117	u
76	118	v
77	119	w
78	120	x
79	121	y
7a	122	z
7b	123	{ (Left/ Opening Brace)
7c	124	| (Vertical Bar)
7d	125	} (Right/Closing Brace)
7e	126	~ (Tilde)
7f	127	DEL (Delete)

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	

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/ 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+-

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
PDF417	032
QR Code	033
Data Matrix	035
Chinese Sensible Code	039
Deutsche 14	128
Deutsche 12	129

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