Fixed Mount Barcode Scanner
User Guide

FX2000
06 September, 2019

ID TECH
10721 Walker Street, Cypress, CA 90630-4720
Tel: (714) 761-6368 Fax (714) 761-8880
www.idtechproducts.com support@idtechproducts.com

Warranty Disclaimer
The services and hardware are provided "as is" and "as-available" and the use of the services and hardware are at its own risk. ID TECH does not make, and hereby disclaims, any and all other express or implied warranties, including, but not limited to, warranties of merchantability, fitness for a particular purpose, title, and any warranties arising from a course of dealing, usage, or trade practice. ID TECH does not warrant that the services or hardware will be uninterrupted, error-free, or completely secure.
If the product is patent pending, mention it here

1. Introduction

The FX200 is a fixed mount barcode scanner armed with ID TECH's patented UING, a computerized image recognition system-on-chip 2D barcode scanner.

The FX200 supports all mainstream 1D and standard 2D barcode symbologies such as PDF417, QR Code, Data Matrix, Aztec and Chinese Sensible Code. It can read barcodes on virtually any medium - paper, plastic card, mobile phones, and LCD displays.

Designed for fixed mount integrations, this scanner is easy to fit into various equipment such as self-service cabinets, vending machines, ticket validators, ATMs, access control, retail POS, and kiosks.

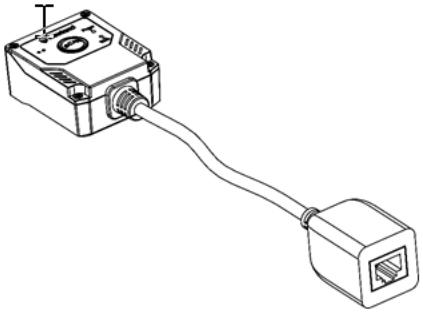
1.1. Features

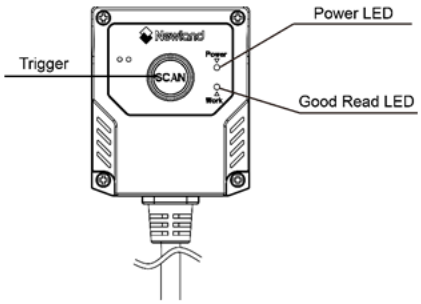
- **Unmatched reading performance**: Armed with ID TECH's fifth generation of UIMG technology, the FX200 is capable of reading 1D as well as high-volume 2D barcodes.
- **IR/Light triggers**: The combination of IR and light sensors exhibits an improved sensitivity in scanning barcodes to achieve higher throughput and productivity.
- **Highly visible laser aimer**: The FX200 provides a meticulous, laser-generated crosshair aiming pattern that is clear and bright in all lighting.
- It is also easy to configure and update.

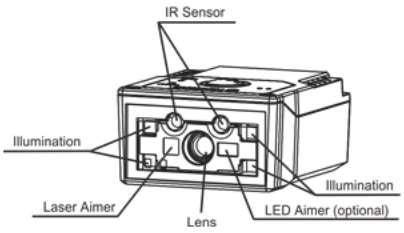
2. Specifications

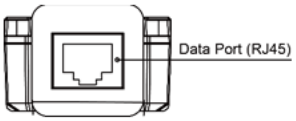
PIN	Signal	Type	Function
1	AGND	P	Ground
2	nTrig	I	Trigger signal input: active low
3	VCC	P	Power+ (DC5V)
4	TXD	O	RS-232 output
5	RXD	I	RS-232 input
6	CTS	I	Clear to send (RS-232)
7	RTS	O	Request to send (RS-232)
8	GND	P	Ground
9	D-	I/O	USB signal
10	D+	I/O	

2.1. FX200 Scanner

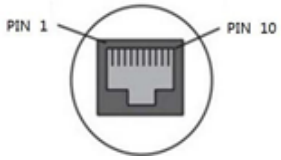








Data Point Pinout

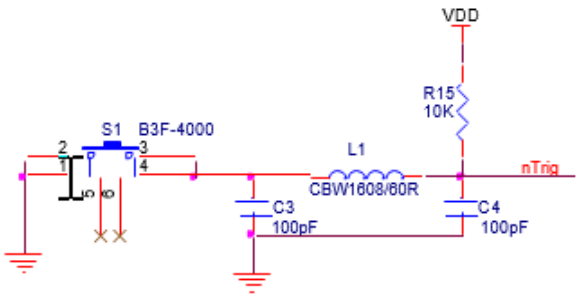


Setting the nTrig pin (PIN 2) on the data port low for over 10ms startd a scan and decode session. If barcode is decoded, the scanner waits for the voltage at the nTrig pin to turn high (or the trigger to be released) after sending the data to the Host. If the trigger is released during a scan attempt, the scanner immediately stops decoding.

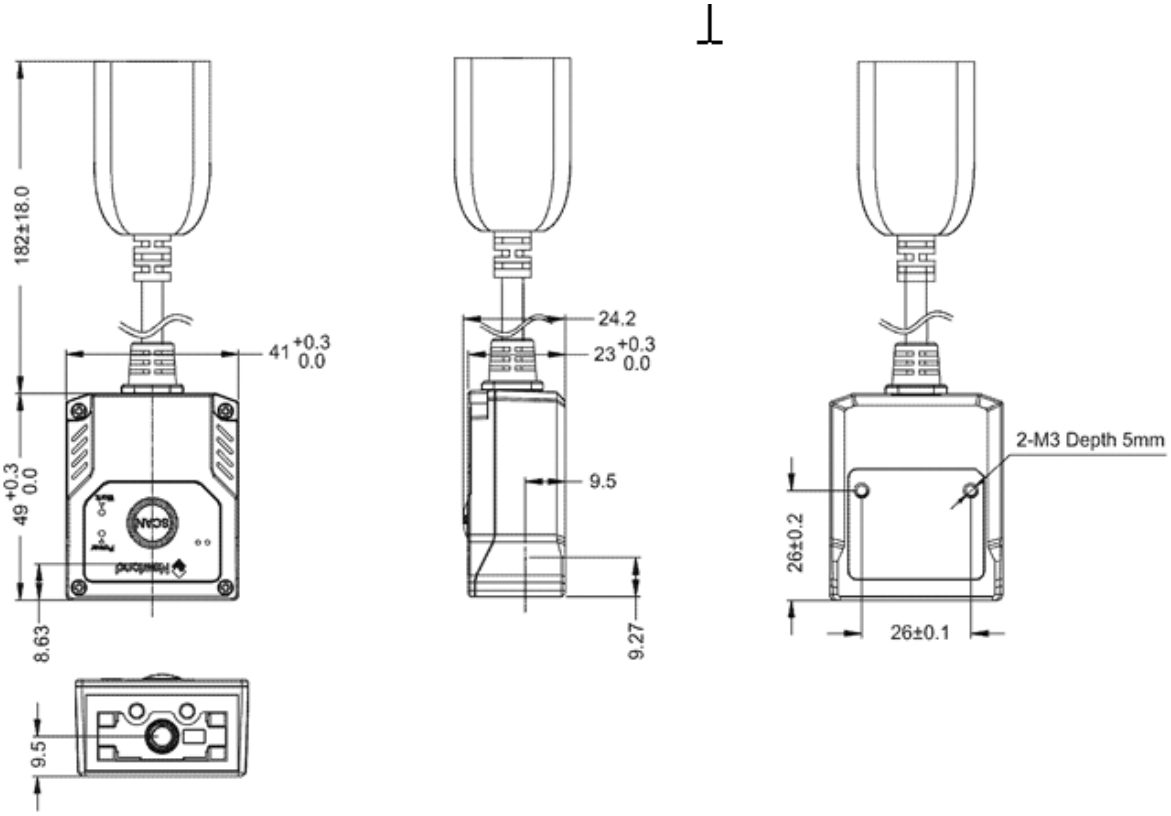
Decoding does not happen until the scanner receives active trigger signal (driving the nTrig pin low) again.

A decoding session requires a minimum interval between triggers should exceed 50ms.

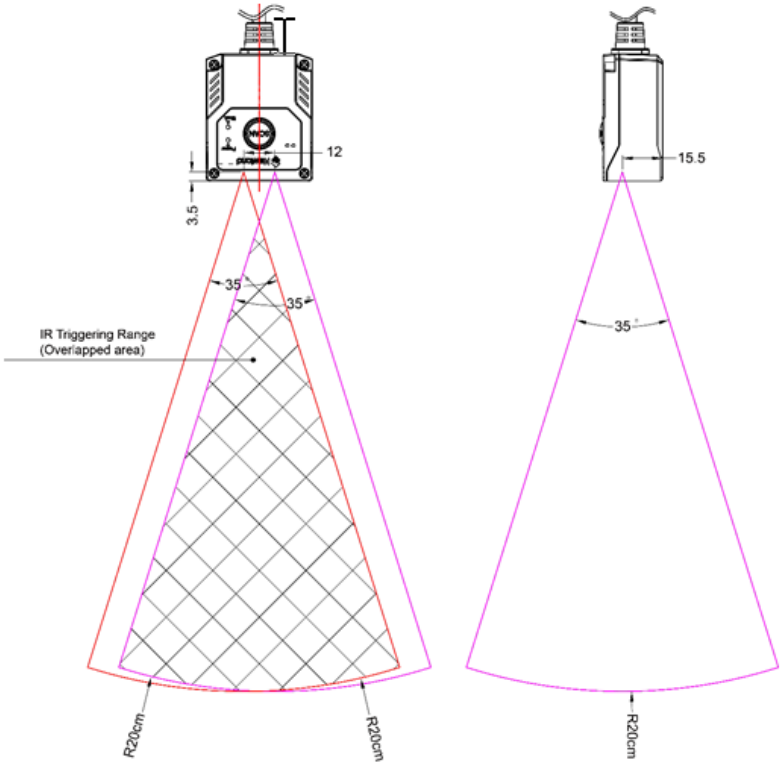
The following trigger circuit is provided for reference:



2.2. Dimensions



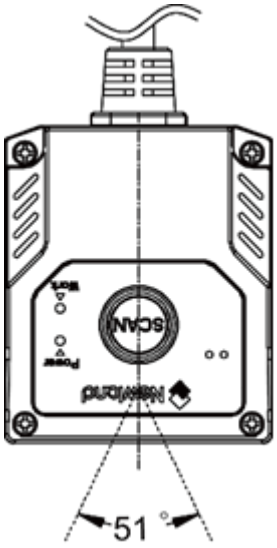
2.3. IR Triggering Range



Note: If the IR sensors on the scanner are blocked or covered the Sense mode may not work properly.

2.4. Optics

Horizontal FOV:



Vertical FOV:

2.5. Connecting the FX200 to a Host Device

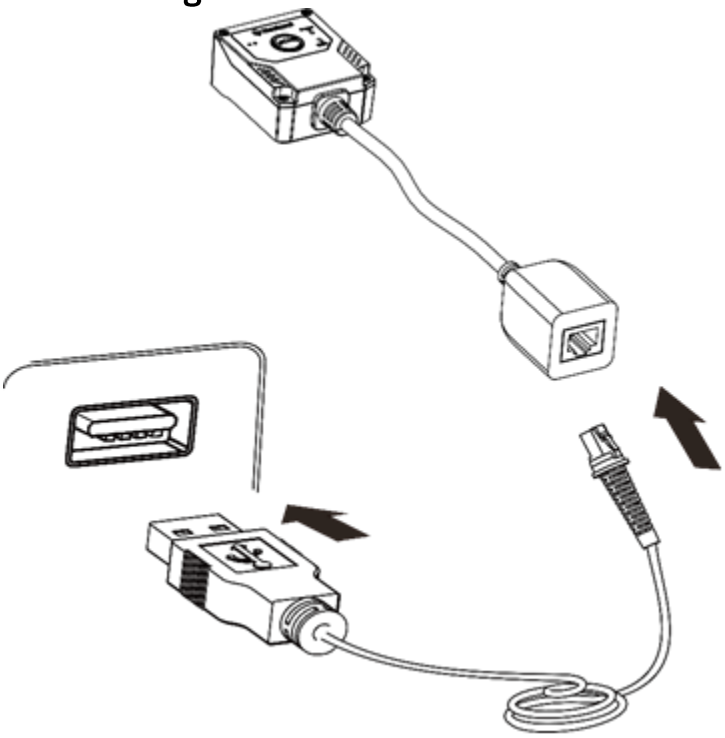
The scanner must be connected to a host device in actual application, such as PC, POS or any intelligent terminal with USB or RS-232 port, using a USB or RS-232 cable.

USB: USB port on the host device.

RS-232: RS-232 port on the host device.

Note: It is important the cable be purchased based on host device port.

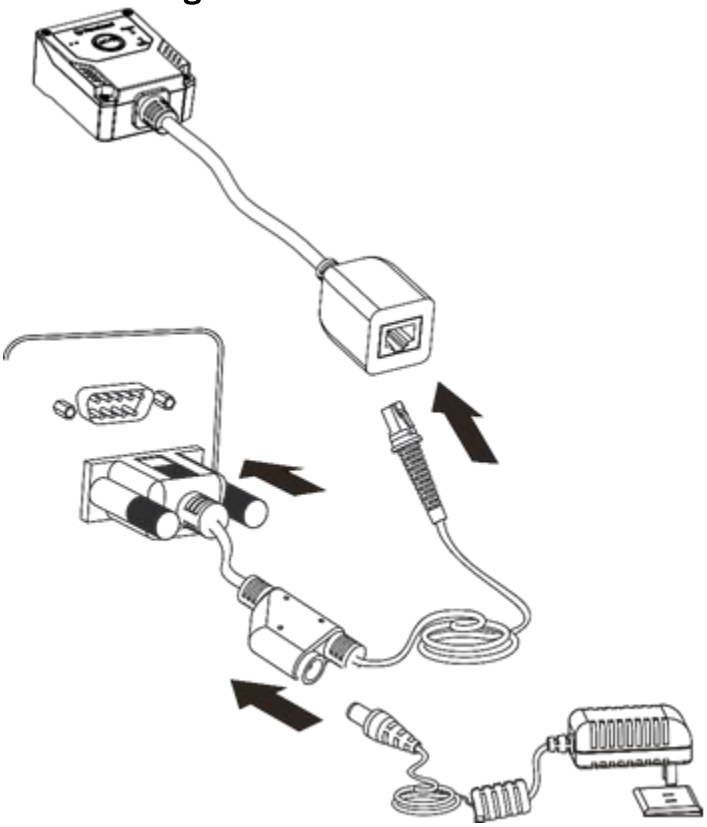
2.6. Using the USB Cable



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

1. Plug the cable's RJ45 connector into the data port on the scanner.
2. Plug the cable's USB connector into the USB port on the host device.

2.7. Using RS 232 Cable



Connect the scanner to a host device with an **RS-232** cable with **RJ45**, **RS-232** connector and a power jack:

1. Plug the cable's **RJ45** connector into the data port on the scanner.
2. Plug the cable's **RS-232** connector into the **RS-232** port on the host device.
3. Plug the power adapter into the power jack of the cable.
4. Connect the power adapter to a power outlet.

3. System Settings

The FX200 can be configured by scanning programming barcodes and there are three ways to configure the FX200: Barcode programming, command programming and Easyset programming. All user programmable features/options are described along with their programming barcodes/commands in the following sections.

3.1. Barcode Programming

This programming method is most straightforward; it requires manually scanning barcodes. However, errors are more likely to occur when using this method.

3.2. Command Programming

Command Programming configures the FX200 by serial commands sent from the host device. Users can design an application program to send those command strings to the scanners to perform device configuration.

The figure above is the programming barcode and command for the Enter Setup function:

- The **No Case Conversion** barcode.
- The **No Case Conversion** command.
- The description of feature/option.
- ** indicates factory default settings.

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

For more information, refer to the *Programming Guide Based on ID TECH Unified Commands Set*.

3.2.1. Use of Programming Barcodes

1. Scan the **Enter Setup** barcode to enable the scanner and enter the setup mode.
2. Scan a number of programming barcodes to configure scanner.
3. Scan the **Exit Setup** barcode or a non- programing barcode or reboot the scanner to setup mode.

@SETUPE1

Enter Setup

**** Exit Setup**

Enter Setup

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

**** Does not Transmit Programming Barcode Data**

Transmit Programming Barcode Data

3.2.2. Using the Programming Command

Besides the barcode programming method, the scanner can also be configured by serial commands (HEX) sent from the host device. **All commands must be entered in uppercase letters.**

3.2.2.1. Command Syntax

Prefix StorageType Tag SubTag {Data} [,SubTag {Data}] [;Tag SubTag {Data}] […] Suffix

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

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

Tag: A 3-character case-sensitive field that identifies the desired command group.

For example, all USB HID Keyboard configuration settings are identified with a Tag of KBW.

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

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

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

@SETUPE0

**** Exit Setup**

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

3.2.2.2. Query Commands

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

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

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

A query command with the SubTag field omitted means to query all the settings concerning a tag.

For example, to query all the current settings about Code 11, enter `7E 01 30 30 30 30 40 43 31 31 2A 3B 03` (i.e.~<SOH>0000@C11*;<ETX>).

3.2.2.3. Responses

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

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

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

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

3.2.2.4. Examples

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

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

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

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

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

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

3.3. EasySet Programming

Additionally, scanner configuration can be performed through EasySet. EasySet is a Windows-based configuration tool particularly designed for ID TECH products, enabling users to gain access to decoded data and captured images and to configure scanners.

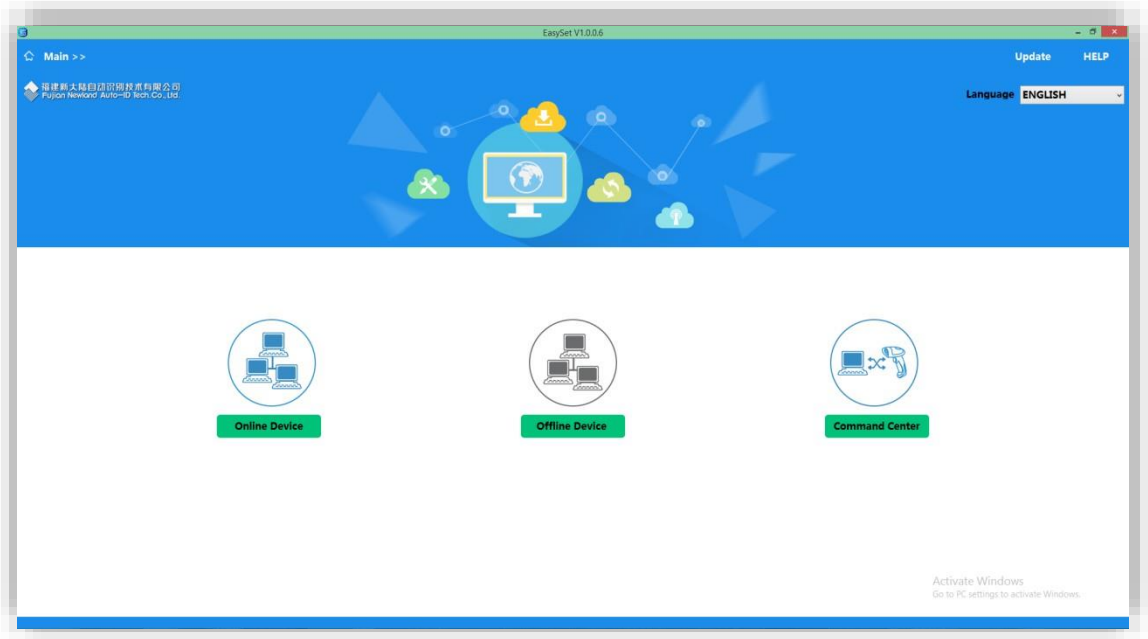
EasySet, is a configuration tool for ID TECH's 1D/2D handheld barcode scanner, fixed mount barcode scanners and OEM scan engines.

Its main features include:

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

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

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



For more information about this tool, refer to the *EasySet User Guide*.

@SETUPE1
Enter Setup

4. Scanner

4.1. Scanning Mode

- **Level Mode**: A trigger pull activates a decode session. The decode session continues until a barcode is decoded or release the trigger.
- **Sense Mode**: The scanner activates a decode session every time it detects a barcode. The decode session continues until a barcode is decoded or the decode session timeout expires. **Reread Timeout:** Avoids undesired rereading of same barcode in a given period of time. **Image Stabilization Timeout** gives the scanner time to adapt to ambient environment after it decodes a barcode and "looks" for another**.**
- **Image Change Trigger Sensitivity**: Changes the **Sense Mode's** sensibility to changes in images captured.
- **IR Proximity Trigger Sensitivity:** Adjusts the **Sense Mode's** sensibility in detecting barcodes presented to the scanner.
- **Continuous Mode**: The scanner automatically starts one decode session after another. To suspend/resume barcode reading, simply press the trigger.
- **Timeout between Decodes (Same Barcode)**: Avoids undesired rereading of same barcode in a given period of time.

Note: that when switching to this mode by scanning the **Continuous Mode** barcode the scanner will stop barcode reading for 3 seconds before starting to scan continuously.

- **Pulse Mode**: When the trigger is pulled and released, scanning is activated until a barcode is decoded or the decode session timeout expires (The decode session timeout begins when the trigger is released).

@SCNMOD0
Level Mode

@SCNMOD2
** Sense Mode

@SCNMOD3
Continuous Mode

@SCNMOD4
Pulse Mode

4.2. Scanning Instructions

In the Sense scan mode, follow these steps to scan a barcode:

1. Position the barcode on mobile phone screen or paper in the center of the scan window.
2. For a successful read, the scanner will send the data to the host with its green Good Read LED flashing once.

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

3.

4.3. Scanning Preferences

- **Normal Mode**: Select this mode when reading barcodes on paper.
- **Screen Mode**: Select this mode when reading barcodes on the screen.
- **Barcode Pay Mode**: Select this mode when reading barcodes to perform payment transactions, such as Alipay, WeChat Pay barcodes.

** Normal Mode

Screen Mode

Barcode Pay Mode

4.4. Modify Scanning Commands

4.4.1. Modifying Start Scanning Command

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

1. Set the **Start Scanning** command to "*T":
2. Scan the **Enter Setup** barcode.
3. Scan the **Modify Start Scanning Command** barcode.
4. Scan the numeric barcodes "2", "A", "5" and "4" from the "Digit Barcodes" section in Appendix.
5. Scan the **Save** barcode from the **"Save/Cancel Barcodes**" section in Appendix.
6. Scan the **Exit Setup** barcode.

4.4.2. Modifying Stop Scanning Command

The **Stop Scanning** command can consist of 1-10 characters (HEX values from 0x01 to 0xFF). In this command, the character "?" (HEX: 0x3F) cannot be the first character.

The default **Stop Scanning** command is `<SOH> P <EOT>`.

Modify Stop Scanning Command

Set the **Stop Scanning** command to "*P":

1. Scan the **Enter Setup** barcode.
2. Scan the **Modify Stop Scanning Command** barcode.
3. Scan the numeric barcodes "2", "A", "5" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
5. Scan the **Exit Setup** barcode.

@SETUPE0
** Exit Setup

6.

4.5. Access the Scanner with Program

Use CreateFile to access the scanner as a HID device and then use ReadFile to deliver the scanned data to the application program. Use WriteFile to send data to the scanner. For detailed information about USB and HID interfaces, go to www.USB.org.

4.6. Acquired Scan Data

After a barcode is decoded, the scanner sends an input report as below:

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 0x02							
1	Barcode Length							
2-57	Decoded Data (1-56)							
58-61	Reserved							
62	ID TECH Symbology Identifier or N/C: 0x00							
63	-	-	-	-	-	-	-	Decoded data continued

4.7. Command to the Scanner

This output report is used to send commands to the scanner. All programming commands can be used.

	Bit							
Byte	7	6	5	4	3	2	1	0
0	Report ID = 0x04							
1	Length of command							
2-63	Command (1-62)							

4.8. Scanner Maintenance

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

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

@SETUPE1

Enter Setup

5. Illumination

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

- **Normal:** Illumination LEDs are turned on during image capture.
- **Always On**: Illumination LEDs keep on after the scanner is powered on.
- **Off**: Illumination LEDs are off all the time.
- **Fade Up**: Illumination LEDs are dimly lit when in standby mode and gradually increase their brightness during image capture.

@ILLSCN1

** Normal

@ILLSCN0

Off

@ILLSCN2

Always On

@ILLSCN3

Fade Up

5.1. Turn On Illumination LED

Turn on the illumination LED on the scanner with a command sent from the host. When using this feature, first query the range of possible values for the setting.

Note: that the scanner cannot scan barcodes when it is executing this command.

`LEDONIxCyyD` (x: Specify the LED color: 0 – Red, 1 – White, 2 – Green, 3 - Blue; yy: Specify the length of time the LED stays lit, 10-3,600,000ms)

Command for querying whether the scanner supports this feature: `LEDONI* or LEDONI&` `Returning LEDONI<ACK>` indicates the scanner supports this feature.

Command for querying the range of possible values for the setting: `LEDONI^`

Returning `LEDONI0-3C10-3600000D <ACK>` indicates LED color options include red, white, green and blue, and the range for the length of time the LED stays lit is 10-3,600,000ms.

Example: Turn on the white illumination LED for 2,000ms

Enter: `~<SOH>0000#LEDONI1C2000D;<ETX>`

Response: `<STX><SOH>0000#LEDONI1C2000D<ACK>;<ETX>`

@SETUPE0

** Exit Setup

5.2. Turn On Illumination LED

Turn on the illumination LED on the scanner with a command sent from the host. When using this feature query, the range of possible values for the setting.

Note: The scanner cannot scan barcodes when it is executing this command.

`LEDONIxCyyD` (x: Specify the LED color: 0 – Red, 1 – White, 2 – Green, 3 - Blue; yy: Specify the length of time the LED stays lit, 10-3,600,000ms)

Command for querying whether the scanner supports this feature: `LEDONI*` or `LEDONI&` Returning `LEDONI<ACK>` indicates the scanner supports this feature.

Command for querying the range of possible values for the setting: `LEDONI^`

Returning `LEDONI0-3C10-3600000D <ACK>` indicates LED color options include red, white, green and blue, and the range for the length of time the LED stays lit is 10-3,600,000ms.

Example: Turn on the white illumination LED for 2,000ms
Enter: `~<SOH>0000#LEDONI1C2000D;<ETX>`
Response: `<STX><SOH>0000#LEDONI1C2000D<ACK>;<ETX>`

@SETUPE1
Enter Setup

6. Aiming

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

- **Normal**: The scanner projects an aiming pattern only during barcode scanning/capture.
- **Always On**: Aiming pattern is constantly on after the scanner is powered on.
- **Off**: Aiming pattern is off all the time.

** Normal

Always On

Off

6.1. Turn on Aimer

Turn on the aimer on the scanner with a command sent from the host. When using this feature, first query the range of possible values for the setting.

Note: that the scanner cannot scan barcodes when it is executing this command. LEDONAyy (yy: Specify the length of time the aimer stays on, 10-3,600,000ms)

Command for querying whether the scanner supports this feature: `LEDONA* or LEDONA&` Returning `LEDONA<ACK>` indicates the scanner supports this feature.
Command for querying the range of possible values for the setting: `LEDONA^`

Returning **`LEDONA10-3600000`** `<ACK>` indicates the range for the length of time the aimer stays on is 10-3,600,000ms.

Example: Turn on the aimer for 2,000ms
Enter: `~<SOH>0000#LEDONA2000;<ETX>`
Response: `<STX><SOH>0000#LEDONA2000<ACK>;<ETX>`

6.2. Power On

The scanner can be programmed to beep when it is powered on. Scan the Off barcode if power on beep is unwanted.

** On

Off

** Exit Setup

@SETUPE1

Enter Setup

6.3. Good Read

Scanning the **Off** barcode can turn off the beep that indicates successful decode; scanning the **on** barcode can turn it back on.

@GRBENA1

** On

@GRBENA0

Off

6.4. Good Read LED

The green LED can be programmed to be On or Off to indicate good read.
This parameter sets the amount of time that the Good Read LED to remain on following a good read.

@GRLENA1

** On

@GRLENA0

Off

It is programmable in 1ms increments from 1ms to 2,500ms.

@GRLDUR20

** Short (20ms)

@GRLDUR120

Medium (120ms)

@GRLDUR220

Long (220ms)

@GRLDUR

Custom (1 - 2,500ms)

@GRLDUR320

Prolonged (320ms)

Set the Good Read LED duration to 800ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Custom** barcode.
3. Scan the numeric barcodes "8", "0" and "0" from the "**Digit Barcodes**" section in Appendix.
4. Scan the **Save** barcode from the "**Save/Cancel Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

6.5. Making a Beeping Sound

A beeping sound is made to gain a user's attention for an error or other important event.

`BEEPONxxxFyyyT` (xxx: The desired frequency, 1-20,000Hz; yyy: The desired duration, 1-10,000ms)

@SETUPE0

** Exit Setup

Enter Setup

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

Enter: 7E 01 30 30 30 30 40 42 45 45 50 4F 4E 32 30 30 30 46 35 30 54 3B 03

(~<SOH>0000#BEEPON2000F50T;<ETX>)

Response: 02 01 30 30 30 30 40 42 45 45 50 4F 4E 32 30 30 30 46 35 30 54 06 3B 03

(<STX><SOH>0000#BEEPON2000F50T<ACK>;<ETX>)

6.5.1. Good Read Beep Duration

This parameter sets the length of the beep the scanner emits on a good read. It is programmable in 1ms increments from 20ms to 300ms.

Short (40ms)

Long (120ms)

**** Medium (80ms)**

Custom (20 – 300ms)

1. Set the **Good Read Beep** duration to 200ms:
2. Scan the **Enter Setup** barcode.
3. Scan the **Custom** barcode.
4. Scan the numeric barcodes "2", "0" and "0" from the "Digit Barcodes" section in Appendix
5. Scan the Save barcode from the "**Save/Cancel Barcodes**" section in Appendix.
6. Scan the **Exit Setup** barcode.

6.5.2. Good Read Beep Frequency

This parameter is programmable in 1Hz increments from 20Hz to 20,000Hz.

Extra Low (800Hz)

Low (1600Hz)

Custom (20 - 20,000Hz)

**** Exit Setup**

Enter Setup

** Medium (2730Hz)

High (4200Hz)

1. Set the Good Read Beep frequency to 2,000Hz:
2. Scan the **Enter Setup** barcode.
3. Scan the **Custom** barcode.
4. Scan the numeric barcodes "2", "0", "0" and "0" from the "Digit Barcodes" section in Appendix.
5. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
6. Scan the **Exit Setup** barcode.

6.5.3. Good Read Beep Volume

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

** Loud

Medium

Low

Custom Volume (Level 1-20)

1. Set the **Good Read Beep** volume to Level 8:
2. Scan the **Enter Setup** barcode.
3. Scan the **Custom Volume** barcode.
4. Scan the numeric barcode "8" from the "Digit Barcodes" section in Appendix.
5. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.
6. Scan the **Exit Setup** barcode.

6.5.4. Good Read Delay

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

** Exit Setup

@SETUPE1

Enter Setup

Enable Good Read Delay

** **Disable Good Read Delay**

To set the good read delay, scan the barcode below, then set the delay (from 1 to 3,600,000ms) by scanning the digit barcode(s) then scanning the **Save** barcode from the Appendix.

Good Read Delay

Set the good read delay to 1,000ms:

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

6.5.5. Turn-On Read LED

Turn on the Good Read LED on the scanner with a command sent from the host. When using this feature, first query the range of possible values for the setting.

Note: that the scanner cannot scan barcodes when it is executing this command.

`LEDONSxCyyD` (x: Specify the LED color: 0 – Red, 1 – White, 2 – Green, 3 - Blue; yy: Specify the length of time the LED stays lit, 10-3,600,000ms)

Command for querying whether the scanner supports this feature: `LEDONS*` or `LEDONS&` `Returning LEDONS<ACK>` indicates the scanner supports this feature.

Command for querying the range of possible values for the setting: `LEDONS^`

Returning `LEDONS0-3C10-3600000D <ACK>` indicates LED color options include red, white, green and blue, and the range for the length of time the LED stays lit is 10-3,600,000ms.

Example: Turn on the red Good Read LED for 2,000ms

Enter: `~<SOH>0000#LEDONS0C2000D;<ETX>`

Response: `<STX><SOH>0000#LEDONS0C2000D<ACK>;<ETX>`

@SETUPE0

** **Exit Setup**

@SETUPE1
Enter Setup

6.6. Bad Reading

Scan a barcode below to select whether or not to send a bad read message (user-programmable) when a good read does not occur before trigger release, or the decode session timeout expires, or the scanner receives the **Stop Scanning command.**

For more information, see the "**Serial Trigger Command**" section in this Chapter.

@NGRENA0
**** Bad Read Message OFF**

@NGRENA1
Bad Read Message ON

6.7. Set a Bad Read Message

A bad read message can contain up to 7 characters (HEX values from 0x00 to 0xFF). To set a bad read message, scan the **Set Bad Read Message** barcode, the numeric barcodes representing the hexadecimal values of desired character(s) and the **Save** barcode. The default setting is "NG".

@NGRSET
Set Bad Read Message

Set the bad read message to "F" (HEX: 0x46):

1. Scan the **Enter Setup** barcode.
2. Scan the Set Bad Read Message barcode.
3. Scan the numeric barcodes "4" and "6" from the "**Digit Barcodes**" section in Appendix.
4. Scan the Save barcode from the "**Save/Cancel Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

6.8. Decoding

6.8.1. Decode Area

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

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

@SETUPE0
**** Exit Setup**

@SETUPE1

Enter Setup

**** Whole Area Decoding**

Specific Area Decoding

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

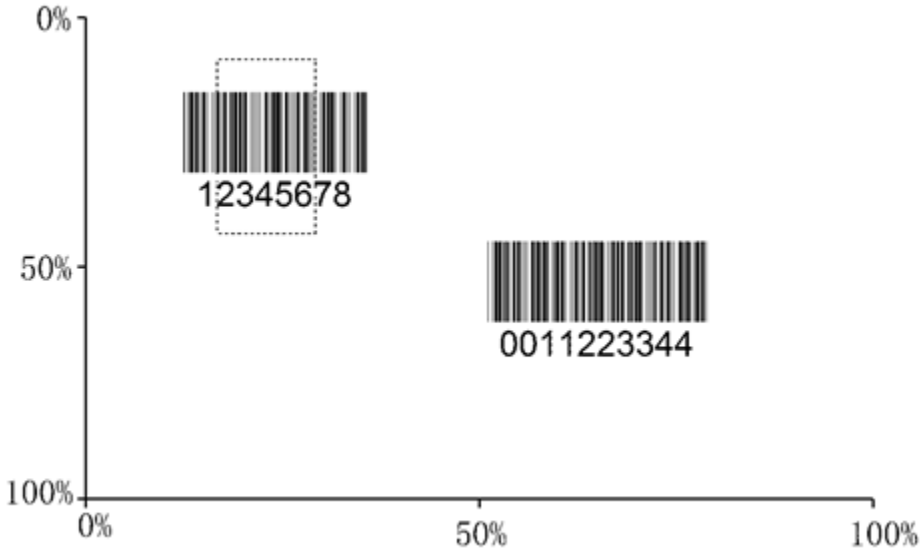
Define the decoding area using the **Top of Decoding Area, Bottom of Decoding Area, Left of Decoding Area** and **Right of Decoding Area** barcodes as well as numeric barcode(s) that represent(s) a desired percentage (0-100). The value of Bottom must be greater than that of Top; the value of Right must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

Top of Decoding Area

Bottom of Decoding Area

Left of Decoding Area

Right of Decoding Area



@SETUPE0

**** Exit Setup**

Enter Setup

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

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

6.8.2. Decode Session Timeout

This parameter sets the maximum time decode session continues during a scan attempt. It is programmable in 1ms increments from 1ms to 3,600,000ms. When it is set to 0, the timeout is infinite. The default setting is 3,000ms.

Decode Session Timeout

Set the decode session timeout to 1,500ms:

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

** **Exit Setup**

Enter Setup

6.9. Image Stabilization Timeout (Sense Mode)

This parameter defines the amount of time the scanner will spend adapting to ambient environment after it decodes a barcode and "looks" for another. It is programmable in 1ms increments from 0ms to 3,000ms. The default setting is 200ms.

Image Stabilization Timeout

Set the image stabilization timeout to 800ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Image Stabilization** Timeout barcode.
3. Scan the numeric barcodes "8", "0" and "0" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "**Save/Cancel Barcodes**" section in Appendix.
5. Scan the **Exit Setup** barcode.

6.10. Image Flipping

** Does not Flip

Flip Horizontally

Flip Vertically

Flip Horizontally & Vertically

** Exit Setup

@SETUPE1

Enter Setup

Example of image not flipped

Example of image flipped horizontally

Example of image flipped vertically

Example of image flipped horizontally & vertically

6.11. Reread Timeout

Reread Timeout can avoid undesired rereading of same barcode. This feature is only applicable to the Sense and Continuous modes.

To enable/disable the Reread Timeout, scan the appropriate barcode below

- **Enable Reread Timeout**: Does not allow the scanner to re-read same barcode before the reread timeout expires.
- **Disable Reread Timeout**: Allow the scanner to re-read same barcode.

@RRDENA1

Enable Reread Timeout

@RRDENA0

**** Disable Reread Timeout**

The following parameter sets the time interval between two successive reads on same barcode. It is programmable in 1ms increments from 0ms to 3,600,000ms. When it is set to a value greater than 3,000, the timeout for rereading same programming barcode is limited to 3,000ms. The default setting is 1,500ms.

@RRDDUR

Reread Timeout

@SETUPE0

**** Exit Setup**

Enter Setup

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

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

To restart the reread timeout when the scanner encounters the same barcode that was decoded in the last scan session before the reread timeout expires.
To enable this feature, scan the **Reread Timeout Reset On** barcode. This feature is only effective when **Reread Timeout** is enabled.

Reread Timeout Reset On

**** Reread Timeout Reset Off**

6.12. Image Decoding Timeout

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

Image Decoding Timeout

Set the image decoding timeout to 1,000ms:

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

6.13. Trigger Selection (Sense Mode)

6.13.1. Image Change Trigger Sensitivity

This specifies the degree of acuteness of the scanner's response to changes in images captured. There are 20 levels to choose from. The smaller the value, the higher the sensitivity, and the lower requirements in image change to trigger the scanner. Select an appropriate degree of sensitivity that fits application environment. This feature is only applicable to the Sense mode.

**** Exit Setup**

Enter Setup

Low Sensitivity

**** Medium Sensitivity**

High Sensitivity

Enhanced Sensitivity

Custom Sensitivity (Level 1-20)

Set the image change trigger sensitivity to Level 10:

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

6.13.2. Trigger Selection (Sense Mode)

Image Change Trigger

IR Proximity Trigger

**** Both**

6.13.3. IR Proximity Trigger Sensitivity

This specifies the degree of acuteness of the scanner's "sense" to detect barcodes presented to it. There are 10 levels to choose from. The smaller the value, the higher the sensitivity and the further the scanner can reach. Select an appropriate degree of sensitivity that fits application needs. This feature is only applicable to the **Sense** mode.

Low Sensitivity

Medium Sensitivity

**** High Sensitivity**

Custom Sensitivity (Level 1-10)

**** Exit Setup**

Enter Setup

Set the IR proximity trigger sensitivity to Level 10:

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

6.13.4. Trigger Commands

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

**** Disable Trigger Commands**

Enable Trigger Commands

6.14. Read Barcode On/Off

Sending the Read Barcode Off command `~<SOH>0000#SCNENA0;<ETX>` to the scanner can disable it from reading barcode, and the scanner is unable to scan barcode unless the **Read Barcode On** command `~<SOH>0000#SCNENA1;<ETX>` is sent to power cycle it. By default, **Read Barcode** is **On**.

6.15. Default Settings

6.15.1. Factory Defaults

Scanning the following barcode can restore the scanner to the factory defaults.
Reset all parameters to the factory defaults when:

- Scanner is not properly configured so that it fails to decode barcodes.
- Previous configuration was forgotten, and impact is wanted to be avoided.

Restore All Factory Defaults

6.15.2. Factory Defaults

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

**** Exit Setup**

@SETUPE1

Enter Setup

Custom defaults are stored in the non-volatile memory.

Save as Custom Defaults

Restore All Custom Defaults

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

@SETUPE0

** **Exit Setup**

@SETUPE1

Enter Setup

7. Query Product Information

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

Query Product Information

Query Product Name

Query Firmware Version

Query Hardware Version

Query Product Serial Number

Query Manufacturing Date

Query OEM Serial Number

Query Data Formatter Version

RS-232 Interface

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

RS-232

7.1. Baud

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

115200

57600

14400

@SETUPE0

** **Exit Setup**

Enter Setup

38400

19200

4800

** 9600

2400

7.2. Parity Check

Set the parity type to match the host requirements.

- **Odd Parity**: If the data contains an odd number of 1 bits, the parity bit value is set to 0.
- **Even Parity**: If the data contains an even number of 1 bits, the parity bit value is set to 0.
- **None**: Select this option when no parity bit is required.

** None

Even Parity

Odd Parity

7.3. Data Bit

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

7 Data Bits

** 8 Data Bits

7.4. Stop Bit:

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

** 1 Stop Bit

2 Stop Bits

** Exit Setup

@SETUPE1

Enter Setup

7.5. Hardware Auto Flow Control

If this feature is enabled, the scanner determines whether to transmit data based on CTS signal level. When CTS signal is at a low level which means the serial port's cache memory of receiving device (such as PC) is full, the scanner sends data through RS-232 port until CTS signal is set to high level by receiving device. When the scanner is not ready for receiving, it will set RTS signal to low level. When sending device (such as PC) detects it, it will not send data to the scanner any more to prevent data loss.

If this feature is disabled, reception/transmission of serial data will not be influenced by RTS/CTS signal.

**** Disable Hardware Auto Flow Control**

Enable Hardware Auto Flow Control

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

@SETUPE0

**** Exit Setup**

Enter Setup

8. USB Interface

There are four options for USB connection:

- **USB HID Keyboard:** The scanner's transmission is simulated as USB keyboard input with no need for command configuration or a driver. Barcode data could be entered by the virtual keyboard directly and it is also convenient for the host device to receive data.
- **USB CDC:** It is compliant with the standard USB CDC class specifications defined by the USB-IF and allows the host device to receive data in the way as a serial port does. A driver is needed when using this feature.
- **HID POS (POS HID Barcode Scanner):** It is based on the HID interface, with no need for a custom driver. It excels virtual keyboard and traditional RS-232 interface in transmission speed.
- **IBM SurePOS:** It conforms to IBM (now Toshiba Global Commerce Solutions) 4698 USB scanner interface specifications.

When the scanner is connected to both USB and RS-232 ports on a host device, it will select the USB connection by default.

8.1. USB Hid Keyboard

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

**** USB HID Keyboard**

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

8.2. USB Keyboard Types

**** U.S. (English)**

Belgium

Brazil

**** Exit Setup**

Canada (French)

Czechoslovakia

Denmark

Finland (Swedish)

France

Germany/ Austria

Greece

Hungary

Israel (Hebrew)

Italy

Latin America/ South America

Netherlands (Dutch)

Norway

Poland

Portugal

Romania

Russia

Slovakia

Spain

Sweden

Switzerland (German)

Turkey_F

Turkey_Q

UK

Japan

Enter Setup

8.3. Beep on Unknown Characters

Due to the differences in keyboard layouts, some characters contained in barcode data may be unavailable on the selected keyboard. As a result, the scanner fails to transmit the unknown characters.

Scan the appropriate barcode below to enable or disable the emission of beep when an unknown character is detected.

**** Does Not Beep on Unknown Character**

Beep on Unknown Character

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

Does not Beep on Unknown Character: The scanner does not beep, and the Host receives "AF".

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

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

8.4. Emulate ALT+Keypad

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

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

After Emulate **ALT+Keypad ON** is selected, choose the code page with which the barcodes were created and to turn **Unicode Encoding** on or Off depending on the encoding used by the application software.

**** Emulate ALT+Keypad OFF**

Emulate ALT+Keypad ON

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

**** Exit Setup**

@SETUPE1
Enter Setup

Supposing Emulate ALT+Keypad is ON, Unicode Encoding is Off, Code Page 1252 (West European Latin) is selected, and Emulate Keypad with Leading Zero is Off, barcode data" AĐF" (65/208/70) is sent as below:
"A" – "ALT Make" + "065" + "ALT Break"
"Đ" -- "ALT Make" + "208" + "ALT Break"
"F" -- "ALT Make" + "070" + "ALT Break"

8.5. Code Page

Code pages define the mapping of character codes to characters. If the data received does not display with the proper characters, it may be because the barcode being scanned was created using a code page that is different from the one the host program is expecting. If this is the case, select the code page with which the barcodes were created by scanning the appropriate barcode below. For PDF417, QR Code, Aztec and Data Matrix, besides setting the code page, also set the character encoding in the "Character Encoding" section in Chapter 6. This feature is only effective when **Emulate ALT+Keypad** is turned on.

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

Code Page 1251 (Cyrillic)

Code Page 1250 (Central and East European Latin)

Code Page 1253 (Greek)

Code Page 1254 (Turkish)

Code Page 1255 (Hebrew)

Code Page 1256 (Arabic)

Code Page 1257 (Baltic)

Code Page 1258 (Vietnamese)

Code Page 936 (Simplified Chinese, GB2312, GBK)

Code Page 950 (Traditional Chinese, Big5)

Code Page 932 (Japanese, Shift-JIS)

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

8.6. Unicode Encoding

Different host program may use different character encodings for handling incoming barcode data. For instance, Microsoft Office Word uses Unicode encoding and therefore turn Unicode Encoding on, whereas Microsoft Office Excel or Notepad uses Code Page encoding and therefore turn Unicode Encoding off. This feature is only effective when Emulate ALT+Keypad is turned on.

@KBWCPU0
** Off

@KBWCPU1
On

8.7. Emulate Keypad with Leading Zero

Turn this feature on to send character sequences sent over the numeric keypad as ISO characters which have a leading zero.

For example, ASCII A transmits as "ALT MAKE" 0065 "ALT BREAK". This feature is only effective when Emulate **ALT+Keypad** is enabled.

@KBWALZ1
** On

@KBWALZ0
Off

8.8. Function Key Mapping

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

@KBWFKM0
** Disable

@KBWFKM1
Ctrl+ASCII Mode

@KBWFKM2
Alt+Keypad Mode

If **Ctrl+ASCII** Mode is selected and other parameters of USB HID Keyboard adopt factory defaults, barcode data "A<HT> (i.e. Horizontal Tab) F" (0x41/0x09/0x46) is sent as below:
"A" - Keystroke "A"
<HT> - "**Ctrl Make" + Keystroke "I" + "Ctrl Break"**
"F" - Keystroke "F"
For some text editors, "Ctrl I" means italic convert. So, the output may be "AF".

@SETUPE0
** Exit Setup

If **Alt+Keypad** Mode is selected and other parameters of USB HID Keyboard adopt factory defaults, the data above is sent as below:
"A" - Keystroke "A"
<HT> - "Alt Make" + Keystrokes "009" + "Alt Break"
"F" - Keystroke "F"

8.9. ASCII Function Key Mapping Table

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

SUB	1A	F5	Ctrl+Z
ESC	11	F6	Ctrl+ [
FS	1C	F7	Ctrl+\
GS	1D	F8	Ctrl+]
RS	1E	F9	Ctrl+6
US	1F	F10	Ctrl+-

8.10. ASCII Function Key Mapping Table (Continued)

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

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

Enter Setup

8.11. Inter-Keystroke Delay

This parameter specifies the delay between emulated keystrokes.

**** No Delay**

Long Delay (40ms)

Short Delay (20ms)

8.12. Cap Locks

The **Caps Lock On** options can invert upper- and lower-case characters contained in barcode data. This inversion occurs regardless of the state of Caps Lock key on the host device's keyboard. To disable this feature, scan the appropriate Caps Lock OFF barcode below based on keyboard.

**** Caps Lock OFF, Non-Japanese Keyboard**

Caps Lock ON, Non-Japanese Keyboard

Caps Lock OFF, Japanese Keyboard

Caps Lock ON, Japanese Keyboard

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

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

8.13. Convert Case

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

**** No Case Conversion**

Convert All to Upper Case

Convert All to Lower Case

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

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

**** Exit Setup**

@SETUPE1
Enter Setup

8.14. Emulate Numeric Keyboard

- **Does not Emulate Numeric Keypad 1**: Sending a number (0-9) is emulated as keystroke(s) on main keyboard.
- **Emulate Numeric Keypad 1**: Sending a number (0-9) is emulated as keystroke(s) on numeric keypad. The state of Num Lock on the simulated numeric keypad is determined by its equivalent on the host device. If Num Lock on the host device is turned off, the output of simulated numeric keypad is function key instead of number.
- **Does not Emulate Numeric Keypad 2**: Sending "+", "—", "*" and "/" is emulated as keystroke(s) on main keyboard.
- **Emulate Numeric Keypad 2**: Sending "+", "—", "*" and "/" is emulated as keystroke(s) on numeric keypad.

@KBWNUM0
**** Does Not Emulate Numeric Keypad 1**

@KBWNUM1
Emulate Numeric Keypad 1

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

@KBWNCH1
Emulate Numeric Keypad 2

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

Supposing the Emulate Numeric Keypad 1 feature is enabled: if Num Lock on the host device is ON, "A4.5" is transmitted as "A4.5"; if Num Lock on the host device is OFF, "A4.5" is transmitted as ". A":

1. "A" is sent on main keyboard;
2. "4" is sent as the function key "Cursor Move to Left";
3. "." is sent on main keyboard;
4. "5" is not sent as it does not correspond to any function key.

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

5.

8.15. Fast Mode

When Fast Mode On is selected, the scanner sends characters to the Host faster. If the Host drops characters, turn the Fast Mode off or change the polling rate to a bigger value.

@KBWFAS0
** Fast Mode Off

@KBWFAS1
Fast Mode On

8.16. Polling Rate

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

@KBWPOR0
1ms

@KBWPOR1
2ms

@KBWPOR2
3ms

@KBWPOR3
**** 4ms**

@KBWPOR4
5ms

@KBWPOR5
6ms

@KBWPOR6
7ms

@KBWPOR8
8ms

@KBWPOR9
10ms

8.17. USB CDC

The scanner is connected to the USB port on a host device, the USB CDC feature allows the host device to receive data in the way as a serial port does. A driver is needed when using this feature. Download it from our website at www.ldtechproducts.com.

@INTERF8
USB CDC

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

8.18. HID POS (POS HID Barcode Scanner)

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

Features:

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

USB HID-POS

8.19. IBM SurePOS (Tabletop)

IBM SurePOS (Tabletop)

8.20. IBM SurePOS (Handheld)

IBM SurePOS (Handheld)

8.21. VIP/PID

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

Product	Interface	PID (Hex)	PID (Dec)
FX200	USB HID Keyboard	1D22	7458
	USB CDC	1D06	7430
	HID POS	1D10	7440
	IBM SurePOS (Tabletop)	1D20	7456
	IBM SurePOS	1D21	7457

@SETUPE0
** Exit Setup

@SETUPE1

Enter Setup

8.22. Adapted Wired Communication

When this feature is on, the scanner can automatically adapt its communication configuration to the way it is connected to the host device: Automatically enable USB/serial communication when connected to the host device via USB/serial port, respectively.

Note: Restart the scanner before this setting will take effect.

Off

**** On**

@SETUPE0

**** Exit Setup**

@SETUPE1

Enter Setup

9. Symbologies

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

9.1. Global Settings

9.1.1. Enable /Disable 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

Enable

Disable

Enable/Disable 1D Symbologies

Enable

Disable

Enable/Disable 1D Symbologies

Enable

Disable

Enable/Disable Postal Symbologies

Enable

Disable

@SETUPE1
Enter Setup

9.2. 1D Twin Code

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

There are 3 options for reading 1D twin code:

- **Single 1D Code Only**: Read either 1D code
- **Twin 1D Code Only:** Read both 1D codes. Transmission sequence: upper 1D code followed by lower 1D code.
- **Both Single & Twin:** Read both 1D codes. If successful, transmit as twin 1D code only. Otherwise, try single 1D code only.

@A1DDOU0
** Single 1D Code Only

@A1DDOU1
Twin 1D Code Only

@A1DDOU2
Both Single & Twin

9.3. Surround GS1 Application Identifiers (AI's) with Parenthesis

When Surround GS1 AI's with Parentheses is selected, each application identifier (AI) contained in scanned data will be enclosed in parentheses in the output message.

@GS1AIP0
** Does Not Surround GS1 AI's with Parentheses

@GS1AIP1
Surround GS1 AI's with Parentheses

(01) 0 0614141 99999 6 (10) 10ABCEDF123456

If **Surround GS1 AI's with Parentheses** is selected, the barcode above is output as (01)00614141999996(10)10ABCEDF123456.

If **Does not Surround GS1 AI's with Parentheses** is selected, the barcode above is output as 0100614141999996 1010ABCEDF123456.

@SETUPE0
** Exit Setup

Enter Setup

9.4. Code 128

Restore the Factory Defaults of Code 128

** **Enable Code 128**

Disable Code 128

Note: If the scanner fails to identify Code 128 barcodes, first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 128** barcode.

9.4.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 48)

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

1. Set the scanner to decode Code 128 barcodes containing between 8 and 12 characters:
2. Scan the **Enter Setup** barcode.
3. Scan the **Set the Minimum Length** barcode.
4. Scan the numeric barcode "8" from the "**Digit Barcodes**" section in Appendix.
5. Scan the **Save** barcode from the "**Save/Cancel Barcodes**" section in Appendix.
6. Scan the **Set the Maximum Length** barcode.
7. Scan the numeric barcodes "1" and "2" from the "**Digit Barcodes**" section in Appendix.
8. Scan the **Save** barcode from the "**Save/Cancel Barcodes**" section in Appendix.
9. Scan the **Exit Setup** barcode.

9.5. Ean-8

Restore the Factory Defaults of EAN-8

** **Enable EAN-8**

Disable EAN-8

** **Exit Setup**

@SETUPE1

Enter Setup

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

9.6. Transmit Check Character

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

@EA8CHK2

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

@EA8CHK1

Does Not Transmit EAN-8 Check Character

9.7. 2 Digit Add-On Code

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

@EA8AD20

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

@EA8AD21

Enable 2-Digit Add-On Code

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

9.8. 5-Digit Add -On Code

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

@EA8AD50

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

@EA8AD51

Enable 5-Digit Add-On Code

@SETUPE0

**** Exit Setup**

@SETUPE1
Enter Setup

- **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.

9.9. Add on Code Required

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

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

@EA8REQ1
EAN-8 Add-On Code Required

9.10. Convert EAN-8 to EAN-13

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

Does not Convert EAN-8 to EAN-13: EAN-8 decoded data is transmitted as EAN-8 data, without conversion.

@EA8EXP0
** Does Not Convert EAN-8 to EAN-13

@EA8EXP1
Convert EAN-8 to EAN-13

@SETUPE0
** Exit Setup

@SETUPE1

Enter Setup

10. EAN-13

@E13DEF

Restore the Factory Defaults of EAN-13

@E13ENA1

**** Enable EAN-13**

@E13ENA1

Disable EAN-13

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

10.1. Transmit Check Character

@E13CHK2

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

@E13CHK1

Does not Transmit EAN-13 Check Character

10.2. Two Digit Add-On Code

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

In the example below, the part surrounded by blue dotted line is an EAN-13 barcode while the part circled by red dotted line is a two-digit add-on code.

@E13AD20

Disable 2-Digit Add-On Code

@E13AD21

Enable 2-Digit Add-On Code

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

10.3. Five Digit Add-On Code

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

In the example below, the part surrounded by blue dotted line is an EAN-13 barcode while the part

@SETUPE0

**** Exit Setup**

@SETUPE1
Enter Setup

circled by red dotted line is a five-digit add-on code

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

Enable 5-Digit Add-On Code

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

Add-On Code Required

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

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

EAN-13 Add-On Code Required

10.4. EAN-13 Beginning with 290 Add-On Code Required

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

- **Requires 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.
- **Does not Requires Add-On Code**: If **Requires Add-On Code** is selected, and it needs disabling, scan **Does not Requires Add-On Code**. EAN-13 barcodes are handled, depending on selection for the "Add-On Code Required" feature.

** Does Not Requires Add-On Code

Requires Add-On Code

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

@SETUPE0
**** Exit Setup**

@SETUPE1
Enter Setup

This setting programs the scanner to requires 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:

- **Requires 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.
- **Does not Requires Add-On Code**: If **Requires Add-On Code is selected**, and disable this feature, scan Does not Requires Add-On Code. EAN-13 barcodes are handled, depending on the selection for the "Add-On Code Required" feature.

** Does Not Requires Add-On Code

Requires Add-On Code

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

This setting programs the scanner to requires 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:

- **Requires 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.
- **Does not Requires Add-On Code**: If Requires Add-On Code is selected, and it needs disabling, scan Does not Requires Add-On Code. EAN-13 barcodes are handled, depending on selection for the "Add-On Code Required" feature.

** Does Not Requires Add-On Code

Requires Add-On Code

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

This setting programs the scanner to requires 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:

- **Requires 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.
- **Does not Requires Add-On Code**: If **Requires Add-On Code** is selected, and it needs disabling, scan **Does not Requires Add-On Code**. EAN-13 barcodes are handled, depending on selection for the "Add-On Code Required" feature

@SETUPE0
** Exit Setup

@SETUPE1

Enter Setup

**** Does not Requires Add-On Code**

Requires Add-On Code

10.8. Beginning with 977 Add-On Code Required

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

- **Requires 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.
- **Does not Requires Add-On Code**: If Requires Add-On Code is selected, and it needs disabling, scan Does not Requires Add-On Code. EAN-13 barcodes are handled, depending on selection for the "Add-On Code Required" feature.

**** Does Not Requires Add-On Code**

Requires Add-On Code

10.9. Beginning with 978 Add-On Required

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

- **Requires 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 requires add-on code is not found, the EAN-13 barcode is discarded.
- **Does not Requires Add-On Code**: If Requires Add-On Code is selected, and it needs disabling, scan Does not Requires Add-On Code. EAN-13 barcodes are handled, depending on selection for the "Add-On Code Required" feature.

**** Does Not Requires Add-On Code**

Requires Add-On Code

10.10. EAN-13 Beginning with 979 Add-On Code Required

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

@SETUPE0

**** Exit Setup**

Enter Setup

- **Requires 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.
- **Does not Requires Add-On Code**: If Requires Add-On Code is selected, and it needs disabling, scan Does not Requires Add-On Code. EAN-13 barcodes are handled, depending on selection for the "Add-On Code Required" feature.

**** Does Not Requires Add-On Code**

Requires Add-On Code

11. UPC-E

Restore the Factory Defaults of UPC-E

**** Enable UPC-E0**

Disable UPC-E0

Enable UPC-E1

**** Disable UPC-E1**

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

11.1. 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**

Does Not Transmit UPC-E Check Character

**** Exit Setup**

@SETUPE1

Enter Setup

11.2. 2-Digit Add-On Code

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

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

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

Enable 2-Digit Add-On Code

11.3. 5-Digit Add on Code

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

- **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.

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

Enable 5-Digit Add-On Code

11.4. 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 Not Required**

UPC-E Add-On Code Required

@SETUPE0

**** Exit Setup**

Enter Setup

11.5. 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.

** System Character

No Preamble

System Character & Country Code

11.6. Convert UPC-E to UPC-A

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

Does not Convert UPC-E to UPC-A: UPC-E decoded data is transmitted as UPC-E data, without conversion.

** Does not Convert UPC-E to UPC-A

Convert UPC-E to UPC-A

** Exit Setup

@SETUPE1
Enter Setup

12. UPC-A

Restore the Factory Defaults of UPC-A

**** Enable UPC-A**

Disable UPC-A

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

12.1. 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**

Does Not Transmit UPC-A Check Character

12.2. 2-Digit Add-On Code

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

Enable 2-Digit Add-On Code

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

In the example below, the part surrounded by blue dotted line is a UPC-A barcode while the part circled by red dotted line is a two-digit add-on code.

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

@SETUPE0
**** Exit Setup**

@SETUPE1

Enter Setup

12.3. 5-digit Add -On Code

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

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

Enable 5-Digit Add-On Code

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

12.4. 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 Not Required**

UPC-A Add-On Code Required

12.5. 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

System Character & Country Code

@SETUPE0

**** Exit Setup**

Enter Setup

13. Coupon

13.1. UPC-A/EAN-13 with Extended Coupon Code

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

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

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

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

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

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

** Off

Allow Concatenation

Requires Concatenation

13.2. Coupon GS1 Databar Output

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

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

** Exit Setup

** GS1 Output Off

GS1 Output On

@SETUPE1
Enter Setup

14. Interleaved 2 of 5

Restore the Factory Defaults of Interleaved 2 of 5

**** Enable Interleaved 2 of 5**

Disable Interleaved 2 of 5

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

14.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 6)

Set the Maximum Length (Default: 80)

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

Set the scanner to decode Interleaved 2 of 5 barcodes containing between 8 and12 characters:

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

14.2. 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.
- **Does not Transmit Check Character After Verification**: The scanner checks the integrity of all

@SETUPE0
** Exit Setup

@SETUPE1

Enter Setup

- 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.

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

**** Disable**

Does not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Does not Transmit Check Character After Verification** option is enabled, interleaved 2 of 5 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded.

For example, when the **Does not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Interleaved 2 of 5 barcodes with a total length of 4 characters including the check character cannot be read.

@SETUPE0

**** Exit Setup**

@SETUPE1

Enter Setup

15. Febraban

**** Disable Febraban**

Enable Febraban, does not Expand

Enable Febraban, Expand

15.1. Transmit Delay per Character

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

Select an appropriate delay value from the options below as per need.

0ms

5ms

10ms

15ms

20ms

25ms

30ms

35ms

40ms

45ms

50ms

55ms

60ms

65ms

** 70ms

@SETUPE0

**** Exit Setup**

@SETUPE1

Enter Setup

15.2. Transmit Delay per 12 Character

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

@FEBSEN0

**** Disable Transmit Delay per Character**

@FEBSEN1

Enable Transmit Delay per Character

Select an appropriate delay value from the options below as per needs.

15.3. Transmit Delay per 12 Character

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

Select an appropriate delay value from the options below as per need.

@FEBMDT0

0ms

@FEBMDT1

300ms

@FEBMDT2

400ms

@FEBMDT3

** 500ms

@FEBMDT4

600ms

@FEBMDT5

700ms

@FEBMDT6

800ms

@FEBMDT7

900ms

@SETUPE0

**** Exit Setup**

@SETUPE1

Enter Setup

16. ITF-14

ITF-14 is a special kind of Interleaved 2 of 5 with a length of 14 characters and the last character as the check character.

ITF-14 priority principle: For the Interleaved 2 of 5 barcodes with a length of 14 characters and the last character as the check character, the ITF-14 configurations shall take precedence over the Interleaved 2 of 5 settings.

@I14DEF

Restore the Factory Defaults of ITF-14

@I14ENA0

**** Disable ITF-14**

@I14ENA1

Enable ITF-14 But Does not Transmit Check Character

@I14ENA2

Enable ITF-14 and Transmit Check Character

An example of the ITF-14 priority principle: when ITF-14 is enabled and Interleaved 2 of 5 is disabled, the scanner only decodes Interleaved 2 of 5 barcodes with a length of 14 characters and the last character as the check character.

17. ITF-6

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

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

@IT6DEF

Restore the Factory Defaults of ITF-6

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

@SETUPE0

**** Exit Setup**

@SETUPE1

Enter Setup

** Disable ITF-6

Enable ITF-6 But Does not Transmit Check Character

Enable ITF-6 and Transmit Check Character

18. Matrix 2 of 5

Restore the Factory Defaults of Matrix 2 of 5

** Enable Matrix 2 of 5

Disable Matrix 2 of 5

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

18.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 4)

Set the Maximum Length (Default: 80)

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

If the scanner to decode Matrix 2 of 5 barcodes containing between 8 and12 characters:

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

@SETUPE0

** Exit Setup

@SETUPE1
Enter Setup

18.2. Check Character Verification

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

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

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

** Disable

Does Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Does not Transmit Check Character After Verification** option is enabled, Matrix 2 of 5 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded.

For example, when the **Does not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Matrix 2 of 5 barcodes with a total length of 4 characters including the check character cannot be read.

@SETUPE0
** Exit Setup

@SETUPE1

Enter Setup

19. Code 39

@C39DEF

Restore the Factory Defaults of Code 39

@C39ENA1

** **Enable Code 39**

@C39ENA0

Disable Code 39

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

19.1. 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, set the minimum and maximum lengths.

@C39MIN

Set the Minimum Length (Default: 1)

@C39MAX

Set the Maximum Length (Default: 48)

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

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

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

Scan the **Exit Setup** barcode.

19.2. Check Character Verification

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

- **Disable**: The scanner transmits Code 39 barcodes as is.
- **Does not Transmit Check Character After Verification**: The scanner checks the integrity of all

@SETUPE0

** **Exit Setup**

@SETUPE1
Enter Setup

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

**** Disable**

Does Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Does Not Transmit Check Character After Verification** option is enabled, Code 39 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded.

For example, when the **Does Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Code 39 barcodes with a total length of 4 characters including the check character cannot be read.

19.3. Transmit Start/Stop Character

Code 39 uses an asterisk (*) for both the start and the stop characters. Transmit the start/stop characters by scanning the appropriate barcode below.

**** Does Not Transmit Start/Stop Character**

Transmit Start/Stop Character

19.4. Enable/Disable Code 39 ASC II

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

@SETUPE0
**** Exit Setup**

@SETUPE1

Enter Setup

19.5. Enable/Disable Code 32 (Italian Pharma Code)

Code 32 is a variant of Code 39 used by the Italian pharmaceutical industry. Scan the appropriate bar code below to enable or disable Code 32. Code 39 must be enabled and Code 39 check character verification must be disabled for this parameter to function.

** Disable Code 32

Enable Code 32

19.6. Code 32 Prefix

Scan the appropriate barcode below to enable or disable adding the prefix character "A" to all Code 32 barcodes. Code 32 must be enabled for this parameter to function.

** Disable Code 32 Prefix

Enable Code 32 Prefix

19.7. Transmit Code 32 Start/Stop Character

** Does Not Transmit Code 32 Start/Stop Character

Transmit Code 32 Start/Stop Character

Code 32 must be enabled for this parameter to function.

19.8. Transmit Code 32 Check Character

Code 32 must be enabled for this parameter to function.

** Does Not Transmit Code 32 Check Character

Transmit Code 32 Check Character

@SETUPE0

** Exit Setup

Enter Setup

20. Codabar

Restore the Factory Defaults of Codabar

** **Enable Codabar**

Disable Codabar

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

20.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 2)

Set the Maximum Length (Default: 60)

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

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

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

20.2. Check Character Verification

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

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

** **Exit Setup**

@SETUPE1
Enter Setup

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

**** Disable**

Does Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Does Not Transmit Check Character After Verification** option is enabled, Codabar barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded.

For example, when the **Does Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Codabar barcodes with a total length of 4 characters including the check character cannot be read.

20.3. Start /Stop Character

Set the start/stop characters and choose to transmit the start/stop characters by scanning a barcode below.

**** Does Not Transmit Start/Stop Character**

Transmit Start/Stop Character

**** ABCD/ABCD as the Start/Stop Character**

ABCD/TN*E as the Start/Stop Character

abcd/abcd as the Start/Stop Character

abcd/tn*e as the Start/Stop Character

Enter Setup

21. Code 93

Restore the Factory Defaults of Code 93

Enable Code 93

**** Disable Code 93**

If the scanner fails to identify Code 93 barcodes, first try this solution by scanning the **Enter Setup** barcode and then **Enable Code 93** barcode.

21.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 48)

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

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

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

21.2. Check Character Verification

Check characters are optional for Code 93 and can be added as the last two characters, which are calculated values used to verify the integrity of the data.

- **Disable**: The scanner transmits Code 93 barcodes as is.

**** Exit Setup**

@SETUPE1
Enter Setup

- **Does not Transmit Check Character After Verification**: The scanner checks the integrity of all Code 93 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted except the last two digits, whereas those failing them will not be transmitted.
- **Transmit Check Character After Verification**: The scanner checks the integrity of all Code 93 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted, whereas those failing them will not be transmitted.

** Disable

Does Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Does not Transmit Check Character** After Verification option is enabled, Code 93 barcodes with a length that is less than the configured minimum length after having the two check characters excluded will not be decoded.

For example, when the **Does not Transmit Check Character** After Verification option is enabled and the minimum length is set to 4, Code 93 barcodes with a total length of 4 characters including the two check characters cannot be read.

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

22. China Post 25

Restore the Factory Defaults of China Post 25

Enable China Post 25

**** Disable China Post 25**

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

22.1. Set Length Range for China Post 25

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

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 48)

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

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

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

22.2. Check Character Verification

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

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

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

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

** Disable

Does Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Does not Transmit Check Character After Verification** option is enabled, China Post 25 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded.

For example, when the **Does not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, China Post 25 barcodes with a total length of 4 characters including the check character cannot be read.

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

23. GS1-128 (UCC/EAN-128)

Restore the Factory Defaults of GS1-128

** **Enable GS1-128**

Disable GS1-128

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

23.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 48)

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

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

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

@SETUPE0
** Exit Setup

24. GS1 Databar (RSS)

Restore the Factory Defaults of GS1 Databar

** Enable GS1 Databar

Disable GS1 Databar

24.1. Transmit Application Identifier “01”

** Transmit Application Identifier “01”

Does not Transmit Application Identifier “01”

25. GS1 Composite (EAN·UCC Composite)

Restore the Factory Defaults of GS1 Composite

Enable GS1 Composite

** Disable GS1 Composite

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

25.1. Enable/Disable UPC/EAN Composite

Enable UPC/EAN Composite

** Disable UPC/EAN Composite

@SETUPE1
Enter Setup

26. Code 11

Restore the Factory Defaults of Code 11

Enable Code 11

** **Disable Code 11**

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

26.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 4)

Set the Maximum Length (Default: 48)

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

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

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

26.2. Check Character Verification

Check characters are optional for Code 11 and can be added as the last one or two characters, which are calculated values used to verify the integrity of the data.
If the **Disable** option is enabled, the scanner transmits Code 11 barcodes as is.

@SETUPE0
** **Exit Setup**

@SETUPE1

Enter Setup

Disable

** One Check Character, MOD11

Two Check Characters, MOD11/MOD11

Two Check Characters, MOD11/MOD9

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

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

Does not Transmit Code 11 Check Character

** Transmit Code 11 Check Character

Select a check character algorithm and the **Does not Transmit Check Character** option, Code 11 barcodes with a length that is less than the configured minimum length after having the check character(s) excluded will not be decoded.

For example, when the **One Check Character, MOD11** and **Does not Transmit Check Character** options are enabled and the minimum length is set to 4, Code 11 barcodes with a total length of 4 characters including the check character cannot be read.

27. ISBN

Restore the Factory Defaults of ISBN

Enable ISBN

** Disable ISBN

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

@SETUPE0

** **Exit Setup**

@SETUPE1

Enter Setup

27.1. Set ISBN Format

** ISBN-10

ISBN-13

28. ISSN

Restore the Factory Defaults of ISSN

Enable ISSN

** Disable ISSN

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

29. Industrial 25

Restore the Factory Defaults of Industrial 25

Enable Industrial 25

** Disable Industrial 25

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

29.1. Set Length Range for Industrial 25

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

Set the Minimum Length (Default: 6)

Set the Maximum Length (Default: 48)

@SETUPE0

** Exit Setup

Enter Setup

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

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

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

29.2. Check Character Verification

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

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

** Disable

Does Not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Does not Transmit Check Character After Verification** option is enabled, Industrial 25 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded.

For example, when the **Does not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Industrial 25 barcodes with a total length of 4 characters including the check character cannot be read.

** Exit Setup

@SETUPE1

Enter Setup

30. Standard 25

Restore the Factory Defaults of Standard 25

Enable Standard 25

**** Disable Standard 25**

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

30.1. 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, set the minimum and maximum lengths.

The 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.

30.2. Check Character Verification

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

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

Set the Minimum Length (Default: 6)

Set the Maximum Length (Default: 48)

If the **Does not Transmit Check Character After Verification** option is enabled, Standard 25 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded.

@SETUPE0

**** Exit Setup**

Enter Setup

For example, when the **Does not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Standard 25 barcodes with a total length of 4 characters including the check character cannot be read.)

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

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

31. Plessy

Restore the Factory Defaults of Plessey

Enable Plessey

**** Disable Plessey**

If the scanner fails to identify Plessey barcodes, try this solution by scanning the Enter Setup barcode and then Enable Plessey barcode.

31.1. Set Length Range for Plessy

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

Set the Minimum Length (Default: 4)

Set the Maximum Length (Default: 48)

The 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.

**** Exit Setup**

Enter Setup

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

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

31.2. Check Character Verification

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

- **Disable:** The scanner transmits Plessey barcodes as is.
- **Does not Transmit Check Character After Verification**: The scanner checks the integrity of all Plessey barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted except the last two digits, whereas those failing them will not be transmitted.
- **Transmit Check Character After Verification**: The scanner checks the integrity of all Plessey barcodes to verify that the data complies with the check character algorithm. Barcodes passing the checks will be transmitted, whereas those failing them will not be transmitted.

**** Disable**

Does not Transmit Check Character After Verification

Transmit Check Character After Verification

If the **Does not Transmit Check Character After Verification option** is enabled, Plessey barcodes with a length that is less than the configured minimum length after having the check characters excluded will not be decoded.

For example, when **the Does not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Plessey barcodes with a total length of 4 characters including the check characters cannot be read.

**** Exit Setup**

@SETUPE1
Enter Setup

32. MSI- Plessy

Restore the Factory Defaults of MSI-Plessey

Enable MSI-Plessey

**** Disable MSI-Plessey**

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

32.1. Set Length Range for MSI-Plessy

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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 4)

Set the Maximum Length (Default: 48)

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

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

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

32.2. Check Character Verification

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

@SETUPE0
** Exit Setup

@SETUPE1

Enter Setup

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

Disable

**** One Check Character, MOD10**

Two Check Characters, MOD10/MOD10

Two Check Characters, MOD10/MOD11

32.3. Transmit Check Character

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

Does not Transmit MSI-Plessey Check Character

Select a check character algorithm and the **Does not Transmit Check Character** option, MSI-Plessey barcodes with a length that is less than the configured minimum length after having the check character(s) excluded will not be decoded.

For example, when the One Check Character, MOD10 and Does not Transmit Check Character options are enabled and the minimum length is set to 4, MSI-Plessey barcodes with a total length of 4 characters including the check character cannot be read.

@SETUPE0

**** Exit Setup**

@SETUPE1
Enter Setup

33. AIM 128

@AIMDEF
Restore the Factory Defaults of AIM 128

@AIMENA1
Enable AIM 128

@AIMENA0
**** Disable AIM 128**

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

33.1. Set the 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, set the minimum and maximum lengths.

@AIMMIN
Set the Minimum Length (Default: 1)

@AIMMAX
Set the Maximum Length (Default: 48)

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

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

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

@SETUPE0
** Exit Setup

@SETUPE1

Enter Setup

34. ISBT 128

Restore the Factory Defaults of ISBT 128

Enable ISBT 128

**** Disable ISBT 128**

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

35. Code 49

Restore the Factory Defaults of Code 49

Enable Code 49

**** Disable Code 49**

If the scanner fails to identify Code 49 barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable Code 49** barcode.

35.1. Set Length Range for Code 49

The scanner can be configured to only decode Code 49 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 80)

If minimum length is set to be greater than maximum length, the scanner only decodes Code 49 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 49 barcodes with that length are to be decoded.

Set the scanner to decode Code 49 barcodes containing between 8 and 12 characters:

1. Scan the **Enter Setup** barcode.
2. Scan the **Set the Minimum Length** barcode.
3. Scan the numeric barcode "8" from the "Digit Barcodes" section in Appendix.
4. Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix.

@SETUPE0

**** Exit Setup**

@SETUPE1
Enter Setup

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

36. Code 16K

Restore the Factory Defaults of Code 16K

Enable Code 16K

Disable Code 16K

If the scanner fails to identify Code 16K barcodes, try this solution by scanning the Enter Setup barcode and then Enable Code 16K barcode.

36.1. Set Length Range for Code 16K

The scanner can be configured to only decode Code 16K barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 80)

1. If minimum length is set to be greater than maximum length, the scanner only decodes Code 16K barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 16K barcodes with that length are to be decoded.

   Set the scanner to decode Code 16K barcodes containing between 8 and 12 characters:

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

@SETUPE0
** Exit Setup

@SETUPE1

Enter Setup

37. PDF417

Restore the Factory Defaults of PDF417

**** Enable PDF417**

Disable PDF417

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

37.1. Set Length Range for PDF417

The scanner can be configured to only decode PDF417 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 2710)

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

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

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

@SETUPE0

**** Exit Setup**

Enter Setup

38. PDF417 Twin Code

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

There are 3 options for reading PDF417 twin codes:

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

**** Single PDF417 Only**

Twin PDF417 Only

Both Single & Twin

38.1. PDF417 Inverse

Regular barcode: Dark bars on a bright background. Inverse barcode: Bright bars on a dark background.
Inverse barcode: Bright bars on a dark background.

**** Decode Regular PDF417 Barcodes Only**

Decode Both

Decode Inverse PDF417 Barcodes Only

38.2. Character Encoding

**** Default Character Encoding**

UTF-8

**** Exit Setup**

Enter Setup

38.3. PDF417 ECI Output

Disable PDF417 ECI Output

**** Enable PDF417 ECI Output**

39. Micro PDF417

Restore the Factory Defaults of Micro PDF417

Enable Micro PDF417

**** Disable Micro PDF417**

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

39.1. Set Length Range for Micro PDF417

The scanner can be configured to only decode Micro PDF417 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 366)

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

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

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

**** Exit Setup**

@SETUPE1
Enter Setup

40. QR Code

Restore the Factory Defaults of QR Code

** **Enable QR Code**

Disable QR Code

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

40.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 7089)

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

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

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

40.2. QR Twin Code

QR twin code is 2 QR barcodes paralleled vertically or horizontally. They must both be either regular or inverse barcodes. They must have similar specifications and be placed closely together.
There are 3 options for reading QR twin codes:

- **Single QR Only:** Read either QR code.
- **Twin QR Only:** Read both QR codes. Transmission sequence: left (upper) QR code followed by right (lower) QR code.

@SETUPE0
** **Exit Setup**

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

**** Single QR Only**

Twin QR Only

Both Single & Twin

40.3. QR Inverse

Regular Barcode: Dark bars on a bright background. Inverse barcode: Bright bars on a dark background.
Inverse Barcode: Bright bars on a dark background.

**** Decode Regular QR Barcodes Only**

Decode Both

Decode Inverse QR Barcodes Only

40.4. Character Encoding

**** Default Character Encoding**

UTF-8

41. QR ECI Output

Disable QR ECI Output

**** Enable QR ECI Output**

Enter Setup

42. Micro QR Code

Restore the Factory Defaults of Micro QR

**** Enable Micro QR**

Disable Micro QR

42.1. ** Enable Micro QR

**** Enable Micro QR**

Disable Micro QR

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

42.2. Set Length Range for Micro QR

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

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 35)

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

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

Minimum length is not allowed to be greater than maximum length. To read Micro QR barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

**** Exit Setup**

Enter Setup

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

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

43. Aztec

Restore the Factory Defaults of Aztec Code

Enable Aztec Code

**** Disable Aztec Code**

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

43.1. Set Length Range for Aztec Code

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

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 3832)

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

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

**** Exit Setup**

@SETUPE1

Enter Setup

Scan the **Enter Setup** barcode.

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

43.2. Read Multi-barcodes on an Image

There are three options:

- **Mode 1:** Read one barcode only.
- **Mode 2:** Read fixed number of barcodes only.
- **Mode 3:** Composite Reading. Read fixed number of barcodes first. If unsuccessful, read one barcode only.

** Mode 1

Mode 2

Mode 3

43.3. Set the Number of Barcodes

@SETUPE0

** Exit Setup

@SETUPE1

Enter Setup

43.4. Character Encoding

Default Character Encoding

UTF-8

43.5. Aztec ECI Output

Disable Aztec ECI Output

** **Enable Aztec ECI Output**

44. Data Matrix

Restore the Factory Defaults of Data Matrix

Enable Data Matrix

Disable Data Matrix

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

44.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 3116)

Minimum length is not allowed to be greater than maximum length. To read Data Matrix barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

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

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

@SETUPE0

** **Exit Setup**

Enter Setup

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

44.2. 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:

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

** Single Data Matrix Only

Twin Data Matrix Only

Both Single & Twin

44.3. Rectangular Barcode

9. Data Matrix has two formats:
   - **Square barcodes**: have the same amount of modules in length and width: 10*10, 12*12…. 144*144.
   - **Rectangular barcodes:** have different amounts of models in length and width: 6*16, 6*14…14*22.

** Enable Rectangular Barcode

Disable Rectangular Barcode

44.4. Data Matrix Inverse

- **Regular barcode:** Dark bars on a bright background.
- **Inverse barcode:** Bright bars on a dark background.

** Exit Setup

@SETUPE1

Enter Setup

** Decode Regular Data Matrix Barcodes Only

Decode Inverse Data Matrix Barcodes Only

Decode Both

44.5. Character Encoding

Default Character Encoding

UTF-8

45. Data Matrix ECI Output

Disable Data Matrix ECI Output

** Enable Data Matrix ECI Output

46. Maxicode

Enable Maxicode

** Disable Maxicode

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

46.1. Set Length Range for Maxicode

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

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default:150)

@SETUPE0

** Exit Setup

Enter Setup

Minimum length is not allowed to be greater than maximum length. To read Maxicode barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

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

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

47. Chinese Sensible Code

Restore the Factory Defaults of Chinese Sensible Code

Enable Chinese Sensible Code

**** Disable Chinese Sensible Code**

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

47.1. 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, set the minimum and maximum lengths.

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 7827)

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

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

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

**** Exit Setup**

Enter Setup

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

47.2. Chinese Sensible Twin Code

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

There are 3 options for reading Chinese Sensible twin codes:

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

Otherwise, try single Chinese Sensible Code only.

**** Single Chinese Sensible Code Only**

Twin Chinese Sensible Code Only

Both Single & Twin

47.3. Chinese Sensible Code Inverse

Regular barcode: Dark bars on a bright background.
Inverse barcode: Bright bars on a dark background.

**** Decode Regular Chinese Sensible Barcodes Only**

Decode Both

Decode Inverse Chinese Sensible Barcodes Only

**** Exit Setup**

@SETUPE1

Enter Setup

48. GM Code

Restore the Factory Defaults of GM

Enable GM

**** Disable GM**

If the scanner fails to identify GM barcodes, try this solution by scanning the **Enter** barcode and then **Enable GM** barcode.

48.1. Set Length Range for GM

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

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 2751)

Minimum length is not allowed to be greater than maximum length. To read GM barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

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

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

@SETUPE0

**** Exit Setup**

@SETUPE1
Enter Setup

49. Code One

Restore the Factory Defaults of Code One

Enable Code One

** Disable Code One

49.1. Set Length Range for Code One

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

Set the Minimum Length (Default: 1)

Set the Maximum Length (Default: 3550)

Minimum length is not allowed to be greater than maximum length. To read Code One barcodes with a specific length, set both minimum and maximum lengths to be that desired length.

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

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

@SETUPE0
** Exit Setup

@SETUPE1

Enter Setup

50. USPS Postnet

@PNTDEF

Restore the Factory Defaults of USPS Postnet

@PNTENA1

Enable USPS Postnet

@PNTENA0

**** Disable USPS Postnet**

9. If the scanner fails to identify USPS Postnet barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable USPS Postnet** barcode

50.1. Transmit Check Character

@PNTCHK1

Does not Transmit USPS Postnet Check Character

@PNTCHK2

**** Transmit USPS Postnet Check Character**

51. USPS Intelligent Mail

@ILGDEF

Restore the Factory Defaults of USPS Intelligent Mail

@ILGENA1

Enable USPS Intelligent Mail

@ILGENA0

**** Disable USPS Intelligent Mail**

If the scanner fails to identify USPS Intelligent Mail barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable USPS Intelligent Mail** barcode.

52. Royal Mail

@ROYDEF

Restore the Factory Defaults of Royal Mail

@ROYENA1

Enable Royal Mail

@ROYENA0

**** Disable Royal Mail**

If the scanner fails to identify Royal Mail barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable Royal Mail** barcode.

@SETUPE0

**** Exit Setup**

@SETUPE1
Enter Setup

53. USPS Planet

@PLADEF
Restore the Factory Defaults of USPS Planet

@PLAENA1
Enable USPS Planet

@PLAENA0
** Disable USPS Planet

If the scanner fails to identify USPS Planet barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable USPS Planet** barcode.

53.1. Transmit Check Character

@PLACHK1
Does not Transmit USPS Planet Check Character

@PLACHK2
**** Transmit USPS Planet Check Character**

54. KIX Post

@KIXDEF
Restore the Factory Defaults of KIX Post

@KIXENA1
Enable KIX Post

@KIXENA0
**** Disable KIX Post**

If the scanner fails to identify KIX Post barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable KIX Post** barcode.

55. Australian Postal

@APLDEF
Restore the Factory Defaults of Australian Postal

@APLENA1
Enable Australian Postal

@APLENA0
**** Disable Australian Postal**

@SETUPE0
** Exit Setup

Enter Setup

If the scanner fails to identify Australian Postal barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable Australian Postal** barcode.

56. Specific OCR-B

Restore the Factory Defaults of Specific OCR-B

Enable Specific OCR-B

**** Disable Specific OCR-B**

If the scanner fails to identify Specific OCR-B barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable Specific OCR-B** barcode.

57. Chinese ID Card OCR

Restore the Factory Defaults of Chinese ID Card OCR

Enable Chinese ID Card OCR

**** Disable Chinese ID Card OCR**

If the scanner fails to identify Chinese ID Card OCR barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable Chinese ID Card OCR** barcode.

58. Passport OCR

Restore the Factory Defaults of Passport OCR

Disable Passport OCR

Enable Passport OCR

If the scanner fails to identify Passport OCR barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable Passport OCR** barcode.

**** Exit Setup**

@SETUPE1

Enter Setup

59. China Travel Permit OCR

Restore the Factory Defaults of China Travel Permit OCR

Enable China Travel Permit OCR

**** Disable China Travel Permit OCR**

If the scanner fails to identify China Travel Permit OCR barcodes, try this solution by scanning the **Enter Setup** barcode and then **Enable China Travel Permit OCR** barcode.

60. Data Formatter

Use the Data Formatter to modify the scanner's output.

For example, 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 a barcode is scanned, it gets outputted automatically; however, when a format is created, use a "send" command (see the "Send Commands" section in this chapter) within the format programming to output data.

Multiple data formats can be programmed into the scanner. The maximum size of all data formats created is 2048 characters. By default, the data formatter is disabled. Enable it when required. If the data has changed format settings and wish to clear all formats and return to the factory defaults, scan the **Default Data Format** code below.

Default Data Format

60.1. Add a Data Format

Data format is used to edit barcode data. When a data format is created, select one of the four labels (Format_0, Format_1, Format_2 and Format_3) for data format, specify the application scope of data format (such as barcode type and data length) and include formatter commands. Multiple data formats may be created using the same label. When scanned data does not match data format requirements, a non-match error beep will sound. (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**.

@SETUPE0

**** Exit Setup**

@SETUPE1
Enter Setup

60.2. 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.

Add Data Format

- **Step 1:** Scan the **Enter Setup** barcode.
- **Step 2:** Scan the **Add Data Format** barcode.
- **Step 3:** Select a label (Format_0 or Format_1 or Format_2 or Format_3). Scan a numeric barcode **0** or **1** or **2** or **3** to label this data format Format_0 or Format_1 or Format_2 or Format_3.
- **Step 4:** Select formatter command type.
- Specify what type of formatter commands will be used. Scan a numeric barcode **6** to select formatter command type 6. (See the "Formatter Command Type 6" section in this chapter for more information)
- **Step 5:** Set interface type
- Scan **999** for any interface type.
- **Step 6:** Set Symbology ID Number
- Refer to the "Symbology ID Number" section in Appendix and find the ID number of the symbology to apply the data format. Scan three numeric barcodes for the symbology ID number. To create a data format for all symbologies, scan **999**.
- **Step 7:** Set barcode data length
- Specify what length of data will be acceptable for this symbology. Scan the four numeric barcodes that represent the data length. 9999 is a universal number, indicating all lengths. For example, 32 characters should be entered as 0032.
- **Step 8:** Enter formatter command
- Refer to the "Formatter Command Type 6" section in this chapter. Scan the alphanumeric barcodes that represent the command needed to edit data. For example, when a command is F141, scan F141.
- **Step 9:** Scan the **Save** barcode from the "Save/Cancel Barcodes" section in Appendix to save data format.

Example: Program a Format_0 data format using formatter command type 6, Code 128 containing 10 characters applicable, send all characters followed by "A".

Scan the **Enter Setup** barcode	Enter the Setup mode

@SETUPE0
** Exit Setup

Scan the **Add Data Format** barcode Add a data format	Add a data format
Scan the **0** barcode	Select Format_0 as the label
Scan the **6** barcode	Select formatter command type 6
Scan the **9** barcode three times	All interface types applicable
Scan the barcodes **002** Only Code 128 applicable	Only Code 128 applicable
Scan the barcodes **0010**	Only a length of 10 characters applicable
Scan the alphanumeric barcodes **F141**	Send all characters followed by "A" (HEX: 41)
Scan the **Save** barcode Save the data format	Save the data format

@DFMADD069990020010F141;) used to create a data format. See the "Use Batch Barcode" section in Chapter 9 to learn how to put a batch barcode into use.

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

60.3. Programming with Serial Commands

A data format can also be created by serial commands (HEX) sent from the host device. **All commands must be entered in uppercase letters**.

The syntax consists of the following elements:
Prefix: "~<SOH>0000" (HEX: **7E 01 30 30 30 30**), 6 characters.
Storage type: "@" (HEX: **40**) or "#" (HEX: **23**), 1 character. "@" means permanent setting which will not be lost by removing power from the scanner or rebooting it; "#" means temporary setting which will be lost by removing power from the scanner or rebooting it.

Add Data Format Command: "DFMADD" (HEX: **44 46 4D 41 44 44**), 6 characters.
Data format label: "0" (HEX: **30**) or "1" (HEX: **31**) or "2" (HEX: **32**) or "3" (HEX: **33**), 1 character. "0", "1", "2" and "3" represent Format_0, Format_1, Format_2 and Format_3 respectively.
Formatter command type: "6" (HEX: **36**), 1 character.
Interface type: "999" (HEX: **39 39 39**), 3 characters.

Symbology ID Number: The ID number of the symbology to apply the data format, 3 characters. 999 indicates all symbologies.
Data length: The length of data that will be acceptable for this symbology, 4 characters. 9999 indicates all lengths.
For example, 32 characters should be entered as 0032.

Enter Setup

Formatter commands: The command string used to edit data. For more information, see the "Formatter Command Type 6" section in this chapter.
Suffix: ";<ETX>" (HEX: **3B 03**), 2 characters.

Example: Program a Format_0 data format using formatter command type 6, Code 128 containing 10 characters applicable, send all characters followed by "A".
Enter: **7E 01 30 30 30 30 40 44 46 4D 41 44 44 30 36 39 39 39 30 30 33 39 39 39 39 46 31 34 31 3B 03**
~<SOH>0000@DFMADD069990020010F141;<ETX>)

Response: **02 01 30 30 30 30 40 44 46 4D 41 44 44 30 36 39 39 39 30 30 33 39 39 39 39 46 31 34 31 06 3B 03**
(<STX><SOH>0000@DFMADD069990020010F141<ACK>;<ETX>)

When creating multiple data formats sharing a label, the formats are separated from each other by a vertical bar (|) in the serial command.

Example:
~<SOH>0000@DFMADD069990020010F141|069990039999F142|069990049999F143;<ETX>

60.4. Enable/Disable Data Formatter

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

**** Disable Data Formatter**

The following settings can be applied to data format:

Enable Data Formatter, Required, Keep Prefix/Suffix: Scanned data that meets 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 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 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 data format requirements generates an error beep (if Non-Match Error Beep is turned ON) and the data in that barcode is not transmitted.

**** Exit Setup**

@SETUPE1

Enter Setup

Enable Data Formatter, Not Required, Keep Prefix/Suffix: Scanned data that meets 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 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 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 y 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, Not Required, Keep Prefix/Suffix

Enable Data Formatter, Required, Drop Prefix/Suffix

Enable Data Formatter, Not Required, Drop Prefix/Suffix

60.5. 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 required data format.

Non-Match Error Beep Off

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

**** Exit Setup**

@SETUPE1

Enter Setup

60.6. Data Format Selection

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

@DFMUSE0

** Format_0

@DFMUSE1

Format_1

@DFMUSE2

Format_2

@DFMUSE2

Format_3

60.7. Change Data Format for a Single Scan

Switch between data formats for a single scan. The next barcode is scanned using the data format selected here, then reverts to the format selected above.

For example, the scanner is set to use the data format saved as Format_3. Switch to Format_1 for a single trigger pull by scanning the **Single Scan – Format_1** barcode below.

The next barcode that is scanned uses Format_1, then reverts back to Format_3.

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

@DFMSIN0

Single Scan – Format_0

@DFMSIN1

Single Scan – Format_1

@DFMSIN2

Single Scan – Format_2

@DFMSIN3

Single Scan – Format_3

60.8. Clear Data Format

There are two methods to remove data format created the scanner:

@SETUPE0

** Exit Setup

@SETUPE1

Enter Setup

Delete one data format: Scan the **Clear One** barcode, a numeric barcode (0-3) and the **Save** barcode. For example, to delete Format_2, scan the **Clear One** barcode, the **2** barcode and the **Save** barcode

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

Clear All

Clear One

60.9. Query Data Formats

Scan the appropriate barcode below to get the information of data format(s) created by the client or preset by manufacturer. For instance, added Format_0 as per the example in the "Add a Data Format" section in this chapter, scanning the **Query Current Data Formats** barcode, results in:

Data Format0:069990020010F141;.

Query Current Data Formats

61. Formatter Command Type 6

When working with the Data Formatter, a virtual cursor is moved along 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.

61.1. 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."

@SETUPE0

** Exit Setup

@SETUPE1
Enter Setup

F2 Example: Send a number of characters

Send the first 10 characters from the barcode above, followed by a carriage return.
Command string: **F2100D**
F2 is the "Send a number of characters" command 10 is the number of characters to send
0D is the hex value for a CR

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

F3 Send all characters up to a particular character
Syntax=F3ssxx (ss: The particular character's hex value; xx: The insert character's hex value)
Include in the output message all characters from the input message, starting with the character at the current cursor position and continuing to, but not including, the particular character "ss," followed by character "xx." The cursor is moved forward to the "ss" character.

F3 Example: Send all characters up to a particular character

Using the barcode above, send all characters up to but not including "D," followed by a carriage return. Command string: **F3440D**

F3 is the "Send all characters up to a particular character" command 44 is the hex value for a "D"

0D is the hex value for a CR
The data is output as: **1234567890ABC**
<CR>

E9 Send all but the last characters
Syntax=E9nn (nn: The numeric value (00-99) for the number of characters that will not be sent at the end of the message) Include in the output message all but the last "nn" characters, starting from the current cursor position. The cursor is moved
forward to one position past the last input message character included.

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

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

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

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>

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

61.2. Move Commands

F5 Move the cursor forward a number of characters

Syntax=F5nn (nn: The numeric value (00-99) for the number of characters the cursor should be moved ahead) Move the cursor ahead “nn” characters from current cursor position.

F5 Example: Move the cursor forward and send the data

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

Command string: **F503F10D**

F5 is the “Move the cursor forward a number of characters” command 03 is the number of characters to move the cursor

F1 is the “Send all characters” command 0D is the hex value for a CR
The data is output as: **4567890ABCDEFGHIJ**
<CR>

F6 Move the cursor backward a number of characters

Syntax=F6nn (nn: The numeric value (00-99) for the number of characters the cursor should be moved back) Move the cursor back “nn” characters from current cursor position.

F7 Move the cursor to the beginning

Syntax=F7
Move the cursor to the first character in the input message.

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)

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

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

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

Search for the letter “D” in barcodes and send all the data that follows, including the “D”. Using the barcode above: Command string: **F844F10D**

F8 is the “Search forward for a character” command 44 is the hex value for “D”

F1 is the “Send all characters” command 0D is the hex value for a CR
The data is output as: **DEFGHIJ**
<CR>

F9 Search backward for a character
Syntax＝F9xx(xx: The search character’s hex value)
Search the input message backward for “xx” character from the current cursor position, leaving the cursor pointing to the “xx” character.

B0 Search forward for a string
Syntax=B0nnnnS (nnnn: The string length (up to 9999); S: The ASCII hex value of each character in the string)

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

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

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

Command string: **B00003464748F10D**

B0 is the “Search forward for a string” command 0003 is the string length (3 characters)

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

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. 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

@SETUPE1
Enter Setup

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.

61.3. 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. Remove the spaces before sending the data. Using the barcode above:

Command string: **FB0120F10D**

FB is the "Suppress characters" command 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 ＝ E4nnxx1xx2yy1yy2…zz1zz2(nn: The total count of the number of characters (characters to be replaced plus replacement characters; xx1: The characters to be replaced, xx2: The replacement characters, continuing through zz1 and zz2)

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

E4 Example: Replace zeros with CRs in barcode data

@SETUPE0
** Exit Setup

If the barcode has characters that the host application does not want included, use the E4 command to replace those characters with something else. In this example, replace the zeros in the barcode above with carriage returns.

Command string: **E402300DF10D**

E4 is the "Replace characters" command 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=BAnnNN1SS1NN2SS2

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.

NN1: The length of the string to be replaced, NN1>0.

SS1: The ASCII hex value of each character in the string to be replaced.

NN2: The length of replacement string, NN2>=0. To replace string "SS1" with NUL (i.e. delete string "SS1"), set NN2 to 00 and leave out SS2.
SS2: The ASCII hex value of each character in the replacement string.

From the current cursor position, search forward for the occurrence of "SS1" string (of length "NN1") and replace the string with "SS2" string (of length "NN2") in the output message until every "SS1" 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, use the BA command to replace the string with something else. In this example, replace the “23”s in the barcode above with “ABC”s.

Command string: **BA00023233034142 43F100**
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, use the BA command to replace the string with NUL. In this example, 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**

EF Insert a delay

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

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

EF Example: Insert a delay of 1s between the 5th and 6th character

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

Command string: **F20500EF0200E900**

F2 is the "Send a number of characters" command

05 is the number of characters to send 00 is the hex value for a Null character

EF is the "Insert a delay" command

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

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

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

B5 Insert key strokes

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

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

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

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

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

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

Enter Setup

62. Prefix and Suffix

A 1D barcode could contain digits, letters, symbols, etc. A 2D barcode could contain more data, such as Chinese characters and other multi-byte characters. However, in real applications, they Does not and should not have all information we need, such as barcode type, data acquisition time and delimiter, in order to keep the barcodes short and flexible.

Prefix and suffix are how to fulfill the needs mentioned above. They can be added, removed and modified while the original barcode data remains intact.

Barcode Processing Procedure:

1. Edit data with Data Formatter
2. Append prefix/suffix
3. Pack data
4. Append terminating character

63. Global Settings

- **Disable All Prefixes/Suffixes:** Transmit barcode data with no prefix/suffix.
- **Enable All Prefixes/Suffixes:** Allow to append Code ID prefix, AIM ID prefix, custom prefix/suffix and terminating character to the barcode data before the transmission.

** Disable All Prefixes/Suffixes

Enable All Prefixes/Suffixes

63.1. Prefix Sequence

Code ID+ Custom +AIM ID

Custom + Code ID + AIM ID

** Exit Setup

Enter Setup

64. Custom Prefix

If custom prefix is enabled, append to the data a user-defined prefix that cannot exceed 10 characters. For example, if the custom prefix is "AB" and the barcode data is "123", the Host will receive "AB123".

**** Disable Custom Prefix**

Enable Custom Prefix

64.1. Set Custom Prefix

To set a custom prefix, scan the **Set Custom Prefix** barcode then the numeric barcodes corresponding to the hexadecimal value of a desired prefix then the **Save** barcode.

Note: A custom prefix cannot exceed 10 characters.

Set Custom Prefix

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

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

65. 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**

Enable Code ID Prefix

Restore All Default Code IDs

**** Exit Setup**

Enter Setup

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

65.1. Modify Code ID

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

Modify PDF417 Code ID to be "p" (HEX: 0x70):

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

Restore the default Code IDs of all symbologies:

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

65.2. 1D Symbologies

Modify Code 128 Code ID

Modify GS1-128 Code ID

Modify EAN-8 Code ID

Modify EAN-13 Code ID

Modify UPC-E Code ID

Modify EAN-13 Code ID

Modify Interleaved 2 of 5 Code ID

Modify ITF-14 Code ID

Modify ITF-6 Code ID

Modify Matrix 2 of 5 Code ID

Modify Code 39 Code ID

Modify Code 93 Code ID

** **Exit Setup**

@SETUPE1

Enter Setup

Modify Code 93 Code ID

Modify China Post 25 Code ID

Modify AIM 128 Code ID

Modify ISBT 128 Code ID

Modify ISSN Code ID

Modify ISBN Code ID

Modify Industrial 25 Code ID

Modify Standard 25 Code ID

Modify Plessey Code ID

Modify Code 11 Code ID

Modify MSI-Plessy Code ID

Modify GS1 Composite Code ID

Modify GS1 Databar Code ID

Modify Code 49 Code ID

Modify Code 16K Code ID

@SETUPE0

** Exit Setup

@SETUPE1
Enter Setup

65.3. 2D Symbologies

Modify PDF417 Code ID

Modify QR Code ID

Modify Aztec Code ID

Modify Data Matrix Code ID

Modify Maxicode Code ID

Modify Chinese Sensible Code ID

Modify GM Code ID

Modify Micro PDF417 Code ID

Modify Micro QR Code ID

Modify Code One Code ID

65.4. OCR Symbologies

Specific OCR-B

Chinese ID Card OCR

Passport OCR

2. China Travel Permit OCR

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

65.5. Postal Symbologies:

Modify USPS Postnet Code ID

Modify USPS Intelligent Mail Code ID

Modify Royal Mail Code ID

Modify USPS Planet Code ID

Modify KIX Post Code ID

Modify Australian Postal Code ID

65.6. OCR

Modify Specific OCR-B Code ID

Modify Chinese ID Card OCR Code ID

Modify Passport OCR Code ID

Modify China Travel Permit OCR Code ID

66. Custom Suffix

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

** Disable Custom Suffix

Enable Custom Suffix

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

66.1. Set Custom Suffix

To set a custom suffix, scan the **Set Custom Suffix** barcode then the numeric barcodes corresponding to the hexadecimal value of a desired suffix then the **Save** barcode.

Note: A custom suffix cannot exceed 10 characters.

Set Custom Suffix

Set the custom suffix to "CODE" (HEX: 0x43/0x4F/0x44/0x45):

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

67. Data Packing

Data packing is designed for a specific group of users who want to have the data packed before transmission. Data packing influences data format, so it is advised to disable this feature when it is not required.

67.1. Data Packing Options

- **Disable Data Packing:** Transmit decoded data in raw format .
- **Enable Data Packing, Format 1:** Transmit decoded data with the packet format 1 defined below.

Packet format 1: `[STX + ATTR + LEN] + [AL_TYPE + DATA] + [LRC] STX: 0x02`

`ATTR`: 0x00

`LEN`: Barcode data length is expressed in 2 bytes ranging from 0x0000 (0) to 0xFFFF (65535).
AL_TYPE: 0x36

`DATA`: Raw barcode data.

`LRC`: Check digit.

@SETUPE0
** Exit Setup

Enter Setup

LRC calculation algorithm: computation sequence: `0xFF+LEN+AL_TYPE+DATA`; computation method is `XOR`, byte by byte.

Enable Data Packing, Format 2: Transmit decoded data with the packet format 2 defined below.

Packet format 2: `[STX + ATTR + LEN] + [AL_TYPE] + [Symbology_ID + DATA] + [LRC] STX: 0x02`
`A`

`TTR`: 0x00

`LEN`: Barcode data length is expressed in 2 bytes ranging from 0x0000 (0) to 0xFFFF (65535).
AL_TYPE: 0x3B

`Symbology_ID`: The ID number of symbology, 1 byte. DATA: Raw barcode data.

LRC: Check digit.

`LRC calculation algorithm`: computation sequence:
0xFF+LEN+AL_TYPE+Symbology_ID+DATA; computation method is XOR, byte by byte.

**** Disable Data Packing**

Enable Data Packing, Format 2

Enable Data Packing, Format 1

**** Exit Setup**

@SETUPE1
Enter Setup

68. Terminating Character Suffix

@TSUENA0
** Disable Terminating Character Suffix

@TSUENA1
Enable 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.

68.1. Set Terminating Character Suffix

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

Note: A terminating character suffix cannot exceed 2 characters.

@TSUSET
Set Terminating Character Suffix

@TSUSET0D
Set Terminating Character to CR (0x0D)

@TSUSET0D0A
Set Terminating Character to CRLF (0x0D,0x0A)

Set the terminating character suffix to 0x0A:

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

@SETUPE0
** Exit Setup

@SETUPE1
Enter Setup

69. Batch Programming

Batch programming enables users to integrate a batch of commands into a single batch barcode. Listed below are batch programming rules:

1. **Command format**: Command + Parameter Value.
2. Each command is terminated by a semicolon (;).
3. Use the barcode generator software to generate a 2D batch barcode.

Note: that there is no space between a command and its terminator semicolon.

Example: Create a batch barcode for **Illumination Always On**, **Sense Mode**, **Decode Session Timeout** = 2s:

1. Input the commands:
   @ILLSCN2;SCNMOD2;ORTSET2000;
2. Generate a batch barcode.
3. While loading, scan the **Enable Batch Barcode**
4. The batch barcode will generate.

Enable Batch Barcode

69.1. Batch Command

A batch command may contain a number of individual commands each of which is terminated by a semicolon (;).
For more information, refer to the "Use of Programming Command" section in Chapter 3.

69.2. Create a Batch Barcode

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

Example: Create a batch barcode for **illumination Always On**, **Sense Mode**, **Decode Session Timeout** = 2s:

1. Input the following commands
   @ILLSCN2;SCNMOD2;ORTSET2000;
2. Generate a PDF417 batch barcode.

@SETUPE0
** Exit Setup

69.3. Use Batch Barcode

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

Enter Setup

Enable Batch Barcode

Exit Setup

@SETUPE1
Enter Setup

70. Appendix

70.1. Digit Barcodes


@DIGIT0


@DIGIT1


@DIGIT2


@DIGIT3


@DIGIT4


@DIGIT4


@DIGIT5


@DIGIT6


@DIGIT7


@DIGIT8


@DIGIT9

70.2. A~F


@DIGITA

A


@DIGITB

B


@DIGITC

C


@DIGITD

D


@DIGITE

E


@DIGITF

F

70.3. Save/Cancel Barcodes

After reading numeric barcode(s), scan the **Save** barcode to save the data. Scan the wrong digit(s), 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 wanted.

@SETUPE1

Enter Setup

For instance, after reading the **Maximum Length** barcode and numeric barcodes “1”, “2” and “3”, scan:

- **Delete the Last Digit:** The last digit “3” will be removed.
- **Delete All Digits:** All digits “123” will be removed.
- **Cancel:** The maximum length configuration will be cancelled. And the scanner is still in the setup mode.

@DIGSAV

Save

@DIGDEL

Delete the Last Digit

@DIGCAN

Cancel

@DIGDAL

Delete All Digit

@SETUPE0

** Exit Setup

71. Factory Defaults Table

Parameter	Factory Default	Remark
System Settings		
Barcode Programming	Disabled (Exit Setup)	
Programming Barcode Data	Does not transmit	
Illumination	Normal	
Aiming	Normal	
Good Read LED	On	
Good Read LED Duration	Short (20ms)	
Power On Beep	On	
Good Read Beep	On	
Good Read Beep Duration	Medium (80ms)	
Good Read Beep Frequency	Medium (2730Hz)	
Good Read Beep Volume	Loud	
Scan Mode	Sense Mode	
Decode Session Timeout	3,000ms.	1-3,600,000ms; 0:
Image Stabilization Timeout (Sense Mode)	200ms	0-3,000ms
Reread Timeout	Disabled, 1,500ms	1-3,600,000ms
Reread Timeout Reset	Off	
Image Decoding Timeout	500ms	1-3,000ms
Good Read Delay	Disabled, 500ms	1-3,600,000ms
Trigger Selection (Sense Mode)	Both	
Image Change Trigger Sensitivity	Medium Sensitivity	
IR Proximity Trigger Sensitivity	High Sensitivity	
Trigger Commands	Disabled	
Scanning Preference	Normal Mode	
Decode Area		
	40% top, 60% bottom, 40% left,	
Image Flipping	Does not Flip	
Bad Read Message	Off	
	NG	1-7 characters
Default Interface	USB HID Keyboard	
RS-232 Interface		
Baud Rate	9600	

Data Bits	8	
Stop Bits	1	
Hardware Auto Flow Control	Disabled	
USB Interface		
USB Country Keyboard	US keyboard	USB HID Keyboard
Beep on Unknown Character	Off	USB HID Keyboard
Emulate ALT+Keypad	Off	USB HID Keyboard
Code Page	Code Page 1252 (West European Latin)	USB HID Keyboard
Unicode Encoding	Off	USB HID Keyboard
Emulate Keypad with Leading Zero	On	USB HID Keyboard
Function Key Mapping	Disable	USB HID Keyboard
Inter-Keystroke Delay	No Delay	USB HID Keyboard
Caps Lock	Caps Lock OFF, non-Japanese Keyboard	USB HID Keyboard
Convert Case	No Case Conversion	USB HID Keyboard
Emulate Numeric Keypad 1	Off	USB HID Keyboard
Emulate Numeric Keypad 2	Off	USB HID Keyboard
Fast Mode	Off	USB HID Keyboard
Polling Rate	4ms	USB HID Keyboard
Adaptive Wired Communication	On	
Symbologies		
Global Settings		
1D Twin Code	Single 1D Code Only	
Surround GS1 AI's with Parentheses	Does not Surround GS1 AI's with	
Code 128		
Code 128	Enabled	
Maximum Length	48	
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	
Convert EAN-8 to EAN-13	Disabled	

EAN-13	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not Required	
	Does not Requires Add-On Code	
EAN-13 Beginning with 378/379 Add-On Code Required	Does not Requires Add-On Code	
EAN-13 Beginning with 414/419 Add-On Code Required	Does not Requires Add-On Code	
EAN-13 Beginning with 434/439 Add-On Code Required	Does not Requires Add-On Code	
	Does not Requires Add-On Code	
	Does not Requires Add-On Code	
	Does not Requires Add-On Code	
UPC-E		
UPC-E0	Enabled	
UPC-E1	Disabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not Required	
Transmit Preamble Character	System Character	
Convert UPC-E to UPC-A	Disabled	
UPC-A		
UPC-A	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Add-On Code	Not Required	
Transmit Preamble Character	No Preamble	
Coupon		
UPC-A/EAN-13 with Extended Coupon Code	Disabled	
Coupon GS1 DataBar Output	Disabled	

Interleaved 2 of 5	Enabled	
Maximum Length	80	
Minimum Length	6	No less than 4
Check Character Verification	Disabled	
Febraban		
Febraban	Disabled	
Transmit Delay per Character	Disabled	
	70ms	
Transmit Delay per 12 Characters	Disabled	
	500ms	
ITF-14		
ITF-14	Disabled	
ITF-6		
ITF-6	Disabled	
Matrix 2 of 5		
Matrix 2 of 5	Enabled	
Maximum Length	80	
Minimum Length	4	No less than 4
Check Character Verification	Disabled	
Code 39		
Code 39	Enabled	
Maximum Length	48	
Minimum Length	1	
Check Character Verification	Disabled	
Start/Stop Character	Does not transmit	
Code 39 Full ASCII	Disabled	
Code 32 Pharmaceutical (PARAF)	Disabled	
Code 32 Prefix	Disabled	
Code 32 Start/Stop Character	Does not transmit	
Code 32 Check Character	Does not transmit	
Codabar		
Codabar	Enabled	
Maximum Length	60	
Minimum Length	2	

Start/Stop Character	Does not transmit	
	ABCD/ABCD	
Code 93		
Code 93	Disabled	
Maximum Length	48	
Minimum Length	1	No less than 1
Check Character Verification	Does not Transmit Check Character After	
China Post 25		
China Post 25	Disabled	
Maximum Length	48	
Minimum Length	1	
Check Character Verification	Disabled	
GS1-128 (UCC/EAN-128)		
GS1-128	Enabled	
Maximum Length	48	
Minimum Length	1	
GS1 Databar		
GS1 Databar	Enabled	
Application Identifier "01"	Transmit	
EAN▪UCC Composite		
GS1 Composite	Disabled	
UPC/EAN Composite	Disabled	
Code 11		
Code 11	Disabled	
Maximum Length	48	
Minimum Length	4	No less than 4
Check Character Verification	One Check Character, MOD11	
Check Character	Transmit	
ISBN		
ISBN	Disabled	
Set ISBN Format	ISBN-10	
ISSN		
ISSN	Disabled	

Industrial 25	Disabled	
Maximum Length	48	
Minimum Length	6	No less than
Check Character Verification	Disabled	
Standard 25		
Standard 25	Disabled	
Maximum Length	48	
Minimum Length	6	No less than
Check Character Verification	Disabled	
Plessey		
Plessey	Disabled	
Maximum Length	48	
Minimum Length	4	No less than
Check Character Verification	Disabled	
MSI-Plessey		
MSI-Plessey	Disabled	
Maximum Length	48	
Minimum Length	4	No less than
Check Character Verification	One Check Character, MOD10	
Check Character	Transmit	
AIM 128		
AIM 128	Disabled	
Maximum Length	48	
Minimum Length	1	
ISBT 128		
ISBT 128	Disabled	
Code 49		
Code 49	Disabled	
Maximum Length	80	
Minimum Length	1	
Code 16K		
Code 16K	Disabled	
Maximum Length	80	
Minimum Length	1	

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

Rectangular Barcode	Enabled	
Data Matrix Inverse	Decode Regular Data Matrix Barcodes	
Character Encoding	Default Character Encoding	
Data Matrix ECI Output	Enabled	
Maxicode		
Maxicode	Disabled	
Maximum Length	150	
Minimum Length	1	
Chinese Sensible Code		
Chinese Sensible Code	Disabled	
Maximum Length	7827	
Minimum Length	1	
Chinese Sensible Twin Code	Single Chinese Sensible Code Only	
Chinese Sensible Code Inverse	Decode Regular Chinese Sensible	
GM Code		
GM	Disabled	
Maximum Length	2751	
Minimum Length	1	
Code One		
Code One	Disabled	
Maximum Length	3550	
Minimum Length	1	
USPS Postnet		
USPS Postnet	Disabled	
Check Character	Transmit	
USPS Intelligent Mail		
USPS Intelligent Mail	Disabled	
Royal Mail		
Royal Mail	Disabled	
USPS Planet		
USPS Planet	Disabled	
Check Character	Transmit	
KIX Post		

Australian Postal		
Australian Postal	Disabled	
Specific OCR-B		
Specific OCR-B	Disabled	
Chinese ID Card OCR		
Chinese ID Card OCR	Disabled	
Passport OCR		
Passport OCR	Disabled	
China Travel Permit OCR		
China Travel Permit OCR	Disabled	
Data Formatter		
Data Formatter	Disabled	
Non-Match Error Beep	On	
Data Format Selection	Format_0	
Prefix & Suffix		
All Prefixes/Suffixes	Disabled	
Prefix Sequence	Code ID+ Custom +AIM ID	
Custom Prefix	Disabled	
AIM ID Prefix	Disabled	
Code ID Prefix	Disabled	
Custom Suffix	Disabled	
Data Packing	Disable Data Packing	
Terminating Character Suffix	Disabled	

71.1. AIM ID Table

Symbology	AIM ID	Possible AIM ID Modifiers (m)
Code 128	]C0	
GS1-128 (UCC/EAN-128)	]C1	
EAN-8	]E4	
EAN-8 with Addon	]E3	
EAN-13	]E0	
EAN-13 with Addon	]E3	
UPC-E	]E0	
UPC-E with Addon	]E3	
UPC-A	]E0	
UPC-A with Addon	]E3	
Interleaved 2 of 5, Febraban	]Im	0, 1, 3
ITF-14	]Im	1, 3
ITF-6	]Im	1, 3
Matrix 2 of 5	]X0	
Code 39	]Am	0, 1, 3, 4, 5, 7
Codabar	]Fm	0, 2, 4
Code 93	]G0	
China Post 25	]X0	
AIM 128	]C2	
ISBT 128	]C4	
ISSN	]X0	
ISBN	]X0	
Industrial 25	]S0	
Standard 25	]R0	
Plessey	]P0	
Code 11	]Hm	0, 1, 3
MSI Plessey	]Mm	0, 1
GS1 Composite	]em	0-3
GS1 Databar (RSS)	]e0	
Code 49	]T0	
Code 16K	]K0	

Symbology	AIM ID	Possible AIM ID Modifiers (m)
PDF417	]Lm	0-2
QR Code	]Qm	0-6
Aztec	]zm	0-9, A-C
Data Matrix	]dm	0-6
Maxicode	]Um	0-3
Chinese Sensible Code	]X0	
GM	]gm	(0~9)
Micro PDF417	]L0	
Micro QR	]Q1	
Code One	]X0	
USPS Postnet	]X0	
USPS Inteligent Mail	]X0	
Royal Mail	]X0	
USPS Planet	]X0	
KIX Post	]X0	
Australian Postal	]X0	
Specific OCR-B	]o2	
Chinese ID Card OCR	]o2	
Passport OCR	]o2	
China Travel Permit OCR	]o2	

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

Code ID Table

Symbology	Code ID
Code 128	j
GS1-128 (UCC/EAN-128)	j
EAN-8	d
EAN-13	d
UPC-E	c
UPC-A	c
Interleaved 2 of 5, Febraban	e
ITF-14	e
ITF-6	e
Matrix 2 of 5	v
Code 39	b
Codabar	a
Code 93	i
China Post 25	X
AIM 128	X
ISBT 128	X
ISSN	g
ISBN	B
Industrial 25	I
Standard 25	f
Plessey	n
Code 11	H
MSI Plessey	m
GS1 Composite	y
GS1 Databar (RSS)	R
Code 49	X
Code 16K	X
PDF417	r
QR Code	s
Aztec	z
Data Matrix	u

Symbology	Code ID
MaxiCode	x
Chinese Sensible Code	h
GM Code	x
Micro PDF417	R
Micro QR	X
Code One	X
USPS Postnet	P
USPS Inteligent Mail	M
Royal Mail	x
USPS Planet	L
KIX Post	K
Australian Postal	A
Specific OCR-B	S
Chinese ID Card OCR	S
Passport OCR	O
China Travel Permit OCR	S

71.2. Symbology ID Number

Symbology	ID Number
Code 128	002
GS1-128 (UCC/EAN-128)	003
EAN-8	004
EAN-13	005
UPC-E	006
UPC-A	007
Interleaved 2 of 5, Febraban	008
ITF-14	009
ITF-6	010
Matrix 2 of 5	011
Code 39	013
Codabar	015
Code 93	017
China Post 25	019
AIM 128	020
ISBT 128	021
ISSN	023
ISBN	024
Industrial25	025
Standard25	026
Plessey	027
Code11	028
MSI-Plessey	029
GS1 Composite	030
GS1 Databar (RSS)	031
PDF417	032
QR Code	033
Aztec	034
Data Matrix	035
Maxicode	036
Chinese Sensible Code	039

Symbology	ID Number
GM Code	040
Micro PDF417	042
Micro QR	043
Code One	048
Specific OCR-B	064
Chinese ID Card OCR	065
Passport OCR	066
China Travel Permit OCR	068
USPS Postnet	096
USPS Intelligent Mail	097
Royal Mail	098
USPS Planet	099
KIX Post	100
Australian Postal	101
Code 49	132
Code 16K	133

71.3. ASCII Table

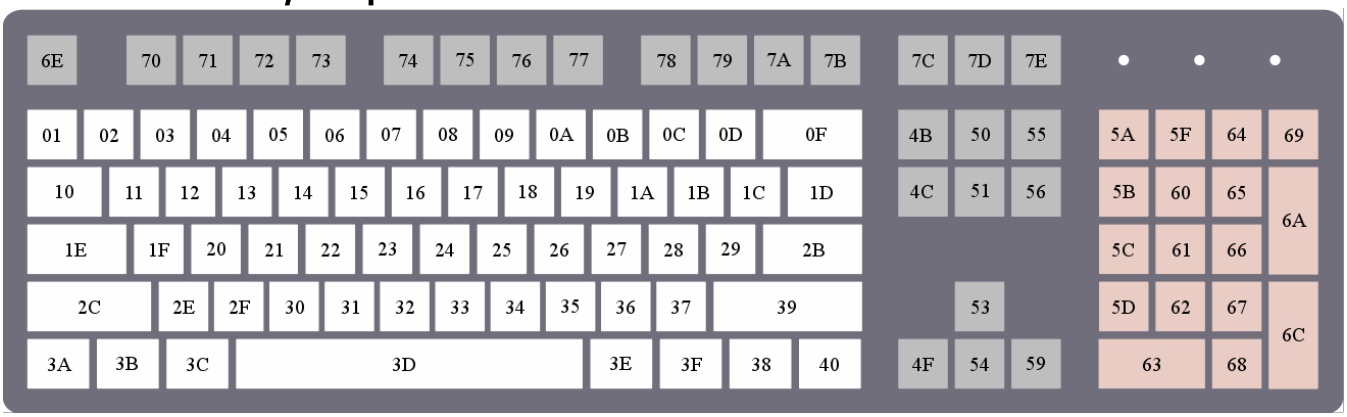
Hex	Dec	Char	
00	0	NUL	(Null char.)
01	1	SOH	(Start of Header)
02	2	STX	(Start of Text)
03	3	ETX	(End of Text)
04	4	EOT	(End of Transmission)
05	5	ENQ	(Enquiry)
06	6	ACK	(Acknowledgment)
07	7	BEL	(Bell)
08	8	BS	(Backspace)
09	9	HT	(Horizontal Tab)
0a	10	LF	(Line Feed)
0b	11	VT	(Vertical Tab)
0c	12	FF	(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	[illegible]	(Device Control 2)
13	19	[illegible]	(XOFF) (Device Control 3)
14	20	[illegible]	(Device Control 4)
15	21	[illegible]	(Negative Acknowledgment)
16	22	[illegible]	(Synchronous Idle)
17	23	[illegible]	(End of Trans. Block)
18	24	[illegible]	(Cancel)
19	25	[illegible]	(End of Medium)
1a	26	[illegible]	(Substitute)
1b	27	[illegible]	(Escape)
1c	28	[illegible]	(File Separator)
1d	29	[illegible]	(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)

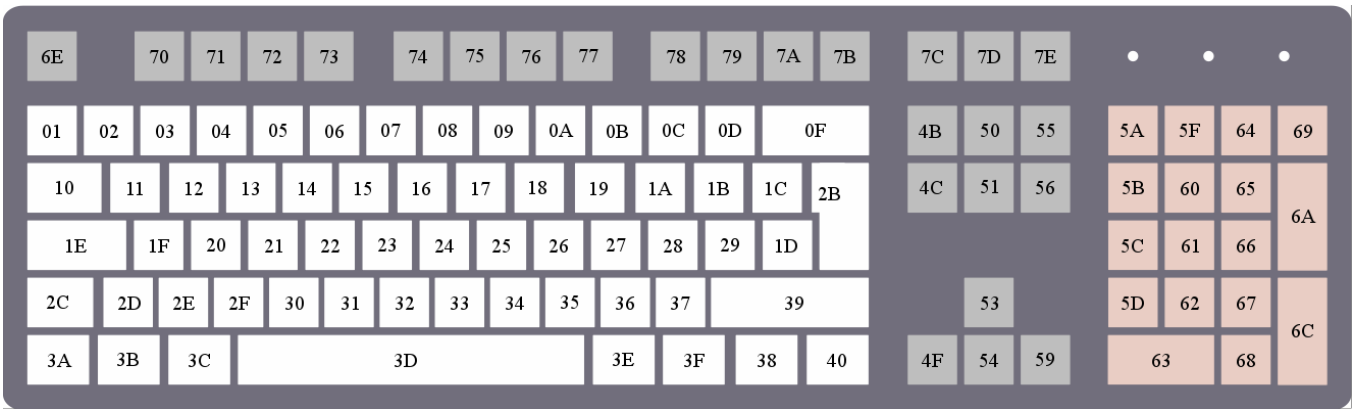
Hex	Dec	Char
3e	62	(Greater Than)
3f	63	(Question Mark)
40	64	(AT Symbol)
41	65	A
42	66	B
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
4d	77	M
4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5a	90	Z
5b	91	(Left/ Opening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

72. Unicode Key Maps



104 Key U.S. Style Keyboard



105 Key European Style Keyboard