

**2D Handheld Barcode Scanner**

# **User Guide**

## **Disclaimer**

Please read through the manual carefully before using the product and operate it according to the manual. It is advised that you should keep this manual for future reference.

Do not disassemble the device or remove the seal label from the device, doing so will void the product warranty provided by Shanghai Sunmi Tech. Co., Ltd.

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## Revision History

Version	Description	Date
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# Table of Contents

<b>Revision History</b> .....	<b>3#</b>
<b>Preface</b> .....	<b>12#</b>
Introduction .....	12#
Chapter Description .....	12#
Explanation of Icons.....	14#
<b>Chapter 1 Getting Started</b> .....	<b>15#</b>
Introduction .....	15#
Unpacking .....	15#
the Scanner.....	16#
Data Port Pinout.....	17#
Connecting the the to a Host.....	18#
Using USB Cable .....	18#
Power On, Sleep, Power Off, Reboot.....	19#
Maintenance .....	19#
Dimensions (unit: mm).....	20#
Left View .....	20#
Front View .....	20#
Top View .....	21#
Scanning Instructions .....	21#
<b>Chapter 2 System Settings</b> .....	<b>23#</b>
Introduction .....	23#
Barcode Programming.....	23#
Command Programming .....	23#
Programming Barcode/ Programming Command/Function .....	23#
Use of Programming Command.....	24#
Command Syntax.....	24#
Query Commands .....	24#
Responses .....	25#
Examples.....	25#
Use of Programming Barcodes .....	26#
Illumination .....	27#
Aiming .....	27#
Good Read LED .....	28#
Good Read LED Duration .....	29#

Power On Beep .....	30#
Good Read Beep.....	30#
Good Read Beep Volume .....	31#
Good Read Vibration .....	31#
Good Read Vibration Duration .....	32#
Scan Mode .....	33#
Decode Session Timeout .....	34#
Image Stabilization Timeout (Sense Mode).....	35#
Timeout between Decodes (Same Barcode) .....	36#
Reread Timeout Reset.....	37#
Image Decoding Timeout .....	37#
Sensitivity .....	38#
Trigger Commands .....	39#
Modify Start Scanning Command .....	39#
Modify Stop Scanning Command .....	40#
Scanning Preference .....	41#
Read Barcode On/Off .....	41#
Decode Area .....	42#
Image Flipping .....	44#
Bad Read Message .....	45#
Set Bad Read Message .....	45#
Default Settings .....	46#
Factory Defaults .....	46#
Custom Defaults .....	46#
Query Product Information.....	48#
Query Product Name .....	48#
Query Firmware Version.....	48#
Query Decoder Version .....	49#
Query Hardware Version .....	49#
Query Product Serial Number .....	49#
Query Manufacturing Date.....	50#
Query OEM Serial Number .....	50#
Query Data Formatter Version.....	50#
<b>Chapter 3 USB Interface.....</b>	<b>51#</b>
Introduction .....	51#
USB HID Keyboard .....	52#
USB Country Keyboard Types.....	53#

Beep on Unknown Character.....	57#
Emulate ALT+Keypad .....	58#
Code Page .....	59#
Unicode Encoding .....	61#
Emulate Keypad with Leading Zero.....	61#
Function Key Mapping.....	62#
ASCII Function Key Mapping Table.....	63#
ASCII Function Key Mapping Table (Continued) .....	64#
Inter-Keystroke Delay .....	65#
Caps Lock.....	66#
Convert Case .....	66#
Emulate Numeric Keypad .....	68#
Fast Mode.....	70#
Polling Rate.....	71#
USB CDC .....	73#
HID POS (POS HID Barcode Scanner) .....	74#
Introduction.....	74#
Access the Scanner with Your Program.....	74#
Acquire Scanned Data.....	75#
Send Command to the Scanner .....	75#
VID/PID.....	76#
<b>Chapter 4 Symbologies .....</b>	<b>77#</b>
Introduction .....	77#
Global Settings .....	77#
Enable/Disable All Symbologies.....	77#
Enable/Disable 1D Symbologies.....	77#
Enable/Disable 2D Symbologies.....	78#
1D Twin Code .....	78#
Code 128.....	80#
Restore Factory Defaults.....	80#
Enable/Disable Code 128 .....	80#
Set Length Range for Code 128 .....	81#
EAN-8 .....	82#
Restore Factory Defaults.....	82#
Enable/Disable EAN-8.....	82#
Transmit Check Character .....	82#
2-Digit Add-On Code.....	83#

5-Digit Add-On Code.....	84#
Convert EAN-8 to EAN-13 .....	85#
EAN-13 .....	86#
Restore Factory Defaults.....	86#
Enable/Disable EAN-13.....	86#
Transmit Check Character .....	87#
2-Digit Add-On Code.....	87#
5-Digit Add-On Code.....	88#
UPC-E.....	88#
Restore Factory Defaults.....	88#
Enable/Disable UPC-E .....	89#
Transmit Check Character .....	90#
2-Digit Add-On Code.....	90#
5-Digit Add-On Code.....	91#
Transmit Preamble Character.....	92#
Convert UPC-E to UPC-A .....	92#
UPC-A.....	93#
Restore Factory Defaults.....	93#
Enable/Disable UPC-A .....	93#
Transmit Check Character .....	93#
2-Digit Add-On Code.....	94#
5-Digit Add-On Code.....	95#
Transmit Preamble Character.....	96#
Coupon .....	97#
UPC-A/EAN-13 with Extended Coupon Code.....	97#
Coupon GS1 Databar Output .....	98#
Interleaved 2 of 5.....	99#
Restore Factory Defaults.....	99#
Enable/Disable Interleaved 2 of 5 .....	99#
Set Length Range for Interleaved 2 of 5.....	100#
Check Character Verification .....	101#
ITF-14 .....	102#
Restore Factory Defaults.....	102#
Enable/Disable ITF-14.....	102#
ITF-6.....	104#
Restore Factory Defaults.....	104#
Enable/Disable ITF-6.....	104#
Matrix 2 of 5 .....	105#

Restore Factory Defaults.....	105#
Enable/Disable Matrix 2 of 5.....	105#
Set Length Range for Matrix 2 of 5.....	106#
Check Character Verification .....	107#
Code 39 .....	108#
Restore Factory Defaults.....	108#
Enable/Disable Code 39.....	108#
Set Length Range for Code 39.....	109#
Check Character Verification .....	110#
Transmit Start/Stop Character.....	111#
Enable/Disable Code 39 Full ASCII.....	111#
Enable/Disable Code 32 (Italian Pharma Code).....	112#
Code 32 Prefix.....	112#
Transmit Code 32 Start/Stop Character.....	113#
Transmit Code 32 Check Character .....	113#
Codabar .....	114#
Restore Factory Defaults.....	114#
Enable/Disable Codabar .....	114#
Set Length Range for Codabar .....	115#
Check Character Verification .....	116#
Start/Stop Character .....	117#
Code 93 .....	118#
Restore Factory Defaults.....	118#
Enable/Disable Code 93.....	118#
Set Length Range for Code 93.....	119#
Check Character Verification .....	120#
China Post 25 .....	121#
Restore Factory Defaults.....	121#
Enable/Disable China Post 25.....	121#
Set Length Range for China Post 25.....	122#
Check Character Verification .....	123#
GS1-128 (UCC/EAN-128).....	124#
Restore Factory Defaults.....	124#
Enable/Disable GS1-128.....	124#
Set Length Range for GS1-128.....	125#
GS1 Databar (RSS).....	126#
Restore Factory Defaults.....	126#
Enable/Disable GS1 Databar.....	126#



Transmit Application Identifier "01" .....	126#
GS1 Composite (EAN·UCC Composite).....	127#
Restore Factory Defaults.....	127#
Enable/Disable GS1 Composite.....	127#
Enable/Disable UPC/EAN Composite .....	127#
Code 11 .....	128#
Restore Factory Defaults.....	128#
Enable/Disable Code 11 .....	128#
Set Length Range for Code 11 .....	130#
Check Character Verification .....	131#
Transmit Check Character .....	132#
ISBN.....	133#
Restore Factory Defaults.....	133#
Enable/Disable ISBN .....	133#
Set ISBN Format .....	134#
ISSN.....	135#
Restore Factory Defaults.....	135#
Enable/Disable ISSN .....	135#
Industrial 25.....	136#
Restore Factory Defaults.....	136#
Enable/Disable Industrial 25 .....	136#
Set Length Range for Industrial 25 .....	137#
Check Character Verification .....	138#
Standard 25.....	139#
Restore Factory Defaults.....	139#
Enable/Disable Standard 25 .....	139#
Set Length Range for Standard 25 .....	140#
Check Character Verification .....	141#
Plessey .....	142#
Restore Factory Defaults.....	142#
Enable/Disable Plessey.....	142#
Set Length Range for Plessey.....	143#
Check Character Verification .....	144#
MSI-Plessey.....	145#
Restore Factory Defaults.....	145#
Enable/Disable MSI-Plessey .....	145#
Set Length Range for MSI-Plessey .....	146#
Check Character Verification .....	147#

Transmit Check Character .....	148#
AIM 128 .....	149#
Restore Factory Defaults.....	149#
Enable/Disable AIM 128 .....	149#
Set Length Range for AIM 128 .....	150#
ISBT 128.....	151#
Restore Factory Defaults.....	151#
Enable/Disable ISBT 128 .....	151#
PDF417.....	152#
Restore Factory Defaults.....	152#
Enable/Disable PDF417 .....	152#
Set Length Range for PDF417 .....	153#
PDF417 Twin Code .....	154#
PDF417 Inverse.....	155#
Character Encoding .....	155#
PDF417 ECI Output.....	156#
QR Code.....	157#
Restore Factory Defaults.....	157#
Enable/Disable QR Code .....	157#
Set Length Range for QR Code .....	158#
QR Twin Code.....	159#
QR Inverse .....	160#
Character Encoding .....	160#
QR ECI Output.....	161#
Aztec .....	162#
Restore Factory Defaults.....	162#
Enable/Disable Aztec Code .....	162#
Set Length Range for Aztec Code .....	163#
Read Multi-barcodes on an Image.....	164#
Set the Number of Barcodes .....	165#
Character Encoding .....	166#
Aztec ECI Output.....	166#
Data Matrix.....	167#
Restore Factory Defaults.....	167#
Enable/Disable Data Matrix .....	167#
Set Length Range for Data Matrix .....	168#
Data Matrix Twin Code .....	169#
Rectangular Barcode .....	170#

Data Matrix Inverse .....	170#
Character Encoding .....	171#
Data Matrix ECI Output .....	171#
<b>Chapter 5 Data Formatter.....</b>	<b>172#</b>
Introduction .....	172#
Add a Data Format.....	172#
Programming with Barcodes.....	172#
Programming with Serial Commands.....	175#
Enable/Disable Data Formatter .....	176#
Non-Match Error Beep.....	177#
Data Format Selection.....	178#
Change Data Format for a Single Scan .....	179#
Clear Data Format.....	180#
Query Data Formats .....	180#
Formatter Command Type 6.....	181#
Send Commands.....	181#
Move Commands .....	185#
Search Commands .....	187#
Miscellaneous Commands.....	190#
<b>Chapter 6 Prefix &amp; Suffix.....</b>	<b>196#</b>
Introduction .....	196#
Global Settings .....	197#
Enable/Disable All Prefixes/Suffixes .....	197#
Prefix Sequence .....	197#
Custom Prefix .....	198#
Enable/Disable Custom Prefix.....	198#
Set Custom Prefix .....	198#
AIM ID Prefix.....	199#
Code ID Prefix .....	200#
Restore All Default Code IDs .....	200#
Modify Code ID .....	200#
Custom Suffix.....	206#
Enable/Disable Custom Suffix .....	206#
Set Custom Suffix.....	206#
Data Packing.....	207#
Introduction.....	207#
Data Packing Options .....	207#

Terminating Character Suffix .....	209#
Enable/Disable Terminating Character Suffix.....	209#
Set Terminating Character Suffix.....	209#
<b>Chapter 7 Batch Programming.....</b>	<b>211#</b>
Introduction .....	211#
Create a Batch Command .....	212#
Create a Batch Barcode .....	212#
Use Batch Barcode .....	213#
<b>Appendix.....</b>	<b>214#</b>
Digit Barcodes .....	214#
Save/Cancel Barcodes .....	217#
Factory Defaults Table .....	218#
AIM ID Table.....	224#
Code ID Table .....	226#
Symbology ID Number .....	227#
ASCII Table .....	228#
Unicode Key Maps.....	232#

## Preface

### Introduction

This manual provides detailed instructions for setting up and using the 2D handheld barcode scanner (hereinafter referred to as “**the scanner**”).

### Chapter Description

<i>Chapter 1 Getting Started</i>	: Gives a general description of the scanner.
<i>Chapter 2 System Settings</i>	: Introduces three configuration methods and describes how to configure general parameters of the scanner.
<i>Chapter 3 USB Interface</i>	: Describes how to configure USB communication parameters.
<i>Chapter 4 Symbologies</i>	: Lists all compatible symbologies and describes how to configure the



@SETUPE1  
**Enter Setup**

---

	relevant parameters.
<i>Chapter 5 Data Formatter</i>	: Explains how to customize scanned data with the data formatter.
<i>Chapter 6 Prefix &amp; Suffix</i>	: Describes how to use prefix and suffix to customize scanned data.
<i>Chapter 7 Batch Programming</i>	: Explains how to integrate a complex programming task into a single barcode.
<i>Appendix</i>	: Provides factory defaults table and a bunch of frequently used programming barcodes.



@SETUPE0



@SETUPE1  
Enter Setup

---

## Explanation of Icons



This icon indicates something relevant to this manual.



This icon indicates this information requires extra attention from the reader.



This icon indicates handy tips that can help you use or configure the scanner with ease.



This icon indicates practical examples that can help you to acquaint yourself with operations.



@SETUPE0  
\*\* Exit Setup14



@SETUPE1  
Enter Setup

## Chapter 1 Getting Started

### Introduction

The scanner reads a 1D or 2D barcode by capturing its image. Quick image capture and accurate decoding performance meet customers' needs.

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

### Unpacking

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



@SETUPE0



@SETUPE1  
Enter Setup

---

## the Scanner

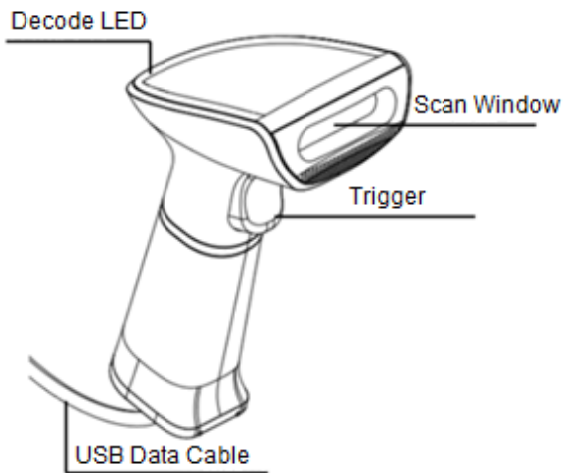


Fig. 1-1

### Decode LED Definitions

When the LED is in the normal mode, it means the scanner is powered on; when the LED flashes, it means the barcode is decoded successfully.

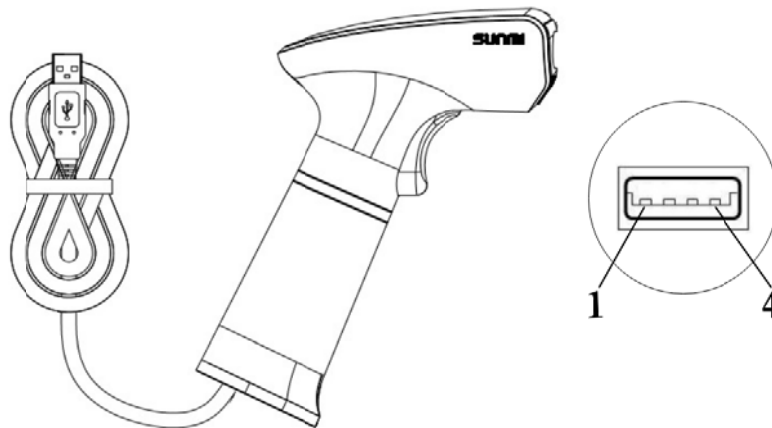


Fig. 1-2



@SETUPE0  
\*\* Exit Setup16





@SETUPE1  
Enter Setup

---

### Data Port Pinout

PIN	Signal	Type	Function
1	GND	P	USB ground
2	D+	I/O	USB D+ signal
3	D-	I/O	USB D- signal
4	VCC	P	USB VCC +5V



@SETUPE0



@SETUPE1  
Enter Setup

---

## Connecting the the to a Host

The scanner must be connected to a Host in actual application, such as PC, POS or any intelligent terminal with USB port, using a communication cable

### USB



Fig. 1-3

### Using USB Cable

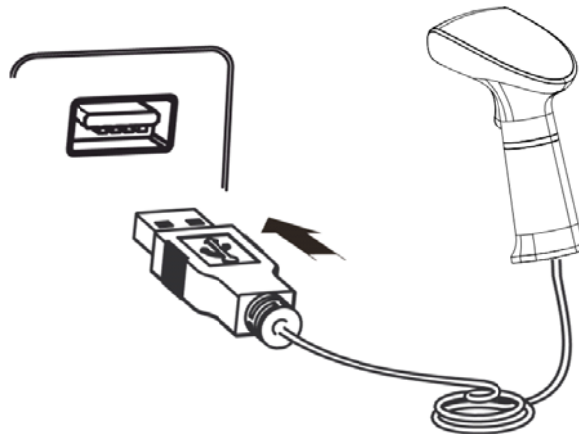


Fig. 1-4

Connect the scanner to a Host through a USB cable:

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



@SETUPE0  
\*\* Exit Setup18



@SETUPE1  
Enter Setup

---

## Power On, Sleep, Power Off, Reboot

### Power on the scanner

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

### Enter the sleep mode

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

### Power off the scanner

Remove the cable from the Host.

### Reboot the scanner

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

## Maintenance

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



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



@SETUPE0



@SETUPE1  
Enter Setup

---

## Dimensions (unit: mm)

### Left View

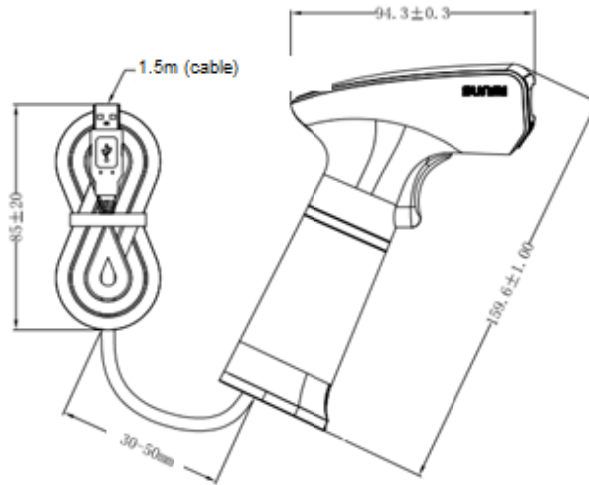


Fig. 1-5

### Front View

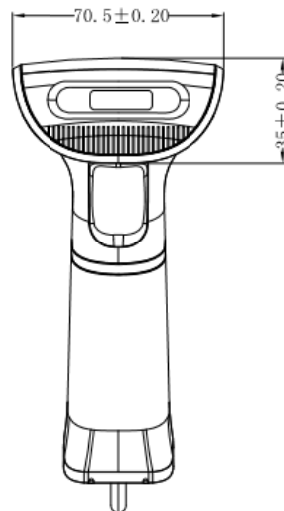


Fig. 1-6



@SETUPE0  
\*\* Exit Setup20



@SETUPE1  
Enter Setup

---

## Top View

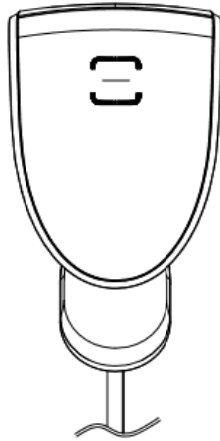


Fig. 1-7

## Scanning Instructions

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

1. Press and hold the trigger (see Fig.1-11). Then the scanner will project a red aiming beam.
2. Aim the red beam across the center of barcode.
3. Release the trigger when the red beam goes off. If the barcode is decoded successfully, the scanner will emit a good read beep and the decoded data will be sent to the Host.

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



@SETUPE0



@SETUPE1  
Enter Setup

---

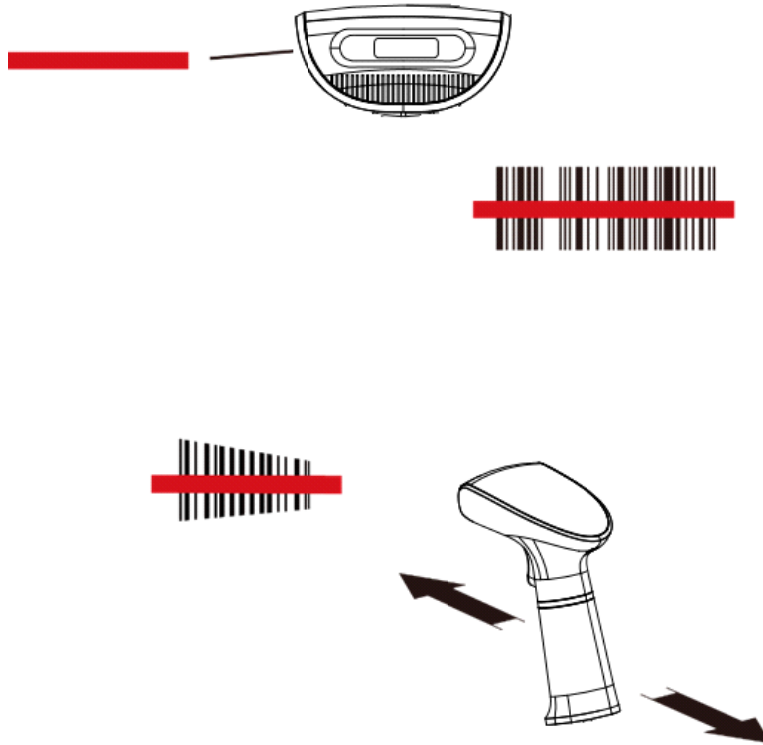


Fig. 1-8



@SETUPE0  
\*\* Exit Setup22



@SETUPE1  
Enter Setup

# Chapter 2 System Settings

## Introduction

There are two ways to configure the scanner: barcode programming and command programming.

### Barcode Programming

The scanner can be configured by scanning programming barcodes. All user programmable features/options are described along with their programming barcodes/commands in the following sections.

This programming method is most straightforward. However, it requires manually scanning barcodes. As a result, errors are more likely to occur.

### Command Programming

The scanner can also be configured by serial commands sent from the host device.

Users can design an application program to send those command strings to the scanners to perform device configuration.

## Programming Barcode/ Programming Command/Function



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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

## Use of Programming Command

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

### 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 HIDKeyboard 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: **3B03**), 2 characters.

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

### Query Commands

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

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



@SETUPE0  
\*\* Exit Setup24





@SETUPE1  
Enter Setup

---

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

A query command with the **SubTag** field omitted means to query all the settings concerning a tag. For example, to query all the current settings about Code 11, you should enter **7E 01 30 30 30 30 40 43 31 31 2A 3B03** (i.e. ~<SOH>0000@C11\*; <ETX>).

## Responses

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

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

<ACK>(HEX: **06**)     Indicates a good command which has been processed.

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

<ENQ>(HEX: **05**)     Indicates an invalid Tag or SubTag command.

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

## Examples

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

Enter:     **7E 01 30 30 30 30 40 43 31 31 45 4E 41 31 2C 4D 49 4E 31 32 2C 4D 41 58 32 32 3B03**  
(~<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 3B03**  
(<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 3B03**  
(~<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 3B03**  
(<STX><SOH>0000@C11MIN12<ACK>,MAX22<ACK>;<ETX>)



@SETUPE0



@SETUPE1  
**Enter Setup**

---

## Use of Programming Barcodes

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



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



@SETUPE1  
**Enter Setup**

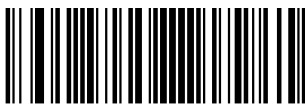
Programming barcode data (i.e. the characters under programming barcode) can be transmitted to the host device. Scan the appropriate barcode below to enable or disable the transmission of programming barcode data to the host device.



@SETUPT0  
**\*\* Do Not Transmit Programming Barcode Data**



@SETUPT1  
**Transmit Programming Barcode Data**



@SETUPE0  
**\*\* Exit Setup26**



@SETUPE1  
Enter Setup

---

## Illumination



@LLSCN1  
\*\* On



@LLSCN0  
Off



@LLSCN2  
Always On

## Aiming



@AMLENA1  
\*\* On



@AMLENA0  
Off



@AMLENA2  
Always On



@SETUPE0

27\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

## Good Read LED

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



@GRLENA1  
**\*\* On**



@GRLENA0  
**Off**



@SETUPE0  
**\*\* Exit Setup28**



@SETUPE1  
Enter Setup

---

## Good Read LED Duration

This parameter sets the amount of time that the Good Read LED to remain on following a good read. It is programmable in 1ms increments from 1ms to 2,500ms.



@GRLDUR20  
**\*\* Short (20ms)**



@GRLDUR120  
**Medium (120ms)**



@GRLDUR220  
**Long (220ms)**



@GRLDUR320  
**Prolonged (320ms)**



@GRLDUR  
**Custom (1 - 2,500ms)**

**E**  
*sample*

### Set the Good Read LED duration to 800ms:

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



@SETUPE0



@SETUPE1  
Enter Setup

---

## Power On Beep

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



@PWBENA1  
**\*\* On**



@PWBENA0  
**Off**

## Good Read Beep

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



@GRBENA1  
**\*\* On**



@GRBENA0  
**Off**



@SETUPE0  
**\*\* Exit Setup30**



@SETUPE1  
Enter Setup

---

### Good Read BeepVolume



@GRBVOL0  
\*\* Loud



@GRBVOL1  
Medium



@GRBVOL2  
Low

### Good Read Vibration



@GRVENA1  
\*\* On



@GRVENA0  
Off



@SETUPE0

31\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

### Good Read Vibration Duration

This parameter sets the length of the vibration the engine emits on a good read. It is programmable in 1ms increments from 100ms to 2000ms. The default setting is 300ms.



@GRVDUR  
**Good Read Vibration Duration**

**E**  
*example*

#### Set the Good Read Vibration duration to 800ms:

1. Scan the **Enter Setup** barcode.
2. Scan the **Good Read Vibration Duration** barcode.
3. Scan the numeric barcodes “8”, “0” and “0” from the “Digit Barcodes” section in Appendix.
4. Scan the **Save** barcode from the “Save/Cancel Barcodes” section in Appendix.
5. Scan the **Exit Setup** barcode.



@SETUPE0  
**\*\* Exit Setup32**





@SETUPE1  
Enter Setup

---

## Scan Mode

- ✧ **Level Mode:** A trigger pull activates a decode session. The decode session continues until a barcode is decoded or you release the trigger.
- ✧ **Sense Mode:** The scanner waits for the image stabilization timeout to expire before activating a decode session every time it detects a change in ambient illumination. Decode session continues until a barcode is decoded or the decode session timeout expires. In this mode, a trigger pull can also activate a decode session. The decode session continues until a barcode is decoded or the trigger is released. When the session ends, the scanner continues to monitor ambient illumination. **Timeout between Decodes (Same Barcode)** can avoid undesired rereading of same barcode in a given period of time. **Sensitivity** can change the Sense Mode's sensibility to changes in ambient illumination.
- ✧ **Continuous Mode:** The scanner automatically starts one decode session after another. To suspend/resume barcode reading, simply press the trigger. **Timeout between Decodes (Same Barcode)** can avoid undesired rereading of same barcode in a given period of time.



@SCNMOD0  
**\*\* Level Mode**



@SCNMOD2  
**Sense Mode**



@SCNMOD3  
**Continuous Mode**



@SETUPE0



@SETUPE1  
**Enter Setup**

---

## Decode Session Timeout

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



@ORTSET  
**Decode Session Timeout**

**E**  
*example*

### Set the decode session timeout to 1,500ms:

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



@SETUPE0  
**\*\* Exit Setup34**



@SETUPE1  
**Enter Setup**

---

## Image Stabilization Timeout (Sense Mode)

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



@SENIST

**Image Stabilization Timeout**

**E**  
*example*

### Set the image stabilization timeout to 800ms:

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



@SETUPE0



@SETUPE1  
Enter Setup

## Timeout between Decodes (Same Barcode)

Timeout between Decodes (Same Barcode) can avoid undesired rereading of same barcode in a given period of time. This feature is only applicable to the Sense and Continuous modes.

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

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

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



@RRDENA1

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



@RRDENA0

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

The following parameter sets the timeout between decodes for same barcode. It is programmable in 1ms increments from 1ms to 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

**Timeout between Decodes (Same Barcode)**

**E**  
*example*

**Set the timeout between decodes (same barcode) to 1,000ms:**

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



@SETUPE0

**\*\* Exit Setup36**



@SETUPE1  
Enter Setup

---

## Reread Timeout Reset



@RRDREN1

On



@RRDREN0

\*\* Off

## Image Decoding Timeout

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



@DETSET

Image Decoding Timeout

**E**  
*example*

Set the image decoding timeout to 1,000ms:

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



@SETUPE0



@SETUPE1  
**Enter Setup**

---

## Sensitivity

Sensitivity specifies the degree of acuteness of the scanner's response to changes in images captured. The higher the sensitivity, the lower requirement in image change to trigger the scanner. You can select an appropriate degree of sensitivity that fits the application environment. The feature is only applicable to the Sense mode.



@SENLVL14  
**Low Sensitivity**



@SENLVL11  
**Medium Sensitivity**



@SENLVL8  
**High Sensitivity**



@SENLVL5  
**\*\*Enhanced Sensitivity**



@SENLVL  
**Custom Sensitivity(Level 1-20)**

**E**  
*example*

### Set the sensitivity to Level 10:

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



@SETUPE0  
**\*\* Exit Setup38**



@SETUPE1  
Enter Setup

## Trigger Commands

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



@SCNTCE0

**\*\* Disable Trigger Commands**



@SCNTCE1

**Enable Trigger Commands**

## Modify Start Scanning Command

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



@SCNTCT

**Modify Start Scanning Command**

**E**  
*example*

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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

## Modify 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>.



@SCNTCP  
Modify Stop Scanning Command

**E**  
*xample*

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 Setup40





@SETUPE1  
Enter Setup

---

## Scanning Preference

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

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

**Barcode Pay Mode:** Select this mode for barcode pay.



@EXPLVL0  
**\*\* Normal Mode**



@EXPLVL2  
**Screen Mode**



@EXPLVL5  
**Barcode Pay Mode**

## Read Barcode On/Off

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



@SETUPE0



@SETUPE1  
Enter Setup

## Decode Area

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

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



@CADENA0  
**\*\* Whole Area Decoding**



@CADENA1  
**Specific Area Decoding**

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

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



@CADTOP  
**Top of Decoding Area**



@CADBOT  
**Bottom of Decoding Area**



@CADLEF  
**Left of Decoding Area**



@CADRIG  
**Right of Decoding Area**



@SETUPE0  
**\*\* Exit Setup42**



@SETUPE1  
Enter Setup



## **E** *xample*

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

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



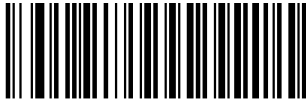
@SETUPE0



@SETUPE1  
Enter Setup

---

## Image Flipping



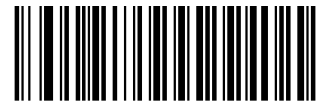
@MIRROR0  
\*\* Do Not Flip



@MIRROR2  
Flip Vertically



@MIRROR1  
Flip Horizontally



@MIRROR3  
Flip Horizontally & Vertically

Example of image not flipped



Example of image flipped vertically

Example of image flipped horizontally



Example of image flipped horizontally & vertically



@SETUPE0  
\*\* Exit Setup44



@SETUPE1  
Enter Setup

---



## Bad Read Message

Scan the appropriate barcode below to select whether or not to send a bad read message (user-programmable) when a good read does not occur before trigger release, or the decode session timeout expires, or the scanner receives the **Stop Scanning** command (For more information, see the “Serial Trigger Command” section in this chapter).



\*\* Bad Read Message OFF



Bad Read Message ON

## Set Bad Read Message

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



Set Bad Read Message



45\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

**E**  
*xample*

**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.

## Default Settings

### Factory Defaults

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

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

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



@FACDEF  
**Restore All Factory Defaults**

### Custom Defaults

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

Custom defaults are stored in the non-volatile memory.



@CUSSAV  
**Save as Custom Defaults**



@SETUPE0  
**\*\* Exit Setup46**



@SETUPE1

**Enter Setup**

---

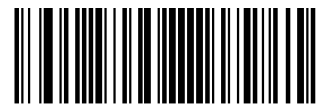


@CUSDEF

**Restore All Custom Defaults**



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



@SETUPE0

**47\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Query Product Information

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



@QRYSYS  
**Query Product Information**

## Query Product Name



@QRYPDN  
**Query Product Name**

## Query Firmware Version



@QRYFWV  
**Query Firmware Version**



@SETUPE0  
**\*\* Exit Setup48**





@SETUPE1  
Enter Setup

---

### Query Decoder Version



@QRYDCV  
Query Decoder Version

### Query Hardware Version

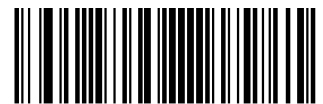


@QRYHWW  
Query Hardware Version

### Query Product Serial Number



@QRYPSN  
Query Product Serial Number



@SETUPE0

---

49\*\* Exit Setup



@SETUPE1  
Enter Setup

---

### Query Manufacturing Date



@QRYDAT  
Query Manufacturing Date

### Query OEM Serial Number



@QRYESN  
Query OEM Serial Number

### Query Data Formatter Version



@QRYDFM  
Query Data Formatter Version



@SETUPE0  
\*\* Exit Setup50



@SETUPE1  
Enter Setup

## Chapter 3 USB Interface

### Introduction

There are four options for USB connection:

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



@SETUPE0



@SETUPE1  
**Enter Setup**

---

## USB HID Keyboard

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



@INTERF3  
**USB HIDKeyboard**



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



@SETUPE0  
**\*\* Exit Setup52**



@SETUPE1  
Enter Setup

---

## USB Country Keyboard Types

Keyboard layouts vary from country to country. The default setting is U.S. keyboard.



@KBWCTY0  
**\*\* U.S. (English)**



@KBWCTY1  
**Belgium**



@KBWCTY2  
**Brazil**



@KBWCTY3  
**Canada(French)**



@KBWCTY4  
**Czechoslovakia**



@KBWCTY5  
**Denmark**



@KBWCTY6  
**Finland (Swedish)**



@SETUPE0



@SETUPE1  
**Enter Setup**

---



@KBWCTY7  
**France**



@KBWCTY8  
**Germany/ Austria**



@KBWCTY9  
**Greece**



@KBWCTY10  
**Hungary**



@KBWCTY11  
**Israel (Hebrew)**



@KBWCTY12  
**Italy**



@KBWCTY13  
**Latin America/ South America**



@KBWCTY14  
**Netherlands (Dutch)**



@SETUPE0  
**\*\* Exit Setup54**



@SETUPE1  
Enter Setup

---



@KBWCTY15  
Norway



@KBWCTY16  
Poland



@KBWCTY17  
Portugal



@KBWCTY18  
Romania



@KBWCTY19  
Russia



@KBWCTY21  
Slovakia



@KBWCTY22  
Spain



@KBWCTY23  
Sweden



@SETUPE0

---

55\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---



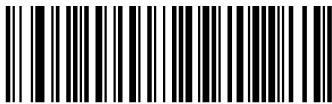
@KBWCTY24  
**Switzerland (German)**



@KBWCTY25  
**Turkey\_F**



@KBWCTY26  
**Turkey\_Q**



@KBWCTY27  
**UK**



@KBWCTY28  
**Japan**



@SETUPE0  
**\*\* Exit Setup56**





@SETUPE1  
Enter Setup

---

### Beep on Unknown Character

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

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



@KBWBUC0

**\*\* Do Not Beep on Unknown Character**



@KBWBUC1

**Beep on Unknown Character**

**E**  
*xample*

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

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

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



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



@SETUPE0



@SETUPE1  
Enter Setup

## Emulate ALT+Keypad

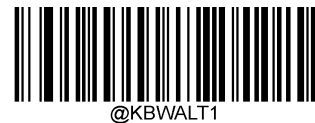
When **Emulate ALT+Keypad** is turned on, any character whose ASCII value is greater than or equal to 0x20 is sent over the numeric keypad no matter which keyboard type is selected.

1. ALTMake
2. Enter the number corresponding to a desired character on the keypad.
3. ALTBreak

After **Emulate ALT+Keypad ON** is selected, you need to 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



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



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 "ADF" (65/208/70) is sent as below:

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

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

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



@SETUPE0  
\*\* Exit Setup58



@SETUPE1  
Enter Setup

---

## Code Page

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



@KBWC PG0

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



@KBWC PG1

**Code Page 1251 (Cyrillic)**



@KBWC PG2

**Code Page 1250 (Central and East European Latin)**



@KBWC PG3

**Code Page 1253 (Greek)**



@KBWC PG4

**Code Page 1254 (Turkish)**



@KBWC PG5

**Code Page 1255 (Hebrew)**



@SETUPE0

---

59\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---



@KBWCPG6  
**Code Page 1256 (Arabic)**



@KBWCPG7  
**Code Page 1257 (Baltic)**



@KBWCPG8  
**Code Page 1258 (Vietnamese)**



@SETUPE0  
**\*\* Exit Setup60**



@SETUPE1  
Enter Setup

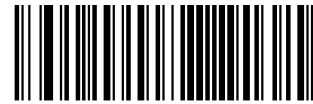
---

### Unicode Encoding

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



@KBWCPU0  
\*\* Off



@KBWCPU1  
On

### Emulate Keypad with Leading Zero

You may turn this feature on to send character sequences sent over the numeric keypad as ISO characters which have a leading zero. For example, ASCII A transmits as "ALT MAKE" 0065 "ALT BREAK". This feature is only effective when **Emulate ALT+Keypad** is enabled.



@KBWALZ1  
\*\* On



@KBWALZ0  
Off



@SETUPE0



@SETUPE1  
Enter Setup

---

## 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**

## Example

If **Ctrl+ASCII Mode** is selected and other parameters of USB HIDKeyboard adopt factory defaults, barcode data "A<HT>(i.e. Horizontal Tab)F" (0x41/0x09/0x46) is sent as below:

"A" - Keystroke "A".

<HT> - "Ctrl Make" + Keystroke "I" + "Ctrl Break"

"F" - Keystroke "F"

For some text editors, "Ctrl I" means italic convert. So the output may be "AF".

If **Alt+Keypad Mode** is selected and other parameters of USB HIDKeyboard adopt factory defaults, the data above is sent as below:

"A" - Keystroke "A".

<HT> - "Alt Make" + Keystrokes "009" + "Alt Break"

"F" - Keystroke "F"



@SETUPE0  
**\*\* Exit Setup62**



@SETUPE1  
Enter Setup

### ASCII Function Key Mapping Table

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



@SETUPE0



@SETUPE1  
Enter Setup

### ASCII Function Key Mapping Table (Continued)

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

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



@SETUPE0  
\*\* Exit Setup64





@SETUPE1  
Enter Setup

---

## Inter-Keystroke Delay

This parameter specifies the delay between emulated keystrokes.



@KBWDLY0  
**\*\* No Delay**



@KBWDLY40  
**Long Delay (40ms)**



@KBWDLY20  
**Short Delay (20ms)**



---

65\*\* Exit Setup

@SETUPE0



@SETUPE1  
Enter Setup

---

## Caps Lock

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 your keyboard.



@KBWCAPO

**\*\* Caps LockOff, Non-Japanese Keyboard**



@KBWCAP1

**Caps LockOn, Non-Japanese Keyboard**



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



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

## Convert Case

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



@KBWCAS0

**\*\* No Case Conversion**



@KBWCAS1

**Convert All to Upper Case**

---



@SETUPE0

**\*\* Exit Setup66**



@SETUPE1  
Enter Setup

---



@KBWCAS2  
Convert All to Lower Case

**E**  
*xample*

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



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



@SETUPE0

67\*\* Exit Setup



@SETUPE1  
Enter Setup

---

## Emulate Numeric Keypad



**Do Not Emulate Numeric Keypad 1:** Sending a number (0-9) is emulated as keystroke(s) on main keyboard.

**Emulate Numeric Keypad 1:** Sending a number (0-9) is emulated as keystroke(s) on numeric keypad. The state of Num Lock on the simulated numeric keypad is determined by its equivalent on the host device. If Num Lock on the host device is turned off, the output of simulated numeric keypad is function key instead of number.

**Do Not Emulate Numeric Keypad 2:** Sending "+", "-", "\*", and "/" is emulated as keystroke(s) on main keyboard.

**Emulate Numeric Keypad 2:** Sending "+", "-", "\*", and "/" is emulated as keystroke(s) on numeric keypad.



@KBWNUM0

**\*\* Do Not Emulate Numeric Keypad 1**



@KBWNUM1

**Emulate Numeric Keypad 1**



@SETUPE0

**\*\* Exit Setup68**



@SETUPE1  
Enter Setup

---



@KBWNCH0

**\*\* Do Not Emulate Numeric Keypad 2**



@KBWNCH1

**Emulate Numeric Keypad 2**



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

**E**  
*sample*

Supposing the **Emulate Numeric Keypad 1** and **Emulate Numeric Keypad 2** features are enabled:

if Num Lock on the host device is ON, "A4.5" is transmitted as "A4.5";

if Num Lock on the host device is OFF, "A4.5" is transmitted as follows:

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



@SETUPE0

---

69\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

## Fast Mode

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



@KBWFAS0  
**\*\* Fast Mode Off**



@KBWFAS1  
**Fast Mode On**



@SETUPE0  
**\*\* Exit Setup70**

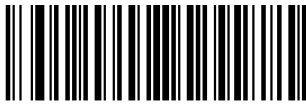


@SETUPE1  
Enter Setup

---

## Polling Rate

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



@KBWPOR0  
1ms



@KBWPOR1  
2ms



@KBWPOR2  
3ms



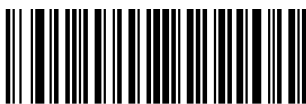
@KBWPOR3  
\*\* 4ms



@KBWPOR4  
5ms



@KBWPOR5  
6ms



@KBWPOR6  
7ms



@SETUPE0

71\*\* Exit Setup



@SETUPE1  
**Enter Setup**

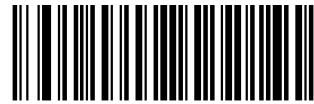
---



@KBWPOR7  
**8ms**



@KBWPOR8  
**9ms**



@KBWPOR9  
**10ms**



@SETUPE0  
**\*\* Exit Setup72**





@SETUPE1  
**Enter Setup**

---

## USB CDC

If your scanner is connected to the USB port on a host device, the USB CDC feature allows the host device to receive data in the way as a serial port does. A driver is needed when using this feature.



@INTERF8  
**\*\* USB CDC**



@SETUPE0

---

73\*\* **Exit Setup**



@SETUPE1  
Enter Setup

---

## HID POS (POS HID Barcode Scanner)

### Introduction

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

Features:

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



@INTERF5  
USB HID-POS

### Access the Scanner with Your Program

Use CreateFile to access the scanner as a HID device and then use ReadFile to deliver the scanned data to the application program. Use WriteFile to send data to the scanner.

For detailed information about USB and HID interfaces, go to [www.USB.org](http://www.USB.org).



@SETUPE0  
\*\* Exit Setup74



@SETUPE1  
Enter Setup

### Acquire Scanned Data

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

Byte	Bit							
	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	Symbology Identifier or N/C: 0x00							
63	-	-	-	-	-	-	-	Decoded data continued

### Send Command to the Scanner

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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

## VID/PID

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

Product	Interface	PID (Hex)	PID (Dec)
The scanner	USB HIDKeyboard	1A03	6659
	USB CDC	1A06	6662
	HID POS	1A10	6672



@SETUPE0  
\*\* Exit Setup76



@SETUPE1  
Enter Setup

## Chapter 4 Symbologies

### Introduction

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

### Global Settings

#### Enable/Disable All Symbologies

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



@ALLENA1  
Enable All Symbologies



@ALLENA0  
Disable All Symbologies

#### Enable/Disable 1D Symbologies



@ALL1DC1  
Enable 1D Symbologies



@ALL1DC0  
Disable 1D Symbologies



@SETUPE0

77\*\* Exit Setup



@SETUPE1  
Enter Setup

---

### Enable/Disable 2D Symbologies



@ALL2DC1  
Enable 2D Symbologies



@ALL2DC0  
Disable 2D Symbologies

### 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 1Dcode only. Otherwise, try single 1Dcode only.



@A1DDOU0  
\*\* Single 1D Code Only



@A1DDOU2  
Twin 1D Code Only



@SETUPE0  
\*\* Exit Setup78



@SETUPE1  
**Enter Setup**

---



@A1DDOU1  
**Both Single & Twin**



@SETUPE0

**79\*\* Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Code 128

### Restore Factory Defaults



@128DEF  
**Restore the Factory Defaults of Code 128**

### Enable/Disable Code 128



@128ENA1  
**\*\* Enable Code 128**



@128ENA0  
**Disable Code 128**



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



@SETUPE0  
**\*\* Exit Setup80**





@SETUPE1  
Enter Setup

## Set Length Range for Code 128

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



**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.



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

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



@SETUPE0



@SETUPE1  
Enter Setup

## EAN-8

### Restore Factory Defaults



@EA8DEF

Restore the Factory Defaults of EAN-8

### Enable/Disable EAN-8



@EA8ENA1

\*\* Enable EAN-8



@EA8ENA0

Disable EAN-8



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

### Transmit Check Character

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



@EA8CHK2

\*\* Transmit EAN-8 Check Character



@EA8CHK1

Do Not Transmit EAN-8 Check Character



@SETUPE0

\*\* Exit Setup82



@SETUPE1  
Enter Setup

---

## 2-Digit Add-On Code

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



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



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



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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

### 5-Digit Add-On Code

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



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



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



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

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



@SETUPE0  
**\*\* Exit Setup84**



@SETUPE1  
Enter Setup

---

### Convert EAN-8 to EAN-13

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

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



@EA8EXP0

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



@EA8EXP1

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



@SETUPE0

---

85\*\* Exit Setup



@SETUPE1  
Enter Setup

---

## EAN-13

### Restore Factory Defaults



@E13DEF  
Restore the Factory Defaults of EAN-13

### Enable/Disable EAN-13



@E13ENA1  
\*\* Enable EAN-13



@E13ENA0  
Disable EAN-13



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



@SETUPE0  
\*\* Exit Setup86



@SETUPE1  
Enter Setup

### Transmit Check Character



@E13CHK2

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



@E13CHK1

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

### 2-Digit Add-On Code

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



@E13AD20

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



@E13AD21

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



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

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



@SETUPE0

87\*\* Exit Setup



@SETUPE1  
Enter Setup

### 5-Digit Add-On Code

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



@E13AD50

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



@E13AD51

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



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

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

## UPC-E

### Restore Factory Defaults



@UPEDEF

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



@SETUPE0

**\*\* Exit Setup88**





@SETUPE1  
Enter Setup

---

### Enable/Disable UPC-E



@UPEEN01  
**\*\* Enable UPC-E0**



@UPEEN00  
**Disable UPC-E0**



@UPEEN11  
**Enable UPC-E1**



@UPEEN10  
**\*\* Disable UPC-E1**



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



@SETUPE0



@SETUPE1  
Enter Setup

### Transmit Check Character

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



@UPECHK2

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



@UPECHK1

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

### 2-Digit Add-On Code

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



@UPEAD20

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



@UPEAD21

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



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

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



@SETUPE0

**\*\* Exit Setup90**



@SETUPE1  
Enter Setup

### 5-Digit Add-On Code

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



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



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



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

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



@SETUPE0

91\*\* Exit Setup



@SETUPE1  
Enter Setup

---

### 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 countrycode ("0" for USA), or transmit no preamble.



@UPEPRE1  
**\*\* System Character**



@UPEPRE0  
**No Preamble**



@UPEPRE2  
**System Character & Country Code**

### Convert UPC-E to UPC-A

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

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



@UPEEXP0  
**\*\* Do Not Convert UPC-E to UPC-A**



@UPEEXP1  
**Convert UPC-E to UPC-A**

---



@SETUPE0  
**\*\* Exit Setup92**



@SETUPE1  
Enter Setup

## UPC-A

### Restore Factory Defaults



@UPADEF

Restore the Factory Defaults of UPC-A

### Enable/Disable UPC-A



@UPAENA1

\*\* Enable UPC-A



@UPAENA0

Disable UPC-A



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

### Transmit Check Character

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



@UPACHK2

\*\* Transmit UPC-A Check Character



@UPACHK1

Do Not Transmit UPC-A Check Character



@SETUPE0

93\*\* Exit Setup

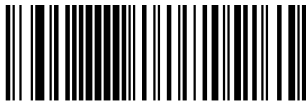


@SETUPE1  
Enter Setup

---

## 2-Digit Add-On Code

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



@UPAAD20

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



@UPAAD21

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



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

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



@SETUPE0  
**\*\* Exit Setup94**



@SETUPE1  
Enter Setup

---

### 5-Digit Add-On Code

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



**\*\* 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.

---

95\*\* Exit Setup



@SETUPE0



@SETUPE1  
**Enter Setup**

---

### Transmit Preamble Character

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



@UPAPRE0  
**\*\* No Preamble**



@UPAPRE1  
**System Character**



@UPAPRE2  
**System Character & Country Code**



@SETUPE0  
**\*\* Exit Setup96**





@SETUPE1  
Enter Setup

---

## Coupon

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

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

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

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

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

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



@CPNENA0  
**\*\*Off**



@CPNENA1  
**Allow Concatenation**



@CPNENA2  
**Require Concatenation**



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



@SETUPE0



@SETUPE1  
Enter Setup

---

### Coupon GS1 Databar Output

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

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

#



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



@CPNGS11  
**GS1 Output On**



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



@SETUPE0  
**\*\* Exit Setup98**



@SETUPE1  
Enter Setup

---

## Interleaved 2 of 5

### Restore Factory Defaults



@I25DEF

Restore the Factory Defaults of Interleaved 2 of 5

### Enable/Disable Interleaved 2 of 5



@I25ENA1

Enable Interleaved 2 of 5



@I25ENA0

\*\*Disable Interleaved 2 of 5



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

---

99\*\* Exit Setup



@SETUPE0



@SETUPE1  
Enter Setup

---

### Set Length Range for Interleaved 2 of 5

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



@I25MIN  
**Set the Minimum Length (Default: 6)**



@I25MAX  
**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 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 Setup100**



@SETUPE1  
Enter Setup

## Check Character Verification

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

**Disable:** The scanner transmits Interleaved 2 of 5 barcodes as is.

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

**Transmit Check Character After Verification:** The scanner checks the integrity of all Interleaved 2 of 5 barcodes to verify that the data complies with the check character algorithm. Barcodes passing the check will be transmitted, whereas those failing it will not be transmitted.

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



@I25CHK0  
**\*\* Disable**



@I25CHK1

**Do Not Transmit Check Character After Verification**



@I25CHK2

**Transmit Check Character After Verification**



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



@SETUPE0



@SETUPE1  
Enter Setup

---

## ITF-14

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

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

### Restore Factory Defaults



@I14DEF

Restore the Factory Defaults of ITF-14

### Enable/Disable ITF-14



@I14ENA0

\*\* Disable ITF-14



@I14ENA1

Enable ITF-14 But Do Not Transmit Check Character



@I14ENA2

Enable ITF-14 and Transmit Check Character



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



@SETUPE0

\*\* Exit Setup102



@SETUPE1  
**Enter Setup**

---



@SETUPE0

103\*\* **Exit Setup**



@SETUPE1  
Enter Setup

---

## ITF-6

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

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

### Restore Factory Defaults



@IT6DEF

Restore the Factory Defaults of ITF-6

### Enable/Disable ITF-6



@IT6ENA0

\*\* Disable ITF-6



@IT6ENA1

Enable ITF-6 But Do Not Transmit Check Character



@IT6ENA2

Enable ITF-6 and Transmit Check Character



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

---



@SETUPE0

\*\* Exit Setup104





@SETUPE1  
Enter Setup

---

## Matrix 2 of 5

### Restore Factory Defaults



@M25DEF

Restore the Factory Defaults of Matrix 2 of 5

### Enable/Disable Matrix 2 of 5



@M25ENA1

Enable Matrix 2 of 5



@M25ENA0

**\*\*Disable Matrix 2 of 5**



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



@SETUPE0



@SETUPE1  
Enter Setup

---

### Set Length Range for Matrix 2 of 5

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



@M25MIN  
Set the Minimum Length (Default: 4)



@M25MAX  
Set the Maximum Length (Default: 80)



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

**E**  
*example*

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

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



@SETUPE0  
\*\* Exit Setup106



@SETUPE1  
Enter Setup

### Check Character Verification

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

**Disable:** The scanner transmits Matrix 2 of 5 barcodes as is.

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

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

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



@M25CHK0  
**\*\* Disable**



@M25CHK1

**Do Not Transmit Check Character After Verification**



@M25CHK2

**Transmit Check Character After Verification**



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



@SETUPE0



@SETUPE1  
**Enter Setup**

---

## Code 39

### Restore Factory Defaults



@C39DEF  
**Restore the Factory Defaults of Code 39**

### Enable/Disable Code 39



@C39ENA1  
**\*\* Enable Code 39**



@C39ENA0  
**Disable Code 39**



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



@SETUPE0  
**\*\* Exit Setup108**



@SETUPE1  
Enter Setup

## Set Length Range for Code 39

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



**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 39 barcodes with either the minimum or maximum length. If minimum length is same as maximum length, only Code 39 barcodes with that length are to be decoded.



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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

### Check Character Verification

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

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

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

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



@C39CHK0  
\*\* Disable



@C39CHK1

**Do Not Transmit Check Character After Verification**



@C39CHK2

**Transmit Check Character After Verification**



If the **Do Not Transmit Check Character After Verification** option is enabled, Code 39 barcodes with a length that is less than the configured minimum length after having the check character excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Code 39 barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0  
\*\* Exit Setup110



@SETUPE1  
Enter Setup

---

### Transmit Start/Stop Character

Code 39 uses an asterisk (\*) for both the start and the stop characters. You can choose whether or not to transmit the start/stop characters by scanning the appropriate barcode below.



@C39TSC0

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



@C39TSC1

**Transmit Start/Stop Character**

### Enable/Disable Code 39 Full ASCII

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



@C39ASC0

**\*\*Disable Code 39 Full ASCII**



@C39ASC1

**Enable Code 39 Full ASCII**



@SETUPE0

111\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

### Enable/Disable Code 32 (Italian Pharma Code)

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



@C39E320  
**\*\*DisableCode 32**



@C39E321  
**Enable Code 32**

### Code 32 Prefix

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



@C39S320  
**\*\*DisableCode 32 Prefix**



@C39S321  
**Enable Code 32 Prefix**



@SETUPE0  
**\*\* Exit Setup112**





@SETUPE1  
Enter Setup

---

### Transmit Code 32 Start/Stop Character

Code 32 must be enabled for this parameter to function.



@C39T320

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



@C39T321

**Transmit Code 32 Start/Stop Character**

### Transmit Code 32 Check Character

Code 32 must be enabled for this parameter to function.



@C39C320

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



@C39C321

**Transmit Code 32 Check Character**



@SETUPE0

---

113\*\* Exit Setup



@SETUPE1  
Enter Setup

---

## Codabar

### Restore Factory Defaults



@CBADEF  
Restore the Factory Defaults of Codabar

### Enable/Disable Codabar



@CBAENA1  
Enable Codabar



@CBAENA0  
\*\*Disable Codabar



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



@SETUPE0  
\*\* Exit Setup114



@SETUPE1  
**Enter Setup**

## Set Length Range for Codabar

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



**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.



@SETUPE0



@SETUPE1  
Enter Setup

---

### Check Character Verification

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

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

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

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



@CBACHK0  
**\*\* Disable**



@CBACHK1  
**Do Not Transmit Check Character After Verification**



@CBACHK2  
**Transmit Check Character After Verification**



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



@SETUPE0  
**\*\* Exit Setup116**



@SETUPE1  
Enter Setup

### Start/Stop Character

You can set the start/stop characters and choose whether or not to transmit the start/stop characters by scanning the appropriate barcode below.



@CBATSC0

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



@CBATSC1

**Transmit Start/Stop Character**



@CBASCF0

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



@CBASCF1

**ABCD/TN\*E as the Start/Stop Character**



@CBASCF2

**abcd/abcd as the Start/Stop Character**



@CBASCF3

**abcd/tn\*e as the Start/Stop Character**



@SETUPE0

117\*\* Exit Setup



@SETUPE1  
Enter Setup

---

## Code 93

### Restore Factory Defaults



@C93DEF  
Restore the Factory Defaults of Code 93

### Enable/Disable Code 93



@C93ENA1  
Enable Code 93



@C93ENA0  
\*\* Disable Code 93



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



@SETUPE0  
\*\* Exit Setup118



@SETUPE1  
Enter Setup

## Set Length Range for Code 93

The scanner can be configured to only decode Code 93 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



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.

**E**  
*example*

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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

### Check Character Verification

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

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

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

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



@C93CHK0  
**Disable**



@C93CHK1

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



@C93CHK2

**Transmit Check Character After Verification**



If the **Do Not Transmit Check Character After Verification** option is enabled, Code 93 barcodes with a length that is less than the configured minimum length after having the two check characters excluded will not be decoded. (For example, when the **Do Not Transmit Check Character After Verification** option is enabled and the minimum length is set to 4, Code 93 barcodes with a total length of 4 characters including the two check characters cannot be read.)



@SETUPE0  
**\*\* Exit Setup120**





@SETUPE1  
**Enter Setup**

---

## China Post 25

### Restore Factory Defaults



@CHPDEF

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

### Enable/Disable China Post 25



@CHPENA1

**Enable China Post 25**



@CHPENA0

**\*\* Disable China Post 25**



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

---

121\*\* **Exit Setup**



@SETUPE0



@SETUPE1  
**Enter Setup**

---

## Set Length Range for China Post 25

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



@CHPMIN

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



@CHPMAX

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



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

**E**  
*example*

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

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



@SETUPE0  
**\*\* Exit Setup122**



@SETUPE1  
Enter Setup

### Check Character Verification

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

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

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

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



@CHPCHK0  
**\*\* Disable**



@CHPCHK1

**Do Not Transmit Check Character After Verification**



@CHPCHK2

**Transmit Check Character After Verification**



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



@SETUPE0

123\*\* Exit Setup



@SETUPE1  
Enter Setup

---

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

### Restore Factory Defaults



@GS1DEF  
Restore the Factory Defaults of GS1-128

### Enable/DisableGS1-128



@GS1ENA1  
\*\* EnableGS1-128



@GS1ENA0  
DisableGS1-128



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



@SETUPE0  
\*\* Exit Setup124



@SETUPE1  
Enter Setup

## Set Length Range forGS1-128

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



Set the Minimum Length (Default: 1)



Set the Maximum Length (Default: 48)



If minimum length is set to be greater than maximum length, the scanner only decodesGS1-128 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.

**E**  
*xample*

**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



@SETUPE1  
Enter Setup

---

## GS1 Databar (RSS)

### Restore Factory Defaults



@RSSDEF

Restore the Factory Defaults of GS1 Databar

### Enable/Disable GS1 Databar



@RSSENA1

Enable GS1 Databar



@RSSENA0

\*\*Disable GS1 Databar



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

### Transmit Application Identifier "01"



@RSSTA1

\*\* Transmit Application Identifier "01"



@SETUPE0

\*\* Exit Setup126



@SETUPE1  
**Enter Setup**



@RSSTA10  
**Do Not Transmit Application Identifier“01”**

## GS1 Composite (EAN·UCC Composite)

### Restore Factory Defaults



@CPTDEF  
**Restore the Factory Defaults of GS1 Composite**

### Enable/Disable GS1 Composite



@CPTENA1  
**Enable GS1 Composite**



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



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

### Enable/DisableUPC/EAN Composite



@CPTUPC1  
**Enable UPC/EAN Composite**



@SETUPE0



@SETUPE1  
**Enter Setup**

---



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

## Code 11

### Restore Factory Defaults



@C11DEF  
**Restore the Factory Defaults of Code 11**

### Enable/Disable Code 11



@C11ENA1  
**Enable Code 11**



@C11ENA0  
**\*\* Disable Code 11**



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



@SETUPE0  
**\*\* Exit Setup128**





@SETUPE1  
**Enter Setup**

---



@SETUPE0

129\*\* **Exit Setup**



@SETUPE1  
Enter Setup

---

### Set Length Range for Code 11

The scanner can be configured to only decode Code 11 barcodes with lengths that fall between (inclusive) the minimum and maximum lengths. To accomplish it, you need to set the minimum and maximum lengths.



@C11MIN

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



@C11MAX

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



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

**E**  
*example*

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

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



@SETUPE0  
**\*\* Exit Setup130**



@SETUPE1  
Enter Setup

---

## Check Character Verification

Check characters are optional for Code 11 and can be added as the last one or two characters, which are calculated values used to verify the integrity of the data.

If the **Disable** option is enabled, the scanner transmits Code 11 barcodes as is.



@C11CHK0  
**Disable**



@C11CHK1  
**\*\* One Check Character, MOD11**



@C11CHK2  
**Two Check Characters, MOD11/MOD11**



@C11CHK3  
**Two Check Characters, MOD11/MOD9**



@C11CHK4  
**One Check Character, MOD11 (Len<=10)**  
**Two Check Characters, MOD11/MOD11(Len>10)**



@C11CHK5  
**One Check Character, MOD11 (Len<=10)**  
**Two Check Characters, MOD11/MOD9 (Len>10)**



@SETUPE0



@SETUPE1  
Enter Setup

---

### Transmit Check Character



@C11TCK0

Do Not Transmit Code 11 Check Character



@C11TCK1

\*\* Transmit Code 11 Check Character



If you select a check character algorithm and the **Do Not Transmit Check Character** option, Code 11 barcodes with a length that is less than the configured minimum length after having the check character(s) excluded will not be decoded. (For example, when the **One Check Character, MOD11** and **Do Not Transmit Check Character** options are enabled and the minimum length is set to 4, Code 11 barcodes with a total length of 4 characters including the check character cannot be read.)



@SETUPE0  
\*\* Exit Setup132



@SETUPE1  
**Enter Setup**

---

## ISBN

### Restore Factory Defaults



@SBDEF

**Restore the Factory Defaults of ISBN**

### Enable/Disable ISBN



@SBENA1

**\*\*Enable ISBN**



@SBENA0

**Disable ISBN**



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



@SETUPE0



@SETUPE1  
**Enter Setup**

---

### Set ISBN Format



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



@ISBT100  
**ISBN-13**



@SETUPE0  
**\*\* Exit Setup134**



@SETUPE1  
**Enter Setup**

---

## ISSN

### Restore Factory Defaults



@ISSDEF  
**Restore the Factory Defaults of ISSN**

### Enable/Disable ISSN



@ISSENA1  
**\*\*Enable ISSN**



@ISSENA0  
**Disable ISSN**



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



@SETUPE0



@SETUPE1  
Enter Setup

---

## Industrial 25

### Restore Factory Defaults



@L25DEF  
Restore the Factory Defaults of Industrial 25

### Enable/Disable Industrial 25



@L25ENA1  
Enable Industrial 25



@L25ENA0  
\*\* Disable Industrial 25



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



@SETUPE0  
\*\* Exit Setup136





@SETUPE1  
**Enter Setup**

---

## Set Length Range for Industrial 25

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



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



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



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

**E**  
*example*

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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

## Check Character Verification

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

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

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

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



@L25CHK0  
**\*\* Disable**



@L25CHK1  
**Do Not Transmit Check Character After Verification**



@L25CHK2  
**Transmit Check Character After Verification**



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



@SETUPE0  
**\*\* Exit Setup138**



@SETUPE1  
Enter Setup

---

## Standard 25

### Restore Factory Defaults



@S25DEF

Restore the Factory Defaults of Standard 25

### Enable/Disable Standard 25



@S25ENA1

Enable Standard 25



@S25ENA0

\*\* Disable Standard 25



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



@SETUPE0



@SETUPE1  
Enter Setup

---

### Set Length Range for Standard 25

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



@S25MIN

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



@S25MAX

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



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

**E**  
*example*

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

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



@SETUPE0  
**\*\* Exit Setup140**



@SETUPE1  
Enter Setup

---

## Check Character Verification

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

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

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

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



@S25CHK0  
\*\* Disable



@S25CHK1

**Do Not Transmit Check Character After Verification**



@S25CHK2

**Transmit Check Character After Verification**



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



@SETUPE0



@SETUPE1  
**Enter Setup**

---

## Plessey

### Restore Factory Defaults



@PLYDEF  
**Restore the Factory Defaults of Plessey**

### Enable/Disable Plessey



@PLYENA1  
**Enable Plessey**



@PLYENA0  
**\*\* Disable Plessey**



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



@SETUPE0  
**\*\* Exit Setup142**



@SETUPE1  
Enter Setup

## Set Length Range for Plessey

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



@PLYMIN

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



@PLYMAX

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



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



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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

### Check Character Verification

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

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

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

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



@PLYCHK0  
**\*\* Disable**



@PLYCHK1  
**Do Not Transmit Check Character After Verification**



@PLYCHK2  
**Transmit Check Character After Verification**



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



@SETUPE0  
**\*\* Exit Setup144**





@SETUPE1  
Enter Setup

---

## MSI-Plessey

### Restore Factory Defaults



@MSIDEF

Restore the Factory Defaults of MSI-Plessey

### Enable/Disable MSI-Plessey



@MSIENA1

Enable MSI-Plessey



@MSIENA0

\*\* Disable MSI-Plessey



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



@SETUPE0



@SETUPE1  
Enter Setup

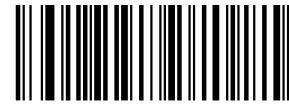
---

### Set Length Range for MSI-Plessey

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



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



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



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



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

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



@SETUPE0  
**\*\* Exit Setup146**



@SETUPE1  
Enter Setup

---

## Check Character Verification

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

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



@MSICLK0  
**Disable**



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



@MSICLK2  
**Two Check Characters, MOD10/MOD10**



@MSICLK3  
**Two Check Characters, MOD10/MOD11**

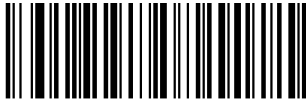




@SETUPE1  
Enter Setup

---

### Transmit Check Character



@MSITCK1

\*\* TransmitMSI-PlesseyCheck Character



@MSITCK0

Do Not TransmitMSI-PlesseyCheck Character



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



@SETUPE0  
\*\* Exit Setup148



@SETUPE1  
**Enter Setup**

---

## AIM 128

### Restore Factory Defaults



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

### Enable/Disable AIM 128



@AIMENA1  
**\*\*EnableAIM 128**



@AIMENA0  
**DisableAIM 128**



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



@SETUPE0



@SETUPE1  
Enter Setup

---

### Set Length Range for AIM 128

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



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



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



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



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

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



@SETUPE0  
**\*\* Exit Setup150**



@SETUPE1  
**Enter Setup**

---

## ISBT 128

### Restore Factory Defaults



@IBTDEF

**Restore the Factory Defaults of ISBT 128**

### Enable/Disable ISBT 128



@IBTENA1

**Enable ISBT 128**



@IBTENA0

**\*\* Disable ISBT 128**



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

---

151\*\* **Exit Setup**



@SETUPE0



@SETUPE1  
Enter Setup

---

## PDF417

### Restore Factory Defaults



@PDFDEF  
Restore the Factory Defaults of PDF417

### Enable/Disable PDF417



@PDFENA1  
\*\* Enable PDF417



@PDFENA0  
Disable PDF417



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



@SETUPE0  
\*\* Exit Setup152





@SETUPE1  
Enter Setup

## Set Length Range for PDF417

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



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



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



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

**E**  
*example*

**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



@SETUPE1  
**Enter Setup**

---

### PDF417 Twin Code

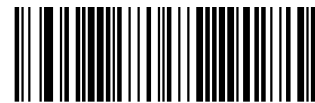
PDF417 twin code is 2 PDF417 barcodes paralleled vertically or horizontally. They must both be either regular or inverse barcodes. They must have similar specifications and be placed closely together.

There are 3 options for reading PDF417 twin codes:

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



@PDFDOU0  
**\*\* Single PDF417 Only**



@PDFDOU1  
**Twin PDF417 Only**



@PDFDOU2  
**Both Single & Twin**



@SETUPE0  
**\*\* Exit Setup154**



@SETUPE1  
Enter Setup

---

### PDF417 Inverse

Regular barcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.



@PDFINV0

**Decode Regular PDF417 Barcodes Only**



@PDFINV1

**Decode Inverse PDF417 Barcodes Only**



@PDFINV2

**\*\*DecodeBoth**

### Character Encoding



@PDFENC0

**\*\* Default Character Encoding**



@PDFENC1

**UTF-8**



@SETUPE0

---

155\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

### PDF417 ECI Output



@PDFECI0  
**Disable PDF417 ECI Output**



@PDFECI1  
**\*\*Enable PDF417 ECI Output**



@SETUPE0  
**\*\* Exit Setup156**



@SETUPE1  
**Enter Setup**

---

## QR Code

### Restore Factory Defaults



@QRCDEF

**Restore the Factory Defaults of QR Code**

### Enable/Disable QR Code



@QRCENA1

**\*\* Enable QR Code**



@QRCENA0

**Disable QR Code**



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



@SETUPE0



@SETUPE1  
Enter Setup

---

### Set Length Range for QR Code

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



@QRDMIN

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



@QRDMAX

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



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

**E**  
*example*

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

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



@SETUPE0  
**\*\* Exit Setup158**



@SETUPE1  
Enter Setup

---

## QR Twin Code

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

There are 3 options for reading QR twin codes:

**Single QR Only:** Read either QR code.

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

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



@QRCDU0  
**\*\* Single QR Only**



@QRCDU1  
**Twin QR Only**



@QRCDU2  
**Both Single & Twin**



@SETUPE0



@SETUPE1  
Enter Setup

---

## QR Inverse

Regularbarcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.



@QRCINV0

**Decode Regular QR Barcodes Only**



@QRCINV1

**Decode Inverse QR Barcodes Only**



@QRCINV2

**\*\*DecodeBoth**

## Character Encoding



@QRCENC0

**\*\* Default Character Encoding**



@QRCENC1

**UTF-8**



@SETUPE0

**\*\* Exit Setup160**





@SETUPE1  
**Enter Setup**

---

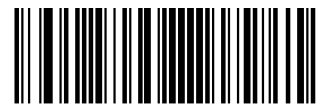
## QR ECI Output



@QRCEC10  
**Disable QR ECI Output**



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



---

161\*\* **Exit Setup**

@SETUPE0



@SETUPE1  
Enter Setup

---

## Aztec

### Restore Factory Defaults



@AZTDEF  
Restore the Factory Defaults of Aztec Code

### Enable/Disable Aztec Code



@AZTENA1  
EnableAztec Code



@AZTENA0  
\*\* DisableAztec Code



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



@SETUPE0  
\*\* Exit Setup162



@SETUPE1  
Enter Setup

## Set Length Range for Aztec Code

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



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



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



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

**E**  
*example*

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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

### Read Multi-barcodes on an Image

There are three options:

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

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

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



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



@AZTMOD2  
**Mode 2**



@AZTMOD3  
**Mode 3**



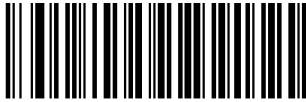
@SETUPE0  
**\*\* Exit Setup164**



@SETUPE1  
Enter Setup

---

### Set the Number of Barcodes



@AZTMUL1  
\*\* 1



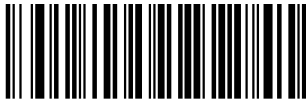
@AZTMUL2  
2



@AZTMUL3  
3



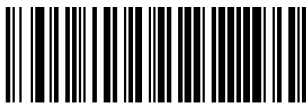
@AZTMUL4  
4



@AZTMUL5  
5



@AZTMUL6  
6



@AZTMUL7  
7



@AZTMUL8  
8



@SETUPE0



@SETUPE1  
Enter Setup

---

## Character Encoding



@AZTENC0  
\*\* Default Character Encoding



@AZTENC1  
UTF-8

## Aztec ECI Output



@AZTECI0  
Disable Aztec ECI Output



@AZTECI1  
\*\*Enable Aztec ECI Output



@SETUPE0  
\*\* Exit Setup166



@SETUPE1  
**Enter Setup**

---

## Data Matrix

### Restore Factory Defaults



@DMCDEF

**Restore the Factory Defaults of Data Matrix**

### Enable/Disable Data Matrix



@DMCENA1

**\*\* Enable Data Matrix**



@DMCENA0

**Disable Data Matrix**



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



@SETUPE0



@SETUPE1  
Enter Setup

---

## Set Length Range for Data Matrix

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



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



@DMCMAX  
**Set the Maximum Length (Default: 3116)**



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



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

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



@SETUPE0  
**\*\* Exit Setup168**





@SETUPE1  
Enter Setup

---

### Data Matrix Twin Code

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

There are 3 options for reading Data Matrix twin codes:

**Single Data Matrix Only:** Read either Data Matrix code.

**Twin Data Matrix Only:** Read both Data Matrix codes. Transmission sequence: left (upper) Data Matrix code followed by right (lower) Data Matrix code.

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



@DMCDOU0

**\*\* Single Data Matrix Only**



@DMCDOU1

**Twin Data Matrix Only**



@DMCDOU2

**Both Single & Twin**



@SETUPE0



@SETUPE1  
**Enter Setup**

---

### Rectangular Barcode

Data Matrix has two formats:

Square barcodes having the same amount of modules in length and width: 10\*10, 12\*12.... 144\*144.

Rectangular barcodes having different amounts of models in length and width: 6\*16, 6\*14...14\*22.



@DMCREC1  
**\*\*Enable Rectangular Barcode**



@DMCREC0  
**DisableRectangular Barcode**

### Data Matrix Inverse

Regularbarcode: Dark bars on a bright background.

Inverse barcode: Bright bars on a dark background.



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



@DMCINV1  
**Decode Inverse DataMatrix Barcodes Only**



@DMCINV2  
**Decode Both**



@SETUPE0  
**\*\* Exit Setup170**



@SETUPE1  
Enter Setup

---

## Character Encoding



@DMCENC0

**\*\* Default Character Encoding**



@DMCENC1

**UTF-8**

## Data Matrix ECI Output



@DMCEC10

**Disable Data Matrix ECI Output**



@DMCEC11

**\*\*Enable Data Matrix ECI Output**



@SETUPE0

171\*\* Exit Setup



@SETUPE1  
Enter Setup

## Chapter 5 Data Formatter

### Introduction

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

Normally, when you scan a barcode, it gets outputted automatically; however, when you create a format, you must use a "send" command (see the "Send Commands" section in this chapter) within the format programming to output data. The maximum size of all data formats (up to four data formats) created is 2048 characters. By default, the data formatter is disabled. Enable it when required. If you have changed data format settings, and wish to clear all formats and return to the factory defaults, scan the **Default Data Format** code below.



**Default Data Format**

### Add a Data Format

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

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

### Programming with Barcodes

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

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



@SETUPE0  
\*\* Exit Setup172



@SETUPE1  
Enter Setup

---

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



**Add Data Format**

**Step 3:** Select data format.

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

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

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

**Step 5:** Set interface type

Scan **999** for any interface type.

**Step 6:** Set Symbology ID Number

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

**Step 7:** Set barcode data length

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

**Step 8:** Enter formatter command

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

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



@SETUPE0



@SETUPE1  
**Enter Setup**

---

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

1. Scan the **Enter Setup**barcode      Enter the Setup mode
2. Scan the **Add Data Format**barcode      Add a data format
3. Scan the **0**barcode      Select format\_0
4. Scan the **6**barcode      Select formatter command type 6
5. Scan the **9**barcode three times      All interface types applicable
6. Scan the barcodes **002**      Only Code 128 applicable
7. Scan the barcodes **0010**      Only a length of 10 characters applicable
8. Scan the alphanumeric barcodes **F141**      Send all characters followed by "A" (HEX: 41)
9. Scan the **Save**barcode      Save the data format

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



@SETUPE0  
**\*\* Exit Setup174**



@SETUPE1  
Enter Setup

## Programming with Serial Commands

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

The syntax consists of the following elements:

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

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

**Add Data Format Command:**“DFMADD” (HEX: **44 46 4D 41 4444**), 6 characters.

**Data format:**“0” (HEX: **30**) or “1” (HEX: **31**) or “2” (HEX: **32**) or “3” (HEX: **33**), 1 character. “0”, “1”, “2” and “3” represent Format\_0, Format\_1, Format\_2 and Format\_3 respectively.

**Formatter command type:** “6” (HEX: **36**), 1 character.

**Interface type:**“999” (HEX: **393939**), 3 characters.

**Symbology ID Number:** The ID number of the symbology to which you want to apply the data format, 3 characters. 999 indicates all symbologies.

**Data length:** The length of data that will be acceptable for this symbology, 4 characters. 9999 indicates all lengths. For example, 32 characters should be entered as 0032.

**Formatter commands:** The command string used to edit data. For more information, see the “Formatter Command Type 6” section in this chapter.

**Suffix:**“;<ETX>” (HEX: **3B03**), 2 characters.

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

Enter: **7E 01 30 30 30 30 40 44 46 4D 41 4444 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 4444 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>)



@SETUPE0



@SETUPE1  
Enter Setup

---

## Enable/Disable Data Formatter

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



**\*\*Disable Data Formatter**

You may wish to require the data to conform to a data format you have created. The following settings can be applied to your data format:

**Enable Data Formatter, Required, Keep Prefix/Suffix:** Scanned data that meets your data format requirements is modified accordingly and gets outputted along with prefixes and suffixes (if prefix and suffix are enabled). Any data that does not match your data format requirements generates an error beep (if Non-Match Error Beep is turned ON) and the data in that barcode is not transmitted.

**Enable Data Formatter, Required, Drop Prefix/Suffix:** Scanned data that meets your data format requirements is modified accordingly and gets outputted without prefixes and suffixes (even if prefix and suffix are enabled). Any data that does not match your data format requirements generates an error beep (if Non-Match Error Beep is turned ON) and the data in that barcode is not transmitted.

**Enable Data Formatter, Not Required, Keep Prefix/Suffix:** Scanned data that meets your data format requirements is modified accordingly and gets outputted along with prefixes and suffixes (if prefix and suffix are enabled). Barcode data that does not match your data format requirements is transmitted as read along with prefixes and suffixes (if prefix and suffix are enabled).

**Enable Data Formatter, Not Required, Drop Prefix/Suffix:** Scanned data that meets your data format requirements is modified accordingly and gets outputted without prefixes and suffixes (even if prefix and suffix are enabled). Barcode data that does not match your data format requirements is transmitted as read along with prefixes and suffixes (if prefix and suffix are enabled).



@SETUPE0  
**\*\* Exit Setup176**





@SETUPE1  
Enter Setup

---



@DFMENA1

Enable Data Formatter, Required, Keep Prefix/Suffix



@DFMENA2

Enable Data Formatter, Required, Drop Prefix/Suffix



@DFMENA3

Enable Data Formatter, Not Required, Keep Prefix/Suffix



@DFMENA4

Enable Data Formatter, Not Required, Drop Prefix/Suffix

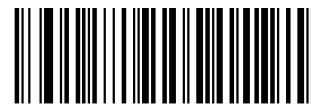
## Non-Match Error Beep

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



@DFMTON0

Non-Match Error Beep Off



@DFMTON1

\*\*Non-Match Error Beep On



@SETUPE0

---

177\*\* Exit Setup



@SETUPE1  
**Enter Setup**

---

## Data Format Selection

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



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



@DFMUSE2  
**Format\_2**



@DFMUSE1  
**Format\_1**



@DFMUSE3  
**Format\_3**



@SETUPE0  
**\*\* Exit Setup178**



@SETUPE1  
Enter Setup

---

## Change Data Format for a Single Scan

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

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

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



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



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



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



@DFMSIN3  
**Single Scan – Format\_3**



@SETUPE0



@SETUPE1  
Enter Setup

---

## Clear Data Format

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

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

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



@DFMCAL  
Clear All



@DFMCLR  
Clear One

## Query Data Formats

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



@DFMQCU  
Query Current Data Formats



@DFMQFA  
Query Preset Data Formats



@SETUPE0  
\*\* Exit Setup180



@SETUPE1  
Enter Setup

---

## Formatter Command Type 6

When working with the Data Formatter, a virtual cursor is moved along your input data string. The following commands are used to both move this cursor to different positions, and to select, replace, and insert data into the final output. For the hex value of ASCII characters involved in the commands, refer to the "ASCII Table" in Appendix.

### Send Commands

#### F1 Send all characters

Syntax=F1xx (xx: The insert character's hex value)

Include in the output message all of the characters from the input message, starting from current cursor position, followed by an insert character.

#### F2 Send a number of characters

Syntax=F2nxxx (nn:The numeric value (00-99) for the number of characters; xx:The insert character's hex value)

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

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



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

Command string: **F2100D**

F2 is the "Send a number of characters" command

10 is the number of characters to send

0D is the hex value for a CR

The data is output as: **1234567890**

**<CR>**



@SETUPE0



@SETUPE1  
Enter Setup

---

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

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

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

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



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>**

### B9Send all characters up to a string

Syntax=B9nnnns...s (nnnn:the length of the string; s...s: the string to be matched)

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 string "s...s." The cursor is moved forward to the beginning of the "s...s" string.

#### B9 Example: Send all characters up to a defined string



@SETUPE0  
**\*\* Exit Setup182**



@SETUPE1  
Enter Setup

---

Using the barcode above, send all characters up to but not including "AB".

Command string: **B900024142**

B9 is the "Send all characters up to a string" command

0002 is the length of the string ( 2 characters)

41 is the hex value for "A"

42 is the hex value for "B"

The data is output as: **1234567890**

#### **E9 Send all but the last characters**

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

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

#### **F4 Insert a character multiple times**

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

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

#### **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

---



@SETUPE0



@SETUPE1

### Enter Setup

---

F4 is the "Insert a character multiple times" command

09 is the hex value for a horizontal tab

02 is the number of time the tab character is sent

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

### B3 Insert symbology name

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

### B4 Insert barcode length

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



@SETUPE0

**\*\* Exit Setup184**





@SETUPE1  
Enter Setup

---

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



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

Command string: **B3F42001B4F42001F10D**

B3 is the "Insert symbology name" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of time the space character is sent

B4 is the "Insert barcode length" command

F4 is the "Insert a character multiple times" command

20 is the hex value for a space

01 is the number of time the space character is sent

F1 is the "Send all characters" command

0D is the hex value for a CR

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

## Move Commands

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

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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

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



1234567890ABCDEFGHIJ

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

Command string: **F503F10D**

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

03 is the number of characters to move the cursor

F1 is the "Send all characters" command

0D is the hex value for a CR

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

**<CR>**

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

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

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

#### **F7 Move the cursor to the beginning**

Syntax=F7

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

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

Syntax=EA

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



@SETUPE0  
**\*\* Exit Setup186**



@SETUPE1  
Enter Setup

---

## Search Commands

### F8 Search forward for a character

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

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

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



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

Command string: **F844F10D**

F8 is the "Search forward for a character" command

44 is the hex value for "D"

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **DEFGHIJ**

**<CR>**

### F9 Search backward for a character

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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

### B0 Search forward for a string

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

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

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



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

Command string: **B00003464748F10D**

B0 is the “Search forward for a string” command

0003 is the string length (3 characters)

46 is the hex value for “F”

47 is the hex value for “G”

48 is the hex value for “H”

F1 is the “Send all characters” command

0D is the hex value for a CR

The data is output as: **FGHIJ**

**<CR>**

### B1 Search backward for a string

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

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



@SETUPE0  
\*\* Exit Setup188



@SETUPE1  
Enter Setup

---

### E6 Search forward for a non-matching character

Syntax=E6xx (xx: The search character's hex value)

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

#### E6 Example: Remove zeros at the beginning of barcode data



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

Command string: **E630F10D**

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

30 is the hex value for 0

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **37692**

**<CR>**

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

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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

## Miscellaneous Commands

### FB Suppress characters

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

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

### FB Example: Remove spaces in barcode data



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

Command string: **FB0120F10D**

FB is the "Suppress characters" command

01 is the number of the characters to be suppressed

20 is the hex value for a space

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **34567890**

<CR>

### E4 Replace characters

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

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

---



@SETUPE0  
**\*\* Exit Setup190**



@SETUPE1  
Enter Setup

---

#### E4 Example: Replace zeros with CRs in barcode data



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

Command string: **E402300DF10D**

E4 is the "Replace characters" command

02 is the total count of characters to be replaced, plus the replacement characters (0 is replaced by CR, so total characters=2)

30 is the hex value for 0

0D is the hex value for a CR (the character that will replace the 0)

F1 is the "Send all characters" command

0D is the hex value for a CR

The data is output as: **1234**

**5678**

**ABC**

**<CR>**



@SETUPE0



@SETUPE1  
Enter Setup

---

### BA Replace a string with another

Syntax=BA $nn$ NN<sub>1</sub>SS<sub>1</sub>NN<sub>2</sub>SS<sub>2</sub>

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

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

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

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

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

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

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



cd123abc23bc12ab232

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

Command string: **BA0002323303414243F100**

BA is the "Replace a string with another" command

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

02 is the length of the string to be replaced



@SETUPE0  
\*\* Exit Setup192





@SETUPE1  
Enter Setup

---

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

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

03 is the length of the replacement string

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

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

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

F1 is the "Send all characters" command

00 is the hex value for a NUL

The data is output as: **cd1ABCabcABCbc12abABC2**

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

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

Command string: **BA0102323300F100**

BA is the "Replace a string with another" command

01 is the count of replacements to be made

02 is the length of the string to be replaced

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

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

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

F1 is the "Send all characters" command

00 is the hex value for a NUL

The data is output as: **cd1abc23bc12ab232**



@SETUPE0



@SETUPE1  
Enter Setup

---

### EF Insert a delay

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

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

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

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

Command string: **F20500EF0200E900**

F2 is the "Send a number of characters" command

05 is the number of characters to send

00 is the hex value for a Null character

EF is the "Insert a delay" command

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

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

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



@SETUPE0  
\*\* Exit Setup194



@SETUPE1  
Enter Setup

---

### B5 Insert key strokes

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

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

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.



@SETUPE0



@SETUPE1  
Enter Setup

## Chapter 6 Prefix & Suffix

### Introduction

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

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



Barcode processing procedure:

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



@SETUPE0  
\*\* Exit Setup196



@SETUPE1  
Enter Setup

---

## Global Settings

### Enable/Disable All Prefixes/Suffixes

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

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



@APSENA0

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



@APSENA1

**Enable All Prefixes/Suffixes**

## Prefix Sequence



@PRESEQ0

**\*\* CodeID+ Custom +AIM ID**



@PRESEQ1

**Custom + Code ID + AIM ID**



@SETUPE0

197\*\* Exit Setup



@SETUPE1  
**Enter Setup**

## Custom Prefix

### Enable/Disable Custom Prefix

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



@CPRENA0  
**\*\* Disable Custom Prefix**



@CPRENA1  
**Enable Custom Prefix**

### Set Custom Prefix

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

**Note:** A custom prefix cannot exceed 10 characters.



@CPRSET  
**Set Custom Prefix**

**E**  
*xample*

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

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



@SETUPE0  
**\*\* Exit Setup198**



@SETUPE1  
**Enter Setup**

---

## AIM ID Prefix

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



@AIDENA0  
**\*\* Disable AIM ID Prefix**



@AIDENA1  
**Enable AIM ID Prefix**



AIM ID is not user programmable.



@SETUPE0

---

199\*\* **Exit Setup**



@SETUPE1  
**Enter Setup**

---

## Code ID Prefix

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



@CIDENA0  
**\*\* Disable Code ID Prefix**



@CIDENA1  
**Enable Code ID Prefix**

## Restore All Default Code IDs

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



@CIDDEF  
**Restore All Default Code IDs**

## Modify Code ID

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



@SETUPE0  
**\*\* Exit Setup200**





@SETUPE1  
Enter Setup

---

**E**  
*sample*

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

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

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

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



@SETUPE0



@SETUPE1  
Enter Setup

---

1D symbologies:



@CID002  
ModifyCode 128 Code ID



@CID004  
ModifyEAN-8 Code ID



@CID006  
ModifyUPC-E Code ID



@CID008  
ModifyInterleaved 2 of 5Code ID



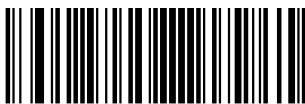
@CID003  
ModifyGS1-128 Code ID



@CID005  
ModifyEAN-13 Code ID



@CID007  
ModifyUPC-A Code ID



@SETUPE0  
\*\* Exit Setup202



@SETUPE1  
**Enter Setup**

---



@CID009  
**ModifyITF-14Code ID**



@CID010  
**ModifyITF-6 Code ID**



@CID011  
**ModifyMatrix 2 of 5Code ID**



@CID013  
**ModifyCode 39 Code ID**



@CID015  
**ModifyCodabar Code ID**



@CID017  
**ModifyCode 93 Code ID**



@CID019  
**ModifyChina Post 25 Code ID**



@CID020  
**ModifyAIM 128 Code ID**



@SETUPE0



@SETUPE1  
**Enter Setup**

---



@CID021  
**ModifyISBT 128 Code ID**



@CID023  
**ModifyISSN Code ID**



@CID024  
**ModifyISBN Code ID**



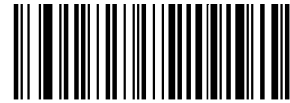
@CID025  
**ModifyIndustrial 25 Code ID**



@CID026  
**ModifyStandard 25 Code ID**



@CID027  
**ModifyPlessey Code ID**



@CID028  
**ModifyCode 11 Code ID**



@CID029  
**ModifyMSI-Plessey Code ID**



@SETUPE0  
**\*\* Exit Setup204**



@SETUPE1  
Enter Setup

---



@CID030  
ModifyGS1 Composite Code ID



@CID031  
ModifyGS1 Databar Code ID

**2D symbologies:**



@CID032  
ModifyPDF417 Code ID



@CID033  
ModifyQR Code ID



@CID034  
ModifyAztec Code ID



@CID035  
ModifyData Matrix Code ID



---

205\*\* Exit Setup

@SETUPE0



@SETUPE1  
Enter Setup

---

## Custom Suffix

### Enable/Disable Custom Suffix

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



@CSUENA0  
\*\* Disable Custom Suffix



@CSUENA1  
Enable Custom Suffix

### Set Custom Suffix

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

**Note:** A custom suffix cannot exceed 10 characters.



@CSUSET  
Set Custom Suffix

**E**  
*sample*

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

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



@SETUPE0  
\*\* Exit Setup206



@SETUPE1  
Enter Setup

---

## Data Packing

### Introduction

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

### Data Packing Options

**Disable Data Packing:** Transmit decoded data in raw format (unpacked).

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

Packet format 1: [STX + ATTR + LEN] + [AL\_TYPE + DATA] + [LRC]

STX: 0x02

ATTR: 0x00

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

AL\_TYPE: 0x36

DATA: Raw barcode data.

LRC: Check digit.

LRC calculation algorithm: computation sequence: 0xFF+LEN+AL\_TYPE+DATA; computation method is XOR, byte by byte.

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

Packet format 2: [STX + ATTR + LEN] + [AL\_TYPE] + [Symbology\_ID + DATA] + [LRC]

STX: 0x02

ATTR: 0x00

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

AL\_TYPE: 0x3B

Symbology\_ID: The ID number of symbology, 1 byte.

DATA: Raw barcode data.

LRC: Check digit.

LRC calculation algorithm: computation sequence: 0xFF+LEN+AL\_TYPE+Symbology\_ID+DATA; computation method is XOR, byte by byte.

---



@SETUPE0



@SETUPE1  
**Enter Setup**

---



@PACKAG0  
**\*\* Disable Data Packing**



@PACKAG1  
**Enable Data Packing, Format 1**



@PACKAG2  
**Enable Data Packing, Format 2**



@SETUPE0  
**\*\* Exit Setup208**





@SETUPE1  
Enter Setup

## Terminating Character Suffix

### Enable/Disable Terminating Character Suffix

A terminating character such as carriage return (CR) or carriage return/line feed pair (CRLF) can only be used to mark the end of data, which means nothing can be added after it.



@TSUENA0

### Disable Terminating Character Suffix



@TSUENA1

### \*\*Enable Terminating Character Suffix

### Set Terminating Character Suffix

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

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



@TSUSET

### Set Terminating Character Suffix



@TSUSET0D

### Set Terminating Character toCR(0x0D)



@TSUSET0D0A

### Set Terminating Character toCRLF (0x0D,0x0A)



@SETUPE0



@SETUPE1  
**Enter Setup**

---

**E**  
*sample*

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

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



@SETUPE0  
**\*\* Exit Setup210**



@SETUPE1  
Enter Setup

## Chapter 7 Batch Programming

### Introduction

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

Listed below are batch programming rules:

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

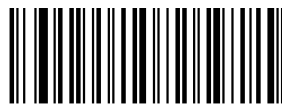
Example: Create a batch barcode for **Illumination On, Sense Mode, Decode Session Timeout = 2s**:

1. Input the commands:

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

2. Generate a batch barcode.

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



@BATCHS  
Enable Batch Barcode



@SETUPE0



@SETUPE1  
Enter Setup

---

## Create a Batch Command

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

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

## Create a Batch Barcode

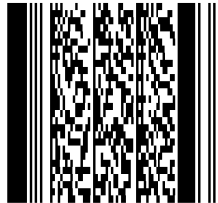
Batch barcodes can be produced in the format of PDF417, QR Code or DataMatrix.

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

1. Input the following commands:

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

2. Generate a PDF417 batch barcode.



@SETUPE0  
\*\* Exit Setup212



@SETUPE1  
Enter Setup

---

## Use Batch Barcode

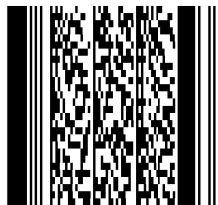
To put a batch barcode into use, scan the following barcodes. (Use the example above.)



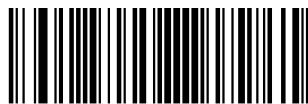
@SETUPE1  
Enter Setup



@BATCHS  
Enable Batch Barcode



Batch Barcode



@SETUPE0  
Exit Setup



@SETUPE0

# Appendix

## Digit Barcodes

0~9



@DIGIT0

0



@DIGIT2

2



@DIGIT4

4



@DIGIT1

1



@DIGIT3

3



@DIGIT5

5



@DIGIT6

6



@DIGIT8

8



@DIGIT7

7



@DIGIT9

9

---

A~F



@DIGITA

**A**



@DIGITB

**B**



@DIGITC

**C**



@DIGITD

**D**



@DIGITE

**E**



@DIGITF

**F**



---

## Save/Cancel Barcodes

After reading numeric barcode(s), you need to scan the **Save** barcode to save the data. If you scan the wrong digit(s), you can either scan the **Cancel** barcode and then start the configuration all over again, or scan the **Delete the Last Digit** barcode and then the correct digit, or scan the **Delete All Digits** barcode and then the digits you want.

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

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



@DIGSAV

**Save**



@DIGCAN

**Cancel**



@DIGDEL

**Delete the Last Digit**



@DIGDAL

**Delete All Digits**

## Factory Defaults Table

Parameter	Factory Default	Remark
<b>System Settings</b>		
Barcode Programming	Disabled (Exit Setup)	
Programming Barcode Data	Do not transmit	
Illumination	On	
Aiming	On	
Good Read LED	On	
Good Read LED Duration	Short (20ms)	
Power On Beep	On	
Good Read Beep	On	
Good Read BeepVolume	Loud	
Good Read Vibration	On	
Good Read Vibration Duration	300ms	100-2000ms
Scan Mode	Level Mode	
Decode Session Timeout	3,000ms.	1-3,600,000ms; 0: Infinite
Image Stabilization Timeout (Sense Mode)	200ms	1-3,000ms
Timeout between Decodes (Same Barcode)	Disabled	
	1,500ms	1-3,600,000ms
Reread Timeout Reset	Off	
Image Decoding Timeout	500ms	1-3,000ms
Sensitivity	Enhanced Sensitivity	
Trigger Commands	Disabled	
Scanning Preference	Normal Mode	
Read Barcode	On	
Decode Area	Whole Area Decoding	
Specify Decoding Area	40% top, 60% bottom, 40% left, 60% right	
Image Flipping	Do Not Flip	
Bad Read Message	Off	
	NG	1-7 characters
Default Interface	USB KBW	
<b>USB Interface</b>		
USB Country Keyboard	US keyboard	USB HIDKeyboard
Beep on Unknown Character	Off	USB HIDKeyboard
Emulate ALT+Keypad	Off	USB HIDKeyboard
Code Page	Code Page 1252(West European Latin)	USB HIDKeyboard

Unicode Encoding	Off	USB HIDKeyboard
Emulate Keypad with Leading Zero	On	USB HIDKeyboard
Function Key Mapping	Disable	USB HIDKeyboard
Inter-Keystroke Delay	No Delay	USB HIDKeyboard
Caps Lock	Caps Lock Off, Non-Japanese Keyboard	USB HIDKeyboard
Convert Case	No Case Conversion	USB HIDKeyboard
Emulate Numeric Keypad 1	Off	USB HIDKeyboard
Emulate Numeric Keypad2	Off	USB HIDKeyboard
Fast Mode	Off	USB HIDKeyboard
Polling Rate	4ms	USB HIDKeyboard
<b>Symbologies</b>		
<b>Global Settings</b>		
1D Twin Code	Single 1D Code Only	
<b>Code 128</b>		
Code 128	Enabled	
Maximum Length	48	
Minimum Length	1	
<b>EAN-8</b>		
EAN-8	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Convert EAN-8 to EAN-13	Disabled	
<b>EAN-13</b>		
EAN-13	Enabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
<b>UPC-E</b>		
UPC-E0	Enabled	
UPC-E1	Disabled	
Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Transmit Preamble Character	System Character	
Convert UPC-E to UPC-A	Disabled	
<b>UPC-A</b>		
UPC-A	Enabled	

Check Character	Transmit	
2-Digit Add-On Code	Disabled	
5-Digit Add-On Code	Disabled	
Transmit Preamble Character	No Preamble	
<b>Coupon</b>		
UPC-A/EAN-13 with Extended Coupon Code	Off	
Coupon GS1 DataBar Output	Off	
<b>Interleaved 2 of 5</b>		
Interleaved 2 of 5	Disabled	
Maximum Length	80	
Minimum Length	6	No less than4
Check Character Verification	Disabled	
<b>ITF-14</b>		
ITF-14	Disabled	
<b>ITF-6</b>		
ITF-6	Disabled	
<b>Matrix 2 of 5</b>		
Matrix 2 of 5	Disabled	
Maximum Length	80	
Minimum Length	4	No less than4
Check Character Verification	Disabled	
<b>Code 39</b>		
Code 39	Enabled	
Maximum Length	48	
Minimum Length	1	
Check Character Verification	Disabled	
Start/Stop Character	Do not transmit	
Code 39 Full ASCII	Disabled	
Code 32 Pharmaceutical (PARAF)	Disabled	
Code 32 Prefix	Disabled	
Code 32 Start/Stop Character	Do not transmit	
Code 32 Check Character	Do not transmit	
<b>Codabar</b>		
Codabar	Disabled	
Maximum Length	60	
Minimum Length	2	
Check Character Verification	Disabled	

Start/Stop Character	Do not transmit ABCD/ABCD	
<b>Code 93</b>		
Code 93	Disabled	
Maximum Length	48	
Minimum Length	1	
Check Character Verification	Do Not Transmit Check Character After Verification	
<b>China Post 25</b>		
China Post 25	Disabled	
Maximum Length	48	
Minimum Length	1	
Check Character Verification	Disabled	
<b>GS1-128 (UCC/EAN-128)</b>		
GS1-128	Enabled	
Maximum Length	48	
Minimum Length	1	
<b>GS1 Databar</b>		
GS1 Databar	Disabled	
Application Identifier "01"	Transmit	
<b>EAN•UCC Composite</b>		
GS1 Composite	Disabled	
UPC/EAN Composite	Disabled	
<b>Code 11</b>		
Code 11	Disabled	
Maximum Length	48	
Minimum Length	4	No less than 4
Check Character Verification	One Check Character, MOD11	
Check Character	Transmit	
<b>ISBN</b>		
ISBN	Enabled	
Set ISBN Format	ISBN-10	
<b>ISSN</b>		
ISSN	Enabled	
<b>Industrial 25</b>		
Industrial 25	Disabled	
Maximum Length	48	
Minimum Length	6	No less than 4
Check Character Verification	Disabled	

<b>Standard 25</b>		
Standard 25	Disabled	
Maximum Length	48	
Minimum Length	6	No less than 4
Check Character Verification	Disabled	
<b>Plessey</b>		
Plessey	Disabled	
Maximum Length	48	
Minimum Length	4	No less than 4
Check Character Verification	Disabled	
<b>MSI-Plessey</b>		
MSI-Plessey	Disabled	
Maximum Length	48	
Minimum Length	4	No less than 4
Check Character Verification	One Check Character, MOD10	
Check Character	Transmit	
<b>AIM 128</b>		
AIM 128	Enabled	
Maximum Length	48	
Minimum Length	1	
<b>ISBT 128</b>		
ISBT 128	Disabled	
<b>PDF417</b>		
PDF417	Enabled	
Maximum Length	2710	
Minimum Length	1	
PDF417 Twin Code	Single PDF417 Only	
PDF417 Inverse	Decode Both	
Character Encoding	Default Character Encoding	
PDF417 ECI Output	Enabled	
<b>QR Code</b>		
QR Code	Enabled	
Maximum Length	7089	
Minimum Length	1	
QR Twin Code	Single QR Only	
QR Inverse	Decode Both	
Character Encoding	Default Character Encoding	
QR ECI Output	Enabled	

<b>Aztec</b>		
Aztec Code	Disabled	
Maximum Length	3832	
Minimum Length	1	
Read Multi-barcodes on an Image	Mode 1	
Character Encoding	Default Character Encoding	
Aztec ECI Output	Enabled	
<b>Data Matrix</b>		
Data Matrix	Enabled	
Maximum Length	3116	
Minimum Length	1	
Data Matrix Twin Code	Single Data Matrix Only	
Rectangular Barcode	Enabled	
Data Matrix Inverse	Decode Regular Data Matrix Barcodes Only	
Character Encoding	Default Character Encoding	
Data Matrix ECI Output	Enabled	
<b>Data Formatter</b>		
Data Formatter	Disabled	
Non-Match Error Beep	On	
Data Format Selection	Format_0	
<b>Prefix &amp; Suffix</b>		
All Prefixes/Suffixes	Disabled	
Prefix Sequence	Code ID+ Custom +AIM ID	
Custom Prefix	Disabled	
AIM ID Prefix	Disabled	
Code ID Prefix	Disabled	
Custom Suffix	Disabled	
Data Packing	Disable Data Packing	
Terminating Character Suffix	Enabled	

## AIM ID Table

Symbology	AIM ID	Possible AIM ID Modifiers (m)
Code128	]C0	
GS1-128 (UCC/EAN-128)	]C1	
EAN-8	]E4	
EAN-8 with Addon	]E3	
EAN-13	]E0	
EAN-13 with Addon	]E3	
UPC-E	]E0	
UPC-E with Addon	]E3	
UPC-A	]E0	
UPC-A with Addon	]E3	
Interleaved 2 of 5	]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	



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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

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

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## Code ID Table

Symbology	Code ID
Code128	j
GS1-128 (UCC/EAN-128)	j
EAN-8	d
EAN-13	d
UPC-E	c
UPC-A	c
Interleaved 2 of 5	e
ITF-14	e
ITF-6	e
Matrix 2 of 5	v
Code 39	b
Codabar	a
Code 93	i
China Post 25	X
AIM 128	X
ISBT 128	X
ISSN	g
ISBN	B
Industrial 25	l
Standard 25	f
Plessey	n
Code 11	H
MSI Plessey	m
GS1 Composite	y
GS1 Databar (RSS)	R
PDF417	r
QR Code	s
Aztec	z
Data Matrix	u

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## Symbology ID Number

Symbology	ID Number
Code 128	002
GS1-128 (UCC/EAN-128)	003
EAN-8	004
EAN-13	005
UPC-E	006
UPC-A	007
Interleaved 2 of 5	008
ITF-14	009
ITF-6	010
Matrix 2 of 5	011
Code 39	013
Codabar	015
Code 93	017
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

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## ASCII Table

Hex	Dec	Char
00	0	NUL (Nullchar.)
01	1	SOH (Startof Header)
02	2	STX (StartofText)
03	3	ETX (EndofText)
04	4	EOT (EndofTransmission)
05	5	ENQ (Enquiry)
06	6	ACK (Acknowledgment)
07	7	BEL (Bell)
08	8	BS (Backspace)
09	9	HT (HorizontalTab)
0a	10	LF (LineFeed)
0b	11	VT (VerticalTab)
0c	12	FF (FormFeed)
0d	13	CR (CarriageReturn)
0e	14	SO (ShiftOut)
0f	15	SI (ShiftIn)
10	16	DLE (DataLinkEscape)
11	17	DC1 (XON) (DeviceControl1)
12	18	DC2 (DeviceControl2)
13	19	DC3(XOFF) (DeviceControl3)
14	20	DC4 (DeviceControl4)
15	21	NAK (NegativeAcknowledgment)
16	22	SYN (SynchronousIdle)
17	23	ETB (EndofTrans.Block)
18	24	CAN (Cancel)
19	25	EM (Endof Medium)
1a	26	SUB (Substitute)
1b	27	ESC (Escape)
1c	28	FS (FileSeparator)
1d	29	GS (Group Separator)

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

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

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

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## Unicode Key Maps

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

104 Key U.S. Style Keyboard

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

105 Key European Style Keyboard



