

# CipherLab User Guide

1000 / 1090+ / 1100 / 1105 Barcode  
Scanner

Setup barcodes included.

Version 3.02



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# IMPORTANT NOTICES

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## FOR USA

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ Reorient or relocate the receiving antenna.
- ▶ Increase the separation between the equipment and receiver.
- ▶ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ▶ Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

## FOR CANADA

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur: "Appareils Numériques," NMB-003 édictée par l'Industrie.

## FOR PRODUCT WITH LASER



### CAUTION

**This laser component emits FDA / IEC Class 2 laser light at the exit port. Do not stare into beam.**

## SAFETY PRECAUTIONS

- ▶ DO NOT expose the scanner to any flammable sources.
- ▶ Under no circumstances, internal components are self-serviceable.
- ▶ For AC power adaptor, a socket outlet shall be installed near the equipment and shall be easily accessible. Make sure there is stable power supply for the scanner or its peripherals to operate properly.

## CARE & MAINTENANCE

- ▶ Use a clean cloth to wipe dust off the scanning window and the body of the scanner. DO NOT use/mix any bleach or cleaner.
- ▶ If you shall find the scanner malfunctioning, write down the specific scenario and consult your local sales representative.

# RELEASE NOTES

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Version	Date	Notes
3.02	Jan. 29, 2014	<ul style="list-style-type: none"><li>▶ Modified: remove 1200 model (phased out)</li><li>▶ Modified: Introduction – Inside the Package: add notes for CD-ROM accompanying models that need USB Virtual COM driver</li><li>▶ Modified: 2.2.2 Baud Rate – remove barcode (600 bps) for 1200 model</li></ul>
3.01	Jan. 04, 2011	<ul style="list-style-type: none"><li>▶ Modified: Specifications — remove max. power consumption</li></ul>
3.00	Nov. 08, 2010	New Layout <ul style="list-style-type: none"><li>▶ Modified: Introduction, Symbologies Supported — add support of more RSS symbologies</li><li>▶ Modified: 3.15 GS1 DataBar (RSS Family)</li><li>▶ Modified: 3.15.2 GS1 DataBar Omnidirectional (RSS-14)</li><li>▶ Modified: 3.15.3 GS1 DataBar Expanded (RSS Expanded)</li></ul>



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# INTRODUCTION

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CipherLab Barcode Scanners provide convenient and versatile solutions to meet your business needs. The tethered handheld scanners are designed to help accelerate productivity while lowering the total cost of ownership. Intensive data collection jobs are made easier with fast, accurate barcode scanning in retail, industrial, manufacturing, and enterprise environments.

Owing to the compact design, extremely low power consumption, and powerful decoding capability, CipherLab Barcode Scanners are the best choice for the following applications –

- ▶ Receiving in Retail
- ▶ Product labeling & Tracking
- ▶ Shelf Product Replenishment
- ▶ Mobile Point of Sale (POS)
- ▶ Mobile Inventory Management
- ▶ Order Picking & Staging
- ▶ Work-In-Process Tracking
- ▶ Material Flow Control
- ▶ Transportation & Distribution
- ▶ Warehousing
- ▶ Asset Management

This manual contains information on operating the scanner and using its features. We recommend you to keep one copy of the manual at hand for quick reference or maintenance purposes. To avoid any improper disposal or operation, please read the manual thoroughly before use.

Thank you for choosing CipherLab products!



## INSIDE THE PACKAGE

The items included in the package may be different, depending on your order. Rich choices of output interfaces are available for you to enhance the total performance of the scanner. Refer to product specifications.

Save the box and packaging material for future use in case you need to store or ship the scanner.

- ▶ Barcode Scanner: 1000, 1090+, 1100, or 1105
- ▶ Product CD (only for models that need USB Virtual COM driver)

Note: (1) You may purchase one or more interface cable separately. For USB Virtual COM (Part #308), find the associated driver on the CD.

(2) The CD-ROM includes this manual and Windows-based *ScanManager* software for configuration, as well as the 308 driver.

(3) For model designation, please see the label on the scanner.

## ACCESSORIES & INTERFACE OPTIONS

Rich choices of output interface are available to enhance the total performance of the scanner.

<b>Accessories</b>	<b>1000</b>	<b>1090+</b>	<b>1100</b>	<b>1105</b>
Keyboard Wedge Cable		√	√	√
RS-232 Cable		√	√	√
Wand Emulation Cable		√	√	√
USB HID Cable (307)		√	√	√
USB Virtual COM Cable (308)		√	√	√
IBM 4683/4694 Cable (346)		√	√	√
Auto-Sense Stand			√	
Holder			√	√
<b>Assembly Options</b>	<b>1000</b>	<b>1090+</b>	<b>1100</b>	<b>1105</b>
Keyboard Wedge	√			
RS-232	√			
USB HID (307)	√			
USB Virtual COM (308)	√			
IBM 4683/4694 (346)	√			



## PRODUCT HIGHLIGHTS

- ▶ Ergonomic design and built tough to survive drop test.
- ▶ Extremely low power consumption
- ▶ Supports most popular barcode symbologies, including GS1-128 (EAN-128), GS1 DataBar (RSS), etc.
- ▶ Supports negative barcodes
- ▶ Supports eight different scan modes
- ▶ User feedback includes dual-color LED indicator and beeper
- ▶ Beeping tone programmable for Good Read
- ▶ Choices of output interfaces, including RS-232, Keyboard Wedge, Wand Emulation, USB HID, USB Virtual COM, IBM 4683/4694, etc.
- ▶ Programmable parameters include data output format, editing format, symbologies, etc.



## SYMBOLOGIES SUPPORTED

Most of the popular barcode symbologies are supported, as listed below. Each can be individually enabled or disabled. The scanner will automatically discriminate and recognize all the symbologies that are enabled. Refer to [Chapter 3 Changing Symbology Settings](#) for details of each symbology.

Symbologies Supported: Enable/Disable		Default	
<b>Codabar</b>		Enabled	
<b>Code 93</b>		Enabled	
<b>MSI</b>			Disabled
<b>Plessey</b>			Disabled
<b>Telepen</b>			Disabled
<b>Code 128</b>	Code 128	Enabled	
	GS1-128 (EAN-128)		Disabled
<b>Code 2 of 5</b>	Industrial 25	Enabled	
	Interleaved 25	Enabled	
	Matrix 25		Disabled
<b>Code 3 of 9</b>	Code 39	Enabled	
	Italian Pharmacode		Disabled
	French Pharmacode		Disabled
<b>EAN/UPC</b>	EAN-8	Enabled	
	EAN-8 Addon 2		Disabled
	EAN-8 Addon 5		Disabled
	EAN-13	Enabled	
	EAN-13 & UPC-A Addon 2		Disabled
	EAN-13 & UPC-A Addon 5		Disabled
	ISBN		Disabled
	UPC-E0	Enabled	
	UPC-E1		Disabled
	UPC-E Addon 2		Disabled
	UPC-E Addon 5		Disabled
	UPC-A	Enabled	



<b>GS1 DataBar (RSS)</b>	GS1 DataBar Omnidirectional (RSS-14)		Disabled
	GS1 DataBar Truncated		Disabled
	GS1 DataBar Stacked		Disabled
	GS1 DataBar Stacked Omnidirectional		Disabled
	GS1 DataBar Limited (RSS Limited)		Disabled
	GS1 DataBar Expanded (RSS Expanded)		Disabled
	GS1 DataBar Expanded Stacked		Disabled







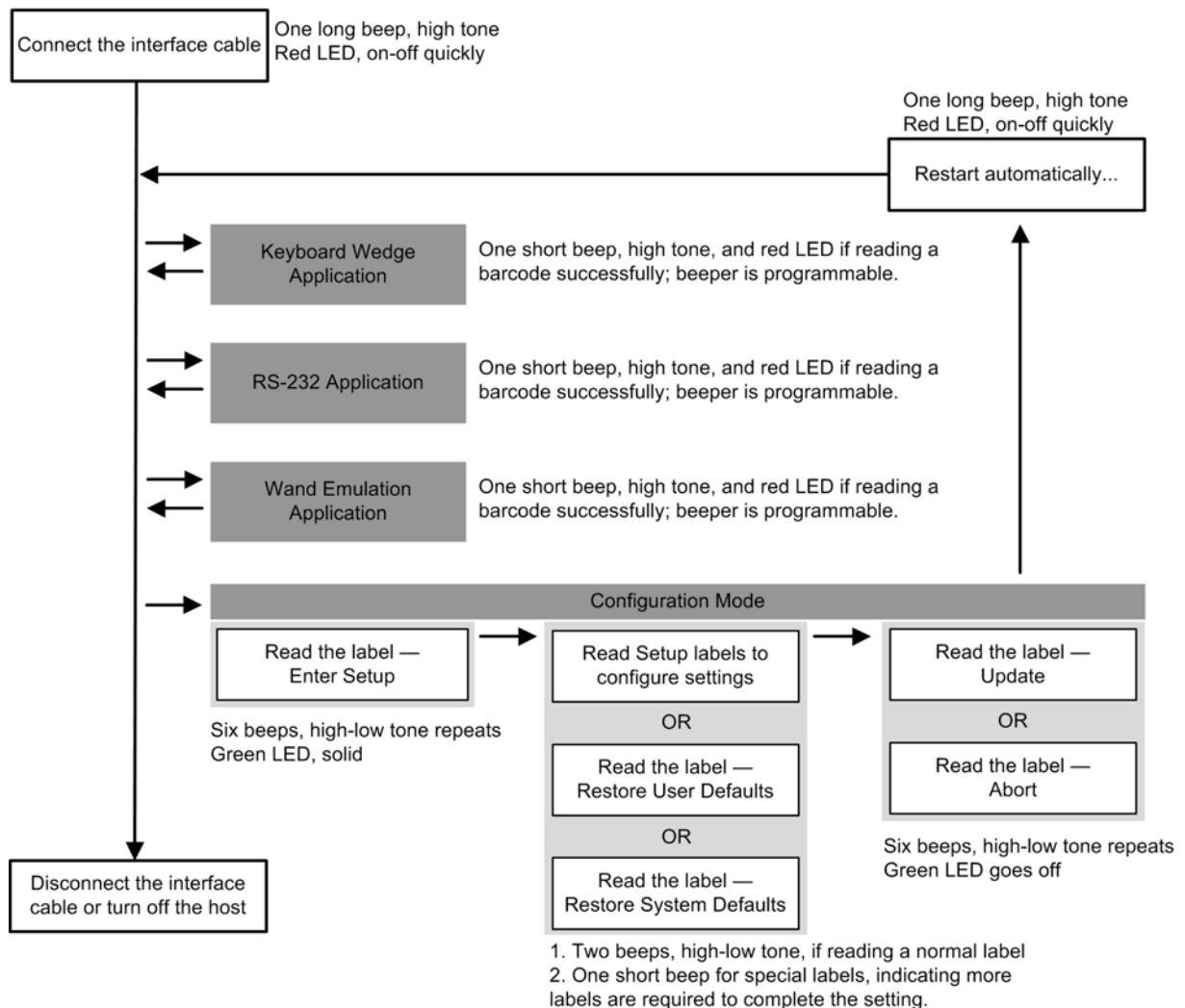
# QUICK START

The configuration of the scanner can be done by reading the setup barcodes contained in this manual or via the *ScanManager* software.

This section describes the procedure of configuring the scanner by reading the setup barcodes and provides some examples for demonstration.

Note: If RS-232 is selected for output interface, the host can directly send serial commands to configure the scanner.

For example, run HyperTerminal.exe and type the 4-digit command located under each setup barcode. Refer to [Appendix II Host Serial Commands](#).



## ENTER CONFIGURATION MODE

For the scanner to enter the configuration mode, you must have it read the "Enter Setup" barcode, which can be located at the bottom of almost every even page of this manual.

- ▶ The scanner will respond with six beeps and its LED indicator will become solid green after reading the barcode.

Enter Setup



For configuring scanner parameters, see "Read a Setup Barcode" below.

## EXIT CONFIGURATION MODE

For the scanner to save settings and exit the configuration mode, you must have it read the "Update" barcode, which can be located at the bottom of almost every odd page of this manual. If you want to exit the configuration mode without saving any changes, have the scanner read the "Abort" barcode instead.

- ▶ Just like reading the "Enter Setup" barcode, the scanner will respond with six beeps and its LED indicator will go off after reading the barcode. Wait for a few seconds for the scanner to restart itself.

Update



9999

Abort



9998



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## DEFAULT SETTINGS

### RESTORE SYSTEM DEFAULTS

For the scanner to restore the factory defaults, you must have it read the “Restore System Defaults” barcode. This is a normal setup barcode, and the scanner will respond with two beeps (high-low tone).

- ▶ After reading the “Update” barcode, all the parameters of the scanner will return to their default values.

Restore System  
Defaults



9993

---

Note: The system default value (if there is) for each setting is indicated by an asterisk “\*”.

---



Update

## READ A SETUP BARCODE

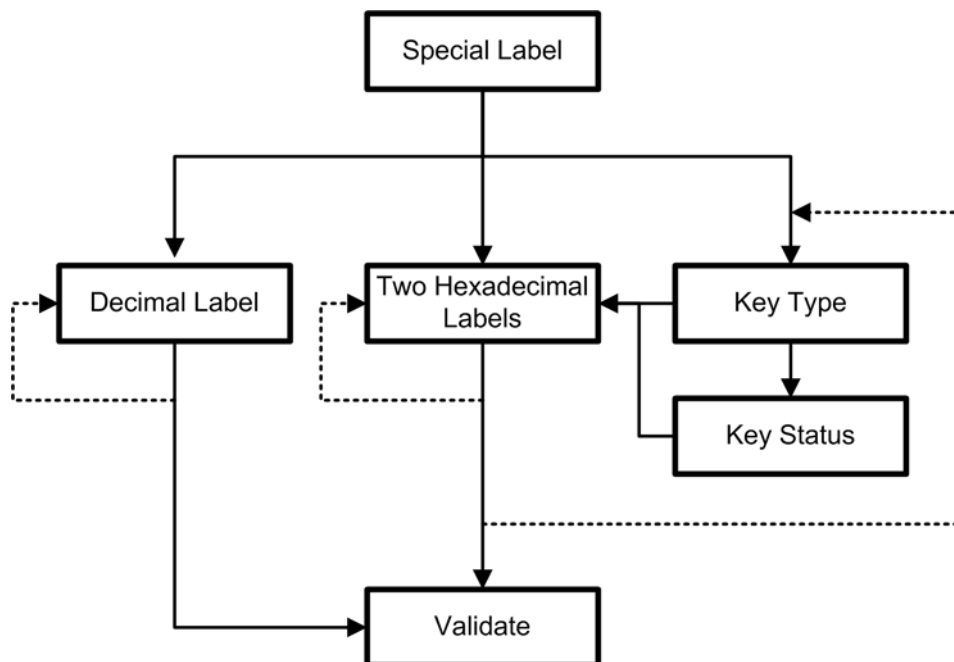
### CONFIGURE PARAMETERS

For most of the scanner parameters, only one read is required to set them to new values. The scanner will respond with two beeps (high-low tone) when each parameter is set successfully.





But for a number of special parameters, multiple reads are required to complete the setting. In this case, the scanner will respond with a short beep to indicate it needs to read more setup barcodes. These special parameters may require reading one or more setup barcodes, such as

- ▶ Numeric barcodes, say, for keyboard type, inter-character delay, length qualification
- ▶ Hexadecimal barcodes, say, for character strings as prefix, suffix, etc.
- ▶ When “Keyboard Wedge” is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to change key status when “Normal Key” is selected for Key Type.

To complete the configuration of these special parameters, it requires reading the “Validate” barcode, and the scanner will respond with two beeps (high-low tone) to indicate the input values are validated.












The example below shows how to enable a specific symbology, say, Interleaved 25:

Steps	Action	User Feedback if Successful
1	Power on the scanner...	The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.
2	Enter the Configuration Mode...	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will become solid green.
	 Enter Setup	
3	Read a Setup barcode... For example,	The scanner will respond with two beeps (high-low tone) if reading a normal setup barcode.
	 Enable Interleaved 25	
4	Exit the Configuration Mode...	Same as for <i>Enter the Configuration Mode</i> .
	  Update            OR            Abort	
5	The scanner will automatically restart itself...	Same as for <i>Power on the scanner</i> .
*	When any configuration error occurs...	The scanner will respond with one long beep (low tone).


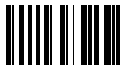









The example below shows how to set numeric parameters:

Steps	Action	User Feedback if Successful
1	Power on the scanner...	The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.
2	Enter the Configuration Mode...	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will become solid green.
	 Enter Setup	
3	Read a Setup barcode...	The scanner will respond with two beeps (high-low tone) if reading a normal setup barcode.
	For example,	
	<div style="border: 1px solid red; padding: 2px; display: inline-block; margin-right: 10px;">Normal setup barcode</div>  Enable Interleaved 25	
	<div style="border: 1px solid red; padding: 2px; display: inline-block; margin-right: 10px;">Normal setup barcode</div>  Select Max./Min. Length Qualification	
	<div style="border: 1px solid red; padding: 2px; display: inline-block; margin-right: 10px;">Special setup barcode</div>  Max. Length	The scanner will respond with one short beep if reading a special setup barcode such as "Max. Length", indicating the setup requires reading more barcodes.
	<div style="border: 1px solid red; padding: 2px; display: inline-block; margin-right: 10px;">Decimal barcodes</div>  1  5  Validate	Read the "Decimal Value" barcode(s). ▶ Refer to Appendix IV "Decimal System"
4	Exit the Configuration Mode...	The scanner will respond with two beeps (high-low tone) when the input values are validated.
	 Update    OR  Abort	Same as for <i>Enter the Configuration Mode</i> .
5	The scanner will automatically restart itself...	Same as for <i>Power on the scanner</i> .



The example below shows how to set string parameters:

Steps	Action	User Feedback if Successful
1	Power on the scanner...	The scanner will respond with a long beep (high tone) and its LED indicator will become solid red and go off quickly.
2	Enter the Configuration Mode...  <div style="text-align: center;">                       Enter Setup                 </div>	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will become solid green.
3	Read a Setup barcode... For example,	The scanner will respond with one short beep if reading a special setup barcode such as "Prefix Code", indicating the setup requires reading more barcodes.
	<div style="border: 1px solid red; padding: 2px; display: inline-block; margin-right: 10px;">Special setup barcodes</div> <div style="text-align: center;">                       Prefix Code                 </div>	
	<div style="text-align: center;">                       &lt;Normal&gt;                 </div>	When "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to change key status when "Normal Key" is selected for Key Type.
	<div style="text-align: center;">                       Add Left Alt                 </div>	▶ Refer to Appendix III
	<div style="border: 1px solid red; padding: 2px; display: inline-block; margin-right: 10px;">Hexadecimal barcodes</div> <div style="text-align: center;">                       2                 </div> <div style="text-align: center;">                       B                 </div> <div style="text-align: center;">                       Validate                 </div>	Read the "Hexadecimal Value" barcodes for the desired character string. For example, read "2" and "B" for the scanner to prefix the character "+".  ▶ Refer to Appendix IV "Hexadecimal System"
4	Exit the Configuration Mode...  <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">                       Update                 </div> <div>OR</div> <div style="text-align: center;">                       Abort                 </div> </div>	Same as for <i>Enter the Configuration Mode</i> .
5	The scanner will automatically restart itself...	Same as for <i>Power on the scanner</i> .



**LIST THE CURRENT SETTINGS**

The current settings of all scanner parameters can be sent, via Keyboard Wedge, RS-232, USB HID or Virtual COM, to the host computer for user inspection. The listing includes pages as shown below. You can select the page of interest by having the scanner read the "List Page x" barcode. The scanner will respond with two beeps (high-low tone) and send the selected page to the host immediately.

List settings regarding Interface, Buzzer, and Other Scanner Parameters

List Page 1



List settings regarding Prefix, Suffix, and Length Code Setting

List Page 2



List settings regarding Code ID

List Page 3



List settings regarding: Readable Symbologies

List Page 4



List settings regarding Symbology Parameters (1/3)

List Page 5



List settings regarding Symbology Parameters (2/3)

List Page 6



List settings regarding Symbology Parameters (3/3)

List Page 7



List settings regarding Editing Format 1

List Page 8



List settings regarding Editing Format 2

List Page 9



List settings regarding Editing Format 3

List Page 10





## UNDERSTANDING THE BARCODE SCANNER

---

This chapter explains the features and usage of the barcode scanner.

### IN THIS CHAPTER

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### 1.1 POWER

Connect the interface cable between the scanner and your computer.

- ▶ If using the RS-232 cable, you must join the power supply cord to power up the scanner.
- ▶ The scanner will respond with one long beep (high tone) and its LED indicator will become solid red and go off quickly.

### 1.2 LED INDICATOR

The dual-color LED on top of the scanner is used to provide user feedback. For example, the LED becomes solid red and goes off quickly upon powering on or reading a barcode successfully. You may tell the difference by the beeps – you will hear a long beep when powering on the scanner, and a short beep (pitch programmable) when it reads a barcode successfully.

Scanner LED		Meaning
Red, on-off	---	<ul style="list-style-type: none"><li>▶ Power on, with one long beep (high tone, LED on for 1 second)</li><li>▶ Good Read, with one short beep (high tone) and beeper pitch programmable</li></ul>
---	Green, solid	Configuration Mode



### 1.3 BEEPER

The scanner has a buzzer to provide user feedback in various operating conditions.

Beeping	Meaning
One long beep, high tone	Power on, with red LED on (1 second) and off quickly
One short beep, high tone ▶ Programmable, default to 4 KHz	Good Read, with red LED on and off quickly
Six short beeps ▶ High-low tone repeats three times	▶ Enter Configuration Mode, with green LED on ▶ Exit Configuration Mode
Two beeps, high-low tone	Setup barcode read successfully
One short beep, high tone	More setup barcode required
One long beep, low tone	Configuration error (Wrong barcode...)



### 1.3.1 GOOD READ BEEP

\*Enable Buzzer



Disable Buzzer



### 1.3.2 FREQUENCY

8 kHz



\*4 kHz



2 kHz



1 kHz



## 1.4 SCAN MODES

Different scan modes are supported – select the scan mode that best suits the requirements of a specific application. Refer to the comparison table below.

Scan Mode	Start to Scan				Stop Scanning			
	Always	Press trigger once	Hold trigger	Press trigger twice	Release trigger	Press trigger once	Barcode being read	Timeout
Continuous mode	✓							
Test mode	✓							
Laser mode			✓		✓		✓	✓
Auto Off mode		✓					✓	✓
Auto Power Off mode		✓						✓
Alternate mode		✓				✓		
Repeat mode	✓							
Momentary mode			✓		✓			

Note: (1) 1000, 1090+: By default, the scan mode is set to Auto Off mode.  
 (2) 1100, 1105: By default, the scan mode is set to Laser mode.



### 1.4.1 CONTINUOUS MODE

The scanner is always scanning.

- ▶ After a successful decoding, the removal of barcode is required. It is not allowed to proceed to decode until the preset decoding delay time has passed.
- ▶ To decode the same barcode repeatedly, move away the barcode and put it back again and again for scanning.

Note: Refer to "Delay between Re-read".

Continuous Mode



### 1.4.2 TEST MODE

The scanner is always scanning.

- ▶ Capable of decoding the same barcode repeatedly without removing it, for testing purpose.

Test Mode



### 1.4.3 LASER MODE

The scanner will start scanning once the trigger is held down.

- ▶ The scanning won't stop until (1) a barcode is decoded, (2) the pre-set timeout expires, or (3) you release the trigger.

Note: Refer to "Scanning Timeout".

\*Laser Mode



Note: By default, the scan mode of 1100/1105 is set to Laser mode.



### 1.4.4 AUTO OFF MODE

The scanner will start scanning once the trigger is pressed.

- ▶ The scanning won't stop until (1) a barcode is decoded, and (2) the pre-set timeout expires.

---

Note: Refer to "Scanning Timeout".

---

Auto Off Mode



---

Note: By default, the scan mode of 1000 and 1090+ is set to Auto Off mode.

---

### 1.4.5 AUTO POWER OFF MODE

The scanner will start scanning once the trigger is pressed.

- ▶ The scanning won't stop until the pre-set timeout expires, and, the pre-set timeout period re-counts after each successful decoding.

---

Note: Refer to "Delay between Re-read" and "Scanning Timeout".

---

Auto Power Off Mode



### 1.4.6 ALTERNATE MODE

The scanner will start scanning once the trigger is pressed

- ▶ The scanning won't stop until you press the trigger again.

Alternate Mode



### 1.4.7 REPEAT MODE

Like the Continuous Mode, the scanner is always scanning. But now the scan trigger acts like a “re-transmission” button when being pressed within one second after a successful reading, which will re-transmit the same data without actually reading the barcode again. This scan mode is most useful when the same barcode is to be read many times.

- ▶ Capable of re-transmitting barcode data if triggering within one second after a successful decoding.
- ▶ Such re-transmission can be activated as many times as needed, as long as the time interval between each triggering does not exceed one second.

Repeat Mode



### 1.4.8 MOMENTARY MODE

The scanner will be scanning as long as the trigger is hold down.

- ▶ The scanning won't stop until you release the trigger.

Momentary Mode



## 1.5 SCANNING TIMEOUT

Specify the scanning time interval (1~255 sec.; 0= Disable) when the scan mode is set to any of the following –

- ▶ Laser mode
- ▶ Auto Off mode
- ▶ Auto Power Off mode

Scanner Time-out  
after 0~255 sec.  
(\*10)



- 1) Read the barcode above to specify the time interval before the scan engine times out.
- 2) Read the "[Decimal Value](#)" barcode on page 127. For example, read "1" and "5" for the scanner to automatically shut down after being idle for 15 seconds.
- 3) Read the "Validate" barcode on the same page to complete this setting.





## 1.6 DELAY BETWEEN RE-READ

This is also referred to as the “Blocking Time”, which is used to prevent the scanner from accidentally reading the same barcode twice when the scan mode is set to any of the following –

- ▶ Continuous mode
- ▶ Auto Power Off mode
- ▶ Alternate mode
- ▶ Momentary mode

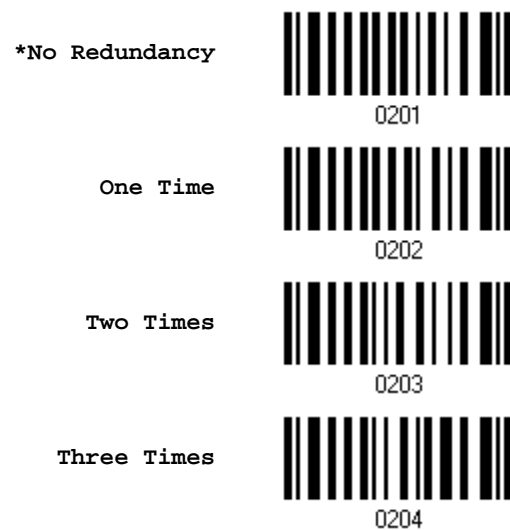


## 1.7 READ REDUNDANCY FOR ALL SYMBLOGIES

Select the level of reading security. For example,

- ▶ If "No Redundancy" is selected, one successful decoding will make the reading valid and induce the "READER Event".
- ▶ If "Three Times" is selected, it will take a total of four consecutive successful decoding of the same barcode to make the reading valid. The higher the reading security is (that is, the more redundancy the user selects), the slower the reading speed gets.

It is obvious that the more redundancy you select, the higher the reading security is, and thus, the slower the reading speed becomes. You will have to compromise between reading security and decoding speed.



## 1.8 AUTO-SENSE MODE (1100 ONLY)

This mode is only available when you want to seat the scanner in the Auto-Sense Stand. When you enable this mode, it will force the scanner to apply Laser mode as the scan mode. However, it works slightly different from the original Laser mode. Now the scanner will be scanning as long as it is seated in the stand. Whenever a barcode is brought within range, the scanner will be able to decode it.

Note: Auto-sense can only be enabled for CCD scanner and will force it to Laser mode.

Enable



\*Disable



Warning: When you disable this mode later, the scan mode remains unchanged. If Laser mode is not desired, proceed to select a scan mode best suits your application.

## 1.9 NEGATIVE BARCODES

Normally, barcodes are printed with the color of the bars darker than that of the spaces. But for negative barcodes, they are printed in the opposite sense just like negative films. The spaces of negative barcodes are printed with a color darker than that of the bars. You can configure the scanner to be able to read negative barcodes.

Enable



\*Disable





## SELECTING OUTPUT INTERFACE

---

In order to establish a proper connection between your computer and the scanner, we suggest that you follow these instructions –

- 1) Connect the interface cable to your computer.
  - ▶ If using the RS-232 cable, join the power supply cord.
- 2) Have the scanner read the “Enter Setup” barcode to enter the configuration mode.
- 3) Have the scanner read the associated barcodes to activate the desired interface.

See the following sections for output interfaces supported.

- ▶ If you are connecting the scanner to the USB port of the host computer via USB HID cable (part # 307), refer to [2.1 Keyboard Wedge](#) for related settings.
  - ▶ If you are connecting the scanner to the USB port of the host computer via USB Virtual COM cable (part # 308), refer to [2.2 RS-232](#) related settings.
  - ▶ If you are connecting the scanner to the IBM POS 4683/4694 via the converter cable (part # 346), refer to [2.1 Keyboard Wedge](#) for related settings.
- 4) Have the scanner read the barcodes for related settings.
  - 5) Have the scanner read the “Update” barcode to exit the configuration mode.

---

Note: By default, the output interface is set to “Keyboard Wedge”.

---

### IN THIS CHAPTER

---

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## 2.1 KEYBOARD WEDGE

The Y cable allows you to connect the scanner via 3666 to the keyboard input port of PC and you may join the keyboard as well. The scanned data will be transmitted to the host keyboard port as if it is manually entered via the keyboard. For example, run a text editor on your computer to receive the data.

Keyboard Wedge Settings	Defaults
Keyboard Type	PCAT (US)
Alphabets Layout	Normal
Digits Layout	Normal
Capital Lock Type	Normal
Capital Lock State	Off
Alphabets Transmission	Case-sensitive
Digits Transmission	Alphanumeric keypad
Alternate Composing	No
Inter-Character Delay	0 (ms)
Laptop Support	Disable

### 2.1.1 ACTIVATE KEYBOARD WEDGE & SELECT KEYBOARD TYPE

When Keyboard Wedge interface is activated, you will have to select a keyboard type to complete this setting. By default, Keyboard Wedge is activated on the scanner, and the keyboard type is set to PCAT (US).

Activate Keyboard  
Wedge & Select  
Keyboard Type...



- 1) Read this barcode above to activate Keyboard Wedge and select a keyboard type.
- 2) Read the "[Decimal Value](#)" barcode on page 127. Refer to the table below for the number of desired keyboard type.
- 3) Read the "Validate" barcode on the same page to complete this setting.



**Keyboard Wedge**

By default, the keyboard type is set to PCAT (US). The following keyboard types are supported —

No.	Keyboard Type	No.	Keyboard Type
1	PCAT (US)	15	PS55 001-81
2	PCAT (French)	16	PS55 001-2
3	PCAT (German)	17	PS55 001-82
4	PCAT (Italian)	18	PS55 001-3
5	PCAT (Swedish)	19	PS55 001-8A
6	PCAT (Norwegian)	20	PS55 002-1, 003-1
7	PCAT (UK)	21	PS55 002-81, 003-81
8	PCAT (Belgium)	22	PS55 002-2, 003-2
9	PCAT (Spanish)	23	PS55 002-82, 003-82
10	PCAT (Portuguese)	24	PS55 002-3, 003-3
11	PS55 A01-1	25	PS55 002-8A, 003-8A
12	PS55 A01-2 (Japanese)	26	IBM 3477 Type 4 (Japanese)
13	PS55 A01-3	27	PS2-30
14	PS55 001-1	28	IBM 34XX/319X, Memorex Telex 122 Keys



## 2.1.2 KEYBOARD SETTINGS

### Alphabets Layout

By default, the alphabets layout is set to normal mode, also known as the standard English layout. Select French or German keyboard layout if necessary. The scanner will make adjustments when sending the "A", "Q", "W", "Z", "Y", and "M" characters according to this setting.



---

Note: This setting only works when the keyboard type selected is US keyboard, such as PCAT (US). The Alphabets Layout and Digits Layout setting must match your keyboard.

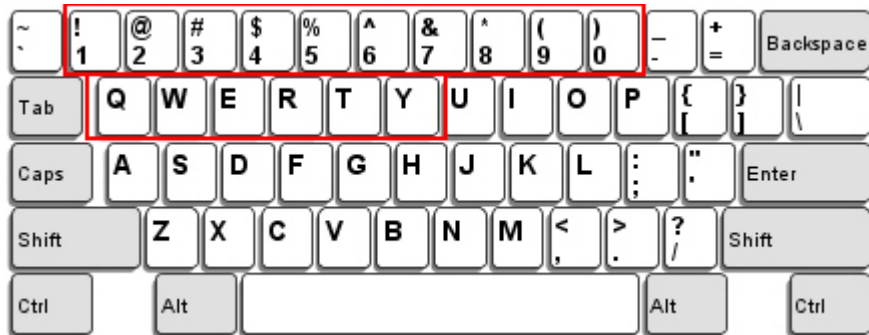
---





**US Keyboard Style – Normal**

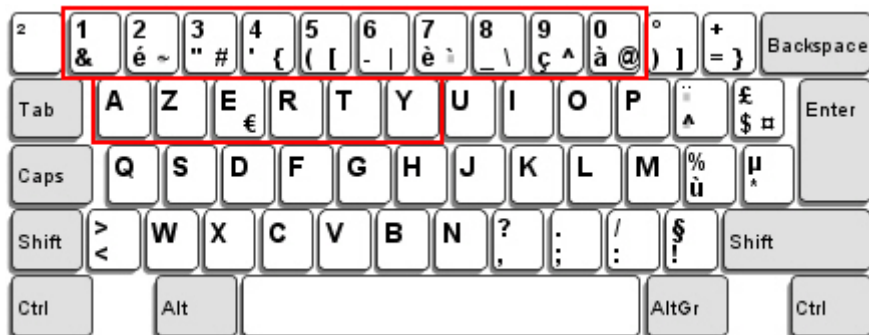
QWERTY layout, which is normally used in western countries.



- ▶ Select “Lower Row” for the “Digits Layout” setting for the upper row is for special characters.

**French Keyboard Style – AZERTY**

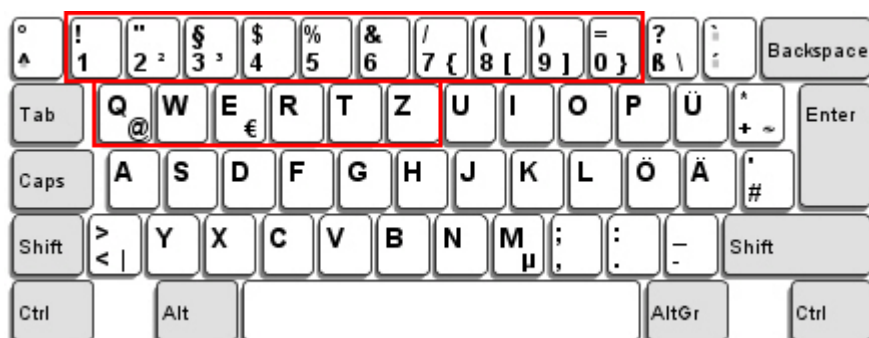
French layout; see below for French Keyboard Style.



- ▶ Select “Upper Row” for the “Digits Layout” setting for the lower row is for special characters.

**German Keyboard Layout – QWERTZ**

German layout; see below for German Keyboard Style.



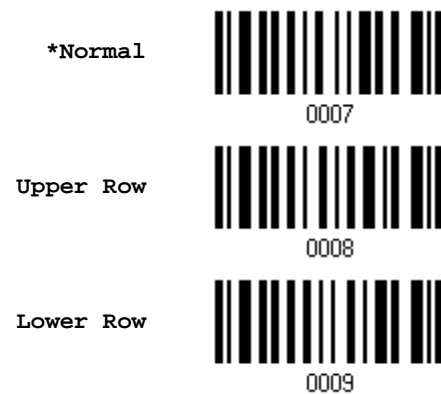
- ▶ Select “Lower Row” for the “Digits Layout” setting for the upper row is for special characters.



### Digits Layout

Select a proper layout that matches the alphabets layout. The scanner will make adjustments according to this setting.

Options	Description
Normal	Depends on the [Shift] key or [Shift Lock] setting
Lower Row	For QWERTY or QWERTZ keyboard
Upper Row	For AZERTY keyboard




---

Note: This setting is meant to be used with the Alphabets Layout; and perhaps with the Character Substitution setting when support to certain keyboard types (languages) is unavailable but required.

---



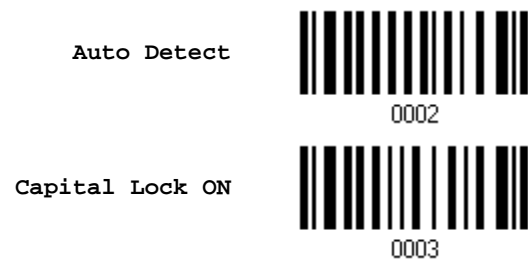
**Capital Lock Type & Setting**

In order to send the alphabets with correct case, the scanner needs to know the status of Caps Lock on the keyboard. Incorrect settings may result in reversed case of the alphabets being transmitted.

Cap Lock Type	Description
Normal	Normal type
Capital Lock	When enabled, the keys of alphabetic characters will be interpreted as capital letters. However, this does not affect the number or punctuation keys.
Shift Lock	When enabled, the keys of alphabetic characters will be interpreted as capital letters. In addition, this affects the number or punctuation keys.



Capital Lock State	Description
Capital Lock OFF	Assuming that the status of Caps Lock on the keyboard is OFF, transmitted characters are exactly the same as in the barcode (when "case-sensitive" is selected for Alphabets Transmission).
Capital Lock ON	Assuming that the status of Caps Lock on the keyboard is ON, transmitted characters are exactly the same as in the barcode (when "case-sensitive" is selected for Alphabets Transmission). ▶ Refer to the Capital Lock Type above.
Auto Detection	The scanner will automatically detect the status of Caps Lock on the keyboard before data is transmitted; transmitted characters are exactly the same as in the barcode (when "case-sensitive" is selected for Alphabets Transmission).



\*Capital Lock OFF



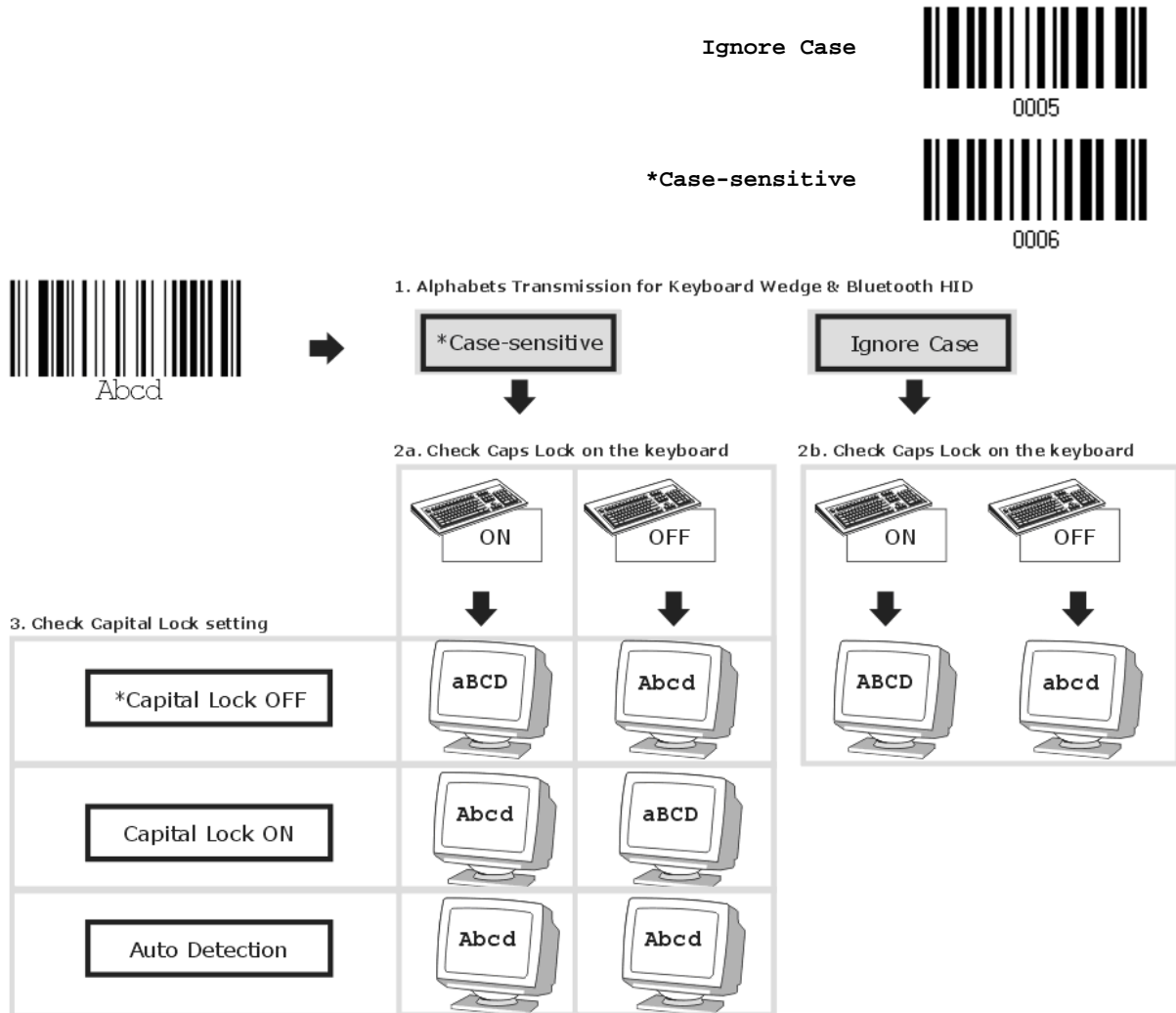
0004



Enter Setup

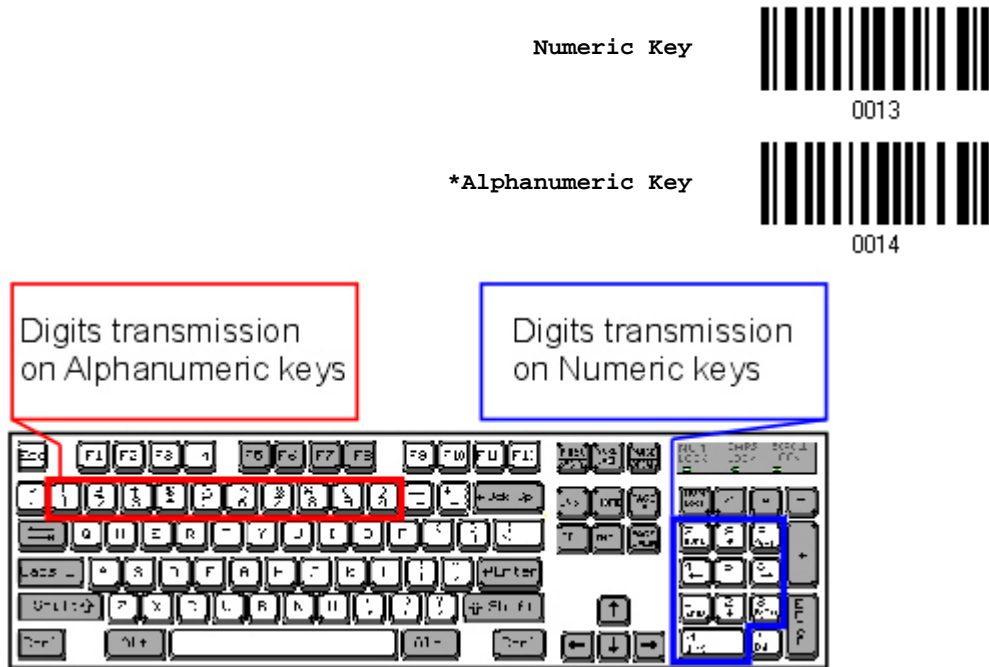
**Alphabets Transmission**

By default, the alphabets transmission is case-sensitive, meaning that the alphabets will be transmitted according to their original case, the status of Caps Lock on the keyboard, as well as the Capital Lock setting. Select [Ignore Case] to have alphabets transmitted according to the status of Caps Lock on the keyboard only.



### Digits Transmission

By default, the alphanumeric keypad is used for transmitting digits. Select "Numeric Keypad" if you wish to use the keys on the numeric keypad.



---

Note: If you select "Numeric Keypad", the Num Lock status of the physical keyboard should be "ON".

---



### ALT Composing

---

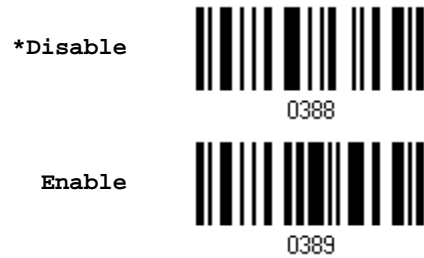
By default, Alternate key composing is disabled. Select [Yes] to allow emulating Alternate key code of a specific keyboard character. For example, [Alt] + [O65] will be sent to host for the character "A" regardless the keyboard type you are using.



### Laptop Support

---

By default, laptop support is disabled. It is suggested to enable this feature if you connect the wedge cable to a laptop without an external keyboard being inter-connected.



### 2.1.3 INTER-CHARACTER DELAY

By default, the inter-character delay is set to zero. Specify a value, ranging from 0 to 255 in units of millisecond, to match the computer response time of the keyboard interface. Such delay time is inserted between every character being transmitted. The longer the delay time is, the slower the transmission speed will be.

Inter-Character  
Delay... (\*0~255)



- 1) Read the barcode above to specify the inter-character delay.
- 2) Read the "[Decimal Value](#)" barcode on page 127 for the desired inter-character delay (millisecond).
- 3) Read the "Validate" barcode on the same page to complete this setting.





## 2.2 RS-232

Use the RS-232 cable to connect the scanner to the serial port of PC and join the power adaptor to the RS-232 connector. The associated RS-232 parameters must match those configured on the computer. The scanned data will be transmitted to the serial port.

RS-232 Settings	Defaults
Baud Rate, Data Bit, Parity, Stop Bit	9600 bps, 8 bits, No parity
Flow Control	None
Inter-Character Delay	0 (ms)

### 2.2.1 ACTIVATE RS-232 INTERFACE

Activate RS-232  
Interface



### 2.2.2 BAUD RATE

115200 bps



38400 bps



19200 bps



\*9600 bps



4800 bps



2400 bps



1200 bps



### 2.2.3 DATA BITS

\*8 bits



7 bits



### 2.2.4 PARITY

\*No parity



Even



Odd



### 2.2.5 FLOW CONTROL

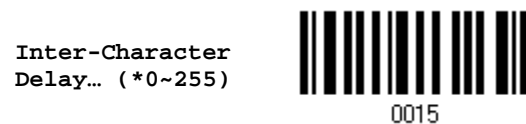
By default, there is no flow control in use. Select the flow control (handshake) method.

Options	Description
No	No flow control
Scanner Ready	The scanner will activate the RTS signal upon powering on. After each good read, the scanner will then wait for the CTS signal to become active. Data will not be sent until the CTS signal becomes active.
Data Ready	The RTS signal will be activated after each good read. The scanner will then wait for the CTS signal to become active. Data will not be sent until the CTS signal becomes active.
Inverted Data Ready	It works the same as the Data Ready flow control except that the RTS signal level is inverted.



### 2.2.6 INTER-CHARACTER DELAY

By default, the inter-character delay is zero. Specify a value, ranging from 0 to 255 in units of millisecond, to match the computer response time. Such delay time is inserted between every character being transmitted. The longer the delay time is, the slower the transmission speed will be.



- 1) Read the barcode above to specify the inter-character delay.
- 2) Read the "[Decimal Value](#)" barcode on page 127 for the desired inter-character delay (millisecond).
- 3) Read the "Validate" barcode on the same page to complete this setting.



## 2.3 WAND EMULATION

Wand Emulation is supported on many of our batch scanners, except for 1000.

- ▶ 1090+
- ▶ 1100
- ▶ 1105

The wand emulation cable allows you to connect the scanner to a data terminal that is expecting input from a wand scanner.

Wand Emulation Settings	Defaults
Normal State	Low
Bar State	High
Module Time	1 (ms)
Margin Time	20 (ms)

### 2.3.1 ACTIVATE WAND EMULATION

Activate Wand  
Emulation



### 2.3.2 NORMAL STATE

By default, the signal level is set "Low" for the normal state when not transmitting any barcode image (= white spaces in a barcode).

High



\*Low



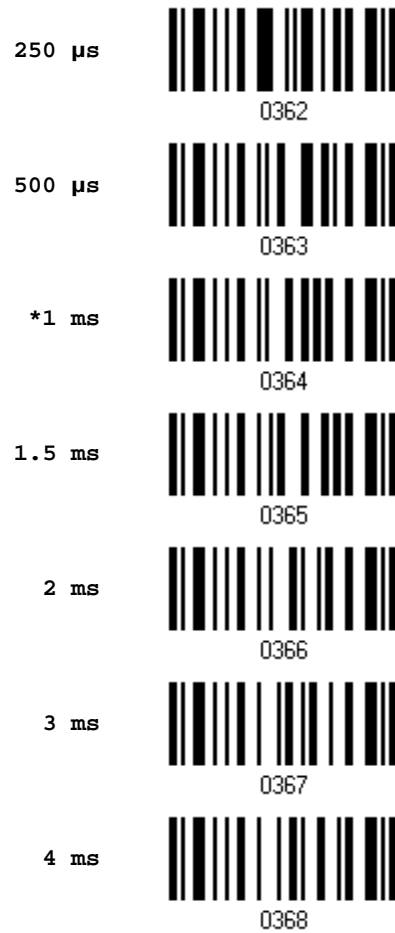
### 2.3.3 BAR STATE

By default, the signal level is set "High" for a bar when transmitting a barcode image (= dark bars in a barcode).



### 2.3.4 MODULE TIME

By default, it is set 1 millisecond as the time span for bar and space modules. Select other value for the module time, in units of micro-second or millisecond.



5 ms



### 2.3.5 MARGIN TIME

By default, it is set 20 milliseconds as the time span for the change in state for bar and space modules. Select other value for the margin time.

5 ms



10 ms



\*20 ms



30 ms



40 ms



60 ms



80 ms



100 ms



---

Note: Margin Time is applied only when the signal level for Normal State and Bar State is the same.

---



## CHANGING SYMBOLOGY SETTINGS

---

In this chapter, a brief on the symbology settings is provided for your reference.

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---

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### 3.1 CODABAR

**\*Enable**



0086

**Disable**



0087

#### 3.1.1 START/STOP CHARACTERS SELECTION

Select one of the four different start/stop character pairs –

**\* abcd/abcd**



0151

**abcd/tn\*e**



0152

**ABCD/ABCD**



0153

**ABCD/TN\*E**



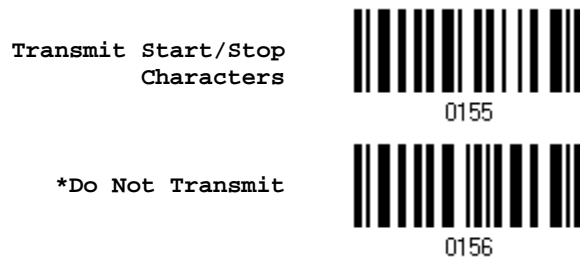
0154





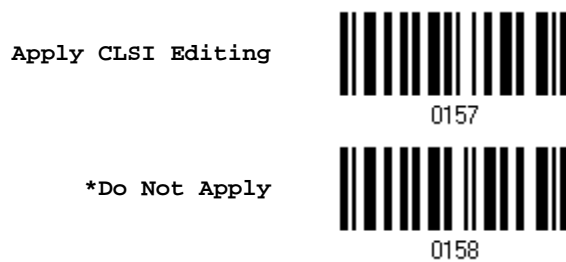
### 3.1.2 START/STOP TRANSMISSION

Decide whether to include the start/stop characters in the data being transmitted.



### 3.1.3 CLSI CONVERSION

When enabled, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode.



Note: The 14-character barcode length does not include start/stop characters.



### 3.2 CODE 25 – INDUSTRIAL 25

**\*Enable**



0080

**Disable**



0081

#### 3.2.1 SELECT START/STOP PATTERN

This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".

**\*Industrial 25  
Start/Stop Pattern**



0130

**Interleaved 25  
Start/Stop Pattern**



0131

**Matrix 25  
Start/Stop Pattern**



0132



### 3.2.2 VERIFY CHECK DIGIT

Decide whether to verify the check digit. If incorrect, the barcode will not be accepted.

Verify Industrial 25  
Check Digit



0139

\*Do Not Verify



0140

### 3.2.3 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.

\*Transmit  
Industrial 25  
Check Digit



0141

Do Not Transmit



0142



### 3.2.4 CODE LENGTH QUALIFICATION

To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- ▶ If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- ▶ If "Fixed Length" is selected, up to 2 fixed lengths can be specified.

1) Read the barcode to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

\*Enable Max./Min.  
Length (0~127)...



Enable Fixed  
Length(s)...



2) Read the barcode for Max. Length or Fixed Length 1, and follow steps 3~4.  
Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (\*127) or  
Fixed Length 1



Min. Length (\*0) or  
Fixed Length 2



- 3) Read the "[Decimal Value](#)" barcode on page 127 for the desired length.
- 4) Read the "Validate" barcode on the same page to complete this setting.



### 3.3 CODE 25 – INTERLEAVED 25

\*Enable



0082

Disable



0083

#### 3.3.1 SELECT START/STOP PATTERN

This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should be set to "Interleaved 25".

Industrial 25  
Start/Stop Pattern



0133

\*Interleaved 25  
Start/Stop Pattern



0134

Matrix 25  
Start/Stop Pattern



0135



### 3.3.2 VERIFY CHECK DIGIT

Decide whether to verify the check digit. If incorrect, the barcode will not be accepted.

Verify  
Interleaved 25  
Check Digit



0143

\*Do Not Verify



0144

### 3.3.3 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.

\*Transmit  
Interleaved 25  
Check Digit



0145

Do Not Transmit



0146



### 3.3.4 CODE LENGTH QUALIFICATION

To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- ▶ If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- ▶ If "Fixed Length" is selected, up to 2 fixed lengths can be specified.

- 1) Read the barcode to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

\*Enable Max./Min.  
Length (0~127)...



0212

Enable Fixed  
Length(s)...



0213

- 2) Read the barcode for Max. Length or Fixed Length 1, and follow steps 3~4.  
Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (\*127) or  
Fixed Length 1



0214

Min. Length (\*0) or  
Fixed Length 2



0215

- 3) Read the "[Decimal Value](#)" barcode on page 127 for the desired length.
- 4) Read the "Validate" barcode on the same page to complete this setting.



### 3.4 CODE 25 – MATRIX 25

Enable



0084

\*Disable



0085

#### 3.4.1 SELECT START/STOP PATTERN

This decides the readability of all 2 of 5 symbology variants. For example, flight tickets actually use an Industrial 2 of 5 barcode but with Interleaved 2 of 5 start/stop pattern. In order to read this barcode, the start/stop pattern selection parameter of Industrial 2 of 5 should set to "Interleaved 25".

Industrial 25  
Start/Stop Pattern



0136

Interleaved 25  
Start/Stop Pattern



0137

\*Matrix 25  
Start/Stop Pattern



0138





### 3.4.2 VERIFY CHECK DIGIT

Decide whether to verify the check digit. If incorrect, the barcode will not be accepted.

Verify Matrix 25  
Check Digit



0147

\*Do Not Verify



0148

### 3.4.3 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.

\*Transmit Matrix 25  
Check Digit



0149

Do Not Transmit



0150



### 3.4.4 CODE LENGTH QUALIFICATION

To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- ▶ If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- ▶ If "Fixed Length" is selected, up to 2 fixed lengths can be specified.

1) Read the barcode to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

\*Enable Max./Min.  
Length (0~127)...



0216

Enable Fixed  
Length(s)...



0217

2) Read the barcode for Max. Length or Fixed Length 1, and follow steps 3~4.

Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (\*127) or  
Fixed Length 1



0218

Min. Length (\*0) or  
Fixed Length 2



0219

- 3) Read the "[Decimal Value](#)" barcode on page 127 for the desired length.
- 4) Read the "Validate" barcode on the same page to complete this setting.



### 3.5 CODE 39

**\*Enable**



0074

**Disable**



0075

#### 3.5.1 TRANSMIT START/STOP CHARACTERS

Decide whether to include the start/stop characters in the data being transmitted.

**Transmit Code 39  
Start/Stop  
Characters**



0116

**\*Do Not Transmit**



0117



### 3.5.2 VERIFY CHECK DIGIT

Decide whether to verify the check digit. If incorrect, the barcode will not be accepted.

Verify Code 39  
Check Digit



0118

\*Do Not Verify



0119

### 3.5.3 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.

\*Transmit Code 39  
Check Digit



0120

Do Not Transmit



0121

### 3.5.4 STANDARD/FULL ASCII CODE 39

Decide whether to support Code 39 Full ASCII that includes all the alphanumeric and special characters.

Code 39 Full ASCII



0122

\*Standard Code 39



0123



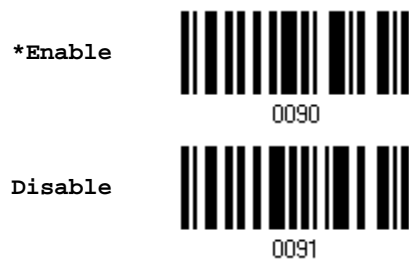
### 3.6 CODE 93

You can only configure the scanner to read this symbology or not.



### 3.7 CODE 128

You can only configure the scanner to read this symbology or not.



### 3.8 EAN-8

#### EAN-8

\*Enable EAN-8  
(No Addon)



0098

Disable



0099

#### EAN-8 Addon 2

Enable EAN-8 Addon 2



0100

\*Disable



0101

#### EAN-8 Addon 5

Enable EAN-8 Addon 5



0102

\*Disable



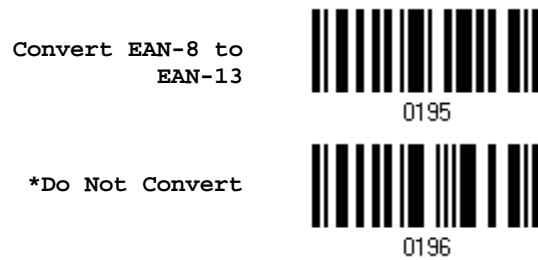
0103



### 3.8.1 CONVERT TO EAN-13

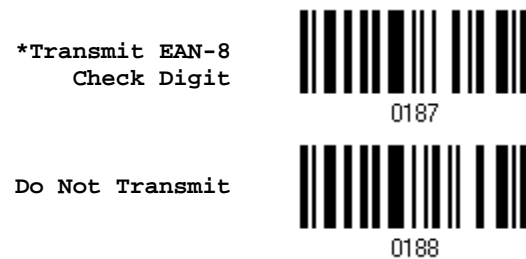
Decide whether to expand the read EAN-8 barcode, as well as its addons, into EAN-13.

- ▶ After conversion, the data follows EAN-13 format and is affected by EAN-13 programming selections (e.g. Check Digit).



### 3.8.2 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.



### 3.9 EAN-13

#### EAN-13

\*Enable EAN-13  
(No Addon)



Disable



#### EAN-13 Addon 2

Enable EAN-13 Addon 2



\*Disable



#### EAN-13 Addon 5

Enable EAN-13 Addon 5



\*Disable





### 3.9.1 CONVERT TO ISBN

Decide whether to convert the EAN-13 barcode, starting with 978 and 979, to ISBN.

Convert EAN-13 to  
ISBN



\*Do Not Convert



### 3.9.2 CONVERT TO ISSN

Decide whether to convert the EAN-13 barcode, starting with 977 to ISSN.

Convert EAN-13 to  
ISSN



\*Do Not Convert



### 3.9.3 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.

\*Transmit EAN-13  
Check Digit



Do Not Transmit



### 3.10 GS1-128 (EAN-128)

Enable



0104

\*Disable



0105

#### 3.10.1 TRANSMIT CODE ID

Decide whether to include the Code ID (“1c1”) in the data being transmitted.

Transmit Code ID



0434

\*Do Not Transmit



0435

#### 3.10.2 FIELD SEPARATOR (GS CHARACTER)

Decide whether to apply a field separator (to convert the FNC1 control character to human readable character).

Enable Field  
Separator...



0301

- 1) Read the barcode above to enable field separator.
- 2) Read the [“Hexadecimal Value”](#) barcode on page 128 for the desired character string.
- 3) Read the “Validate” barcode to complete this setting.

Note: GS1-128 barcodes start with the FNC1 control character to distinguish themselves from other uses of Code 128. FNC1 is also used to separate data fields in the GS1-128 barcodes.



### 3.11 MSI

Enable



0112

\*Disable



0113

#### 3.11.1 VERIFY CHECK DIGIT

Select one of the three calculations to verify check digit when decoding barcodes. If incorrect, the barcode will not be accepted.

\*Single Modulo 10



0167

Double Modulo 10



0168

Modulo 10 & 11



0169

#### 3.11.2 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.

\*Last Digit Not Transmitted



0170

Both Digits Transmitted



0171

Both Digits Not Transmitted



0172



### 3.11.3 CODE LENGTH QUALIFICATION

To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

- ▶ If "Max/Min Length" is selected, the maximum length and the minimum length must be specified. It only accepts those barcodes with lengths that fall between max/min lengths specified.
- ▶ If "Fixed Length" is selected, up to 2 fixed lengths can be specified.

1) Read the barcode to enable either Max. /Min. Length qualification or Fixed Length(s) qualification.

\*Enable Max./Min.  
Length (0~127)...



Enable Fixed  
Length(s)...



2) Read the barcode for Max. Length or Fixed Length 1, and follow steps 3~4.  
Repeat steps 2~4 for Min. Length or Fixed Length 2.

Max. Length (\*127) or  
Fixed Length 1



Min. Length (\*0) or  
Fixed Length 2



- 3) Read the "[Decimal Value](#)" barcode on page 127 for the desired length.
- 4) Read the "Validate" barcode on the same page to complete this setting.



### 3.12 FRENCH PHARMACODE

Enable



0078

\*Disable



0079

#### 3.12.1 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.

\*Transmit  
French Pharmacode  
Check Digit



0128

Do Not Transmit



0129



### 3.13 ITALIAN PHARMACODE

Enable



0076

\*Disable



0077

#### 3.13.1 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.

\*Transmit  
Italian Pharmacode  
Check Digit



0126

Do Not Transmit



0127



### 3.14 PLESSEY

Enable



0114

\*Disable



0115

#### 3.14.1 CONVERT TO UK PLESSEY

Decide whether to change each occurrence of the character 'A' to character 'X' in the decoded data.

Convert to UK Plessey



0165

\*Do Not Convert



0166

#### 3.14.2 TRANSMIT CHECK DIGIT

Decide whether to include the two check digits in the data being transmitted.

\*Transmit Plessey  
Check Digits



0163

Do Not Transmit



0164



### 3.15 GS1 DATABAR (RSS FAMILY)

It is categorized into three groups:

#### Group I – GS1 DataBar Omnidirectional (RSS-14)

This group consists of the following:

- ▶ GS1 DataBar Omnidirectional
- ▶ GS1 DataBar Truncated
- ▶ GS1 DataBar Stacked
- ▶ GS1 DataBar Stacked Omnidirectional

#### Group II – GS1 DataBar Expanded (RSS Expanded)

This group consists of the following:

- ▶ GS1 DataBar Expanded
- ▶ GS1 DataBar Expanded Stacked

#### Group III – GS1 DataBar Limited (RSS Limited)

This group consists of the following:

- ▶ GS1 DataBar Limited

#### 3.15.1 SELECT CODE ID

Select a desired Code ID to use:

- ▶ " ]e0" (GS1 DataBar Code ID)
- ▶ " ]c1" (GS1-128 Code ID)

Use " ]c1"



0432

\*Use " ]e0"



0433





**3.15.2 GS1 DATABAR OMNIDIRECTIONAL (RSS-14)**

**Enable RSS-14 &  
RSS Expanded  
(Groups I, II)**



**\*Disable**



The settings below apply to Group I symbologies only:

- ▶ GS1 DataBar Omnidirectional
- ▶ GS1 DataBar Truncated
- ▶ GS1 DataBar Stacked
- ▶ GS1 DataBar Stacked Omnidirectional

**Transmit Code ID**

Decide whether to include the Code ID in the data being transmitted.

**\*Transmit RSS-14  
Code ID**



**Do Not Transmit**



**Transmit Application ID**

Decide whether to include the Application ID ("01") in the data being transmitted.

**\*Transmit RSS-14  
Application ID**



**Do Not Transmit**



### Transmit Check Digit

---

Decide whether to include the check digit in the data being transmitted.

\*Transmit RSS-14  
Check Digit



Do Not Transmit



### 3.15.3 GS1 DATABAR EXPANDED (RSS EXPANDED)

Enable RSS-14 &  
RSS Expanded  
(Groups I, II)



\*Disable



The settings below apply to Group II symbologies only:

- ▶ GS1 DataBar Expanded
- ▶ GS1 DataBar Expanded Stacked

#### Transmit Code ID

Decide whether to include the Code ID in the data being transmitted.

\*Transmit  
RSS Expanded Code ID



Do Not Transmit



### 3.15.4 GS1 DATABAR LIMITED (RSS LIMITED)

Enable RSS Limited  
(Group III)



\*Disable



#### Transmit Code ID

Decide whether to include the Code ID in the data being transmitted.

\*Transmit  
RSS Limited Code ID



Do Not Transmit



#### Transmit Application ID

Decide whether to include the Application ID ("01") in the data being transmitted.

\*Transmit  
RSS Limited  
Application ID



Do Not Transmit



#### Transmit Check Digit

Decide whether to include the check digit in the data being transmitted.

\*Transmit  
RSS Limited  
Check Digit



Do Not Transmit



## 3.16 TELEPEN

Enable Telepen



0436

\*Disable



0437

### 3.16.1 TELEPEN OUTPUT - FULL ASCII/NUMERIC

Decide whether to support Telepen in full ASCII code. By default, it supports ASCII mode.

- ▶ AIM Telepen (Full ASCII) includes all the alphanumeric and special characters.

Original Telepen  
(Numeric)



0440

\*AIM Telepen



0441

### 3.16.2 APPLY ALL 3 EDITING FORMATS TO TELEPEN

\*Yes



0443

No



0444



### 3.17 UPC-A

#### UPC-A

**\*Enable UPC-A  
(No Addon)**



0291

**Disable**



0292

#### UPC-A Addon 2

**Enable UPC-A Addon 2**



0293

**\*Disable**



0294

#### UPC-A Addon 5

**Enable UPC-A Addon 5**



0295

**\*Disable**



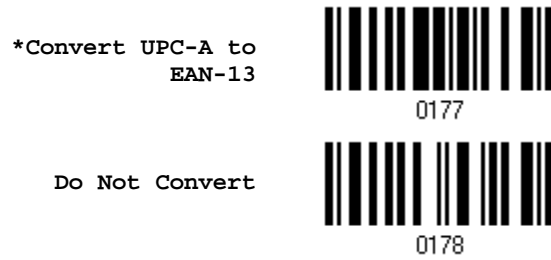
0296



### 3.17.1 CONVERT TO EAN-13

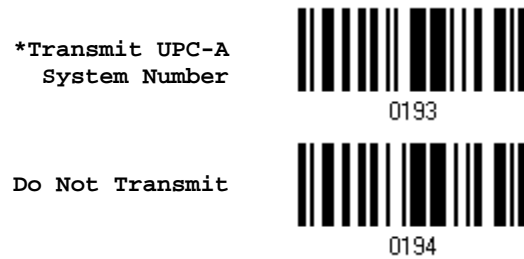
Decide whether to expand the read UPC-A barcode, as well as its addons, into EAN-13.

- ▶ After conversion, the data follows EAN-13 format and is affected by EAN-13 programming selections (e.g. Check Digit).



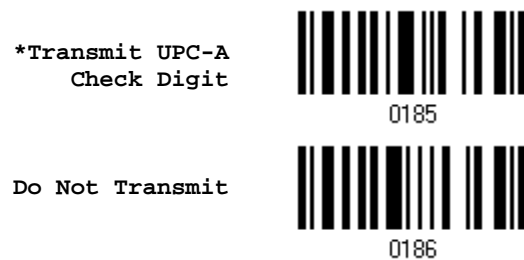
### 3.17.2 TRANSMIT SYSTEM NUMBER

Decide whether to include the system number in the data being transmitted.



### 3.17.3 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.



### 3.18 UPC-E

#### UPC-E

**\*Enable UPC-E  
(No Addon)**



0092

**Disable**



0093

#### UPC-E Addon 2

**Enable UPC-E Addon 2**



0094

**\*Disable**



0095

#### UPC-E Addon 5

**Enable UPC-E Addon 5**



0096

**\*Disable**



0097





### 3.18.1 SELECT SYSTEM NUMBER

Decide whether to decode the ordinary UPC-E barcodes only or both UPC-E0 and UPC-E1 barcodes.

- ▶ System number 0 enabled for decoding UPC-E0 barcodes.
- ▶ System number 1 enabled for decoding UPC-E1 barcodes.

System Number 0 & 1



\*System Number 0 Only



**Warning:** Because of the way system number 1 is encoded, if both system numbers are enabled, the user might suffer from short scanning UPC-A or EAN-13 barcodes into UPC-E1 barcodes.

### 3.18.2 CONVERT TO UPC-A

Decide whether to expand the read UPC-E barcode, as well as its addons, into UPC-A.

- ▶ After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g. System Number, Check Digit).

Convert UPC-E to  
UPC-A



\*Do Not Convert



### 3.18.3 TRANSMIT SYSTEM NUMBER

Decide whether to include the system number in the data being transmitted.

Transmit UPC-E  
System Number



0191

\*Do Not Transmit



0192

### 3.18.4 TRANSMIT CHECK DIGIT

Decide whether to include the check digit in the data being transmitted.

\*Transmit UPC-E  
Check Digit



0183

Do Not Transmit



0184



## DEFINING OUTPUT FORMAT

---

You may configure in which format the collected data will be output to the host computer. Barcode read by the scanner will be processed in the following sequence –

- 1) Perform character substitution on the data scanned.
- 2) Add [Code ID](#) and [Length Code](#) to the front of the data: [Code ID][Length Code][Data]
- 3) Process the whole data in step 2 with user formats. Data is now divided into fields by user specified rules. Refer to [Chapter 5 Applying Formats for Data Editing](#).
- 4) Add [Prefix Code](#) and [Suffix Code](#) before transmission: [Prefix Code][Processed Data][Suffix Code]

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### 4.1 CHARACTER SUBSTITUTION

Character substitution is performed on every occurrence of the first character specified. If only one character is specified, every occurrence of that character in the barcode will be taken away.

- ▶ The first character will be replaced by the second character(s).
- ▶ Up to three sets of character substitution can be configured.

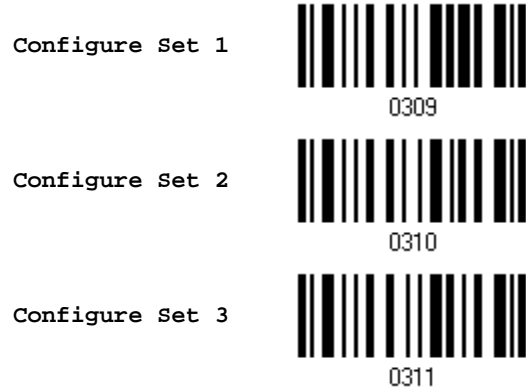
---

Note: The character substitution is performed only on the barcode itself and before the processing of editing formats. It is not applicable to the Prefix/Suffix Code, Code ID, Length Code, or any Additional Field.

---



**4.1.1 SELECT A SET FOR CHARACTER SUBSTITUTION**



- 1) Read the barcode above to enable character substitution by set.

For example, have the scanner read the "Set 1" barcode to configure the first set of character substitution. The scanner will respond with one short beep, high tone, to indicate more setup barcodes are required.

- 2) Read the "[Hexadecimal Value](#)" barcode on page 128 for the desired character substitution. For example,

<b>KEY TYPE = NORMAL</b>
<ul style="list-style-type: none"> <li>▶ Read "3", "0", "2", and "D" to replace the character "0" with a dash "-".</li> <li>▶ Read "3", "0", "2", "D", "3", and "0" to replace the character "0" with a dash "-0".</li> </ul>
<b>KEY TYPE = SCAN CODE</b>
If you want to replace the character "0" with "a" (= "1C" on the scan code table):
1. Read "3" and "0".
2. Read the "Scan Code" barcode.
3. Read "1" and "C".
<b>KEY TYPE = NORMAL + KEY STATUS = SHIFT</b>
If you want to replace the character "0" with "!" (= "Shift" + "1" on keyboard):
1. Read "3" and "0".
2. Read the "Add Shift" barcode.
3. Read "3" and "1".

- 3) Read the "Validate" barcode to complete this setting. (The defined set or sets will be applied to all symbologies.)



## 4.2 PREFIX/SUFFIX CODE

By default, there is no prefix code, and [ENTER] or [CR] (Carriage Return) is configured to be suffix code. Up to 4 characters can be configured, for example, “[\$][\$][\$][\$]”, and you will have four dollar signs appear in front of the barcode read, like this – “\$\$\$\$1234567890”.

- ▶ If “Keyboard Wedge” is configured for interface, [Key Type](#) and [Key Status](#) will then become applicable. You may decide whether or not to apply Key Status when “Normal Key” is selected for Key Type.

Key Type		Key Status
Scan Code	Up to 2 scan code values are allowed.	N/A
Normal Key	Up to 4 character strings are allowed.	<ul style="list-style-type: none"> <li>▶ Add Shift</li> <li>▶ Add Left Ctrl</li> <li>▶ Add Left Alt</li> <li>▶ Add Right Ctrl</li> <li>▶ Add Right Alt</li> </ul> Refer to <a href="#">Keyboard Wedge Table</a> .

Configure Prefix



Configure Suffix



- 1) Read the barcode above to apply prefix code or suffix code separately, and follow steps 2~3. (Max. 4 characters each)
- 2) Read the “[Hexadecimal Value](#)” barcode on page 128 for the desired character string. For example, read “2” and “B” for the scanner to prefix or suffix the character [+].
- 3) Read the “Validate” barcode to complete this setting.



### 4.3 CODE ID

Up to two characters for Code ID can be configured for each symbology. To make the Code ID configuration easier, the scanner provides five pre-defined Code ID sets that you can select one and make necessary changes on it.

- ▶ If "Keyboard Wedge" is configured for interface, [Key Type](#) and [Key Status](#) will then become applicable. You may decide whether or not to apply Key Status when "Normal Key" is selected for Key Type.

Key Type		Key Status
Scan Code	Only 1 scan code value is allowed.	N/A
Normal Key	Up to 2 character strings are allowed.	<ul style="list-style-type: none"> <li>▶ Add Shift</li> <li>▶ Add Left Ctrl</li> <li>▶ Add Left Alt</li> <li>▶ Add Right Ctrl</li> <li>▶ Add Right Alt</li> </ul> Refer to <a href="#">Keyboard Wedge Table</a> .

Note: "]C1" is the Code ID of GS1-128 (EAN-128) barcodes; "]e0" is the default Code ID of GS1 DataBar (RSS) barcodes.

#### 4.3.1 SELECT PRE-DEFINED CODE ID

Apply Code ID Set 1



Apply Code ID Set 2



Apply Code ID Set 3



Apply Code ID Set 4



Apply Code ID Set 5












Code ID Options	Set 1	Set 2	Set 3	Set 4	Set 5
Code 39	A	C	Y	M	A
Italian Pharmacode	A	C	Y	M	A
French Pharmacode	A	C	Y	M	A
Industrial 25	C	H	H	H	S
Interleaved 25	D	I	Z	I	S
Matrix 25	E	G	G	G	S
Codabar	F	N	X	N	F
Code 93	I	L	L	L	G
Code 128	H	K	K	K	C
ISBT 128	H	K	K	K	C
UPC-E	S	E	C	E	E
EAN-8	P	B	B	FF	E
EAN-13	M	A	A	F	E
UPC-A	J	A	A	A	E
MSI	V	V	D	P	M
Plessey	W	W	E	Q	P
Telepen	Z	---	---	---	---



### 4.3.2 CHANGE CODE ID

- 1) Read the barcode below to change code ID of a specific symbology.
- 2) Read the [“Hexadecimal Value”](#) barcode on page 128 for the desired character string. For example, read “4” and “4” for applying the character [D] for Code ID.
- 3) Read the “Validate” barcode to complete this setting.

Configure Code ID for Codabar	 0262
Configure Code ID for Code 39	 0256
Configure Code ID for Code 93	 0263
Configure Code ID for Code 128	 0264
Configure Code ID for EAN-8	 0266
Configure Code ID for EAN-13	 0267
Configure Code ID for French Pharmacode	 0258
Configure Code ID for Italian Pharmacode	 0257
Configure Code ID for Industrial 25	 0259





Configure Code ID for  
Interleaved 25



0260

Configure Code ID for  
Matrix 25



0261

Configure Code ID for  
MSI



0268

Configure Code ID for  
Plessey



0269

Configure Code ID for  
Telepen



0442

Configure Code ID for  
UPC-A



0270

Configure Code ID for  
UPC-E



0265

### 4.3.3 CLEAR CODE ID SETTINGS

Clear All Code ID  
Settings



9960



## 4.4 LENGTH CODE

A two-digit code representing the length of barcode data (character count) can be inserted in front of data being transmitted. Such "Length" code can be individually enabled or disabled for each symbology.

### Length Code for Codabar

Apply



\*Do Not Apply



### Length Code for Code 39

Apply



\*Do Not Apply



### Length Code for Code 93

Apply



\*Do Not Apply



### Length Code for Code 128

Apply



\*Do Not Apply



---

 Length Code for GS1-128 & GS1 DataBar
 

---

Apply



0299

\*Do Not Apply



0300

---

 Length Code for EAN-8
 

---

Apply



0244

\*Do Not Apply



0245

---

 Length Code for EAN-13
 

---

Apply



0246

\*Do Not Apply



0247

---

 Length Code for French Pharmacode
 

---

Apply



0228

\*Do Not Apply



0229

---

 Length Code for Italian Pharmacode
 

---

Apply



0226

\*Do Not Apply



0227



**Length Code for Industrial 25**

---

Apply



0230

\*Do Not Apply



0231

**Length Code for Interleaved 25**

---

Apply



0232

\*Do Not Apply



0233

**Length Code for Matrix 25**

---

Apply



0234

\*Do Not Apply



0235

**Length Code for MSI**

---

Apply



0248

\*Do Not Apply



0249

**Length Code for Plessey**

---

Apply



0250

\*Do Not Apply



0251



Length Code for Telepen

---

Apply



0438

\*Do Not Apply



0439

Length Code for UPC-A

---

Apply



0289

\*Do Not Apply



0290

Length Code for UPC-E

---

Apply



0242

\*Do Not Apply



0243





## APPLYING FORMATS FOR DATA EDITING

---

The scanner allows advanced data editing by applying user-configured editing formats. The whole processed data can be divided into fields by user-specified rules. These fields together with the user-configurable additional fields consist of the data actually sent to the host computer.

[PrefixCode]	[Code ID]	[LengthCode]	[Data]	[SuffixCode]	Additional Field(s)
None by default	None by default	None by default	Barcode itself	0x0d by default	

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## 5.1 ACTIVATING EDITING FORMATS

### 5.1.1 ACTIVATE EDITING FORMATS

If you have already configured any editing format before, you may directly apply the editing format. If not, you must start with configuring an editing format first, and then, activate the editing format when it is desired in use.

#### Editing Format 1

Enable



\*Disable



#### Editing Format 2

Enable



\*Disable



#### Editing Format 3

Enable



\*Disable



#### Apply All 3 Editing Formats to Telepen

\*Yes



No





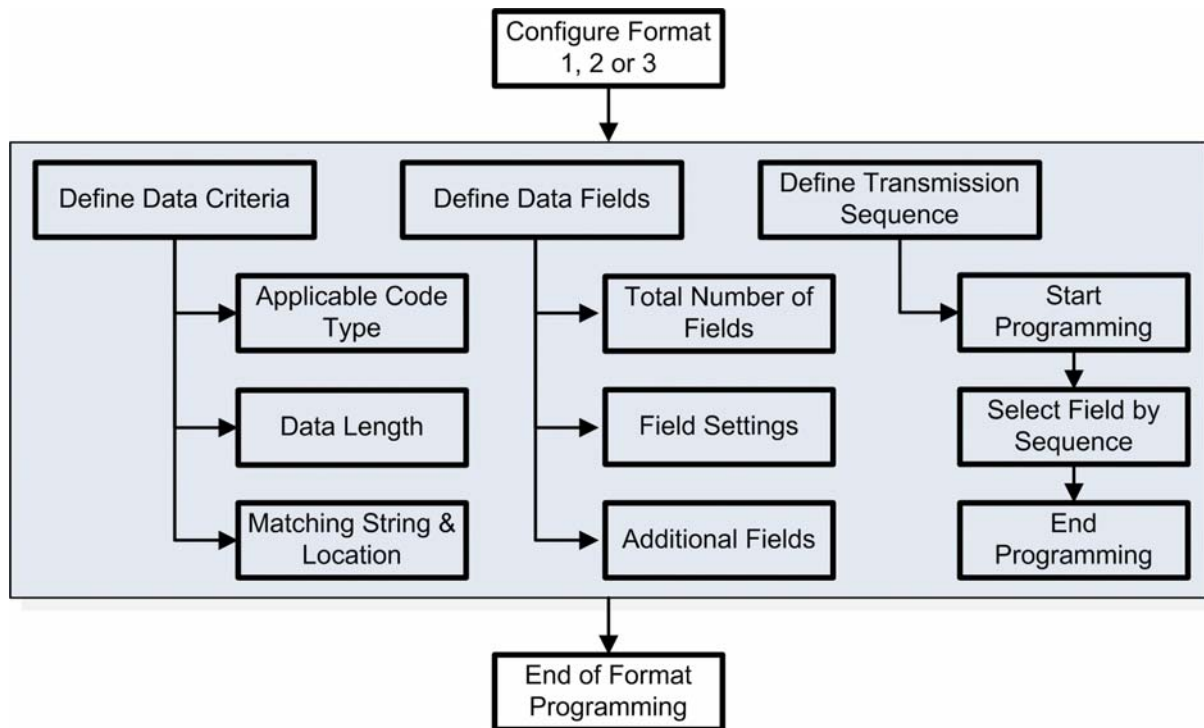
**5.1.2 EXCLUSIVE DATA EDITING**

By default, only barcodes found meeting with the criteria are processed by the editing formats. Those found not meeting with the criteria are processed normally.

When "Exclusive Data Editing" is enabled, all barcodes read by the scanner must be processed by the editing formats. If data is found excluded from all enabled editing formats (= not meeting with the specified criteria), the scanner will not accept the reading, and therefore, data will not be transmitted.



## 5.2 HOW TO CONFIGURE EDITING FORMATS



## 5.2.1 SELECT FORMAT TO CONFIGURE

### Start Programming Format

Select one editing format (Format 1~3) and the parameters pertaining to the editing format can then be configured – applicable code type, data length, matching string & location, total number of fields, field settings (field-dividing rule), additional fields, and field transmission sequence.

- ▶ Up to three different formats can be specified.

Configure Format 1



Configure Format 2



Configure Format 3



Note: Before you complete the programming of an editing format, if you have the scanner read any barcode for parameters other than those pertaining to the editing format, it will automatically abort the programming process.

### End Programming Format

After having configured all the desired parameters, you must have the scanner read the “End Programming Format” barcode, which can be located at the bottom of every even page in this chapter.

End Programming  
Format



## 5.2.2 RESTORE DEFAULT FORMAT

You may select an existing editing format and have the defaults restored. The default settings of an editing format are listed below.

Editing format	Defaults
Applicable Code Type	All
Data Length	0 (No qualification)
Matching String	Disable
Matching String Location	None
Total Number of Fields	1
Field Setting – field-dividing rule	Not configured
Additional Fields	None
Field Transmission Sequence	F1

Restore Default  
Format



### 5.3 CONFIGURING FORMAT – DEFINE DATA CRITERIA

Three applicable conditions can be configured to check whether the data read by the scanner can be processed by the particular editing format.

Note: Data editing cannot be performed unless the three conditions are all met.

#### 5.3.1 APPLICABLE CODE TYPE

By default, barcodes of all the supported symbologies will be processed by any editing format, if having been configured and enabled. For quick configuration, you may first clear all, and then select the desired symbologies.

Note: You must have at least one symbology selected.

\*Apply to All



Clear All



#### Codabar

Apply



#### Code 39

Apply



#### Code 93

Apply



**Code 128**

---

Apply



0516

**GS1-128 & GS1 DataBar**

---

Apply



0590

**EAN-8**

---

Apply



0524

**EAN-8 Addon 2**

---

Apply



0526

**EAN-8 Addon 5**

---

Apply



0528

**EAN-13**

---

Apply



0532

**EAN-13 Addon 2**

---

Apply



0534

**EAN-13 Addon 5**

---

Apply



0536



French Pharmacode

---

Apply



0504

Italian Pharmacode

---

Apply



0502

Industrial 25

---

Apply



0506

Interleaved 25

---

Apply



0508

Matrix 25

---

Apply



0510

MSI

---

Apply



0538

Plessey

---

Apply



0540

UPC-A

---

Apply



0584



UPC-A Addon 2

---

Apply



0586

UPC-A Addon 5

---

Apply



0588

UPC-E

---

Apply



0518

UPC-E Addon 2

---

Apply



0520

UPC-E Addon 5

---

Apply



0522

---

Note: For applying all three editing formats to Telepen, refer to [5.1.1 Activate Editing Formats](#).

---



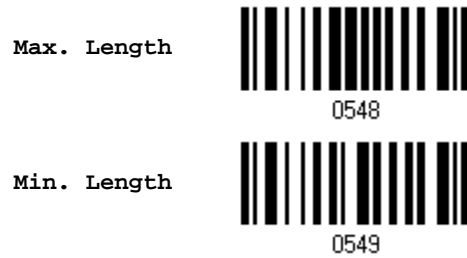


### 5.3.2 DATA LENGTH

The length must include prefix, suffix (0x0d by default), length code, etc. By default, barcodes of any length (character count) are eligible for data editing.

- ▶ You may specify a value from 0 to 255.
- ▶ When zero is given to both, the scanner will not perform the length qualification.

1) Read the barcode below to specify Max. Length or Min. Length separately, and follow steps 2~3.



- 2) Read the "[Decimal Value](#)" barcode on page 127 for the desired length.
- 3) Read the "Validate" barcode on the same page to complete this setting.



### 5.3.3 MATCHING STRING & LOCATION

By default, no matching string is specified, and therefore, it is disabled. You may enable this feature by specifying a matching string; up to four characters are allowed.

- ▶ When the Matching String Location is zero, the scanner will only check for the existence of the matching string in the barcode data.
- ▶ You may specify a value from 1 to 255 to indicate where the matching string starts in the barcode data.

1) Read the barcode to specify a matching string.

Matching String...



2) Read the "[Hexadecimal Value](#)" barcode on page 128 for the desired character string.

3) Read the "Validate" barcode to complete this setting.

4) Read the barcode to specify the location of the matching string.

Location of Matching  
String...



5) Read the "[Decimal Value](#)" barcode on page 127 for the desired location.

6) Read the "Validate" barcode on the same page to complete this setting.



## 5.4 CONFIGURING FORMAT — DEFINE DATA FIELD

### 5.4.1 TOTAL NUMBER OF FIELDS

Data can be divided into at most 6 fields; each of them is numbered from F1 to F6 accordingly. However, only F1~F5 can be configured.

- ▶ The total number of fields must be specified correctly. If three fields are configured for the editing format, the data characters after F3 will be assigned to F4 automatically. This feature is quite useful especially when data of variable lengths is processed by editing formats.

*One Field	 0578
Two Fields	 0579
Three Fields	 0580
Four Fields	 0581
Five Fields	 0582
Six Fields	 0583

Note: The number of configurable fields is always one less than the total number of fields specified. The extra data characters beyond the last field configured will be automatically assigned to the next field.



## 5.4.2 FIELD SETTINGS

Data eligible for editing formats is divided into fields by user-specified rules – either using the field terminating string or specified field length.

### By Terminating String

Specify the field terminating string. Up to two characters are allowed. The scanner will search for the occurrence of this particular string in the data.

- ▶ By default, this string will be included in the field. You may discard it.

### By Length

Alternatively, you may simply specify the field length. The scanner will assign the next specified number of characters into the field.

### Field 1 Setting

1. Read the barcode below to divide field 1 by a specified terminating string.

Select  
Field Separator  
to Divide Field 1...



2. Read the ["Hexadecimal Value"](#) barcode on page 128 for the desired character string.
3. Read the "Validate" barcode to complete this setting.
4. Read the "Discard Separator" barcode if the field separator is not desired in the field.

\*Include Separator



Discard Separator



If not dividing the field by a specific separator, you may divide it by a specified length.

1. Read the barcode below to divide field 1 by length.

Divide Field 1  
by Length



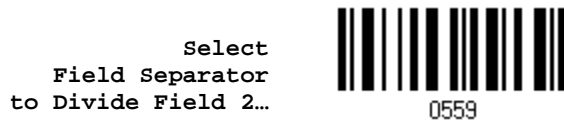
2. Read the ["Decimal Value"](#) barcode on page 127 for the desired field length.
3. Read the "Validate" barcode to complete this setting.



**Field 2 Setting**

---

1. Read the barcode below to divide field 2 by a specified terminating string.



2. Read the "[Hexadecimal Value](#)" barcode on page 128 for the desired character string.
3. Read the "Validate" barcode to complete this setting.
4. Read the "Discard Separator" barcode if the field separator is not desired in the field.



If not dividing the field by a specific separator, you may divide it by a specified length.

1. Read the barcode below to divide field 2 by length.



2. Read the "[Decimal Value](#)" barcode on page 127 for the desired field length.
3. Read the "Validate" barcode to complete this setting.



### Field 3 Setting

---

1. Read the barcode below to divide field 3 by a specified terminating string.

Select  
Field Separator  
to Divide Field 3...



2. Read the "[Hexadecimal Value](#)" barcode on page 128 for the desired character string.
3. Read the "Validate" barcode to complete this setting.
4. Read the "Discard Separator" barcode if the field separator is not desired in the field.

\*Include Separator



Discard Separator



If not dividing the field by a specific separator, you may divide it by a specified length.

1. Read the barcode below to divide field 3 by length.

Divide Field 3  
by Length



2. Read the "[Decimal Value](#)" barcode on page 127 for the desired field length.
3. Read the "Validate" barcode to complete this setting.




**Field 4 Setting**

---

1. Read the barcode below to divide field 4 by a specified terminating string.


Select  
Field Separator  
to Divide Field 4...



0567


2. Read the "[Hexadecimal Value](#)" barcode on page 128 for the desired character string.
3. Read the "Validate" barcode to complete this setting.
4. Read the "Discard Separator" barcode if the field separator is not desired in the field.

\*Include Separator



0564

Discard Separator




0565

If not dividing the field by a specific separator, you may divide it by a specified length.

1. Read the barcode below to divide field 4 by length.

Divide Field 4  
by Length



0566

2. Read the "[Decimal Value](#)" barcode on page 127 for the desired field length.
3. Read the "Validate" barcode to complete this setting.

### Field 5 Setting

---

1. Read the barcode below to divide field 5 by a specified terminating string.

Select  
Field Separator  
to Divide Field 5...



2. Read the "[Hexadecimal Value](#)" barcode on page 128 for the desired character string.
3. Read the "Validate" barcode to complete this setting.
4. Read the "Discard Separator" barcode if the field separator is not desired in the field.

\*Include Separator



Discard Separator



If not dividing the field by a specific separator, you may divide it by a specified length.

1. Read the barcode below to divide field 5 by length.

Divide Field 5  
by Length



2. Read the "[Decimal Value](#)" barcode on page 127 for the desired field length.
3. Read the "Validate" barcode to complete this setting.





**Additional Fields**

Up to five additional fields can be created for each editing format; each of them is numbered from AF1 to AF5 accordingly.

- ▶ If "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to apply Key Status when "Normal Key" is selected for Key Type.

Key Type		Key Status
Scan Code	Up to 2 scan code values are allowed.	N/A
Normal Key	Up to 4 character strings are allowed.	<ul style="list-style-type: none"> <li>▶ Add Shift</li> <li>▶ Add Left Ctrl</li> <li>▶ Add Left Alt</li> <li>▶ Add Right Ctrl</li> <li>▶ Add Right Alt</li> </ul> Refer to <a href="#">Keyboard Wedge Table</a> .

1. Read the barcode below to specify an additional field, one at a time.

Additional Field 1...



Additional Field 2...



Additional Field 3...



Additional Field 4...



Additional Field 5...



2. Read the "[Hexadecimal Value](#)" barcode on page 128 for the desired additional field.
3. Read the "Validate" barcode to complete this setting.



## 5.5 CONFIGURING FORMAT – DEFINE TRANSMISSION SEQUENCE

After configuring the data fields and additional fields, you must now program the transmission sequence of these fields that comprise the final data. This field transmission sequence can be assigned in any desired order and fields can be assigned multiple times as well.

Note: Up to twelve fields can be assigned.

- 1) Read the “Start” barcode to begin with programming the field transmission sequence.

Start Programming...



- 2) Program the transmission sequence by reading the desired fields as well as additional fields.

Field 1



Field 2



Field 3



Field 4



Field 5



Field 6



Additional Field 1



Additional Field 2



9908

Additional Field 3



9909

Additional Field 4



9910

Additional Field 5



9911

3) Read the "End" barcode to complete this setting.

End Programming...



9994



## 5.6 PROGRAMMING EXAMPLES

### 5.6.1 EXAMPLE I

#### Extract data from the 10th character to the 19th character...

---

The editing format should be configured as follows:

1. Read the "Enter Setup" barcode to enter the Configuration Mode.
2. Read the "Configure Format 1" barcode.
3. Read the "Clear All" and "Code 128" barcodes for applicable code type.
4. Read the "Three Fields" barcode.
5. Read the "Divide Field 1 by Length" barcode, and set length to 9.  
Field 1 data starts from the 1<sup>st</sup> character to the 9<sup>th</sup> character.
6. Read the "Divide Field 2 by Length" barcode, and set length to 10.  
Field 2 data starts from the 10<sup>th</sup> character to the 19<sup>th</sup> character.
7. Read the "Start (Programming)" barcode to program the transmission sequence.
8. Read the "Field 2" barcode.
9. Read the "End" barcode to complete the transmission sequence setting.
10. Read the "End Programming Format" barcode to complete the setting of Editing Format 1.
11. Read the "Enable Format 1" barcode to apply Editing Format 1 to Code 128.
12. Read the "Update" barcode to exit the Configuration Mode.



## 5.6.2 EXAMPLE II

### Extract the date code, item number, and quantity information from barcodes.

Data in a barcode is encoded like this:

- ▶ From the 1<sup>st</sup> character to the 6<sup>th</sup> character is the date code.
- ▶ From the 7<sup>th</sup> character to the dash '-' character is the item number.
- ▶ After the dash '-' character is the quantity information.

Data will be transmitted like this:

- ▶ The item number goes first, then a TAB character, followed by the date code, then another TAB character, and finally the quantity information.

The editing format should be configured as follows:

1. Read the "Enter Setup" barcode to enter the Configuration Mode.
2. Read the "Configure Format 2" barcode.
3. Read the "Three Fields" barcode.
4. Read the "Divide Field 1 by Length" barcode, and set length to 6.  
Field 1 data starts from the 1<sup>st</sup> character to the 6<sup>th</sup> character.
5. Read the "Select Field Separator to Divide Field 2" barcode, and use a dash '-' character.  
Field 2 data starts from the 7<sup>th</sup> character until the dash '-' character is met.
6. Read the "Additional Field 1" barcode, and use a tab character for the field.
7. Read the "Start (Programming)" barcode to program the transmission sequence.
8. Read the "Field 2", "Additional Field 1", "Field 1", "Additional Field 1", "Field 3" barcodes.
9. Read the "End" barcode to complete the transmission sequence (F2 A1 F1 A1 F3) setting.
10. Read the "End Programming Format" barcode to complete the setting of Editing Format 1.
11. Read the "Enable Format 2" barcode to apply Editing Format 2 to all code types.
12. Read the "Update" barcode to exit the Configuration Mode.





# SPECIFICATIONS

## 1000, 1090+



Optical Characteristics	1000	1090+
Scan Engine	Contact type	Contact type (Barcode width up to 90 mm)
Optical Sensor	CCD, 2048 pixels	CCD, 2048 pixels
Light Source	Red LED	Red LED
Wavelength	625 nm	625 nm
<b>Physical Characteristics</b>		
Switch	Rubber switch	
Indication	Dual-color LED (Red/Green) and beeper	
Interface Options	Keyboard, RS-232 USB HID, USB Virtual COM IBM 4683/4694	See accessories below.
Weight	Approx. 265 g (including cable)	Approx. 148 g



		1000	1090+
<b>Electrical Characteristics</b>			
Voltage		+ 5V ± 5%	
Power Consumption	Standby	15 mA	15 mA
	Operating	60 ~ 80 mA	60 mA
<b>Environmental Characteristics</b>			
Temperature	Operating	0 °C to 50 °C	
	Storage	-20 °C to 60 °C	
Humidity (Non-condensing)	Operating	10% to 90%	
	Storage	5% to 95%	
Impact (Multiple drops onto concrete)	Resistance	1 m	
Electrostatic Discharge		± 15 kV air discharge, ± 8 kV contact discharge	
<b>Programming Support</b>			
Configuration via Setup Barcodes		Use setup barcodes or host serial commands.	
Software		Windows®-based ScanManager	
<b>Accessories (√ means “supported”)</b>			
USB HID Cable (307)			√
USB Virtual COM Cable (308)			√
IBM 4683/4694 Cable (346)			√
RS-232 Cable			√
Keyboard Wedge Cable			√
Wand Emulation Cable			√





## 1100, 1105



<b>Optical Characteristics</b>		<b>1100</b>	<b>1105</b>
Scan Engine		Non-contact type	Non-contact type
Optical Sensor		CCD, 3648 pixels	CCD, 2048 pixels
Light Source		Red LED	Red LED
Wavelength		625 nm	625 nm
<b>Physical Characteristics</b>			
Switch		Micro switch	
Indication		Dual-color LED (Red/Green) and beeper	
Interface Options		See accessories below.	
Weight		Approx. 165 g	Approx. 165 g
<b>Electrical Characteristics</b>			
Voltage		+ 5V ± 10%	+ 5V ± 10%
Power Consumption	Standby	15 mA	15 mA
	Operating	80 mA	80 mA
<b>Environmental Characteristics</b>			
Temperature	Operating	0 °C to 50 °C	0 °C to 50 °C
	Storage	-20 °C to 60 °C	-20 °C to 60 °C
Humidity (Non-condensing)	Operating	10% to 90%	
	Storage	5% to 95%	



	1100	1105
Impact Resistance (Multiple drops onto concrete)	2 m	2 m
Electrostatic Discharge	± 15 kV air discharge, ± 8 kV contact discharge	
<b>Programming Support</b>		
Configuration via Setup Barcodes	Use setup barcodes or host serial commands.	
Software	Windows®-based ScanManager	
<b>Accessories (√ means “supported”)</b>		
Auto-Sense Stand	√	
Holder	√	√
USB HID Cable (307)	√	√
USB Virtual COM Cable (308)	√	√
IBM 4683/4694 Cable (346)	√	√
RS-232 Cable	√	√
Keyboard Wedge Cable	√	√
Wand Emulation Cable	√	√



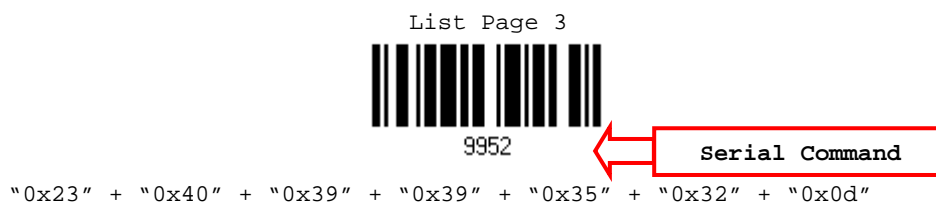
## HOST SERIAL COMMANDS

### SERIAL COMMANDS

#### #@ nnnn <CR>

**Purpose** To configure the scanner.

**Remarks** nnnn – the four digits of command parameters.  
For example, “9952” is to list the current Code ID settings.



Note: After configuring the scanner, you may send the serial command “#@9999” to save the settings.

#### #@ ----<CR>

**Purpose** To halt the scanner.

**Remarks** "0x23" + "0x40" + "0x2d" + "0x2d" + "0x2d" + "0x2d" + "0x0d"

#### #@ ....<CR>

**Purpose** To resume operation.

**Remarks** "0x23" + "0x40" + "0x2e" + "0x2e" + "0x2e" + "0x2e" + "0x0d"

#### #@ ////<CR>

**Purpose** To respond with a beep.

**Remarks** "0x23" + "0x40" + "0x2f" + "0x2f" + "0x2f" + "0x2f" + "0x0d"



## EXAMPLE

You may run HyperTerminal.exe on the host computer to send serial commands to the scanner via RS-232 or USB Virtual COM.

- ▶ For the scanner to turn off the beeper and save the setting –  
#@0319<CR>  
#@9999<CR>
- ▶ For the scanner to change the beeper frequency to 8 kHz (for Good Read Beep only) and beep –  
#@0046<CR>  
#@////<CR>
- ▶ For the scanner to change to Auto Power Off mode and save the settings, send the serial command “#@9999” –  
#@0068<CR>  
#@9999<CR>

---

Note: You can configure more than one scanner connected to the host via RS-232 or USB Virtual COM. To identify the scanner, you may send the serial command to have it respond with a beep.

---



## KEYBOARD WEDGE TABLE

	0	1	2	3	4	5	6	7	8
0		F2	SP	0	@	P	`	p	⓪
1	INS	F3	!	1	A	Q	a	q	①
2	DLT	F4	"	2	B	R	b	r	②
3	Home	F5	#	3	C	S	c	s	③
4	End	F6	\$	4	D	T	d	t	④
5	Up	F7	%	5	E	U	e	u	⑤
6	Down	F8	&	6	F	V	f	v	⑥
7	Left	F9	'	7	G	W	g	w	⑦
8	BS	F10	(	8	H	X	h	x	⑧
9	HT	F11	)	9	I	Y	i	y	⑨
A	LF	F12	*	:	J	Z	j	z	
B	Right	ESC	+	;	K	[	k	{	
C	PgUp	Exec	,	<	L	\	l		
D	CR	CR*	-	=	M	]	m	}	
E	PgDn		.	>	N	^	n	~	
F	F1		/	?	O	_	o	Dly	ENTER*

Note: (1) ⓪~⑨: Digits of numeric keypad.  
 (2) CR\*/ENTER\*: ENTER key on the numeric keypad.



## KEY TYPE & STATUS

### KEY TYPE

If "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable.

\*Normal



9926

Scan Code



9936

### KEY STATUS

Decide whether or not to change key status when "Normal Key" is selected for Key Type.

Add Shift



9930

Add Left Ctrl



9931

Add Right Ctrl



9933

Add Left Alt



9932

Add Right Alt



9934



**EXAMPLE****KEY TYPE = NORMAL**

For example, if you want to program the character "!" as the prefix code:

1. Read the "Configure Prefix" barcode.
2. Read the "[Hexadecimal Value](#)" barcode on page 128 for "2" and "1".
3. Read the "Validate" barcode to complete this setting.

**KEY TYPE = SCAN CODE**

For example, if you want to program the character "a" (= "1C" on the scan code table) as the prefix code:

1. Read the "Configure Prefix" barcode.
2. Read the "Scan Code" barcode.
3. Read the "[Hexadecimal Value](#)" barcode on page 128 for "1" and "C".
4. Read the "Validate" barcode to complete this setting.

**KEY TYPE = NORMAL + KEY STATUS = SHIFT**

For example, if you want to program the character "!" (= "Shift" + "1" on keyboard) as the prefix code:

1. Read the "Configure Prefix" barcode.
2. Read the "Add Shift" barcode.
3. Read the "[Hexadecimal Value](#)" barcode on page 128 for "3" and "1".
4. Read the "Validate" barcode to complete this setting.







## NUMERAL SYSTEMS

---

### DECIMAL SYSTEM

#### Decimal

---



















#### Validate the Values

---



## HEXADECIMAL SYSTEM

### Hexadecimal

0  9900	1  9901
2  9902	3  9903
4  9904	5  9905
6  9906	7  9907
8  9908	9  9909
A  9910	B  9911
C  9912	D  9913
E  9914	F  9915



## Validate the Values

Validate



9994

## ASCII TABLE

	0	1	2	3	4	5	6	7	
0		DLE	SP	0	@	P	`	p	
1	SOH	DC1	!	1	A	Q	a	q	
2	STX	DC2	"	2	B	R	b	r	
3	ETX	DC3	#	3	C	S	c	s	
4	EOT	DC4	\$	4	D	T	d	t	
5	ENQ	NAK	%	5	E	U	e	u	
6	ACK	SYN	&	6	F	V	f	v	
7	BEL	ETB	'	7	G	W	g	w	
8	BS	CAN	(	8	H	X	h	x	
9	HT	EM	)	9	I	Y	i	y	
A	LF	SUB	*	:	J	Z	j	z	
B	VT	ESC	+	;	K	[	k	{	
C	FF	FS	,	<	L	\	l		
D	CR	GS	-	=	M	]	m	}	
E	SO	RS	.	>	N	^	n	~	
F	SI	US	/	?	O	_	o	DEL	

Update



Abort



