CipherLab
User Guide

1704 Barcode Scanner

Setup barcodes included.

Version 1.05

CIPHER LAB

IMPORTANT NOTICES

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 numerique respecte les limites de bruits radioelectriques applicables aux appareils numeriques de Classe B prescrites dans la norme sur le material brouilleur: "Appareils Numeriques," NMB-003 edictee 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

Version	Date	Notes
1.05	Aug 31, 2011	▸ New: "Picklist Mode" is added for section 1.17.
		▸ New: Kanji Transmission support is added for USB HID and Keyboard Wedge under sections 2.1, 2.1.2, 2.3, and 2.3.2.
1.04	Jul. 12, 2011	▸ New: Quick Start — Create One-Scan Setup Barcodes (e.g. "109950" → "#@109950#")
		▸ Modified: 1.8 Delay between Re-read — Presentation Mode
		▸ Modified: 2.1.1 Activate Keyboard Wedge & Select Keyboard Type — add #31 PCAT (Hungarian)
		▸ Modified: 2.3 Direct USB HID — add Inter-Character Delay
		▸ Modified: 2.3.1 Activate USB HID & Select Keyboard Type — add #77 PCAT (Hungarian)
1.03	Mar. 11, 2011	▸ Modified: 1.6 Scan Modes — add support of Presentation Mode (100210)
		▸ Modified: 3.11 GS1-128 (EAN-128) — Decode behavior
		▸ Modified: 4.6.1 Edit a Concatenation of Barcodes — Code type for ISBT 128
		▸ Modified: 5.5 Configuring Format — Define Transmission Sequence (add Null Character Field)
		▸ Modified: Specifications — Power Adaptor
		▸ Modified: Specifications — add accessory "Power Hood"
1.02	Nov. 29, 2010	▸ Modified: Specifications — Temperature, power adaptor
1.01	Sep. 29, 2010	▸ Modified: Introduction, Symbologies Supported — add support of more RSS symbologies
		▸ Modified: 2.3 Direct USB HID — change command 100005 to 100009
		▸ Modified: 2.4 Direct USB Virtual COM — change command 100004 to 100008
		▸ Modified: 3.13 GS1 DataBar (RSS Family)
		▸ Modified: 3.13.2 GS1 DataBar Omnidirectional (RSS-14)
		▸ Modified: 3.13.3 GS1 DataBar Expanded (RSS Expanded)
		▸ Modified: 5 Applying Formats for Data Editing — add maximum output length (4084 bytes; 2042 bytes if Multi-Barcode Mode or Multi-Barcode Editor is in use)
		▸ New: 5.4.5 Pause Field Setting
		▸ Modified: 5.5 Configuring Format — Define Transmission Sequence (add Pause Field)
1.00	May 12, 2010	Initial Release

CONTENTS

INTRODUCTION

CipherLab's new industrial 1700 Series Barcode Scanners are specifically designed to answer your demands for robust, versatile and high performance scanners. 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 various working environments.

The 1704 scanner is our first scanner capable of reading a variety of 2D symbologies. Owing to the rugged 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!

Update

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: 1704
▸ Product CD

Note: The CD-ROM includes this manual and Windows-based *ScanMaster* software for configuration, as well as the USB Virtual COM driver.

PRODUCT HIGHLIGHTS

▸ Ruggedized and built tough to survive drop test
▸ Extremely low power consumption
▸ Firmware upgradeable
▸ Supports most popular barcode symbologies, including GS1-128 (EAN-128), GS1 DataBar (RSS), etc.
▸ Supports negative barcodes
▸ Supports a variety of 2D symbologies
▸ Supports different scan modes, including Aiming Mode and Multi-Barcode Mode[Note]
▸ User feedback via LED indicator, beeper and vibrator
▸ Beeping tone and duration programmable for Good Read
▸ Provides choices of output interfaces, including RS-232, Keyboard Wedge, and USB.
▸ Programmable parameters include data output format, editing format, symbologies, etc.
▸ Supports OCX programming for signature capture in Decode Mode, Image Mode and Video Mode

Note: (1) In any scan mode other than Multi-Barcode Mode, a barcode acceptable to 1704 can only contain data of 4084 bytes at most.
(2) 1704 supports different scan modes and signature capture in Decode Mode. Two more operation modes are supported, which are Image Mode and Video Mode. Image capture occurs in all modes of operation, and it requires software applications to capture and download images to PC for decoding.

Enter Setup

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	
Codabar		Enabled	
Code 93		Enabled	
MSI			Disabled
Code 128	Code 128	Enabled	
	GS1-128 (EAN-128)		Disabled
	ISBT 128	Enabled	
Code 2 of 5	Industrial 25	Enabled	
	Interleaved 25	Enabled	
	Matrix 25		Disabled
	Chinese 25		Disabled
Code 3 of 9	Code 39	Enabled	
	Italian Pharmacode		Disabled
	Trioptic Code 39		Disabled
EAN/UPC	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	
GS1 DataBar (RSS)	GS1 DataBar Omnidirectional (RSS-14)		Disabled
	GS1 DataBar Truncated		Disabled
	GS1 DataBar Stacked		Disabled
	GS1 DataBar Stacked Omnidirectional		Disabled

Update

	GS1 DataBar Limited (RSS Limited)		Disabled
	GS1 DataBar Expanded (RSS Expanded)		Disabled
	GS1 DataBar Expanded Stacked		Disabled
Code 11			Disabled
Composite Code	Composite CC-A/B		Disabled
	Composite CC-C		Disabled
	Composite TLC-39		Disabled
Postal Code	US Postnet	Enabled	
	US Planet	Enabled	
	UK Postal	Enabled	
	Japan Postal	Enabled	
	Australian Postal	Enabled	
	Dutch Postal	Enabled	
	USPS 4CB/One Code/Intelligent Mail		Disabled
	UPU FICS Postal		Disabled
2D Symbologies	PDF417	Enabled	
	MicroPDF417		Disabled
	Data Matrix	Enabled	
	Maxicode	Enabled	
	QR Code	Enabled	
	MicroQR	Enabled	
	Aztec	Enabled	

Enter Setup

QUICK START

The configuration of the scanner can be done by reading the setup barcodes contained in this manual or via the *ScanMaster* 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 or USB Virtual COM is selected for output interface, the host can directly send serial commands to configure the scanner.
For example, run HyperTerminal.exe and type the 6-digit command located under each setup barcode. Refer to Appendix II Host Serial Commands.

Connect the interface cable	One long beep, high tone Red LED, on-off quickly

One long beep, high tone
Red LED, on-off quickly

Restart automatically...

Keyboard Wedge / USB HID Application — One short beep, high tone, and green LED if reading a barcode successfully; both programmable.

RS-232 / USB Virtual COM Application — One short beep, high tone, and green LED if reading a barcode successfully; both programmable.

Configuration Mode

Read the label — Enter Setup	Read Setup labels to configure settings	Read the label — Update
Six beeps, high-low tone repeats Red LED, flashing	OR	OR
	Read the label — Restore User Defaults	Read the label — Abort
	OR	Six beeps, high-low tone repeats Red LED, flashing
	Read the label — Restore System Defaults	

1. Two beeps, low-high tone, if reading a normal label
2. One short beep for special labels, indicating more labels are required to complete the setting.

Disconnect the interface cable or turn off the host

‖‖‖‖‖‖‖‖‖‖‖
Update

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 flashing red 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 become flashing red after reading the barcode. Wait for a few seconds for the scanner to restart itself.

Update

109999

Abort

109998

Enter Setup

DEFAULT SETTINGS

SAVE USER SETTINGS AS DEFAULTS

For the scanner to keep the customized settings as user defaults, you must have it read the "Save as User Defaults" barcode. This is a normal setup barcode, and the scanner will respond with two beeps (low-high tone).

▸ After reading the "Update" barcode, the current settings will be saved as user defaults.

Save as User Defaults

109986

RESTORE USER DEFAULTS

For the scanner to restore the user defaults, which you have saved earlier, you must have it read the "Restore User Defaults" barcode. This is a normal setup barcode, and the scanner will respond with two beeps (low-high tone).

▸ After reading the "Update" barcode, all the parameters of the scanner will return to their customized values.

Restore User Defaults

109987

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 (low-high tone).

▸ After reading the "Update" barcode, all the parameters of the scanner will return to their default values.

Restore System Defaults

109993

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 (low-high 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" or "USB HID" 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 (low-high tone) to indicate the input values are validated.

```
                    ┌──────────────┐
                    │ Special Label│
                    └──────┬───────┘
         ┌─────────────────┼──────────────────┐
         ▼                 ▼                   ▼
  ┌──────────────┐  ┌──────────────┐   ┌──────────────┐
  │ Decimal Label│  │Two Hexadecimal│◄──│   Key Type   │
  └──────┬───────┘  │    Labels    │   └──────┬───────┘
         │          └──────┬───────┘          ▼
         │                 │           ┌──────────────┐
         │                 │           │  Key Status  │
         │                 ▼           └──────────────┘
         │          ┌──────────────┐
         └─────────►│   Validate   │
                    └──────────────┘
```

Enter Setup
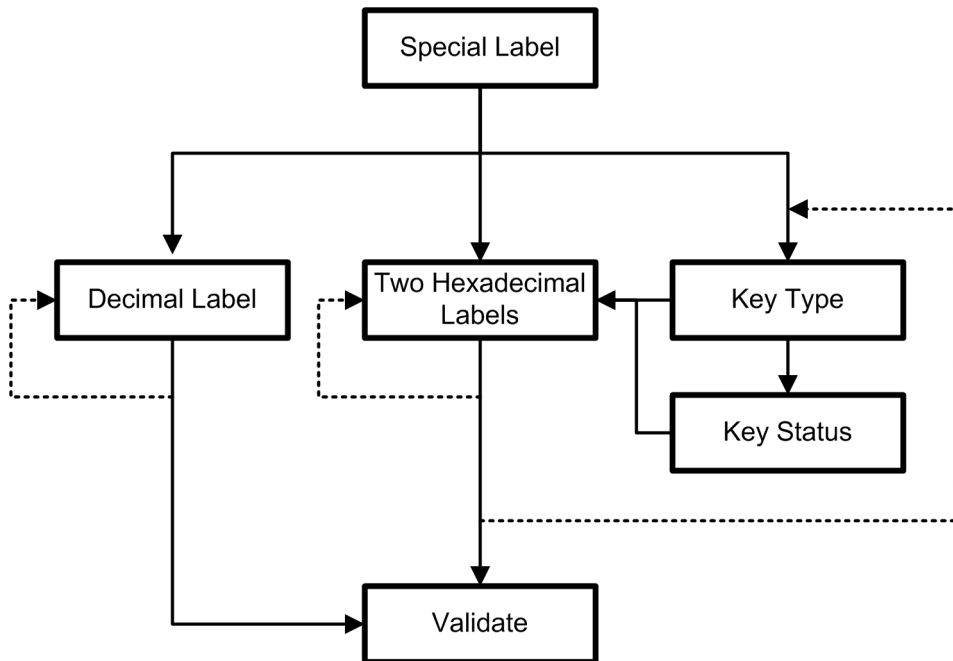
The example below shows how to save your settings as "User Default" so that you may restore user defaults at a later time:

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 be flashing red.

Enter Setup

Steps	Action	User Feedback if Successful
3	Read a Setup barcode… For example,	The scanner will respond with two beeps (low-high tone) if reading a normal setup barcode.

*Enable Industrial 25

100307

Save as User Default

109986

Steps	Action	User Feedback if Successful
4	Exit the Configuration Mode…	Same as for *Enter the Configuration Mode*.

Update   **Abort**

109999   OR   109998

Steps	Action	User Feedback if Successful
5	The scanner will automatically restart itself…	Same as for *Power on the scanner*.
*	When any configuration error occurs...	The scanner will respond with one long beep (low tone).

Update

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… **Enter Setup** ‖‖‖‖‖‖‖‖‖‖‖	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will become flashing red.
3	Read a Setup barcode... For example,	The scanner will respond with two beeps (low-high tone) if reading a normal setup barcode.

Normal setup barcode

*Enable Interleaved 25
‖‖‖‖‖‖‖‖‖‖‖
100309

Normal setup barcode

Enable Fixed Length(s) …
‖‖‖‖‖‖‖‖‖‖‖
100604

Special setup barcode

Max. Length (*126)
Or Fixed Length 1
‖‖‖‖‖‖‖‖‖‖‖
100606

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.

Decimal barcodes

1
‖‖‖‖‖‖‖‖‖‖‖
109901

Read the "Decimal Value" barcode(s).

▸ Refer to Appendix IV "Decimal System"

5
‖‖‖‖‖‖‖‖‖‖‖
109905

Validate
‖‖‖‖‖‖‖‖‖‖‖
109994

The scanner will respond with two beeps (low-high tone) when the input values are validated.

Steps	Action	User Feedback if Successful
4	Exit the Configuration Mode… Update ‖‖‖‖‖‖ 109999 OR Abort ‖‖‖‖‖‖ 109998	Same as for *Enter the Configuration Mode*.
5	The scanner will automatically restart itself…	Same as for *Power on the scanner*.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

Enter Setup

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… **Enter Setup** ‖‖‖‖‖‖‖‖‖‖‖‖‖	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will become flashing red.
3	Read a Setup barcode… For example, **Configure Prefix** ‖‖‖‖‖‖‖‖‖‖‖ 101230	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.

Special setup barcodes

Hexadecimal barcodes

*Normal
‖‖‖‖‖‖‖‖‖‖‖
109926

When "Keyboard Wedge" or "USB HID" 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.

▸ Refer to Appendix III

Add Left Alt
‖‖‖‖‖‖‖‖‖‖‖
109932

2
‖‖‖‖‖‖‖‖‖‖‖
109902

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"

B
‖‖‖‖‖‖‖‖‖‖‖
109911

Validate
‖‖‖‖‖‖‖‖‖‖‖
109994

The scanner will respond with two beeps (low-high tone) when the input values are validated.

| 4 | Exit the Configuration Mode… | Same as for *Enter the Configuration Mode*. |

Update
‖‖‖‖‖‖‖‖‖‖‖
109999

OR

Abort
‖‖‖‖‖‖‖‖‖‖‖
109998

| 5 | The scanner will automatically restart itself… | Same as for *Power on the scanner*. |

‖‖‖‖‖‖‖‖‖‖‖

Update

LIST THE CURRENT SETTINGS

The current settings of all scanner parameters can be sent 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 (low-high tone) and send the selected page to the host immediately.

List settings regarding Firmware Version, Serial Number, Interface, Buzzer, and Other Scanner Parameters

List Page 1

109950

List settings regarding Prefix, Suffix, and Length Code Setting (1/2)

List Page 2

109951

List settings regarding Prefix, Suffix, and Length Code Setting (2/2)

List Page 3

109952

List settings regarding Code ID

List Page 4

109953

List settings regarding: Readable Symbologies (1/2)

List Page 5

109954

List settings regarding: Readable Symbologies (2/2)

List Page 6

109955

List settings regarding Symbology Parameters (1/3)

List Page 7

109956

List settings regarding Symbology Parameters (2/3)

List Page 8

109957

List settings regarding Symbology Parameters (3/3)

List Page 9

109958

List settings regarding Imager Parameters, as well as Video and Signature Capture Parameters

List Page 10

109959

Enter Setup

List settings regarding Editing Format 1 (1/2)

List Page 11

109937

List settings regarding Editing Format 1 (2/2)

List Page 12

109938

List settings regarding Editing Format 2 (1/2)

List Page 13

109939

List settings regarding Editing Format 2 (2/2)

List Page 14

109940

List settings regarding Editing Format 3 (1/2)

List Page 15

109941

List settings regarding Editing Format 3 (2/2)

List Page 16

109942

List settings regarding Editing Format 4 (1/2)

List Page 17

109943

List settings regarding Editing Format 4 (2/2)

List Page 18

109944

List settings regarding Editing Format 5 (1/2)

List Page 19

109945

List settings regarding Editing Format 5 (2/2)

List Page 20

109946

Update

CREATE ONE-SCAN SETUP BARCODES

The fact is most of the scanner parameters require only one read for setting new values. To facilitate configuring the scanner, you may create One-Scan setup barcodes for use.

The requirements of a One-Scan setup barcode are:

▶ a prefix of the "#@" characters

▶ the six digits of command parameters

▶ a suffix of the "#"character

For example, the scanner needs reading three setup barcodes for the command parameter "109952" to take effect:

Enter Setup

List Page 3

109952

Update

109999
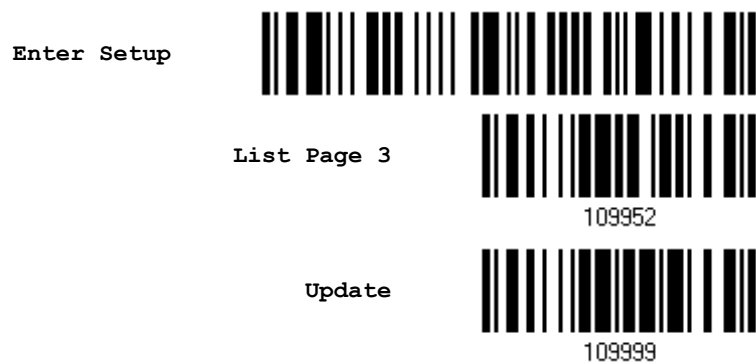
Now, it requires only one read:

One-Scan Setup Barcode for 109952

#@109952#

Note: The scanner will restart automatically upon reading the One-Scan setup barcode for changing the interface. It will respond with a long beep and its LED will come on-off shortly.

Enter Setup

UNDERSTANDING THE BARCODE SCANNER

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

IN THIS CHAPTER

Update

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. You may tell the difference by the beeps – for example, you will hear a long beep of high tone when powering on the scanner, and two beeps of high-low tone when RS-232/USB Virtual COM connection fails.

Scanner LED		Meaning
Red, on-off	---	▶ Power on, with one long beep (high tone, LED on for 1 second) ▶ RS-232/USB Virtual COM connection fails, with two beeps (high-low tone)
---	Green, on-off	Good Read, with one short beep (high tone) and beeper pitch and duration programmable
Red, flashing	---	Configuration Mode (On/Off ratio 0.5 s: 0.5 s)

1.2.1 GOOD READ LED

*Enable Good Read LED

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
101014

Disable Good Read LED

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
101013

‖‖‖‖‖‖‖‖‖‖‖‖‖‖

Enter Setup

1.2.2 GOOD READ LED DURATION

By default, the Good Read LED stays on for 40 milliseconds. Specify a value, ranging from 1 to 254 in units of 10 milliseconds.

**Good Read LED
Time-out after
0.01~2.54 sec.
(*40 ms)**

101020

1) Read the barcode above to specify the time interval before the Good Read LED goes off.

2) Read the "Decimal Value" barcode on page 209. For example, read "1" and "5" for the LED to go off after 150 milliseconds.

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

Update

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 green LED on-off quickly
Six short beeps ▶ High-low tone repeats three times	▶ Enter Configuration Mode, with red LED flashing ▶ Exit Configuration Mode
Two beeps, low-high tone	▶ Setup barcode read successfully ▶ Abort or exit Image Mode/Video Mode/Signature Capture
Two beeps, high-low tone	RS-232/USB Virtual COM connection fails (data saved in buffer), with red LED on-off quickly
One short beep, high tone	More setup barcode required
One short beep, low tone	More barcodes required to complete the "output sequence" requirements of Multi-Barcode Editor, with green LED on-off quickly (Upon completion, same as Good Read.)
One long beep, low tone	Configuration error (Wrong barcode…)
Two long beeps, high-low tone	Multi-Barcode Mode – Buffer full

1.3.1 BEEPER VOLUME

Mute

101009

Minimum Volume

101010

Medium Volume

101011

*Maximum Volume

101012

Enter Setup

1.3.2 GOOD READ BEEP

Frequency

8 kHz

101001

*4 kHz

101002

2 kHz

101003

1 kHz

101004

Duration

*Shortest

101005

Shorter

101006

Longer

101007

Longest

101008

Update
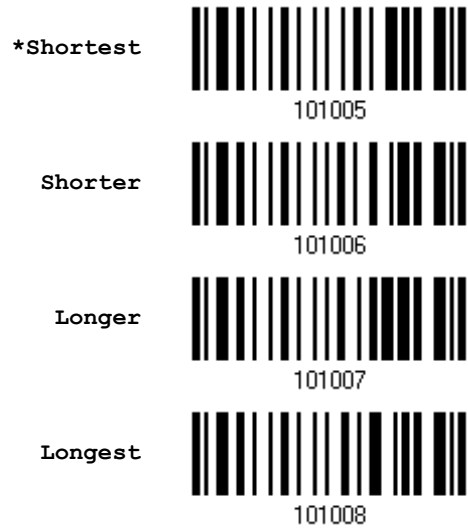
1.4 VIBRATOR

1.4.1 GOOD READ VIBRATOR

Enable
Good Read Vibrator

102242

***Disable**
Good Read Vibrator

102241

1.4.2 GOOD READ VIBRATOR DURATION

By default, the Good Read Vibration stays on for 1 second. Specify a value, ranging from 1 to 254 in units of 100 milliseconds.

Good Read Vibrator
Time-out after
0.1~25.4 sec.
(*1 s)

102253

1) Read the barcode above to specify the time interval before the Good Read Vibrator goes off.

2) Read the "Decimal Value" barcode on page 209. For example, read "1" and "5" for the vibrator to go off after 1.5 seconds.

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

Enter Setup

1.5 SEND "NR" TO HOST

You may have the scanner send the "NR" string to the host to notify the No Read event.

Enable

100267

*Disable

100266

Update

1.6 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.

▸ In any scan mode other than Multi-Barcode Mode, a barcode acceptable to 1704 can only contain data of 4084 bytes at most.

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		✓				✓		
Aiming mode				✓			✓	✓
Multi-Barcode mode			✓		✓			
Presentation mode	✓							

Note: By default, the scan mode is set to Laser mode.

Enter Setup

1.6.1 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 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

100201

Decoding Delay

Set the time interval between each decoding.

*Disable

100227

0.5 sec

100228

1 sec

100229

2 sec

100230

1.6.2 TEST MODE

The scanner is always scanning.

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

Test Mode

100207

23

Update

1.6.3 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

100206

1.6.4 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

100200

1.6.5 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

100202

Enter Setup

1.6.6 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

100203

1.6.7 AIMING MODE

The scanner will aim at a barcode once the trigger is pressed, and start scanning when the trigger is pressed again within one second.

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

Aiming Mode

100208

Aiming Timeout

You can limit the aiming time interval (1~15). By default, the scanner time-out is set to 1 second.

Aiming Time-out after 1~15 sec. (*1)

100226

1. Read the barcode above to specify the time interval before aiming ends. (It is set to 1 by default.)

2. Read the "Decimal Value" barcode on page 209. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 10 seconds.

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

Update

1.6.8 MULTI-BARCODE MODE

The scanner will be scanning as long as the trigger is held down, capable of decoding one single barcode, as well as multiple unique barcodes one at a time. While decoding a bunch of unique barcodes, if a barcode is decoded twice, its subsequent decoding will be ignored and the scanner is expecting another unique barcode.

For 1704 to decode multiple unique barcodes, the maximum output data length of all the barcodes is 2042 bytes after configuration. When the output length exceeds 2042 bytes, Multi-Barcode Mode will not take effect.

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

Multi-Barcode Mode

100209

Note: (1) A barcode is considered unique when its Code Type or data is different from others.
(2) Multi-Barcode Mode has nothing to do with the Multi-Barcode Editor.

1.6.9 PRESENTATION MODE

The scanner will be expecting barcodes. Whenever a barcode is brought within range, the scanner will be able to decode it.

Presentation Mode

100210

Enter Setup

1.7 SCANNING TIMEOUT

Specify the scanning time interval (1~254 sec.; 0= Disable) when the scan mode is set to any of the following –

▸ Laser mode
▸ Auto Off mode
▸ Auto Power Off mode
▸ Aiming mode

Scanner Time-out after 0~254 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 209. 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.

Update

1.8 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
‣ Presentation mode

100 ms

100216

200 ms

100217

*400 ms

100218

800 ms

100219

1 sec

100220

2 sec

100221

3 sec

100222

5 sec

100223

Enter Setup

1.9 READ REDUNDANCY (1D)

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 "Two Times" is selected, it will take a total of three 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.

*No Redundancy

100262

One Time

100263

Two Times

100264

Update

1.10 ADDON SECURITY FOR UPC/EAN BARCODES

The scanner is capable of decoding a mix of UPC/EAN barcodes with and without addons. The read redundancy (2~30 times) allows changing the number of times to decode a UPC/EAN barcode before transmission. 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.

Note: UPC/EAN Addon 2 and Addon 5 must be enabled individually for this setting to take effect.

Addon Security Level
(*2~30)

```
100380
```

1) Read the barcode above to specify the read redundancy for UPC/EAN barcodes. (It is set to 2 by default.)

2) Read the "Decimal Value" barcode on page 209. For example, read "1" and "2" for the scanner to re-read the barcode for 12 times.

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

Enter Setup

1.11 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 in the following symbologies:

▸ All 1D symbologies
▸ Data Matrix
▸ QR Code
▸ Aztec

Enable

100225

*Disable

100224
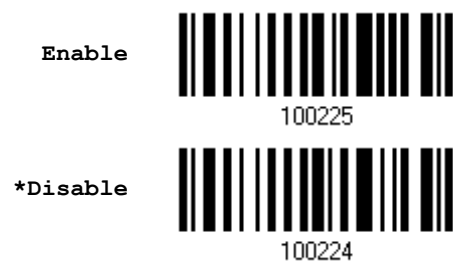
1.12 FUZZY 1D PROCESSING

By default, this option optimizes decode performance on 1D barcodes, including damaged and poor quality barcodes. Disable this only if you experience time delays when decoding 2D barcodes, or in detecting a no decode.

*Enable

102117

Disable

102116

Update

1.13 OPERATION MODE

For 1704, it supports different scan modes and signature capture in Decode Mode. Two more operation modes are supported, which are Image Mode and Video Mode. Image capture occurs in all modes of operation, and it requires software applications, such as *ScanMaster*, to capture and download images to PC for decoding. Please refer to separate manual for OCX programming support.

For Image Mode, Video Mode or signature capture in Decode Mode, the output interface must be RS-232 or USB Virtual COM. Both active and passive modes are supported.

▶ Active Mode: Application on the host will send command to instruct the scanner to stay in a specific operation mode (Image Mode/Video Mode/Signature Capture) and wait for image data. Press the trigger to capture and send an image.

▶ Passive Mode: First, it requires the scanner to read the setup barcodes for the desired operation — signature Capture, Image Mode or Video Mode. Then, it will passively wait for image data. Press the trigger to capture and send an image.

Signature Capture, Image Mode or Video Mode

Have the scanner read the setup barcodes in a separate but complete sequence. For example, the following sequence will allow the scanner to enter Image Mode:

Enter Setup	✔ Image Mode	Update

But the sequence below will allow you to configure settings only:

Enter Setup	✔ Medium Volume	✔ Enable GS1-128	✘ Image Mode	Update

Refer to 1.13.2 Enter/Exit Image Mode.

Refer to 1.13.4 Enter/Exit Video Mode.

Refer to 1.15 Signature Capture.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

Enter Setup

1.13.1 DECODE MODE SETTINGS

By default, this is the normal operation mode. The decoder attempts to locate and decode any barcode within its field of view upon a trigger event. Refer to 1.6 Scan Modes.

Decode Aiming Pattern

Decide whether to allow the decoder to project the aiming pattern during a barcode capture.

*Enable

102131

Disable

102130

Decoding Illumination

Decide whether to cause the decoder to flash illumination on every image capture to aid decoding.

▸ Enabling illumination usually results in superior images. The effectiveness of the illumination decreases as the distance to the target increases.

*Enable

102129

Disable

102128

Illumination Bank Control

This is used to control the illumination banks on the scan engine. Options are –

▸ Full: Enables the full illumination system.
▸ Auto: Switches the illumination from left to right bank.
▸ Left: Enables the left bank, which is on the left when facing the scan window.
▸ Right: Enables the right bank, which is on the right when facing the scan window.

*Full

102136

Auto

102137

Update

Left

102138

Right

102139

Note: When the ambient light is too dim on the left (or right), you may enable the left (or right) illumination bank to add lighting.

Decoding Autoexposure

Decide whether to manually specify the gain and exposure time (only recommended for advanced users with difficult image capture situations).

*Enable

102127

Disable

102126

By default, exposure value is set to 10 ms and gain value is set to 50 when autoexposure is disabled.

Fixed Exposure
in 100 μ s
2~5000 (*100)

102202

1. Read the barcode above to specify a fixed exposure value.

2. Read the "Decimal Value" barcode on page 209. For example, read "1" and "5" for setting the exposure value to 1.5 ms.

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

Fixed Gain
1~100 (*50)

102203

4. Read the barcode above to specify a fixed gain value.

5. Read the "Decimal Value" barcode on page 209. For example, read "3" and "0" for setting the gain value to 30.

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

Enter Setup

1.13.2 ENTER/EXIT IMAGE MODE

Use Image Mode to capture a high-quality image and transmit it to the host. Read the barcode below to temporarily enter this mode.

Image Mode

109920

Enter Image Mode

Have the scanner read the setup barcodes in a separate but complete sequence:

Enter Setup   ✓ Image Mode   Update

Exit Image Mode

▶ Once the software application finishes the task of receiving an image, the scanner returns to Decode Mode.

▶ If a trigger event is not activated within the Image Mode Timeout period, the decoder returns to Decode Mode.

Update

1.13.3 IMAGE MODE SETTINGS

Image Mode Timeout

Set the amount of time the decoder remains in Image Mode. The decoder exits Image Mode upon a trigger event, or when the Image Mode Timeout elapses. By default, the time-out value is set to 0 which represents 30 seconds. Values increment by 30. For example, 1 = 60 seconds, 2 = 90 seconds, etc.

Image Mode Time-out after 30~ sec. (*0)

102204
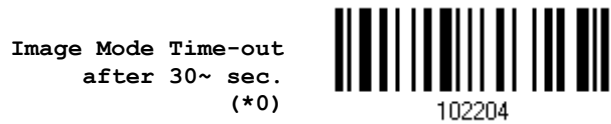
1. Read the barcode above to specify the time interval before returning to Decode Mode. (It is set to 0 by default.)

2. Read the "Decimal Value" barcode on page 209. For example, read "5" for the scanner to automatically shut down after being idle for 180 seconds.

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

Image Aiming Pattern

Decide whether to allow the decoder to project the aiming pattern in Image Mode.

*Enable

102145

Disable

102144

Video View Finder

Decide whether to enable Image Mode with View Finder, which the decoder behaves as a video camera until a trigger event is activated.

Enable

102185

*Disable

102184
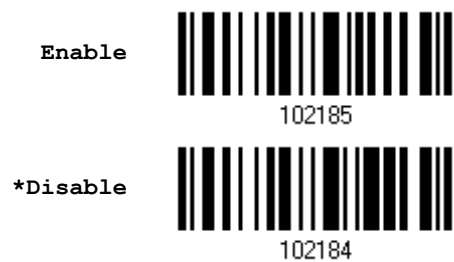
Select the number of 100-byte blocks. Values range from 800 to 3000 bytes. Selecting a smaller value transmits more frames per second; selecting a larger value increases video quality.
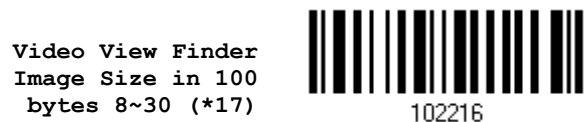
Video View Finder Image Size in 100 bytes 8~30 (*17)

102216

Enter Setup

1. Read the barcode above to specify a value.

2. Read the "Decimal Value" barcode on page 209. For example, read "1" and "5" for setting the preview image size to 1500 bytes.

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

Image Capture Illumination

Decide whether to cause the decoder to flash illumination on every image capture to aid decoding.

▶ Enabling illumination usually results in superior images. The effectiveness of the illumination decreases as the distance to the target increases.

*Enable

102135

Disable

102134

Illumination Bank Control

This is used to control the illumination banks on the scan engine. Options are –

▶ Full: Enables the full illumination system.

▶ Auto: Switches the illumination from left to right bank.

▶ Left: Enables the left bank, which is on the left when facing the scan window.

▶ Right: Enables the right bank, which is on the right when facing the scan window.

*Full

102136

Auto

102137

Left

102138

Right

102139

Note: When the ambient light is too dim on the left (or right), you may enable the left (or right) illumination bank to add lighting.

Update

Image Capture Autoexposure

Decide whether to manually specify the gain and exposure time (only recommended for advanced users with difficult image capture situations).

*Enable

102133

Disable

102132

By default, exposure value is set to 10 ms and gain value is set to 50 when autoexposure is disabled.

Fixed Exposure in 100 μ s 2~5000 (*100)

102202

1. Read the barcode above to specify a fixed exposure value.

2. Read the "Decimal Value" barcode on page 209. For example, read "1" and "5" for setting the exposure value to 1.5 ms.

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

Fixed Gain 1~100 (*50)

102203

4. Read the barcode above to specify a fixed gain value.

5. Read the "Decimal Value" barcode on page 209. For example, read "3" and "0" for setting the gain value to 30.

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

Gain/Exposure Priority for Image Mode

Alter the decoder's gain/exposure priority when it acquires an image in Image Mode with auto exposure enabled.

▸ Low Gain Priority: The decoder favors longer exposure time rather than higher gain to capture an image. This ensures that the image is less noisy and produces fewer artifacts during post-processing activities like image enhancement (sharpening). This mode is ideal for fixed mount/fixed object image capture since the image acquired is susceptible to motion blur.

▸ Low Exposure Priority: The decoder favors higher gain over exposure to capture an image. This results in an image that is less susceptible to motion blur at the expense of noise artifacts. However, for most applications, the amount of noise is acceptable.

Low Gain Priority

102140

Enter Setup

*Low Exposure Priority

102141

Image Brightness (Target White)

Decide whether to set the Target White value when using autoexposure. White and black are defined as 255 decimal and 0, respectively. If the value is 180, which is the factory default, the white level of the image is ~180.

Image Brightness 1~240 (*180)

102209

1. Read the barcode above to specify a value.

2. Read the "Decimal Value" barcode on page 209. For example, read "1", "2" and "0" for a value of 120.

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

Update

1.13.4 ENTER/EXIT VIDEO MODE

Read the barcode below to temporarily enter this mode.

Video Mode

109921

Enter Video Mode

Have the scanner read the setup barcodes in a separate but complete sequence:

Enter Setup ✓ Video Mode Update

Exit Video Mode

In Video Mode, the decoder behaves as a video camera as long as the trigger is active. When you release the trigger, the decoder returns to Decode Mode.

1.13.5 VIDEO MODE SETTINGS

Target Video Frame Size

Select the number of 100-byte blocks to transmit per second. Values range from 800 to 3300 bytes. Selecting a smaller value transmits more frames per second but reduces video quality; selecting a larger value increases video quality but slows transmission.

Target Video Frame
Size in 100 bytes
8~33 (*22)

102215

1. Read the barcode above to specify a value.

2. Read the "<u>Decimal Value</u>" barcode on page 209. For example, read "2" and "0" for setting the video frame size to 2000 bytes.

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

Enter Setup

1.14 IMAGER PREFERENCES

These settings are for Image Mode.

1.14.1 IMAGE ENHANCEMENT

This feature uses a combination of edge sharpening and contrast enhancement to produce an image that is visually pleasing.

*Off

102154

Low

102155

Medium

102156

High

102157

Update

1.14.2 IMAGE RESOLUTION

This feature alters image resolution before compression. Multiple pixels are combined to one pixel, resulting in a smaller image containing the original content with reduced resolution. Options are –

▸ Full: 1280 x 1024(uncropped image size)

▸ 1/2: 640 x 512   (uncropped image size)

▸ 1/4: 320 x 160   (uncropped image size)

*Full Resolution

102150

1/2 Resolution

102151

1/4 Resolution

102153

Enter Setup

1.14.3 IMAGE CROPPING

This is used to crop a captured image.

▶ Disable Image Cropping: Present the full 1280 x 1024 pixels.

▶ Enable Image Cropping: Crop the image to the pixel addresses specified.

Enable

102149

*Disable

102148
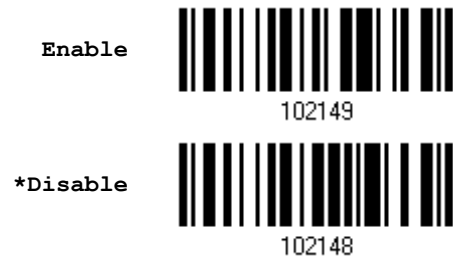
Note: The scanner has a cropping resolution of 4 pixels. Setting the cropping area to less than 3 pixels transfers the entire image.

Crop to Pixel Address

For image cropping, set the pixel addresses from (0,0) to (1279, 1023) to crop to. Columns are numbered from 0 to 1279, rows from 0 to 1023. Specify four values for Top, Left, Bottom, and Right, where Top and Bottom correspond to row pixel addresses, and Left and Right correspond to column pixel addresses. For example, for a 4 row x 8 column image in the extreme bottom-right section of the image, set the following values:

Top = 1020, Bottom = 1023, Left = 1272, Right = 1279
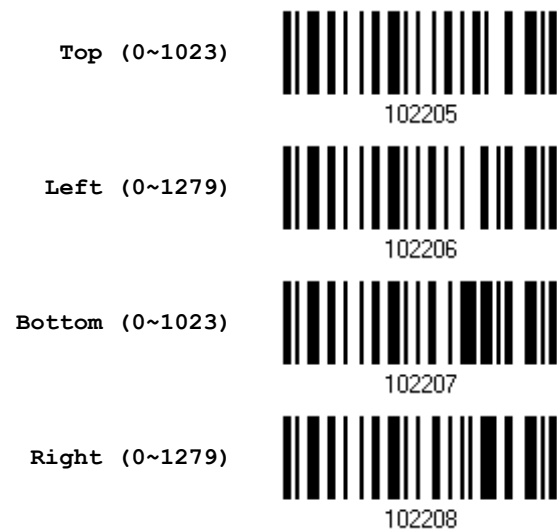
Top (0~1023)

102205

Left (0~1279)

102206

Bottom (0~1023)

102207

Right (0~1279)

102208

1.   Read the barcode above one at a time to specify its value.

2.   Read the "Decimal Value" barcode on page 209. For example, read "4", "7" and "6" for a value of 476.

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

Update

1.14.4 IMAGE FILE FORMAT

Select an image format for storing captured images.

*JPEG 102159

BMP 102161

TIFF 102162

1.14.5 BITS PER PIXEL

Select the number of significant bits per pixel (BPP) to use when capturing an image. Select 1 BPP for a black and white image, 4 BPP to assign 1 of 16 levels of grey to each pixel, or 8 BPP to assign 1 of 256 levels of grey to each pixel.

Note: The decoder ignores these settings for JPEG files, which always use 8 BPP.

1 BPP 102166

4 BPP 102167

*8 BPP 102168
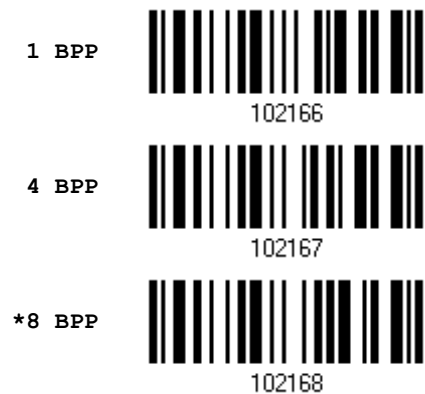
1.14.6 JPEG IMAGE OPTIONS

Optimize JPEG images for either size or quality.

***JPEG Quality
Selector**

102147

JPEG Size Selector

102146

JPEG Target File Size

Define the target JPEG file size in terms of 1 Kilobytes (1024 bytes). By default, it is set to 160 Kilobytes.

**JPEG Target File Size
5~600 (*160)**

102210

1. Read the barcode above to specify a value.

2. Read the "Decimal Value" barcode on page 209. For example, read "1", "2" and "0" for a value of 120.

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

JPEG Quality Value

If you selected JPEG Quality Selector, specify the JPEG quality value. By default, it is set to 65.

**JPEG Quality Value
5~100 (*65)**

102211

1. Read the barcode above to specify a value.

2. Read the "Decimal Value" barcode on page 209. For example, read "5" and "0" for a value of 50.

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

Update

1.15 SIGNATURE CAPTURE

A signature capture barcode is a special-purpose symbology, which delineate a signature capture area in a document with a machine-readable format. The recognition pattern is variable so it can optionally provide an index to various signatures. The region inside the barcode pattern is considered the signature capture area.

Decide whether to allow the decoder to capture signature in Decode Mode.

Enable Signature Capture

109922

*Disable Signature Capture

109923

Enable Signature Capture

Have the scanner read the setup barcodes in a separate but complete sequence:

Enter Setup | Enable Signature Capture | Update

Disable Signature Capture

Have the scanner read only one setup barcode to complete the setting:

Disable Signature Capture

Enter Setup

1.15.1 SIGNATURE CAPTURE FILE FORMAT

Select an image format for storing captured signatures.

*JPEG

102173

BMP

102175

TIFF

102176

1.15.2 SIGNATURE CAPTURE BITS PER PIXEL

Select the number of significant bits per pixel (BPP) to use when capturing a signature. Select 1 BPP for a black and white image, 4 BPP to assign 1 of 16 levels of grey to each pixel, or 8 BPP to assign 1 of 256 levels of grey to each pixel.

Note: The decoder ignores these settings for JPEG files, which always use 8 BPP.

1 BPP

102180

4 BPP

102181

*8 BPP

102182

Update

1.15.3 SIGNATURE CAPTURE WIDTH & HEIGHT

The aspect ratio of the Signature Capture Width and Signature Capture Height parameters must match that of the signature capture area. For example, a 4 x 1 inch signature capture area would require a 4 to 1 aspect ratio of width to height.

Signature Capture Width 1~640 (*400)

||||||| 102212

Signature Capture Height 1~480 (*100)

||||||| 102213

1) Read the barcode above one at a time to specify its value.

2) Read the "Decimal Value" barcode on page 209. For example, read "4", "8" and "0" for a value of 480.

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

1.15.4 SIGNATURE CAPTURE JPEG QUALITY

Specify the JPEG quality value. By default, it is set to 65.

JPEG Quality Value 5~100 (*65)

||||||| 102214

1) Read the barcode above to specify a value.

2) Read the "Decimal Value" barcode on page 209. For example, read "5" and "0" for a value of 50.

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

Enter Setup

1.16 CABLE AUTO-DETECT

Find the interface cable provided inside the package. Connect it to the scanner. The scanner will detect the interface automatically. Refer to Chapter 2 — Selecting Output Interface.

Cable Auto-Detect	Defaults
Keyboard Wedge	PCAT (US) for keyboard type
RS-232	115200 bps, 8 bits, No parity, 1 stop bit
USB	USB HID and PCAT (US) for keyboard type

Note: If "USB Virtual COM" is desired, have the scanner read the setup barcodes.

*Enable

100017

Disable

100016

Update

1.17 PICKLIST MODE

Picklist mode enables the decoder to decode only the barcodes aligned under the center of the laser aiming pattern.

Enable

102201

***Disable**

102200

Enter Setup

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 provided interface cable between the scanner and your computer. The scanner is capable of detecting the interface.

   ▸ If using the RS-232 cable, join the power supply cord.

   ▸ If using the USB cable, it is set to USB HID by default.

   If "USB Virtual COM" is desired, have the scanner read the setup barcodes.

Cable Auto-Detect	Defaults
Keyboard Wedge	PCAT (US) for keyboard type
RS-232	115200 bps, 8 bits, No parity, 1 stop bit
USB	USB HID and PCAT (US) for keyboard type

Note: Please make sure the cable you are using supports auto-detection. Check whether there is a sticker on the cable, stating "Cable Detection Supported".

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.

4) Have the scanner read the barcodes for related settings.

5) Have the scanner read the "Update" barcode to exit the configuration mode.

Note: For signature capture in Decode Mode, Image Mode and Video Mode, the output interface must be RS-232 or USB Virtual COM.
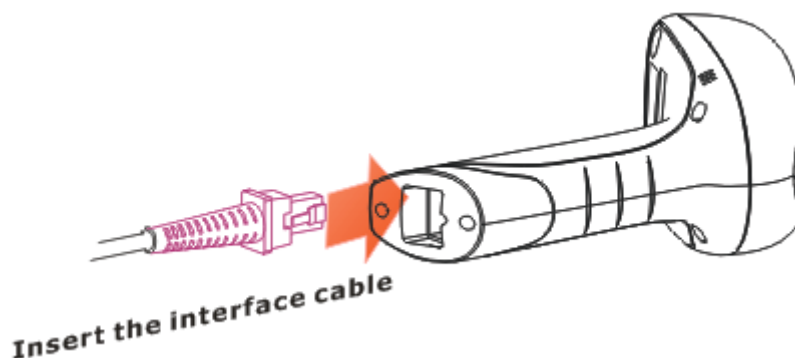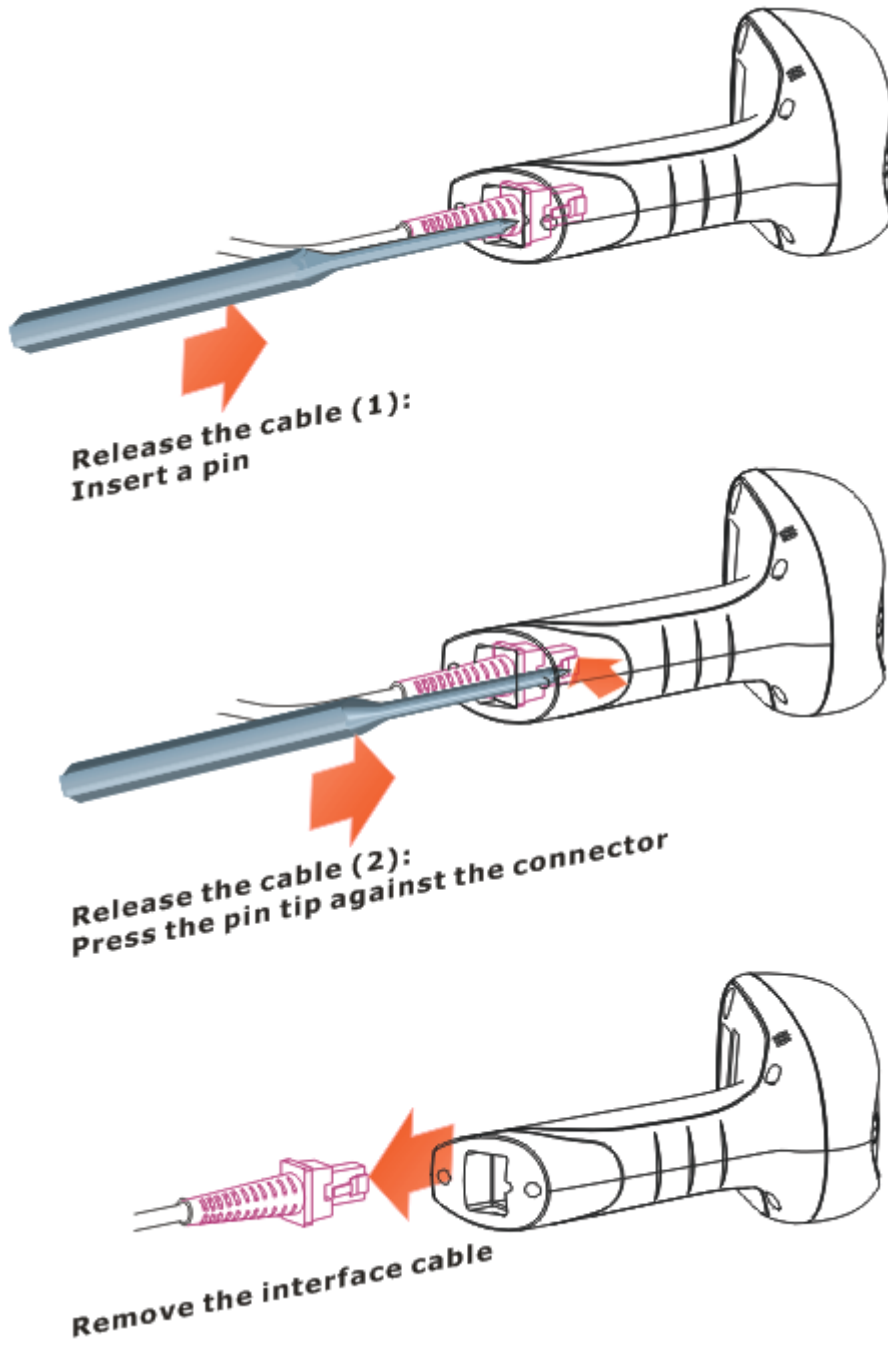
Insert the interface cable

Update

Release the cable (1):
Insert a pin

Release the cable (2):
Press the pin tip against the connector

Remove the interface cable

IN THIS CHAPTER

Enter Setup

2.1 KEYBOARD WEDGE

The Y cable allows you to connect the scanner 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.

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
Kanji Transmission	Disable
Alternate Composing	No
Laptop Support	Disable
Inter-Character Delay	0 (ms)
Inter-Function Delay	0 (ms)

`Update`

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.

Activate Keyboard Wedge & Select Keyboard Type…

100000

1) Read this barcode above to activate Keyboard Wedge and select a keyboard type.

2) Read the "Decimal Value" barcode on page 209. 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 Type

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)	16	PS55 001-2
2	PCAT (French)	17	PS55 001-82
3	PCAT (German)	18	PS55 001-3
4	PCAT (Italian)	19	PS55 001-8A
5	PCAT (Swedish)	20	PS55 002-1, 003-1
6	PCAT (Norwegian)	21	PS55 002-81, 003-81
7	PCAT (UK)	22	PS55 002-2, 003-2
8	PCAT (Belgium)	23	PS55 002-82, 003-82
9	PCAT (Spanish)	24	PS55 002-3, 003-3
10	PCAT (Portuguese)	25	PS55 002-8A, 003-8A
11	PS55 A01-1	26	IBM 3477 Type 4 (Japanese)
12	PS55 A01-2 (Japanese)	27	PS2-30
13	PS55 A01-3	28	IBM 34XX/319X, Memorex Telex 122 Keys
14	PS55 001-1	29	User-defined table
15	PS55 001-81	30	PCAT (Turkish)
		31	PCAT (Hungarian)

Enter Setup

2.1.2 KEYBOARD SETTINGS

▸ Alphabets Layout
▸ Digits Layout
▸ Capital Lock Type
▸ Capital Lock Setting
▸ Alphabets Transmission
▸ Digits Transmission
▸ Kanji Transmission
▸ Alternate Composing
▸ Laptop Support

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.

*Normal

100060

AZERTY

100061

QWERTZ

100062

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.

55

Update

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.

`Enter Setup`

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

*Normal

100046

Upper Row

100049

Lower Row

100048

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.

Update

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.

*Normal

100042

Shift Lock

100045

Capital Lock

100044

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).

Auto Detect

100054

Capital Lock ON

100053

Enter Setup

*Capital Lock OFF

100052

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.

Ignore Case

100051

*Case-sensitive

100050

Refer to 4.1 Letter Case.

Update

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.

Numeric Key

‖‖‖‖‖‖‖‖
100041

*Alphanumeric Key

‖‖‖‖‖‖‖‖
100040

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

Kanji Transmission

Kanji Transmission is supported by the scanner when either Keyboard Wedge or Direct USB HID is selected for the output interface. By Kanji Transmission, when the host computer is running on Japanese Windows O.S., the scanner is able to transmit Japanese characters including the Chinese characters used in modern Japanese writing system.

Kanji Transmission is disabled by default. Enable/disable scanner's Kanji Transmission by reading the following barcodes:

Enable

‖‖‖‖‖‖‖‖
100067

*Disable

‖‖‖‖‖‖‖‖
100066

‖‖‖‖‖‖‖‖

Enter Setup

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] + [065] will be sent to host for the character "A" regardless the keyboard type you are using.

Yes

||||| ||||| |||| ||| ||
100057

*No

||||| ||||| |||| ||| ||
100056

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.

Enable

||||| ||||| |||| ||| ||
100059

*Disable

||||| ||||| |||| ||| ||
100058

2.1.3 INTER-CHARACTER DELAY

By default, the inter-character delay is set to zero. Specify a value, ranging from 0 to 254 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… (*0~254)

||||| ||||| |||| ||| ||
100011

1)   Read the barcode above to specify the inter-character delay.

2)   Read the "Decimal Value" barcode on page 209 for the desired inter-character delay (millisecond).

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

||||| ||||| |||| ||| ||
Update

2.1.4 INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Specify a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

Inter-Function Delay… (*0~254)

100012

1) Read the barcode above to specify the inter-function delay.

2) Read the "Decimal Value" barcode on page 209 for the desired inter-function delay (millisecond).

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

Enter Setup

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	115200 bps, 8 bits, No parity, 1 stop bit
Flow Control	None
Inter-Character Delay	0 (ms)
Inter-Function Delay	0 (ms)
ACK/NAK Timeout	0
ACK/NAK Beep	Disable

2.2.1 ACTIVATE RS-232 INTERFACE

Activate RS-232 Interface

100001

2.2.2 BAUD RATE

*115200 bps

100080

57600 bps

100081

38400 bps

100082

19200 bps

100083

9600 bps

100084

4800 bps

100100

Update

2400 bps

100085

1200 bps

100086

600 bps

100087

2.2.3 DATA BITS

*8 bits

100093

7 bits

100092

2.2.4 PARITY

*No parity

100088

Even

100090

Odd

100091

2.2.5 STOP BIT

2 stop bits

100099

*1 stop bit

100098

Enter Setup
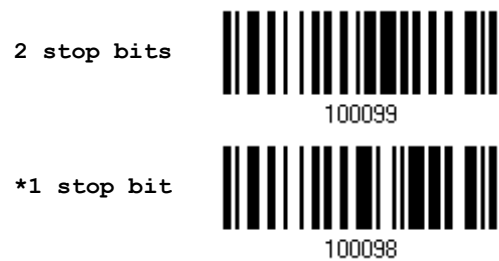
2.2.6 FLOW CONTROL

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.

*None

100094

Scanner Ready

100095

Data Ready

100096

Invert Data Ready

100097

65

Update

2.2.7 INTER-CHARACTER DELAY

By default, the inter-character delay is zero. Specify a value, ranging from 0 to 254 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.

Inter-Character Delay… (*0~254)

100011

1) Read the barcode above to specify the inter-character delay.

2) Read the "Decimal Value" barcode on page 209 for the desired inter-character delay (millisecond).

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

2.2.8 INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Specify a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

Inter-Function Delay… (*0~254)

100012

1) Read this barcode above to specify the inter-function delay.

2) Read the "Decimal Value" barcode on page 209 for the desired inter-function delay (millisecond).

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

Enter Setup

2.2.9 ACK/NAK TIMEOUT

By default, the scanner sends data to the host without waiting for an ACK/NAK response before sending more data. Specify a value, ranging from 1 to 99 in units of 0.1 second. If no response within the specified period of time, the scanner will attempt to send the same data two more times. If all three attempts fail without any notification, data loss will occur.

ACK/NAK Time-out after … (*0~99)

100013

1) Read the barcode above to specify the time interval for the scanner to send data and wait for a response from the host.

2) Read the "Decimal Value" barcode on page 209. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 1 second.

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

ACK/NAK Error Beep

Enable Error Beep

100015

*Disable Error Beep

100014

Note: We suggest enabling the error beep so that you will be notified of such data loss and have the scanner re-read data.

Update

2.3 DIRECT USB HID

Use the USB cable to connect the scanner to PC. Run any text editor on your computer, and the scanned data will be transmitted to the computer.

HID Settings	Defaults
Keyboard Type	PCAT (US)
Digits Layout	Normal
Capital Lock Type	Normal
Capital Lock State	Off
Alphabets Transmission	Case-sensitive
Digits Transmission	Alphanumeric keypad
Kanji Transmission	Disable
Inter-Character Delay	0 (ms)
Inter-Function Delay	0 (ms)

2.3.1 ACTIVATE USB HID & SELECT KEYBOARD TYPE

When USB HID interface is activated, you will have to select a keyboard type to complete this setting.

Activate
Direct USB HID &
Select Keyboard
Type…

100009

1) Read the barcode above to activate USB HID and select a keyboard type.

2) Read the "Decimal Value" barcode on page 209. 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.

USB HID

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

No.	Keyboard Type	No.	Keyboard Type
64	PCAT (US)	71	PCAT (Belgium)
65	PCAT (French)	72	PCAT (Spanish)
66	PCAT (German)	73	PCAT (Portuguese)
67	PCAT (Italy)	74	PS55 A01-2 (Japanese)
68	PCAT (Swedish)	75	User-defined table
69	PCAT (Norwegian)	76	PCAT (Turkish)
70	PCAT (UK)	77	PCAT (Hungarian)

Enter Setup

2.3.2 KEYBOARD SETTINGS

‣ Alphabets Layout
‣ Digits Layout
‣ Capital Lock Type
‣ Capital Lock Setting
‣ Alphabets Transmission
‣ Digits Transmission
‣ Kanji Transmission

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.

*Normal

100060

AZERTY

100061

QWERTZ

100062

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.

Update

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.

```
Enter Setup
```

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

*Normal

100046

Upper Row

100049

Lower Row

100048

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

71

Update

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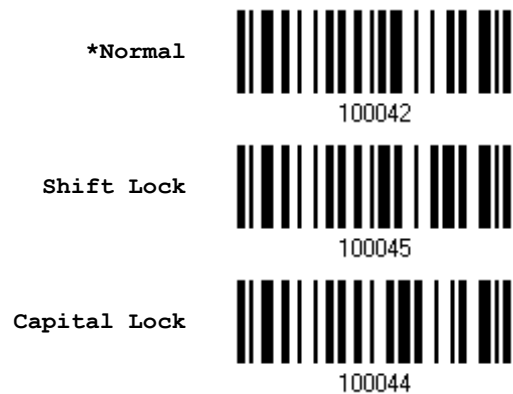
Cap Lock Type	Description
Normal	Normal type
Capital Lock	When enabled, the keys of alphabetic characters will be interpreted as capital letters. However, this does not affect the number or punctuation keys.
Shift Lock	When enabled, the keys of alphabetic characters will be interpreted as capital letters.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

*Normal

100042

Shift Lock

100045

Capital Lock

100044

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).

Auto Detect

100054

Capital Lock ON

100053

Enter Setup

*Capital Lock OFF

100052

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.

Ignore Case

100051

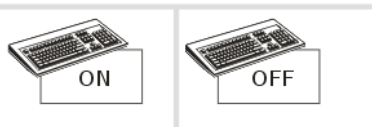***Case-sensitive**

100050

Refer to 4.1 Letter Case.

Update

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.

Numeric Key

100041

*Alphanumeric Key

100040

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

Kanji Transmission

Kanji Transmission is supported by the scanner when either Keyboard Wedge or Direct USB HID is selected for the output interface. By Kanji Transmission, when the host computer is running on Japanese Windows O.S., the scanner is able to transmit Japanese characters including the Chinese characters used in modern Japanese writing system.

Kanji Transmission is disabled by default. Enable/disable scanner's Kanji Transmission by reading the following barcodes:

Enable

100067

*Disable

100066

Enter Setup

2.3.3 INTER-CHARACTER DELAY

By default, the inter-character delay is set to zero. Specify a value, ranging from 0 to 254 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… (*0~254)

100011

1) Read the barcode above to specify the inter-character delay.

2) Read the "Decimal Value" barcode on page 209 for the desired inter-character delay (millisecond).

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

2.3.4 INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Specify a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

Inter-Function Delay… (*0~254)

100012

1) Read the barcode above to specify the inter-function delay.

2) Read the "Decimal Value" barcode on page 209 for the desired inter-function delay (millisecond).

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

Update

2.3.5 HID CHARACTER TRANSMIT MODE

By default, USB HID interface sends data to the host in batch. You may have the scanner read the "By Character" barcode to process data one character at a time.

*Batch Processing

100064

By Character

100065

Enter Setup

2.4 DIRECT USB VIRTUAL COM

Use the USB cable to connect the scanner to PC. Run HyperTerminal.exe on your computer, and the scanned data will be transmitted to the computer.

Note: If you are using USB Virtual COM for the first time, you must install its driver from the CD-ROM. Driver version 5.3 or later is required. Please remove older versions!

2.4.1 ACTIVATE USB VIRTUAL COM

Activate Direct USB Virtual COM

100008

2.4.2 INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Specify a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

Inter-Function Delay… (*0~254)

100012

1) Read the barcode above to specify the inter-function delay.

2) Read the "Decimal Value" barcode on page 209 for the desired inter-function delay (millisecond).

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

Update

2.4.3 ACK/NAK TIMEOUT

By default, the scanner sends data to the host without waiting for an ACK/NAK response before sending more data. Specify a value, ranging from 1 to 99 in units of 0.1 second. If no response within the specified period of time, the scanner will attempt to send the same data two more times. If all three attempts fail without any notification, data loss will occur.

ACK/NAK Time-out after … (*0~99)

100013

I) Read the barcode above to specify the time interval for the scanner to send data and wait for a response from the host.

2) Read the "Decimal Value" barcode on page 209. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 1 second.

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

ACK/NAK Error Beep

Enable Error Beep

100015

*Disable Error Beep

100014

Note: We suggest enabling the error beep so that you will be notified of such data loss and have the scanner re-read data.

Enter Setup

CHANGING SYMBOLOGY SETTINGS

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

IN THIS CHAPTER

Update

3.1 CODABAR

*Enable

100313

Disable

100312

3.1.1 START/STOP TRANSMISSION

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

Transmit Start/Stop Characters

100441

*Do Not Transmit

100440

3.1.2 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.

Apply CLSI Editing

100443

*Do Not Apply

100442

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

Enter Setup

3.1.3 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.

Note: The specified length(s) must include the check digit(s) the barcode contains.

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

*Enable Max./Min. Length (1~55)…

102222

Enable Fixed Length(s)…

102221

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 (*55) or Fixed Length 1

102223

Min. Length (*4) or Fixed Length 2

102224

3) Read the "Decimal Value" barcode on page 209 for the desired length.

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

Update

3.2 CODE 25 – INDUSTRIAL 25

*Enable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100307

Disable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100306

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

Enter Setup

3.2.1 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.

Note: The specified length(s) must include the check digit(s) the barcode contains.

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

*Enable Max./Min.
Length (1~55)…

`100601`

Enable Fixed
Length(s)…

`100600`

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 (*55) or
Fixed Length 1

`100602`

Min. Length (*4) or
Fixed Length 2

`100603`

3) Read the "<u>Decimal Value</u>" barcode on page 209 for the desired length.

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

`Update`

3.3 CODE 25 – INTERLEAVED 25

*Enable

100309

Disable

100308

3.3.1 VERIFY CHECK DIGIT

Decide whether to verify the check digit. When desired, select one of the algorithms, USS or OPCC. If incorrect, the barcode will not be accepted.

*Do Not Verify

102122

USS Check Digit

102123

OPCC Check Digit

102124

3.3.2 TRANSMIT CHECK DIGIT

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

***Transmit
Interleaved 25
Check Digit**

100431

Do Not Transmit

100430

Enter Setup

3.3.3 CONVERT TO EAN-13   Update

Decide whether to convert a 14-character barcode into EAN-13 if the following requirements are met:

▸ The barcode must have a leading 0 and a valid EAN-13 check digit.

▸ "Verify Check Digit" must be disabled.

Convert to EAN-13

102101

*Do Not Convert

102100

Update

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.

Note: The specified length(s) must include the check digit(s) the barcode contains.

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

*Enable Max./Min. Length (1~55)…

100605

Enable Fixed Length(s)…

100604

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 (*55) or Fixed Length 1

100606

Min. Length (*4) or Fixed Length 2

100607

3) Read the "Decimal Value" barcode on page 209 for the desired length.

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

Enter Setup

3.4 CODE 25 – MATRIX 25

Enable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100311

*Disable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100310

3.4.1 VERIFY CHECK DIGIT

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

**Verify Matrix 25
Check Digit**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100433

*Do Not Verify

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100432

3.4.2 TRANSMIT CHECK DIGIT

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

***Transmit Matrix 25
Check Digit**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100435

Do Not Transmit

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100434

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
Update

3.4.3 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.

Note: The specified length(s) must include the check digit(s) the barcode contains.

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

*Enable Max./Min. Length (1~55)…

100609

Enable Fixed Length(s)…

100608

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 (*55) or Fixed Length 1

100610

Min. Length (*4) or Fixed Length 2

100611

3) Read the "Decimal Value" barcode on page 209 for the desired length.

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

Enter Setup

3.5 CODE 25 – CHINESE 25

Enable

‖‖‖‖‖‖‖‖‖‖‖‖
102015

*Disable

‖‖‖‖‖‖‖‖‖‖‖‖
102014

‖‖‖‖‖‖‖‖‖‖‖‖ Update

3.6 ITALIAN PHARMACODE (CODE 32)

Enable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100303

*Disable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100302

Note: Code 39 must be enabled first.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
Enter Setup

3.7 CODE 39

*Enable

‖‖‖‖‖‖‖‖‖‖‖‖‖
100301

Disable

‖‖‖‖‖‖‖‖‖‖‖‖‖
100300

3.7.1 VERIFY CHECK DIGIT

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

Verify Code 39 Check Digit

‖‖‖‖‖‖‖‖‖‖‖‖‖
100405

*Do Not Verify

‖‖‖‖‖‖‖‖‖‖‖‖‖
100404

3.7.2 TRANSMIT CHECK DIGIT

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

*Transmit Code 39 Check Digit

‖‖‖‖‖‖‖‖‖‖‖‖‖
100407

Do Not Transmit

‖‖‖‖‖‖‖‖‖‖‖‖‖
100406

‖‖‖‖‖‖‖‖‖‖‖‖‖
Update

3.7.3 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

100401

*Standard Code 39

100400

Note: Trioptic Code 39 and Code 39 Full ASCII cannot be enabled at the same time.

Enter Setup

3.7.4 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.

Note: The specified length(s) must include the check digit(s) the barcode contains.

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

*Enable Max./Min. Length (1~55)…

102218

Enable Fixed Length(s)…

102217

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 (*55) or Fixed Length 1

102219

Min. Length (*4) or Fixed Length 2

102220

3) Read the "Decimal Value" barcode on page 209 for the desired length.

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

Update

3.8 TRIOPTIC CODE 39

Decide whether to decode Trioptic Code 39.

▸ Trioptic Code 39 is a variant of Code 39 used in the marking of computer tap cartridges. It always contains six characters.

Enable

102005

Disable

102004

Note: Trioptic Code 39 and Code 39 Full ASCII cannot be enabled at the same time.

Enter Setup

3.9 CODE 93

*Enable

100315

Disable

100314

Update

3.9.1 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.

Note: The specified length(s) must include the check digit(s) the barcode contains.

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

*Enable Max./Min. Length (1~55)…

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 (*55) or Fixed Length 1

Min. Length (*4) or Fixed Length 2

3) Read the "Decimal Value" barcode on page 209 for the desired length.

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

Enter Setup

3.10 CODE 128

*Enable

100317

Disable

100316

Update

3.11 GS1-128 (EAN-128)

Enable

```
100319
```

*Disable

```
100318
```

Note: GS1-128 barcodes can be decoded only when this setting is enabled.

3.11.1 TRANSMIT CODE ID

Decide whether to include the Code ID ("]C1") in the data being transmitted.

Transmit GS1-128 Code ID

```
100519
```

*Do Not Transmit

```
100518
```

3.11.2 FIELD SEPARATOR (GS CHARACTER)

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

Enable Field Separator…

```
100616
```

1) Read the barcode above to enable field separator.

2) Read the "Hexadecimal Value" barcode on page 210 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.

Enter Setup

3.12 ISBT 128

*Enable

100355

Disable

100354

3.12.1 ISBT CONCATENATION

Decide whether to decode and concatenate pairs of ISBT barcodes.

▶ Disable ISBT Concatenation

It will not concatenate pairs of ISBT barcodes it encounters.

▶ Enable ISBT Concatenation

There must be two ISBT barcodes in order for the scanner to decode and perform concatenation. It does not decode single ISBT barcodes.

▶ Auto-discriminate ISBT Concatenation

It decodes and concatenates pairs of ISBT barcodes immediately. If only a single ISBT barcode is present, the scanner must decode 10 times before transmitting its data to confirm that there is no additional ISBT barcode.

Disable

102237

Enable

102238

*Auto-discriminate

102239

Update

3.12.2 ISBT CONCATENATION REDUNDANCY

Specify the concatenation redundancy (2~20 times) when ISBT concatenation is enabled.

ISBT Concatenation
Redundancy 2~20
(*10)

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
102254

1) Read the barcode above to specify the concatenation redundancy.

2) Read the "Decimal Value" barcode on page 209 for the desired redundancy.

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

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

Enter Setup

3.13 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

3.13.1 SELECT CODE ID

Select a desired Code ID to use:

▶ "]e0"   (GS1 DataBar Code ID)
▶ "]C1"   (GS1-128 Code ID)

Use "]C1"

100517

*Use "]e0"

100516

Update

3.13.2 GS1 DATABAR OMNIDIRECTIONAL (RSS-14)

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

100349

Disable

100348

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

100523

Do Not Transmit

100522

Transmit Application ID

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

Transmit RSS-14
Application ID

100529

Do Not Transmit

100528

Enter Setup

3.13.3 GS1 DATABAR EXPANDED (RSS EXPANDED)

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

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100349

*Disable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100348

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**

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100527

Do Not Transmit

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
100526

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
`Update`

3.13.4 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

Enter Setup

3.13.5 CONVERT TO UPC/EAN

This only applies to GS1 DataBar Omnidirectional and GS1 DataBar Limited barcodes not decoded as part of a Composite barcode.

▶ Convert to EAN-13: It will strip the leading "010" from barcodes.

"01" is the Application ID and must be followed by a single zero (the first digit encoded).

▶ Convert to UPC-A: It will strip the leading "0100" from barcodes.

"01" is the Application ID and must be followed by two or more zeros (but not six zeros).

Convert to UPC/EAN

102103

*Do Not Convert

102102

105

Update

3.14 MSI

Enable

‖‖‖‖‖‖‖‖‖‖‖
100345

*Disable

‖‖‖‖‖‖‖‖‖‖‖
100344

3.14.1 VERIFY CHECK DIGIT

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

*Single Modulo 10

‖‖‖‖‖‖‖‖‖‖‖
100448

Double Modulo 10

‖‖‖‖‖‖‖‖‖‖‖
100449

Modulo 10 & 11

‖‖‖‖‖‖‖‖‖‖‖
100450

3.14.2 TRANSMIT CHECK DIGIT

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

*Last Digit Not Transmitted

‖‖‖‖‖‖‖‖‖‖‖
100452

Both Digits Transmitted

‖‖‖‖‖‖‖‖‖‖‖
100453

Both Digits Not Transmitted

‖‖‖‖‖‖‖‖‖‖‖
100454

‖‖‖‖‖‖‖‖‖‖‖
Enter Setup

3.14.3 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.

Note: The specified length(s) must include the check digit(s) the barcode contains.

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

*Enable Max./Min. Length (1~55)…

100613

Enable Fixed Length(s)…

100612

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 (*55) or Fixed Length 1

100614

Min. Length (*4) or Fixed Length 2

100615

3) Read the "Decimal Value" barcode on page 209 for the desired length.

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

Update

3.15 EAN-8

EAN-8

*Enable EAN-8 (No Addon)

```
100327
```

Disable

```
100326
```

EAN-8 Addon 2

Enable EAN-8 Addon 2

```
100329
```

*Disable

```
100328
```

EAN-8 Addon 5

Enable EAN-8 Addon 5

```
100331
```

*Disable

```
100330
```

Enter Setup

3.16 EAN-13   Update

EAN-13

*Enable EAN-13 (No Addon)

||||||||||||||||||||||
100333

Disable

||||||||||||||||||||||
100332

EAN-13 Addon 2

Enable EAN-13 Addon 2

||||||||||||||||||||||
100335

*Disable

||||||||||||||||||||||
100334

EAN-13 Addon 5

Enable EAN-13 Addon 5

||||||||||||||||||||||
100337

*Disable

||||||||||||||||||||||
100336

||||||||||||||||||||||
Update

3.16.1 CONVERT TO ISBN

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

Convert EAN-13 to ISBN

‖‖‖‖‖‖‖‖‖‖‖
100463

*Do Not Convert

‖‖‖‖‖‖‖‖‖‖‖
100462

3.16.2 CONVERT TO ISSN

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

Convert EAN-13 to ISSN

‖‖‖‖‖‖‖‖‖‖‖
100465

*Do Not Convert

‖‖‖‖‖‖‖‖‖‖‖
100464

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
Enter Setup

3.17 UCC COUPON EXTENDED CODE

Decide whether to decode the following barcodes as Coupon Code.

▸ UPC-A barcodes starting with digit "5"

▸ EAN-13 barcodes starting with digits "99"

▸ UPC-A/EAN-128 Coupon Codes

Enable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
102003

*Disable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
102002

Note: Depending on your requirements, UPC-A, EAN-13 and EAN-128 must be enabled first!

‖‖‖‖‖‖‖‖‖‖‖‖
Update

3.18 UPC-A

UPC-A

*Enable UPC-A (No Addon)

‖‖‖‖‖‖‖‖‖‖‖
100339

Disable

‖‖‖‖‖‖‖‖‖‖‖
100338

UPC-A Addon 2

Enable UPC-A Addon 2

‖‖‖‖‖‖‖‖‖‖‖
100341

*Disable

‖‖‖‖‖‖‖‖‖‖‖
100340

UPC-A Addon 5

Enable UPC-A Addon 5

‖‖‖‖‖‖‖‖‖‖‖
100343

*Disable

‖‖‖‖‖‖‖‖‖‖‖
100342

‖‖‖‖‖‖‖‖‖‖‖
Enter Setup

3.18.1 TRANSMIT SYSTEM NUMBER

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

***Transmit UPC-A
System Number**

100477

Do Not Transmit

100476

3.18.2 TRANSMIT CHECK DIGIT

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

***Transmit UPC-A
Check Digit**

100469

Do Not Transmit

100468

`Update`

3.19 UPC-E

UPC-E

*Enable UPC-E (No Addon)	100321
Disable	100320

UPC-E Addon 2

Enable UPC-E Addon 2	100323
*Disable	100322

UPC-E Addon 5

Enable UPC-E Addon 5	100325
*Disable	100324

Enter Setup

3.19.1 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

```
100479
```

*System Number 0 Only

```
100478
```

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.

3.19.2 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

```
100457
```

*Do Not Convert

```
100456
```

`Update`

3.19.3 TRANSMIT SYSTEM NUMBER

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

Transmit UPC-E
System Number

‖‖‖‖‖‖‖‖‖‖‖
100475

*Do Not Transmit

‖‖‖‖‖‖‖‖‖‖‖
100474

3.19.4 TRANSMIT CHECK DIGIT

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

*Transmit UPC-E
Check Digit

‖‖‖‖‖‖‖‖‖‖‖
100467

Do Not Transmit

‖‖‖‖‖‖‖‖‖‖‖
100466

‖‖‖‖‖‖‖‖‖‖‖   Enter Setup

3.20 CODE 11

Enable

||||||||||||||||||||
102007

*Disable

||||||||||||||||||||
102006

3.20.1 VERIFY CHECK DIGIT

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

Verify One Check Digit

||||||||||||||||||||
102244

Verify Two Check Digit

||||||||||||||||||||
102245

*Do Not Verify

||||||||||||||||||||
102243

3.20.2 TRANSMIT CHECK DIGIT

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

Transmit Code 11 Check Digit

||||||||||||||||||||
102107

*Do Not Transmit

||||||||||||||||||||
102106

Note: "Verify Check Digit" must be enabled first.

117

||||||||||||||||||||
Update

3.20.3 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.

Note: The specified length(s) must include the check digit(s) the barcode contains.

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

*Enable Max./Min. Length (1~55)…

102234

Enable Fixed Length(s)…

102233

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 (*55) or Fixed Length 1

102235

Min. Length (*4) or Fixed Length 2

102236

3) Read the "Decimal Value" barcode on page 209 for the desired length.

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

Enter Setup

3.21 COMPOSITE CODE

3.21.1 COMPOSITE CC-A/B

Enable Composite CC-A/B

102009

*Disable

102008

3.21.2 COMPOSITE CC-C

Enable Composite CC-C

102011

*Disable

102010

3.21.3 COMPOSITE TLC-39

Enable Composite TLC-39

102013

*Disable

102012

119

Update

3.21.4 UPC COMPOSITE MODE

UPC barcodes can be "linked" with a 2D barcode during transmission as if they were one barcode.

▶ UPC Never Linked

Transmit UPC barcodes regardless of whether a 2D barcode is detected.

▶ UPC Always Linked

Transmit UPC barcodes and the 2D portion. If the 2D portion is not detected, the UPC barcode will not be transmitted.

Note: CC-A/B or CC-C must be enabled!

▶ Auto-discriminate UPC Composites

Transmit UPC barcodes as well as the 2D portion if present.

UPC Never Linked

102112

*UPC Always Linked

102113

Auto-discriminate

102114

3.21.5 GS1-128 EMULATION MODE FOR UCC/EAN COMPOSITE CODES

Decide whether to transmit UCC/EAN Composite Code data as if it was encoded in GS1-128 barcodes.

Enable GS1-128 Emulation Mode

102105

*Disable

102104

Enter Setup
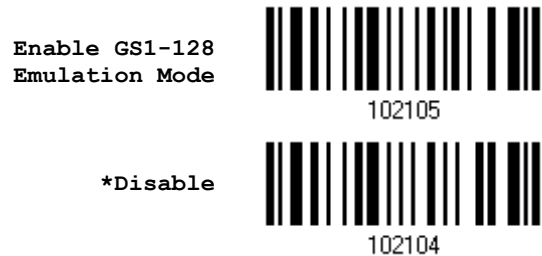
3.22 US POSTAL CODE

3.22.1 US POSTNET

*Enable US Postnet

```
102017
```

Disable

```
102016
```

3.22.2 US PLANET

*Enable US Planet

```
102019
```

Disable

```
102018
```

3.22.3 TRANSMIT CHECK DIGIT

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

*Transmit US Postal Check Digit

```
102111
```

Do Not Transmit

```
102110
```

Update

3.23 UK POSTAL CODE

3.23.1 UK POSTAL

*Enable UK Postal

‖‖‖‖‖‖‖‖‖‖‖‖‖
102021

Disable

‖‖‖‖‖‖‖‖‖‖‖‖‖
102020

3.23.2 TRANSMIT CHECK DIGIT

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

*Transmit UK Postal Check Digit

‖‖‖‖‖‖‖‖‖‖‖‖‖
102109

Do Not Transmit

‖‖‖‖‖‖‖‖‖‖‖‖‖
102108

‖‖‖‖‖‖‖‖‖‖‖‖‖
Enter Setup

3.24 MORE POSTAL CODE

3.24.1 JAPAN POSTAL

*Enable Japan Postal

‖‖‖‖‖‖‖‖
102023

Disable

‖‖‖‖‖‖‖‖
102022

3.24.2 AUSTRALIAN POSTAL

*Enable Australian Postal

‖‖‖‖‖‖‖‖
102025

Disable

‖‖‖‖‖‖‖‖
102024

3.24.3 DUTCH POSTAL

*Enable Dutch Postal

‖‖‖‖‖‖‖‖
102027

Disable

‖‖‖‖‖‖‖‖
102026

3.24.4 USPS 4CB/ONE CODE/INTELLIGENT MAIL

Enable USPS 4CB/ One Code/ Intelligent Mail

‖‖‖‖‖‖‖‖
102029

*Disable

‖‖‖‖‖‖‖‖
102028

123

‖‖‖‖‖‖‖‖
Update

3.24.5 UPU FICS POSTAL

Enable UPU FICS
Postal

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
102031

*Disable

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102030

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Enter Setup

3.25 2D SYMBOLOGIES

3.25.1 PDF417

*Enable PDF417

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102033

Disable

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102032

3.25.2 MicroPDF417

Enable MicroPDF417

‖‖‖‖‖‖‖‖‖‖‖‖‖
102035

*Disable

‖‖‖‖‖‖‖‖‖‖‖‖‖
102034

125

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Update

3.25.3 DATA MATRIX

*Enable Data Matrix

‖‖‖‖‖‖‖‖‖
102037

Disable

‖‖‖‖‖‖‖‖‖
102036

Data Matrix Mirror

Decide whether to decode mirror image Data Matrix barcodes.

▶ Never — do not decode Data Matrix barcodes that are mirror images.

▶ Always — decode only Data matrix barcodes that are mirror images.

▶ Auto — decode both mirrored and unmirrored Data Matrix barcoes.

*Never

‖‖‖‖‖‖‖‖‖
102118

Always

‖‖‖‖‖‖‖‖‖
102119

Auto

‖‖‖‖‖‖‖‖‖
102120

‖‖‖‖‖‖‖‖‖
Enter Setup

3.25.4 MAXICODE

*Enable Maxicode

102039

Disable

102038

3.25.5 QR CODE

*Enable QR Code

102041

Disable

102040

3.25.6 MicroQR

*Enable MicroQR

102043

Disable

102042

3.25.7 AZTEC

*Enable Aztec

102045

Disable

102044

Update

3.26 MACRO PDF

Macro PDF is a special feature for concatenating multiple PDF barcodes into one file, known as Macro PDF417 or Macro MicroPDF417.

Note: When printing barcodes, keep each Macro PDF sequence separate, as each has a unique identifier. Do not mix barcodes from several Macro PDF sequences, even if they encode the same data. When you scan Macro PDF sequences, scan the entire Macro PDF sequence without interruption!

3.26.1 TRANSMIT/DECODE MODE

Decide how to handle Macro PDF decoding.

▸ Buffer All Symbols / Transmit Macro PDF When Complete

Transmit all decoded data from an entire Macro PDF sequence only when the entire sequence is scanned and decoded. If the decoded data exceeds the limit of 50 symbols, no transmission because the entire sequence was not scanned!

▸ Transmit Any Symbol in Set / No Particular Order

Transmit data from each Macro PDF symbol as decoded, regardless of the sequence.

▸ Passthrough All Symbols

Transmit and decode all Macro PDF symbols and perform no processing. In this mode, the host is responsible for detecting and parsing the Macro PDF sequences.

Buffer All Symbols /
Transmit When Complete

102186

Transmit Any Symbol in Set /
No Particular Order

102187

*Passthrough All Symbols

102190

Enter Setup

3.26.2 ESCAPE CHARACTERS

When enabled, it uses the backslash "\" as an Escape character for systems that can process transmissions containing special data sequences. It will format special data according to the Global Label Identifier (GLI) protocol, which only affects the data portion of a Macro PDF symbol transmission. The Control Header, if enabled, is always sent with GLI formatting.

GLI Protocol

102198

*None

102196

3.26.3 TRANSMIT CONTROL HEADER

The control header contains the segment index and file ID. For example, the field may be "\92800000\725\120\343". The five digits after the \928 are the segment index (or block index), and \725\120\343 is the file ID.

▶ Enable this when selecting "Transmit Any Symbol in Set/ No Particular Order".

▶ Disable this when selecting "Buffer All Symbols/Transmit Macro PDF When Complete".

▶ This option has no effect when selecting "Passthrough All Symbols".

Transmit Control Header

102195

*Do Not Transmit

102194

Update

Enter Setup

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]

IN THIS CHAPTER

4.1 LETTER CASE

By default, the alphabets transmission is case-sensitive, meaning that the alphabets will be transmitted according to their original case. Ignoring the original letter case, select [Upper Case] to output data in upper case only; otherwise, select [Lower Case] to output data in lower case only.

*Normal

101202

Upper Case

101203

Lower Case

101204

Update
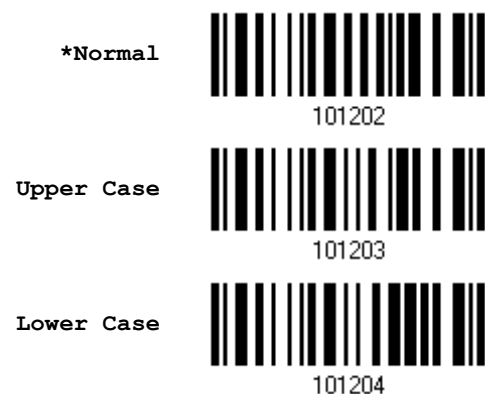
4.2 CHARACTER SUBSTITUTION

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.

▶ If "Keyboard Wedge" or "USB HID" 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. Refer to 4.2.1 Select a Set for Character Substituion.	N/A
Normal Key	Up to 3 character strings are allowed.	▶ Add Shift ▶ Add Left Ctrl ▶ Add Left Alt ▶ Add Right Ctrl ▶ Add Right Alt Refer to Keyboard Wedge Table.

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.

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Enter Setup

4.2.1 SELECT A SET FOR CHARACTER SUBSTITUION

Configure Set 1

101232

Configure Set 2

101233

Configure Set 3

101234
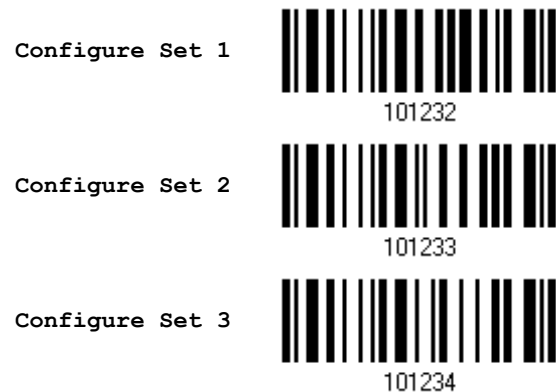
1) Read the barcode above to enable character substitution by set.

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 210 for the desired character substitution. For example,

KEY TYPE = NORMAL

▸ Read "3", "0", "2", and "D" to replace the character "0" with a dash "-".

▸ Read "3", "0", "2", "D", "3", and "0" to replace the character "0" with a dash "-0".

KEY TYPE = SCAN CODE

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".

KEY TYPE = NORMAL + KEY STATUS = SHIFT

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 by default.)

Update

4.2.2 SYMBOLOGIES FOR CHARACTER SUBSTITUTION (ALL 3 SETS)

By default character substitution will be performed on all symbologies. If the character substitution is not desired with one or more symbologies, read the "Do Not Apply" barcode for each undesired symbologies and all the three sets will be ignored for them.

Character Substitution for Codabar

*Apply

101253

Do Not Apply

101252

Character Substitution for Code 39

*Apply

101241

Do Not Apply

101240

Character Substitution for Trioptic Code 39

*Apply

102607

Do Not Apply

102606

Character Substitution for Code 93

*Apply

101255

Do Not Apply

101254

Enter Setup

Character Substitution for Code 128

*Apply

||||||||||||||||||
101257

Do Not Apply

||||||||||||||||||
101256

Character Substitution for GS1-128

*Apply

||||||||||||||||||
101259

Do Not Apply

||||||||||||||||||
101258

Character Substitution for ISBT 128

*Apply

||||||||||||||||||
101293

Do Not Apply

||||||||||||||||||
101292

Character Substitution for EAN-8 (No Addon)

*Apply

||||||||||||||||||
101267

Do Not Apply

||||||||||||||||||
101266

Character Substitution for EAN-8 Addon 2

*Apply

||||||||||||||||||
101269

Do Not Apply

||||||||||||||||||
101268

||||||||||||||||||
Update

Character Substitution for EAN-8 Addon 5

*Apply

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101271

Do Not Apply

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101270

Character Substitution for EAN-13 (No Addon)

*Apply

‖‖‖‖‖‖‖‖‖‖
101273

Do Not Apply

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101272

Character Substitution for EAN-13 Addon 2

*Apply

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101275

Do Not Apply

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101274

Character Substitution for EAN-13 Addon 5

*Apply

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101277

Do Not Apply

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101276

Character Substitution for Italian Pharmacode

*Apply

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101243

Do Not Apply

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101242

136

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Enter Setup

Character Substitution for Industrial 25

*Apply

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101247

Do Not Apply

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101246

Character Substitution for Interleaved 25

*Apply

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101249

Do Not Apply

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101248

Character Substitution for Matrix 25

*Apply

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101251

Do Not Apply

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101250

Character Substitution for Chinese 25

*Apply

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102617

Do Not Apply

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102616

Character Substitution for MSI

*Apply

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101285

Do Not Apply

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101284

137

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Update

Character Substitution for GS1 DataBar

*Apply

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101291
```

Do Not Apply

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101290
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Character Substitution for UPC-A (No Addon)

*Apply

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101279
```

Do Not Apply

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101278
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Character Substitution for UPC-A Addon 2

*Apply

```
101281
```

Do Not Apply

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101280
```

Character Substitution for UPC-A Addon 5

*Apply

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101283
```

Do Not Apply

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101282
```

Character Substitution for UPC-E (No Addon)

*Apply

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101261
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Do Not Apply

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101260
```

Enter Setup

Character Substitution for UPC-E Addon 2

*Apply

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101263

Do Not Apply

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101262

Character Substitution for UPC-E Addon 5

*Apply

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101265

Do Not Apply

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101264

Character Substitution for UCC Coupon Extended Code

*Apply

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102605

Do Not Apply

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102604

Character Substitution for Code 11

*Apply

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102609

Do Not Apply

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102608

Character Substitution for Composite CC-A/B

*Apply

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102611

Do Not Apply

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102610

139

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Update

Character Substitution for Composite CC-C

*Apply

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102613

Do Not Apply

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102612

Character Substitution for Composite TLC-39

*Apply

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102615

Do Not Apply

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102614

Character Substitution for US Postnet

*Apply

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102619

Do Not Apply

‖‖‖‖‖‖‖‖‖
102618

Character Substitution for US Planet

*Apply

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102621

Do Not Apply

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102620

Character Substitution for UK Postal

*Apply

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102623

Do Not Apply

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102622

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Enter Setup

Character Substitution for Japan Postal

*Apply

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102625

Do Not Apply

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102624

Character Substitution for Australian Postal

*Apply

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102627

Do Not Apply

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102626

Character Substitution for Dutch Postal

*Apply

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102629

Do Not Apply

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102628

Character Substitution for USPS 4CB/One Code/Intelligent Mail

*Apply

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102631

Do Not Apply

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102630

Character Substitution for UPU FICS Postal

*Apply

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102633

Do Not Apply

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102632

141

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Update

Character Substitution for PDF417

*Apply

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102635

Do Not Apply

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102634

Character Substitution for MicroPDF417

*Apply

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102637

Do Not Apply

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102636

Character Substitution for Data Matrix

*Apply

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102639

Do Not Apply

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102638

Character Substitution for Maxicode

*Apply

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102641

Do Not Apply

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102640

Character Substitution for QR Code

*Apply

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102643

Do Not Apply

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102642

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Character Substitution for MicroQR

*Apply

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102645

Do Not Apply

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102644

Character Substitution for Aztec

*Apply

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102647

Do Not Apply

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102646

143

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Update

4.3 PREFIX/SUFFIX CODE

By default, there is no prefix code, and [ENTER] or [CR] (Carriage Return) is configured to be suffix code. Up to 8 characters can be configured, for example, "Barcode_", and you will have the string appear in front of the barcode read, like this – "Barcode_1234567890".

▸ If "Keyboard Wedge" or "USB HID" 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 4 scan code values are allowed.	N/A
Normal Key	Up to 8 character strings are allowed.	▸ Add Shift ▸ Add Left Ctrl ▸ Add Left Alt ▸ Add Right Ctrl ▸ Add Right Alt Refer to Keyboard Wedge Table.

Configure Prefix

101230

Configure Suffix

101231

1) Read the barcode above to apply prefix code or suffix code separately, and follow steps 2~3. (Max. 8 characters each)

2) Read the "Hexadecimal Value" barcode on page 210 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.

Enter Setup

4.4 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" or "USB HID" 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.	▶ Add Shift ▶ Add Left Ctrl ▶ Add Left Alt ▶ Add Right Ctrl ▶ Add Right Alt Refer to Keyboard Wedge Table.

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

4.4.1 SELECT PRE-DEFINED CODE ID

Apply Code ID Set 1

109961

Apply Code ID Set 2

109962

Apply Code ID Set 3

109963

Apply Code ID Set 4

109964

Apply Code ID Set 5

109965

Update

Code ID options	Set 1	Set 2	Set 3	Set 4	Set 5
Code 39	A	C	Y	M	A
Trioptic Code 39	A	C	Y	M	X
Italian 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
Chinese 25	Q	M	P	S	X
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
UCC Coupon Code	G	F	I	C	C
Code 11	K	J	J	D	H
Composite CC-A/B	L	X	M	J	La
Composite CC-C	N	Y	N	O	Lc
Composite TLC-39	O	Z	O	R	L2
US Postnet	h	a	s	i	X
US Planet	i	b	t	j	X
UK Postal	j	c	u	k	X
Japan Postal	k	d	v	l	X
Australian Postal	l	e	w	m	X
Dutch Postal	m	f	x	n	X
USPS 4 CB / One Code / Intelligent Mail	n	g	y	o	X
UPU FICS Postal	o	h	z	p	X
PDF417	a	O	W	T	L
MicroPDF417	b	P	V	U	L
Data Matrix	c	Q	U	V	d
Maxicode	d	R	T	W	U
QR Code	e	S	S	X	Q

146

Enter Setup

MicroQR	f	T	R	Y	Q
Aztec	g	U	Q	Z	z
IATA	z	z	r	h	S
Macro PDF417	p	i	a	q	L
Macro MicroPDF417	q	j	b	r	L

Update

4.4.2 CHANGE CODE ID

1) Read the barcode below to change code ID of a specific symbology.

2) Read the "Hexadecimal Value" barcode on page 210 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
101456

Configure Code ID for Code 39
101450

Configure Code ID for Trioptic Code 39
102566

Configure Code ID for Code 93
101457

Configure Code ID for Code 128
101458

Configure Code ID for ISBT 128
101466

Configure Code ID for EAN-8
101460

Configure Code ID for EAN-13
101461

Configure Code ID for Italian Pharmacode
101451

Configure Code ID for Industrial 25
101453

Enter Setup

Configure Code ID for Interleaved 25

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101454

Configure Code ID for Matrix 25

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101455

Configure Code ID for Chinese 25

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102571

Configure Code ID for MSI

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101463

Configure Code ID for UPC-A

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101462

Configure Code ID for UPC-E

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101459

Configure Code ID for UCC Coupon Code

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102565

Configure Code ID for Code 11

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102567

Configure Code ID for Composite CC-A/B

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102568

Configure Code ID for Composite CC-C

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102569

Configure Code ID for Composite TLC-39

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102570

Configure Code ID for US Postnet

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102572

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Update

Configure Code ID for US Planet

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102573

Configure Code ID for UK Postal

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102574

Configure Code ID for Japan Postal

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102575

Configure Code ID for Australian Postal

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102576

Configure Code ID for Dutch Postal

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102577

Configure Code ID for USPS 4CB / One Code / Intelligent Mail

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102578

Configure Code ID for UPU FICS Postal

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102579

Configure Code ID for PDF417

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102580

Configure Code ID for MicroPDF417

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
102581

Configure Code ID for Data Matrix

‖‖‖‖‖‖‖‖‖‖‖‖‖‖
102582

Configure Code ID for Maxicode

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102583

Configure Code ID for QR Code

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102584

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Enter Setup

Configure Code ID for
MicroQR

||||| ||| ||||| || ||| ||
102585

Configure Code ID for
Aztec

||||| || ||||||| || ||||
102586

Configure Code ID for
IATA

||||| || |||| ||| || ||
102587

Configure Code ID for
Macro PDF417

||||| || |||| ||| || ||
102588

Configure Code ID for
Macro MicroPDF417

|||| || ||||| ||| || ||
102589

4.4.3 CLEAR CODE ID SETTINGS

Clear All Code ID
Settings

|||| ||| |||||||| || ||
109960

|||| ||||||||||| ||| ||||
Update

4.5 LENGTH CODE

A 4-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 Trioptic Code 39

Apply

*Do Not Apply

Length Code for Code 93

Apply

*Do Not Apply

Enter Setup

Length Code for Code 128

Apply

||||||||||||||||||||||||||
101417

*Do Not Apply

||||||||||||||||||||||||||
101416

Length Code for GS1-128 & GS1 DataBar

Apply

||||||||||||||||||||||||||
101419

*Do Not Apply

||||||||||||||||||||||||||
101418

Length Code for ISBT 128

Apply

||||||||||||||||||||||||||
101435

*Do Not Apply

||||||||||||||||||||||||||
101434

Length Code for EAN-8

Apply

||||||||||||||||||||||||||
101423

*Do Not Apply

||||||||||||||||||||||||||
101422

Length Code for EAN-13

Apply

||||||||||||||||||||||||||
101425

*Do Not Apply

||||||||||||||||||||||||||
101424

||||||||||||||||||||||||||
Update

Length Code for Italian Pharmacode

Apply

‖‖‖‖‖‖‖‖‖‖‖
101403

*Do Not Apply

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101402

Length Code for Industrial 25

Apply

‖‖‖‖‖‖‖‖‖‖‖
101407

*Do Not Apply

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101406

Length Code for Interleaved 25

Apply

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101409

*Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖
101408

Length Code for Matrix 25

Apply

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101411

*Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖
101410

Length Code for Chinese 25

Apply

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102515

*Do Not Apply

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102514

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Enter Setup

Length Code for MSI

Apply

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101429

*Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101428

Length Code for UPC-A

Apply

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101427

*Do Not Apply

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101426

Length Code for UPC-E

Apply

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101421

*Do Not Apply

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101420

Length Code for UCC Coupon Extended Code

Apply

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102503

*Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
102502

Length Code for Code 11

Apply

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102507

*Do Not Apply

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102506

155

‖‖‖‖‖‖‖‖‖‖‖‖
Update

Length Code for Composite CC-A/B

Apply

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102509

*Do Not Apply

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102508

Length Code for Composite CC-C

Apply

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102511

*Do Not Apply

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102510

Length Code for Composite TLC-39

Apply

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102513

*Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖
102512

Length Code for US Postnet

Apply

‖‖‖‖‖‖‖‖‖‖‖
102517

*Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖
102516

Length Code for US Planet

Apply

‖‖‖‖‖‖‖‖‖‖‖
102519

*Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖
102518

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Enter Setup

Length Code for UK Postal

Apply

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102521

*Do Not Apply

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102520

Length Code for Japan Postal

Apply

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102523

*Do Not Apply

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102522

Length Code for Australian Postal

Apply

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102525

*Do Not Apply

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102524

Length Code for Dutch Postal

Apply

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102527

*Do Not Apply

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102526

Length Code for USPS 4CB/One Code/Intelligent Mail

Apply

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102529

*Do Not Apply

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102528

157

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Update

Length Code for UPU FICS Postal

Apply

*Do Not Apply

Length Code for PDF417

Apply

*Do Not Apply

Length Code for MicroPDF417

Apply

*Do Not Apply

Length Code for Data Matrix

Apply

*Do Not Apply

Length Code for Maxicode

Apply

*Do Not Apply

Enter Setup

Length Code for QR Code

Apply

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
102541

*Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
102540

Length Code for MicroQR

Apply

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102543

*Do Not Apply

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102542

Length Code for Aztec

Apply

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
102545

*Do Not Apply

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102544

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Update

4.6 MULTI-BARCODE EDITOR

The Multi-Barcode Editor allows you to decide the output sequence of a concatenation of barcodes. Up to five barcodes can be specified. When you enable this mode, it will force the scanner to apply Laser mode as the scan mode. For 1704 to concatenate barcodes, the maximum output data length of all the barcodes is 2042 bytes after configuration. When the data length exceeds 2042 bytes, the concatenation of barcodes will not take effect.

Note: The Multi-Barcode Editor has nothing to do with Multi-Barcode Mode.

The barcodes that are found meeting the specified criteria below will be arranged in the desired sequence.

▶ Code Type
▶ 4-digit barcode length, excluding prefix, suffix, length code, etc.
▶ Matching the first character of barcode data

Enter Setup
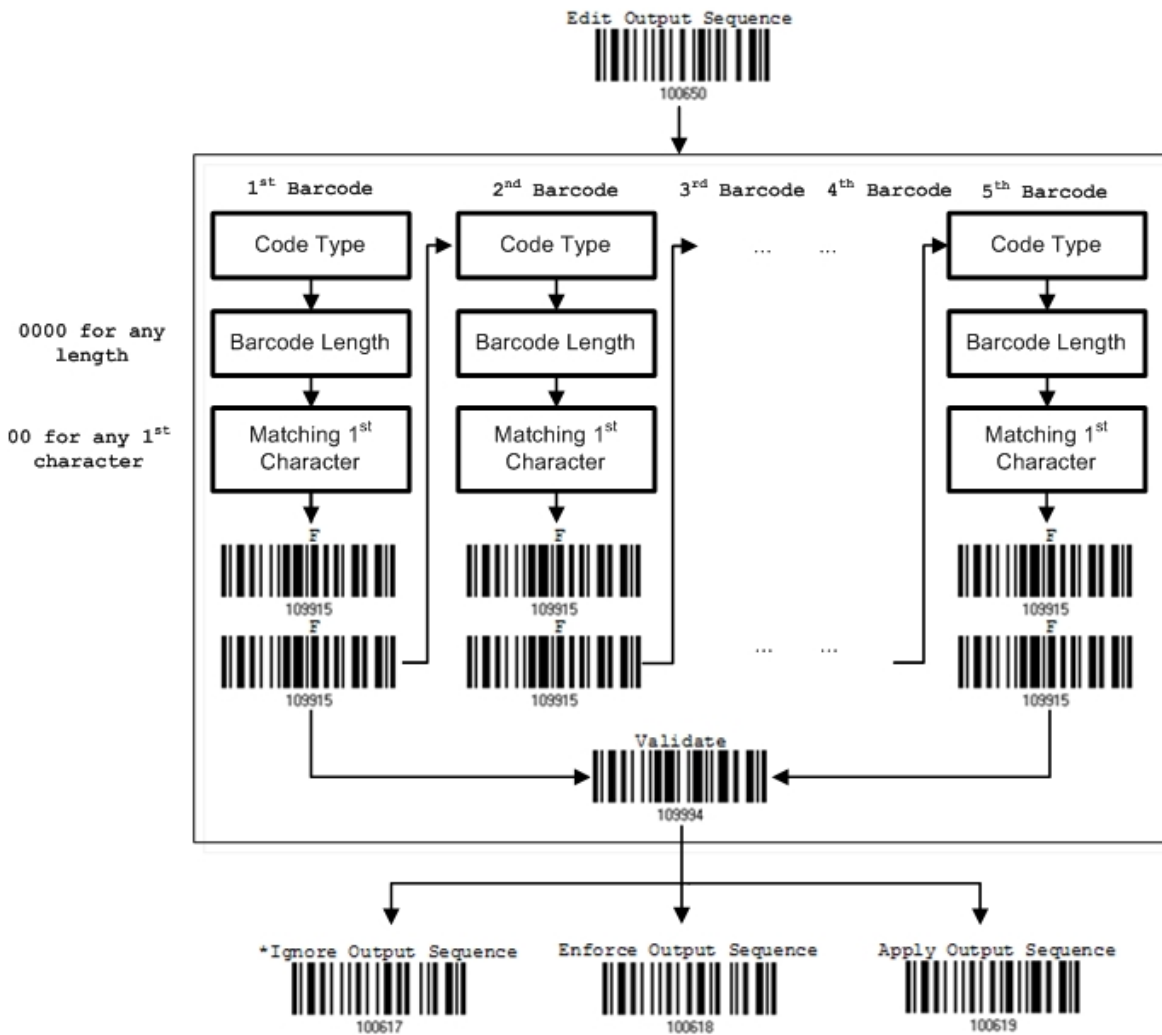
4.6.1 EDIT A CONCATENATION OF BARCODES

Edit Output Sequence

100650

1) Read the barcode above to start editing a concatenation of barcodes.

2) Code Type setting – read the "Hexadecimal Value" barcode on page 210 for Code Type of the (first) barcode. For example, read "4" and "1" for Code 39.

Code Type	Symbology	Code Type	Symbology
40 (@)	ISBT 128		
41 (A)	Code 39		
42 (B)	Italian Pharmacode		
43 (C)	N/A		
44 (D)	Industrial 25	64 (d)	TLC-39 (TCIF Linked Code 39)
45 (E)	Interleaved 25	65 (e)	Trioptic Code 39
46 (F)	Matrix 25		
47 (G)	Codabar (NW7)	67 (g)	Code 11
48 (H)	Code 93		
49 (I)	Code 128		
4A (J)	UPC-E0 / UPC-E1	6A (j)	Composite CC-C
4B (K)	UPC-E with Addon 2	6B (k)	PDF417
4C (L)	UPC-E with Addon 5	6C (l)	MicroPDF417
4D (M)	EAN-8	6D (m)	Data Matrix
4E (N)	EAN-8 with Addon 2	6E (n)	Maxicode
4F (O)	EAN-8 with Addon 5	6F (o)	QR Code
50 (P)	EAN-13	70 (p)	US Postnet
51 (Q)	EAN-13 with Addon 2	71 (q)	US Planet
52 (R)	EAN-13 with Addon 5	72 (r)	UK Postal
53 (S)	MSI	73 (s)	Japan Postal
54 (T)	N/A	74 (t)	Australian Postal
55 (U)	GS1-128 (EAN-128)	75 (u)	Dutch Postal
56 (V)	UPC-A	76 (v)	Composite CC-A/B
57 (W)	UPC-A with Addon 2	77 (w)	Macro PDF417
58 (X)	UPC-A with Addon 5	78 (x)	Macro MicroPDF417

Update

		79 (y)	Chinese 25
5A (Z)	N/A	7A (z)	Aztec
5B ([ )	GS1 DataBar (RSS)	7B ({)	Micro QR
		7C (|)	USPS 4CB / One Code / Intelligent Mail
		7D (})	UPU FICS Postal
		7E (~)	UCC Coupon Extended Code

3) Barcode Length setting – read the "<u>Decimal Value</u>" barcode on page 209 for the 4-digit length of the (first) barcode. For example, read "0065" for barcode length of 65 characters or read "0000" for any length.

Note: If not reading 0000 for any length, the 4-digit length must exclude prefix, suffix (0x0d by default), length code, etc.

4) Matching Character setting – read the "<u>Hexadecimal Value</u>" barcode on page 210 for the 1st character that must be found matching in the (first) barcode. For example, read "4" and "1" for matching character "A" as the first character in the barcode or read "00" for any character.

5) Read twice the "F" barcode on page 210 ("FF") to complete the setting of each barcode.

6) Read the "Validate" barcode to end the editing of the barcode set.

Enter Setup

4.6.2 ACTIVATE THE CONCATENATION OF BARCODES

By default, the output sequence editing of the concatenation of barcodes is not applied.

When "Enforce Output Sequence" is enabled, all barcodes read by the scanner must meet with the criteria for the concatenation. If data is found excluded from all output sequence sets (= not meeting with the criteria), the scanner will not accept the reading, and therefore, data will not be transmitted.

When "Apply Output Sequence" is enabled, only barcodes found meeting with the criteria are counted for the concatenation. Those found not meeting with the criteria are processed normally and individually.

Note: When it requires reading more barcodes to complete the "output sequence" requirements, the scanner will respond with one short beep (low tone). After reading an acceptable barcode, its LED indicator will become solid green and go off quickly (= Good Read).
Upon completion of reading acceptable barcodes, the scanner will respond with one short beep (high tone) and its LED indicator will become solid green and go off quickly (= Good Read).

*Ignore Output Sequence

100617

Enforce Output Sequence

100618

Apply Output Sequence

100619
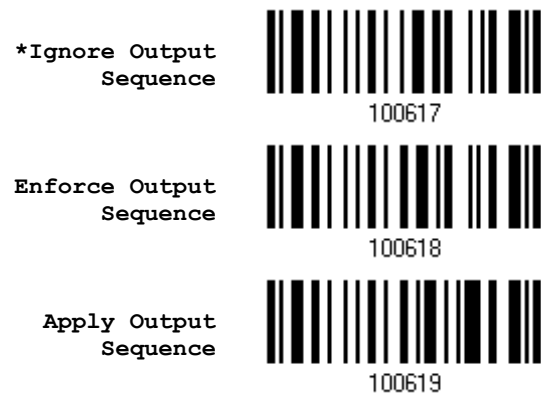
Warning: When you disable the Multi-Barcode Editor later, the scan mode remains unchanged. If Laser mode is not desired, proceed to select a scan mode best suits your application.

Update

4.7 REMOVAL OF SPECIAL CHARACTER

You can only specify 1 character, but it will remove every matching character encountered from the starting position of barcode data until a different character is met. For example, if it is configured to remove the character "0" (hex value is "30"), one or more zeros will be stripped off the barcode data "012345" and "00012345". However, for barcode data "010333", only the first zero will be stripped off.

Remove Special Character

1) Read the barcode above to remove the specified character.

2) Read the "Hexadecimal Value" barcode on page 210 for the desired character string.

   For example, read "3" and "0" for the scanner to remove the character "0".

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

Enter Setup

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.

For 1704 to apply any editing format, the maximum output data length of a barcode is 4084 bytes after configuration. When the data length exceeds 4084 bytes, editing format will not take effect.

Note: The maximum output data length will be reduced to 2042 bytes if Multi-Barcode Mode or Multi-Barcode Editor is in use.

[Prefix Code]	[Code ID]	[Length Code]	[Data]	[Suffix Code]	Additional Field(s)
None by default	None by default	None by default	Barcode itself	0x0d by default	

IN THIS CHAPTER

Update

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

Editing Format 4

Enable

*Disable

End Programming Format

Editing Format 5

Enable

101309

*Disable

101308

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.

Yes

101201

*No

101200

Update

5.2 HOW TO CONFIGURE EDITING FORMATS

```
                        ┌──────────────────┐
                        │ Configure Format │
                        │     1 ~ 5        │
                        └──────────────────┘
                                 │
                                 ▼
┌─────────────────────────────────────────────────────────────────────────┐
│  ┌──────────────────┐   ┌──────────────────┐   ┌──────────────────────┐  │
│  │ Define Data      │   │ Define Data      │   │ Define Transmission  │  │
│  │ Criteria         │   │ Fields           │   │ Sequence             │  │
│  └──────────────────┘   └──────────────────┘   └──────────────────────┘  │
│                                                                           │
│        ┌──────────────────┐   ┌──────────────┐    ┌──────────────┐        │
│    ──▶ │ Applicable Code  │ ──▶ │ Start      │ ──▶│ Start        │        │
│        │ Type             │   │ Position     │    │ Programming  │        │
│        └──────────────────┘   └──────────────┘    └──────────────┘        │
│                                                           │               │
│        ┌──────────────────┐   ┌──────────────┐    ┌──────────────┐        │
│    ──▶ │ Data Length      │ ──▶ │ Field      │    │ Select Field │        │
│        └──────────────────┘   │ Adjustment   │    │ by Sequence  │        │
│                               └──────────────┘    └──────────────┘        │
│        ┌──────────────────┐   ┌──────────────┐    ┌──────────────┐        │
│    ──▶ │ Matching String &│ ──▶ │ Total      │    │ End          │        │
│        │ Location         │   │ Number of    │    │ Programming  │        │
│        └──────────────────┘   │ Fields       │    └──────────────┘        │
│                               └──────────────┘                            │
│                               ┌──────────────┐                            │
│                            ──▶ │ Field      │                            │
│                               │ Settings     │                            │
│                               └──────────────┘                            │
│                               ┌──────────────┐                            │
│                            ──▶ │ Additional │                            │
│                               │ Fields       │                            │
│                               └──────────────┘                            │
└─────────────────────────────────────────────────────────────────────────┘
                                 │
                                 ▼
                        ┌──────────────────┐
                        │ End of Format    │
                        │ Programming      │
                        └──────────────────┘
```

End Programming Format
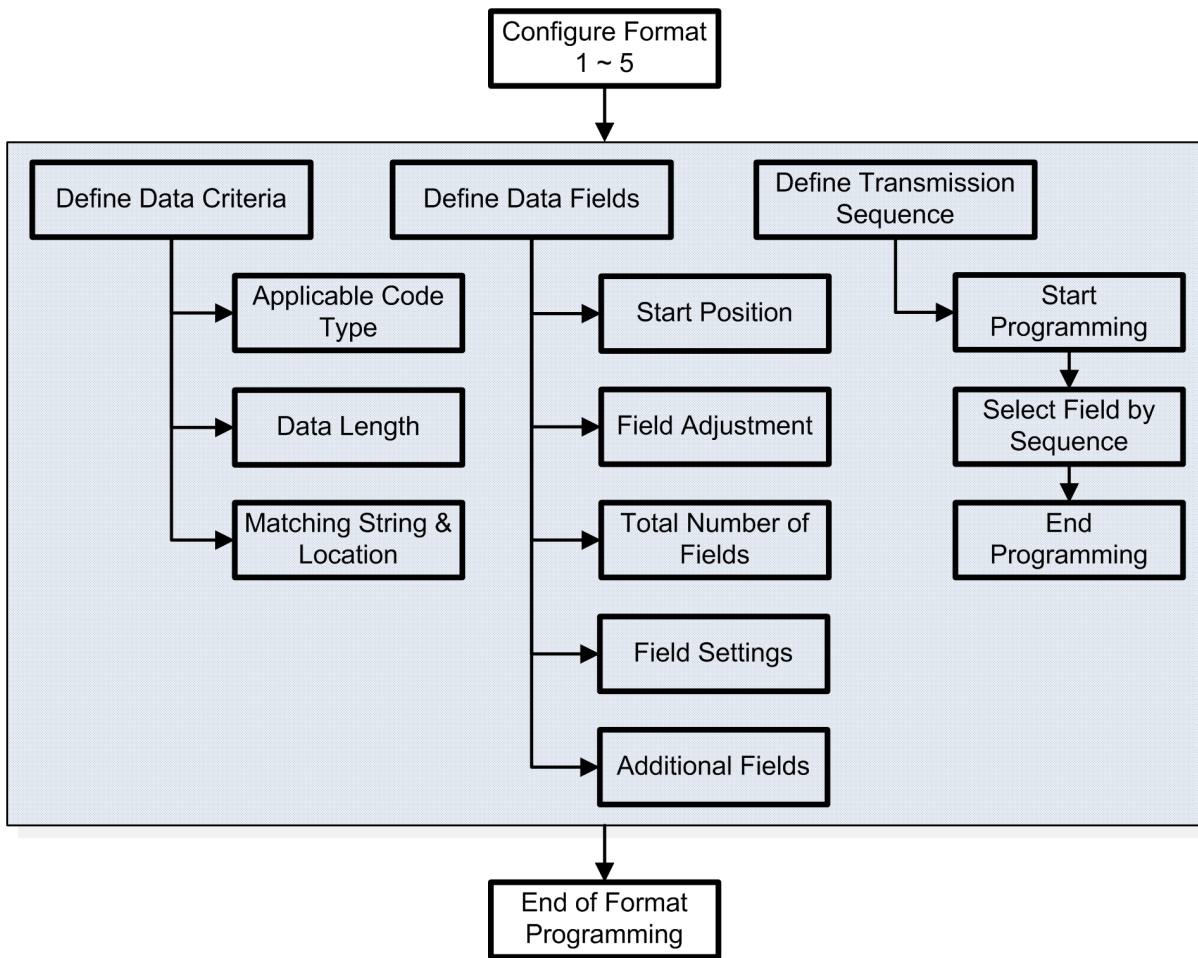
5.2.1 SELECT FORMAT TO CONFIGURE

Start Programming Format

Select one editing format (Format 1~5) and the parameters pertaining to the editing format can then be configured – applicable code type, data length, matching string & location, start position, field adjustment, total number of fields, field settings (field-dividing rule), additional fields, and field transmission sequence.

▶ Up to five different formats can be specified.

Configure Format 1

109981

Configure Format 2

109982

Configure Format 3

109983

Configure Format 4

109984

Configure Format 5

109985
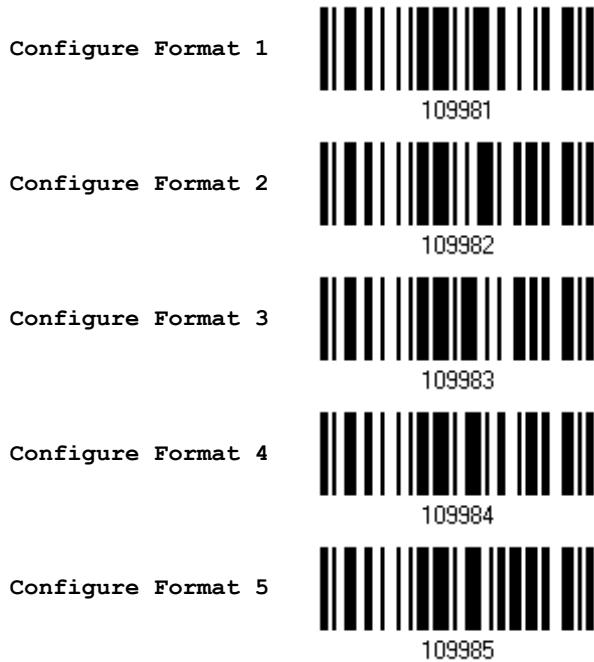
Note: Before you complete the programming of an editing format, if you have the scanner read any barcode for parameters other than those pertaining to the editing format, it will automatically abort the programming process.

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

109980

Update

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
Start Position	From head
Field Adjustment	No adjustment
Total Number of Fields	1
Field Setting – field-dividing rule	Not configured
Additional Fields	None
Field Transmission Sequence	F1

Restore Default Format

109990

End Programming 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

||||||||| 109992

Clear All

||||||||| 109991

||||||||| Update

Editing Format for Codabar

*Apply `101513`

Do Not Apply `101512`

Editing Format for Code 39

*Apply `101501`

Do Not Apply `101500`

Editing Format for Trioptic Code 39

*Apply `101625`

Do Not Apply `101624`

Editing Format for Code 93

*Apply `101515`

Do Not Apply `101514`

Editing Format for Code 128

*Apply `101517`

Do Not Apply `101516`

End Programming Format

Editing Format for GS1-128 & GS1 DataBar

*Apply

‖‖‖‖‖‖‖‖‖
101519

Do Not Apply

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101518

Editing Format for ISBT 128

*Apply

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101553

Do Not Apply

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101552

Editing Format for EAN-8

*Apply

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101527

Do Not Apply

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101526

Editing Format for EAN-8 Addon 2

*Apply

‖‖‖‖‖‖‖‖‖
101529

Do Not Apply

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101528

Editing Format for EAN-8 Addon 5

*Apply

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101531

Do Not Apply

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101530

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Update

Editing Format for EAN-13

*Apply

||||||||||||||||||||||
101533

Do Not Apply

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101532

Editing Format for EAN-13 Addon 2

*Apply

||||||||||||||||||||||
101535

Do Not Apply

||||||||||||||||||||||
101534

Editing Format for EAN-13 Addon 5

*Apply

||||||||||||||||||||||
101537

Do Not Apply

||||||||||||||||||||||
101536

Editing Format for Italian Pharmacode

*Apply

||||||||||||||||||||||
101503

Do Not Apply

||||||||||||||||||||||
101502

Editing Format for Industrial 25

*Apply

||||||||||||||||||||||
101507

Do Not Apply

||||||||||||||||||||||
101506

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End Programming Format

Editing Format for Interleaved 25

*Apply

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101509

Do Not Apply

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101508

Editing Format for Matrix 25

*Apply

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101511

Do Not Apply

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101510

Editing Format for Chinese 25

*Apply

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101635

Do Not Apply

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101634

Editing Format for MSI

*Apply

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101545

Do Not Apply

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101544

Editing Format for UPC-A

*Apply

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101539

Do Not Apply

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101538

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Update

Editing Format for UPC-A Addon 2

*Apply

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101541

Do Not Apply

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101540

Editing Format for UPC-A Addon 5

*Apply

‖‖‖‖‖‖‖‖‖‖‖
101543

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖
101542

Editing Format for UPC-E

*Apply

‖‖‖‖‖‖‖‖‖‖‖
101521

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖
101520

Editing Format for UPC-E Addon 2

*Apply

‖‖‖‖‖‖‖‖‖‖‖
101523

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖
101522

Editing Format for UPC-E Addon 5

*Apply

‖‖‖‖‖‖‖‖‖‖‖
101525

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖
101524

‖‖‖‖‖‖‖‖‖‖‖   End Programming Format

Editing Format for UCC Coupon Extended Code

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101623

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101622

Editing Format for Code 11

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101627

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101626

Editing Format for Composite CC-A/B

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101629

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101628

Editing Format for Composite CC-C

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101631

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101630

Editing Format for Composite TLC-39

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101633

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101632

‖‖‖‖‖‖‖‖‖‖‖‖
Update

Editing Format for US Postnet

*Apply

101637

Do Not Apply

101636

Editing Format for US Planet

*Apply

101639

Do Not Apply

101638

Editing Format for UK Postal

*Apply

101641

Do Not Apply

101640

Editing Format for Japan Postal

*Apply

101643

Do Not Apply

101642

Editing Format for Australian Postal

*Apply

101645

Do Not Apply

101644

End Programming Format

Editing Format for Dutch Postal

*Apply

Do Not Apply

Editing Format for USPS 4CB/One Code/Intelligent Mail

*Apply

Do Not Apply

Editing Format for UPU FICS Postal

*Apply

Do Not Apply

Editing Format for PDF417

*Apply

Do Not Apply

Editing Format for MicroPDF417

*Apply

Do Not Apply

Update

Editing Format for Data Matrix

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101657

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101656

Editing Format for Maxicode

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101659

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101658

Editing Format for QR Code

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101661

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101660

Editing Format for MicroQR

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101663

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101662

Editing Format for Aztec

*Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101665

Do Not Apply

‖‖‖‖‖‖‖‖‖‖‖‖
101664

‖‖‖‖‖‖‖‖‖‖‖‖

End Programming Format

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.

▶ Specify a value.

▶ 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.

Max. Length

101561

Min. Length

101560

2) Read the "Decimal Value" barcode on page 209 for the desired length.

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

Update

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.

▶ Specify a value to indicate where the matching string starts in the barcode data.

1) Read the barcode to specify a matching string.

Matching String…

101562

2) Read the "Hexadecimal Value" barcode on page 210 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…

101563
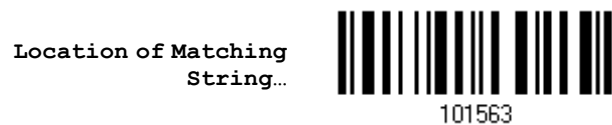
5) Read the "Decimal Value" barcode on page 209 for the desired location.

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

End Programming Format

5.4 CONFIGURING FORMAT — DEFINE DATA FIELD

5.4.1 START POSITION

Data can be divided into fields in one of the following direction –

▸ from head (F1) to tail (F5)
▸ from tail (F1) to head (F5)

*From Head

101600

From Tail

101601
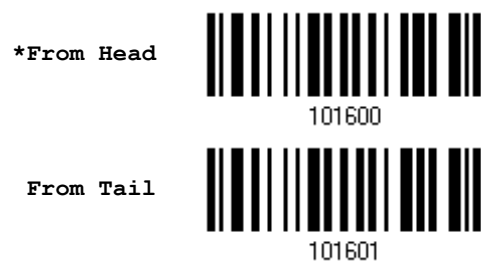
5.4.2 FIELD ADJUSTMENT

You may apply equal length to all fields, if necessary. If data is found longer than specified, it will be truncated automatically. When data is found shorter, it will add "Space" (0x20) to field.

*No adjustment

101602

Set length to adjust fields… (*0)

101603
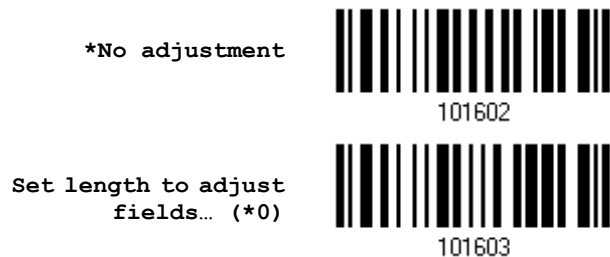
1) Read the barcode above to adjust field by length.
2) Read the "Decimal Value" barcode on page 209 for the desired field length.
3) Read the "Validate" barcode on the same page to complete this setting.

Update

5.4.3 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

101590

Two Fields

101591

Three Fields

101592

Four Fields

101593

Five Fields

101594

Six Fields

101595

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.

End Programming Format

5.4.4 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.

<div align="right">

**Select
Field Separator
to Divide Field 1…**

</div>

||||| 101567

2. Read the "Hexadecimal Value" barcode on page 210 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.

<div align="right">

*Include Separator

</div>

||||| 101565

<div align="right">

Discard Separator

</div>

||||| 101564

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.

<div align="right">

**Divide Field 1
by Length**

</div>

||||| 101566

2. Read the "Decimal Value" barcode on page 209 for the desired field length.
3. Read the "Validate" barcode on the same page to complete this setting.

||||| **Update**

Field 2 Setting

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

<div align="right">

**Select
Field Separator
to Divide Field 2…**

</div>

101571

2. Read the "Hexadecimal Value" barcode on page 210 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.

<div align="right">

*Include Separator

</div>

101569

<div align="right">

Discard Separator

</div>

101568

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.

<div align="right">

**Divide Field 2
by Length**

</div>

101570

2. Read the "Decimal Value" barcode on page 209 for the desired field length.

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

End Programming Format

Field 3 Setting

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

<div align="right">

**Select
Field Separator
to Divide Field 3…**

</div>

101575

2. Read the "Hexadecimal Value" barcode on page 210 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.

<div align="right">

*Include Separator

</div>

101573

<div align="right">

Discard Separator

</div>

101572

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.

<div align="right">

**Divide Field 3
by Length**

</div>

101574

2. Read the "Decimal Value" barcode on page 209 for the desired field length.

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

Update

Field 4 Setting

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

**Select
Field Separator
to Divide Field 4…**

`101579`

2. Read the "Hexadecimal Value" barcode on page 210 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

`101577`

Discard Separator

`101576`

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.
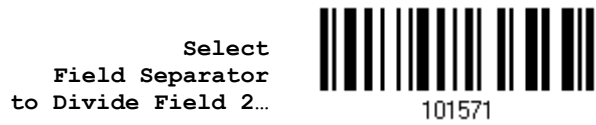
**Divide Field 4
by Length**

`101578`

2. Read the "Decimal Value" barcode on page 209 for the desired field length.

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

End Programming Format

Field 5 Setting

1. Read the barcode below to divide field 5 by a specified terminating string.
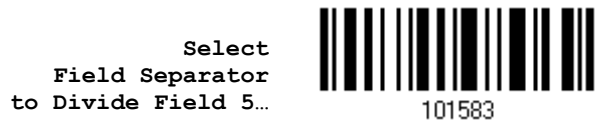
<div align="right">
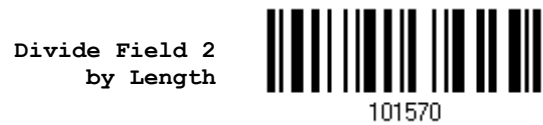
**Select
Field Separator
to Divide Field 5…**

</div>

2. Read the "Hexadecimal Value" barcode on page 210 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.

<div align="right">

*Include Separator

</div>

<div align="right">

Discard Separator

</div>

If not dividing the field by a specific separator, you may divide it by a specified length.
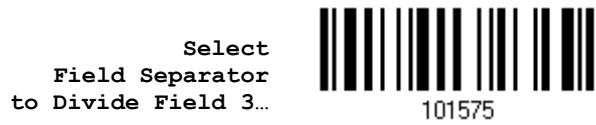
1. Read the barcode below to divide field 5 by length.
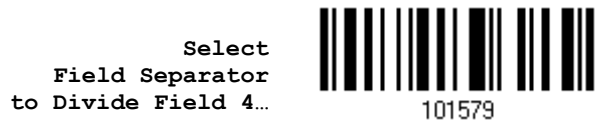
<div align="right">

**Divide Field 5
by Length**

</div>

2. Read the "Decimal Value" barcode on page 209 for the desired field length.

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

Update

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.	▶ Add Shift ▶ Add Left Ctrl ▶ Add Left Alt ▶ Add Right Ctrl ▶ Add Right Alt Refer to Keyboard Wedge Table.

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

Additional Field 1… 101584

Additional Field 2… 101585

Additional Field 3… 101586

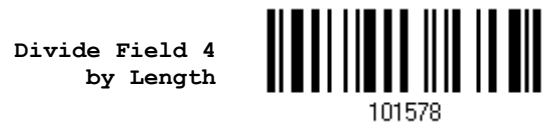**Additional Field 4…** 101587

Additional Field 5… 101588

2. Read the "Hexadecimal Value" barcode on page 210 for the desired additional field.

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

End Programming Format

5.4.5 PAUSE FIELD SETTING

Pause Field Time

You can limit the pause time interval (1~16). By default, it is set to 1 second.

Pause Field Time
1~16 sec.
(*1)

101604
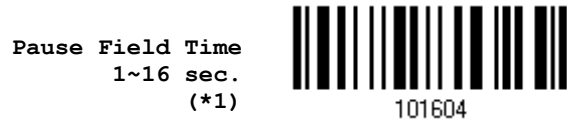
1. Read the barcode above to specify the time interval for the Pause Field. (It is set to 1 by default.)

2. Read the "Decimal Value" barcode on page 209. For example, read "1" and "0" for setting the Pause Field Time to 10 seconds.

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

Update

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…

101589

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

Field 1

109901

Field 2

109902

Field 3

109903

Field 4

109904

Field 5

109905

Field 6

109906

Additional Field 1

109907

End Programming Format

Additional Field 2

109908

Additional Field 3

109909

Additional Field 4

109910

Additional Field 5

109911

Pause Field

109912

Null Character Field

109913

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

End Programming…

109994

193

Update

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 1st character to the 9th character.

6. Read the "Divide Field 2 by Length" barcode, and set length to 10.

    Field 2 data starts from the 10th character to the 19th 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.

End Programming Format

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 1st character to the 6th character is the date code.

▶ From the 7th 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 1st character to the 6th character.

5. Read the "Select Field Separator to Divide Field 2" barcode, and use a dash '-' character.

   Field 2 data starts from the 7th 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.

Update

End Programming Format

SPECIFICATIONS
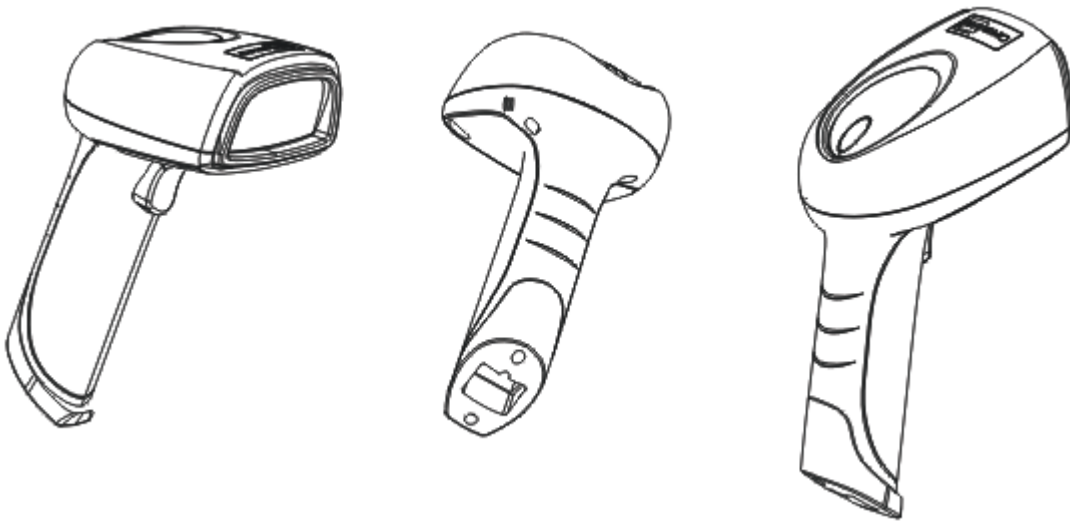
Optical Characteristics	1704
Scan Engine	2D Imager
Light Source	Visible red LED

Physical Characteristics	
Switch	Tactile switch
Indication	Dual-color LED (Red/Green) and beeper
Vibrator	0.5 G
Interface Options	Keyboard Wedge, RS-232, USB HID, USB Virtual COM
Weight	Approx. 306 g

Power Adaptor		
Input		AC 100~240 V, 50/60 Hz
Output		DC 5V, 1A
Power Consumption	Standby	45 mA
	Operating	378 mA
Operating Temperature		0 °C to 40 °C

‖‖‖‖‖‖‖‖‖‖‖‖‖
Update

Environmental Characteristics		
Temperature	Operating	-10 °C to 55 °C
	Storage	-40 °C to 70 °C
Humidity (Non-condensing)	Operating	10% to 90%
	Storage	5% to 95%

Resistance	
Impact Resistance	1.8 m, 5 drops per 6 sides
Splash / Dust Resistance	IP 54
Electrostatic Discharge	± 15 kV air discharge, ± 8 kV contact discharge

Programming Support	
Configuration via Setup Barcodes	Use setup barcodes or host serial commands.
Software	Windows®-based ScanMaster
Firmware upgradeable	Download firmware updates via the download utility.

Accessories (√ means "supported")	
RS-232 Cable	√
Keyboard Wedge Cable	√
USB Cable	√
Power Hood	√

Enter Setup

FIRMWARE UPGRADE

1) Connect the interface cable, RS-232 or USB, between the scanner and your computer.

   ‣ If using the RS-232 cable, join the power supply cord.

   ‣ If you are using USB Virtual COM for the first time, you must install its driver from the CD-ROM.

2) Read the following barcodes in sequence to configure the scanner to use RS-232 as download interface.

Enter Setup

Activate RS-232

100001

115200 bps

100080

Update

109999

Or, read the following barcodes in sequence to configure the scanner to use USB Virtual COM as download interface.

Enter Setup

Activate USB Virtual COM

100008

Update

109999

Update

3) Read the following barcodes in sequence for the scanner to enter the download mode.
    The scanner will respond with beeps to indicate it is ready for downloading.

Enter Setup

Download

109997
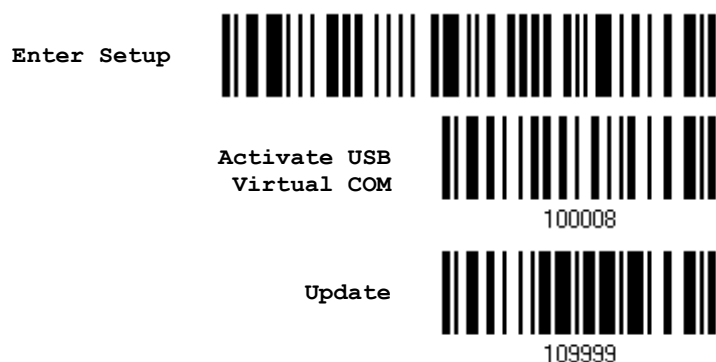
4) Run the download utility "ProgLoad.exe" on your computer.

Kernel Program	User Program
K170x_V*.shx	STD170x_V*.shx
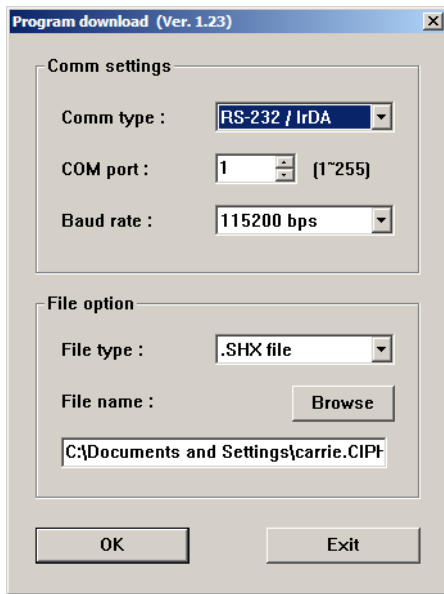
▸ For the communication settings, select "RS-232" and the correct COM port for RS-232 or USB Virtual COM interface.

▸ For RS-232, select 115200 bps for baud rate; for USB Virtual COM, ignore the baud rate setting.

▸ For the file option, click [Browse] to select the target file for firmware update.

▸ Click [OK].

5) After upgrading kernel, you will need to manually restart the scanner.

   After upgrading the user program, the scanner will automatically restart itself once the download is completed successfully.

Note: The output interface remains unchanged as specified in step 2 (= RS-232 or USB Virtual COM). For RS-232, the baud rate setting is still 115200 bps!

Enter Setup

UPGRADING USB BRIDGE FIRMWARE

1) Connect the USB cable between the scanner and your computer.

   ▸ If you are using USB Virtual COM for the first time, you must install its driver from the CD-ROM.

2) Read the following barcodes in sequence to configure the scanner to use USB Virtual COM as download interface.

Enter Setup

Activate USB Virtual COM

100008

Update

109999

3) Read the following barcodes in sequence for the scanner to enter the download mode. The scanner will respond with beeps to indicate it is ready for downloading.

Enter Setup

Download USB Bridge Firmware

109927

4) Run the download utility "ProgLoad.exe" on your computer.

Kernel Program	User Program
K170xBridge_V*.shx	STD170xBridge_V*.shx

Update
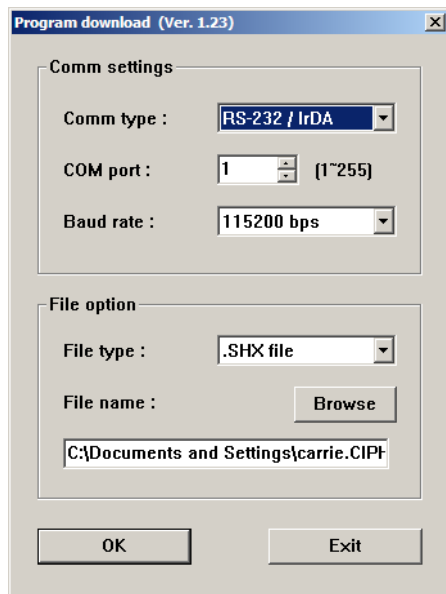
- For the communication settings, select "RS-232" and the correct COM port for USB Virtual COM interface.

- Ignore the baud rate setting.

- For the file option, click [Browse] to select the target file for firmware update.

- Click [OK].

5) After upgrading kernel, the scanner will automatically restart itself once the download is completed successfully.

Note: The output interface remains unchanged as specified in step 2 (= USB Virtual COM).

Enter Setup

HOST SERIAL COMMANDS

SERIAL COMMANDS

D

Purpose	To disable the scanner.
Remarks	"D"

E

Purpose	To enable the scanner.
Remarks	"E"

#@ nnnnnn <CR>

Purpose	To configure the scanner.
Remarks	nnnnnn – the six digits of command parameters.
	For example, "109952" is to list the current Code ID settings.

List Page 3
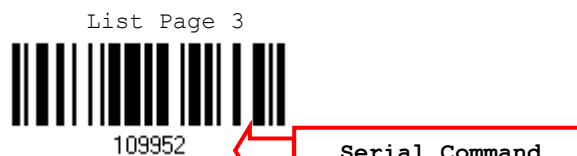
"0x23" + "0x40" + "0x31" + "0x30" + "0x39" + "0x39" + "0x35" + "0x32" + "0x0d"

Note: After configuring the scanner, you may send the serial command "#@109999" 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"

Update

#@TRIGOFF<CR>

Purpose	Disable software trigger
Remarks	"0x23" + "0x40" + "0x54" + "0x52" + "0x49" + "0x47" + "0x4f" + "0x46" + "0x46" + "0x0d"

#@TRIGON<CR>

Purpose	Enable software trigger
Remarks	"0x23" + "0x40" + "0x54" + "0x52" + "0x49" + "0x47" + "0x4f" + "0x4e" + "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 stop immediately –

D

▶ For the scanner to resume working –

E

▶ For the scanner to change the beeper to medium volume and beep –

#@101011<CR>

#@////<CR>

▶ For the scanner to change the beeper to minimal volume and beep –

#@101010<CR>

#@////<CR>

▶ For the scanner to change the beeper frequency to 8 kHz (for Good Read Beep only) and beep –

#@101001<CR>

#@////<CR>

▶ For the scanner to change the beeper length to longest (for Good Read Beep only) and beep –

#@101008<CR>

#@////<CR>

▶ For the scanner to save the settings, send the serial command "#@109999" –

#@101011<CR>

#@109999<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.

Enter Setup

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*/Send/ENTER*: ENTER key on the numeric keypad.

Update

KEY TYPE & STATUS

KEY TYPE

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

*Normal

109926

Scan Code

109936

KEY STATUS

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

Add Shift

109930

Add Left Ctrl

109931

Add Right Ctrl

109933

Add Left Alt

109932

Add Right Alt

109934

Enter Setup

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 210 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 210 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 210 for "3" and "1".

4.   Read the "Validate" barcode to complete this setting.

KEY TYPE = NORMAL + KEY STATUS = CTRL

For example, if you want to program "Ctrl+A" and "Ctrl+$" as the prefix code:

1.   Read the "Configure Prefix" barcode.

2.   Read the "Add Left Ctrl" barcode.

3.   Read the "Hexadecimal Value" barcode on page 210 for "4", "1" (= "A").

4.   Read the "Add Left Ctrl" barcode.

5.   Read the "Hexadecimal Value" barcode on page 210 for "2", "4" (= "$").

6.   Read the "Validate" barcode to complete this setting.

Update

Enter Setup

NUMERAL SYSTEMS

DECIMAL SYSTEM

Decimal

0

109900

1

109901

2

109902

3

109903

4

109904

5

109905

6

109906

7

109907

8

109908

9

109909

Validate the Values

Validate

109994

Update

Abort

HEXADECIMAL SYSTEM

Hexadecimal

0

‖‖‖‖‖‖‖‖‖‖‖
109900

1

‖‖‖‖‖‖‖‖‖‖‖
109901

2

‖‖‖‖‖‖‖‖‖‖‖
109902

3

‖‖‖‖‖‖‖‖‖‖‖
109903

4

‖‖‖‖‖‖‖‖‖‖‖
109904

5

‖‖‖‖‖‖‖‖‖‖‖
109905

6

‖‖‖‖‖‖‖‖‖‖‖
109906

7

‖‖‖‖‖‖‖‖‖‖‖
109907

8

‖‖‖‖‖‖‖‖‖‖‖
109908

9

‖‖‖‖‖‖‖‖‖‖‖
109909

A

‖‖‖‖‖‖‖‖‖‖‖
109910

B

‖‖‖‖‖‖‖‖‖‖‖
109911

C

‖‖‖‖‖‖‖‖‖‖‖
109912

D

‖‖‖‖‖‖‖‖‖‖‖
109913

E

‖‖‖‖‖‖‖‖‖‖‖
109914

F

‖‖‖‖‖‖‖‖‖‖‖
109915

‖‖‖‖‖‖‖‖‖‖‖
Enter Setup

Validate the Values

```
Validate
```

109994

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

Enter Setup