HARDWARE MANUAL

VERSION 1.1



S-2

METAPACE

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IMPORTANT NOTICES

SAFETY PRECAUTIONS

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

- The use of any batteries or charging devices, which are not originally sold or manufactured, will void your warranty and may cause damage to human body or the product itself.
- DO NOT disassemble, incinerate or short circuit the battery.
- DO NOT expose the scanner or the battery to any flammable sources.
- For green-environment issue, it's important that batteries should be recycled in a proper way.
- Under no circumstances, internal components are self-serviceable.
- The charging and communication cradle uses an 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 mobile computer 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 as well as the cradle. DO NOT use/mix any bleach or cleaner.
- If you want to put away the scanner for a period of time, download the collected data to a host computer when in the memory mode, and then take out the battery. Store the scanner and battery separately.
- When the scanner resumes its work, make sure the battery is fully charged before use.
- If you shall find the scanner malfunctioning, write down the specific scenario and consult your local sales representative.

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RELEASE NOTES

Version	Date	Notes
1.00	May 12, 2010	Initial release

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INTRODUCTION

The Metapace S-2 scanner is specifically designed to answer your mobile demands. The versatile 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, especially in small businesses. Integrating short-distance wireless technology to small-form-factor scanners, the scanner is ideal for carrying around, and thus gives workers tether-free mobility anytime anywhere and get job done more efficiently. This line of scanners deliver data over a wireless personal network at a range of up to 90 meters and a prolonged battery life to keep business running.

Owing to the slim, ergonomic design, extremely low power consumption, and powerful decoding capability, the Metapace S-2 scanner is 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 our product!



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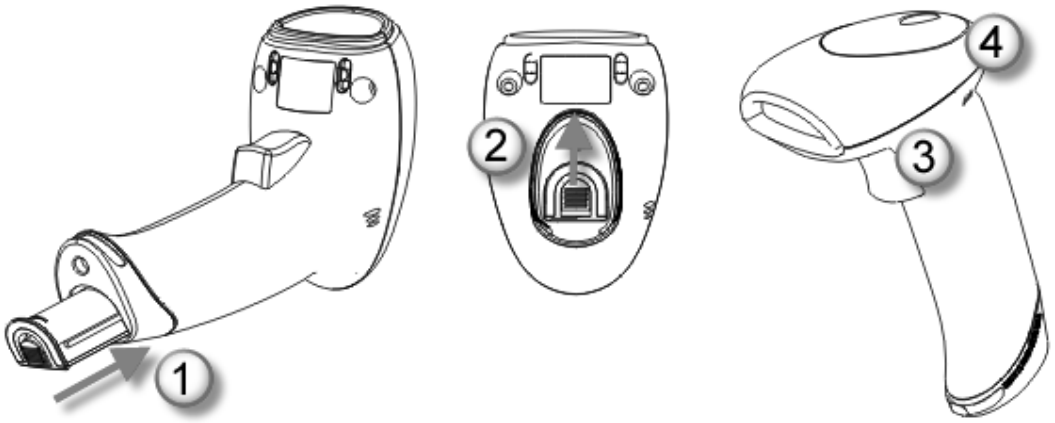
GETTING FAMILIARIZED WITH METAPACE S-2 AND THE CRADLE

INSTALLING THE BATTERY

When you first receive the package, the rechargeable battery is stored separately from the scanner. Insert the battery into the scanner first so that it can be charged when sitting in the cradle.

Note: Any improper handling may reduce the battery life.

1) Hold the scanner still and insert the battery into the battery compartment at the bottom of the scanner.
2) Slide the battery latch to lock the battery in the compartment.
3) Hold down the trigger about 2 seconds to turn on the scanner.
4) The scanner will respond with a long beep and its LED will come on and off shortly.



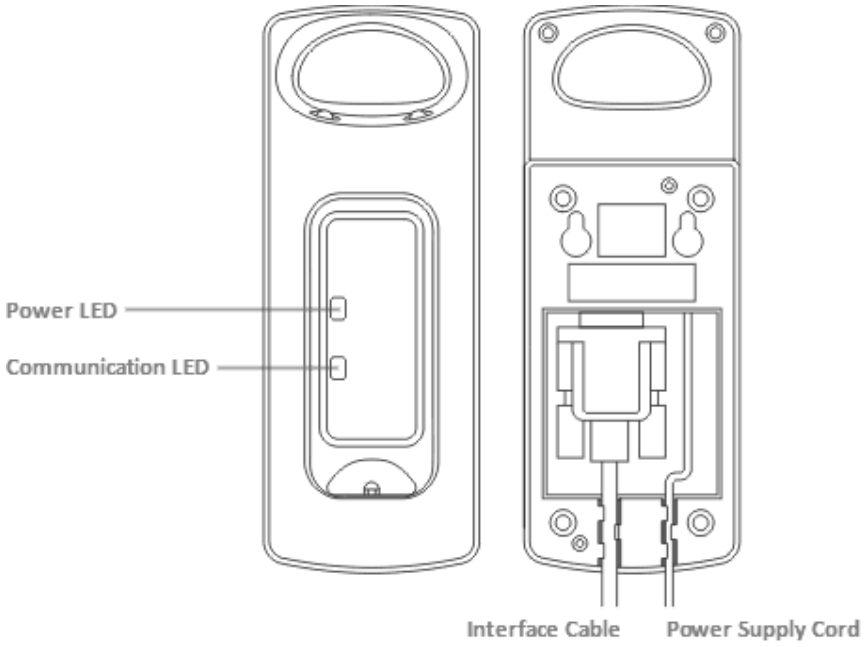
Note: (1) To turn off the scanner, remove the battery. Refer to settings of "Auto Power Off".
(2) For shipping and storage purposes, save the scanner and the battery separately. This will keep the battery in good condition for future use.
(3) When the battery charge becomes low, you will find the scanner cannot emit scan beam and its power-on beep sounds differently.

Enter Setup

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SETTING UP THE CRADLE

Capable of charging the Metapace S-2 scanner, the cradle is specifically designed for the scanner to communicate with a host computer wirelessly. The connection between the Metapace S-2 scanner and the cradle is made easy and reliable. Refer to 3.1.1 Connect to the Cradle. The cradle is also for use with the scanner when set to Auto-Sense mode.



Two LED indicators are provided for communications status and battery charging status.

Power LED		Meaning
Red, solid		Power ON
---		Power OFF
Communication LED		**Meaning**
---	Blue, solid	Initialize
Red, solid	---	Failed to establish a USB connection
Red, solid	Blue, flashing	Serial command mode with USB Virtual COM or RS-232: wait 3 seconds for starting a serial command
Red, flashing	Blue, flashing	Serial command mode with USB HID: wait 3 seconds for pressing [Num Lock] or [Caps Lock] 5 times via keyboard
---	Blue, flashing	Wait for connection request from the scanner (Slow flash at 0.5 Hz)

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---	Blue, solid	Connected with the scanner
Red, solid	Blue, flashing	Failed to send data to host via USB Virtual COM (Fast flash at 1 Hz)
Red, flashing	---	Enter Download Mode



Enter Setup

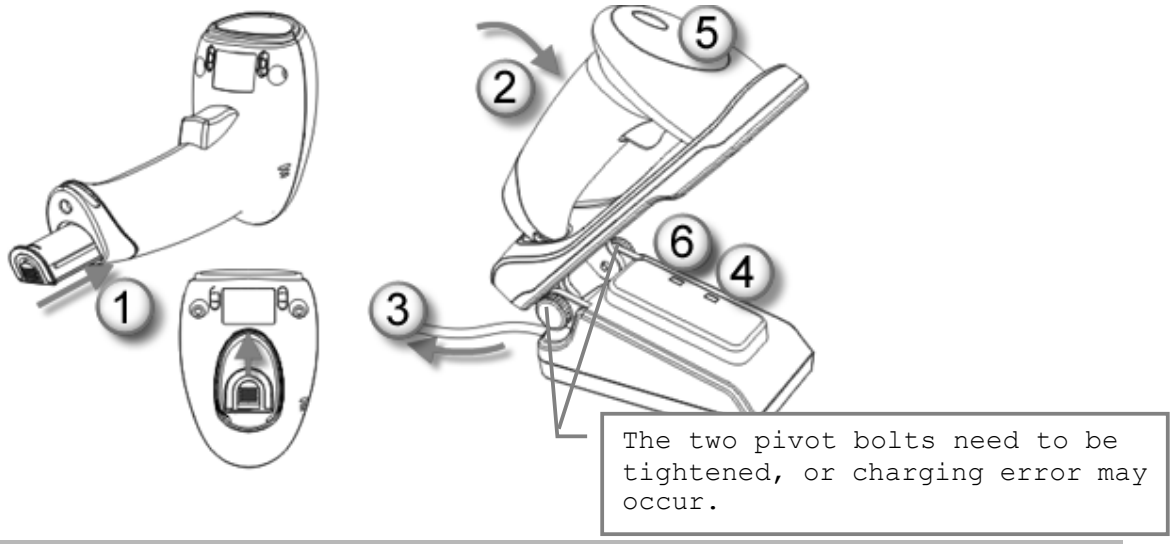
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CHARGING BATTERY VIA THE CRADLE

The battery may not be charged to full for shipment. When you first receive the package, you will need to charge the battery to full before using the scanner.

Note: (1) It takes approximately 5 hours to charge the battery to full (from the power adaptor). It is recommended that the charging devices be operated at room temperature (18°C to 25°C) for optimal performance.
(2) The charging devices will not charge the battery when the temperature drops below 0°C or exceeds 40°C.

1) Install the battery to the scanner.
2) Seat the scanner in the cradle.
3) Connect the cradle to your computer or notebook via the USB or RS-232 cable.
   - RS-232: It is necessary to connect the power supply cord.
   - USB: When the cradle is solely on USB power, the current may be insufficient for it to function normally. Therefore, we suggest connecting the power supply cord.
4) The LED for power indication on the cradle will become solid red.
5) The scanner LED will be flashing red during charging. When the charging is done, the LED will turn off. When charging error occurs, the LED will turn solid red.
6) The LED for communications on the cradle will first become solid blue while initializing. Refer to the table above for details on different stage of communications.



Warning: If the two pivot bolts are not tightened properly, charging error may occur.

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INSIDE THE PACKAGE

The items included in the package may be different, depending on your order. Save the box and packaging material for future use in case you need to store or ship the scanner.

- Metapace S-2 scanner
- Charging & Communication Cradle
- Rechargeable Li-ion battery
- Product CD

Note: The CD-ROM includes this manual and Windows-based software *Metapace S-2.exe* for configuration.

PRODUCT HIGHLIGHTS

- Small-form-factor 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 different scan modes, including Aiming Mode and Multi-Barcode Mode
- User feedback via LED indicator and beeper
- Beeping tone and duration programmable for Good Read
- 512 KB flash memory for Memory Mode operation, storing up to 32,768 scans based on EAN-13 barcodes
- Provides up to 4 KB SRAM for reserve buffer while getting out of range over a wireless personal area network (WPAN), storing up to 256 scans based on EAN-13 barcodes
- Capable of transmitting scanned data, emulating a serial cable (BT SPP) or as keyboard input (BT HID), to a notebook computer or PDA with *Bluetooth*® wireless technology
- Programmable parameters include data output format, editing format, symbologies, etc.



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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 4 Changing Symbology Settings for details of each symbology.

Symbologies Supported: Enable/Disable		Default
Codabar		Enabled
Code 93		Enabled
MSI		Disabled
Plessey		Disabled
Telepen		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
Code 3 of 9	Code 39	Enabled
	Italian Pharmacode	Disabled
	French Pharmacode	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 Limited (RSS Limited)	Disabled
	GS1 DataBar Expanded (RSS Expanded)	Disabled



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QUICK START

The configuration of the scanner can be done by reading the setup labels contained in this manual or via the software *Metapace S-2.exe*. This section describes the procedure of configuring the scanner by reading the setup barcodes and provides some examples for demonstration.

Configuration Mode

1. Hold down the trigger about 2 seconds to turn on the scanner. It will respond with a long beep and its LED will come on and off shortly.
2. Have the scanner read the "Enter Setup" label. It will respond with six beeps and its LED indicator will become flashing red after reading the label.
3. Have the scanner read more setup barcodes… Most of the setup barcodes are normal labels. The scanner will respond with two beeps (low-high tone). For special labels, it requires reading more than one setup barcode to complete the setting.
4. Have the scanner read the "Update" or "Abort" label. It will respond with six beeps and its LED indicator will become flashing red after reading the label.
5. The scanner will restart automatically upon reading the "Update" or "Abort" label. It will respond with a long beep and its LED will come on and off shortly.



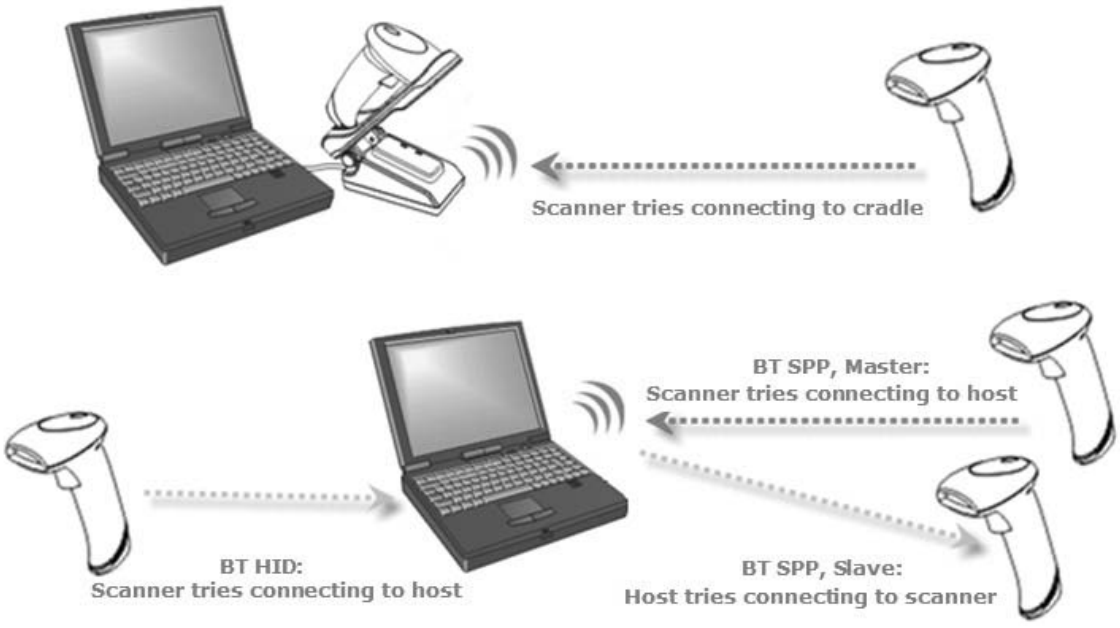
Note: Refer to Appendix I Host Serial Commands for how to configure the cradle by having the scanner read cradle-related setup labels or using serial commands.

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Working Mode

Upon powering up, the scanner will try to establish a connection with the cradle or a computer with *Bluetooth*® wireless technology. Refer to Chapter 3 – Setting up a WPAN Connection for details. The connection between the scanner and the cradle is made easy and reliable.



Note: If RS-232, USB Virtual COM or BT SPP 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 label. Refer to Appendix I Host Serial Commands.

Enter Setup

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ENTER CONFIGURATION MODE

For the scanner to enter the configuration mode, you must have it read the "Enter Setup" label, 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 label.

Enter Setup



For configuring scanner parameters, see “Read a Setup Label” below.

EXIT CONFIGURATION MODE

For the scanner to save settings and exit the configuration mode, you must have it read the “Update” label, 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” label instead.

- Just like reading the “Enter Setup” label, the scanner will respond with six beeps and its LED indicator will become flashing red after reading the label. Wait for a few seconds for the scanner to restart itself.

Update



Abort





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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" label. This is a normal label, and the scanner will respond with two beeps (low-high tone).

- After reading the "Update" label, 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" label. This is a normal label, and the scanner will respond with two beeps (low-high tone).

- After reading the "Update" label, 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" label. This is a normal label, and the scanner will respond with two beeps (low-high tone). For the cradle to restore factory defaults, refer to Cradle Serial Commands.

- After reading the "Update" label, all the parameters of the scanner will return to their default values. The current connection record will be cleared as well.

Restore System Defaults

109993

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

Enter Setup

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READ A SETUP LABEL

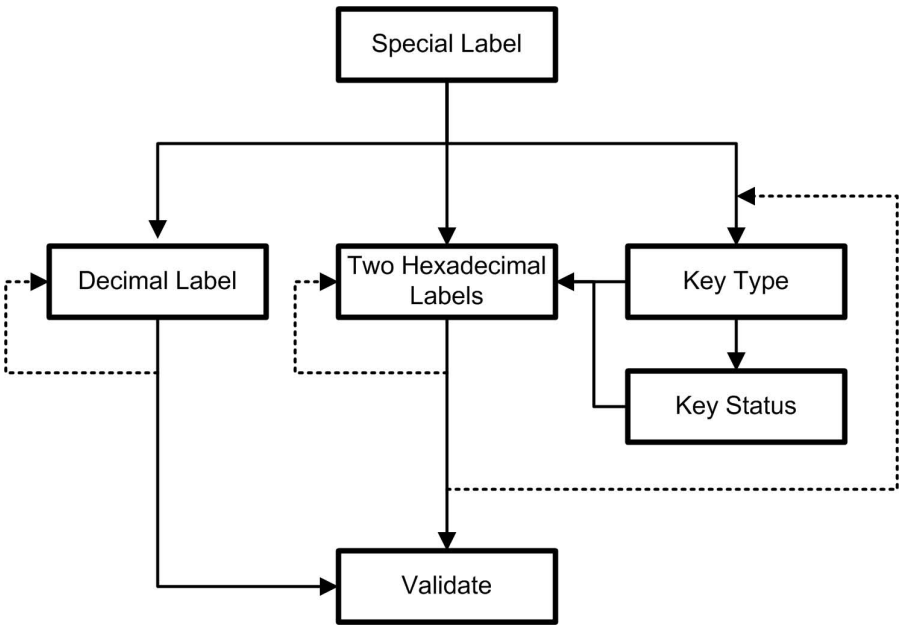
CONFIGURE PARAMETERS

For most of the scanner parameters, only one read is required to set them to new values. The scanner will respond with two beeps 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 labels. These special parameters may require reading one or more setup labels, such as

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

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



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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… Enter Setup 	The scanner will respond with six beeps (high-low tone repeats three times), and its LED indicator will be flashing red.
3	Read a Setup label… For example, *Enable Industrial 25  100307 Save as User Default  109986	The scanner will respond with two beeps (low-high tone) if reading a normal label.
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*.
*	When any configuration error occurs...	The scanner will respond with one long beep (low tone).



Enter Setup

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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 label... For example, **Normal label** *Enable Interleaved 25  100309 **Normal label** Enable Fixed Length(s) …  100604 **Special label** Max. Length (*126) Or Fixed Length 1  100606 **Decimal label or labels** 1  109901 5  109905 Validate  109994	Read the "Decimal Value" label(s). ▸ Refer to Appendix IV "Decimal System" The scanner will respond with two beeps (low-high tone) when the input values are validated.
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*.



Update

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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 label... For example, **Special label** Configure Prefix  101230	The scanner will respond with one short beep if reading a special label such as "Prefix Code", indicating the setup requires reading more labels.
	*Normal  109926	When "BT HID", "USB HID" or "Keyboard Wedge" is configured for interface, Key Type and Key Status will then become applicable. You may decide whether or not to change key status when "Normal Key" is selected for Key Type. ▸ Refer to Appendix III
	Add Left Alt  109932	
	Hexadecimal labels 2  109902	Read the "Hexadecimal Value" labels 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… 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

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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" label. The scanner will respond with two beeps (low-high tone) and send the selected page to the host immediately.

List Page 1



109950

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

List Page 2



109951

List settings regarding Prefix, Suffix, and Length Code Setting

List Page 3



109952

List settings regarding Code ID

List Page 4



109953

List settings regarding: Readable Symbologies

List Page 5



109954

List settings regarding Symbology Parameters (1/3)

List Page 6



109955

List settings regarding Symbology Parameters (2/3)

List Page 7



109956

List settings regarding Symbology Parameters (3/3)



Update

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List Page 8



List settings regarding Editing Format 1

List Page 9



List settings regarding Editing Format 2

List Page 10



List settings regarding Editing Format 3

List Page 11



List settings regarding Editing Format 4

List Page 12



List settings regarding Editing Format 5



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Chapter 1

UNDERSTANDING THE BARCODE SCANNER

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

IN THIS CHAPTER

1.1 Battery 19
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1.1 BATTERY

The scanner is powered by a rechargeable 3.7 V/800 mAh Li-ion battery, and it takes approximately 5 hours to charge the battery to full (from the power adaptor). However, the charging time may vary by working condition. For intensive data collection, you may purchase a spare battery for non-stop operation.

Note: The scanner can be configured to save battery power. Refer to settings of "Auto Power Off & Power-Saving", "CCD Sensor Always Active", "Sniff Mode", as well as "Low Battery Alarm".

1.1.1 HOW TO OPERATE THE SCANNER

Turn on the scanner...

After installing the battery, hold down the trigger for about 2 seconds. The scanner will respond with a long beep (high tone), and its LED will become solid red and go off quickly.

Turn off the scanner...

Remove the battery directly or let it turn off automatically in specific circumstances.



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1.1.2 AUTO POWER OFF & POWER-SAVING

The scanner will stay active at power-on, which may be followed by a transition from full CPU speed to low CPU speed (Power-Saving) to auto shutdown (Auto Power Off).

- Power-Saving (1~254 min.; 0= Disable): By default, it is set to stand by at full-speed for 2 minutes before it enters low-speed mode. If this feature is not desired, set it to 0.
- Auto Power Off (1~254 min.; 0= Disable): By default, it is set to automatically shut down after 10 minutes. If this feature is not desired, set it to 0.

Before establishing a WPAN connection successfully...

1. The scanner will stay active for a specified period of time (2 minutes by default) for the following scenarios. Its CPU is running at full speed, and the LED is flashing blue (On/Off ratio 0.5 s: 0.5 s).

   (a) waiting for a connection request from the host (BT SPP Slave Mode)

   (b) trying to connect to the host (BT HID or BT SPP Master Mode)

   (c) trying to connect to the cradle

2. If it fails to connect within 2 minutes, the scanner will become inactive to save power for the remaining period of time (the specified value minus 2 minutes). Its CPU is running at low speed, and the LED is flashing red (On/Off ratio 0.3 s: 2.5 s).

   Press the trigger to wake up the scanner when it becomes inactive, and the scanner will stay active again.

3. If it fails to connect again and again, and finally stays inactive until the specified time interval has elapsed, the scanner will automatically turn off in order to conserve battery power.

   Hold down the trigger for about 2 seconds to turn it on. For scenarios (a) and (b) in step 1, on your computer you will have to search for the scanner again.

After establishing a WPAN connection successfully...

Once a WPAN connection is established successfully, the LED is flashing blue (On/Off ratio 0.02 s: 3 s). If the scanner is idle during the specified time interval for Auto Power Off, it will automatically turn off when the time is up. You will hear three short beeps, tone descending from high to low. For BT HID or SPP, there is no transition from full CPU speed to low CPU speed. However, when connecting with the cradle, the scanner will go through the transition in order to save power.

- For BT HID, the scanner will resume connection with the host upon powering on again, as long as the host application is running. You will hear three short beeps, tone ascending from low to high. If the scanner fails to resume connection, it will try every 5 seconds to re-connect to the host unless you have the scanner read the "Reset Connection" label.
- For BT SPP Slave Mode, the scanner must wait for the host to re-connect.
- For BT SPP Master Mode, the scanner will resume connection with the host upon powering on again, as long as the host application is running. You will hear three short beeps, tone ascending from low to high. If the scanner fails to resume connection, it will try every 5 seconds to re-connect to the host unless you have the scanner read the "Reset Connection" or "Restore System Defaults" label.
- When using the cradle, the scanner will try re-connecting to the cradle unless you turn off the scanner.



Enter Setup

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Auto Off after 0~254 minutes (*10)



101000

1) Read the label above to specify the time interval before the scanner automatically turns off.
2) Read the "Decimal Value" label on page 195. For example, read "1" and "5" for the scanner to automatically turn off after being idle for 15 minutes.
3) Read the "Validate" label on the same page to complete this setting.

Note: Auto Power Off will not take effect when one of the following conditions is met:
(1) the scanner is in the configuration mode, or
(2) the scanner is seated in the cradle (= in Auto-Sense mode).

Power-Saving after 0~254 minutes (*2)



101021

1) Read the label above to specify the time interval before the scanner automatically turns off.
2) Read the "Decimal Value" label on page 195. For example, read "1" and "5" for the scanner to automatically turn off after being idle for 15 minutes.
3) Read the "Validate" label on the same page to complete this setting.

Note: Power-Saving will not take effect when one of the following conditions is met:
(1) the scanner has already established a BT HID/SPP connection,
(2) the scanner is in the configuration mode,
(3) the scan mode is set to Test, Continuous or Alternate Mode,
(4) the scanner is seated in the cradle (= in Auto-Sense mode), or
(5) the setting value of Power-Saving is greater than that of Auto Power Off.



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1.2 MEMORY

The collected data can be sent back to a host computer one by one via the WPAN connection or stored in flash memory when the scanner is set to Memory mode.

1.2.1 TRANSMIT BUFFER

By default, transmit buffer is enabled and for use when the scanner is out of range. Upon reading a barcode successfully within range, the scanner responds with one short beep (high tone) and its LED indicator becomes solid green and goes off quickly. However, the host computer may not receive the data immediately if getting out of range. With the 4 KB transmit buffer, the scanner can ignore the transmission status and keep on reading barcodes until the buffer is full.

- When transmit buffer is enabled and the scanner is out of range, the scanner will respond with two short beeps, high-low tone, upon reading a barcode successfully.

  When transmit buffer is full, the scanner will respond with one long beep (low tone) and its LED indicator will become solid red and go off quickly. You are advised to get back to range.
- When transmit buffer is disabled and the scanner is out of range, the scanner will respond with one long beep (low tone) and its LED indicator will become solid red and go off quickly. You are advised to get back to range.

Enable Transmit Buffer*



Disable Transmit Buffer



Note: The 4 KB transmit buffer on the scanner can hold as many as 256 scans based on EAN-13 barcodes. Data will be cleared out once the scanner is turned off or running out of battery power!



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1.2.2 MEMORY MODE

The scanner keeps 512 KB flash memory for memory mode operation. When the scanner is in memory mode, it means a WPAN connection is disabled.

Enable Memory Mode



100237

*Disable Memory Mode



100236

Warning: No WPAN connection is allowed unless the memory mode is disabled.

Memory Data Delay

You may set a delay between each data record while transmitting data back to the server.

*None



100238

250 ms



100239

500 ms



100240

1 sec



100241

2 sec



100242



Update

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3 sec



100243

5 sec



100244

8 sec



100245

Send Data

The 512 KB flash memory on the scanner can store up to 32,768 scans based on EAN-13 barcodes. When it is used up, the scanner will respond with two short beeps (high-low tone) as a warning. You are advised to send data to the server immediately by having the scanner read the label below.

Send Data



109918

Clear Data & Confirm

Even though data has been sent back to the server, the flash memory is still occupied unless you erase the memory by having the scanner read two labels – "Clear Data" and "Confirm".

1. Read the "Clear Data" label to clear the flash memory.
2. Read the "Confirm" label to confirm the action.

Clear Data



109916

Confirm



109917



Enter Setup

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1.3 LED INDICATOR

The triple-color LED on top of the scanner is used to provide user feedback. For example, the LED becomes solid red and goes off quickly upon powering on or running out of transmit buffer. You may tell the difference by the beeps – you will hear a long beep of high tone when powering on the scanner, and a long beep of low tone when the transmit buffer becomes full.

Scanner LED			Meaning
Red, flashing			Charging (On/Off ratio 0.5 s: 0.5 s)
Red, solid			Charging error
Red, on-off			▸ Power on, with one long beep (high tone, LED on for 1 second) ▸ Data saved to buffer when transmit buffer is enabled and the scanner is out of range, with two short beeps (high-low tone) ▸ Transmit buffer full, with one long beep (low tone) ▸ Transmit buffer disabled, with one long beep (low tone) ▸ Memory full in memory mode, with two short beeps (high-low tone)
		Green, on-off	Good Read, with one short beep (high tone) and beeper pitch and duration programmable
	Blue, flashing		First, flashing blue (On/Off ratio 0.5 s: 0.5 s) for two minutes indicates the scanner is waiting for connection, and goes off if no connection is established, then flashing red (On/Off ratio 0.3 s: 2.5 s) indicates the scanner is inactive. It is ready for connection only while the LED is flashing blue — ▸ SPP Slave: waiting host to connect ▸ HID or SPP Master: trying to connect to host ▸ Using the cradle: trying to connect to the cradle
Red, flashing			Flashing red (On/Off ratio 0.3 s: 2.5 s) indicates the scanner is inactive and its CPU running at low speed to save power — ▸ No WPAN connection is established after waiting for two minutes
	Blue, flashing		Flashing blue (On/Off ratio 0.1 s: 0.1 s) indicates the scanner receives a PIN code request from host (flashing more quickly than waiting connection).
	Blue, flashing		Flashing blue (On/Off ratio 0.02 s: 3 s) indicates the scanner has established a WPAN connection successfully.
	Blue, flashing	Green, flashing	Flashing blue and green (On/Off ratio 0.1 s: 0.1 s) indicates an error occurs while entering the PIN code. Press the trigger to get ready for re-connecting.
Red, flashing			Configuration Mode (On/Off ratio 0.5 s: 0.5 s)



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1.3.1 GOOD READ LED

*Enable Good Read LED



Disable Good Read LED



1.3.2 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 seconds (*40 ms)



1) Read the label above to specify the time interval before the Good Read LED goes off.
2) Read the "Decimal Value" label on page 195. For example, read "1" and "5" for the Good Read LED to go off after 150 milliseconds.
3) Read the "Validate" label on the same page to complete this setting.



Enter Setup

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1.4 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 and off quickly
Six short beeps, high-low tone repeats three times	▸ Enter Configuration Mode, with red LED flashing ▸ Exit Configuration Mode
Two short beeps, low-high tone	Setup label read successfully
One short beep, high tone	▸ More setup label required ▸ Input PIN code ▸ Clear PIN code
One short beep, low tone	More barcodes required to complete the "output sequence" requirements of Multi-Barcode Editor, with green LED on and off quickly (Upon completion, same as Good Read.)
One long beep, low tone	▸ Transmit buffer full, with red LED on and off quickly ▸ Transmit buffer disabled, with red LED on and off quickly ▸ Configuration error (Wrong label…) ▸ PIN code input error ▸ Reject random PIN request ▸ Fail to send data in memory mode
Two short beeps, high-low tone	▸ Data saved to buffer when transmit buffer is enabled and the scanner is out of range, with red LED on and off quickly ▸ Memory Mode – Memory full, with red LED on and off quickly
Two long beeps, high-low tone	Multi-Barcode Mode – Buffer full
Three short beeps, tone ascending from low to high	▸ WPAN connection established, with blue LED flashing ▸ WPAN connection resumed, with blue LED flashing
Three short beeps, tone ascending from high to low	WPAN connection out of range or suspended



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1.4.1 BEEPER VOLUME

Mute



101009

Minimum Volume



101010

Medium Volume



101011

*Maximum Volume



101012



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1.4.2 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



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1.4.3 LOW BATTERY ALARM

By default, it will activate the beeper to give a warning when the battery charge gets low.

No Alarm



101017

* Low Battery Alarm



101018



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1.5 SEND “NR” TO HOST

The scanner can send the “NR” string to the host to notify the No Read event.

Enable



100267

*Disable



100266



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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.

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		✓						✓
Aiming mode				✓			✓	✓
Multi-Barcode mode			✓		✓			
Alternate mode		✓				✓		

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



Enter Setup

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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



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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

1.6.3 LASER MODE

The scanner will start scanning once the trigger is hold 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

Enter Setup

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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

1.6.6 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 seconds (*1)



100226

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

2. Read the "Decimal Value" label on page 195. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 10 seconds.

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



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1.6.7 MULTI-BARCODE MODE

The scanner will be scanning as long as the trigger is held down, capable of decoding not only one single barcode but a concatenation of unique barcodes.

- 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.

1.6.8 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

Enter Setup

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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 seconds (*10)



100235

1) Read the label above to specify the time interval before the scan engine times out.
2) Read the "Decimal Value" label on page 195. For example, read "1" and "5" for the scanner to automatically shut down after being idle for 15 seconds.
3) Read the "Validate" label on the same page to complete this setting.



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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

100 ms



100216

200 ms



100217

* 400 ms



100218

800 ms



100219

1 sec



100220

2 sec



100221

3 sec



100222

5 sec



100223



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1.9 READ REDUNDANCY FOR ALL SYMBLOGIES

Select the level of reading security. For example,

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

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

*No Redundancy

100262

One Time

100263

Two Times

100264

Three Times

100265

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1.10 ADDON SECURITY FOR UPC/EAN BARCODES

You may like to enforce read redundancy (0~30 times) on UPC/EAN barcodes with addons only.

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

Addon Security Level (*0 ~ 30)



1) Read the label above to specify the read redundancy when missing add-ons while scanning UPC/EAN barcodes. (It is set to 0 by default.)
2) Read the "Decimal Value" label on page 195. For example, read "1" and "2" for the scanner to re-read the barcode for 12 times.
3) Read the "Validate" label on the same page to complete this setting.



Enter Setup

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1.11 AUTO-SENSE MODE

When the scanner is seated in the cradle, press the trigger so that it will automatically enter Auto-Sense mode. In Auto-Sense mode, it will force the scanner to apply Laser mode as the scan mode. However, it works differently from the original Laser mode. Now the scanner will be scanning as long as it is seated in the cradle, as shown below. Whenever a barcode is brought within range, the scanner will be able to decode it.

Note: Remove the scanner from the cradle to exit Auto-Sense mode. It will return to Laser mode. If Laser mode is not desired, proceed to select a scan mode best suits your application.



Note: For Auto-Sense mode to work, you must connect both the power supply cord and the interface cable to the cradle. USB power is insufficient.

When the ambient light is too dim to activate the sensor, you may have the scanner read the "High Sensitivity" label to improve performance.

High Sensitivity

101469

*Normal

101468

Note: If the ambient light is under 100 lux, we suggest that you either add lighting or use Continuous mode instead.

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1.12 CCD SENSOR ALWAYS ACTIVE

This feature is used to keep the CCD sensor always active so that the scanner can decode more efficiently. However, you may disable it in order to save battery power.

*Enable



100269

Disable



100268

1.13 NEGATIVE BARCODES

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

Enable



100225

*Disable



100224



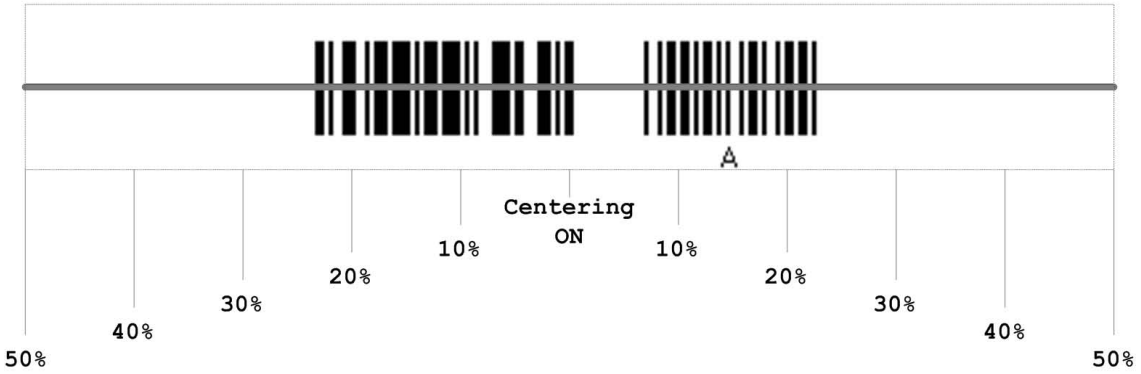
Enter Setup

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1.14 EFFECTIVE DECODING AREA

By default, the effective decoding area is 100% covered by the scanned area. However, you may narrow down the decoding area to prevent reading the wrong barcode when a number of barcodes are printed closely. The scanner will only read barcodes that appear in the effective decoding area.

Read the label "Centering On" and specify the percentage to narrow down the decoding area. For example, read "Left 10%" and then "Right 30%" for the scanner to decode barcode "A" only.



1.14.1 POSITIONING WINDOW

Centering On

100279

*Centering Off

100278

1.14.2 ADJUSTING WINDOW

Percentage for Left Half

*Left 50%

100280

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Left 40%



100281

Left 30%



100282

Left 20%



100283

Left 10%



100284

Percentage for Right Half

Right 10%



100288

Right 20%



100289

Right 30%



100290

Right 40%



100291

*Right 50%



100292



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Chapter 2

SELECTING OUTPUT INTERFACE

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

1) Install batteries and hold down the trigger for about 2 seconds to turn on the scanner.
2) Have the scanner read the "Enter Setup" label to enter the configuration mode.
3) Have the scanner read the associated label to activate the desired interface.

   See the following sections for output interfaces supported.
4) Have the scanner read the labels for related settings.
5) Have the scanner read the "Update" label to exit the configuration mode.
6) Turn on your computer or laptop and establish a WPAN connection with the scanner.

   Refer to Chapter 3 – Setting up a WPAN Connection.

Note: By default, the output interface is set to "BT HID".

IN THIS CHAPTER

2.1 BT HID 46
2.2 BT SPP Slave 55
2.3 BT SPP Master 57
2.4 Keyboard Wedge via 61
2.5 RS-232 via 69
2.6 USB HID via 74
2.7 USB Virtual COM via 83



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2.1 BT HID

For BT HID, refer to Chapter 3 – Setting up a WPAN Connection for related connection settings. 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
Inter-Function Delay	0 (ms)
Send "NR" to Host	Disable

2.1.1 ACTIVATE BT HID & SELECT KEYBOARD TYPE

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

Activate BT HID & Select Keyboard Type …

100006

1) Read the label above to activate BT HID and select a keyboard type.
2) Read the "Decimal Value" label on page 195. Refer to the table below for the number of desired keyboard type.
3) Read the "Validate" label on the same page to complete this setting.

Enter Setup

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BT 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)		

2.1.2 RESET CONNECTION

For BT HID, you can only have the scanner connected to one computer at a time. If you want to connect the scanner to another host, you must have it read the "Reset Connection" label so that the current connection record will be cleared. Then, the scanner will restart itself automatically. Go through the whole process in 3.2.3 Connect to Dongle to establish a new connection.

Reset Connection



109919

Note: The "Restore System Defaults" label will have the current connection record cleared as well.



Update

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2.1.3 KEYBOARD SETTINGS

- Alphabets Layout
- Digits Layout
- Capital Lock Type
- Capital Lock Setting
- Alphabets Transmission
- Digits Transmission

Note: BT HID does not support these functions on PDAs – (1) Capital Lock Setting: Auto Detection (2) Digits Transmission: Numeric Key

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

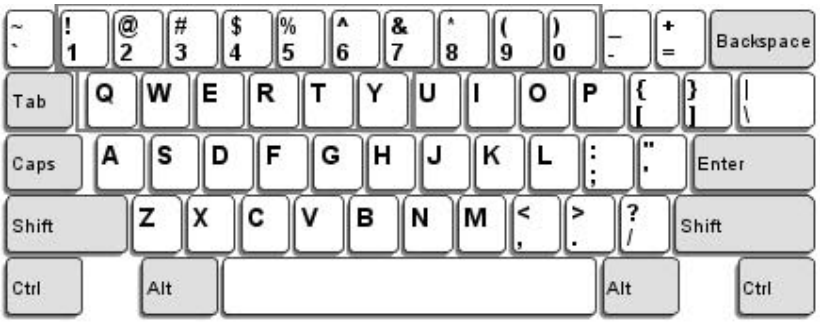
100061

QWERTZ

100062

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.

Enter Setup

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French Keyboard Style – AZERTY

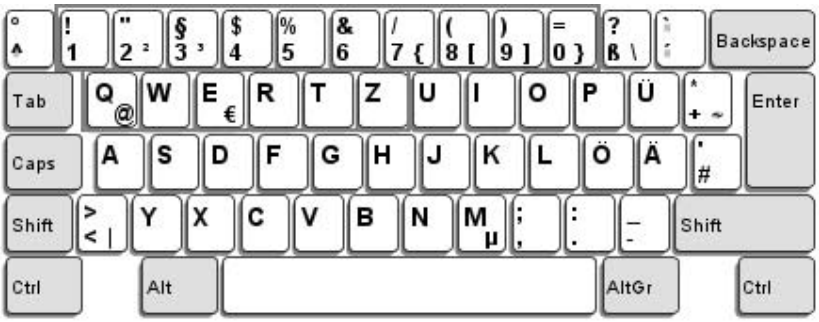
French layout; see below for French Keyboard Style.



- 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.

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.

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

Update

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*Normal



100046

Lower Row



100048

Upper Row



100049

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

Capital Lock Type & Setting

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

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

*Normal



100042

Capital Lock



100044

Shift Lock



100045



Enter Setup

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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). ▸ This setting is not supported on PDAs.

*Capital Lock OFF



Capital Lock ON



Auto Detection



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.

*Case-sensitive



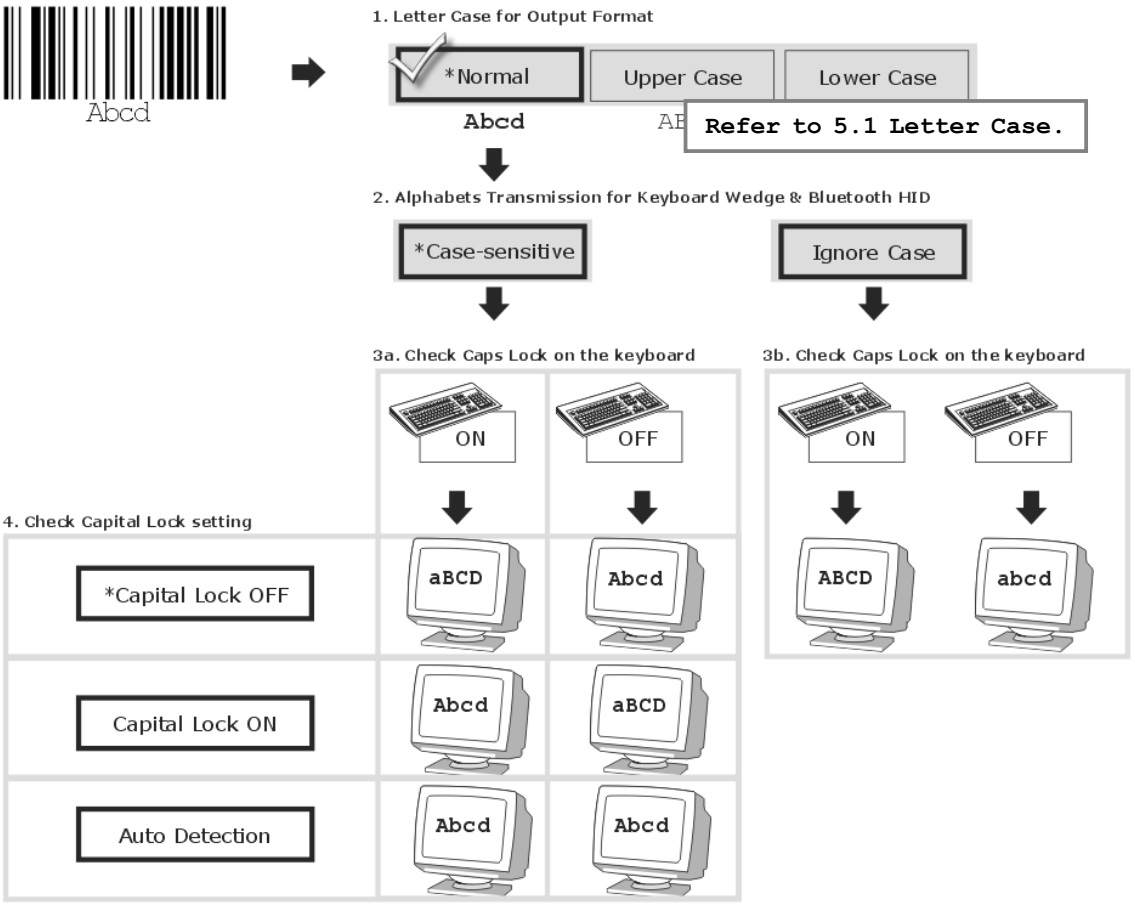
Ignore Case





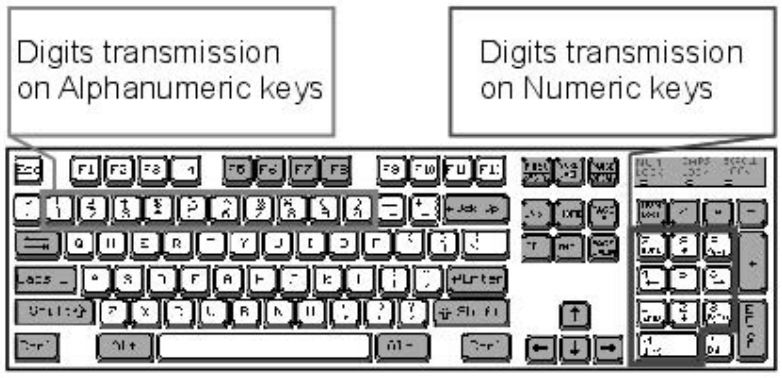
Update

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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.



Enter Setup

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*Alphanumeric Key



100040

Numeric Key



100041

Note: If you select “Numeric Keypad”, the Num Lock status of the physical keyboard should be "ON". This setting is not supported on PDAs.



Update

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2.1.4 INTER-FUNCTION DELAY

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

Value	Delay Time	Value	Delay Time
0	Disable	195 ~ 204	200 millisecond
1 ~ 14	10 millisecond	205 ~ 214	210 millisecond
15 ~ 24	20 millisecond	215 ~ 224	220 millisecond
25 ~ 34	30 millisecond	225 ~ 234	230 millisecond
35 ~ 44	40 millisecond	235 ~ 244	240 millisecond
45 ~ 54	50 millisecond	245 ~ 254	250 millisecond
…	…		

Inter-Function Delay … (*0 ~ 254)

100012

1) Read the label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 195 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

2.1.5 HID CHARACTER TRANSMIT MODE

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

*Batch Processing

100064

By Character

100065

Enter Setup

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2.2 BT SPP SLAVE

For BT SPP Slave, refer to Chapter 3 – Setting up a WPAN Connection for related connection settings.

2.2.1 ACTIVATE BT SPP SLAVE MODE

This is SPP Slave Mode.

Activate BT SPP,
Slave Mode

100003

2.2.2 INTER-FUNCTION DELAY

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

Value	Delay Time	Value	Delay Time
0	Disable	195 ~ 204	200 millisecond
1 ~ 14	10 millisecond	205 ~ 214	210 millisecond
15 ~ 24	20 millisecond	215 ~ 224	220 millisecond
25 ~ 34	30 millisecond	225 ~ 234	230 millisecond
35 ~ 44	40 millisecond	235 ~ 244	240 millisecond
45 ~ 54	50 millisecond	245 ~ 254	250 millisecond
…	…		

Inter-Function Delay … (*0 ~ 254)

100012

1) Read the label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 195 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

Update

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2.2.3 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 three more times. If all the attempts fail without any notification, data loss will occur.

ACK/NAK Time-Out after … (*0 ~ 99)



100013

1) Read the label 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" label on page 195. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 1 second.
3) Read the "Validate" label 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

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2.3 BT SPP MASTER

As a SPP master device, the scanner will be able to resume connection with the host upon powering on again, as long as the host application is running. If the scanner fails to resume connection, it will try every 5 seconds to re-connect to the host unless you have the scanner read the "Reset Connection" or "Restore System Defaults" label.

For BT SPP Master, refer 3.2.2 Configure Related Settings for related connection settings.

Note: In SPP Master Mode, if it fails to re-connect within the specified period of time (2 minutes by default), the scanner will become inactive to save power. Once the re-connection is established successfully, the scanner will not go through transition from full CPU speed to low CPU speed even though it is idle during the specified time interval for Auto Power Off. It will automatically turn off when the time is up. Refer to 1.1.2 Auto Power Off & Power-Saving.

2.3.1 ACTIVATE BT SPP MASTER MODE

This is SPP Master Mode.

Activate BT SPP,
Master Mode



100007

How to connect with the target device?

Produce two setup labels for the target SPP slave device, just like what we do for the cradle.

- "Set Connection" label
- "MAC ID" label

Note: The "MAC ID" label must have a prefix of two characters, either "0x" or "0X", followed by the real MAC address of the target device.

Usage:

1. Read the "Activate BT SPP, Master Mode" label above and labels for connection settings, such as authentication and preset PIN. Skip this step if no connection settings are desired.
2. Read the "Set Connection" and "MAC ID" labels. The scanner will respond with one beep upon reading each of the labels.

Set Connection



88686471166254



Update

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Prefix "0X" to target MAC address

0X00D0176F0030

Note: Read the "Set Connection" label first, and then the "MAC ID" label within 10 seconds.

Instead of producing the "MAC ID" label, you may have the scanner read the setup label below and then the "Hexadecimal Value" label on page 196 for the desired MAC address.

- Have the scanner read the "Abort" label to cancel the operation at any time while reading setup labels for the MAC address. If the MAC address has not been completed yet, having the scanner read the "Validate" label can cancel the operation as well.

Enter MAC ID
in Hexadecimal …

100150

Exit SPP Master Mode

To stop re-connection, have the scanner read "Reset Connection" or "Restore System Defaults" label so that the current connection record (= MAC ID) will be cleared. Then, the scanner will restart itself automatically. Go through the whole process in 3.2.3 Connect to Dongle to establish a new WPAN connection.

Reset Connection

109919

Enter Setup

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2.3.2 INTER-FUNCTION DELAY

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

Value	Delay Time	Value	Delay Time
0	Disable	195 ~ 204	200 millisecond
1 ~ 14	10 millisecond	205 ~ 214	210 millisecond
15 ~ 24	20 millisecond	215 ~ 224	220 millisecond
25 ~ 34	30 millisecond	225 ~ 234	230 millisecond
35 ~ 44	40 millisecond	235 ~ 244	240 millisecond
45 ~ 54	50 millisecond	245 ~ 254	250 millisecond
…	…		

Inter-Function Delay … (*0 ~ 254)



100012

1) Read the label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 195 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.



Update

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2.3.3 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 three more times. If all the attempts fail without any notification, data loss will occur.

ACK/NAK Time-Out after … (*0 ~ 99)

100013

1) Read the label 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" label on page 195. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 1 second.
3) Read the "Validate" label 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.

2.3.4 SWITCH BETWEEN MASTER/SLAVE MODE

After the scanner has established a connection as a SPP slave device, you may have it read the "Activate BT SPP, Master Mode" setup label to switch to SPP Master Mode. This will result in easy and reliable re-connection, just like connecting with the cradle.

Enter Setup

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2.4 KEYBOARD WEDGE VIA THE CRADLE

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

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

2.4.1 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 & Select Keyboard Type …

100000

1) Read this label above to activate Keyboard Wedge and select a keyboard type.
2) Read the "Decimal Value" label on page 195. Refer to the table below for the number of desired keyboard type.
3) Read the "Validate" label on the same page to complete this setting.

Update

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Keyboard Wedge via the Cradle

By default, the keyboard type is set to PCAT (US). The following keyboard types are supported when using the cradle with the keyboard wedge cable provided —

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)

2.4.2 KEYBOARD SETTINGS

Alphabets Layout

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

*Normal



100060

AZERTY



100061

QWERTZ



100062

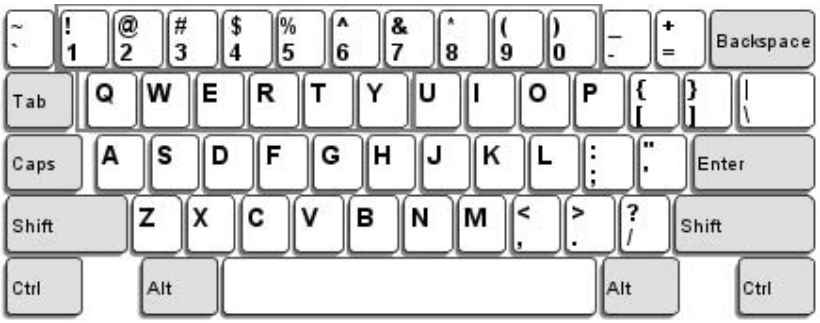


Enter Setup

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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

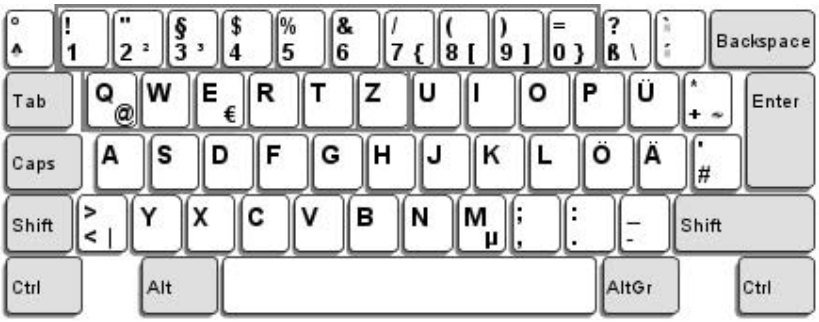
French layout; see below for French Keyboard Style.



- 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.

Update

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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.

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

Lower Row

100048

Upper Row

100049

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

Capital Lock Type & Setting

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

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

Enter Setup

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*Normal



100042

Capital Lock



100044

Shift Lock



100045

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

*Capital Lock OFF



100052

Capital Lock ON



100053

Auto Detection



100054

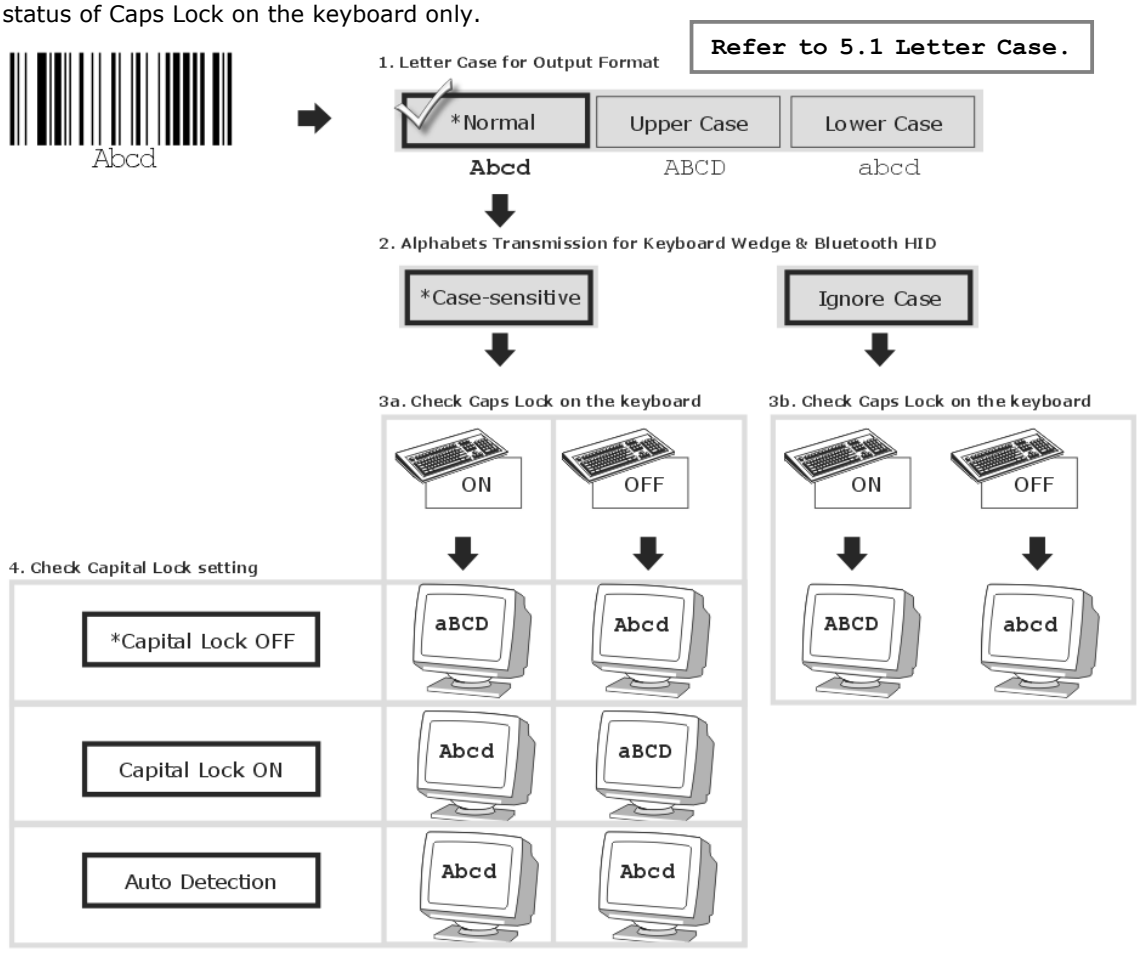


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Alphabets Transmission

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.



*Case-sensitive

100050

Ignore Case

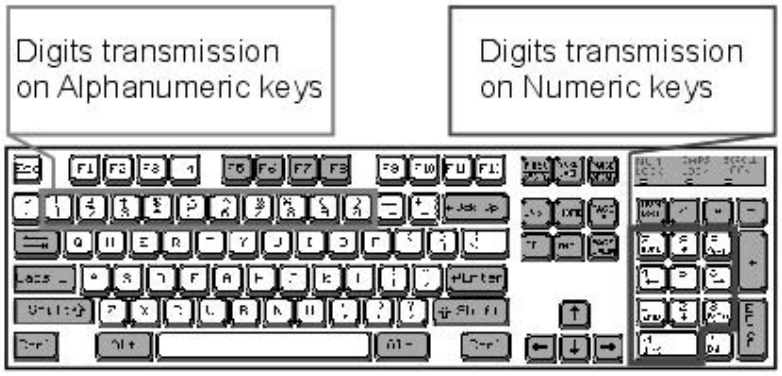
100051

Enter Setup

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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.



*Alphanumeric Key

100040

Numeric Key

100041

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

ALT Composing

By default, Alternate key composing is disabled. Select [Yes] to allow emulating Alternate key code of a specific keyboard character. For example, [Alt] + [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.

Update

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Enable

100059

*Disable

100058

2.4.3 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 label above to specify the inter-character delay.
2) Read the "Decimal Value" label on page 195 for the desired inter-character delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

2.4.4 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 label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 195 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

Enter Setup

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2.5 RS-232 VIA THE CRADLE

Use the RS-232 cable to connect the scanner via the cradle to the serial port of PC, and connect the power supply cord. The associated RS-232 parameters must match those configured on the computer. You may run HyperTerminal.exe on your computer, and the scanned data will be transmitted to the computer.

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)
Send "NR" to Host	Disable
ACK/NAK Timeout	0
ACK/NAK Beep	Disable

2.5.1 ACTIVATE RS-232 INTERFACE

Activate RS-232 Interface

100001

2.5.2 BAUD RATE

*115200 bps

100080

57600 bps

100081

38400 bps

100082

19200 bps

100083

Update

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9600 bps



100084

4800 bps



100100

2400 bps



100085

1200 bps



100086

600 bps



100087

2.5.3 DATA BITS

* 8 bits



100093

7 bits



100092

2.5.4 PARITY

*No Parity



100088



Enter Setup

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Even



100090

Odd



100091

2.5.5 STOP BIT

2 stop bits



100099

* 1 stop bit



100098

2.5.6 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



Update

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Scanner Ready



100095

Data Ready



100096

Invert Data Ready



100097

2.5.7 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 label above to specify the inter-character delay.
2) Read the "Decimal Value" label on page 195 for the desired inter-character delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

2.5.8 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



Enter Setup

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1) Read this label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 195 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

2.5.9 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 three more times. If all the attempts fail without any notification, data loss will occur.

ACK/NAK Time-Out after … (*0 ~ 99)



100013

1) Read the label 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" label on page 195. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 1 second.
3) Read the "Validate" label 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.



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2.6 USB HID VIA THE CRADLE

For USB HID, use the USB cable to connect the scanner via the cradle to the USB port of PC and connect the power supply cord if necessary. 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
Inter-Function Delay	0 (ms)
Send "NR" to Host	Disable

2.6.1 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 USB HID & Select Keyboard Type …



100005

1) Read the label above to activate USB HID and select a keyboard type.
2) Read the "Decimal Value" label on page 195. Refer to the table below for the number of desired keyboard type.
3) Read the "Validate" label on the same page to complete this setting.



Enter Setup

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USB HID via the Cradle

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)		



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2.6.2 KEYBOARD SETTINGS

- Alphabets Layout
- Digits Layout
- Capital Lock Type
- Capital Lock Setting
- Alphabets Transmission
- Digits 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

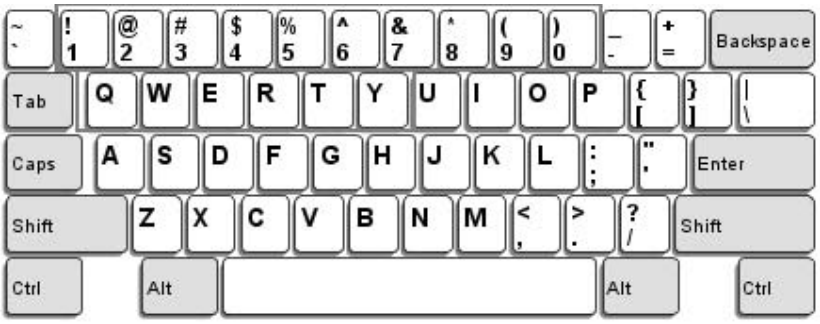
QWERTZ



100062

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.



Enter Setup

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French Keyboard Style – AZERTY

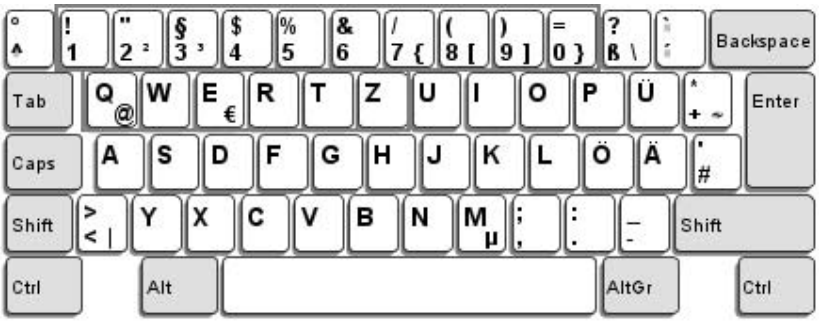
French layout; see below for French Keyboard Style.



- 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.

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.

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

Update

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*Normal



100046

Lower Row



100048

Upper Row



100049

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

Capital Lock Type & Setting

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

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

*Normal



100042

Capital Lock



100044

Shift Lock



100045



Enter Setup

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

*Capital Lock OFF



100052

Capital Lock ON



100053

Auto Detection



100054

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.

*Case-sensitive



100050

Ignore Case



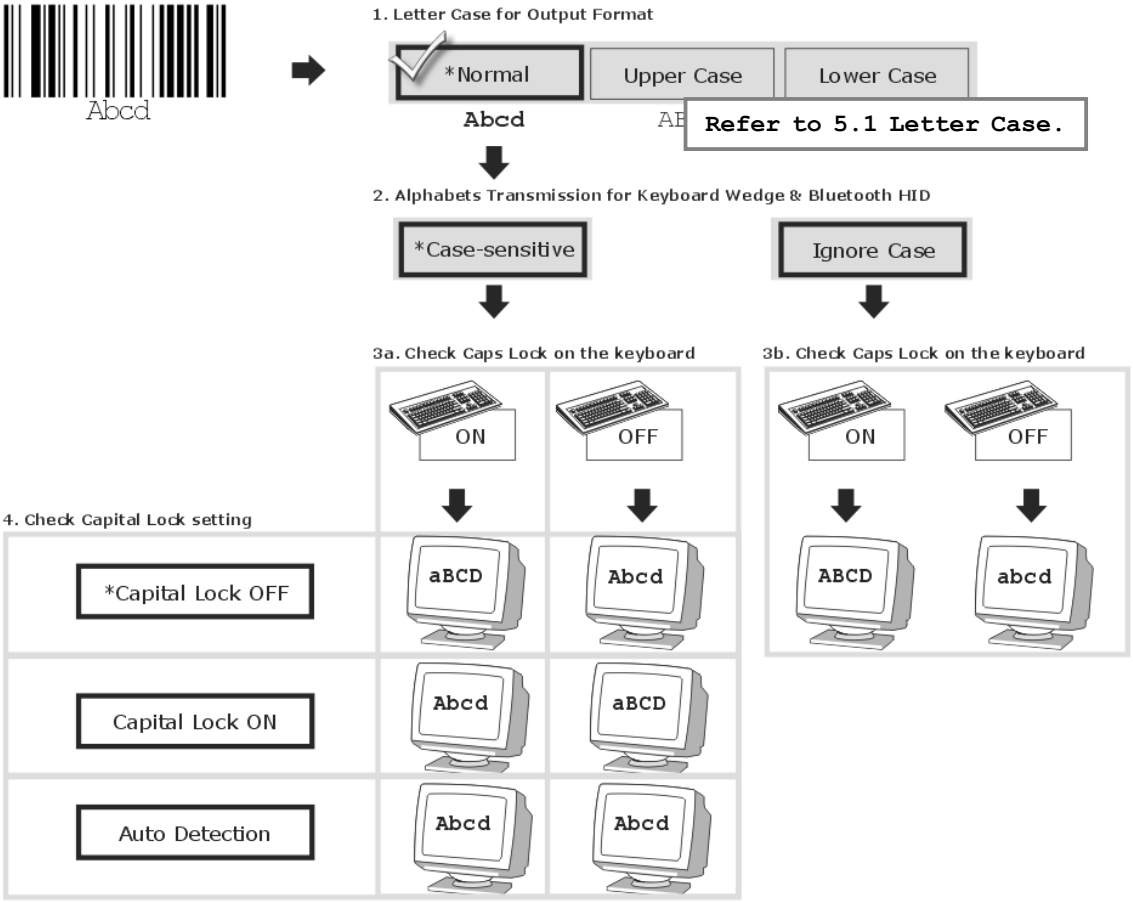
100051



Update

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Abcd



*Case-sensitive

100050

Ignore Case

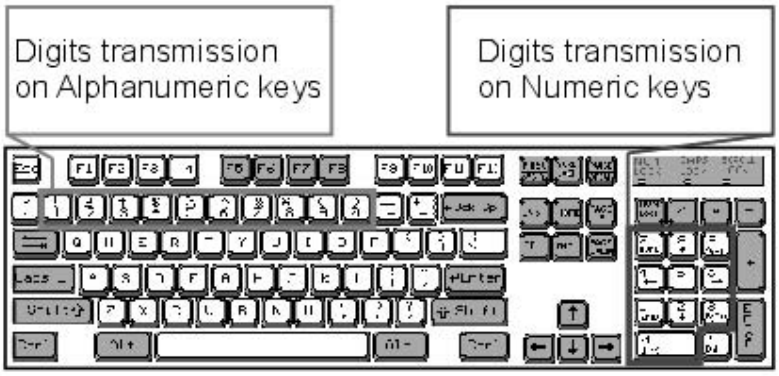
100051

Enter Setup

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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.



*Alphanumeric Key

100040

Numeric Key

100041

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

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2.6.3 INTER-FUNCTION DELAY

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

Value	Delay Time	Value	Delay Time
0	Disable	195 ~ 204	200 millisecond
1 ~ 14	10 millisecond	205 ~ 214	210 millisecond
15 ~ 24	20 millisecond	215 ~ 224	220 millisecond
25 ~ 34	30 millisecond	225 ~ 234	230 millisecond
35 ~ 44	40 millisecond	235 ~ 244	240 millisecond
45 ~ 54	50 millisecond	245 ~ 254	250 millisecond
…	…		

Inter-Function Delay … (*0 ~ 254)

100012

1) Read the label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 195 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

2.6.4 HID CHARACTER TRANSMIT MODE

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

*Batch Processing

100064

By Character

100065

Enter Setup

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2.7 USB VIRTUAL COM VIA THE CRADLE

Use the USB cable to connect the scanner via the cradle to the USB port of PC and connect the power supply cord if necessary. You may 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!

2.7.1 ACTIVATE USB VIRTUAL COM

Activate USB Virtual COM

100004

2.7.2 INTER-FUNCTION DELAY

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

Value	Delay Time	Value	Delay Time
0	Disable	195 ~ 204	200 millisecond
1 ~ 14	10 millisecond	205 ~ 214	210 millisecond
15 ~ 24	20 millisecond	215 ~ 224	220 millisecond
25 ~ 34	30 millisecond	225 ~ 234	230 millisecond
35 ~ 44	40 millisecond	235 ~ 244	240 millisecond
45 ~ 54	50 millisecond	245 ~ 254	250 millisecond
…	…		

Inter-Function Delay … (*0 ~ 254)

100012

1) Read the label above to specify the inter-function delay.
2) Read the "Decimal Value" label on page 195 for the desired inter-function delay (millisecond).
3) Read the "Validate" label on the same page to complete this setting.

Update

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2.7.3 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 three more times. If all the attempts fail without any notification, data loss will occur.

ACK/NAK Time-Out after … (*0 ~ 99)



100013

1) Read the label 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" label on page 195. For example, read "1" and "0" for the scanner to automatically shut down after being idle for 1 second.
3) Read the "Validate" label 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

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Chapter 3

SETTING UP A WPAN CONNECTION

The Metapace S-2 scanner can be configured to send data to a host computer wirelessly via the cradle, or to a notebook computer or PDA with *Bluetooth*® wireless technology. Upon powering up, the scanner will be ready for establishing a WPAN connection.

To establish a connection via the cradle after reading "Set Connection" and "Serial No." labels ...



Interface Option	Reference
Keyboard Wedge	2.4 Keyboard Wedge via the Cradle
RS-232	2.5 RS-232 via the Cradle
USB HID	2.6 USB HID via the Cradle
USB Virtual COM	2.7 USB Virtual COM via the Cradle

To establish a connection via a generic *Bluetooth*® dongle after pairing...



Interface Option	Reference
BT HID	2.1 BT HID
BT SPP	2.2 BT SPP Slave, 2.3 BT SPP Master



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3.2 Connecting via *Bluetooth*® Dongle 89

3.1 CONNECTING VIA THE CRADLE

Use the interface cable to connect the scanner via the cradle to PC. You can have up to seven scanners connected to one computer at the same time.

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!

3.1.1 CONNECT TO THE CRADLE

By default, the interface of the cradle is set to "USB HID". You can connect any scanner to the cradle by having the scanner read the two labels at the back of the cradle. The scanner will respond with one beep upon reading each of the labels.

- "Set Connection" label
- "Serial Number" label

After reading these labels, the scanner will stay active for a specified period of time (2 minutes by default) trying to connect to the cradle while its LED is flashing blue (On/Off ratio 0.5 s: 0.5 s). Once connected, the scanner will respond with three beeps (tone ascending from low to high), and the LED becomes flashing blue (On/Off ratio 0.02 s: 3 s). When getting out of range, the scanner will respond with three short beeps (tone descending from high to low).

Read the "Set Connection" label first, and then the "Serial Number" label. If the "Set Connection" label on the cradle is illegible, try this one —

Set Connection

88686471166254

Note: The cradle's settings will overwrite the interface-related settings on the scanners that are currently connected to the cradle.

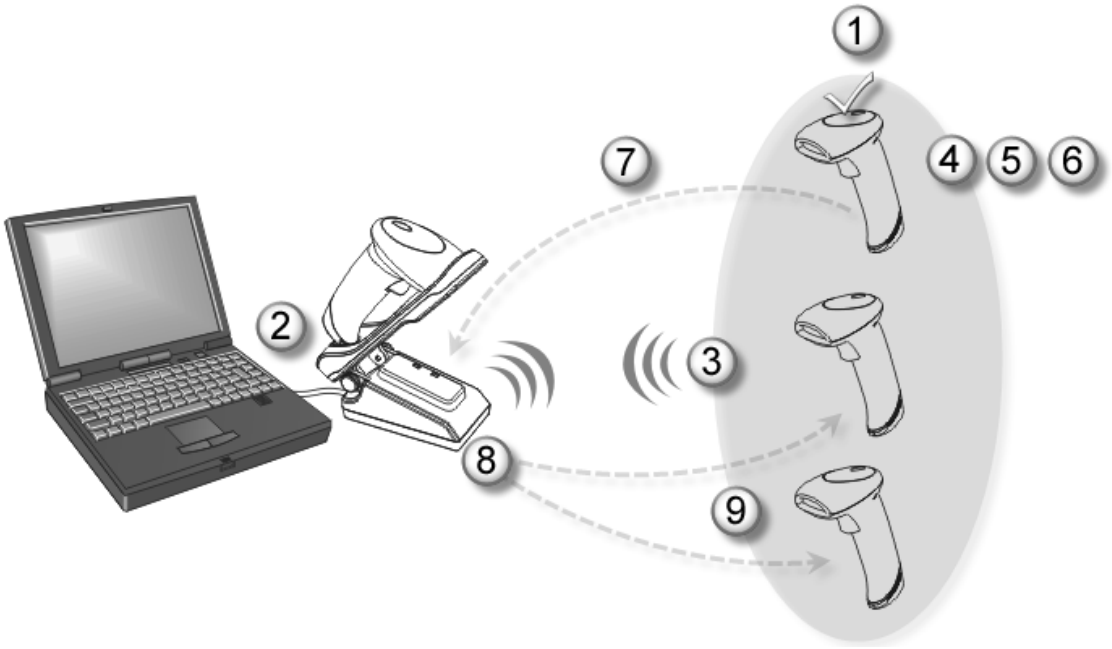
Enter Setup

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3.1.2 CHANGE INTERFACE

If you want to change the interface cable of the cradle, use one of the scanners to configure the interface-related settings and it will pass the new settings to the cradle, which will then initialize and pass the settings to any other connected scanners.

1) Have the scanner read the "Set Connection" and "Serial Number" labels at the back of the cradle.
2) Within two minutes, connect the interface cable, Keyboard Wedge, RS-232 or USB, between the cradle and your computer. For USB Virtual COM, you may need to install its driver first!
3) The scanners will connect to your computer via the cradle.
4) Have one scanner read the "Enter Setup" label to enter the configuration mode.
5) Have the scanner read the desired interface label and configure its related settings –
   - "Activate Keyboard Wedge & Select Keyboard Type"
   - "Activate RS-232"
   - "Activate USB HID & Select Keyboard Type"
   - "Activate USB Virtual COM"
6) Have the scanner read the "Update" label to exit the configuration mode.
7) After the scanner resumes connection with the cradle, it will pass the interface-related settings to the cradle.
8) Upon receipt of the new settings, the cradle will initialize itself.
9) Updated with new settings, the cradle will pass the settings to other connected scanners.



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3.1.3 CONFIGURE RELATED SETTINGS

Sniff Mode (Power-saving)

By default, this feature is enabled, meaning the scanner will listen to the wireless network at a reduced rate.

*Enable

100153

Disable

100152

Enter Setup

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3.2 CONNECTING VIA *BLUETOOTH*® DONGLE

3.2.1 CHANGE INTERFACE

Below is the procedure to configure the scanner before establishing a WPAN connection via a generic *Bluetooth*® dongle.

1) Have the scanner read the "Enter Setup" label to enter the configuration mode.
2) Have the scanner read the desired interface label –
   - "Activate BT HID & Select Keyboard Type"
   - "Activate BT SPP"
3) Have the scanner read the labels related to WPAN settings, such as Device Name Broadcasting, Authentication & PIN Code, etc.
4) Have the scanner read the "Update" label to exit the configuration mode.
5) The scanner will stay active for a specified period of time (2 minutes by default) waiting for a connection request from the host (SPP) or trying to connect to the host (HID). Its CPU is running at full speed, and the LED is flashing blue (On/Off ratio 0.5 s: 0.5 s).

   Once connected, when getting out of range, the scanner will respond with three short beeps (tone descending from high to low).



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3.2.2 CONFIGURE RELATED SETTINGS

Sniff Mode (Power-saving)

By default, this feature is enabled, meaning the scanner will listen to the wireless network at a reduced rate.

*Enable



100153

Disable



100152

Note: When connecting more than two scanners to a notebook computer or PDA with *Bluetooth*® wireless technology, we suggest that you disable the power-saving setting for a more reliable connection.

Device Name Broadcasting

The scanner can be configured to hide itself from other devices equipped with *Bluetooth*® wireless technology. Simply disable the device name broadcasting setting so that it won't be discovered by any other computer or PDA. However, broadcasting must be enabled for establishing an initial connection with the scanner. For example, you can disable device name broadcasting after successfully connecting the scanner to WorkStation1. Such connection will be maintained automatically unless the scanner is removed from the paired device list (called unpairing) by WorkStation1 or any changes made to authentication and the PIN code. If you want WorkStation2 to connect to the scanner, you will have to enable device name broadcasting first.

*Enable



100157

Disable



100156

Note: By default, device name broadcasting is enabled (which is required for initial connection).



Enter Setup

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Authentication

When any changes are made to authentication and PIN code on the scanner side, you will have to remove the scanner from the paired device list (called unpairing) and go through the whole process to re-establish the connection.

The scanner allows up to 16 characters for a PIN code and provides two options for authentication:

Enable Authentication with Preset PIN

Have the scanner read the "Use preset PIN" label, and change the preset PIN if necessary. This means you will have to enter exactly the same string for your computer or PDA to connect to the scanner. If the PIN or passkey is incorrect, any connection attempt will be turned down by the scanner. See step 8 in 3.2.3 Connect to Dongle.

Use preset PIN

100155

Enable Authentication with Random PIN or No Authentication

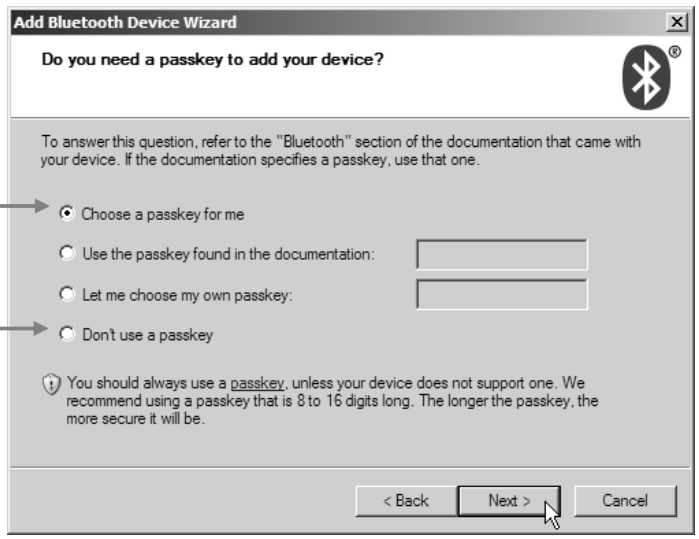
By default, it is set to "No PIN or use random PIN", which depends on the setting of the target device. (No PIN = No authentication.)

*No PIN or use random PIN

100154

Use random PIN

No PIN required



Note: When using BT HID, some device driver may not support pre-defined PIN code for authentication. In this case, make sure you have the scanner set to "No PIN or use random PIN" before pairing. While pairing, the host PIN code will be displayed on the computer screen. Have the scanner read the setup barcode "Enter PIN Code in Decimal" or "Enter PIN Code in Hexadecimal" to input the matching PIN code.

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Entering preset PIN code...

1. Read the "Use preset PIN" label to enable authentication with a preset PIN.

Use preset PIN



100155

2. Read one of the labels to specify the PIN code, in decimal or hexadecimal.

   By default, the PIN code is set to "0000". Maximum 16 characters are allowed.

Enter PIN Code
in Hexadecimal …



100150

Enter PIN Code
in Decimal …



100151

3. Read the "Decimal Value" label on page 195 or the "Hexadecimal Value" label on page 196 for the desired digits or character string.

   Read the "Clear PIN Code" label first if you need to re-input the PIN code.

Clear PIN Code



109973

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



Enter Setup

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3.2.3 CONNECT TO DONGLE

The procedure goes through associating devices for establishing a WPAN connection, which is pretty much the same except for the software you are using. If your computer is running Microsoft® Windows® XP Service Pack 3 (SP3) or Windows Vista® Service Pack 1 (SP1), you can use the generic software support that Windows® includes, or you can use the driver that the device manufacturer provides. Now, let's try using the generic software support that Windows® XP Service Pack 2 includes.

BT HID Procedure

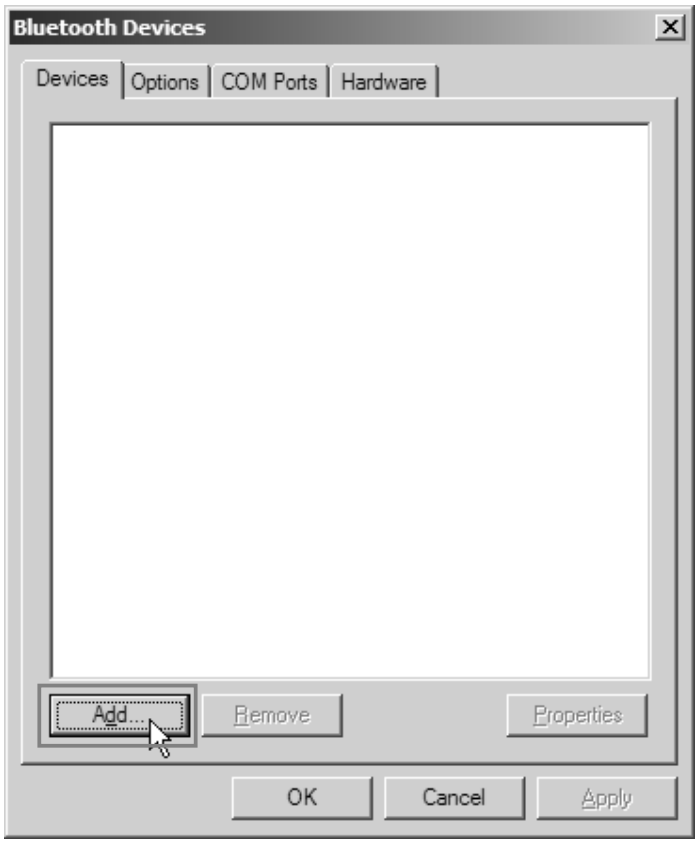
By default, BT HID is activated on the scanner, and the keyboard type is set to PCAT (US). When BT HID is re-activated, you will have to select a keyboard type to complete this setting.

The procedure is the same as for BT SPP. Refer to steps 1~11 below.

BT SPP Procedure

1. Turn on the *Bluetooth*® function on your computer, running Windows XP SP2.
2. Double-click the *Bluetooth*® icon from the lower right of the taskbar. 

   Alternatively, you may go to **Control Panel** > **Bluetooth Devices**.
3. Click [Add] to search devices nearby.





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4. Turn on the scanner with correct WPAN settings, such as select BT SPP or BT HID, broadcasting enabled, authentication enabled, and PIN code specified, etc. Select the check box of [My device is set up and ready to be found] on your computer.
5. Click [Next].



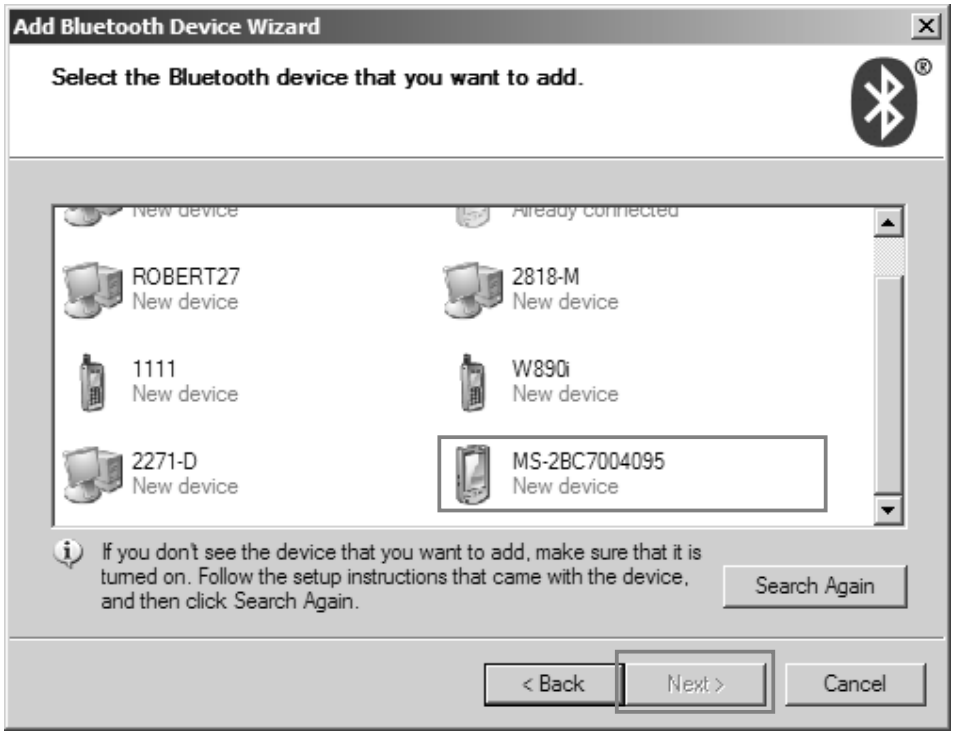
Enter Setup

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6. Wait for a few seconds for the Wizard to search available devices nearby.

   The scanner will appear with its "serial number" as the device name. You may double-check the "Serial Number" label on the scanner to ensure connecting with the correct scanner. Select the target scanner. If the target scanner does not appear on the list, click [Search Again] to refresh the list. The scanner might enter Suspend Mode now, and you can press the trigger to have it active again (=discoverable). It will then stay active for a specified period of time (2 minutes by default) and wait for PC to establish a connection.

7. Click [Next].

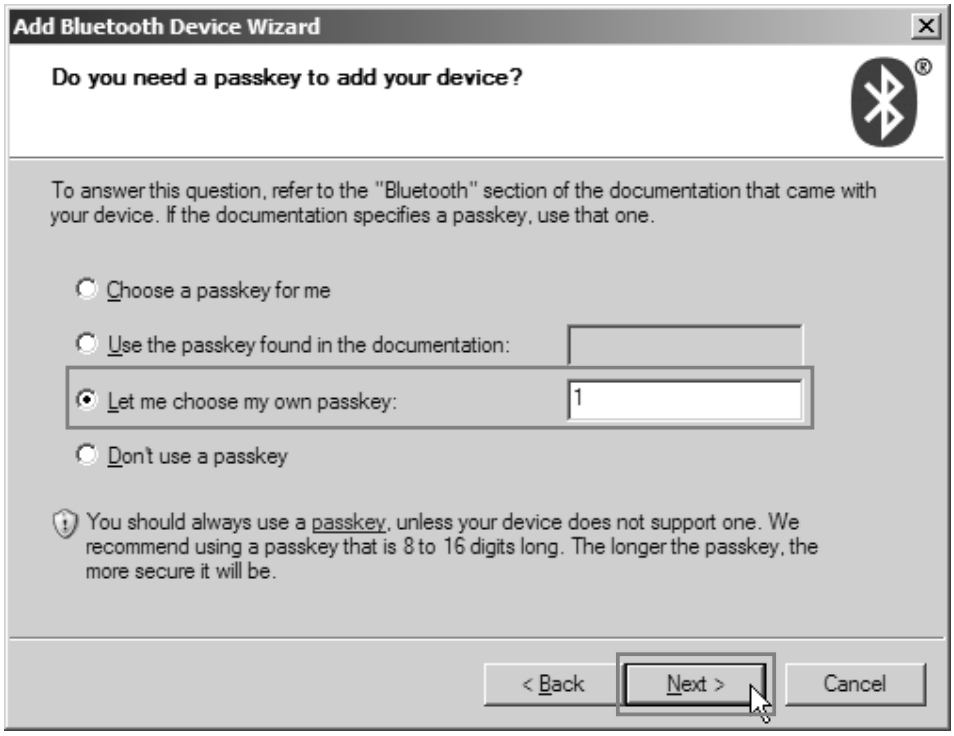


Update

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8. Enter the passkey for authentication, which must be exactly the same as configured for the scanner.
9. Click [Next].

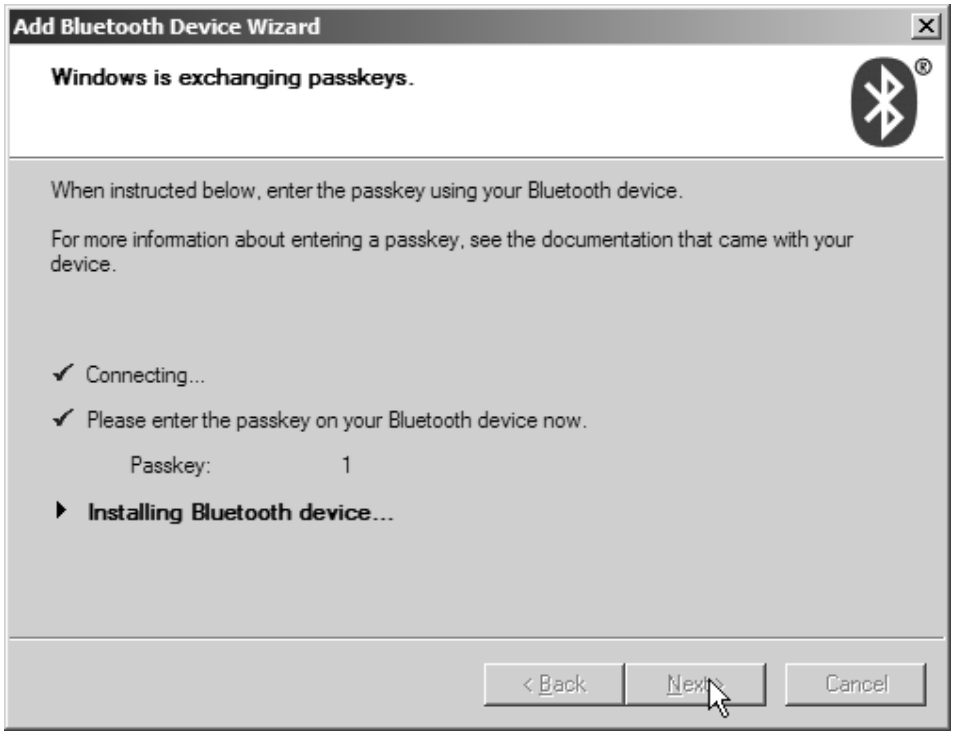
   Wait for a few seconds for Windows to exchange passkeys.

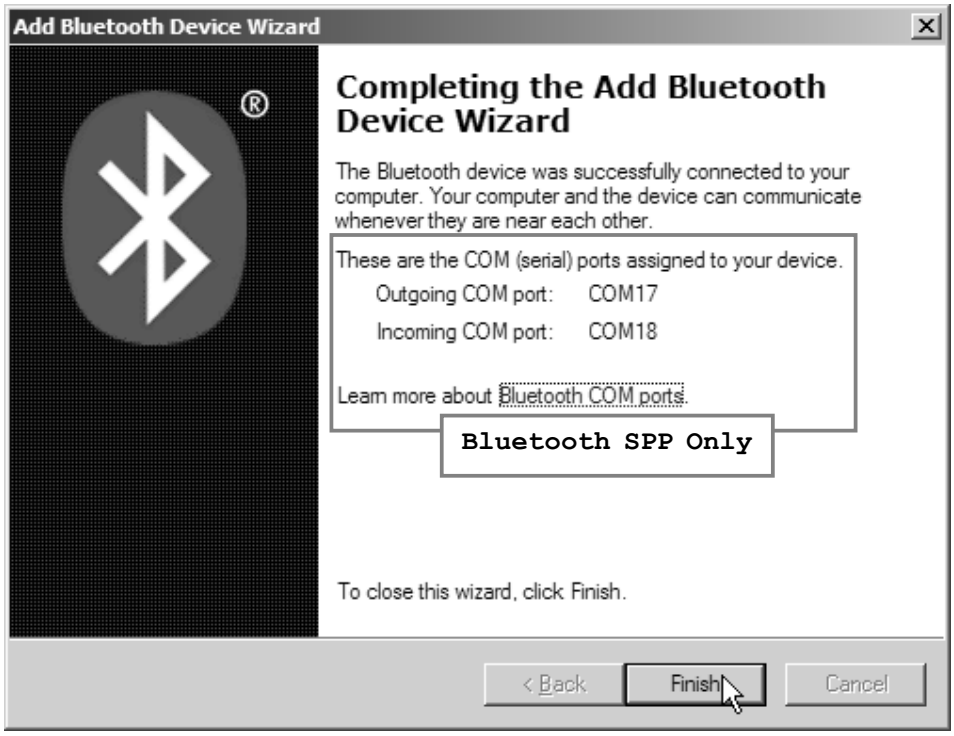


Enter Setup

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10. Click [Finish].



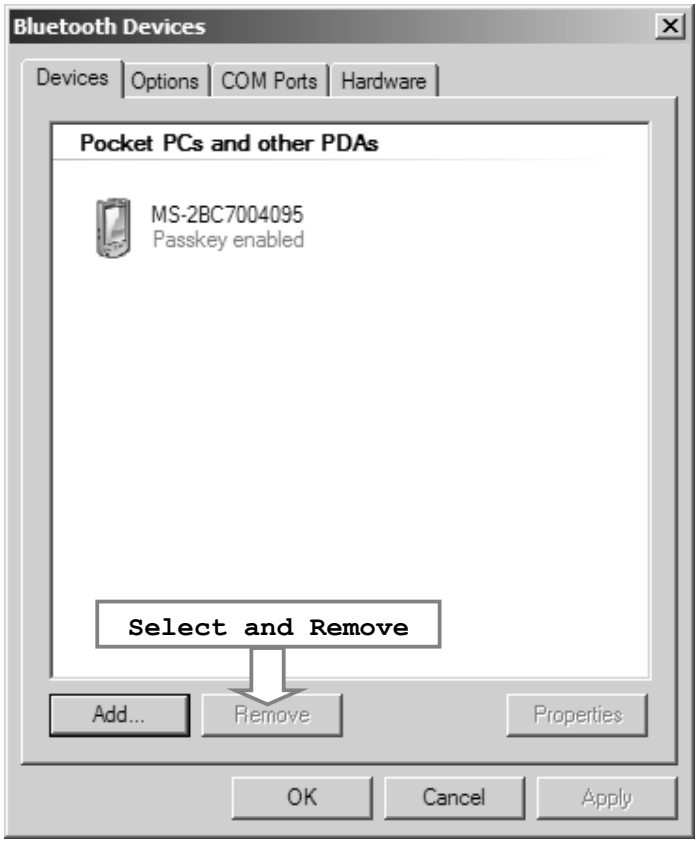


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11. Now the target scanner will be listed as shown below.

    You can have up to seven scanners connected to one computer at the same time.



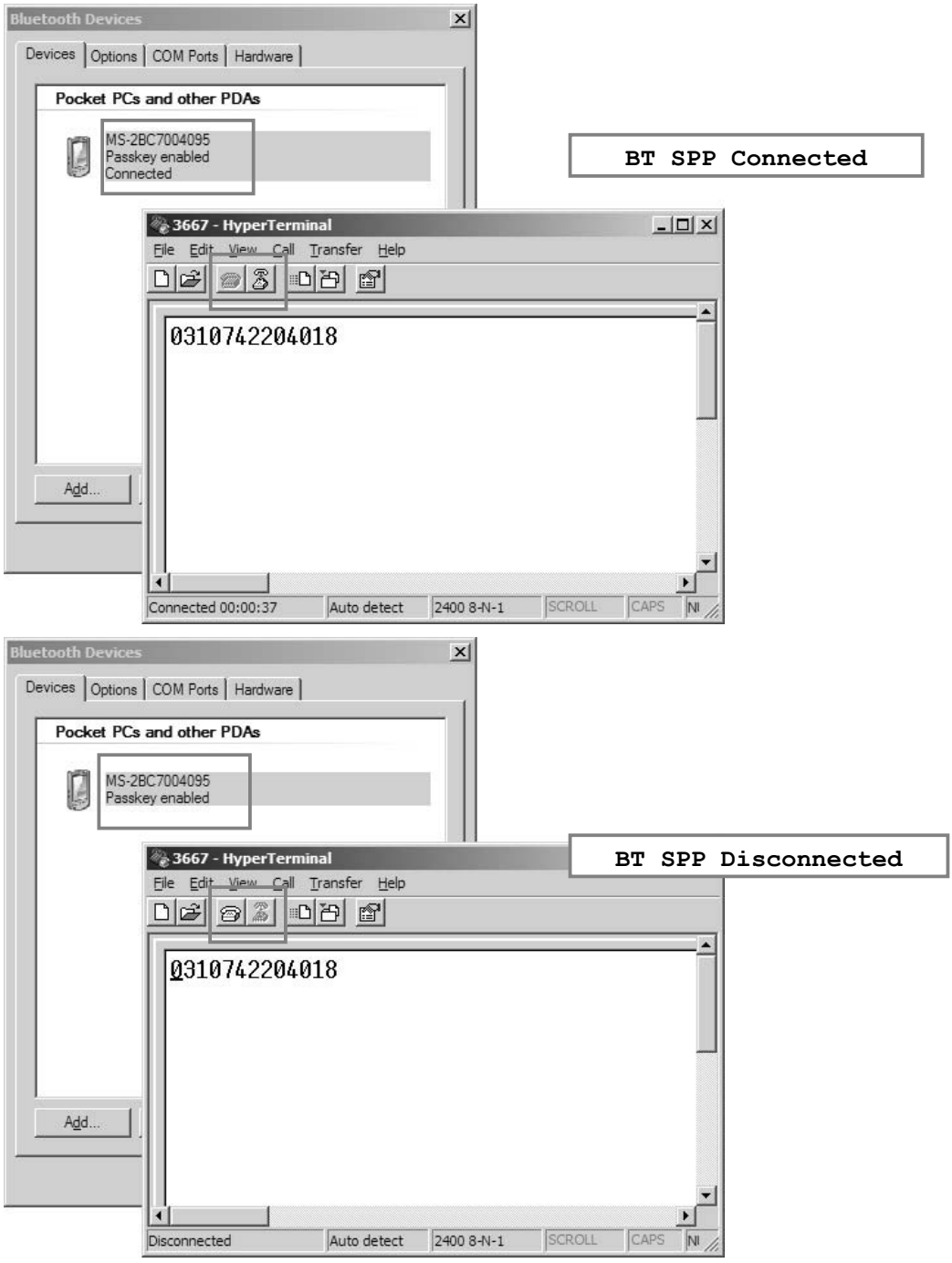
Note: When any changes are made to authentication and PIN code on the scanner side, or you want to change to use BT HID, it is suggested that you remove the scanner from the paired device list (called unpairing) and go through the whole process to re-establish the connection.

Enter Setup

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12. Run the desired application on your computer, such as HyperTerminal.exe if using BT SPP or Notepad.exe if using BT HID.

    The status of the scanner listed on the device list will be updated to "Connected", indicating the WPAN connection is established successfully via the outgoing COM port if using BT SPP.



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Chapter 4

CHANGING SYMBOLOGY SETTINGS

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

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4.19 UPC-E 136



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4.1 CODABAR

*Enable Codabar



Disable Codabar



4.1.1 START/STOP CHARACTERS SELECTION

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

* abcd/abcd



abcd/tn*e



ABCD/ABCD



ABCD/TN*E





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4.1.2 START/STOP TRANSMISSION

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

Transmit Codabar Start/Stop Characters

100441

*Do Not Transmit

100440

4.1.3 CLSI CONVERSION

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

Apply CLSI Editing

100443

*Do Not Apply

100442

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

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4.2 CODE 25 – INDUSTRIAL 25

*Enable Industrial 25

100307

Disable Industrial 25

100306

4.2.1 START/STOP PATTERN SELECTION

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

*Industrial 25
Start/Stop Pattern

100412

Interleaved 25
Start/Stop Pattern

100413

Matrix 25
Start/Stop Pattern

100414

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4.2.2 VERIFY CHECK DIGIT

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

Verify Industrial 25 Check Digit



100425

*Do Not Verify



100424

4.2.3 TRANSMIT CHECK DIGIT

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

*Transmit Industrial 25 Check Digit



100427

Do Not Transmit



100426



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4.2.4 CODE LENGTH QUALIFICATION

Because of the weak structure of the 2 of 5 symbologies, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

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

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

*Enable Max./Min. Length (0 ~ 127) …

100601

Enable Fixed Length(s) …

100600

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

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

Max. Length (*127) Or Fixed Length 1

100602

Min. Length (*4) Or Fixed Length 2

100603

3) Read the "Decimal Value" label on page 195 for the desired length.

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

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4.3 CODE 25 – INTERLEAVED 25

*Enable Interleaved 25



100309

Disable Interleaved 25



100308

4.3.1 START/STOP PATTERN SELECTION

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

Industrial 25
Start/Stop Pattern



100416

*Interleaved 25
Start/Stop Pattern



100417

Matrix 25
Start/Stop Pattern



100418



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4.3.2 VERIFY CHECK DIGIT

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

Verify Interleaved 25 Check Digit

100429

*Do Not Verify

100428

4.3.3 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

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4.3.4 CODE LENGTH QUALIFICATION

Because of the weak structure of the 2 of 5 symbologies, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

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

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

*Enable Max./Min. Length (0 ~ 127) …

100605

Enable Fixed Length(s) …

100604

2) Read the label 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 (*126) Or Fixed Length 1

100606

Min. Length (*4) Or Fixed Length 2

100607

3) Read the "Decimal Value" label on page 195 for the desired length.

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

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4.4 CODE 25 – MATRIX 25

Enable Matrix 25

100311

*Disable Matrix 25

100310

4.4.1 START/STOP PATTERN SELECTION

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

Industrial 25
Start/Stop Pattern

100420

Interleaved 25
Start/Stop Pattern

100421

*Matrix 25
Start/Stop Pattern

100422

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4.4.2 VERIFY CHECK DIGIT

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

Verify Matrix 25 Check Digit



100433

*Do Not Verify



100432

4.4.3 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



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4.4.4 CODE LENGTH QUALIFICATION

Because of the weak structure of the 2 of 5 symbologies, it is possible to make a "short scan" error. To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length.

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

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

*Enable Max./Min. Length (0 ~ 127) …

100609

Enable Fixed Length(s) …

100608

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

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

Max. Length (*127) Or Fixed Length 1

100610

Min. Length (*4) Or Fixed Length 2

100611

3) Read the "Decimal Value" label on page 195 for the desired length.

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

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4.5 CODE 39

*Enable Code 39

100301

Disable Code 39

100300

4.5.1 START/STOP TRANSMISSION

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

Transmit Code 39 Start/Stop Characters

100403

*Do Not Transmit

100402

4.5.2 VERIFY CHECK DIGIT

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

Verify Code 39 Check Digit

100405

*Do Not Verify

100404

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4.5.3 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

4.5.4 STANDARD/FULL ASCII CODE 39

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

Code 39 Full ASCII



100401

*Standard Code 39



100400



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4.6 CODE 93

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

*Enable Code 93



Disable Code 93



4.7 CODE 128

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

*Enable Code 128



Disable Code 128





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4.8 EAN-8

*Enable EAN-8
(No Addon)



100327

Disable EAN-8
(No Addon)



100326

Enable EAN-8
Addon 2



100329

*Disable EAN-8
Addon 2



100328

Enable EAN-8
Addon 5



100331

*Disable EAN-8
Addon 5



100330



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4.8.1 CONVERT TO EAN-13

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

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

Convert EAN-8 to EAN-13

100461

*Do Not Convert

100460

4.8.2 TRANSMIT CHECK DIGIT

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

*Transmit EAN-8 Check Digit

100471

Do Not Transmit

100470

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4.9 EAN-13

*Enable EAN-13
(No Addon)



100333

Disable EAN-13
(No Addon)



100332

Enable EAN-13
Addon 2



100335

*Disable EAN-13
Addon 2



100334

Enable EAN-13
Addon 5



100337

*Disable EAN-13
Addon 5



100336



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4.9.1 ISBN CONVERSION

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

4.9.2 ISSN CONVERSION

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

Convert EAN-13 to ISSN

100465

*Do Not Convert

100464

4.9.3 TRANSMIT CHECK DIGIT

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

*Transmit EAN-13 Check Digit

100473

Do Not Transmit

100472

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4.9.4 SECURITY LEVEL

Select the security level for reading EAN-13 barcodes.

Normal



100487

*High



100486



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4.10 GS1-128 (EAN-128)

Enable GS1-128

100319

*Disable GS1-128

100318

4.10.1 CODE ID TRANSMISSION

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

Transmit GS1-128 Code ID

100519

*Do Not Transmit

100518

4.10.2 FIELD SEPARATOR (GS CHARACTER)

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

Enable Field Separator …

100616

1) Read the label above to enable field separator.
2) Read the "Hexadecimal Value" label on page 196 for the desired character string.
3) Read the "Validate" label to complete this setting.

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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.

4.11 ISBT 128

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

*Enable ISBT 128



100355

Disable ISBT 128



100354

Note: When enabled, it not only can decode single ISBT barcode, but also decode and concatenates pairs of ISBT barcodes.



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4.12 MSI

Enable MSI



100345

*Disable MSI



100344

4.12.1 VERIFY CHECK DIGIT

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

*Single Modulo 10



100448

Double Modulo 10



100449

Modulo 10 & 11



100450



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4.12.2 TRANSMIT CHECK DIGIT

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

*Last Digit Not Transmitted



100452

Both Digits Transmitted



100453

Both Digits Not Transmitted



100454



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4.12.3 CODE LENGTH QUALIFICATION

Because of the weak structure of the symbology, it is possible to make a "short scan" error. 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 barcode length(s) must include the check digit(s), regardless of which option is selected for "Transmit Check Digit".

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

*Enable Max./Min. Length (0 ~ 127) …



100613

Enable Fixed Length(s) …



100612

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

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

Max. Length (*127) Or Fixed Length 1



100614

Min. Length (*4) Or Fixed Length 2



100615

3) Read the "Decimal Value" label on page 195 for the desired length.

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



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4.13 FRENCH PHARMACODE

Enable French Pharmacode

100305

*Disable French Pharmacode

100304

4.13.1 TRANSMIT CHECK DIGIT

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

*Transmit French Pharmacode Check Digit

100411

Do Not Transmit

100410

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4.14 ITALIAN PHARMACODE

Enable Italian Pharmacode



100303

*Disable Italian Pharmacode



100302

4.14.1 TRANSMIT CHECK DIGIT

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

*Transmit Italian Pharmacode Check Digit



100409

Do Not Transmit



100408



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4.15 PLESSEY

Enable Plessey

100347

*Disable Plessey

100346

4.15.1 CONVERT TO UK PLESSEY

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

Convert to UK Plessey

100447

*Do Not Convert

100446

4.15.2 TRANSMIT CHECK DIGIT

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

*Transmit Plessey Check Digit

100445

Do Not Transmit

100444

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4.16 GS1 DATABAR (RSS FAMILY)

4.16.1 CODE ID SELECTION

Select a desired Code ID to use – GS1 DataBar Code ID "]e0" or GS1-128 Code ID "]C1".

"]C1"



100517

"]e0" (Default)



100516

4.16.2 GS1 DATABAR OMNIDIRECTIONAL (RSS-14)

Enable RSS-14 & RSS Expanded



100349

*Disable RSS-14 & RSS Expanded



100348

Code ID Transmission

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

*Transmit RSS-14 Code ID



100523

Do Not Transmit



100522



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Application ID Transmission

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

*Transmit RSS-14
Application ID



100529

Do Not Transmit



100528

Transmit Check Digit

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

*Transmit RSS-14
Check Digit



100481

Do Not Transmit



100480

4.16.3 GS1 DATABAR EXPANDED (RSS EXPANDED)

Enable RSS-14 &
RSS Expanded



100349

*Disable RSS-14 &
RSS Expanded



100348



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Code ID Transmission

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

*Transmit RSS Expanded Code ID

100527

Do Not Transmit

100526

4.16.4 GS1 DATABAR LIMITED (RSS LIMITED)

Enable RSS Limited

100351

*Disable RSS Limited

100350

Code ID Transmission

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

*Transmit RSS Limited Code ID

100525

Do Not Transmit

100524

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Application ID Transmission

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

*Transmit RSS Limited Application ID



100531

Do Not Transmit



100530

Transmit Check Digit

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

*Transmit RSS Limited Check Digit



100483

Do Not Transmit



100482



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4.17 TELEPEN

Enable Telepen



100353

*Disable Telepen



100352

4.17.1 TELEPEN OUTPUT – FULL ASCII/NUMERIC

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

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

Original Telepen
(Numeric)



100485

* AIM Telepen



100484



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4.18 UPC-A

*Enable UPC-A
(No Addon)



100339

Disable UPC-A
(No Addon)



100338

Enable UPC-A
Addon 2



100341

*Disable UPC-A
Addon 2



100340

Enable UPC-A
Addon 5



100343

*Disable UPC-A
Addon 5



100342



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4.18.1 CONVERT TO EAN-13

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

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

Convert UPC-A to EAN-13



100459

*Do Not Convert



100458

4.18.2 SYSTEM NUMBER TRANSMISSION

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

*Transmit UPC-A System Number



100477

Do Not Transmit



100476

4.18.3 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



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4.19 UPC-E

*Enable UPC-E
(No Addon)



100321

Disable UPC-E
(No Addon)



100320

Enable UPC-E
Addon 2



100323

*Disable UPC-E
Addon 2



100322

Enable UPC-E
Addon 5



100325

*Disable UPC-E
Addon 5



100324



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4.19.1 SYSTEM NUMBER SELECTION

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.

4.19.2 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

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4.19.3 SYSTEM NUMBER TRANSMISSION

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

Transmit UPC-E System Number



100475

*Do Not Transmit



100474

4.19.4 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



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Chapter 5

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 6 Applying Formats for Data Editing.
4) Add Prefix Code and Suffix Code before transmission: `[Prefix Code][Processed Data][Suffix Code]`

IN THIS CHAPTER

5.1 Letter Case 139
5.2 Character Substitution 140
5.3 Prefix/Suffix Code 147
5.4 Code ID 148
5.5 Length Code 152
5.6 Multi-Barcode Editor 155
5.7 Removal of Special Character 158

5.1 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

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5.2 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 "BT HID", "USB HID" or "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. Refer to Appendix II Keyboard Wedge Table.

Key Type		Key Status
Scan Code	Only 1 scan code value is allowed. Refer to 5.2.1 Select a Set for Character Substitution.	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 ▸ Add Break For example, read labels for [A], [Add Shift], and [B] to replace the character [A] with [Shift+B].

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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5.2.1 SELECT A SET FOR CHARACTER SUBSTITUTION

Configure Set 1



101232

Configure Set 2



101233

Configure Set 3



101234

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

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

2) Read the "Hexadecimal Value" label on page 196 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" label.
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" label.
3. Read "3" and "1".

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



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5.2.2 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" label 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 Code 93

*Apply



101255

Do Not Apply



101254

Character Substitution for Code 128

*Apply



101257

Do Not Apply



101256

Character Substitution for GS1-128

*Apply



101259

Do Not Apply



101258



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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

Character Substitution for EAN-8 Addon 5

*Apply



101271

Do Not Apply



101270

Character Substitution for EAN-13 (No Addon)

*Apply



101273

Do Not Apply



101272

Character Substitution for EAN-13 Addon 2

*Apply



101275

Do Not Apply



101274



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Character Substitution for EAN-13 Addon 5

*Apply



101277

Do Not Apply



101276

Character Substitution for French Pharmacode

*Apply



101245

Do Not Apply



101244

Character Substitution for Italian Pharmacode

*Apply



101243

Do Not Apply



101242

Character Substitution for Industrial 25

*Apply



101247

Do Not Apply



101246

Character Substitution for Interleaved 25

*Apply



101249

Do Not Apply



101248

Character Substitution for Matrix 25

*Apply



101251

Do Not Apply



101250



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Character Substitution for MSI

*Apply



101285

Do Not Apply



101284

Character Substitution for Plessey

*Apply



101287

Do Not Apply



101286

Character Substitution for GS1 DataBar

*Apply



101291

Do Not Apply



101290

Character Substitution for Telepen

*Apply



101289

Do Not Apply



101288

Character Substitution for UPC-A (No Addon)

*Apply



101279

Do Not Apply



101278

Character Substitution for UPC-A Addon 2

*Apply



101281

Do Not Apply



101280



Update

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Character Substitution for UPC-A Addon 5

*Apply



101283

Do Not Apply



101282

Character Substitution for UPC-E (No Addon)

*Apply



101261

Do Not Apply



101260

Character Substitution for UPC-E Addon 2

*Apply



101263

Do Not Apply



101262

Character Substitution for UPC-E Addon 5

*Apply



101265

Do Not Apply



101264



Enter Setup

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5.3 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 "BT HID", "USB HID" or "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. Refer to Appendix II Keyboard Wedge Table.

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 ▸ Add Break For example, read labels for [Add Shift], [A], [Add Shift], and [B].

Configure Prefix



101230

Configure Suffix



101231

1) Read the label above to apply prefix code or suffix code separately, and follow steps 2~3. (Max. 8 characters each)
2) Read the "Hexadecimal Value" label on page 196 for the desired character string. For example, read "2" and "B" for the scanner to prefix or suffix the character [+].
3) Read the "Validate" label to complete this setting.



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5.4 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 "BT HID", "USB HID" or "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. Refer to Appendix II Keyboard Wedge Table.

Key Type		Key Status
Scan Code	Up to 1 scan code values are 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 ▸ Add Break For example, read labels for [Add Shift] and the character [A].

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

5.4.1 SELECT PRE-DEFINED CODE ID

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



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UPC-A	J	A	A	A	E
MSI	V	V	D	P	M
Plessey	W	W	E	Q	P
Telepen	Z	---	---	---	---

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

5.4.2 CHANGE CODE ID

1) Read the label of a specific symbology below to change its code ID.
2) Read the "Hexadecimal Value" label on page 196 for the desired character string. For example, read "4" and "4" for applying the character [D] for Code ID.
3) Read the "Validate" label to complete this setting.



Update

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Configure Code ID for Codabar



101456

Configure Code ID for Code 39



101450

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 French Pharmacode



101452

Configure Code ID for Industrial 25



101453



Enter Setup

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Configure Code ID for Interleaved 25



101454

Configure Code ID for Matrix 25



101455

Configure Code ID for MSI



101463

Configure Code ID for Plessey



101464

Configure Code ID for Telepen



101465

Configure Code ID for UPC-A



101462

Configure Code ID for UPC-E



101459

5.4.3 CLEAR CODE ID SETTINGS

Clear All Code ID Settings



109960



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5.5 LENGTH CODE

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

Length Code for Codabar

Apply



101413

*Do Not Apply



101412

Length Code for Code 39

Apply



101401

*Do Not Apply



101400

Length Code for Code 93

Apply



101415

*Do Not Apply



101414

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



Enter Setup

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Length Code for EAN-8

Apply



101423

*Do Not Apply



101422

Length Code for EAN-13

Apply



101425

*Do Not Apply



101424

Length Code for French Pharmacode

Apply



101405

*Do Not Apply



101404

Length Code for Italian Pharmacode

Apply



101403

*Do Not Apply



101402

Length Code for Industrial 25

Apply



101407

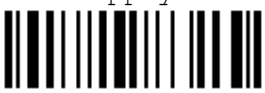
*Do Not Apply



101406

Length Code for Interleaved 25

Apply



101409

*Do Not Apply



101408

Length Code for Matrix 25

Apply



101411

*Do Not Apply



101410



Update

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Length Code for MSI

Apply



101429

*Do Not Apply



101428

Length Code for Plessey

Apply



101431

*Do Not Apply



101430

Length Code for Telepen

Apply



101433

*Do Not Apply



101432

Length Code for UPC-A

Apply



101427

*Do Not Apply



101426

Length Code for UPC-E

Apply



101421

*Do Not Apply



101420



Enter Setup

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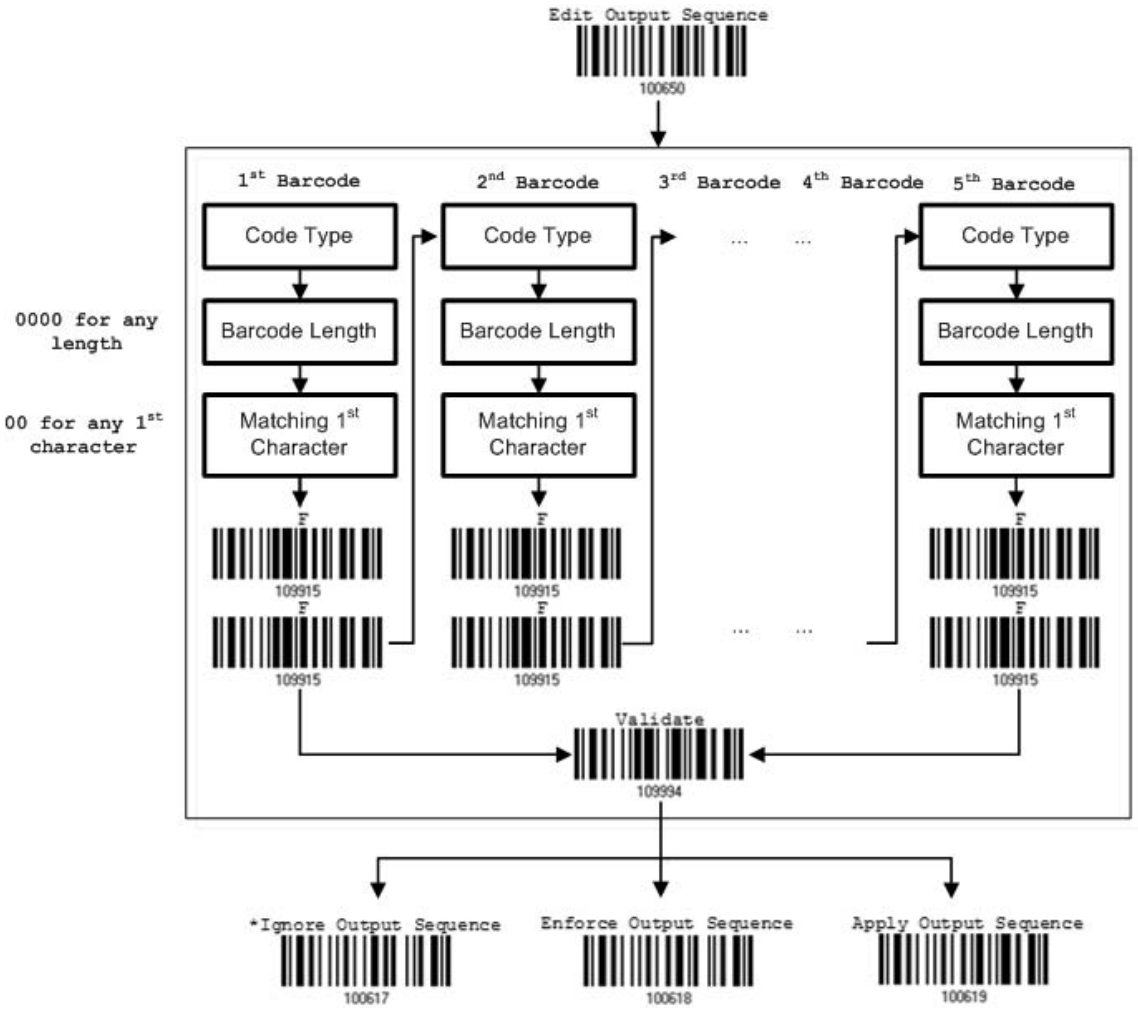
5.6 MULTI-BARCODE EDITOR

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.

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



Update

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5.6.1 EDIT A CONCATENATION OF BARCODES

Edit Output Sequence

100650

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

2) Code Type setting – read the "Hexadecimal Value" label on page 196 for Code Type of the (first) barcode. For example, read "4" and "1" for Code 39.

Code Type	Symbology	Code Type	Symbology
41 (A)	Code 39	4F (O)	EAN-8 with Addon 5
42 (B)	Italian Pharmacode	50 (P)	EAN-13
43 (C)	French Pharmacode	51 (Q)	EAN-13 with Addon 2
44 (D)	Industrial 25	52 (R)	EAN-13 with Addon 5
45 (E)	Interleaved 25	53 (S)	MSI
46 (F)	Matrix 25	54 (T)	Plessey
47 (G)	Codabar (NW7)	55 (U)	GS1-128 (EAN-128)
48 (H)	Code 93	56 (V)	UPC-A
49 (I)	Code 128	57 (W)	UPC-A with Addon 2
4A (J)	UPC-E0 / UPC-E1	58 (X)	UPC-A with Addon 5
4B (K)	UPC-E with Addon 2		
4C (L)	UPC-E with Addon 5	5A (Z)	Telepen
4D (M)	EAN-8	5B ([ )	GS1 DataBar (RSS)
4E (N)	EAN-8 with Addon 2		

3) Barcode Length setting – read the "Decimal Value" label on page 195 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 "Hexadecimal Value" label on page 196 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" label on page 196 ("FF") to complete the setting of each barcode.

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

Enter Setup

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5.6.2 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.

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5.7 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.

1) Read the label below to remove the specified character.

Remove Special Character



101470

2) Read the "Hexadecimal Value" label on page 196 for the desired character.

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

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



Enter Setup

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Chapter 6

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.

[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	

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6.1 ACTIVATING EDITING FORMATS

6.1.1 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 Format 1



101301

*Disable Format 1



101300

Editing Format 2

Enable Format 2



101303

*Disable Format 2



101302

Editing Format 3

Enable Format 3



101305

*Disable Format 3



101304



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Editing Format 4

Enable Format 4



101307

*Disable Format 4



101306

Editing Format 5

Enable Format 5



101309

*Disable Format 5



101308

6.1.2 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



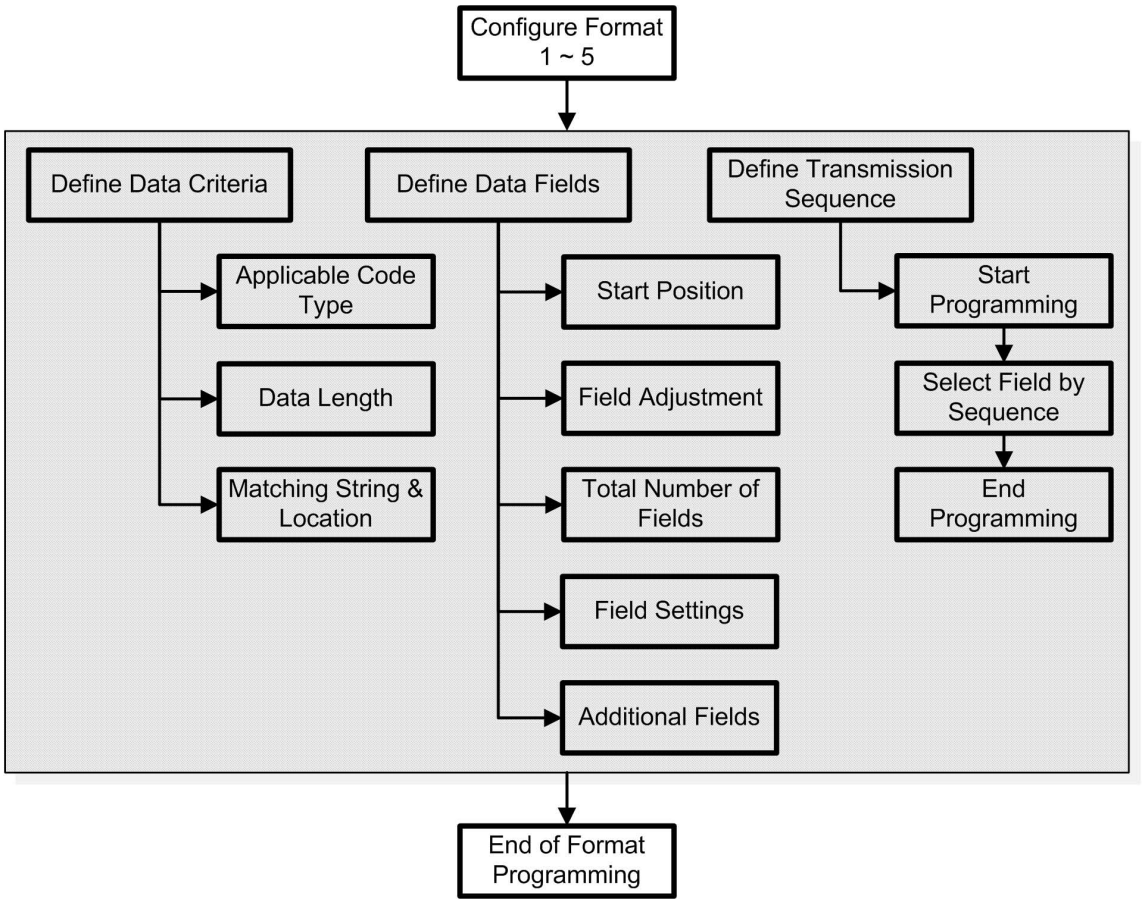
101200



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6.2 HOW TO CONFIGURE EDITING FORMATS



End Programming Format

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6.2.1 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, 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 label 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" label, which can be located at the bottom of every even page in this chapter.

End Programming Format



109980



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6.2.2 RESTORE DEFAULT FORMAT

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

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

Restore Default Format





End Programming Format

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6.3 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.

6.3.1 APPLICABLE CODE TYPE

By default, barcodes of all the supported symbologies will be processed by any editing format, if having been configured and enabled.

Apply to All or Clear All

*Apply to All



109992

Clear All



109991

Editing Format for Codabar

*Apply



101513

Do Not Apply



101512

Editing Format for Code 39

*Apply



101501

Do Not Apply



101500

Editing Format for Code 93

*Apply



101515

Do Not Apply



101514

Editing Format for Code 128

*Apply



101517

Do Not Apply



101516



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Editing Format for GS1-128 & GS1 DataBar

*Apply



101519

Do Not Apply



101518

Editing Format for ISBT 128

*Apply



101553

Do Not Apply



101552

Editing Format for EAN-8

*Apply



101527

Do Not Apply



101526

Editing Format for EAN-8 Addon 2

*Apply



101529

Do Not Apply



101528

Editing Format for EAN-8 Addon 5

*Apply



101531

Do Not Apply



101530

Editing Format for EAN-13

*Apply



101533

Do Not Apply



101532

Editing Format for EAN-13 Addon 2

*Apply



101535

Do Not Apply



101534



End Programming Format

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Editing Format for EAN-13 Addon 5

*Apply



101537

Do Not Apply



101536

Editing Format for French Pharmacode

*Apply



101505

Do Not Apply



101504

Editing Format for Italian Pharmacode

*Apply



101503

Do Not Apply



101502

Editing Format for Industrial 25

*Apply



101507

Do Not Apply



101506

Editing Format for Interleaved 25

*Apply



101509

Do Not Apply



101508

Editing Format for Matrix 25

*Apply



101511

Do Not Apply



101510

Editing Format for MSI

*Apply



101545

Do Not Apply



101544



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Editing Format for Plessey

*Apply



101547

Do Not Apply



101546

Editing Format for Telepen

*Apply



101549

Do Not Apply



101548

Editing Format for UPC-A

*Apply



101539

Do Not Apply



101538

Editing Format for UPC-A Addon 2

*Apply



101541

Do Not Apply



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



End Programming Format

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Editing Format for UPC-E Addon 5

*Apply



101525

Do Not Apply



101524

6.3.2 DATA LENGTH

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

- You may specify a value from 0 to 254.
- When zero is given to both, the scanner will not perform the length qualification.

1) Read the label 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" label on page 195 for the desired length.

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



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6.3.3 MATCHING STRING & LOCATION

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

- When the Matching String Location is zero, the scanner will only check for the existence of the matching string in the barcode data.
- You may specify a value from 1 to 254 to indicate where the matching string starts in the barcode data.

1) Read the label to specify a matching string.

Matching String …



101562

2) Read the "Hexadecimal Value" label on page 196 for the desired character string.
3) Read the "Validate" label to complete this setting.
4) Read the label to specify the location of the matching string.

Location of
Matching String …



101563

5) Read the "Decimal Value" label on page 195 for the desired location.
6) Read the "Validate" label on the same page to complete this setting.



End Programming Format

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6.4 CONFIGURING FORMAT — DEFINE DATA FIELD

6.4.1 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

6.4.2 FIELD ADJUSTMENT

You may apply equal length to all fields, if necessary. It will add "Space" (0x20) to field when data is found shorter than specified.

*No Adjustment

101602

Set Length to adjust fields … (*0)

101603

1) Read the label above to adjust field by length.
2) Read the "Decimal Value" label on page 195 for the desired field length.
3) Read the "Validate" label on the same page to complete this setting.

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6.4.3 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

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6.4.4 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

Select Field Separator to Divide Field 1 …



101567

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 196 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator



101565

Discard Separator



101564

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

Divide Field 1 by Length …



101566

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 195 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.



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Field 2 Setting

Select Field Separator
to Divide Field 2 …

101571

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 196 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator

101569

Discard Separator

101568

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

Divide Field 2 by Length …

101570

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 195 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

End Programming Format

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Field 3 Setting

Select Field Separator
to Divide Field 3 …



101575

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 196 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator



101573

Discard Separator



101572

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

Divide Field 3 by Length …



101574

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 195 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.



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Field 4 Setting

Select Field Separator
to Divide Field 4 …

101579

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 196 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label 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.

Divide Field 4 by Length …

101578

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 195 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.

End Programming Format

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Field 5 Setting

Select Field Separator
to Divide Field 5 …



101583

1. Read the above label to divide field by a specified terminating string.
2. Read the "Hexadecimal Value" label on page 196 for the desired character string.
3. Read the "Validate" label to complete this setting.
4. Read the "Discard Separator" label if the field separator is not desired in the field.

*Include Separator



101581

Discard Separator



101580

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

Divide Field 5 by Length …



101582

1. Read the above label to divide field by length.
2. Read the "Decimal Value" label on page 195 for the desired field length.
3. Read the "Validate" label on the same page to complete this setting.



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Additional Fields

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

1. Read the label below to specify an additional field, one at a time.
2. Read the "Hexadecimal Value" label on page 196 for the desired additional field.
3. Read the "Validate" label to complete this setting.

Additional Field 1 …



101584

Additional Field 2 …



101585

Additional Field 3 …



101586

Additional Field 4 …



101587

Additional Field 5 …



101588

- If "BT HID", "USB HID" or "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. Refer to Appendix II Keyboard Wedge Table.

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 ▸ Add Break For example, read labels for [Add Shift], [A], [Add Shift], and [B].



End Programming Format

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6.5 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" label 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

Additional Field 2

109908

Additional Field 3

109909

Additional Field 4

109910

Additional Field 5

109911

Update

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

End

109994

End Programming Format

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6.6 PROGRAMMING EXAMPLES

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



Update

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6.6.2 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.

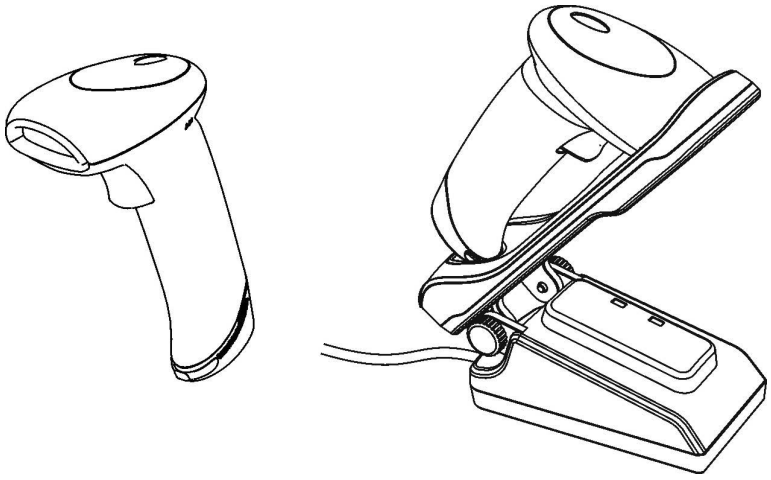
The editing format should be configured as follows:

1. Read the "Enter Setup" label to enter the Configuration Mode.
2. Read the "Configure Format 2" label.
3. Read the "Three Fields" label.
4. Read the "Divide Field 1 by Length" label, 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" label, 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" label, and use a tab character for the field.
7. Read the "Start (Programming)" label to program the transmission sequence.
8. Read the "Field 2", "Additional Field 1", "Field 1", "Additional Field 1", "Field 3" labels.
9. Read the "End" label to complete the transmission sequence (F2 A1 F1 A1 F3) setting.
10. Read the "End Programming Format" label to complete the setting of Editing Format 1.
11. Read the "Enable Format 2" label to apply Editing Format 2 to all code types.
12. Read the "Update" label to exit the Configuration Mode.

End Programming Format

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SPECIFICATIONS



Optical Characteristics	Metapace S-2
Scan Engine	Non-contact type
Optical Sensor	CCD, 2500 pixels
Light Source	Visible red LED
RF Characteristics	
WPAN Module	Wireless PAN BT Class 2 compliance
Coverage (line-of-sight)	90 meters with the cradle
Interface Supported	▸ Serial Port Profile (BT SPP) ▸ Human Interface Device Profile (BT HID) ▸ Keyboard Wedge, RS-232, USB Virtual COM or USB HID via the cradle
Physical Characteristics	
Memory	▸ 4 KB for transmit buffer ▸ 512 KB flash for memory mode
Switch	Tactile switch
Indication	Triple-color LED (Red/Green/Blue) and beeper
Weight	Approx. 170 g
Color	Black

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Electrical Characteristics		
Battery		Rechargeable Li-ion battery – 3.7 V, 800 mAh DC 5V ± 5% (with adaptor)
Power Adapter		
Input		AC 100~240 V, 50/60 Hz
Output		DC 5V ± 5% (with adaptor via the cradle)
Environmental Characteristics		
Temperature	Operating Storage	0 °C to 50 °C -20 °C to 60 °C
Humidity (Non-condensing)	Operating Storage	10% to 90% 5% to 95%
Resistance		
Impact Resistance		1.5 m, 5 drops per 6 sides
Electrostatic Discharge		± 15 kV air discharge, ± 8 kV contact discharge
Programming Support		
Configuration via Setup Labels		Use setup labels or host serial commands.
Software		Windows®-based software *Metapace S-2.exe*
Accessories (√ means "supported")		
Rechargeable Li-ion Battery		√
Charging & Communication Cradle		√

Note: The cradle is not only for use with Auto-Sense mode and capable of charging the scanner, but specifically designed for the scanner to communicate with a host computer wirelessly.

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Appendix I

HOST SERIAL COMMANDS

SCANNER 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

109952 **Serial Command**

"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

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#@TRIGOFF<CR>

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

#@TRIGON<CR>

Purpose	To enable the 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, USB Virtual COM or BT SPP.

- 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: (1) For RS-232 or USB Virtual COM, you can only configure the first scanner that connects to the cradle. To identify the scanner, you may send the serial command to have it respond with a beep.
(2) For BT SPP, you can configure up to seven scanners at the same time.



Enter Setup

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CRADLE SERIAL COMMANDS

Normally, you can configure the cradle by having a connected scanner read cradle-related setup labels.

1) Connect the interface cable, RS-232 or USB, between the cradle and your computer.
2) Connect the power supply cord from the cradle to a proper power outlet.
3) Refer to 3.1.1 Connect to the Cradle for the target scanner to connect to the cradle.

   Read the "Set Connection" label first, and then the "Serial Number" label. Both labels can be located at the back of the cradle.
4) Read the following labels in sequence to configure the cradle.

Enter Setup

(Cradle-related setup labels)

Update

109999

For cradle-related setup labels, refer to the Serial Command table below. Note that for the "Version" and "GetID" labels, you must run HyperTerminal.exe or any text editor to receive the information.

- If the output interface is USB Virtual COM or RS-232, run HyperTerminal.exe on your computer to receive the information.
- If the output interface is USB HID, run any text editor to receive the information.

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Config<CR>

Purpose To configure the cradle.

Remarks A list of the current settings will be displayed. Run HyperTerminal.exe on your computer and change the settings one by one.



DefaultSetting<CR>

Purpose To restore the default settings.

Remarks



SingleConnection<CR>

Purpose To allow only one scanner connecting to the cradle.

Remarks



MultiConnection<CR>

Purpose To allow up to seven scanners connecting to the cradle.

Remarks



UseOnePortforAll<CR>

Purpose To use one Virtual COM port for all whenever connecting the cradle to PC via USB. This setting requires you to connect one cradle at a time, and will facilitate configuring many cradles via the same Virtual COM port (for administrators' or factory use).

Remarks





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UseVariablePort<CR>

Purpose To use variable Virtual COM port when connecting more than one cradle to PC via USB.

Remarks



Version<CR>

Purpose To get the firmware versions (CPU+USB Bridge).

Remarks



GetID<CR>

Purpose To get MAC ID.

Remarks



Download<CR>

Purpose To download CPU firmware to the cradle via RS-232 or USB.

Remarks



LoadBridge<CR>

Purpose To download USB Bridge firmware to the cradle via USB only.

Remarks





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EXAMPLE

Without using the scanner to read the above setup labels for configuring the cradle, you may run HyperTerminal.exe on the host computer to send serial commands to the cradle via RS-232, USB Virtual COM or HID.

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

2) Connect the power supply cord from the cradle to a proper power outlet.

The Communication LED will indicate when the cradle can accept serial commands after initializing. Refer to the table below.

Communication LED		Meaning
---	Blue, solid	Initialize
Red, solid	Blue, flashing	Serial command mode with USB Virtual COM or RS-232: wait 3 seconds for starting a serial command
Red, flashing	Blue, flashing	Serial command mode with USB HID: wait 3 seconds for pressing [Num Lock] or [Caps Lock] 5 times via keyboard

- If the output interface is USB Virtual COM or RS-232, run HyperTerminal.exe on your computer. While the Communication LED on the cradle is purple (red with flashing blue), type the serial command within three seconds.
- If the output interface is USB HID, press the "Num Lock" or "Caps Lock" key on your keyboard 5 times within 3 seconds while the Communication LED on the cradle is flashing red and blue. This will change the interface from USB HID to USB Virtual COM and the Communication LED will become purple (red with flashing blue). Then, run HyperTerminal.exe on your computer. While the Communication LED on the cradle is purple (red with flashing blue), type the serial command within three seconds. After configuring via serial commands, the interface will be reset to USB HID after re-connecting the power supply cord.



Enter Setup

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Appendix II

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.



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KEY TYPE & STATUS

KEY TYPE

If "BT HID", "USB HID" or "Keyboard Wedge" 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



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EXAMPLE

KEY TYPE = NORMAL

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

1. Read the "Configure Prefix" label.
2. Read the "Hexadecimal Value" label on page 196 for "2" and "1".
3. Read the "Validate" label 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" label.
2. Read the "Scan Code" label.
3. Read the "Hexadecimal Value" label on page 196 for "1" and "C".
4. Read the "Validate" label 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" label.
2. Read the "Add Shift" label.
3. Read the "Hexadecimal Value" label on page 196 for "3" and "1".
4. Read the "Validate" label to complete this setting.



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Appendix III

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



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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

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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



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ENTERING PIN CODE FOR AUTHENTICATION

USE PRESET PIN

1) In the configuration mode, read the label below to use a preset PIN for authentication.

Use preset PIN

100155

2) Read one of the labels to specify the PIN code, in decimal or hexadecimal.

By default, the PIN code is set to "0000". Maximum 16 characters are allowed.

Enter PIN Code
in Hexadecimal …

100150

Enter PIN Code
in Decimal …

100151

3) Read the "Decimal Value" label on page 195 or the "Hexadecimal Value" label on page 196 for the desired digits or character string.

Read the "Clear PIN Code" label first if you need to re-input the PIN code.

Clear PIN Code

109973

4) Read the "Validate" label to complete this setting.

Enter Setup

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DISABLE AUTHENTICATION OR USE RANDOM PIN

In the configuration mode, read the label below to disable authentication (= No PIN) or use a random PIN for authentication.

*No PIN or use random PIN



100154

Note: When using BT HID, some device driver may not support pre-defined PIN code for authentication. In this case, make sure you have the scanner set to "No PIN or use random PIN" before pairing. While pairing, the host PIN code will be displayed on the computer screen.

Use Random PIN

When the target device is set to use a random PIN for authentication, wait until the random PIN is displayed on the target device while pairing, and then input the matching PIN code on the scanner.

Note: Follow the steps below to enter the matching PIN on the scanner. There is no need to enter the configuration mode!

1. Read one of the labels to specify the PIN code, in decimal or hexadecimal.

Enter PIN Code in Hexadecimal …



100150

Enter PIN Code in Decimal …



100151

2. Read the "Decimal Value" label on page 195 or the "Hexadecimal Value" label on page 196 for the desired digits or character string.

Read the "Clear PIN Code" label first if you need to re-input the PIN.

Clear PIN Code



109973

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

Update



Abort



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Reject Random PIN Request

When the random PIN is displayed on the target device while pairing, you can reject the PIN request by having the scanner read the "Validate" label.



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