CipherLab
User Guide

ScanMaster Web for Scanner Configuration

For 1000A/22/25 Series Barcode Scanners:

Version 1.10

CIPHER LAB

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RELEASE NOTES

Version	Date	Notes
1.10	Sep. 09, 2019	▸ Modified: **Introduction** – scanner list includes 2504SR/MR/DP and 2564SR/MR/DP
		▸ Modified: **1.4.5 LED Off after Decode** – section article changed to **Light Source LED Behavior**
		▸ Modified: **Chapter 2 Output Interface** - Bluetooth 4.0 HOGP & Bluetooth 4.0 SPP Lite added; screenshot updated
		▸ Modified: **2.2.1 Keyboard/HID Settings** – add Greek, Slovenian, Mexican Spanish, Swiss French, Czech to 1000A; add Swiss French, Czech to the other table
		▸ Modified: **2.4.1 Keyboard/HID Settings** - Swiss French and Czech added
		▸ New: **2.5 Bluetooth 4.0 HOGP**
		▸ Modified: **2.6 Bluetooth SPP Slave/Bluetooth 4.0 SPP Lite** – article including SPP Lite
		▸ Modified: **2.9.1 Keyboard/HID Settings** – add Greek, Slovenian, Mexican Spanish, Swiss French, Czech to 1000A; add Swiss French, Czech to the other table
		▸ Modified: **3.1.3 Data Matrix** – ECI output added
		▸ Modified: **2.13 Direct USB OPOS** - dialog displaying
		▸ Modified: **6.1.1 General Setting** – RFID Power Level ranging from 0 ~ 12
		▸ Modified: **6.2.1 General Setting** – Multi-TAG mode added
		▸ Modified: **6.3.1 General Setting** – Raw Data added
1.06	Dec. 11, 2018	▸ New: **1000A** added
		▸ Modified: **Using ScanMaster Web** – picture updated
		▸ Modified: **Ch.2 Output Interface** – interface table updated
		▸ Modified: **2.2.1 Keyboard/HID Settings (Keyboard Wedge)** - 1000A added to the Keyboard Type table
		▸ Modified: **2.9.1 Keyboard/HID Settings (Direct USB HID)** - 1000A added to the Keyboard Type table
		▸ Modified: **4.4.2 Code ID Set 1~5** - Code ID of Han Xin appended

1.05	Oct. 02, 2018	▶	Modified: **Command Menu** - pictures updated
		▶	New: **1.4.5 LED Off after Decode**
		▶	Modified: **1.4.6 Auto Sense** – Auto Sense Detection Level added
		▶	Modified: **1.5.3 Multicode Setting** - pictures & descriptions updated
		▶	Modified: **2.2 Keyboard Wedge Interface** – keyboard type updated
		▶	Modified: **2.2 Keyboard Wedge Interface** –UTF-8 Convert & Output Unicode added
		▶	Modified: **2.4 Bluetooth HID Interface** – Alt Composing added
		▶	Modified: **2.4 Bluetooth HID Interface** – keyboard type updated
		▶	Modified: **2.9 Direct USB HID** – keyboard type updated
		▶	New: **2.9.1 UTF-8 Convert**
		▶	New: **2.9.2 Output Unicode**
		▶	New: **4.6.1 Character Substitution (1 to 2)**
		▶	New: **4.6.2 String Substitution (16 to 16)**
		▶	Modified: **6.1.1 General Setting** – RFID interface and Data Output to USB A added
		▶	Modified: **6.3.2 EPC TAG** – Data Length Type added
		▶	New: **6.4.3 Write TAG Memory**
1.04	Jun. 26, 2018	▶	New: **Scan View**
		▶	Modified: **1.1.1 Scanning Mode** – Multicode Mode added
		▶	New: **1.4.1 Decode No Wait Sending**
		▶	New: **1.5.3 Multicode Setting**
		▶	Modified: **2.2.1 Keyboard/HID Settings** – 3 options for Special Keyboard Feature
		▶	Modified: **2.4.1 Keyboard/HID Settings** – 3 options for Special Keyboard Feature
		▶	Modified: **2.4.1 Keyboard/HID Settings** – Fast Keyboard for iPhone/iPad
		▶	Modified: **2.4.2 Bluetooth/Cradle Setting** – Transmit Speed default by Fast
		▶	New: **2.7.1 Keyboard/HID Settings** - Polling Interval added
		▶	New: **2.12 Direct USB OPOS (2200/2220)**
		▶	Modified: **3.1.2 Micro QR** – enable/disable MicroQR is controlled by QR Code setting
		▶	Modified: **3.1.7 Composite Code** – UPC Never linked by default for 2504/2564
		▶	Modified: **3.3.5 Add-on Security Level** – value and range depending on models
		▶	Modified: **6.2.1 General Settings** – Dual Mode added

1.02	Feb. 09, 2018	▶ Modified: Models of 22 Series included
		▶ Modified: **1.3.1** & **6.1.2** descriptions for beeper volume on barcode and UHF RFID reading
		▶ New: Chapter 6 UHF RFID Settings
		▶ Modified: **6.1.2** – "Blue" LED for indicating RFID reading
		▶ Modified: Appendix I - screenshot updated for Original Grid Control
1.01	Oct. 12, 2017	Modified: Screenshots and descriptions updated
1.00	Mar. 28, 2017	Initial release

CONTENTS

INTRODUCTION

ScanMaster Web, the web-based application having the same functionality as the desktop version, is designed with client-server architecture that makes it easier to configure CipherLab barcode scanners via accessing CipherLab's web site. It provides two ways for users to configure the scanners – (1) send the settings from your computer to the scanners by direct communication, or (2) generate and print out the setup barcodes for the scanners to read anytime anywhere to configure itself or restore the defaults.

ScanMaster Web is capable of configuring barcode scanners listed in the table below:

1D Scanners	1000A
	2500
	2560
2D Scanners	2200/2210
	2220
	2504
	2504SR/MR/DP
	2564
	2564SR/MR/DP

PLEASE NOTE THAT WHETHER A PARTICULAR FUNCTION IS SUPPORTED DEPENDS ON THE MODEL OF PRODUCT BEING SELECTED ON THE WEB PAGE.

This user guide contains information on using ScanMaster Web. We recommend that you read it thoroughly before use and keep it at hand for quick reference.

Thank you for choosing CipherLab products!

SYSTEM REQUIREMENTS

As ScanMaster Web can be run in a web browser, users could use platforms as follows:

▶ Windows
▶ Mac
▶ Android
▶ iOS

	Windows	Mac	Android	iOS
UI Configuration	√	√	√	√
Setup Barcode Generation	√	√	√	√
Save/Load Setting File	√	√	√	
Read/Write Scanner Setting via Virtual COM	√			

USING SCANMASTER WEB

To access ScanMaster Web, please type http://scanmaster.cipherlab.com/ into the address bar of your browser. Once on the ScanMaster web page, click any of the scanner pictures to proceed with the configuration. Or click **Open Setting File** to locate and open an existing configuration file.
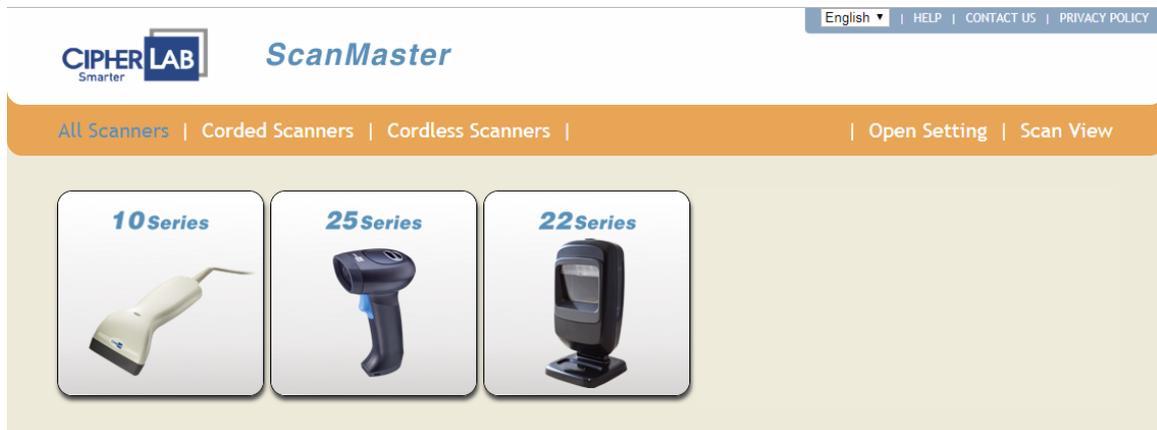
SCAN VIEW

The **Scan View** simply displays barcode data scanned. The scanned data can be displayed in the HID or COM text field depending on the connection interface being used.
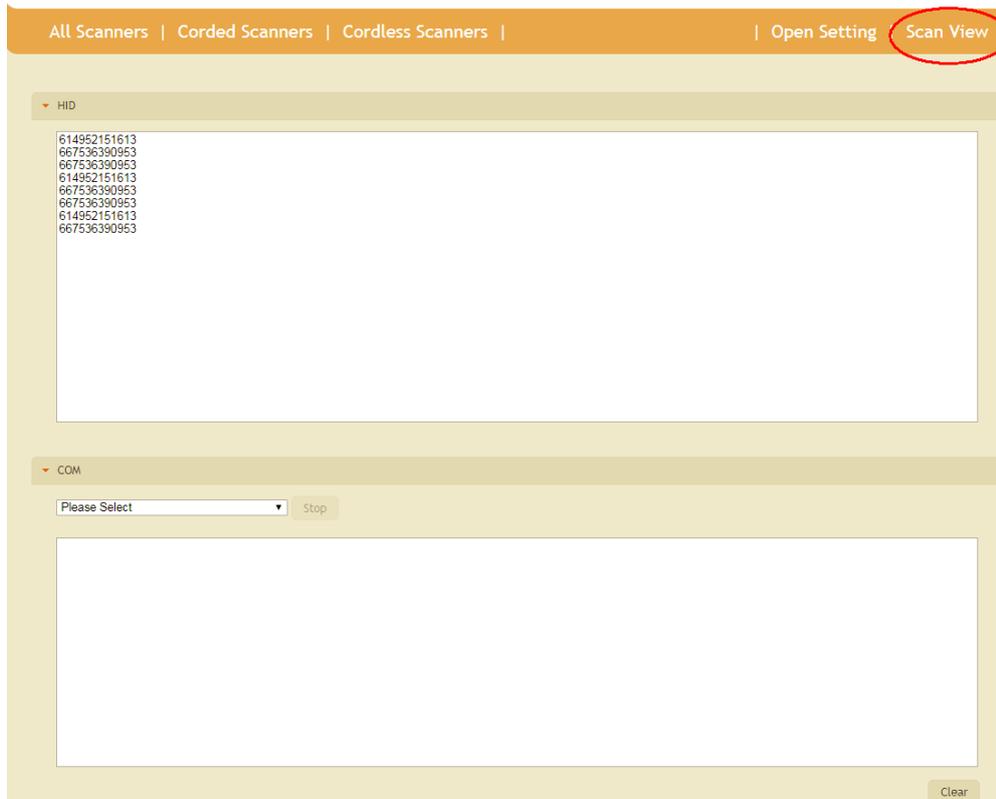
COMMAND MENU

After selecting a specific model, you'll see a command menu displayed on the left-hand side.

BARCODE GENERATION

After you've changed the settings, click this command to generate setup barcodes for printing. For 2D scanners, a **2D Barcode** option also presents.

1D SETTING BARCODES GENERATION
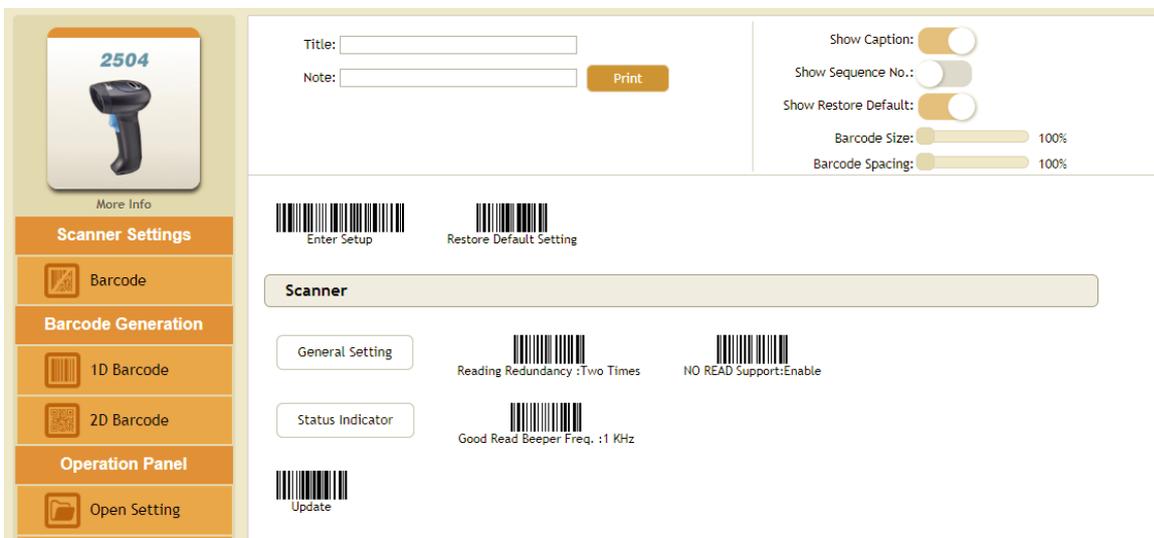
2D SETTING BARCODES GENERATION

Title: Users can enter up to 50 characters to give the title of the setup barcodes.

Note: Enter up to 50 characters to note the purpose of the setup barcodes.

Print: Click the Print button to print the setup barcodes which differ from default settings (as the picture illustrated below).
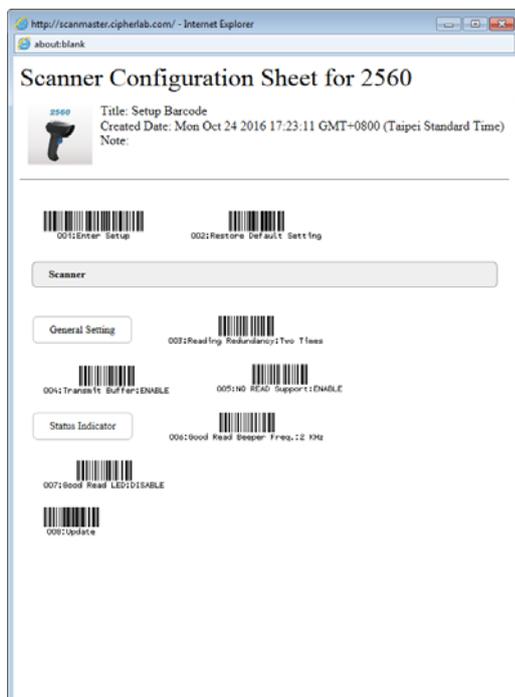
Show Caption No.: Enable to show the caption of each setup barcode.

Show Sequence No.: Enable to label each setup barcode with a number to clarify the steps.

Barcode Size: Drag the scroll bar to adjust the barcode size with each increment of 100 in percentage Up to 300%.

Barcode Spacing: Drag the scroll bar to adjust the barcode spacing with each increment of 100 in percentage up to 500%.

Note: With an existing setting file opened, a dialog will appear when you click the "1D Barcode" or "2D Barcode" button.

Click Default Setting to display the loaded setting barcodes which have been changed by comparing them with default settings.

Click Opened Setting to display the loaded setting barcodes which have been changed by comparing them with the originally loaded settings.

OPERATION PANEL

The Operation Panel includes Open Setting, Save Setting, and COM Agent commands.

OPEN SETTING

Click it to locate and open an existing setting file.
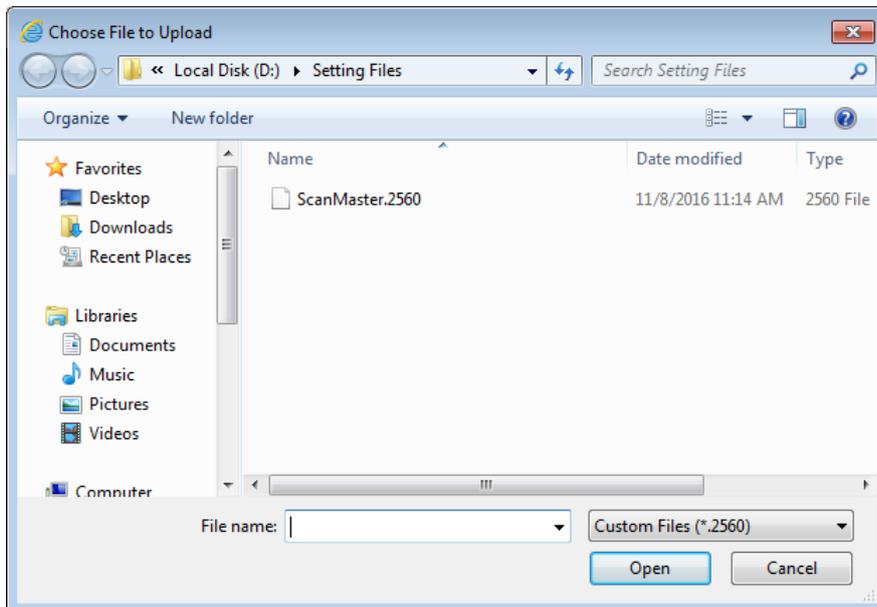
SAVE SETTING

Click it to save the current settings to a setting file. Users can specify the file name in the File Name text field.
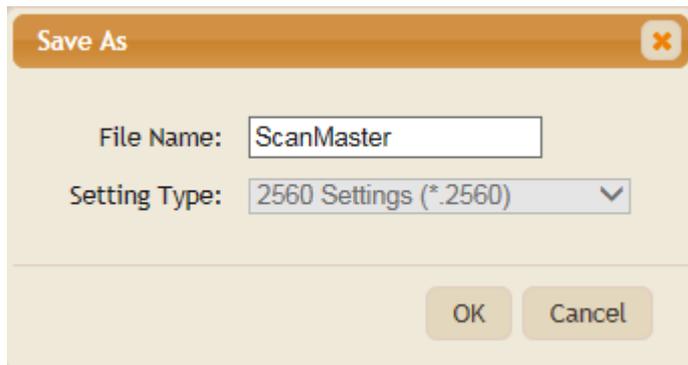
COM AGENT

The COM Agent is supposed to be installed to your computer before you can make a connection between your PC and the scanner to be configured. Click the COM Agent to bring up the dialog; then click the **Download** button for the first time.
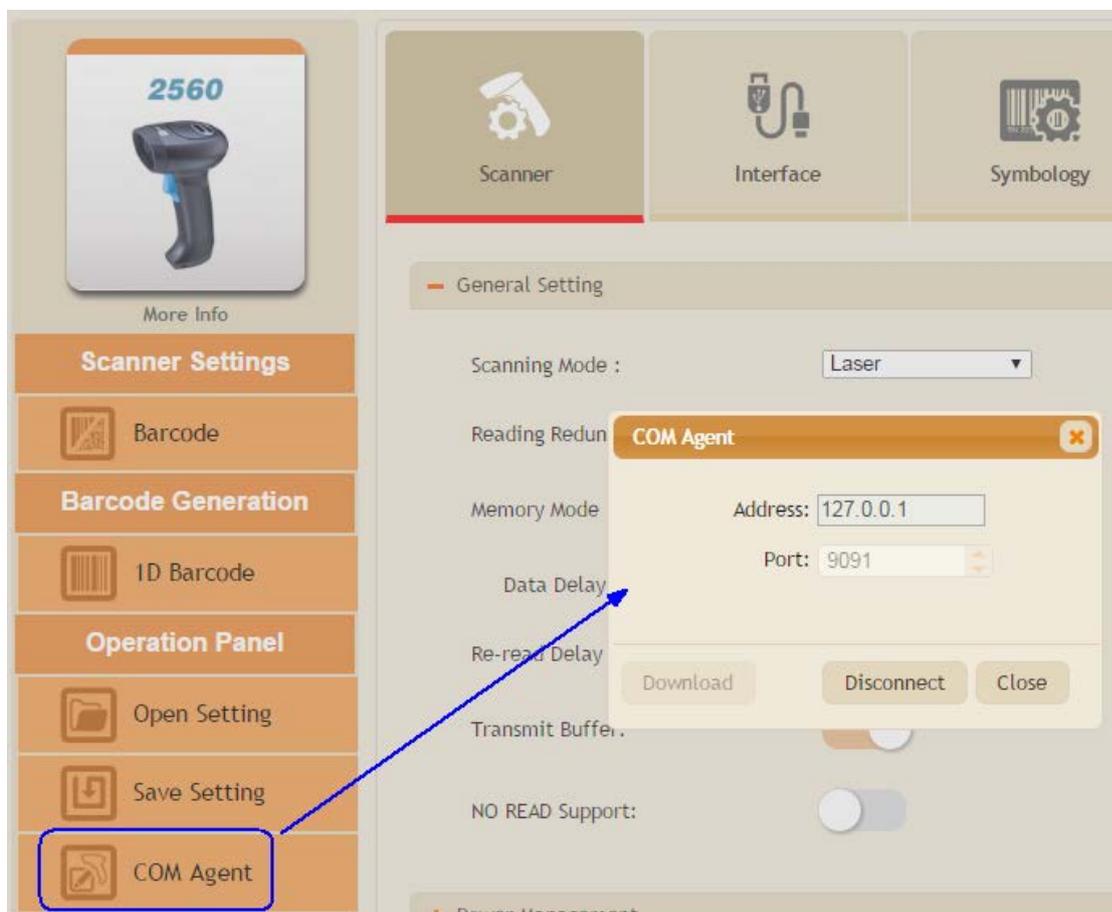
Then a message dialog appears at the bottom of the window. Click **Run** or **Save** to proceed in accordance with your plan.
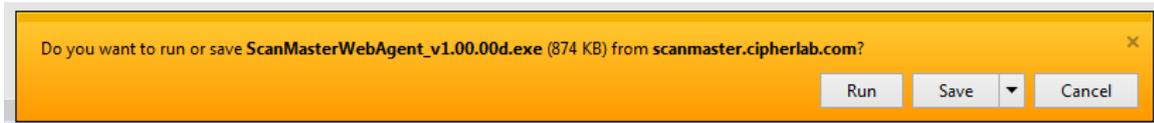
With a successful download, run the setup file to install **ScanMaster Agent**. Follow the instructions to complete the installation.
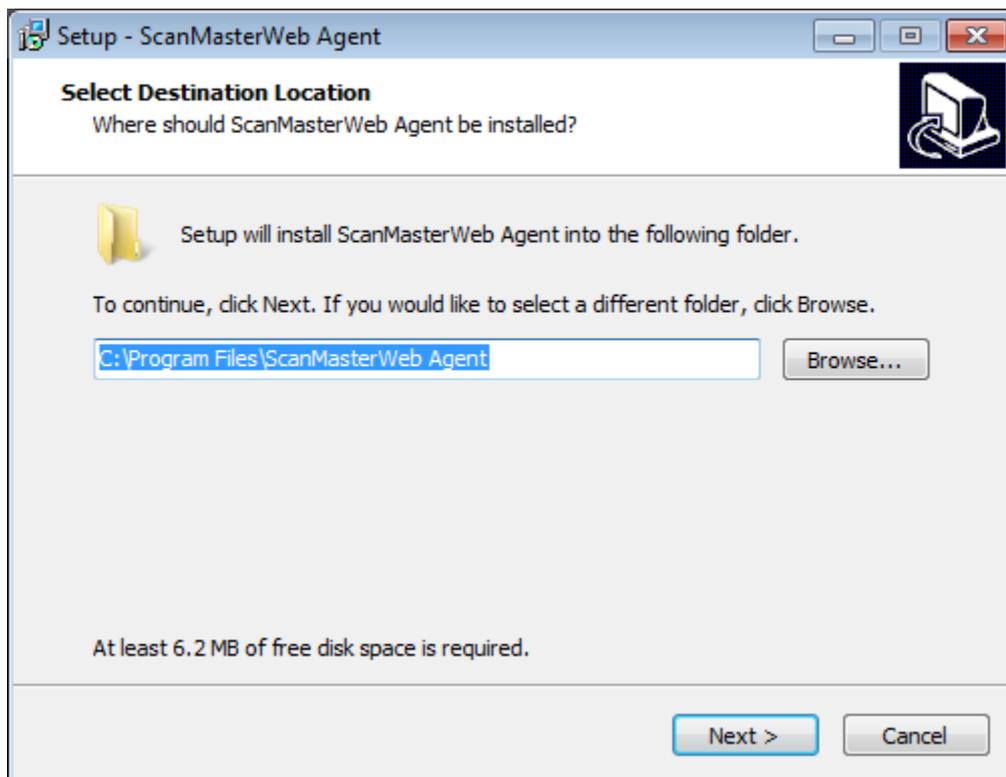
After COM Agent is successfully installed on your computer, click the **Connect** button to make a connection between your PC and the scanner.
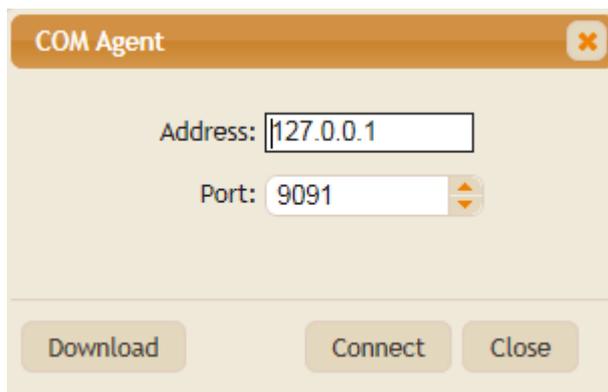
ScanWeb Agent is a Windows service running in the background. Once launched in background, you can find its icon in the bottom-right corner of the screen. Right-click the icon as the picture shown below to bring up the menu.

Command	Action
Start/Stop	Click it to start/stop the service.
Port:	Click it to bring up the Setting dialog. ▶ **Language:** Click to select a display language from the drop-down menu. ▶ **Port**: Specify the port number. ▶ **Auto start when program start**: Check it to have the service start automatically when ScanMaster Agent is launched. ▶ **Auto start program when PC start**: Check it to launch ScanMaster Agent when your PC starts.
About	Click it to check the ScanWeb Agent version.

Exit	Click it to terminate ScanMaster Agent.

DEVICE PANEL

After the ScanWeb Agent service starts, the Device Panel and its command options appear on the left-hand side.

READ SETTING

Click it to proceed with Setting Type. If two or more scanners are connecting to PC (users have to determine which scanner to be read from) or the connected scanner model doesn't match the model name selected, the COM port properties dialog shows up; then click Custom to proceed for detailed port settings.
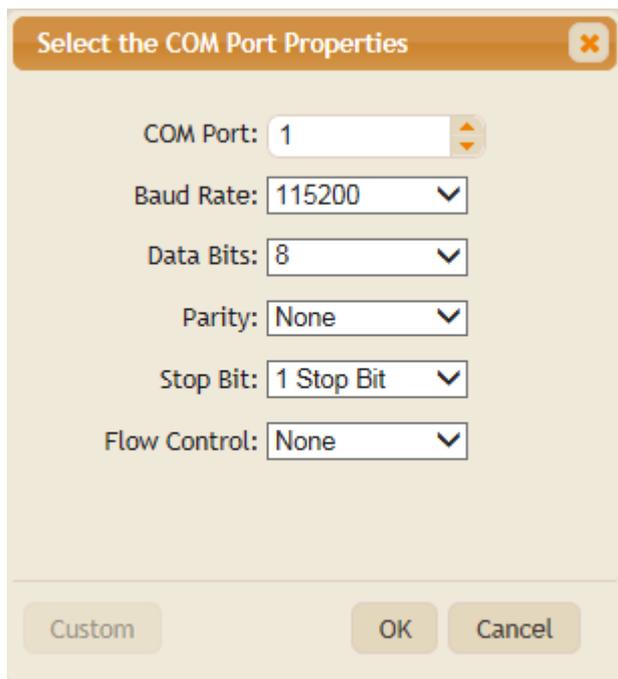
Select the setting type between Current Setting and User Defined Setting.

After reading settings successfully, the success dialog appears.

WRITE SETTING

Click the Write Setting command to download settings to the scanner. When the writing is successful, the success dialog appears.

BASIC SCANNER SETTINGS

On the CipherLab ScanMaster web page, click a specific model picture to proceed with the configuration. Then the [Scanner] page showing up by default allows users to configure basic settings for the target barcode scanner. Note the following screenshots depict information for 2560 as an example. Setting items may vary depending on models.

IN THIS CHAPTER

1.1 GENERAL SETTING

1.1.1 SCANNING MODE

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

Scanning 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	✓							
Testing mode	✓							
Laser mode			✓		✓		✓	✓
Auto Off mode		✓					✓	✓
Auto Power Off mode		✓						✓
Alternate mode		✓				✓		
Aiming mode				✓			✓	✓

Multi-Barcode mode			✓		✓				
Presentation mode	✓								
Multicode mode			✓		✓		✓	✓	

Note: By default, the scanning mode is set to **Laser** mode. As for 2200 series, the scanning mode is set to **Presentation** mode.

Continuous Mode

The scanner is always scanning.

▶ To decode the same barcode repeatedly, move the scanning beam away and target it at the barcode for each scanning.

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

Testing Mode (2500/2504SR/MR/DP/2560/2564SR/MR/DP only)

The scanner is always scanning.

▶ Capable of decoding the same barcode repeatedly, for testing purpose.

Laser Mode

The scanning starts when the trigger is held down.

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

Note: Refer to "Scanning Timeout".

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 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".

Alternate Mode

The scanner will start scanning once the trigger is pressed.

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

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, (2) the pre-set timeout expires, or (3) you release the trigger.

Note: Refer to "Aiming Timeout".

Multi-Barcode Mode

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

For the 2D scanners to decode multiple unique barcodes, the maximum output data length of all the barcodes is 10 KB after configuration. When the output length exceeds the maximum length allowed, Multi-Barcode Mode will not take effect.

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

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.

Presentation Mode (2200/2220/2504/2504SR/MR/DP/2564/2564SR/MR/DP only)

The scanner will be expecting barcodes. Whenever a barcode is brought within range, the scanner will be able to decode it. It is suggested to seat it in the Auto-Sense Stand for hands-free operation.

Multicode Mode (2504SR/MR/DP/2564SR/MR/DP only)

This mode is designed to decode multiple barcodes at one time. The scanning starts as long as the trigger is pressed down, capable of decoding multiple barcodes based on the arranged multicode settings. The multicode settings define the barcode(s) that the scanner can expect to find in an image. And the scanner reports a successful decode only if it decodes all barcodes indicated by the multicode settings, otherwise the decode fails. Barcodes are transmitted in the order defined in the multicode settings.

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

1.1.2 READING REDUNDANCY

Select the level of reading security. For example,

▶ If "No Redundancy" is selected, one successful decoding will make the reading valid and produce the "READER Event".

▶ If "Three Times" is selected, it will take a total of four consecutive successful decodings of the same barcode to make the reading valid. The higher the reading security is (that is, the more redundancy the user selects), the slower the reading speed gets.

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

1.1.3 MEMORY MODE

Memory mode is disabled by default. When the scanner is in memory mode, any connection established with host is disabled.

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

With Data Delay enabled, you can set a time delay between data records while transmitting data back to the server.

1.1.4 TRANSMIT BUFFER

2560/2564/2564SR/MR/DP (CORDLESS SCANNERS)

By default, transmit buffer is enabled and ready for use. When the scanner is carried out of the effective Bluetooth range, the host computer may not receive the data (saved to transmit buffer on the scanner) immediately.

The scanner keeps on reading barcodes until the buffer is full regardless of the transmission status.

When transmit buffer is enabled...

When the scanner is carried out of Bluetooth coverage, it 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 back into the coverage.

When transmit buffer is disabled...

When the scanner is carried out of the coverage, it will respond with one long beep (low tone) and its LED indicator will become solid red and go off quickly. You are advised to back into the coverage.

2200/2220/2500/2504/2504SR/MR/DP (CORDED SCANNERS)

The scanner is designed to send any collected data to a host computer in sequence via the transmit buffer (SRAM). However, the host computer may not receive the data immediately if using a low baud rate or waiting for handshake signal (flow control). With the transmit buffer, the scanner can ignore the transmission status and keep on reading barcodes until the buffer is full. When the 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.

Note: The 10 KB transmit buffer on the scanner can hold as many as 640 scans based on EAN-13 barcodes. Data will be cleared out once the power adaptor to the RS-232 cable is removed or other interface cable is disconnected!

1.1.5 NO READ SUPPORT (SEND "NR" TO HOST)

The scanner will send the "NR" string to the host to notify the No Read event.

1.2 POWER MANAGEMENT
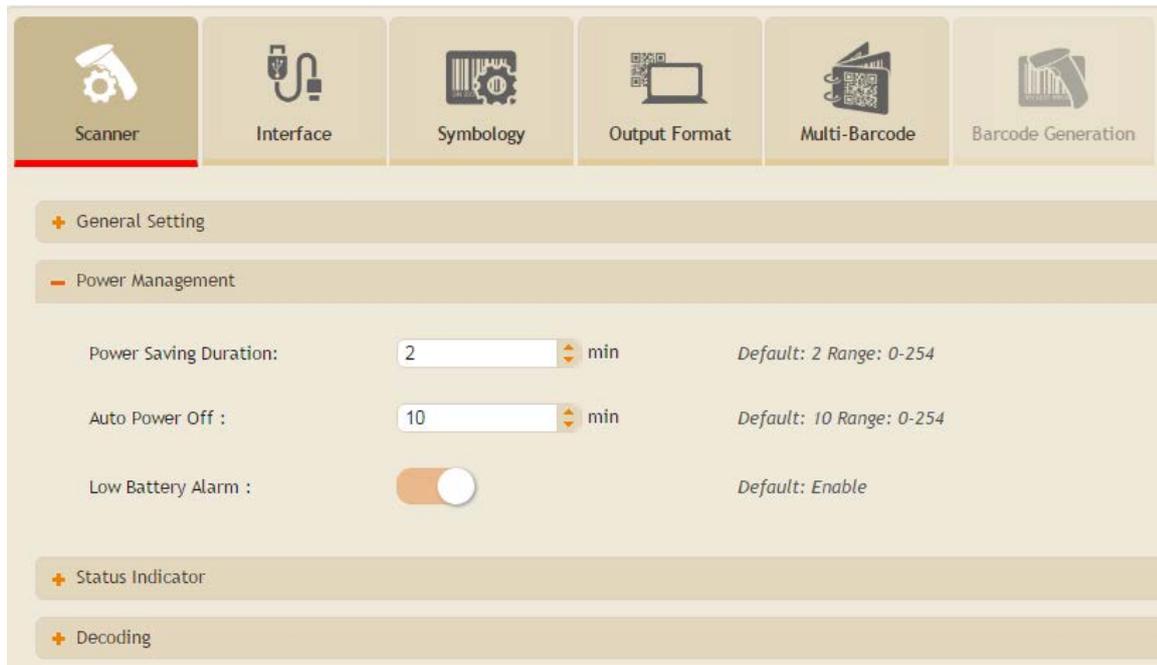
The Bluetooth-enabled models feature the management of power consumption. Such management enables the scanner to control its power state in response to the input from the user. By the scanner's power management, the power consumption goes through the following transition:

1) The scanner stays active with full CPU speed right after power-on.

2) The scanner shifts to low CPU speed ("Power-Saving". See 1.2.2 Power Saving Duration).

3) The scanner finally shuts down. ("Auto Power Off". See 1.2.3 Auto Power Off.

4) Note there are a few eccentric cases: The "Power-Saving" is inoperative for the Bluetooth HID or SPP on all concerned models.

1.2.1 BEFORE/AFTER BLUETOOTH CONNECTION

Before and after the Bluetooth connection is made, the scanner features similar power managing mechanism. The following details how it is achieved.

Before establishing a WPAN connection successfully...

1. The scanner stays active for a time (2 minutes by default) attempting either of the following. The CPU runs at full speed, and the LED blinks blue (On/Off ratio 0.5 s: 0.5 s).

    (a) wait for a connection request from the host (Bluetooth SPP Slave Mode)

    (b) try to connect to the host (Bluetooth HID or Bluetooth SPP Master Mode)

    (c) try to connect to Bluetooth cradle

    Note in the cases of (a) and (b), you may need to search for the scanner again on your computer.

2. If the scanner fails to connect throughout the active time (2 minutes by default), the CPU slows down and the scanner becomes inactive to save power. The LED starts to blink red (On/Off ratio 0.3 s: 2.5 s).

    Press the scan trigger or the scan key to resume the scanner.

3. Failing to make connection, the scanner shifts to inactive state when it is the time (the Power-Saving time). Then scanner keeps inactive and finally turns off to conserve battery power when it is the time (the Auto Power Off time).

    Hold down the scan trigger or the [Power/Delete] key to turn the scanner back on.

After establishing a WPAN connection successfully...

1. Once a WPAN connection is established successfully, the scanner stays active for a time (2 minutes by default) for data transmission. The CPU runs at full speed, and the LED blinks blue (On/Off ratio 0.02 s: 3 s).

2. If the scanner is left idle throughout the active time (2 minutes by default), the scanner shifts to inactive state to save power. The CPU runs at low speed, and the LED blinks red (On/Off ratio 0.3 s: 2.5 s).

    Press and hold the [Trigger] to recover the scanner's activity.

    ▸ There is no transition from full CPU speed to low CPU speed for Bluetooth HID and SPP, however when the connection is based on a Bluetooth cradle, the scanner will go through a low CPU speed stage in order to save power.

3. Being left idle, the scanner shifts to inactive state when it is the time (the Power-saving time). Then the scanner keeps inactive and finally turns off with three short beeps, tone descending from high to low, when it is the time (the Auto Power Off time).

    Press & hold the [Power/Delete] key to turn the scanner back on. When the scanner re-powers on, it attempts reconnecting to the host:

    ▸ For Bluetooth HID, the scanner resumes connection with the host upon powering on again as long as the host application is still running. You will hear three short beeps, tone ascending from low to high. If the scanner fails to resume the connection, it tries every 5 seconds unless the scanner reads the "Reset Connection" barcode.

    ▸ For Bluetooth SPP Slave Mode, the scanner must wait for the host to re-connect.

    ▸ For Bluetooth SPP Master Mode, the scanner resumes the 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 the connection, it tries every 5 seconds unless the scanner read the "Reset Connection" or "Restore System Defaults" barcode.

    ▸ Interfacing with the Bluetooth cradle, the scanner tries re-connecting to the cradle unless you turn off the scanner.

1.2.2 POWER SAVING DURATION

"Power-Saving" is provided for all scanning modes. Set up a time (1~254 min.; 0= disable) for the scanner to enter low-speed mode to save power after. By default, the scanner keeps active for 2 minutes after power-on until entering low-speed power-saving.

Note either of the following cases will set the Power-Saving inefficacious:

1) the interface is Bluetooth HID or SPP,

2) the scanning mode is set to Test, Continuous or Alternate Mode, or

3) the setting value of Power-Saving is greater than that of Auto Power Off.

1.2.3 AUTO POWER OFF

The setup of an "Auto Power Off" time is available to any scanning mode other than Continuous Mode, Test Mode and Alternate Mode.

Select "Auto Power Off" and assign a time (1~254 min.; 0= disable) for the scanner that is set to none of the above mentioned modes to automatically shut down after power-on. The default value is set to 10 minutes, which means the scanner automatically shuts down in 10 minutes after power-on by default.

1.2.4 LOW BATTERY ALARM

By default, the low battery alarm is enabled. When the battery level drops below a specified level, the scanner will respond with a warning beep.

1.3 STATUS INDICATOR

1.3.1 BEEPER VOLUME

This setting will change beeper volume for both barcode and UHF RFID reading, such as Good Read, buffer full status, configuration status, etc. Select a suitable volume.

1.3.2 GOOD READ BEEPER FREQ.

Good Read Beep is always enabled. By default, beeper frequency is set to 4 KHz (1K, 2K, 4K, and 8K Hz options selectable).

1.3.3 GOOD READ BEEPER LEN.

Good Read Beep duration is set to shortest. Longest, longer, shorter, and shortest options are available.

1.3.4 GOOD READ LED

By default, Good Read LED is enabled and its duration is set to 40 milliseconds. When reading a barcode successfully, the LED on the scanner will become solid green and go off quickly. Enter a value ranging from 1 to 254, in units of 10 milliseconds.

1.4 DECODING

1D DECODING

2D DECODING

Scanner	Interface	Symbology	Output Format	Multi-Barcode

+ General Setting

+ Power Management

+ Status Indicator

− Decoding

Decode No Wait Sending:	⬤	Default: Enable
Picklist Mode :	○	Default: Disable
Mobile Phone / Display Mode:	○	Default: Disable
DPM Mode:	None ▼	Default: None
Auto Sense :	⬤	Default: Enable
Scanning Timeout :	10 ⬍ sec	Default: 10 Range: 0-254
Aiming Pattern :	⬤	Default: Enable
Read Negative Barcode :	○	Default: Disable
Decoding Illumination :	⬤	Default: Enable
Illumination Brightness:	10 ⬍ x10%	Default: 10 Range: 1-10

1.4.1 DECODE NO WAIT SENDING

By default, the scanner only proceeds with the next decoding after the host computer has successfully received data. In case of transmitting a huge mass of 2D barcode data, users may encounter difficulties in keeping decoding barcodes. You can configure the scanner to keep decoding without waiting for the host to complete the data receiving.

1.4.2 PICKLIST MODE

Picklist Mode is deselected by default. Select it to enable the scanner to decode only the barcodes aligned at the centre under the laser aiming pattern.

1.4.3 MOBILE PHONE/DISPLAY MODE

By default, this function is disabled. When enabled, there is a big improvement in reading barcodes displayed on mobile phones and electronic displays.

1.4.4 DPM MODE

Some scanners, with the DPM mode specified, are capable of reading direct part mark of 2D barcodes.

▶ **Mode 1**: When you are scanning a relatively smaller DPM barcode, click the drop-down menu to select Mode 1 that can best improve decoding.

▶ **Mode 2**: When you are scanning a relatively larger DPM barcode, click the drop-down menu to select Mode 2 that can best improve decoding.

Having selected a DPM mode, you can't enable 1.4.2 Picklist Mode and 1.4.3 Mobile Phone/Display Mode.

1.4.5 LIGHT SOURCE LED BEHAVIOR

Users can change the light source LEDs behaviour. By default, the light source LEDs will last for a longer time after decoding.

1.4.6 AUTO SENSE

This mode is only applicable when you want to seat the scanner in the Auto-Sense Stand. The scanner will be scanning as long as it is seated in the Auto-Sense Stand. Whenever a barcode is brought within the coverage, the scanner will be able to decode it.

Warning: When you disable this mode later, proceed to select a scanning mode best suits your application.

AUTO SENSE SENSITIVITY

When the ambient light is too dim to activate the sensor, you may change the sensitivity from "Normal" to "High" to improve performance.

AUTO SENSE DETECTION BY

You can determine the occasion for decoding destination barcodes. Click the drop-down menu to select between "Barcode" and "Motion".

▶ **Barcode**: When an object is judged a barcode, the scanner decodes the destination barcode.

▶ **Motion**: When an object is detected moving, the scanner decodes the destination barcode.
Besides, users can further specify the auto-sense detection level when the scanner is seated in the stand and set in the "Motion" mode.

OBJECT DETECTION LEVEL

Users can specify the auto-sense detection level ranging from 0 to 7 (default value is set to 4; greater number means higher detection sensitivity).

1.4.7 LOW LIGHT ENHANCEMENT

Disable is the default. Select **Enable** to maintain low-power illumination in low light conditions.

1.4.8 SCANNING TIMEOUT

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

▶ Laser mode
▶ Auto Off mode
▶ Auto Power Off mode
▶ Aiming mode

1.4.9 CCD ALWAYS ACTIVE

This feature enabled by default intends to keep the CCD sensor always active so that the scanner can decode more efficiently.

1.4.10 AIMING PATTERN

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

1.4.11 AIMING TIMEOUT

When Scanning Mode is set to Aiming Mode, you can limit the aiming time interval ranging from 1 to 15 seconds. By default, the scanner time-out is set to 1 second.

1.4.12 READ NEGATIVE BARCODE

Normally, barcodes are printed with the color of the bars darker than that of the spaces. However, 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.

1.4.13 CENTERING WINDOW

In default state, 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. Select "Centering Window" and 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.
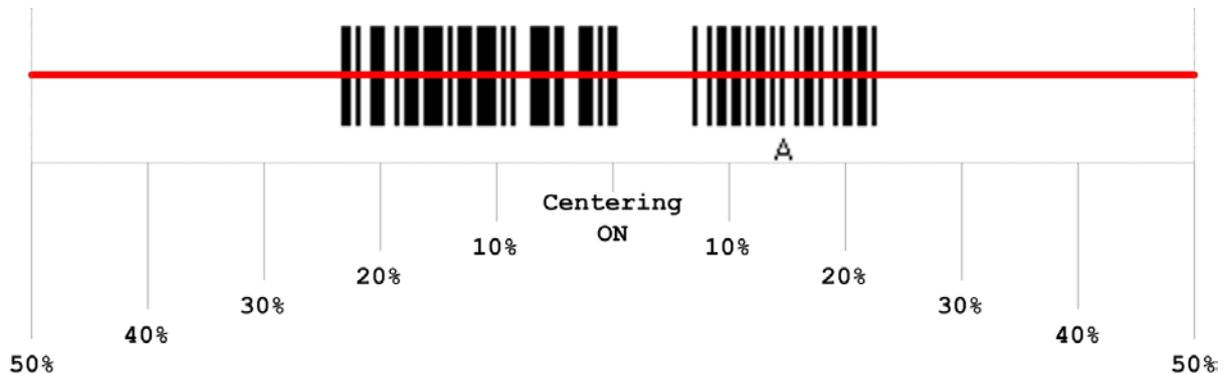
1.4.14 DECODING ILLUMINATION

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

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

1.4.15 ILLUMINATION BRIGHTNESS

Specify the illumination brightness level ranging from 1 to 10 for the 2D reader. The default value is 10 representing 100% illumination brightness.

1.5 MULTICODE SETTING

Multicode Redundancy :	None One Time Two Times Three Times	Default: None
Same Barcode Allowance:		Default: Disable
Multicode Setting:	✱	

1.5.1 MULTICODE REDUNDANCY

Click the drop-down menu to determine the level of reading security.

For example,

▶ If "None" is selected, one successful decoding will make the reading valid and induce the "READER Event" .

▶ If "Three times" is selected, a total of four consecutive successful decodings of the same barcode will be done to make the reading valid. The higher the reading security is (that is, the more redundancy the user selects), the slower the reading speed gets.

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

1.5.2 SAME BARCODE ALLOWANCE

By default, this function is disabled. Enable it to increase decoding by one time automatically.

1.5.3 MULTICODE SETTING

Click the button to bring up the Multicode Settings dialog for advanced settings.

USING AN EXISTING IMAGE

If you have barcode image files, click the Select Image button to locate and open one of the files.
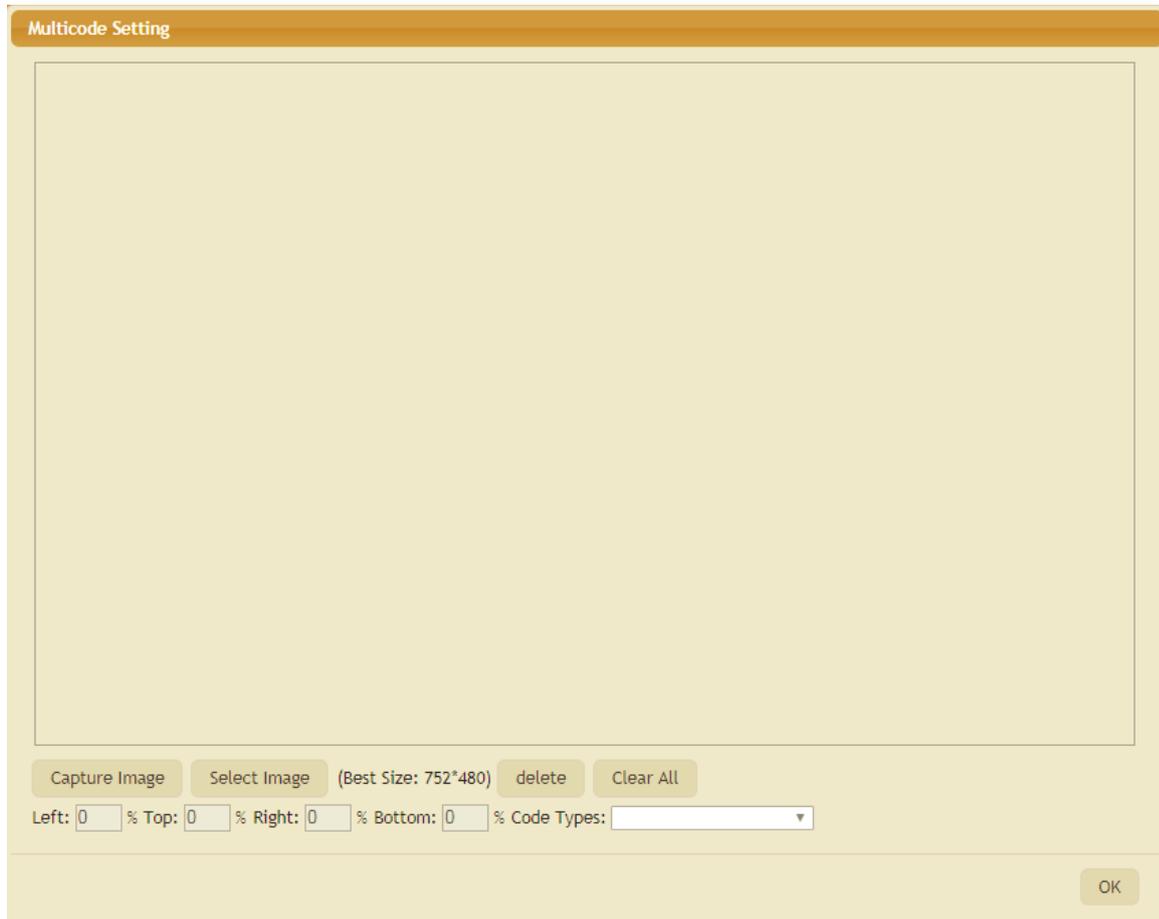
Having selected a barcode image, click and drag the mouse to draw a rectangle properly enclosing a single barcode label within the preview area.
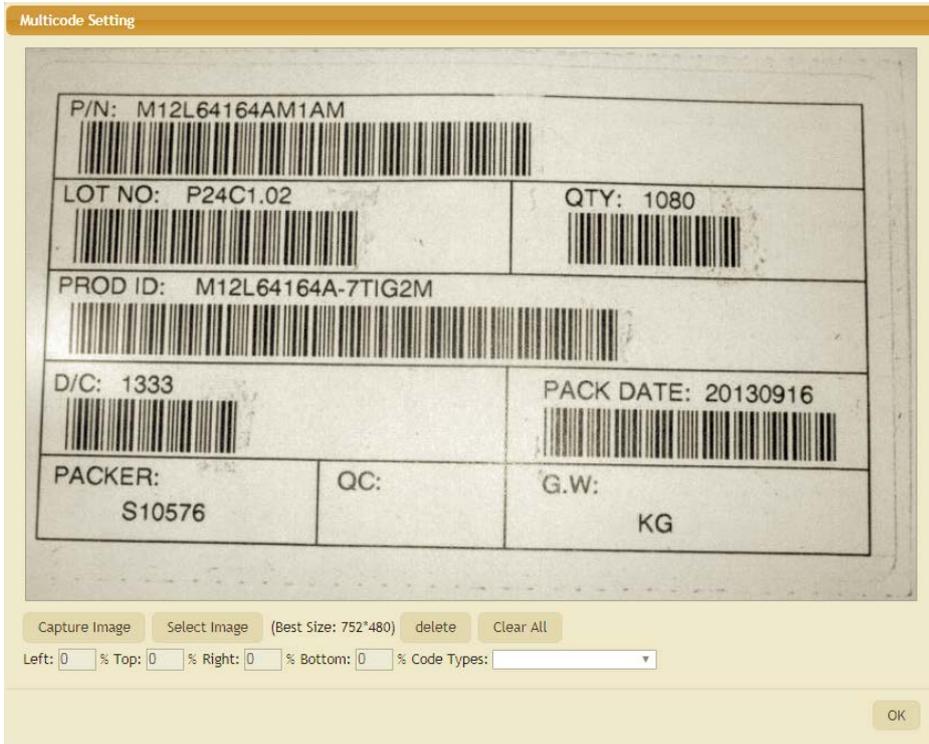
For example, the screenshot below illustrates how that a rectangle is created.
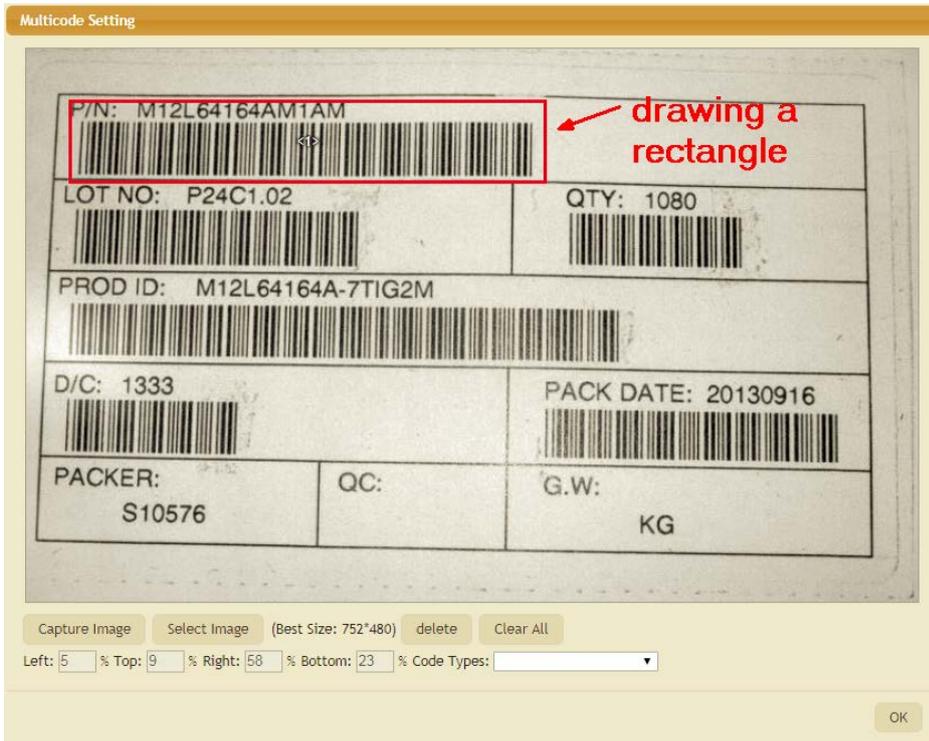
You can repeat the drawing process to make up to 10 rectangles. Each of them is labelled with a number. Enclosed in the rectangle any barcode types which the scanner is capable of decoding can be decoded.

To decode only a specified barcode type, you can select a rectangle and click the Code Types drop-down menu to specify a barcode type to the enclosed barcode label. Repeat the drawing process and finally click the OK button to finish this multicode setting.

To remove a particular rectangle, you can click the delete button. Click the Clear All button to remove rectangles altogether.
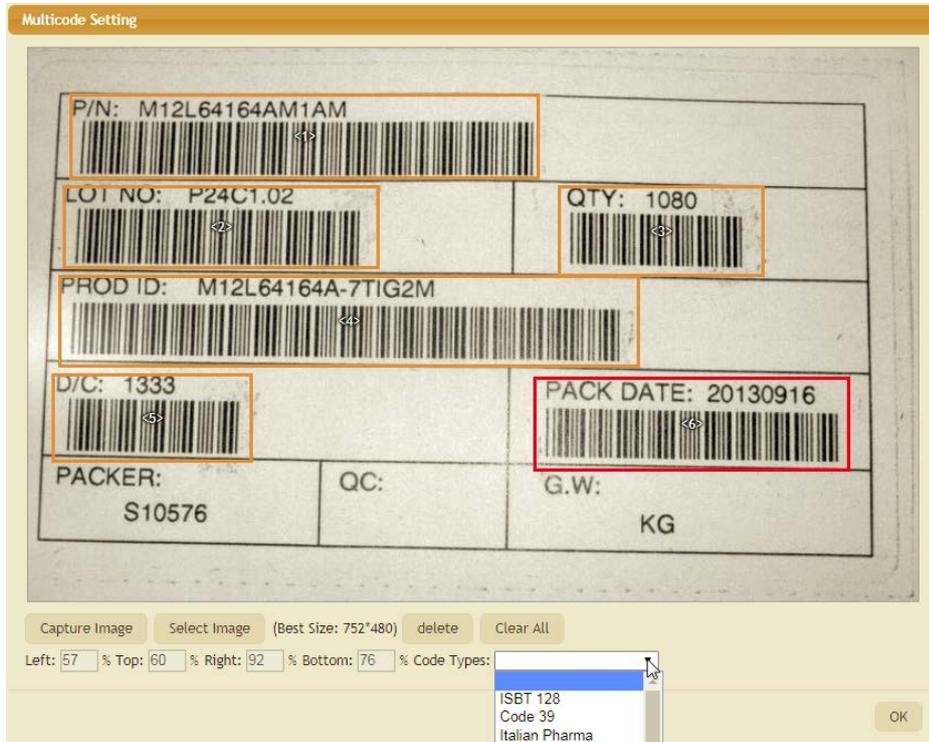
CAPTURING A NEW IMAGE

Alternatively, you can click the Capture Image button using the scanner to take a picture of barcode labels. Then the COM Port Settings dialog shows up. Click the Custom button to configure COM port settings.

Specify the COM port number being used by the scanner. There's no need to change other settings. Then click OK.

COM Port Settings

COM Port: 30

Baud Rate: 115200

Data Bits: 8 Bit

Parity: None

Stop Bit: 1 Stop-Bit

Flow Control: None

Custom　　OK　Cancel
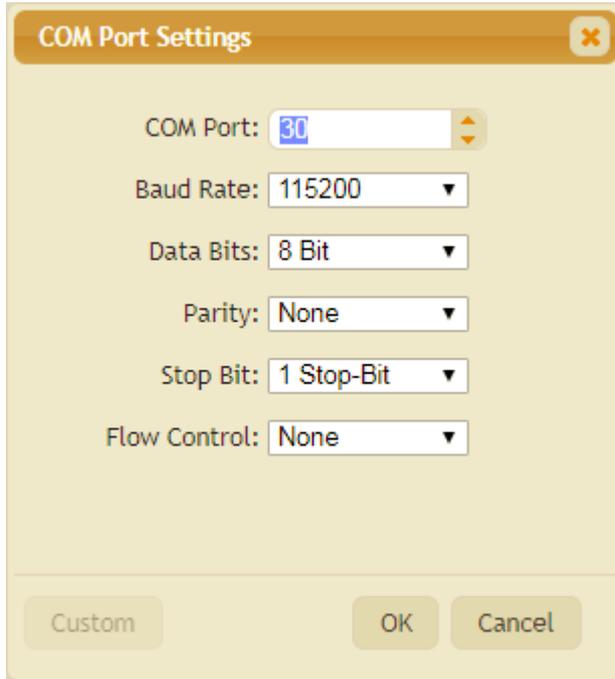
When you see the prompt displaying on the screen and the scanner emits the cross light, please press the scanner trigger to take a picture of multiple barcode labels.

Please Press Trigger

If you see the message below, click OK to try again.

Warning

⚠ Timeout!!!

Please try again!

OK
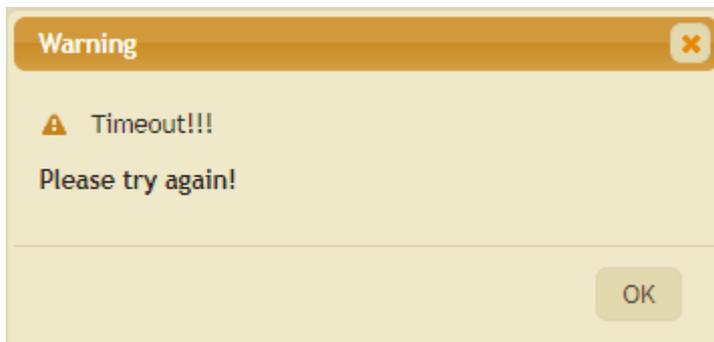
It takes a while for the capturing process. When finished, the taken picture displays on the screen. Then repeat steps mentioned in Using an existing image.

OUTPUT INTERFACE

Connect the scanner and your computer with the provided interface cable or the supported wireless interface.

Scanner Output Interface	1000A/22xx/2500/2504/2504SR/ MR/DP	2560/2564/2564SR/ MR/DP
Keyboard Wedge	√	√
RS-232	√	√
Direct USB HID	√	
Direct USB VCOM	√	
Direct USB VCOM_CDC	√	
Direct USB OPOS	√	
Bluetooth HID		√
Bluetooth 4.0 HOGP		2564 only
Bluetooth SPP Slave		√
Bluetooth 4.0 SPP Lite		2564 only
Bluetooth SPP Master		√
USB HID via Cradle		√
USB VCOM via Cradle		√
USB VCOM_CDC via Cradle		√

Note: If a different interface is desired, change the interface setting and send it to the scanner.

IN THIS CHAPTER

2.1 GENERAL SETTING

2.1.1 SCANNER INTERFACE

Click the drop-down menu to select the scanner output interface.
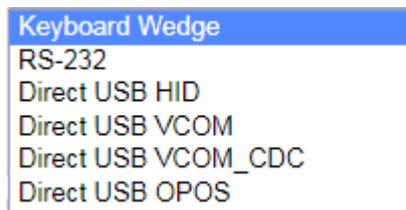
Interfaces for tethered scanners   Interfaces for cordless scanners
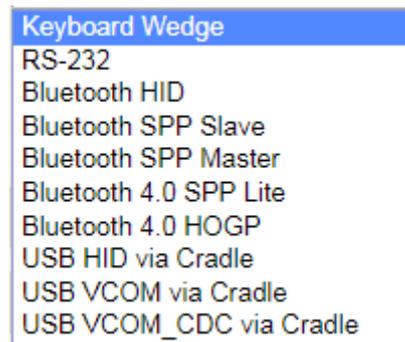
2.1.2 CABLE AUTO-DETECTION

By default this function is enabled to have the scanner detect the interface automatically. Find the interface cable provided inside the package and connect it to the scanner.

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

USB	USB HID and PCAT (US) for keyboard type

Note: If "USB Virtual COM" is desired, select it and download the setting to the scanner.

2.1.3 LAPTOP SUPPORT

By default, laptop support is disabled. Enable it if you connect the wedge cable to a laptop without an external keyboard being inter-connected.

2.2 KEYBOARD WEDGE

Use a "Y-shaped" keyboard wedge cable to connect between the scanner, the host computer, and the keyboard. The scanned data will be transmitted to the host computer through the keyboard port as if it is manually entered via the keyboard.

Functions described below are supported depending on models.

2.2.1 KEYBOARD/HID SETTINGS

KEYBOARD TYPE

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

Keyboard Type for Applied Models: 1000A			
No.	Keyboard Type	No.	Keyboard Type

1	PCAT (US)	20	PS55 002-1, 003-1
2	PCAT (French)	21	PS55 002-81, 003-81
3	PCAT (German)	22	PS55 002-2, 003-2
4	PCAT (Italian)	23	PS55 002-82, 003-82
5	PCAT (Swedish)	24	PS55 002-3, 003-3
6	PCAT (Norwegian)	25	PS55 002-8A, 003-8A
7	PCAT (UK)	26	IBM 3477 Type 4 (Japanese)
8	PCAT (Belgium)	27	PS2-30
9	PCAT (Spanish)	28	IBM 34XX/319X, Memorex Telex 122 Keys
10	PCAT (Portuguese)	29	User-defined table
11	PS55 A01-1	30	PCAT (Turkish)
12	PS55 A01-2 (Japanese)	31	PCAT (Hungarian)
13	PS55 A01-3	32	PCAT (Swiss German)
14	PS55 001-1	33	PCAT (Danish)
15	PS55 001-81	35	PCAT (Greek)
16	PS55 001-2	45	PCAT (Slovenian)
17	PS55 001-82	46	PCAT (Mexican Spanish)
18	PS55 001-3	48	PCAT (Swiss French)
19	PS55 001-8A	49	PCAT (Czech)

Keyboard Type for Applied Models: 22xx/2500/2560/2504/2504SR/MR/DP/2564/2564SR/MR/DP			
No.	**Keyboard Type**	**No.**	**Keyboard Type**
1	PCAT (US)	26	IBM 3477 Type 4 (Japanese)
2	PCAT (French)	27	PS2-30
3	PCAT (German)	28	IBM 34XX/319X, Memorex Telex 122 Keys
4	PCAT (Italian)	29	User-defined table
5	PCAT (Swedish)	30	PCAT (Turkish)
6	PCAT (Norwegian)	31	PCAT (Hungarian)
7	PCAT (UK)	32	PCAT (Switzerland German)
8	PCAT (Belgium)	33	PCAT (Danish)
9	PCAT (Spanish)	34	Reserved
10	PCAT (Portuguese)	35	PCAT (Greek)
11	PS55 A01-1	36	Reserved
12	PS55 A01-2 (Japanese)	37	PCAT (Russian)
13	PS55 A01-3	38	Reserved

14	PS55 001-1	39	Reserved
15	PS55 001-81	40	Reserved
16	PS55 001-2	41	Reserved
17	PS55 001-82	42	PCAT (Cyrillic on Russian)
18	PS55 001-3	43	PCAT (Armenian)
19	PS55 001-8A	44	PCAT (Thai)
20	PS55 002-1, 003-1	45	PCAT (Slovenian)
21	PS55 002-81, 003-81	46	PCAT (Mexican Spanish)
22	PS55 002-2, 003-2	47	*PCAT (Traditional Chinese)
23	PS55 002-82, 003-82	48	PCAT (Swiss French)
24	PS55 002-3, 003-3	49	PCAT (Czech)
25	PS55 002-8A, 003-8A		

*22xx/2504 only

UTF-8 CONVERT

This function, disabled by default, is only for certain keyboard types listed in the table below. Enable this function to get the UTF-8-encoded data.

No.	Keyboard Type	No.	Keyboard Type
35	PCAT (Greek)	45	PCAT (Slovenian)
37	PCAT (Russian)	46	PCAT (Mexican Spanish)
42	PCAT (Cyrillic on Russian)	47	PCAT (Traditional Chinese)
43	PCAT (Armenian)	48	PCAT (Swiss French)
44	PCAT (Thai)	49	PCAT (Czech)

OUTPUT UNICODE

Generally, there's no problem receiving the data in traditional Chinese using kinds of text editor except Microsoft Word. Please enable this function while using Microsoft Word.

ALPHABETS TRANSMISSION

By default, the alphabets transmission is case-sensitive, which means 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.
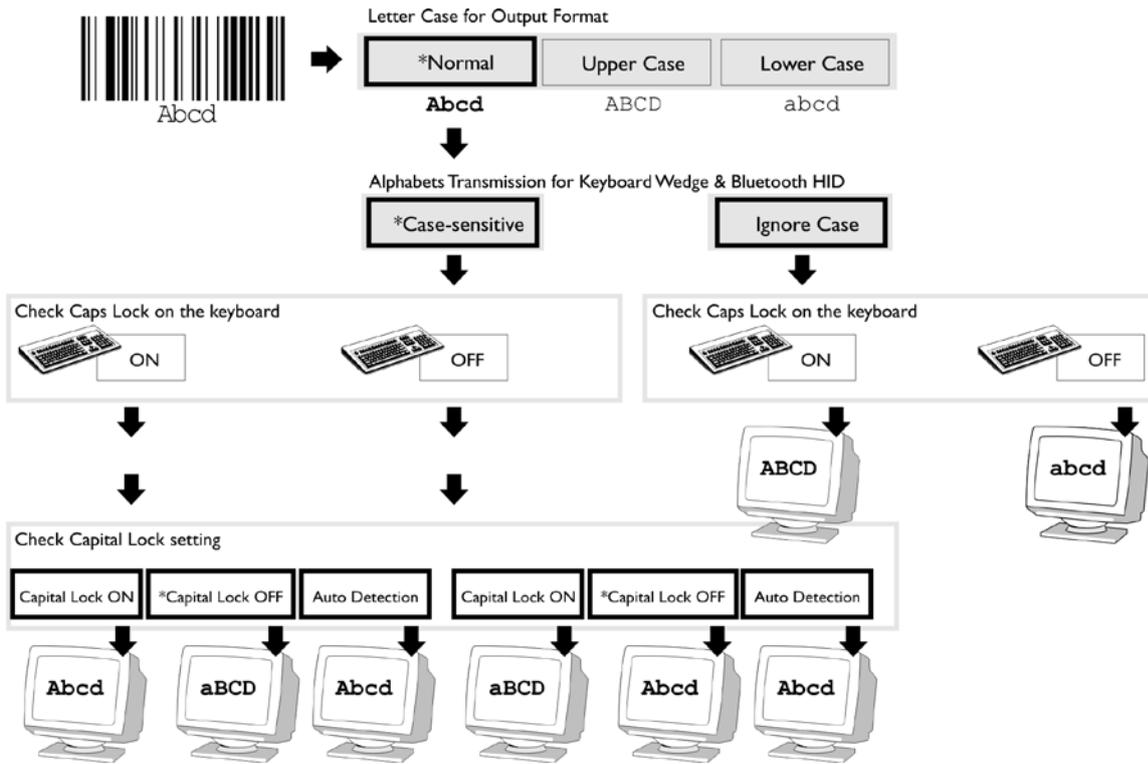
CAPITAL LOCK TYPE

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.

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.

US Keyboard Style – Normal

QWERTY layout, which is normally used in western countries.
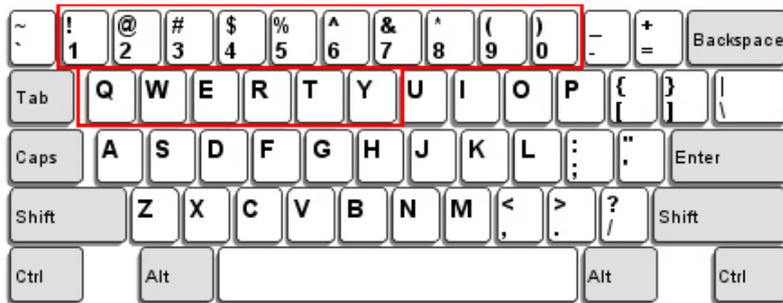
▶ Select "Lower Row" for the "Digits Layout" setting for the upper row is for special characters.

French Keyboard Style – AZERTY

French layout; see below for French Keyboard Style.
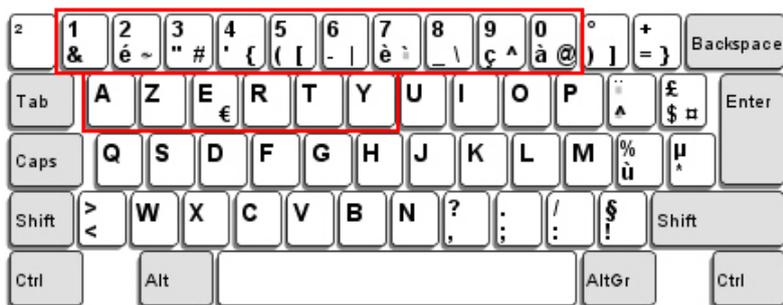
▶ Select "Upper Row" for the "Digits Layout" setting for the lower row is for special characters.

German Keyboard Layout – QWERTZ

German layout; see below for German Keyboard Style.
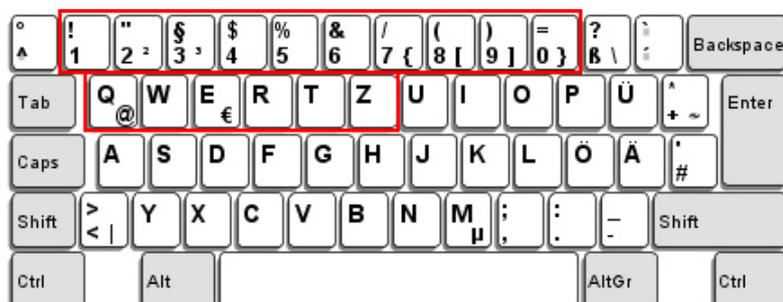
▶ Select "Lower Row" for the "Digits Layout" setting for the upper row is for special characters.

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.

ALTERNATE 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.

DIGITS TRANSMISSION

By default, the alphanumeric keypad is used for transmitting digits. Select "Numeric Keypad" if you wish to use the keys on the numeric keypad.
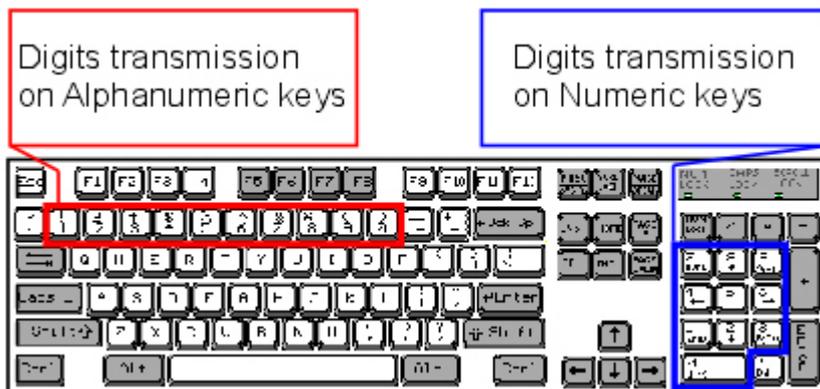
Note: If you select "Numeric Keypad", the Num Lock status of the physical keyboard should be "ON".

CAPITAL LOCK STATE

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.

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).

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 and QWERTZ keyboards
Upper Row	For AZERTY keyboards

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

KANJI TRANSMISSION

Kanji Transmission is disabled by default. Enable it to have the scanner transmit the Japanese characters collected from 2D barcodes to a host computer that runs on Japanese Windows O.S.

SPECIAL KEYBOARD FEATURE

By default, this interface doesn't employ (Bypass) special function codes (0x01 ~ 0x1F) defined in the Keyboard Wedge Table for users may want to get rid of these special codes within the barcodes to avoid data error.

Or you can select the "Control Character" option (bypass with control character output for Windows) to output control characters ranging from 0x01 to 0x1F in text form. For instance, [BS] (the backspace) is output rather than 0x08 when this function is enabled.

2.2.2 BLUETOOTH/CRADLE SETTING

SNIFF MODE

By default, this power-saving feature is enabled meaning the scanner will listen to the wireless network at a reduced rate while connecting via the BT cradle.

2.2.3 OUTPUT DELAY

INTER-CHARACTER DELAY

By default, the inter-character delay is set to zero. Enter a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the RS-232 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-FUNCTION DELAY

By default, the inter-function delay is set to zero. Enter a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the RS-232 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.

2.3 RS-232

Connect the scanner or BT cradle to the serial port of the host computer using the RS-232 cable and join the power adaptor to the RS-232 connector. The associated RS-232 parameters must match those configured on the computer. The scanned data will be transmitted to the serial port.

2.3.1 RS-232 SETTING

BAUD RATE

By default, it is set to 115200bps. Select other value that matches your computer settings.

DATA BIT

By default, it is set 8 bits of data. Select 7 bits of data if necessary.

PARITY

By default, it is set no parity bit. Select other parity setting, even or odd parity bit.

STOP BIT

By default, it is set 1 stop bit. Select 2 stop bits if necessary.

FLOW CONTROL

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

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

2.3.2 BLUETOOTH/CRADLE SETTING

SNIFF MODE

By default, this power-saving feature is enabled meaning the scanner will listen to the wireless network at a reduced rate while connecting via the BT cradle.

2.3.3 ACK/NAK SETTING

ACK/NAK TIMEOUT

By default, the scanner sends data to the host without waiting for an ACK/NAK response before sending more data. Enter 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 ERROR BEEP

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

2.3.4 OUTPUT DELAY

INTER-CHARACTER DELAY

By default, the inter-character delay is set to zero. Enter a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the RS-232 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-FUNCTION DELAY

By default, the inter-function delay is set to zero. Enter a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the RS-232 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.

2.4 BLUETOOTH HID

In this mode, re-connection is made easy and reliably, just like connecting with the BT cradle. As a HID device, 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 with 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 change the interface to Bluetooth SPP Slave and download settings to the scanner.

Note: One alternative to stopping re-connection is to have the scanner read the "Reset Connection" or "Restore System Defaults" barcode. Refer to a separate manual for instructions.
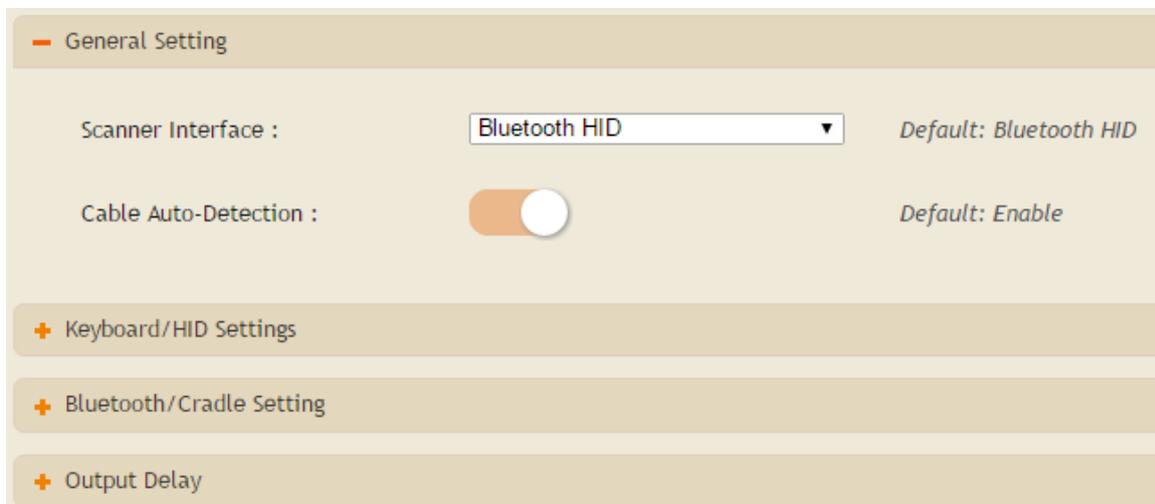
2.4.1 KEYBOARD/HID SETTINGS

KEYBOARD TYPE

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

Keyboard Type for Applied Models: 2560/2564/2564SR/MR/DP			
No.	Keyboard Type	No.	Keyboard Type
64	PCAT (US)	80	Reserved

65	PCAT (French)	81	PCAT (Greek)
66	PCAT (German)	82	Reserved
67	PCAT (Italy)	83	PCAT (Russian)
68	PCAT (Swedish)	84	Reserved
69	PCAT (Norwegian)	85	Reserved
70	PCAT (UK)	86	Reserved
71	PCAT (Belgium)	87	Reserved
72	PCAT (Spanish)	88	PCAT (Cyrillic)
73	PCAT (Portuguese)	89	PCAT (Armenian)
74	PS55 A01-2 (Japanese)	90	PCAT (Thai)
75	User-defined table	91	PCAT (Slovenian)
76	PCAT (Turkish)	92	PCAT (Mexican Spanish)
77	PCAT (Hungarian)	94	PCAT (Swiss French)
78	PCAT (Switzerland German)	95	PCAT (Czech)
79	PCAT (Danish)		

KEYBOARD SETTINGS

Refer to 2.2.1 Keyboard/HID Settings.

‣ Alphabets Transmission
‣ Capital Lock Type
‣ Alphabets Layout
‣ Digits Transmission
‣ Capital Lock State
‣ Digits Layout
‣ Kanji Transmission
‣ Alternate Composing

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

KANJI TRANSMISSIONKANJI

Transmission is disabled by default. Enable it to have the scanner transmit the Japanese characters collected from 2D barcodes to a host computer that runs on Japanese Windows O.S.

ALTERNATE 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.

SPECIAL KEYBOARD FEATURE

By default, this interface doesn't employ (Bypass) special function codes (0x01 ~ 0x1F) defined in the Keyboard Wedge Table for users may want to get rid of these special codes within the barcodes to avoid data error.

Or you can select the "Control Character" option (bypass with control character output for Windows) to output control characters ranging from 0x01 to 0x1F in text form. For instance, [BS] (the backspace) is output rather than 0x08 when this function is enabled.

CHARACTER TRANSMIT MODE

By default, HID interface sends data to the host in batch. You can determine the HID interface character transmit mode by sending data to the host in batch or processing data character by character.

FAST KEYBOARD FOR IPHONE/IPAD

When the scanner has been successfully connected to iPhone or iPad for data collection, the onscreen keypad of iPhone/iPad appears. Users can determine to show or hide the onscreen keypad.

2.4.2 BLUETOOTH/CRADLE SETTING

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

Enable "Authentication", and enter exactly the same string in the "PIN Code" field as the preset PIN for your computer or mobile device to connect to the scanner. If the PIN or passkey is incorrect, any connection attempt will be turned down by the scanner.

Authentication :	
PIN Code :	[0][0][0][0]

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 = authentication disabled.)

Note: When using Bluetooth HID, some device driver may not support pre-defined PIN code for authentication. In this case, make sure you disable the "Authentication" to 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.

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 mobile device. 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.

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

DEVICE NAME

By default, the device name (local host name) combines the model name with serial number (for example, 2560AS2000001). Users can configure the device name with length up to 13 characters. Click the text field to bring up a Grid Control dialog, and specify the device name simply by clicking the characters listed in the table.

SNIFF MODE

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

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

SSP MODE

Secure Simple Pairing (SSP), introduced in *Bluetooth*® Core Specification 2.1 + EDR, is a new feature designed to ease the pairing process while keeping up the communication security level. Enable SSP mode for users to get rid of the burden creating a long personal identification number (PIN) to ensure a secure connection. Instead, Secure Simple Pairing achieves the same maximum encryption strength without any user interaction when pairing your scanner and a *Bluetooth*® device.

TRANSMIT SPEED

By default, the BT HID transmit speed is set to fast for the scanner to work in quicker transmit speed. Users can click the drop-down menu to select the options.

DEVICE ROLE

Users can simply switch the scanner between slave and master roles.

AUTO-RECONNECT

Users can decide whether to have the scanner automatically reconnect to a paired device after disconnection, and the occasion for reconnecting.

▶ **Immediately**: Set by default. The scanner will automatically reconnect to a paired device after disconnection.

▶ **On Data**: This option has the scanner reconnect to a paired device after disconnection when data scanning occurs.

▶ **Off**: Disable auto-reconnection.

2.4.3 OUTPUT DELAY

INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Enter a value, ranging from 0 to 254 in units of millisecond to match the computer response time of the RS-232 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-CHARACTER DELAY

By default, the inter-character delay is set to zero. Enter 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.

2.5 BLUETOOTH 4.0 HOGP

2.5.1 KEYBOARD/HID SETTINGS

Keyboard Type

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

No.	Keyboard Type	No.	Keyboard Type
1	PCAT (US)	31	PCAT (Hungarian)
2	PCAT (French)	32	PCAT (Switzerland German)
3	PCAT (German)	33	PCAT (Danish)
4	PCAT (Italian)	35	PCAT (Greek)
5	PCAT (Swedish)	37	PCAT (Russian)
6	PCAT (Norwegian)	42	PCAT (Cyrillic on Russian)
7	PCAT (UK)	43	PCAT (Armenian)
8	PCAT (Belgium)	44	PCAT (Thai)
9	PCAT (Spanish)	45	PCAT (Slovenian)
10	PCAT (Portuguese)	46	PCAT (Mexican Spanish)
12	PS55 A01-2 (Japanese)	48	PCAT (Swiss French)
29	User-defined table	49	PCAT (Czech)
30	PCAT (Turkish)		

For other settings please refer to .

2.5.1 BLUETOOTH/CRADLE SETTINGS

TRANSMIT SPEED

By default, the BT HID transmit speed is set to fast for the scanner to work in quicker transmit speed. Users can click the drop-down menu to select the options.

AUTO-RECONNECT

Users can decide whether to have the scanner automatically reconnect to a paired device after disconnection, and the occasion for reconnecting.

▶ **Immediately**: Set by default. The scanner will automatically reconnect to a paired device after disconnection.

▶ **On Data**: This option has the scanner reconnect to a paired device after disconnection when data scanning occurs.

▶ **Off**: Disables auto-reconnection.

2.5.2 OUTPUT DELAY

Refer to .

2.6 BLUETOOTH SPP SLAVE/BLUETOOTH 4.0 SPP LITE

2.6.1 BLUETOOTH/CRADLE SETTING (NOT FOR BLUETOOTH 4.0 SPP LITE)

AUTHENTICATION & PIN CODE

When any changes are made to the authentication and PIN code on the scanner side, you 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

Enable "Authentication", and enter exactly the same string in the "PIN Code" field as the preset PIN for your computer or mobile device to connect to the scanner. If the PIN or passkey is incorrect, any connection attempt will be turned down by the scanner.

Authentication :	🔘
PIN Code :	[0][0][0][0]

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.)

Authentication :	⚪

Use random PIN →

No PIN required →

Add Bluetooth Device Wizard

Do you need a passkey to add your device?

To answer this question, refer to the "Bluetooth" section of the documentation that came with your device. If the documentation specifies a passkey, use that one.

- ◉ Choose a passkey for me
- ○ Use the passkey found in the documentation: [   ]
- ○ Let me choose my own passkey: [   ]
- ○ Don't use a passkey

⚠ You should always use a passkey, unless your device does not support one. We recommend using a passkey that is 8 to 16 digits long. The longer the passkey, the more secure it will be.

[< Back] [Next >] [Cancel]

DEVICE NAME BROADCASTING

Device Name Broadcasting is selected by default. Deselect it to hide the scanner from other *Bluetooth*®-enabled devices such as PCs or mobile devices. However, broadcasting must be enabled for establishing an initial connection with other *Bluetooth*®-enabled devices.

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 have to enable device name broadcasting first.

Note: Device Name Broadcasting is enabled by default (as it is required for initial connection).

DEVICE NAME

By default, the device name (local host name) combines the model name with serial number. Users can configure the device name with length up to 13 characters. Click the text field to bring up a Grid Control dialog, and specify the device name simply by clicking the characters listed in the table.

SNIFF MODE

The power-saving feature is enabled by default, meaning the scanner will listen to the wireless network at a reduced rate.

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

SSP MODE

Secure Simple Pairing (SSP), introduced in *Bluetooth*® Core Specification 2.1 + EDR, is a new feature designed to ease the pairing process while keeping up the communication security level. Enable SSP mode for users to get rid of the burden creating a long personal identification number (PIN) to ensure a secure connection. Instead, Secure Simple Pairing achieves the same maximum encryption strength without any user interaction when pairing your scanner and a *Bluetooth*® device.

HARDWARE FLOW CONTROL

By default, the data sending via Bluetooth SPP doesn't employ hardware flow control. In some cases users may want to enable hardware flow control to prevent data loss during transmission.

2.6.2 ACK/NAK SETTING

ACK/NAK TIMEOUT

By default, the scanner sends data to the host without waiting for an ACK/NAK response before sending more data. Enter 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 ERROR BEEP

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

2.6.3 OUTPUT DELAY

INTER-FUNCTION DELAY

By default, the inter-function delay is set to zero. Enter a value ranging from 0 to 254 by the unit of millisecond to match the computer response time of the RS-232 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.

2.7 BLUETOOTH SPP MASTER

In this mode, re-connection is made easy and reliable, just like connecting with the Bluetooth cradle. Being SPP master, 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 the host unless you change the interface to Bluetooth SPP Slave and download settings to the scanner.

Note: One alternative to stopping re-connection is to have the scanner read the "Reset Connection" or "Restore System Defaults" barcode. Refer to a separate manual for instructions.

2.7.1 BLUETOOTH/CRADLE SETTING

For the connection settings, refer to 2.5 Bluetooth SPP Slave Mode.

MAC ADDR. OF SLAVE

Specify the MAC address of the slave device. Click the text field to bring up the dialog to select hexadecimal numeric characters.

AUTO RECONNECT

Users can decide whether to have the scanner automatically reconnect to a paired device after disconnection, and the occasion for reconnecting.

▶ **Immediately**: Set by default. The scanner will automatically reconnect to a paired device after disconnection.

▶ **On Data**: This option has the scanner reconnect to a paired device after disconnection when data scanning occurs.

▶ **Off**: Disable auto-reconnection.

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 1.2 Power management.

How to connect with the target device?

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

▸ "Set Connection" barcode

▸ "MAC Address" barcode

Usage:

1. Change the interface to Bluetooth SPP Master and download settings to the scanner.

2. Click the field of "MAC Addr. Slave" to choose characters from the pop-up window of Grid Control (see Appendix I Grid Control). It requires 12 characters.

3. Click [OK] to complete all the settings.

4. Click **1D Barcode** or **2D Barcode** to produce the "Set Connection" and "MAC Address" barcodes for printout.

5. Have the scanner read the "Set Connection" and "MAC Address" barcodes. It will respond with one beep upon reading each of the barcodes.

Note: (1) It will automatically add a prefix of "0x" to the real MAC address of the target device.
(2) Read the "Set Connection" barcode first, and then the "MAC Address" barcode within 10 seconds.

Switch between Master/Slave Mode

After the scanner has established a connection as a SPP slave device, change the interface to Bluetooth SPP Master and download settings to the scanner. It will work as a SPP master device then.

Note: Switching from SPP Slave to SPP Master does not require a new PIN code. You must leave it blank or enter exactly the same PIN code for SPP Slave; otherwise, it will fail to resume connection if a different PIN code is specified.

Exit SPP Master Mode

To stop re-connection, change the interface to Bluetooth SPP Slave and download settings to the scanner. Alternatively, you may have the scanner read "Reset Connection" or "Restore System Defaults" barcode so that the current connection record (= MAC Address) will be cleared. Then, the scanner will restart itself automatically. Refer to a separate manual for instructions.

2.8 USB HID VIA CRADLE

For the complete interface settings relating to USB HID via Cradle, please refer to 2.4 Bluetooth HID Interface.
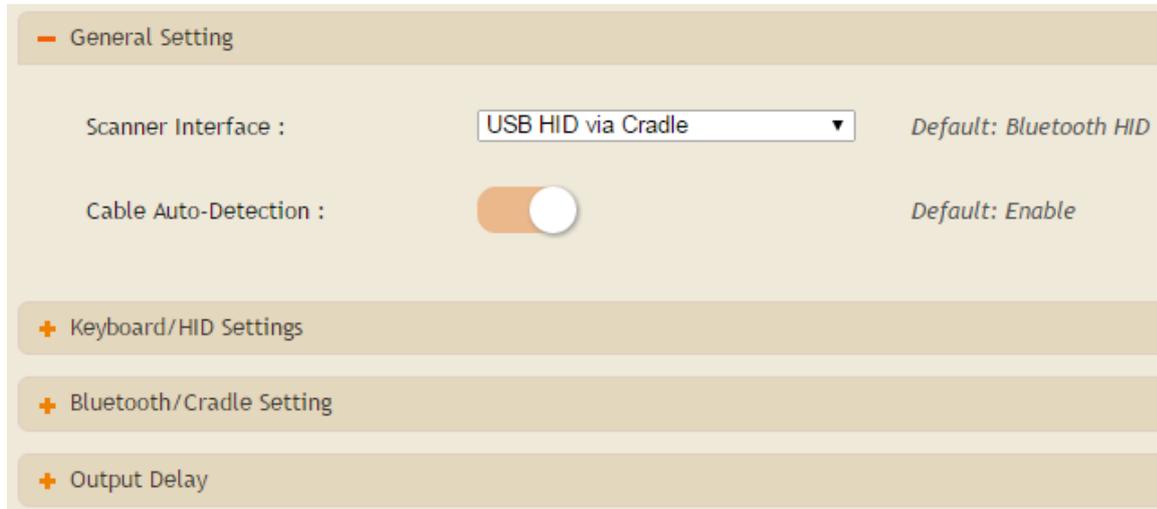
2.8.1 KEYBOARD/HID SETTINGS

POLLING INTERVAL

While using the Direct USB HID interface, users can specify the USB polling time interval ranging from 1 to 15ms. By default, the value is set to 4ms.

2.9 USB VCOM VIA CRADLE

For the connection settings, refer to 2.5 Bluetooth SPP Slave Mode.

Note: If you are using USB Virtual COM for the first time, you must install its driver beforehand. The driver installer version 5.4 or later is required. Please remove older versions!

2.10 DIRECT USB HID

2.10.1 KEYBOARD/HID SETTINGS

Refer to 2.2.1 Keyboard/HID Settings.

Keyboard Type for Applied Models: 1000A

No.	Keyboard Type	No.	Keyboard Type
64	PCAT (US)	75	User-defined table
65	PCAT (French)	76	PCAT (Turkish)
66	PCAT (German)	77	PCAT (Hungarian)
67	PCAT (Italy)	78	PCAT (Swiss German)
68	PCAT (Swedish)	79	PCAT (Danish)
69	PCAT (Norwegian)	81	PCAT (Greek)
70	PCAT (UK)	91	PCAT (Slovenian)
71	PCAT (Belgium)	92	PCAT (Mexican Spanish)
72	PCAT (Spanish)	94	PCAT (Swiss French)
73	PCAT (Portuguese)	95	PCAT (Czech)
74	PS55 A01-2 (Japanese)		

Keyboard Type for Applied Models: 2200/2500/2504/2504SR/MR/DP

No.	Keyboard Type	No.	Keyboard Type
64	PCAT (US)	80	Reserved
65	PCAT (French)	81	PCAT (Greek)
66	PCAT (German)	82	Reserved
67	PCAT (Italy)	83	PCAT (Russian)
68	PCAT (Swedish)	84	Reserved
69	PCAT (Norwegian)	85	Reserved
70	PCAT (UK)	86	Reserved
71	PCAT (Belgium)	87	Reserved
72	PCAT (Spanish)	88	PCAT (Cyrillic on Russian)
73	PCAT (Portuguese)	89	PCAT (Armenian)
74	PS55 A01-2 (Japanese)	90	PCAT (Thai)
75	User-defined table	91	PCAT (Slovenian)
76	PCAT (Turkish)	92	PCAT (Mexican Spanish)
77	PCAT (Hungarian)	93	*PCAT (Traditional Chinese)
78	PCAT (Switzerland German)	94	PCAT (Swiss French)

| 79 | PCAT (Danish) | 95 | PCAT (Czech) |

*2200/2504 only

UTF-8 CONVERT

This function, disabled by default, is only for certain keyboard types listed in the table below. Enable this function to get the UTF-8-encoded data.

No.	Keyboard Type	No.	Keyboard Type
81	PCAT (Greek)	91	PCAT (Slovenian)
83	PCAT (Russian)	92	PCAT (Mexican Spanish)
88	PCAT (Cyrillic on Russian)	93	PCAT (Traditional Chinese)
89	PCAT (Armenian)	94	PCAT (Swiss French)
90	PCAT (Thai)	95	PCAT (Czech)

OUTPUT UNICODE

Generally, there's no problem receiving the data in traditional Chinese using kinds of text editor except Microsoft Word. Please enable this function while using Microsoft Word.

2.10.2 OUTPUT DELAY

Refer to 2.2.3 Output Delay

2.11 DIRECT USB VCOM

Use the provided USB cable to connect the scanner to the USB port of PC. For the connection settings, refer to 2.5 Bluetooth SPP Slave Mode.

Note: If you are using USB Virtual COM for the first time, you must install its driver beforehand. Driver installer version 5.4 or later is required. Please remove older versions. Refer to 2.12 Direct USB VCOM_CDC.

2.12 DIRECT USB VCOM_CDC

Use the provided USB cable to connect the scanner to the USB port of PC. For the connection settings, refer to 2.5 Bluetooth SPP Slave Mode.

Note: If you are using USB Virtual COM_CDC for the first time, you must install its driver beforehand.

2.13 DIRECT USB OPOS

Make sure you have installed the Cipherlab OPOS driver on the host computer. Click the drop-down menu to select the OPOS interface and you will see a dialog shows up.

Chapter 3
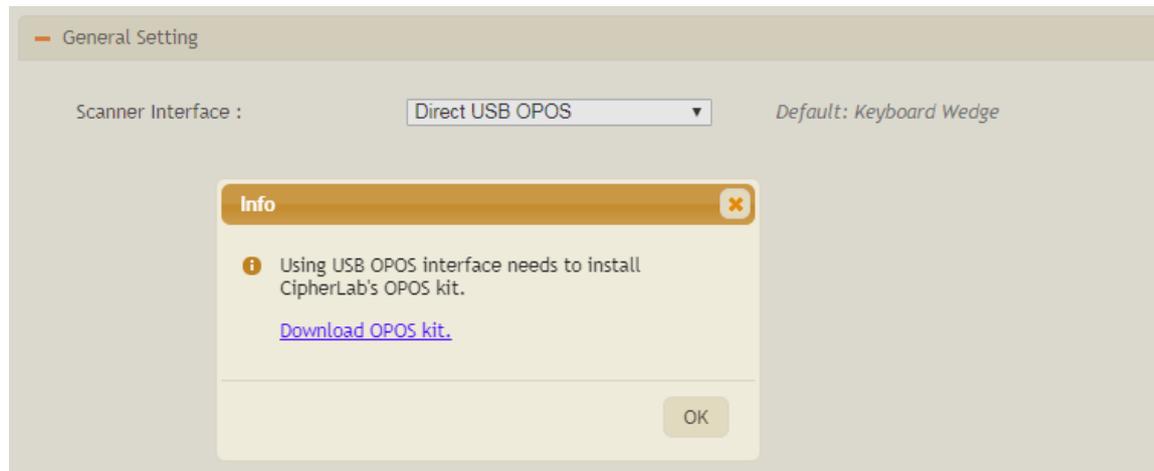
SYMBOLOGY

Barcode symbologies are application-dependent. You may enable or disable any of them, and configure their parameters according to the requirements of a specific application.

Note the following screenshots depict information for the purpose of demonstration. Setting items may vary depending on models.

IN THIS CHAPTER

3.1 2D SYMBOLOGIES (2D SCANNERS)

By default, the scanner is set to read the following 2D symbologies:

- QR Code
- MicroQR
- Data Matrix
- PDF417
- MicroPDF417
- Macro PDF (2504SR/MR/DP/2564SR/MR/DP)
- Composite Code
- Aztec
- Maxicode
- Han Xin

Screenshots for symbologies are for demonstration purposes. Setting items may differ depending on scanner models.

3.1.1 QR CODE

By default, the 2D scanner is set to read QR Code barcodes.

3.1.2 MICRO QR

Enabling QR Code will also enable MicroQR; once QR Code is disabled, MicroQR is then disabled.

3.1.3 DATA MATRIX

By default, the 2D scanner is set to read Data Matrix barcodes.

- Click the icon   next to the slider control for advanced settings.
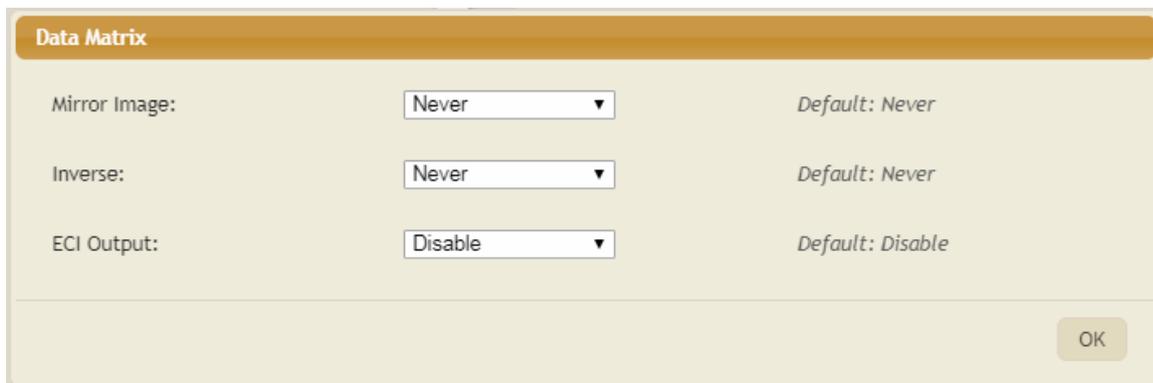
Data Matrix		
Mirror Image:	Never ▼	Default: Never
Inverse:	Never ▼	Default: Never
ECI Output:	Disable ▼	Default: Disable
		OK

Data Matrix Mirror Image
Decide whether to decode mirror image Data Matrix barcodes.   ▶ Never (default) — do not decode Data Matrix barcodes that are mirror images.   ▶ Always — decode only Data Matrix barcodes that are mirror images.   ▶ Auto — decode both mirrored and unmirrored Data Matrix barcodes.
Data Matrix Inverse
Decide whether to decode inverse Data Matrix barcodes.   ▶ Never (default) — do not decode inverse Data Matrix barcodes.   ▶ Always — decode only inverse Data Matrix barcodes.   ▶ Auto — decode both Data Matrix barcodes and inverse ones.
ECI Output
Users can determine whether to show the embedded ECI information when scanning a barcode.

3.1.4 PDF417

By default, the 2D scanner is set to read PDF417 barcodes.

3.1.5 MICROPDF417

By default, the 2D scanner is set not to read MicroPDF417 barcodes.

3.1.6 MACRO PDF

By default, the 2D scanner is set to read Macro PDF barcodes.

▶ Click the icon [icon] next to the slider control for advanced settings.

Macro PDF

Transmit/Decode Mode Symbols : Passthrough All symbols ▾   *Default: Passthrough All symbols*
Buffer All Symbols/Transmit Macro PDF When Complete
Transmit All Symbols in Set/No Particular Order
Passthrough All symbols

Escape Characters:

OK
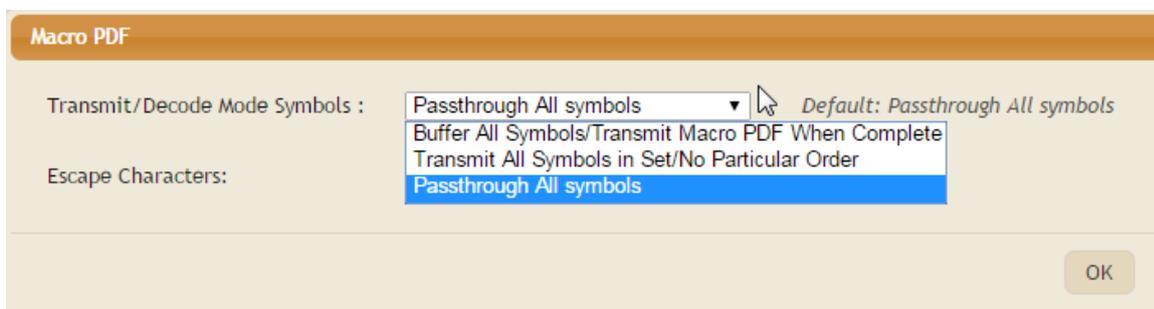
Transmit/Decode Mode Symbols

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

Decide how to handle Macro PDF decoding.

Buffer All Symbols / Transmit Macro PDF When Complete

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

Transmit Any Symbol in Set / No Particular Order

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

Passthrough All Symbols

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

Escape Characters

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

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

3.1.7 COMPOSITE CODE

By default, the 2D scanner is set not to read Composite Code barcodes.

▶ Click the icon next to the slider control for advanced settings.

Enable the symbologies respectively so that the scanner can read Composite Code.

▶ Composite CC-C

▶ Composite CC-A/B

▶ Composite TLC-39 (2504SR/MR/DP/2564SR/MR/DP only)

Emulation Mode for UCC/EAN
Decide whether to transmit UCC/EAN Composite Code data as if it was encoded in GS1-128 barcodes.
UPC Composite Mode
UPC barcodes can be "linked" with a 2D barcode during transmission as if they were one barcode.   ▶ UPC Never Linked (default for 2504/2564)   Transmit UPC barcodes regardless of whether a 2D barcode is detected.   ▶ UPC Always Linked (default for 2504SR/MR/DP/2564SR/MR/DP)   Transmit UPC barcodes and the 2D portion. If the 2D portion is not detected, the UPC barcode will not be transmitted.

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

▶ Auto-discriminate UPC Composites   Transmit UPC barcodes as well as the 2D portion if present.

3.1.8 AZTEC

By default, the 2D scanner is set to read Aztec barcodes.

▶ Click the icon next to the slider control for advanced settings (depending on models).

Data Aztec Mirror Image
Decide whether to decode mirror image Aztec barcodes.
▶ Never (default) — do not decode Aztec barcodes that are mirror images.   ▶ Always — decode only Aztec barcodes that are mirror images.   ▶ Auto — decode both mirrored and unmirrored Aztec barcodes.
Data Aztec Inverse
Decide whether to decode inverse Aztec barcodes.
▶ Never (default) — do not decode inverse Aztec barcodes.   ▶ Always — decode only inverse Aztec barcodes.   ▶ Auto — decode both Aztec barcodes and inverse ones.

3.1.9 MAXICODE

By default, the 2D scanner is set to read Maxicode barcodes.

3.1.10 HAN XIN

By default, the 2D scanner is set not to read Han Xin barcodes.

3.2 CODE 39/128/CODABAR SYMBOLOGIES

Code 39/128/Codabar Symbology		
Code 128:	⬤ ⚙	Default: Enable
GS1-128:	⬤ ⚙	Default: Enable
ISBT 128:	⬤ ⚙	Default: Enable
Code 39:	⬤ ⚙	Default: Enable
Italian Phamacode:	⬤ ⚙	Default: Disable
French Phamacode:	⬤ ⚙	Default: Disable
Trioptic Code 39:	⬤	Default: Disable
Codabar:	⬤ ⚙	Default: Enable

3.2.1 CODE 128

By default, the scanner is set to read Code 128 barcodes.

Code 128			
Security Level:	Normal ▼	Default: Normal	
			OK

Security Level
Security Level renders more decoding accuracy giving consideration to barcodes' print quality. Decide the security level for reading Code 128 barcodes.

3.2.2 GS1-128 (EAN-128)

By default, the scanner is set to read GS1-128 (also known as EAN-128) barcodes.

‣ Click the icon [image] next to the slider control for advanced settings.

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

3.2.3 ISBT 128

By default, the scanner is set to read ISBT 128 barcodes.

‣ Click the icon [image] next to the slider control for advanced settings.

Concatenation
Decide whether to decode and concatenates pairs of ISBT barcodes.
‣ Disable ISBT Concatenation It will not concatenate pairs of ISBT barcodes it encounters. ‣ Enable ISBT Concatenation There must be two ISBT barcodes in order for the scanner to decode and perform concatenation. It does not decode single ISBT barcodes. ‣ Auto-discriminate ISBT Concatenation (default) It decodes and concatenates pairs of ISBT barcodes immediately. If only a single ISBT barcode is present, the scanner must decode 10 times before transmitting its data to confirm that there is no additional ISBT barcode.
Concatenation Redundancy
Specify the concatenation redundancy (2~20 times) when ISBT concatenation is enabled.

3.2.4 CODE 39

By default, the scanner is set to read Code 39 barcodes.

▶ Click the icon next to the slider control for advanced settings.

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

Transmit Start/Stop
Decide whether to include the selected start/stop characters in the data being transmitted.

Verify Check Digit
Decide whether to verify check digit when decoding Code 39 barcodes. If the check digit is incorrect, the barcode will not be accepted.

Transmit Check Digit
The check digit will be included in the data being transmitted.
Disable it if the check digit is not desired.

Asterisks(*) as data Characters

Decide whether to take asterisk (*) as part of the data.

Security Level
Security Level renders more decoding accuracy giving consideration to barcodes' print quality.
Select "High" or "Normal" to decide the security level for reading barcodes.
Length Qualification
To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length".
▶ For "Fixed Length", up to 2 fixed lengths can be specified.
▶ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

3.2.5 ITALIAN PHARMACODE

When enabled, the scanner can read Italian Pharmacode barcodes.

Check digit verification will be performed when decoding Italian Pharmacode because a check digit is always included. It is optional to transmit the check digit.

▶ Click the icon ⬜ next to the slider control for advanced settings.

Italian Phamacode
Transmit Check Digit: ⬜ Default: Enable
OK

Transmit Check Digit
The check digit will be included in the data being transmitted.
Disable it if the check digit is not desired.

3.2.6 FRENCH PHARMACODE

When enabled, the scanner can read French Pharmacode barcodes.

▶ Click the icon ⬜ next to the slider control for advanced settings.

   Check digit verification will be performed when decoding French Pharmacode because a check digit is always included. However, it is optional to transmit the check digit.
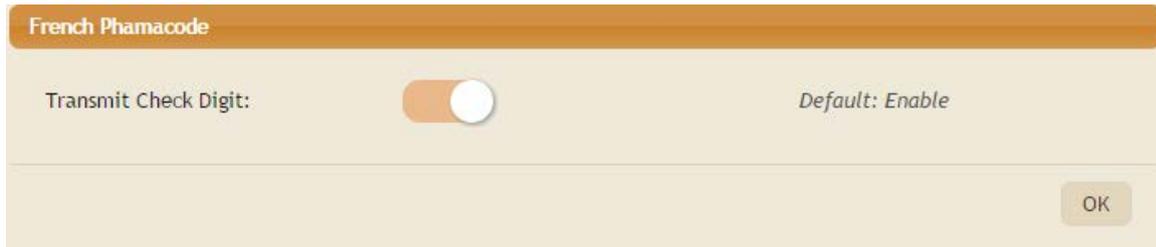
French Phamacode

Transmit Check Digit: [toggle]   *Default: Enable*

OK

Transmit Check Digit
The check digit will be included in the data being transmitted.
Disable it if the check digit is not desired.

Note: These barcodes share the **Transmit Start/Stop** setting with Code 39.

3.2.7 TRIOPTIC CODE 39

By default, the scanner is set not to read Trioptic Code 39 barcodes.

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

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

3.2.8 CODABAR

By default, the scanner is set to read Codabar barcodes.

▶ Click the icon [icon] next to the slider control for advanced settings.

Security Level
Security Level renders more decoding accuracy giving consideration to barcodes' print quality. Select "High" or "Normal" to decide the security level for reading barcodes.
CLSI Conversion
Decide whether to strip the start/stop characters and insert a space after the first, fifth, and tenth characters of a 14-character barcode. ▸ This applies to 14-character barcodes only; barcode length does not include the start and stop characters.
Transmit Start/Stop Character
Decide whether to include the selected start/stop characters in the data being transmitted.
Start/Stop Character
Select one of the four different start/stop character pairs.
Length Qualification
To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length". ▸ For "Fixed Length", up to 2 fixed lengths can be specified. ▸ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

3.3 UPC/EAN SYMBOLOGIES

3.3.1 UPCE

By default, the scanner is set to read UPC-E barcodes. (= No Addon)

Options of 2-digit and 5-digit extensions are available. Enable them so that the scanner can read Addon 2 and/or Addon 5.

▶ Click the icon ![icon] next to the slider control for advanced settings.

General (UPC-E Family)

Click the Enable button to enable at least one type of the UPC-E barcodes.

▶ UPC-E (No Addon)

▶ UPC-E Addon 2

▶ UPC-E Addon 5

Parameters
Convert to UPC-A
Decide whether to expand the read UPC-E barcode, as well as its addons, to UPC-A.
▶ After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g. System Number, Check Digit).
Transmit Check Digit
The check digit will be included in the data being transmitted.
Disable it if the check digit is not desired.
Transmit System Number
Decide whether to include the system number in the data being transmitted.
System Number
By default, the scanner is set to read the ordinary UPC-E barcodes (= UPC-E0 only). You may change it to read both UPC-E0 and UPC-E1 barcodes.

3.3.2 EAN8

By default, the scanner is set to read EAN-8 barcodes. (= No Addon)

Options of 2-digit and 5-digit extensions are available. Enable them so that the scanner can read Addon 2 and/or Addon 5.

▶ Click the icon ⬤ ⚙ next to the slider control for advanced settings.

EAN8

| General | Parameters |

EAN8 No Addon :	⬤	Default: Enable
EAN8 Addon 2 :	⬤	Default: Disable
EAN8 Addon 5 :	⬤	Default: Disable

OK

| **General (EAN-8 Family)** |
| Click to enable at least one type of the EAN-8 barcodes. |
| ▶ EAN-8 (No Addon) |
| ▶ EAN-8 Addon 2 |
| ▶ EAN-8 Addon 5 |
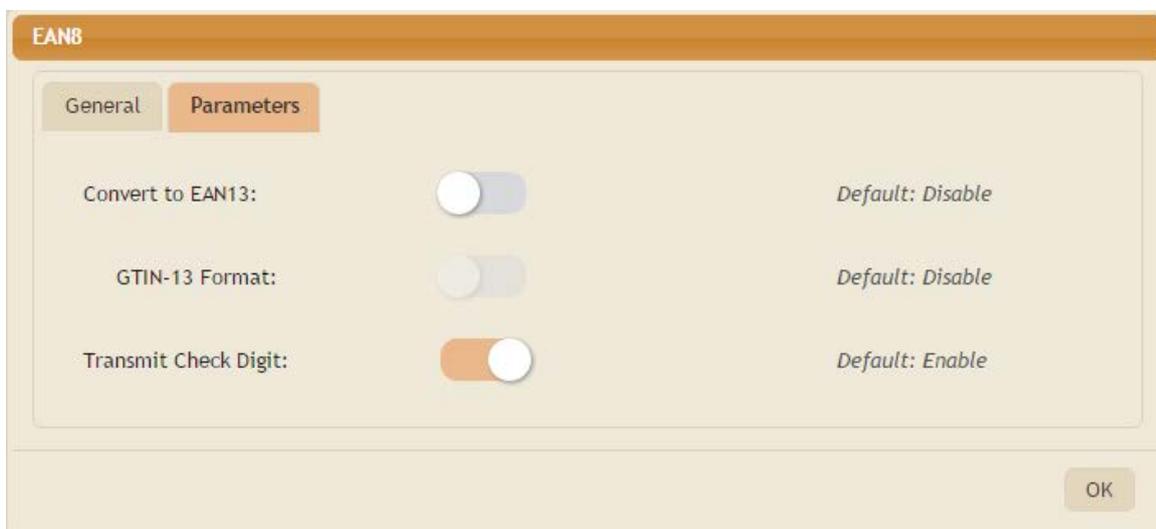
EAN8

| General | Parameters |

Convert to EAN13:	⬤	Default: Disable
GTIN-13 Format:	⬤	Default: Disable
Transmit Check Digit:	⬤	Default: Enable

OK

Parameters
Convert to EAN-13
Decide whether to expand the read EAN-8 barcode, as well as its addons, into EAN-13.   By default, the data follows EAN-13 format and is affected by EAN-13 programming selections (e.g. Check Digit) after conversion.   ▸ Enable the GTIN-13 Format to expand the read EAN-8 barcode into EAN-13 in GTIN-13 format.
Transmit Check Digit
The check digit will be included in the data being transmitted.   Disable it if the check digit is not desired.

3.3.3 EAN13

By default, the scanner is set to read EAN-13 barcodes. (= No Addon)

Options of 2-digit and 5-digit extensions are available. Enable them so that the scanner can read Addon 2 and/or Addon 5.

▸ Click the icon next to the slider control for advanced settings.
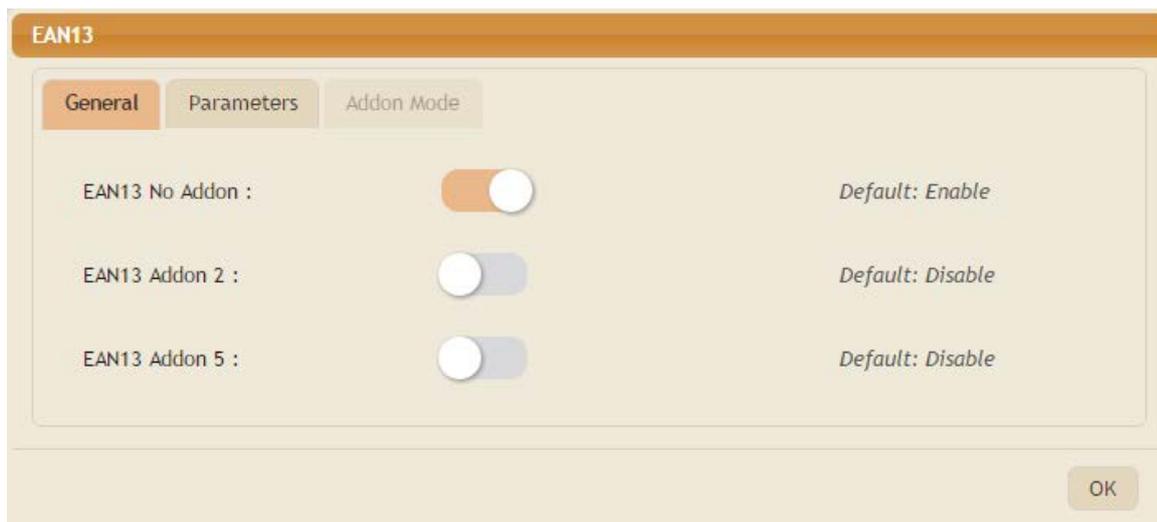
EAN-13 Family
Click to enable at least one type of the EAN-13 barcodes.   ▸ EAN-13 (No Addon)   ▸ EAN-13 Addon 2   ▸ EAN-13 Addon 5

Security Level
Select the security level for reading barcodes. High security results in slow reading speed. You will have to compromise between security and decoding speed.

Transmit Check Digit
The check digit will be included in the data being transmitted.
Disable it if the check digit is not desired.

ISBN Conversion
Decide whether to convert the read EAN-13 barcode, which starts with 978 and 979, to ISBN.

ISSN Conversion
Decide whether to convert the read EAN-13 barcode, which starts with 977, to ISSN.

Addon Mode
Buzzer
Decide whether to enable the scanner to sound two descending beeps if the reading process of EAN-13 Addon Mode fails.
414/419/434/439
When enabled, the scanned barcode that begins with 414/419/434/439 is supposed to come with its addons. Otherwise, the reading process fails.
378/379
When enabled, the scanned barcode that begins with 378/379 is supposed to come with its addons. Otherwise, the reading process fails.
977
When enabled, the scanned barcode that begins with 977 is supposed to come with its addons. Otherwise, the reading process fails.
978

When enabled, the scanned barcode that begins with 978 is supposed to come with its addons. Otherwise, the reading process fails.
979
When enabled, the scanned barcode that begins with 979 is supposed to come with its addons. Otherwise, the reading process fails.
491
When enabled, the scanned barcode that begins with 491 is supposed to come with its addons. Otherwise, the reading process fails.
529
When enabled, the scanned barcode that begins with 529 is supposed to come with its addons. Otherwise, the reading process fails.

3.3.4 UPCA

By default, the scanner is set to read UPC-A barcodes. (= No Addon)

Options of 2-digit and 5-digit extensions are available. Enable them so that the scanner can read Addon 2 and/or Addon 5.

▶ Click the icon [slider control icon] next to the slider control for advanced settings.
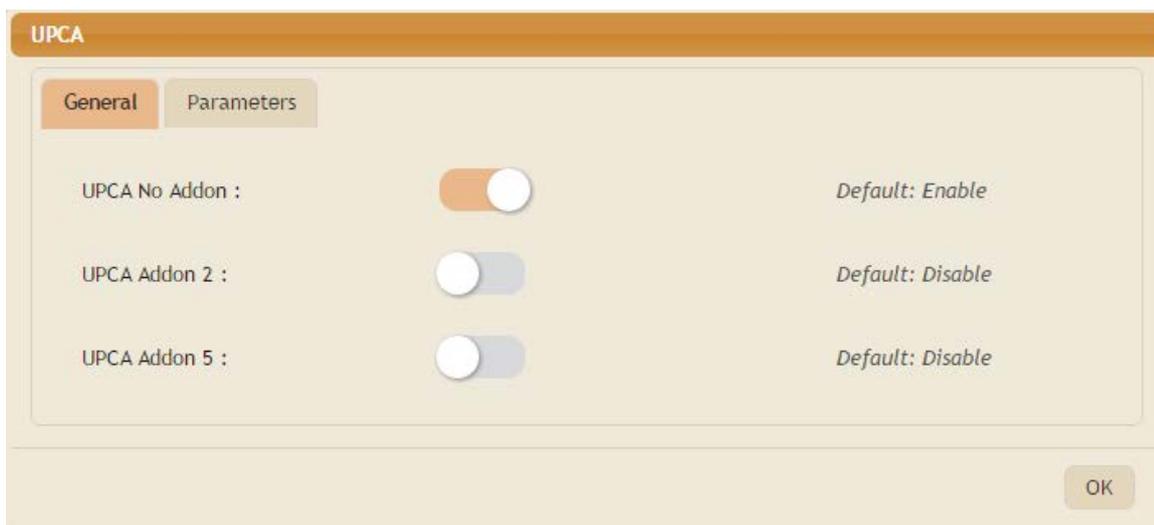
General (UPC-A Family)
Click to enable at least one type of the UPC-A barcodes. ▶ UPC-A (No Addon) ▶ UPC-A Addon 2 ▶ UPC-A Addon 5
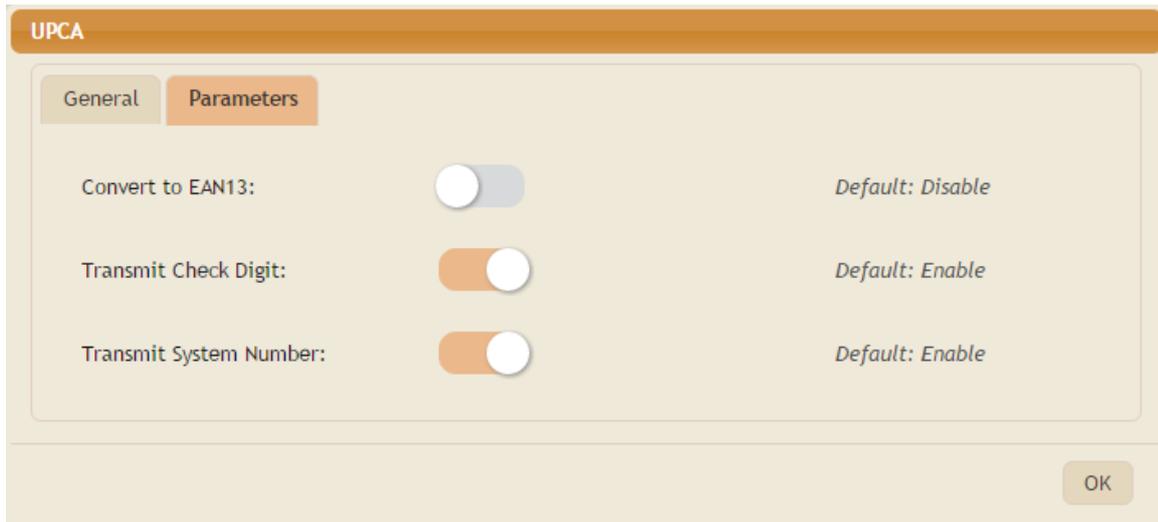
Parameters
Convert to EAN-13
Decide whether to expand the read UPC-A barcode, as well as its addons, to EAN-13. ▸ After conversion, the data follows EAN-13 format and is affected by EAN-13 programming selections (e.g. Check Digit).
Transmit Check Digit
The UPC-A check digit will be included in the data being transmitted. Disable it if the check digit is not desired.
Transmit System Number
The system number will be included in the data being transmitted. Disable it if the system number is not desired.

3.3.5 ADD-ON SECURITY LEVEL

The scanner is capable of decoding a mix of UPC/EAN barcodes with and without addons. The read redundancy allows changing the number of times to decode a UPC/EAN barcode before transmission. The more redundancy you select, the higher the reading security is, and thus, the slower the reading speed becomes. You will have to compromise between reading security and decoding speed.

The default value and range of addon-on security level may differ depending on models.

3.4 GS1 DATABAR SYMBOLOGIES

It is categorized into three groups:

Group I — GS1 DataBar Omnidirectional (RSS-14)

This group consists of the following:	▸ GS1 DataBar Omnidirectional
	▸ GS1 DataBar Truncated
	▸ GS1 DataBar Stacked
	▸ GS1 DataBar Stacked Omnidirectional

Group II — GS1 DataBar Expanded (RSS Expanded)

This group consists of the following:	▸ GS1 DataBar Expanded
	▸ GS1 DataBar Expanded Stacked

Group III — GS1 DataBar Limited (RSS Limited)

This group consists of the following:	▸ GS1 DataBar Limited

By default, the scanner is set not to read GS1 Databar barcodes. Enable the symbologies respectively so that the scanner can read GS1 Databar barcodes.

GS1 DataBar (RSS Family)

Enable at least one group of the GS1 DataBar barcodes.
▸ GS1 DataBar Omnidirectional & Expanded for Groups I and II
▸ GS1 DataBar Limited for Group III

Security Level (2500/2504/2560/2564)

Security Level renders more decoding accuracy giving consideration to barcodes' print quality.

Select "High" or "Normal" to decide the security level for reading barcodes.

Code ID Selection

By default, the Code ID of GS1 DataBar (RSS) barcodes is "]e0". You may select to use "]C1" instead.

▶   "]C1" is the Code ID of GS1-128 (EAN-128) barcodes.

Convert to UPC/EAN (2504SR/MR/DP/2564SR/MR/DP)

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

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

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

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

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

Click the icon [icon] next to the slider control for advanced settings.

Transmit Code ID

The selected Code ID will be included in the data being transmitted.

Disable it if the Code ID is not desired.

Transmit Application ID

The Application ID will be included in the data being transmitted.

Disable it if the Application ID is not desired.

Transmit Check Digit

The check digit will be included in the data being transmitted.

Disable it if the check digit is not desired.

3.5 POSTAL SYMBOLOGIES

The scanner is capable of reading the following Postal symbologies:

3.5.1 US POSTNET

By default, the 2D scanner is set to read US Postnet barcodes.

3.5.2 US PLANET

By default, the 2D scanner is set to read US Planet barcodes.

▶ Click the icon next to the slider control for advanced settings.

Transmit Check Digit for US Postal
Decide whether to include the check digit in the data being transmitted.

3.5.3 UK POSTAL

By default, the 2D scanner is set to read UK Postal barcodes.

▶ Click the icon [image] next to the slider control for advanced settings.

Transmit Check Digit for UK Postal
Decide whether to include the check digit in the data being transmitted.

3.5.4 JAPAN POSTAL

By default, the 2D scanner is set to read Japan postal barcodes.

3.5.5 AUSTRALIAN POSTAL

By default, the 2D scanner is set to read Australian Postal barcodes.

3.5.6 DUTCH POSTAL

By default, the 2D scanner is set to read Dutch Postal barcodes.

3.5.7 USPS 4CB/ONE CODE/INTELLIGENT MAIL

By default, the 2D scanner is set to read USPS 4CB/One Code/Intelligent mail barcodes.

3.5.8 UPU FICS POSTAL

By default, the 2D scanner is set to read UPU FICS Postal barcodes.

3.6 2 OF 5 SYMBOLOGIES

3.6.1 INDUSTRIAL 25

1000A/22XX/2500/2504/2560/2564 SCANNER FEATURES

By default, the scanner is set to read Industrial 25 barcodes.

▶ Click the icon ![toggle icon] next to the slider control for advanced settings.

Industrial 25

Verify Check Digit:	⊘	*Default: Disable*
Transmit Check Digit:	⊙	*Default: Enable*
Start/Stop Selection:	Industrial 25 ▾	*Default: Industrial 25*
Length Qualification:	Max / Min ▾	*Default: Max / Min*
Max Length:	127 ⇳	*Default: 127 Range: 1-127*
Min Length:	4 ⇳	*Default: 4 Range: 1-127*

OK

Verify Check Digit

Decide whether to verify check digit when decoding Industrial 25 barcodes. If the check digit is incorrect, the barcode will not be accepted.

Transmit Check Digit

The check digit will be included in the data being transmitted.

Disable it if the check digit is not desired.

Start/Stop Selection

Select a desired start/stop pattern. For example, flight tickets actually use an Industrial 25 barcode but with Interleaved 25 start/stop pattern. In order to read this barcode, the start/stop pattern selection of Industrial 25 should set to Interleaved 25.

Length Qualification

Because of the weak structure of the 2 of 5 barcodes, it is possible to make a "short scan" error. To prevent the "short scan" error, configure the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length".

▶ For "Fixed Length", up to 2 fixed lengths can be specified.

▶ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

2504SR/MR/DP/2564SR/MR/DP SCANNER FEATURES

By default, the scanner is set to read Industrial 25 barcodes.

▶ Click the icon [icon] next to the slider control for advanced settings.

Industrial 25

Length Qualification:	Max / Min ▼	*Default: Max / Min*
Max Length:	55 ⬍	*Default: 55 Range: 1-55*
Min Length:	4 ⬍	*Default: 4 Range: 1-55*

OK

Length Qualification

Because of the weak structure of the 2 of 5 barcodes, it is possible to make a "short scan" error. To prevent the "short scan" error, configure the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length".

▶ For "Fixed Length", up to 2 fixed lengths can be specified.

▶ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

3.6.2 INTERLEAVED 25

1000A/22XX/2500/2504/2560/2564 SCANNER FEATURES

By default, the scanner is set to read Interleaved 25 barcodes.

▶ Click the icon [icon] next to the slider control for advanced settings.

Verify Check Digit
Decide whether to verify check digit when decoding Interleaved 25 barcodes. If the check digit is incorrect, the barcode will not be accepted.

Transmit Check Digit
The check digit will be included in the data being transmitted.
Disable it if the check digit is not desired.

Start/Stop Selection
Select a desired start/stop pattern.

Length Qualification

> Because of the weak structure of the 2 of 5 barcodes, it is possible to make a "short scan" error. To prevent the "short scan" error, configure the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length".
>
> ▶ For "Fixed Length", up to 2 fixed lengths can be specified.
>
> ▶ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

2504SR/MR/DP/2564SR/MR/DP SCANNER FEATURES

By default, the scanner is set to read Interleaved 25 barcodes.

▶ Click the icon [slider icon] next to the slider control for advanced settings.

Interleaved 25

Verify Check Digit:	No ▾	Default: No
Transmit Check Digit:	[enabled toggle]	Default: Enable
Convert to EAN13:	[disabled toggle]	Default: Disable
Length Qualification:	Max / Min ▾	Default: Max / Min
Max Length:	55	Default: 55 Range: 1-55
Min Length:	4	Default: 4 Range: 1-55

OK

Verify Check Digit

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

Transmit Check Digit

The check digit will be included in the data being transmitted.

Disable it if the check digit is not desired.

Convert to EAN-13

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

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

▶ "Verify Check Digit" must be disabled.

Length Qualification

Because of the weak structure of the 2 of 5 barcodes, it is possible to make a "short scan" error. To prevent the "short scan" error, configure the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length".

▶ For "Fixed Length", up to 2 fixed lengths can be specified.

▶ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

3.6.3 MATRIX 25

1000A/22XX/2500/2504/2560/2564 SCANNER FEATURES

By default, the scanner is set to read Matrix 25 barcodes.

▶ Click the icon next to the slider control for advanced settings.

Verify Check Digit

Decide whether to verify check digit when decoding Matrix 25 barcodes. If the check digit is incorrect, the barcode will not be accepted.

Transmit Check Digit

The check digit will be included in the data being transmitted.

Disable it if the check digit is not desired.

Start/Stop Selection

Select a desired start/stop pattern.

Length Qualification
Because of the weak structure of the 2 of 5 barcodes, it is possible to make a "short scan" error. To prevent the "short scan" error, configure the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length".

▸ For "Fixed Length", up to 2 fixed lengths can be specified.

▸ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

2504SR/MR/DP/2564SR/MR/DP SCANNER FEATURES

By default, the scanner is set to read Matrix 25 barcodes.

▸ Click the icon next to the slider control for advanced settings.

Verify Check Digit
Decide whether to verify check digit when decoding Matrix 25 barcodes. If the check digit is incorrect, the barcode will not be accepted.

Transmit Check Digit
The check digit will be included in the data being transmitted.
Disable it if the check digit is not desired.

Length Qualification

Because of the weak structure of the 2 of 5 barcodes, it is possible to make a "short scan" error. To prevent the "short scan" error, configure the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length".

▶ For "Fixed Length", up to 2 fixed lengths can be specified.

▶ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

3.6.4 CHINESE 25

By default, some 2D scanners are set to read Chinese 25 barcodes.

3.6.5 SECURITY LEVEL

Security Level renders more decoding accuracy giving consideration to barcodes' print quality. Select "High" or "Normal" to decide the security level for reading barcodes.

3.7 OTHER SYMBOLOGIES

3.7.1 CODE 11

By default, the scanner is set not to read Code 11 barcodes.

▸ Click the icon next to the slider control for advanced settings.

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

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

Security Level
Security Level renders more decoding accuracy giving consideration to barcodes' print quality. Select "High" or "Normal" to decide the security level for reading barcodes.

Length Qualification
To prevent the "short scan" error, configure the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length". ▶ For "Fixed Length", up to 2 fixed lengths can be specified. ▶ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

3.7.2 CODE 93

By default, the scanner is set to read Code 93 barcodes.

▶ Click the icon [slider control icon] next to the slider control for advanced settings.

Length Qualification
To prevent the "short scan" error, define the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length". ▶ For "Fixed Length", up to 2 fixed lengths can be specified. ▶ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept those barcodes with lengths that fall between max/min lengths specified.

3.7.3 MSI

By default, the scanner is set not to read MSI barcodes.

‣ Click the icon next to the slider control for advanced settings.

MSI

Verify Check Digit:	Single Modulo 10 ▾	*Default: Single Modulo 10*
Transmit Check Digit:	Last Digit Not Transmitted ▾	
Default: Last Digit Not Transmitted		
Length Qualification:	Max / Min ▾	*Default: Max / Min*
Max Length:	127 ▴▾	*Default: 127 Range: 1-127*
Min Length:	4 ▴▾	*Default: 4 Range: 1-127*

OK

Check Digit Verification
Select the calculation used to verify MSI barcodes. If the check digit is incorrect, the barcode will not be accepted.
Transmit Check Digit
Select the way the check digits will be included in the data being transmitted.
Length Qualification
Because of the weak structure of MSI barcodes, it is possible to make a "short scan" error. To prevent the "short scan" error, configure the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed Length" or "Max/Min Length".
‣ For "Fixed Length", up to 2 fixed lengths can be specified.
‣ For "Max/Min Length", the maximum length and the minimum length must be specified. The scanner will only accept MSI barcodes with lengths that fall between max/min lengths specified.

3.7.4 PLESSEY

By default, the scanner is set not to read Plessey barcodes.

▶ Click the icon ![slider icon] next to the slider control for advanced settings.

Plessey		
Convert to UK Plessey :	◯	Default: Disable
Transmit Check Digit:	◯	Default: Enable
		OK

Convert to UK Plessey
Decide whether to change each occurrence of the character "A" to character "X" in the barcodes.
Transmit Check Digit
The two check digits will be included in the data being transmitted.
Disable it if the check digits are not desired.

3.7.5 TELEPEN

By default, the scanner is set not to read Telepen barcodes.

▶ Click the icon ![slider icon] next to the slider control for advanced settings.

Telepen		
Telepen Encoding:	AIM Telepen ▾	Default: AIM Telepen
	AIM Telepen	
	Original Telepen	
		OK

Telepen Encoding
Select whether AIM Telepen (Full ASCII) or Original Telepen (Numeric) is supported.

3.7.6 COUPON CODE

By default, the scanner is set not to read Coupon Code barcodes.

▸ Click the icon [image] next to the slider control for advanced settings.

Coupon Code

UPCA Coupon Code :	◉	Default: Disable
EAN13 Coupon Code:	◉	Default: Disable

OK

When finished, a dialog shows up indicating the new decoding setting.

New Decoding Setting

UPCA:	Enable
EAN13:	Disable
GS-128:	Enable

OK
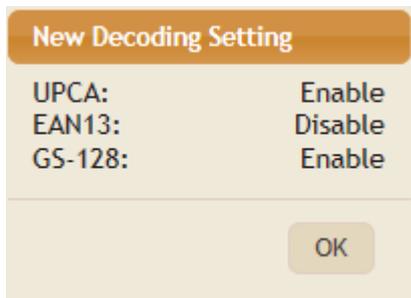
Coupon Code Settings
Decide whether to decode the following barcodes as Coupon Code.   ▸ UPC-A barcodes starting with digit "5"   ▸ EAN-13 barcodes starting with digits "99"   ▸ UPC-A/GS1-128 Coupon Codes

Note: Depending on your requirements, UPC-A, EAN-13 and GS1-128 (EAN-128) must be enabled first!

OUTPUT FORMAT

You may configure the format in which 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 Code Length 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.

4) Add Prefix Code and Suffix Code before transmission: [Prefix Code][Processed Data][Suffix Code]

IN THIS CHAPTER

4.1 GENERAL SETTING

4.1.1 PREFIX CODE

Click the Prefix Code field so that you can choose characters from the pop-up Grid Control window.

Prefix Code:		Default: (Empty String)

▶ Prefix Code: None

Originally, "Normal Key" is in use by default. Up to eight characters can be chosen from the Grid Control. For example, "Barcode_", and you will have the string appear in front of the barcode read, like this — "Barcode_1234567890".

If "Keyboard Wedge", "Bluetooth HID" or "USB HID" is configured for interface, Key Type and Key Status will then become applicable. Decide whether or not to apply Key Status when "Normal Key" is selected for Key Type.

Key Type	Key Status
Scan Code	N/A
Normal Key	▶ Add Shift ▶ Add Left Ctrl ▶ Add Left Alt ▶ Add Right Ctrl ▶ Add Right Alt Refer to Appendix I Grid Control.

4.1.2 SUFFIX CODE

Click the Suffix Code field so that you can choose characters from the pop-up Grid Control window.

Suffix Code:	[CR]	Default: [CR]

▶ Suffix Code: By default, [ENTER] or [CR] (Carriage Return) is entered.

Originally, "Normal Key" is in use by default. Up to eight characters can be chosen from the Grid Control. For example, "Barcode_", and you will have the string appear in front of the barcode read, like this — "Barcode_1234567890".

If "Keyboard Wedge", "Bluetooth HID", or "USB HID" is configured as the interface, then Key Type and Key Status will become applicable. Decide whether or not to apply Key Status when "Normal Key" is selected for Key Type.

Key Type	Key Status
Scan Code	N/A
Normal Key	▶ Add Shift ▶ Add Left Ctrl ▶ Add Left Alt ▶ Add Right Ctrl ▶ Add Right Alt Refer to Appendix I Grid Control.

4.1.3 LETTER CASE

Letter Case:	Normal Upper Case Lower Case	Default: Normal

By default, the alphabets transmission is case-sensitive (Normal), 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.

4.1.4 ADD SERIAL NO. IN FRONT OF DATA

Add Serial No. in front of data :	⬤▢	Default: Disable
Separator :	[,]	Default: [,]

Decide whether to add the device serial number in front of the data transmitted. When enabled, the Separator text field will then be available with a comma character meaning that a comma will be inserted between the added serial number stamp and the accompanying data. Click the text field to bring up the Grid Control dialog and select a desired separator character instead.

4.1.5 REMOVE SPECIAL CHARACTER

Remove Special Character :		Default: (Empty String)

Only one character can be specified. The matching character(s) encountered from the starting position of barcode data will be removed until a different character is met. Click the text field to choose a character from the pop-up Grid Control window (see Appendix I Grid Control).

For example, if it is specified to remove the character "0", 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. Note that if the specified character can't be located in the starting position, the data will be kept unchanged. The table below presents examples.

Original data	Specified character(s) to be removed	Data with specified character(s) removed
012345	0	12345
00012345	0	12345
010333	0	10333
100330	0	100330 (unchanged)

4.2 DATA EDITING

4.2.1 EXCLUSIVE

Enable the Exclusive item to apply exclusive data editing. When applied, 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.

4.2.2 FORMAT 1 ~ 5

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.

▶ Click the icon ![toggle icon] next to the slider control for advanced settings.

GENERAL

Editing Format

| General | Applicable Conditions | Field Setting |

Matching String:			Default: (Empty String)
Matching String Location:	0		Range 0-32767 Default: 0
Minimum Length:	0		Range 0-32767 Default: 0
Maximum Length:	127		Range 0-32767 Default: 0

Matching String & Location
By default, no matching string is entered and therefore it is disabled. You may enable this feature by entering a matching string. Choose up to four characters from the pop-up window of Grid Control. Refer to [Appendix I Grid Control](#).
▶ When the Matching String Location is zero, the scanner will only check for the existence of the matching string in the barcode data.
▶ Enter a value from 1 to 254 to indicate where the matching string starts in the barcode data.
Data Length
The length must include prefix, suffix (0x0d by default), length code, etc. By default, barcodes with length (character count) ranging from 0 to 127 are eligible for data editing.
▶ Enter a value from 0 to 254.
▶ When zero is given to both, the scanner will not perform the length qualification.

APPLICABLE CONDITIONS

Editing Format		
General	Applicable Conditions	Field Setting

Code 39	Italian Phamacode	Industrial 25
Interleaved 25	Matrix 25	Codabar
Code 93	Code 128	GS1-128 / DataBar
UPCE	UPCE Addon 2	UPCE Addon 5
EAN 8	EAN 8 Addon 2	EAN 8 Addon 5
EAN13	EAN13 Addon 2	EAN13 Addon 5
UPCA	UPCA Addon 2	UPCA Addon 5
MSI	ISBT 128	Coupon Code
Trioptic Code 39	Code 11	Composite CC-A/B
Composite CC-C	Composite TCL-39	Chinese 25
US Postnet	US Planet	UK Postal
Japan Postal	Australian Postal	Dutch Postal
USPS 4CB/One	UPU FICS Postal	PDF417
MicroPDF417	Data Matrix	Maxicode
QR Code	MicroQR	Aztec

Clear All   Select All

By default, barcodes of all the supported symbologies are eligible for data editing.

Click to select/deselect a symbology for data editing.

Note: For quick configuration, you may first clear all, and then select the desired symbologies. However, you must have at least one symbology selected.

FIELD SETTING

Field Separation Direction

By default, the field separation is set to "From Head" which means the scanner will separate the data from the head of a data record. Or users can determine to separate the data from the tail of a data record.

Same length for all fields

You may apply equal length to all fields, if necessary. Enable it and enter a desired length. It will add "Space" (0x20) to field when data is found shorter than the specified output length.

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 entered 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.

Transmission Sequence

After configuring the data fields and additional fields, users can now program the transmission sequence of these fields that comprise the final data. It also allows inserting pause or null character between fields.

Simply click on the Field (1~6) and Pause buttons in sequence; and they will appear in the Transmission Sequence field. This field transmission sequence can be assigned in any desired order and fields can be assigned multiple times as well. The maximum number of fields can be assigned is twelve.

Pause Field Time

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

Pause Field Time:	1 [⇅] Sec	Range: 1-16 Default: 1

Field Setting

Click the [⚙] button to configure field settings.

Terminating String:	[ ]	Default: (Empty String)
Include Terminating String:	[⬤○]	Default: Disable

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

Enter the field terminating string. Choose up to two characters from the pop-up window of Grid Control. Refer to Appendix I Grid Control. The scanner will search for the occurrence of this particular string in the data. Alternatively, you may simply enter the field length. The scanner will assign the next specified number of characters into the field.

▶ By default, this terminating string, if exists, will be included in the field. If you wish to discard it, click the Disable button.

Additional Fields

Up to five additional fields can be created for each editing format; each of them is numbered from A1 to A5 accordingly. To configure the Additional Fields setting, click the [⚙] button and choose up to four characters from the pop-up window of Grid Control. Refer to Appendix I Grid Control.

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.

4.3 GS1 FORMATTING

Users can decide whether to enable GS1 formatting for GS1-128, GS1 DataBar Family, GS1 DataMatrix, GS1 QR Code, Composite CC-A/B, and Composite CC-C symbologies depending on the model. Besides, application ID mark and field separator can be defined to label the GS1 data.

− GS1 Formatting		
Application ID Mark 1 :		Default: (Empty String)
Application ID Mark 2 :		Default: (Empty String)
Field Separator :		Default: (Empty String)
Applicable Code Types :		
GS1-128(EAN128):	○	Default: Disable
GS1-DataBar Omnidirectional:	○	Default: Disable
GS1-DataBar Limited:	○	Default: Disable
GS1-DataBar Expanded:	○	Default: Disable
GS1 DataMatrix:	○	Default: Disable
GS1 QR Code:	○	Default: Disable
Composite CC-A/B:	○	Default: Disable
Composite CC-C:	○	Default: Disable

4.3.1 APPLICATION ID MARK

Application ID Mark 1:		Default: (Empty String)
Application ID Mark 2:		Default: (Empty String)

You may want to add the application ID mark to the left or right of an application ID for the purpose of labeling it when formatting the GS1 data. Click the text field to bring up the Grid Control dialog and then click the characters listed in the table to specify the desired character. If you intend to add the mark only to the right of the application ID, leave the Application ID Mark 1 field blank.

4.3.2 FIELD SEPARATOR

Field Separator: [   ] Default: (Empty String)

Click the text field to bring up the Grid Control dialog and then click the characters listed in the table to specify the desired separator character.

4.3.3 APPLICABLE CODE TYPE

Click the applicable code type buttons respectively to enable GS1 formatting for the particular code type. The applicable code type varies depending on the scanner model you have.

4.4 CODE ID

To make the Code ID configuration easier, we provide five pre-defined Code ID sets that you can make necessary changes.

Code ID		
AIM Code ID : ⬤		Default: Disable

Code 39		Italian Pharmacode		Industrial 25	
Interleaved 25		Matrix 25		Codabar	
Code 93		Code 128		UPCE	
EAN 8		EAN13		UPCA	
MSI		ISBT 128		Coupon Code	
Trioptic Code 39		Code 11		Composite CC-A/B	
Composite CC-C		Composite TCL-39		Chinese 25	
US Postnet		US Planet		UK Postal	
Japan Postal		Australian Postal		Dutch Postal	
USPS 4CB/One		UPU FICS Postal		PDF417	
MicroPDF417		Data Matrix		Maxicode	
QR Code		MicroQR		Aztec	
IATA		Macro PDF417		Macro MicroPDF417	

| Set 1 | Set 2 | Set 3 | Set 4 | Set 5 | Clear |

4.4.1 AIM CODE ID

You can add an AIM (Automatic Identification and Mobility) code ID in front of the barcode for the common purpose of identifying, tracking, recording, storing and communicating essential business, personal, or product data. Enabling this function can provide you with a fast and accurate collection and entry of data.

After applying AIM Code ID, three characters are added in front of the output data. "]" is always the first character. The second (Character) and third (Modifier Character) may vary depending on symbologies. Please refer to the table below.

Symbology	Character	Modifier Character
Codabar	F	0: Standard Codabar symbol. No special processing.

Code 11	H	0: Single modulo 11 check character validated and transmitted
		1: Two modulo 11 check characters validated and transmitted
		3: Check characters validated but not transmitted
		?: No check character validation
Code 39	A	0: No check character validation nor full ASCII processing. All data transmitted as decoded.
		1: Modulo 43 check character validated and transmitted
		3: Modulo 43 check character validated but not transmitted
		4: Full ASCII character conversion performed. No check character validation.
		5: Full ASCII character conversion performed. Modulo 43 check character validated and transmitted.
		7: Full ASCII character conversion performed. Modulo 43 check character validated but not transmitted.
Trioptic Code 39	X	No options specified. Always transmit 0.
Code 93	G	No options specified. Always transmit 0.
Code 128	C	0: Standard data packet. No FNC1 in first or second symbol character position after start character.
		1: EAN/UCC-128 data packet. FNC1 in first symbol character position after start character.
		2: FNC1 in second symbol character position after start character.
		4: Concatenation according to International Society for Blood Transfusion specifications has been performed. Concatenated data follows.
GS1 DataBar Family	e	No option specified at this time. Always transmit 0. GS1 DataBar and GS1 DataBar Limited transmit with an Application Identifier "01".
Interleaved 25	I	0: No check character validation
		1: Modulo 10 symbol check character validated and transmitted
		3: Modulo 10 symbol check character validated but not transmitted
MSI	M	0: Modulo 10 symbol check character validated and transmitted
		1: Modulo 10 symbol check character validated but not transmitted
Matrix 25	X	No options specified. Always transmit 0.
Plessey	P	No options specified. Always transmit 0.
Industrial 25	S	No options specified. Always transmit 0.
Telepen	B	No options specified. Always transmit 0.
UPC/EAN	E	0: Standard data packet in full EAN format (13 digits for EAN-13, UPC-A, and UPC-E; does not include add-on data)
		3: Combined data packet comprising 13 digits from EAN-13, UPC-A, or UPC-E symbol and 2 or 5 digits from add-on symbol
		4: EAN-8 data packet

4.4.2 CODE ID SET 1~5

Click one of the five buttons employ a pre-defined code ID set.

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
ISBT 128	H	K	K	K	C
Code 128	H	K	K	K	C
UPC-E	S	E	C	E	E
EAN-8	P	B	B	FF	E
EAN-13	M	A	A	F	E
UPC-A	J	A	A	A	E
MSI	V	V	D	P	M
Plessey	W	W	E	Q	P
Telepen	Z	---	---	---	---
Code11_Cipher	K	J	J	D	H
UCCCouponExt	G	F	I	C	C
Trioptic Code39	A	C	Y	M	X
Code11	K	J	J	D	H
Composite CC-A/B	L	X	M	J	La
Composite CC-C	N	Y	N	O	Lc
Composite TLC-39	O	Z	O	R	L2
Chinese25	Q	M	P	S	X
US Postnet	h	a	s	i	X
US Planet	i	b	t	j	X
UK Postal	j	c	u	k	X
Japan Postal	k	d	v	l	X
Australian Postal	l	e	w	m	X
Dutch Postal	m	f	x	n	X
USPS 4CB	n	g	y	o	X

UPU FICS Postal	o	h	z	p	X
PDF417	a	O	W	T	L
MicroPDF417	b	P	V	U	L
DataMatrix	c	Q	U	V	d
MaxiCode	d	R	T	W	U
QR Code	e	S	S	X	Q
MicroQR	f	T	R	Y	Q
Aztec	g	U	Q	Z	z
Han Xin	r	k	c	s	X
IATA	z	z	r	h	S
MacroPDF417	p	i	a	q	L
MacroMicroPDF417	q	j	b	r	L

4.4.3 CHANGE CODE ID

To modify the Code ID, click the field next to a symbology. Then, choose the Code ID from the pop-up window of Grid Control.

Up to two characters for Code ID can be configured for each symbology.

4.4.4 CLEAR

Click this button to clear the current settings. Default settings will be loaded. That is, the Code ID settings are empty.

4.5 CODE LENGTH

A two-digit code representing the length of barcode data (character count) can be added in front of the data being transmitted. Such length code can be individually enabled or disabled for each symbology. By default, no length code is added to output data for all symbologies. Click symbology buttons respectively to determine whether to add code length to the data.

— Code Length		
Code 39	Italian Phamacode	Industrial 25
Interleaved 25	**Matrix 25**	Codabar
Code 93	Code 128	GS1-128 / DataBar
UPCE	EAN 8	EAN13
UPCA	**MSI**	ISBT 128
Coupon Code	Trioptic Code 39	Code 11
Composite CC-A/B	Composite CC-C	**Composite TCL-39**
Chinese 25	US Postnet	US Planet
UK Postal	**Japan Postal**	**Australian Postal**
Dutch Postal	USPS 4CB/One	UPU FICS Postal
PDF417	MicroPDF417	Data Matrix
Maxicode	QR Code	MicroQR
Aztec		

Clear All   Select All

4.6 CHAR SUBSTITUTION

Users can define three sets of string substitution and three sets of character substitution.

4.6.1 STRING SUBSTITUTION (16 TO 16)

Users can replace a string up to 16 characters with another string. Up to three sets of string substitution can be defined.

Click the "**String x Search Value**" field (x means 1, 2, or 3) to bring up the character selection dialog (see Appendix I Grid Control). Click any cells of the table to specify up to 16 characters as the target string to be replaced.

Then click the "**Replace To**" field to bring up the dialog again to specify a string to be replaced with.

4.6.2 CHARACTER SUBSTITUTION (1 TO 2)

"Character Substitution" replaces a character wherever it comes up in a collected data. Click on the "**Character x Search Value**" field (x means 1, 2, or 3) to bring up the character selection dialog. Then specify the target character, which is to be found in the collected data, to be replaced; one or two characters assigned in the "**Replace to**" field will be the replacement character(s).

Note: "Character Substitution" works for the collected data only and is applied before the data goes through editing formats. "Character Substitution" is therefore not applicable to the Prefix/Suffix Code, Code ID, Length Code, or any Additional Field.

4.6.3 APPLICABLE CODE TYPES

By default, character substitution will be performed on all symbologies. If you don't want to apply the substitution to one or more symbologies, click the button of each undesired symbology so that all the three sets will not be applied to the symbology.

Applicable Code Types:

Code 39	Italian Pharmacode	French Pharmacode
Industrial 25	Interleaved 25	Matrix 25
Codabar	Code 93	Code 128
GS1-128	UPCE	UPCE Addon 2
UPCE Addon 5	EAN 8	EAN 8 Addon 2
EAN 8 Addon 5	EAN13	EAN13 Addon 2
EAN13 Addon 5	UPCA	UPCA Addon 2
UPCA Addon 5	MSI	Plessey
Telepen	GS1 DataBar	ISBT 128
Code 11	Composite CC-A/B	Composite CC-C
PDF417	MicroPDF417	Data Matrix
Maxicode	QR Code	MicroQR
Aztec	HanXin	

MULTI-BARCODE

The Multi-Barcode Editor allows you to decide the output sequence of a concatenation of up to five barcodes. When you enable this mode, it will force the scanner to apply Laser mode as the scanning mode.

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

IN THIS CHAPTER

5.1 OUTPUT SEQUENCE

By default, the output sequence editing of the concatenation of barcodes is not applied – "**Ignored**".

When "**Enforce**" is selected, 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**" is selected, only barcodes found meeting with the criteria are counted for the concatenation. Those found not meeting with the criteria are processed normally and individually.

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

▶ Code Type
▶ Barcode length, excluding prefix, suffix, length code, etc. — set "0" to ignore length.
▶ Matching the first character of data — leave it blank to ignore character matching.

Chapter 6

UHF RFID SETTINGS

The UHF RFID Settings is available only for 2220. Click the RFID item displayed on the left-hand side to proceed with configuration.
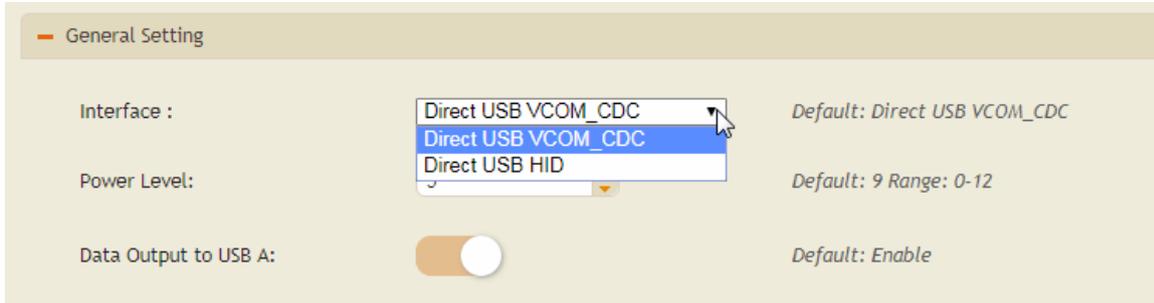

IN THIS CHAPTER

6.1 SYSTEM

6.1.1 GENERAL SETTING

INTERFACE

Click the drop-down menu to switch RFID interface between VCOM_CDC and HID.

POWER LEVEL

Specify the UHF RFID power level ranging from 0 to 12 (default is 9) which determines reading distance.

DATA OUTPUT TO USB A

By default, the scanned RFID data is output via the USB connector A only. By disabling this function, users can have the data output via the USB connector B.

6.1.2 SYSTEM INDICATOR

GOOD READ LED

By default, Good Read LED is enabled and its duration is set to 40 milliseconds. When reading an UHF RFID tag successfully, the LED on the scanner will become solid blue and go off quickly. Enter a value ranging from 1 to 254, in units of 10 milliseconds.

BEEPER VOLUME

This setting will change beeper volume for both barcode and UHF RFID tag reading, such as Good Read, buffer full status, configuration status, etc. Select a suitable volume.

GOOD READ BEEPER FREQ.

Good Read Beep is always enabled. By default, beeper frequency is set to 2.6 KHz (2.5K, 2.6K, 2.8K, and 2.9K Hz options selectable).

GOOD READ BEEPER LEN.

Good Read Beep duration is set to shortest. Longest, longer, shorter, and shortest options are available.

6.2 OPERATION

6.2.1 GENERAL SETTINGS

DUAL MODE

The Dual Mode is defined to read barcode label and RFID tag of a particular product. With Dual Mode enabled, the barcode data is always decoded before the RFID tag while the scanner simultaneously scans tag and barcode data.

TIMEOUT

In Dual Mode, you have to specify the RFID scanning timeout interval ranging from 1 to 255 seconds (set to 5 by default). The RFID scanning operation stops when the Dual Mode timeout expires without receiving any tag data.

DISCARD BARCODE IF TIMEOUT

The barcode data is always decoded before the tag data. Users can determine to discard or keep the decoded barcode data after the tag decoding (enabled by default).

SCAN MODE

By default, the UHF RFID reader is set to Single Tag mode. The following scanning modes are available –

CONTINUOUS

When this mode is selected, users can determine the decode delay interval as follows: 250, 500, 750, 1000, 1500, 2000, 3000, and 4000 in milliseconds (default by 500 ms).

SINGLE TAG MODE

Specify the scanning time interval (0~254 sec.; 0= disable) when the scanning mode is set to Single Tag mode.

TEST MODE

When this mode is selected, users can determine delay interval between each scan as follows: 50, 100, 250, and 500 in milliseconds (default by 50 ms).

MULTI-TAG MODE

Specify the time interval (0~3600 sec.; 0= disable) to prevent receiving redundant tag data when the scanning mode is set to Multi-Tag mode.

6.3 OUTPUT FORMAT

Before transmitting data captured by the reader, you can edit, add, and re-order the sequence of the final transmitted data.

6.3.1 GENERAL SETTING

DATA FORMAT

The output format can be Hexadecimal, EPC URI, or EPC Tag URI.

Hexadecimal: The output data consists of 16 unique hexadecimal symbols including numbers (0 ~ 9) and letters (A to F). It is easier for users to read hexadecimal numbers than binary numbers by using two consecutive hexadecimal digits to represent each byte (8 bits).

EPC URI: EPC URI is the pure identity URI form of the EPC.

Raw Data: Raw data output will be recorded and displayed faithfully according to the original data type.

EPC Tag URI: EPC Tag URI resembles pure identity EPC URIs, but with added control information.
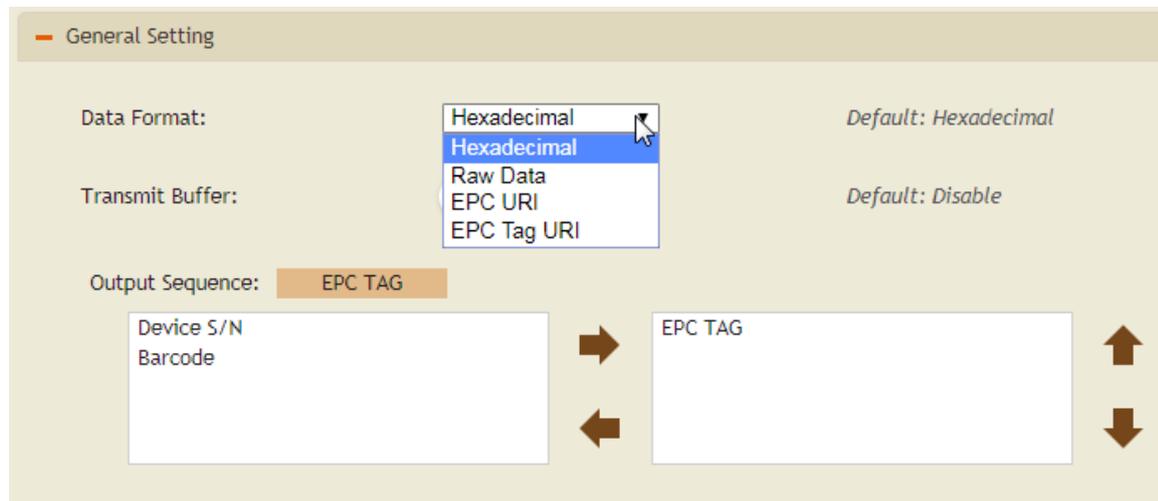
TRANSMIT BUFFER

By default the transmit buffer is disabled. Users can decide whether to use the transmit buffer.

OUTPUT SEQUENCE

With Hexadecimal selected, the output sequence contains only the EPC TAG item by default. Users can simply select an item and click the horizontal arrows to enable (move to the right side) or disable (move to the left side) it; or click the up/down arrows to arrange the output sequence.

6.3.2 EPC TAG

The EPC Tag section is divided into five fields as PC, EPC, CRC, Memory data, and Data Length. Separators can be specified between fields for clarity.

DATA LENGTH TYPE

Click the drop-down menu to show the length for UHF Data, EPC, or memory data. This item will define the data length of the output sequence.

SEPARATOR

Click the Separator text field which requires user input, the Grid Control dialog shows up. Select up to four separators for this section.

OUTPUT SEQUENCE

By default, the EPC data output sequence consists of Data, PC, EPC, and CRC listed on the right side text field (the Length field listed on the left side is disabled). Users can simply select an item and click the horizontal arrows to enable (move to the right side) or disable (move to the left side) it; or click the up/down arrows to arrange the output sequence.

6.4 MEMORY ACCESS

This function allows the UHF RFID reader to read/write the tag memory that consists of four banks – Reserved memory, EPC memory, TID memory, and User memory. Click the drop-down menu to select a memory access mode.
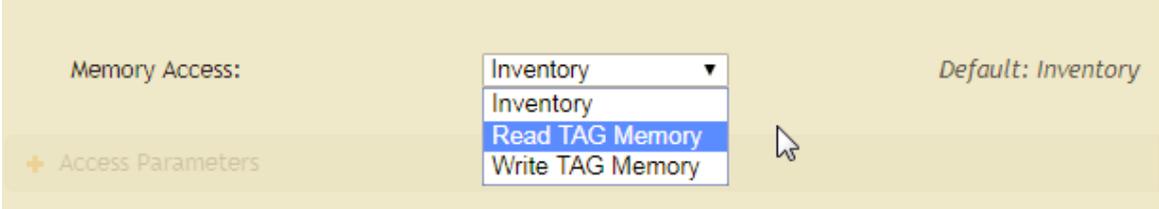
6.4.1 INVENTORY

By default, the UHF RFID reader access mode is set to Inventory to get EPC information of a tag. If you want to read all data stored in a tag, click the drop-down menu to select Read TAG Memory.

6.4.2 READ TAG MEMORY

Select this memory access mode to get data from other memory banks besides EPC.

Access Tag Parameters:

MEMORY BANK

Click the drop-down menu to select a memory bank among Reserved, EPC (default), TID, and User.

PASSWORD

Specify access password, four bytes, shown in Hexadecimal value. Click the text field to bring up the Grid Control window from which you can specify up to four characters.

STARTING ADDRESS

Specify the starting address. Only even numbers ('0', '2', '4' … '98') are valid for the start byte.

ACCESS LENGTH

Specify the data length in bytes. Only even numbers ('0', '2', '4' … '32') are valid.

6.4.3 WRITE TAG MEMORY

Access Tag Parameters:

MEMORY BANK

Click the drop-down menu to select a memory bank among Reserved, EPC (default), TID, and User.

PASSWORD

Specify access password, four bytes, shown in Hexadecimal value. Click the text field to bring up the Grid Control window from which you can specify up to four characters.

STARTING ADDRESS

Specify the starting address. Only even numbers ('0', '2', '4' ... '98') are valid for the start byte.

ACCESS LENGTH

Specify the data length in bytes. Only even numbers ('0', '2', '4' ... '32') are valid.

DATA TO WRITE

You are supposed to store data into RFID reader's buffer before writing them into the tag memory. Click the field to bring up the dialog and then select the characters from the table.

GRID CONTROL

ORIGINAL GRID CONTROL

When you click a text field which requires user input, the Grid Control dialog below shows up. This dialog is available when the scanner interface is set to "Bluetooth SPP Slave/Master", "RS-232", "Wand Emulation", "Direct USB VCOM", or "Direct USB VCOM_CDC".

Select the characters

Hex	00	10	20	30	40	50	60	70
00	NUL	DLE	SP	0	@	P	`	p
01	SOH	DC1	!	1	A	Q	a	q
02	STX	DC2	"	2	B	R	b	r
03	ETX	DC3	#	3	C	S	c	s
04	EOT	DC4	$	4	D	T	d	t
05	EOQ	NAK	%	5	E	U	e	u
06	ACK	SYN	&	6	F	V	f	v
07	BEL	ETB	'	7	G	W	g	w
08	BS	CAN	(	8	H	X	h	x
09	HT	EM	)	9	I	Y	i	y
0A	LF	SUB	*	:	J	Z	j	z
0B	VT	ESC	+	;	K	[	k	{
0C	FF	FS	,	<	L	\	l	|
0D	CR	GS	-	=	M	]	m	}
0E	SO	RS	.	>	N	^	n	~
0F	SI	US	/	?	O	_	o	DEL

Note: For a TAB character, click "HT".

SPECIAL GRID CONTROL FOR KEYBOARD INTERFACE

The special grid control is available only when "Keyboard Wedge", "Bluetooth HID", "Direct USB HID", or "USB HID" is selected as the scanner interface.

GRID CONTROL — NORMAL KEY

By default, each character programmed is a "Normal Key". Such a character can have associate status settings by adding the Shift/Control/Alternate keys.
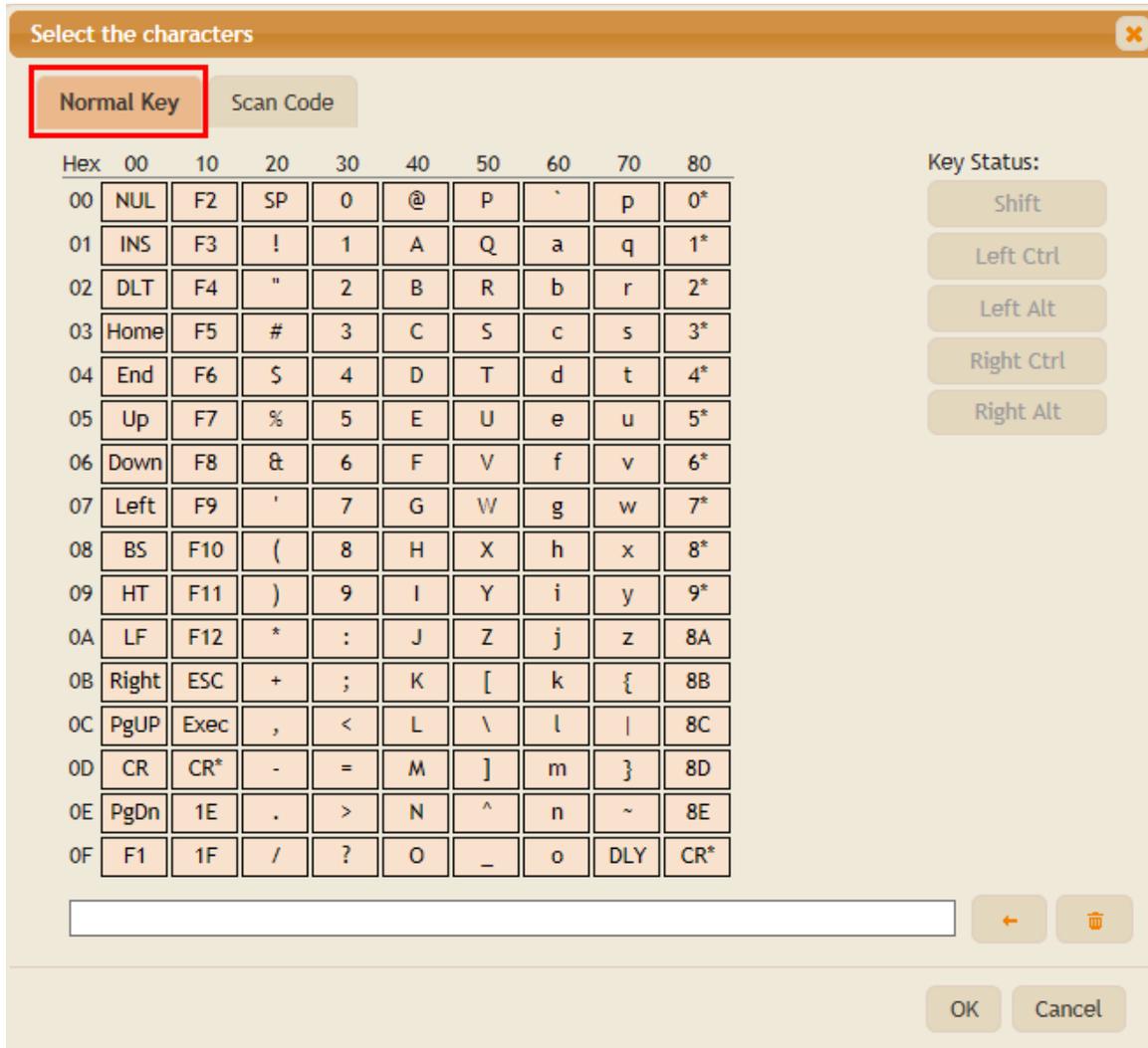
Note: For a TAB character, click "HT".

For example, if you want to program "Ctrl-Shift-B", "C" for Prefix Code, the programming sequence is as follows:

1) Click the Prefix Code field.

2) Select "Normal Key" for Key Type in the Grid Control window.

3) Click the "Left Ctrl" and "Shift" for Key Status.

4) Choose "B" from the ASCII table.

5) Click to deselect the "Left Ctrl" and "Shift".

6) Choose "C" from the ASCII table.

7) Click [OK] to confirm the setting.

GRID CONTROL — SCAN CODE

Select "Scan Code" so that the scanner is configured to program a character by its scan code value.

Hex	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
01	01	11	21	31	41	51	61	71	81	91	A1	B1	C1	D1	E1	F1
02	02	12	22	32	42	52	62	72	82	92	A2	B2	C2	D2	E2	F2
03	03	13	23	33	43	53	63	73	83	93	A3	B3	C3	D3	E3	F3
04	04	14	24	34	44	54	64	74	84	94	A4	B4	C4	D4	E4	F4
05	05	15	25	35	45	55	65	75	85	95	A5	B5	C5	D5	E5	F5
06	06	16	26	36	46	56	66	76	86	96	A6	B6	C6	D6	E6	F6
07	07	17	27	37	47	57	67	77	87	97	A7	B7	C7	D7	E7	F7
08	08	18	28	38	48	58	68	78	88	98	A8	B8	C8	D8	E8	F8
09	09	19	29	39	49	59	69	79	89	99	A9	B9	C9	D9	E9	F9
0A	0A	1A	2A	3A	4A	5A	6A	7A	8A	9A	AA	BA	CA	DA	EA	FA
0B	0B	1B	2B	3B	4B	5B	6B	7B	8B	9B	AB	BB	CB	DB	EB	FB
0C	0C	1C	2C	3C	4C	5C	6C	7C	8C	9C	AC	BC	CC	DC	EC	FC
0D	0D	1D	2D	3D	4D	5D	6D	7D	8D	9D	AD	BD	CD	DD	ED	FD
0E	0E	1E	2E	3E	4E	5E	6E	7E	8E	9E	AE	BE	CE	DE	EE	FE
0F	0F	1F	2F	3F	4F	5F	6F	7F	8F	9F	AF	BF	CF	DF	EF	FF

Select the characters

Normal Key   Scan Code

OK   Cancel