

# CipherLab User Guide

## ScanMaster for Scanner Configuration

1500/1560/1562/1660 Barcode Scanner

Version 1.10



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# RELEASE NOTES

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Version	Date	Notes
1.10	Apr. 21, 2009	Support 1560/1562 <ul style="list-style-type: none"><li>▶ New: 1.10 Transmit Buffer (1560/1562/1660)</li><li>▶ New: 2.6 USB HID (1560/1562/1660)</li><li>▶ New: 2.7 USB Virtual COM (1560/1562/1660)</li><li>▶ New: 4.6 Remove Special Character</li></ul>
1.05	Mar. 02, 2009	<ul style="list-style-type: none"><li>▶ Modified: 3.10 GS1-128 (EAN-128)</li><li>▶ Modified: 3.16 GS1 DataBar (RSS Family)</li></ul>
1.04	Feb. 11, 2009	<ul style="list-style-type: none"><li>▶ Modified: 1.1 Scan Modes — add Alternate Mode</li><li>▶ Modified: 1.1.4 Re-read Delay — add Alternate Mode</li></ul>
1.03	Dec. 19, 2008	<ul style="list-style-type: none"><li>▶ Modified: 4.6 Multi-Barcode Editor — 4-digit length excludes prefix, suffix, length code, etc.</li><li>▶ Modified: 5.2.1 Applicable Conditions — Data length includes prefix, suffix, length code, etc.</li></ul>
1.02	Nov. 14, 2008	<ul style="list-style-type: none"><li>▶ Modified: Scanner Information — screenshot updated with new setting for Good Read LED duration</li><li>▶ Modified: Chapter 1 Changing Scanner Setting — screenshot updated with new setting for Good Read LED duration</li><li>▶ Modified: section 1.3.3 Good Read LED — adds new setting for Good Read LED duration</li><li>▶ Modified: section 2.1 Keyboard Wedge — screenshot updated</li><li>▶ Modified: section 2.1.10 Inter-Character Delay — allows 0~254</li><li>▶ Modified: section 2.1.11 Inter-Function Delay — allows 0~254</li><li>▶ Modified: section 2.2 RS-232 — screenshot updated</li><li>▶ Modified: section 2.2.6 Inter-Character Delay — allows 0~254</li><li>▶ Modified: section 2.2.7 Inter-Function Delay — allows 0~254</li><li>▶ Modified: section 2.4 Bluetooth HID — screenshot updated</li><li>▶ Modified: section 2.4.3 Inter-Function Delay — allows 0~254</li><li>▶ Modified: section 2.5 Bluetooth SPP — screenshot updated</li><li>▶ Modified: section 2.5.4 Inter-Function Delay — allows 0~254</li><li>▶ Modified: section 5.2.1 Applicable Conditions — Data Length allows 0~254; Matching String Location allows 0~254</li></ul>
1.01	Sep. 16, 2008	<ul style="list-style-type: none"><li>▶ Modified: Scanner Information — screenshot updated with new setting for Auto-Sense Sensitivity</li><li>▶ Modified: Chapter 1 Changing Scanner Setting — screenshot updated with new setting for Auto-Sense Sensitivity</li><li>▶ Modified: section 1.7 Auto Sense (1500 Only) — adds new setting for Auto-Sense Sensitivity</li></ul>
1.00	May 27, 2008	Initial release



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# INTRODUCTION

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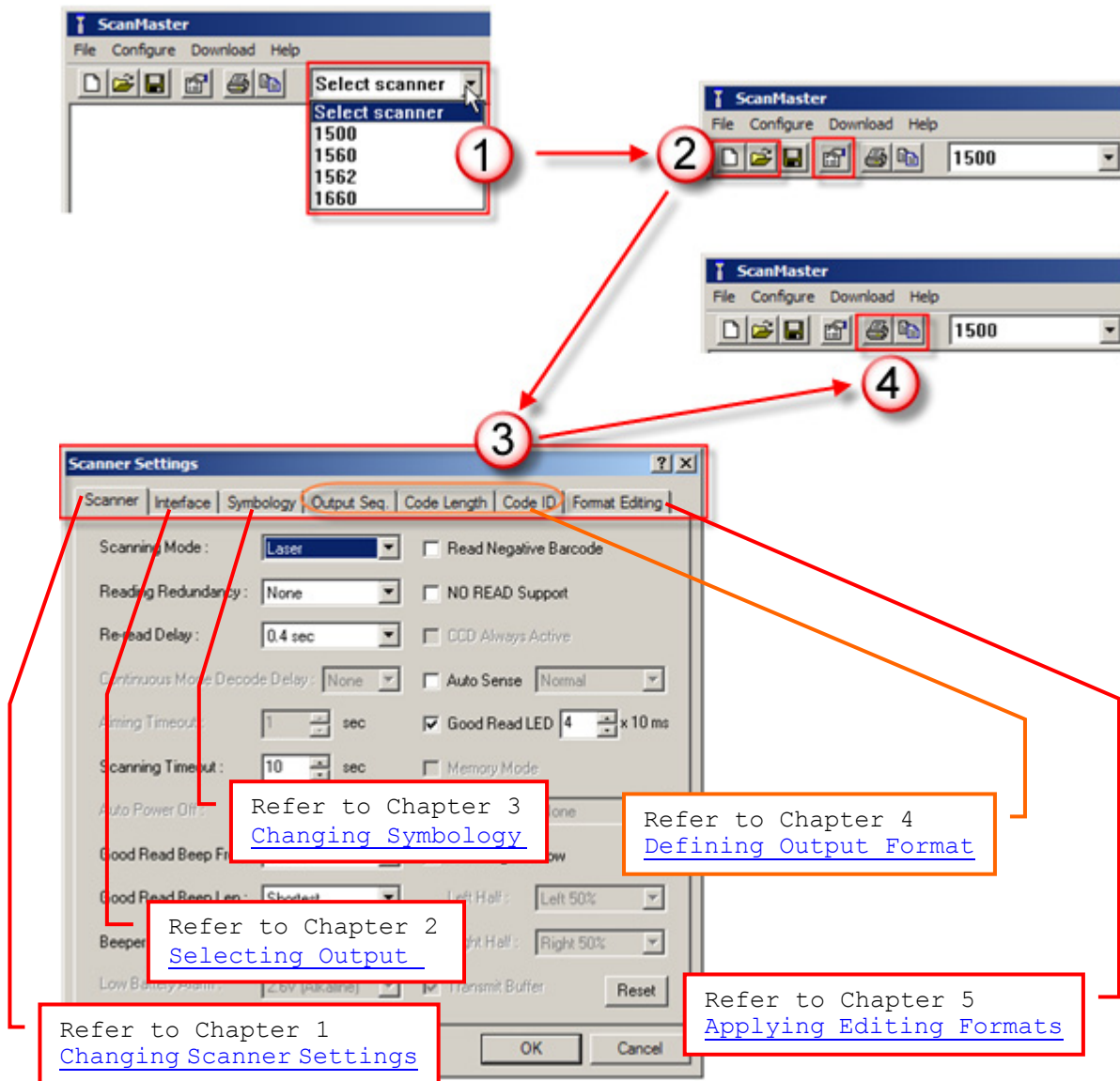
ScanMaster software is a convenient utility that helps you configure CipherLab 1500/1560/1562/1660 Barcode Scanners. It provides two ways to change or update your scanner configuration – (1) download the new settings directly to scanners, and (2) print out the setup barcodes that can be read by scanners anytime anywhere, in order to load new settings or restore defaults.

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

Thank you for choosing CipherLab products!

## USING SCANMASTER

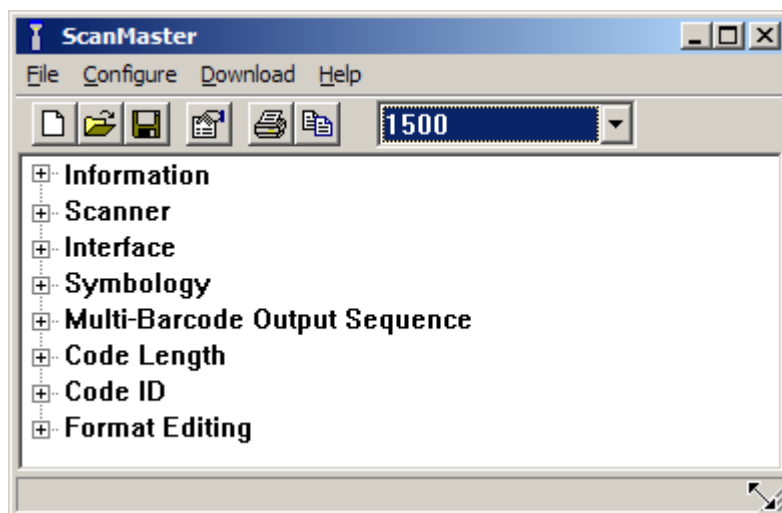
The **ScanMaster** package includes two programs, **ScanMaster.exe** and **PrintBarcode.exe**, which can be used to configure 1500/1560/1562/1660 scanners. First, run **ScanMaster.exe** on your computer. Select the scanner you want to configure, and its settings can then be configured by (A) starting a new configuration, (B) opening an existing configuration file, or (C) reading configuration from a scanner. Then, download the current configuration to other scanners directly, or generate a file named *Barcode.prn* to keep a copy of the setup barcodes for the current configuration.




Note: If you wish to keep the Barcode.prn file, you must rename it; otherwise, it will be automatically overwritten as long as you choose to generate setup barcodes. Once you have a \*.prn file, you can print the setup barcodes at any time by running PrintBarcode.exe.

## HOW TO CONFIGURE THE SCANNER?

- 1) Run **ScanMaster.exe** on your computer.
- 2) Click the drop-down menu of [Select Scanner] on the toolbar, and select the scanner you want to configure. If you are using ScanMaster for the first time, click to expand the [Scanner Information](#) by category so that the default settings of the scanner can be viewed.



- 3) To create a new configuration file, click  or  on the toolbar.


To open an existing configuration file, click  on the toolbar.

To clone configuration from another scanner, click **Configure | Read Scanner Settings**. This scanner has to be connected to the serial port of the computer.

- 4) Proceed to configure the scanner. The data process is illustrated below.



1. The scanner will work with the settings specified on the Scanner tab.
2. It will read barcodes only if their symbolologies are enabled, and output data in the desired letter case as selected on the Symbology tab.
3. It will check one by one whether the read barcode meets the criteria set out for a concatenation of barcodes on the Output Sequence tab.
4. It will perform character substitution as defined on the Format Editing tab.
5. It will add 2-digit length code to desired symbolologies as selected on the Code Length tab.
6. It will add 1- or 2-character identifier to desired symbolologies as selected on the Code ID tab.

7. It will apply editing formats on desired symbologies that meet the criteria set out on the Format Editing tab.
  8. It will add prefix/suffix code to enabled symbologies as selected on the Symbology tab.
  9. Finally, it will output data via the desired interface.
- 5) If the scanner is connected to the serial port of the computer, you can directly download the settings to it. Otherwise, you can click  to print out setup barcodes and load settings to the scanner by reading setup barcodes.

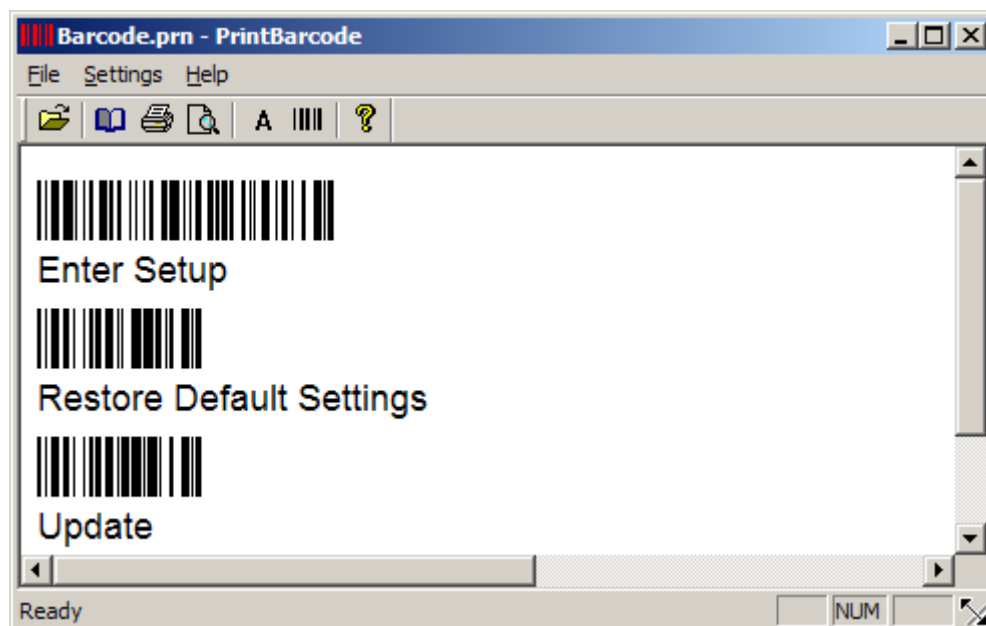
**Warning:** The program PrintBarcode.exe must be in the same folder of ScanMaster.

- 6) When the scanner is configured successfully, connect it to the host computer via a proper interface: Keyboard wedge, RS-232, Wand Emulation, Bluetooth HID, Bluetooth SPP, USB HID, or USB Virtual COM.

**Note:** If the scanner is set to the Wand Emulation mode, you need to connect it to a portable data terminal or a decoder that is expecting input from a wand scanner.

## SETUP BARCODES

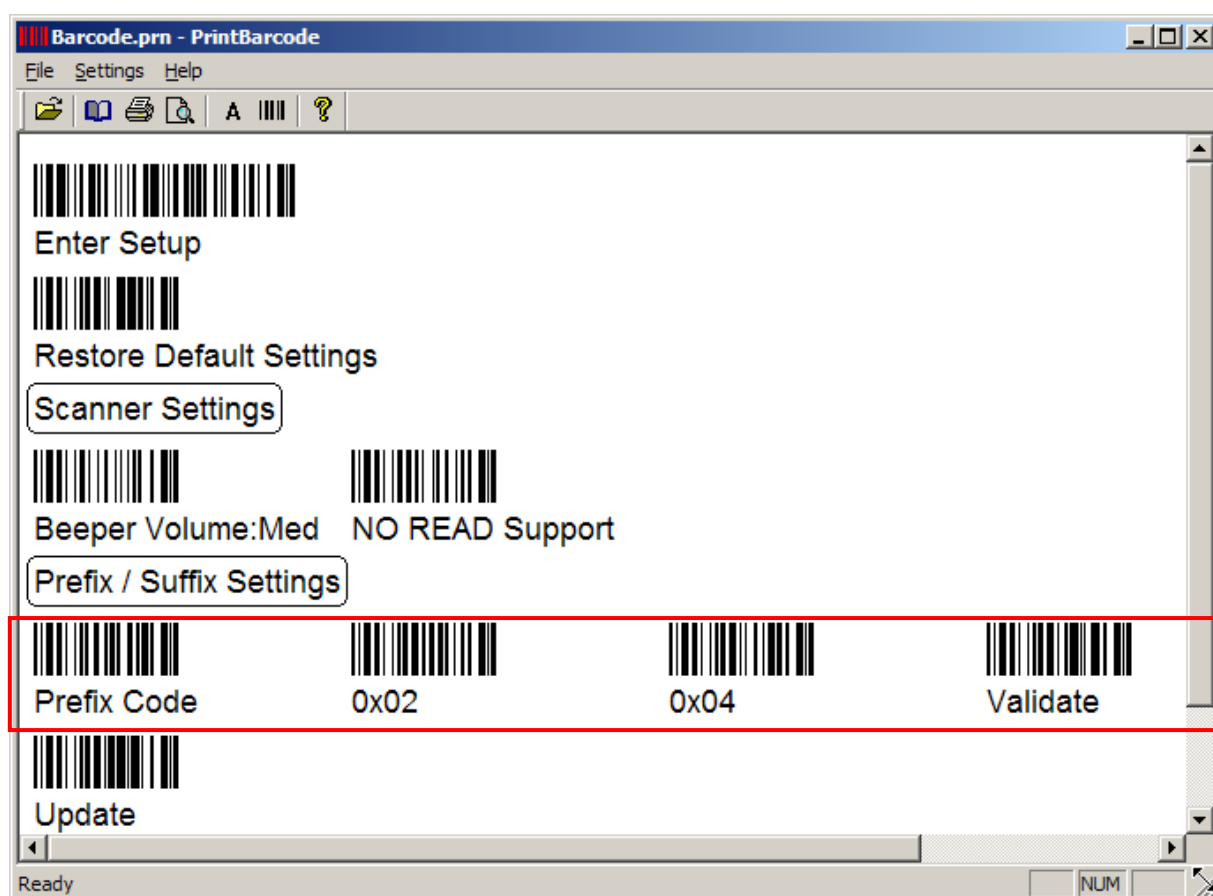
If you want to restore default settings, scan these barcodes one by one.



Setup Barcodes	Indication
<i>Enter Setup</i>	<p>Scan this barcode to enter the configuration mode –</p> <ul style="list-style-type: none"> <li>▶ it will respond with six beeps (high-low tone repeats three times), and</li> <li>▶ the LED indicator will become flashing red</li> </ul>

<i>Restore Default Settings</i>	<p>Scan this barcode to restore the default settings. When the scanner has successfully read the barcode –</p> <ul style="list-style-type: none"> <li>▶ it will respond with two beeps (low-high tone)</li> </ul>
<i>Update</i>	<p>Scan this barcode to confirm the updating –</p> <ul style="list-style-type: none"> <li>▶ it will respond with six beeps (high-low tone repeats three times), and</li> <li>▶ the LED indicator will go off.</li> </ul> <p>When the scanner has successfully updated the settings, it will restart itself and respond with one long beep.</p>

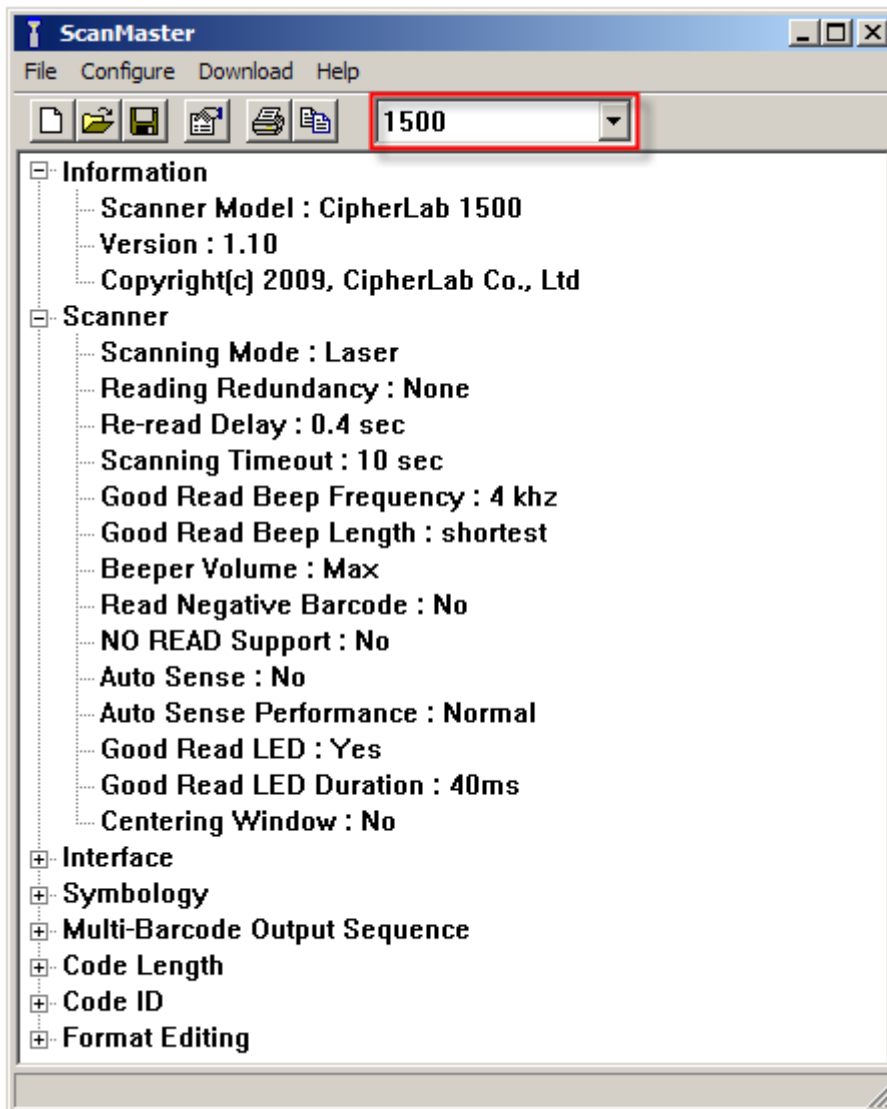
If you want to load new settings, scan associated barcodes. Take the screenshot below for example.



- ▶ You can always restore the default settings.
- ▶ The setup barcodes are categorized into groups of related settings, such as Scanner Settings, Prefix/Suffix Settings, Interface Settings, Code ID Settings, etc.
- ▶ After having made any changes to settings, you need to scan the "Update" barcodes to confirm such action. However, if a decimal or hexadecimal value is involved in the setting, you need to scan the "Validate" barcode before the "Update" barcode.

## SCANNER INFORMATION

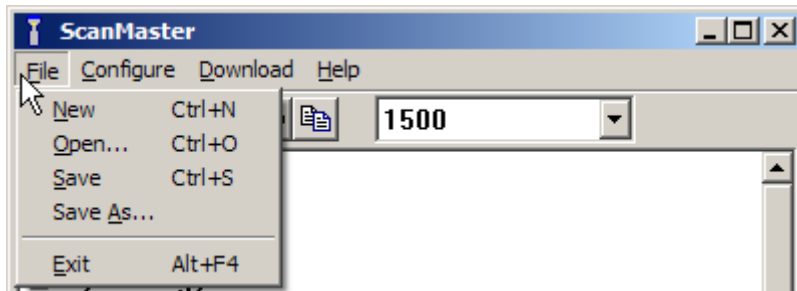
After selecting the scanner, click to expand the scanner information by category so that the default settings of the scanner can be viewed. If you open an existing configuration file or change the current settings, they will be updated accordingly.



## MENU BAR

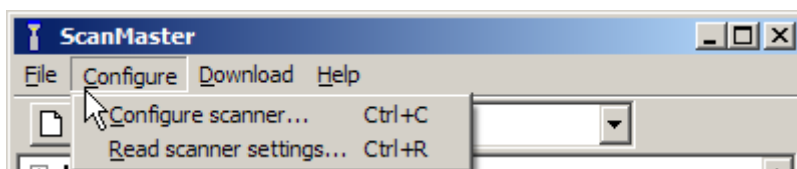
The menu bar contains a number of menus that specify which task you want the system to perform. Each menu contains a list of commands. Some of the options carry out commands immediately, and others display a window so that you can enter additional information. If an option is followed by [...], it will display a window. Otherwise, the command is carried out immediately.

## FILE MENU



Command	To Do...
<i>New</i>	To create a new configuration file.
<i>Open</i>	To open an existing configuration file. File path needs to be specified.
<i>Save</i>	To save the current settings.
<i>Save As</i>	To save the current settings to a new configuration file.
<i>Exit</i>	To close the ScanMaster program.

## CONFIGURE MENU

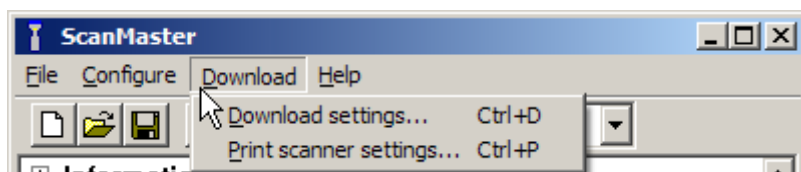


Command	To Do...
<i>Configure Scanner</i>	<p>Configure the current settings for the target scanner.</p> <p>Refer to the following sections –</p> <ul style="list-style-type: none"> <li>▶ <a href="#">Chapter 1 – Changing Scanner Settings</a></li> <li>▶ <a href="#">Chapter 2 – Selecting Output Interface</a></li> <li>▶ <a href="#">Chapter 3 – Changing Symbology Settings</a></li> <li>▶ <a href="#">Chapter 4 – Defining Output Format</a></li> <li>▶ <a href="#">Chapter 5 – Applying Editing Formats</a></li> </ul>

<i>Read Scanner Settings</i>	<p>To clone settings or simply modify them, upload the current settings from the target scanner.</p> <ul style="list-style-type: none"> <li>▶ A dialog box will pop up for configuring the COM port properties on your computer.</li> </ul>
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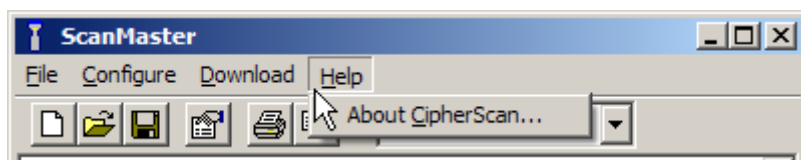
Note: To clone settings, first read settings from a specific scanner, and then download these settings to other scanners.

## DOWNLOAD MENU



Command	To Do...
<i>Download Settings</i>	<p>Download the settings to the target scanner if it is connected to the serial port of the host computer.</p> <ul style="list-style-type: none"> <li>▶ A dialog box will pop up for configuring the COM port properties on your computer.</li> </ul>
<i>Print Scanner Settings</i>	<p>Run PrintBarcode.exe to print out the <a href="#">Setup Barcodes</a>, which will be automatically saved in the Barcode.prn file.</p> <p>If the scanner is not connected to the serial port of the host computer, scanner configuration can be changed by scanning the setup barcodes.</p> <ul style="list-style-type: none"> <li>▶ The setup barcodes are categorized into groups of related settings.</li> </ul>

## HELP MENU



Command	To Do...
<i>About ScanMaster</i>	<p>Provide version information and license agreement of the software.</p>










## TOOLBAR

The toolbar allows quick access to most commands.



From left to right, the icons stand for the following commands:

	▶ New
	▶ Open
	▶ Save
	▶ Configure
	▶ Print
	▶ Download Settings
	▶ Select one of the scanners – 1500, 1560, 1562 or 1660



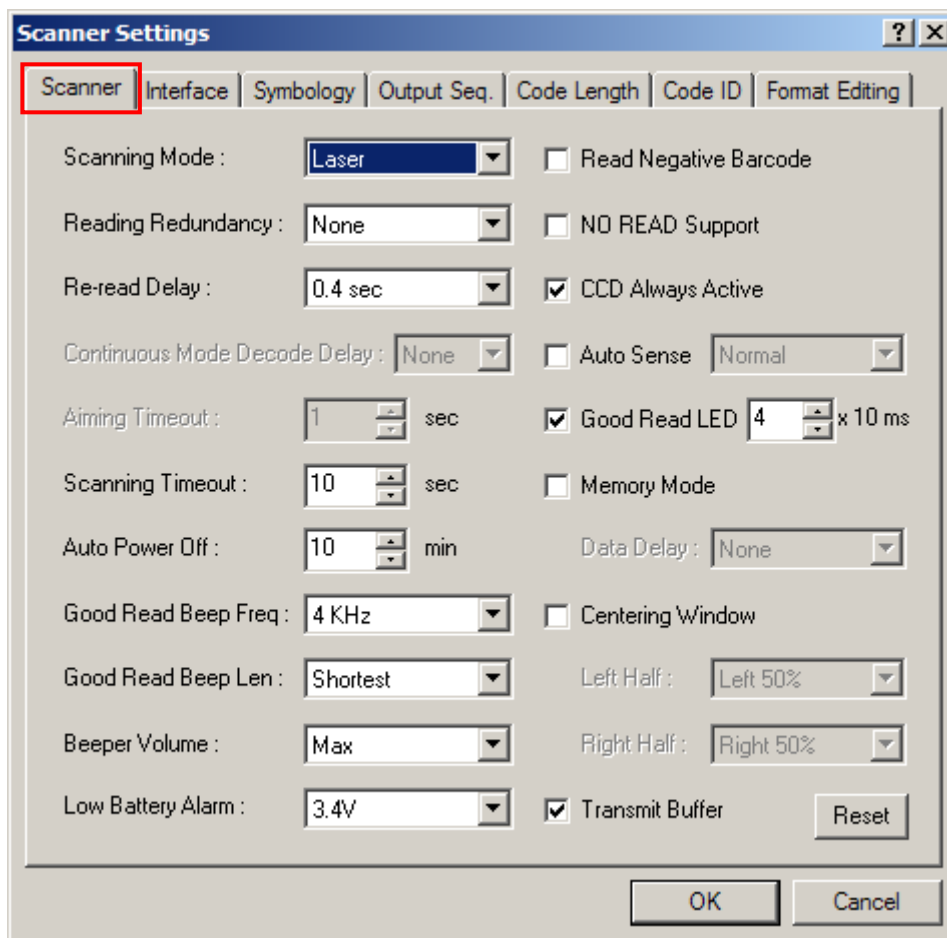
## CHANGING SCANNER SETTINGS

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You may configure scanner settings of the target scanner.

Note: The available options may be slightly different for each model. For example, "Low Battery Alarm" is provided for 1560/1562/1660.

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The image shows a "Scanner Settings" dialog box with a tabbed interface. The "Scanner" tab is selected and highlighted with a red rectangle. The dialog contains various settings for a scanner, including Scanning Mode, Reading Redundancy, Re-read Delay, Continuous Mode Decode Delay, Aiming Timeout, Scanning Timeout, Auto Power Off, Good Read Beep Freq, Good Read Beep Len, Beeper Volume, Low Battery Alarm, and checkboxes for Read Negative Barcode, NO READ Support, CCD Always Active, Auto Sense, Good Read LED, Memory Mode, Centering Window, and Transmit Buffer. The "Reset" button is located at the bottom right of the settings area.

Setting	Value	Option
Scanning Mode	Laser	<input type="checkbox"/> Read Negative Barcode
Reading Redundancy	None	<input type="checkbox"/> NO READ Support
Re-read Delay	0.4 sec	<input checked="" type="checkbox"/> CCD Always Active
Continuous Mode Decode Delay	None	<input type="checkbox"/> Auto Sense Normal
Aiming Timeout	1 sec	<input checked="" type="checkbox"/> Good Read LED 4 x 10 ms
Scanning Timeout	10 sec	<input type="checkbox"/> Memory Mode
Auto Power Off	10 min	Data Delay: None
Good Read Beep Freq	4 KHz	<input type="checkbox"/> Centering Window
Good Read Beep Len	Shortest	Left Half: Left 50%
Beeper Volume	Max	Right Half: Right 50%
Low Battery Alarm	3.4V	<input checked="" type="checkbox"/> Transmit Buffer

Reset

OK Cancel

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## 1.1 SCANNING MODE

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

Scan Mode	Start to Scan				Stop Scanning			
	<i>Always</i>	<i>Press trigger once</i>	<i>Hold trigger</i>	<i>Press trigger twice</i>	<i>Release trigger</i>	<i>Press trigger once</i>	<i>Barcode being read</i>	<i>Timeout</i>
<i>Continuous mode</i>	✓							
<i>Test mode</i>	✓							
<i>Laser mode</i>			✓		✓		✓	✓
<i>Auto Off mode</i>		✓					✓	✓
<i>Auto Power Off mode</i>		✓						✓
<i>Aiming mode</i>				✓			✓	✓
<i>Multi-Barcode mode</i>			✓		✓			
<i>Alternate mode</i>		✓				✓		

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

**Continuous Mode**

The scanner is always scanning.

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

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

**Test Mode**

The scanner is always scanning.

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

**Laser Mode**

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

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

Note: Refer to "Scanning Timeout".

**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".

**Aiming Mode**

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

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

Note: Refer to "Aiming Timeout".

#### Multi-Barcode Mode

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

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

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.

#### Alternate Mode

The scanner will start scanning once the trigger is pressed.

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

### 1.1.1 SCANNING TIMEOUT

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

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

### 1.1.2 CONTINUOUS MODE DECODE DELAY

Set the time interval between each decoding when in Continuous Mode.

### 1.1.3 AIMING TIMEOUT

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

### 1.1.4 RE-READ DELAY

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

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

### 1.1.5 READ REDUNDANCY

Select the level of reading security. For example,

- ▶ If "No Redundancy" is selected, one successful decoding will make the reading valid and induce the "READER Event".
- ▶ If "Three Times" is selected, it will take a total of four consecutive successful 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.

### 1.1.6 ADDON SECURITY FOR UPC/EAN

This option is available on the Symbology tab. You may like to enforce read redundancy (1~30 times; 0= disable) on UPC/EAN barcodes with addons only.

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

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## 1.2 POWER MANAGEMENT (1560/1562/1660)

### 1.2.1 AUTO POWER OFF

Specify the time interval (1~254 min.; 0= disable) for the scanner to wait for a computer to establish a connection via a Bluetooth dongle. By default, the scanner will stay active for 10 minutes waiting for a connection request. If it fails to connect within the time interval, the scanner will automatically turn off in order to conserve battery power. Hold down the trigger (1560/1562) or [Power/Delete] key (1660) for 3 seconds to turn it on. On your computer, you will have to search Bluetooth devices again.

### 1.2.2 LOW BATTERY ALARM

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

- ▶ For 1560/1562, the specified battery level is 3.4 V.
- ▶ For 1660, "2.6 V (Alkaline)" is selected for low battery level by default. If you are using Ni-MH batteries, select "2.1 V (Ni-MH)".

## 1.3 STATUS INDICATOR

### 1.3.1 BEEPER VOLUME

Beeping is used to indicate various kinds of conditions, such as Good Read, buffer full status, configuration status, etc. Select a suitable volume.

### 1.3.2 GOOD READ BEEP

Good Read Beep is always enabled. By default, beeper frequency is set to 4 KHz and duration is set to shortest. Select a different frequency and duration if necessary.

### 1.3.3 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 "NO READ" SUPPORT (SEND "NR" TO HOST)

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

## 1.5 READ NEGATIVE BARCODE

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

## 1.6 CCD ALWAYS ACTIVE (1560 ONLY)

This feature is used to keep the CCD sensor always active so that the scanner can decode more efficiently.

---

Note: For the 1500 scanner, it is set to "Always Active" and not allowed to change.

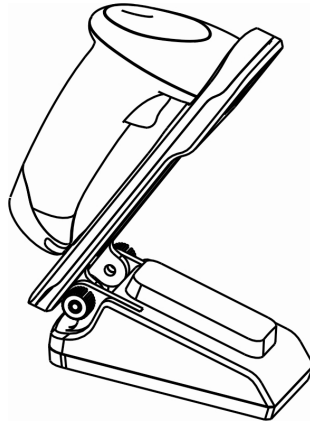
---



## 1.7 AUTO SENSE (1500/1560)

This mode is only applicable when you want to seat the 1500/1560 scanner in the Auto-Sense Stand. The scanner will be scanning as long as it is seated in the Auto-Sense Stand, as shown below. Whenever a barcode is brought within range, the scanner will be able to decode it.

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



---

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

---

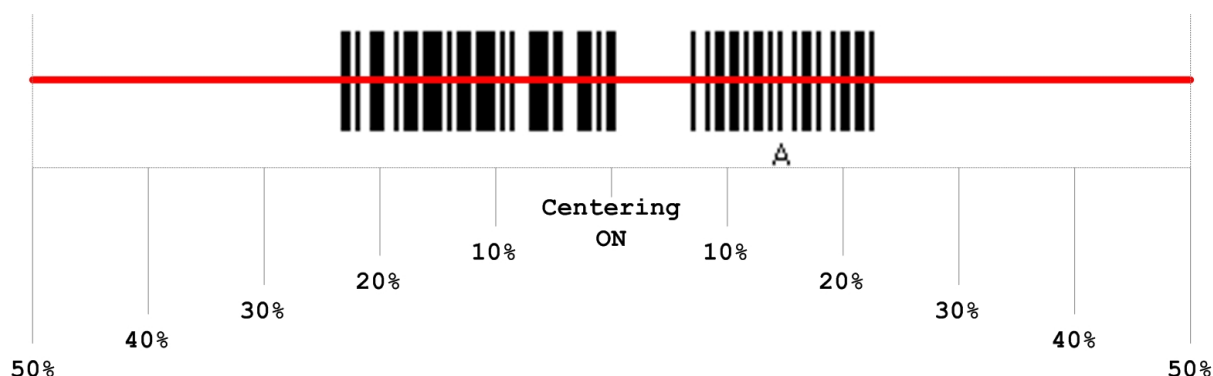
## 1.8 MEMORY MODE (1560/1562/1660)

By default, memory mode is disabled. When the scanner is set to memory mode, it means a WPAN connection is disabled.

- ▶ For 1560/1562, it keeps 512 KB flash memory for memory mode operation.
- ▶ For 1660, it keeps 256 KB flash memory for memory mode operation.

## 1.9 EFFECTIVE DECODING AREA

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



## 1.10 TRANSMIT BUFFER (1560/1562/1660)

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

- ▶ For 1560/1562 with 4 KB transmit buffer, it can ignore the transmission status and keep on reading barcodes until the buffer is full.
- ▶ For 1660 with 1 KB transmit buffer, it can ignore the transmission status and keep on reading barcodes until the buffer is full.

### Transmit Buffer Enabled

- ▶ When transmit buffer is enabled and the scanner is out of range, the scanner will respond with two short beeps, high-low tone, upon reading a barcode successfully.
- ▶ When transmit buffer is full, the scanner will respond with one long beep (low tone) and its LED indicator will become solid red and go off quickly. You are advised to get back to range.

### Transmit Buffer Disabled

- ▶ When transmit buffer is disabled and the scanner is out of range, the scanner will respond with one long beep (low tone). You are advised to get back to range.

## SELECTING OUTPUT INTERFACE

---

By default, the output interface is set to "Keyboard Wedge" for 1500 and "Bluetooth HID" for 1560/1562/1660. In order to establish a proper connection between your computer and the scanner, we suggest that you follow these instructions –

- 1) Turn off your computer or laptop.
- 2) Connect the communication cable between the 1500 scanner and your computer.  
If using the RS-232 cable, join the power supply cord.
  - ▶ If you are connecting the scanner to the USB port of the host computer via USB HID cable (part # 307), refer to [2.1 Keyboard Wedge](#) for related settings.
  - ▶ If you are connecting the scanner to the USB port of the host computer via USB Virtual COM cable (part # 308), refer to [2.2 RS-232](#) related settings.
  - ▶ If you are connecting the scanner to the IBM POS 4683/4694 via the converter cable (part # 346), refer to [2.1 Keyboard Wedge](#) for related settings.
- 3) Turn on your computer or laptop.

---

Note: For the 1660 scanner, install batteries and press the [Delete] key for 3 seconds to turn on the scanner.

---

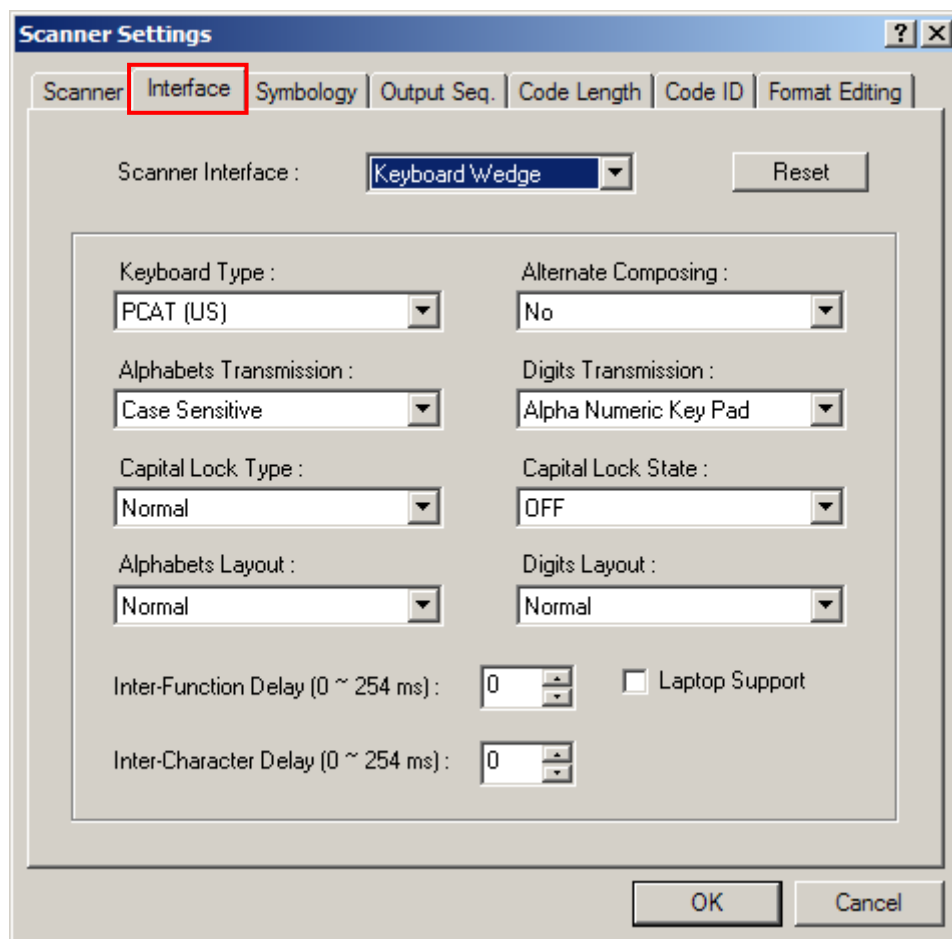
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## 2.1 KEYBOARD WEDGE

By default, Keyboard Wedge is activated on the 1500 scanner. Connect the scanner between the keyboard input port of the host computer and the keyboard using the "Y-shaped" keyboard wedge cable. The scanned data will be transmitted to the host keyboard port as if it is manually entered via the keyboard.



### 2.1.1 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)	15	PS55 001-81
2	PCAT (French)	16	PS55 001-2
3	PCAT (German)	17	PS55 001-82
4	PCAT (Italian)	18	PS55 001-3
5	PCAT (Swedish)	19	PS55 001-8A

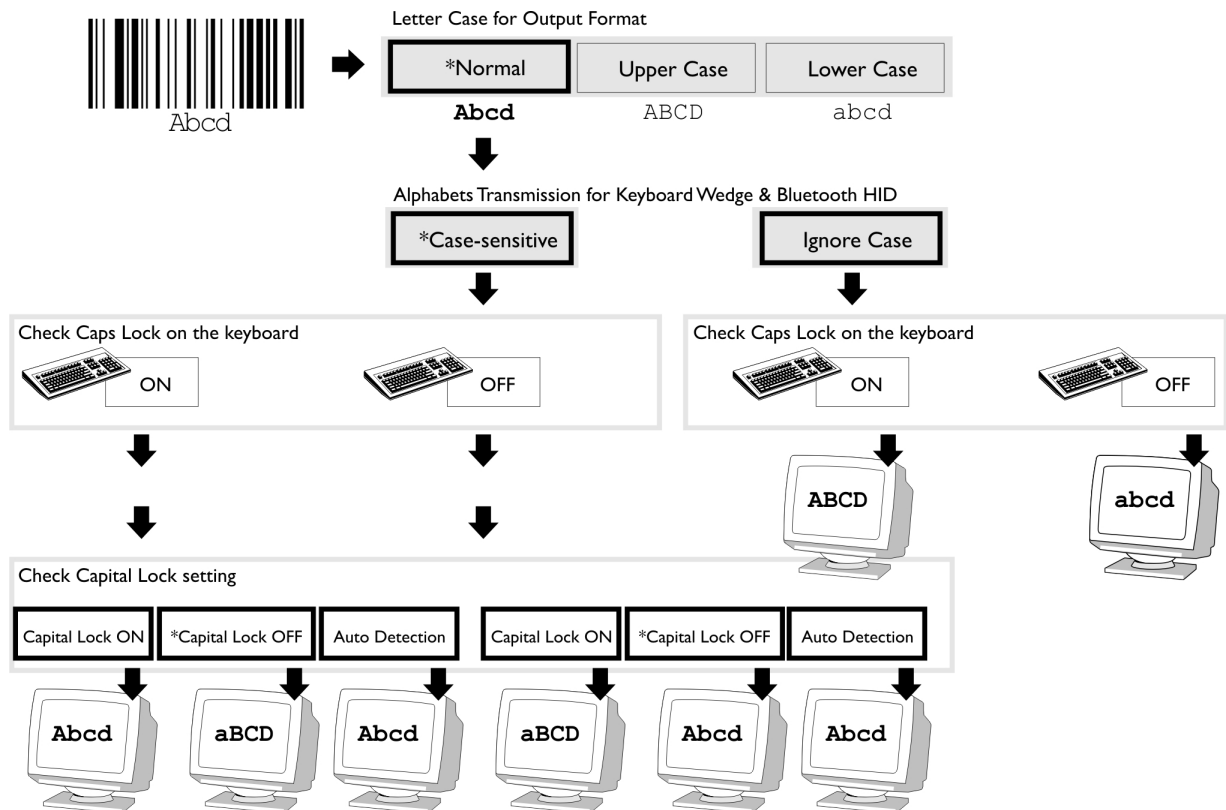
6	PCAT (Norwegian)	20	PS55 002-1, 003-1
7	PCAT (UK)	21	PS55 002-81, 003-81
8	PCAT (Belgium)	22	PS55 002-2, 003-2
9	PCAT (Spanish)	23	PS55 002-82, 003-82
10	PCAT (Portuguese)	24	PS55 002-3, 003-3
11	PS55 A01-1	25	PS55 002-8A, 003-8A
12	PS55 A01-2 (Japanese)	26	IBM 3477 Type 4 (Japanese)
13	PS55 A01-3	27	PS2-30
14	PS55 001-1	28	IBM 34XX/319X, Memorex Telex 122 Keys

### 2.1.2 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.

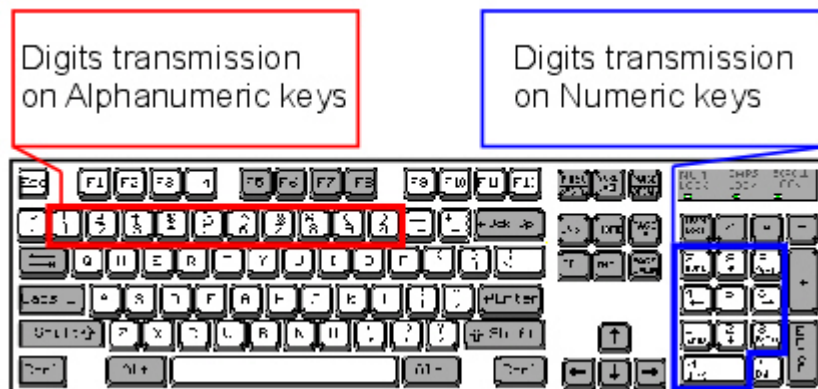
### 2.1.3 ALPHABETS TRANSMISSION

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



## 2.1.4 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". This setting is not supported on PDAs.

## 2.1.5 CAPITAL LOCK TYPE

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

## 2.1.6 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
<i>Capital Lock OFF</i>	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).
<i>Capital Lock ON</i>	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.

<i>Auto Detection</i>	<p>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).</p> <p>► This setting is not supported on PDAs.</p>
-----------------------	--

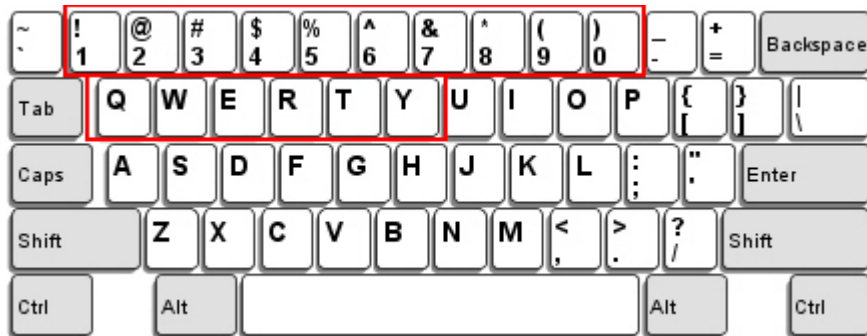
### 2.1.7 ALPHABETS LAYOUT

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

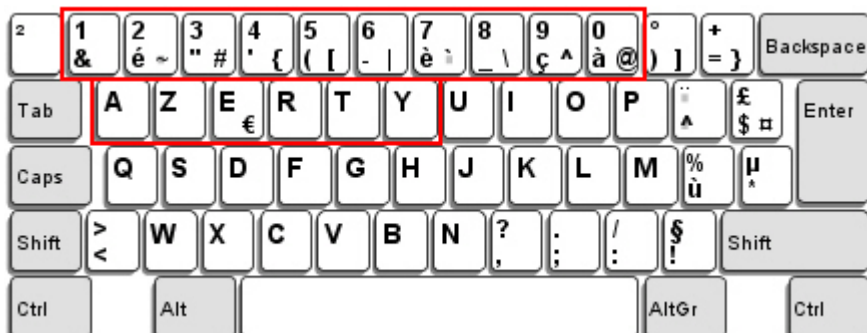
QWERTY layout, which is normally used in western countries.



- Select "Lower Row" for the "Digits Layout" setting for the upper row is for special characters.

#### French Keyboard Style – AZERTY

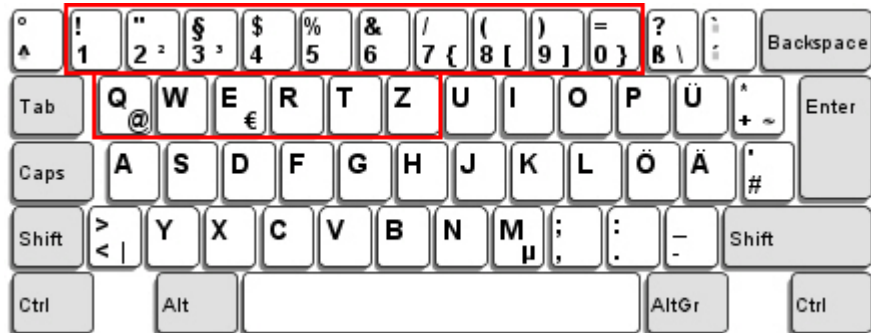
French layout; see below for French Keyboard Style.



- 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.

### 2.1.8 DIGITS LAYOUT

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

Options	Description
<i>Normal</i>	Depends on the [Shift] key or [Shift Lock] setting
<i>Lower Row</i>	For QWERTY and QWERTZ keyboards
<i>Upper Row</i>	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.

### 2.1.9 LAPTOP SUPPORT

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



### 2.1.10 INTER-CHARACTER DELAY

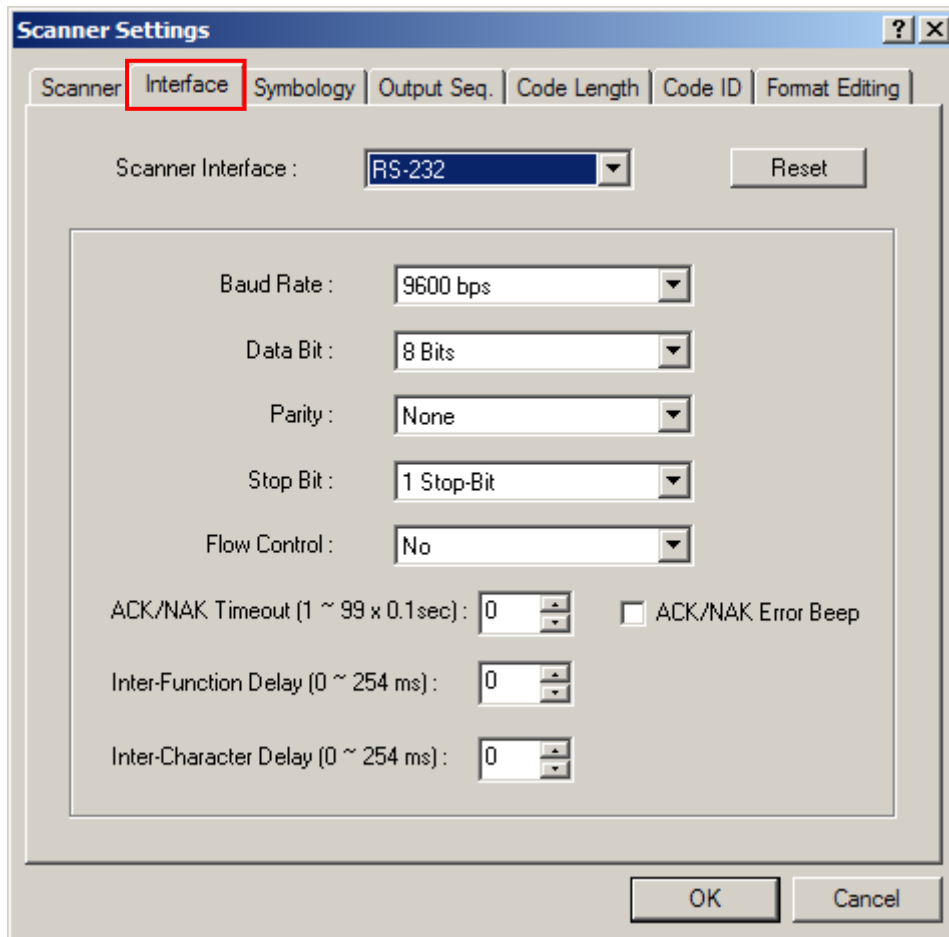
By default, the inter-character delay is set to zero. Enter a value, ranging from 0 to 254 in units of millisecond, to match the computer response time of the keyboard interface. Such delay time is inserted between every character being transmitted. The longer the delay time is, the slower the transmission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

### 2.1.11 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 keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

## 2.2 RS-232

For the 1500 scanner, connect the scanner 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.



### 2.2.1 BAUD RATE

By default, it is set 9600 bps for the baud rate setting. Select other value that matches your computer settings.

### 2.2.2 DATA BITS

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

### 2.2.3 PARITY

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

### 2.2.4 STOP BIT

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

### 2.2.5 FLOW CONTROL

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

Options	Description
<i>No</i>	No flow control
<i>Scanner Ready</i>	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.
<i>Data Ready</i>	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.
<i>Inverted Data Ready</i>	It works the same as the Data Ready flow control, except that the RTS signal level is inverted.

### 2.2.6 INTER-CHARACTER DELAY

By default, the inter-character delay is 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.

### 2.2.7 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 keyboard interface. Such delay time is inserted between every function code (0x01 ~ 0x1F) being transmitted. The longer the delay time is, the slower the transmission speed will be.

### 2.2.8 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.

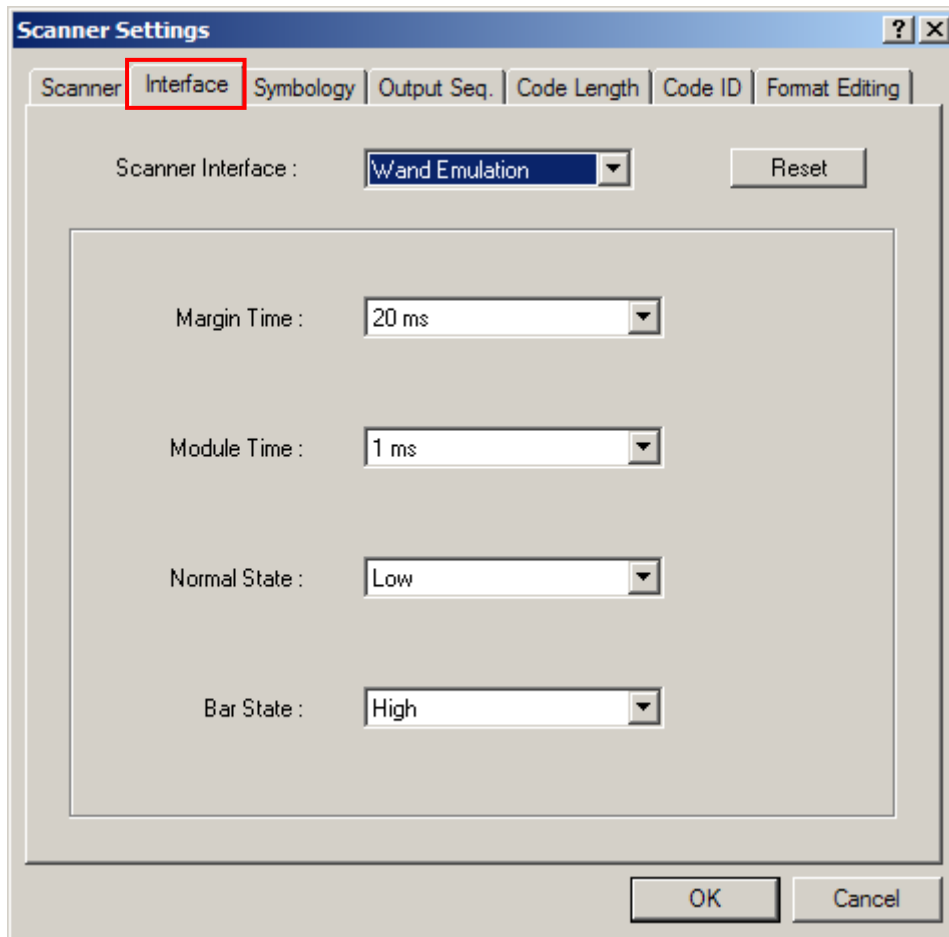
---

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

---

## 2.3 WAND EMULATION

Connect the scanner, to a portable data terminal or decoder that is expecting input from a wand scanner.



Note: Wands are handheld optical character readers used to read typewritten fonts, printed fonts, OCR fonts, and barcodes.

### 2.3.1 MARGIN TIME

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

### 2.3.2 MODULE TIME

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

### 2.3.3 NORMAL STATE

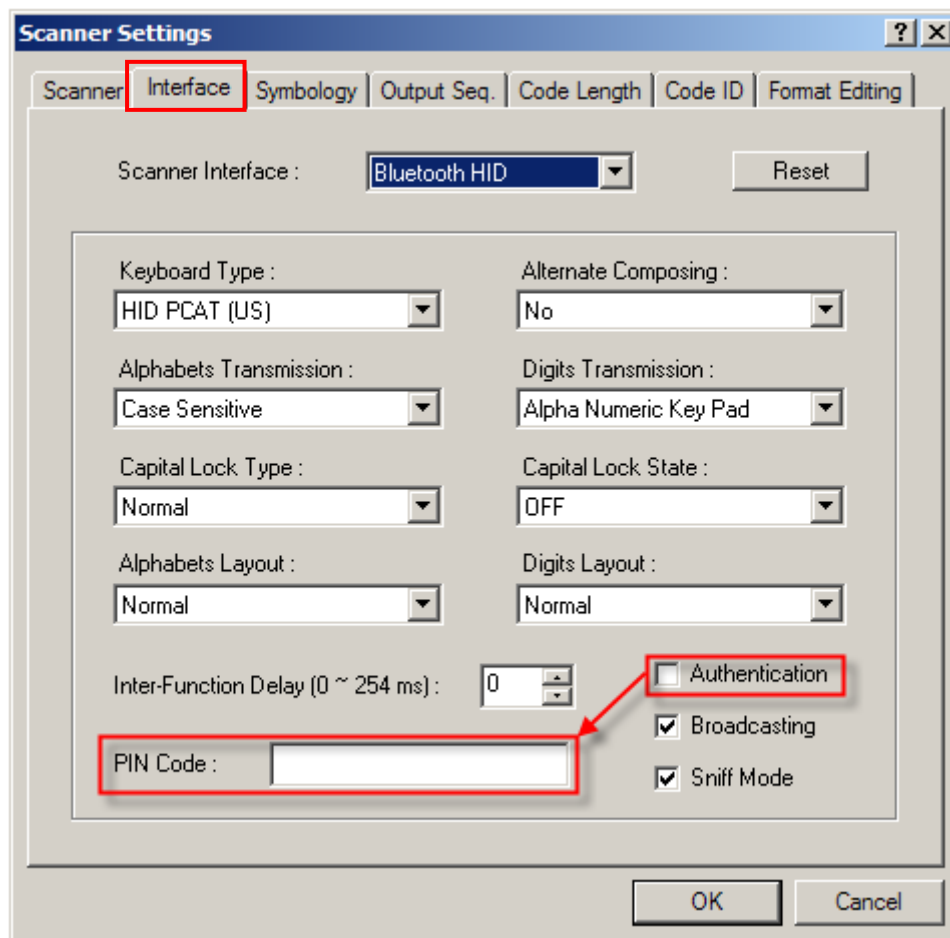
By default, the signal level is set "Low" for the normal state when not transmitting any barcode.

### 2.3.4 BAR STATE

By default, the signal level is set "High" for a bar when transmitting a barcode. Select "Low" for a bar if "High" for a space is desired.

## 2.4 BLUETOOTH HID

By default, Bluetooth HID is activated on the 1560/1562/1660 scanner.



### 2.4.1 KEYBOARD TYPE

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

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

## 2.4.2 KEYBOARD SETTINGS

Refer to [2.1 Keyboard Wedge](#). Please ignore Alphabets Layout and Alternate Composing for Bluetooth HID.

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

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

## 2.4.3 INTER-FUNCTIONAL DELAY

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

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

## 2.4.4 AUTHENTICATION

For security concerns, it is suggested that you enable authentication and specify a unique PIN code, also known as the passkey used to pair two devices before establishing a WPA connection. 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

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

☒ Authentication

PIN Code : [1][2][3][4]

---

**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

**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.

**Note:** When using BT HID, some device driver may not support pre-defined PIN code for authentication. In this case, make sure you cancel the check box of "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.

## 2.4.5 BROADCASTING

The scanner can be configured to hide itself from other devices equipped with *Bluetooth*<sup>®</sup> wireless technology. Simply disable the device name broadcasting setting so that it won't be discovered by any other computer or PDA. However, broadcasting must be enabled for establishing an initial connection with the scanner.

For example, you can disable device name broadcasting after successfully connecting the scanner to WorkStation1. Such connection will be maintained automatically unless the scanner is removed from the paired device list (called unpairing) by WorkStation1 or any changes made to authentication and the PIN code. If you want WorkStation2 to connect to the scanner, you will have to enable device name broadcasting first.



---

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

---

#### 2.4.6 SNIFF MODE

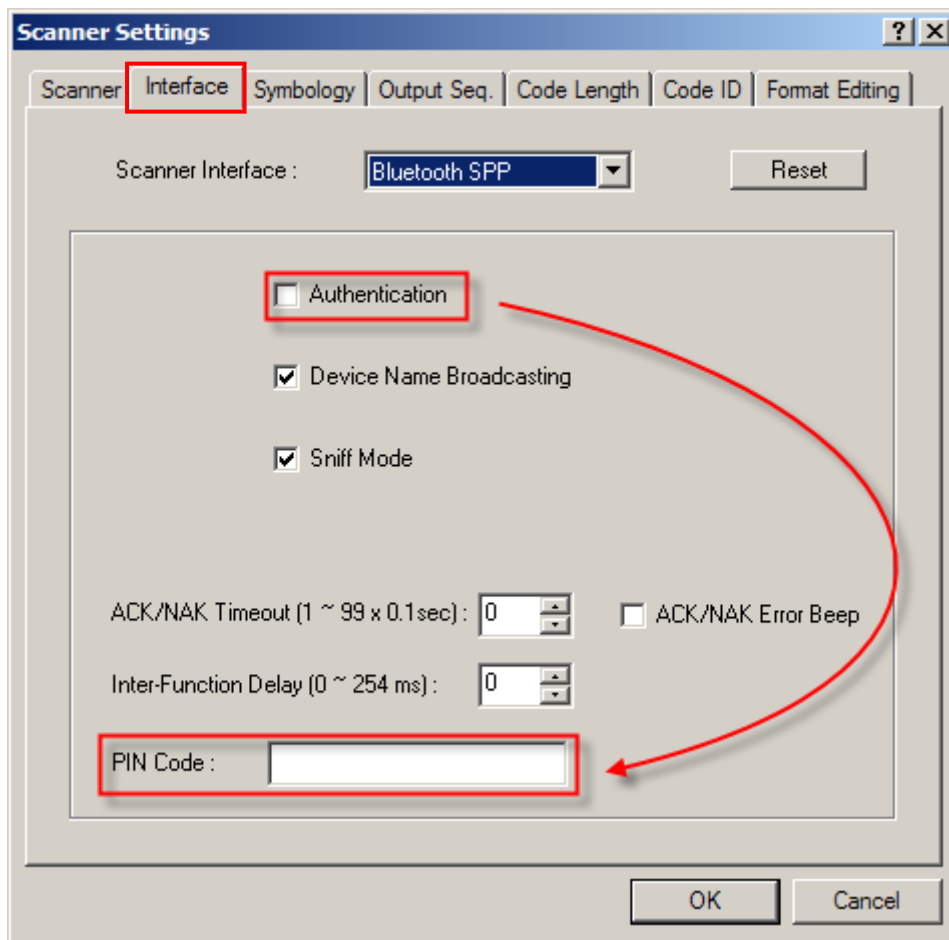
This is Bluetooth standard power-saving feature, also known as Sniff mode. By default, it is enabled, and the scanner will listen to the wireless network at a reduced rate.

---

Note: When connecting more than two 1560/1562/1660 scanners to a notebook computer or PDA with *Bluetooth*<sup>®</sup> wireless technology, we suggest you to disable the power-saving setting for a more reliable connection.

---

## 2.5 BLUETOOTH SPP



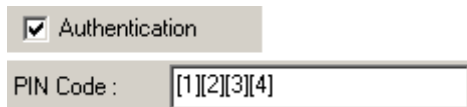
### 2.5.1 AUTHENTICATION

For security concerns, it is suggested that you enable authentication and specify a unique PIN code, also known as the passkey used to pair two devices before establishing a WPA connection. 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:

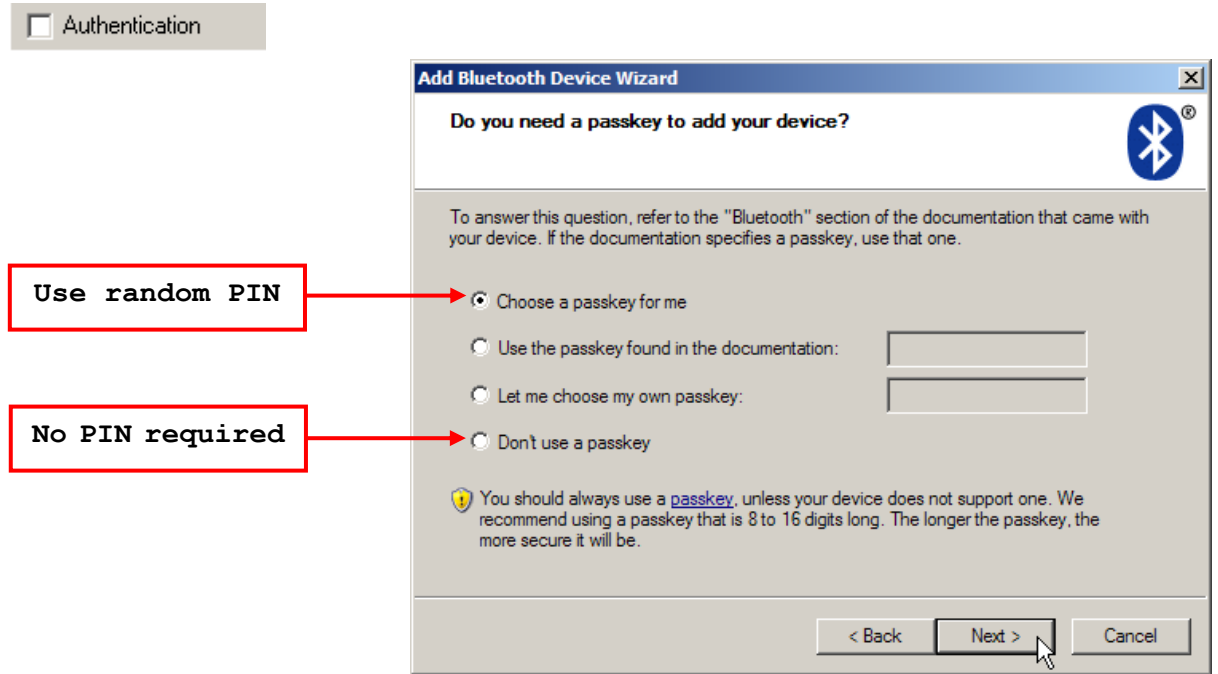
#### Enable Authentication with Preset PIN

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



### 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.)



Note: When using BT HID, some device driver may not support pre-defined PIN code for authentication. In this case, make sure you cancel the check box of "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.

## 2.5.2 DEVICE NAME BROADCASTING

The scanner can be configured to hide itself from other devices equipped with *Bluetooth*<sup>®</sup> wireless technology. Simply disable the device name broadcasting setting so that it won't be discovered by any other computer or PDA. However, broadcasting must be enabled for establishing an initial connection with the scanner.

For example, you can disable device name broadcasting after successfully connecting the scanner to WorkStation1. Such connection will be maintained automatically unless the scanner is removed from the paired device list (called unpairing) by WorkStation1 or any changes made to authentication and the PIN code. If you want WorkStation2 to connect to the scanner, you will have to enable device name broadcasting first.

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

### 2.5.3 SNIFF MODE (POWER-SAVING)

This is Bluetooth standard power-saving feature, also known as Sniff mode. By default, it is enabled, and the scanner will listen to the wireless network at a reduced rate.

---

Note: When connecting more than two 1560/1562/1660 scanners to a notebook computer or PDA with *Bluetooth*® wireless technology, we suggest you to disable the power-saving setting for a more reliable connection.

---

### 2.5.4 INTER-FUNCTIONAL DELAY

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

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

### 2.5.5 ACK/NAK TIMEOUT

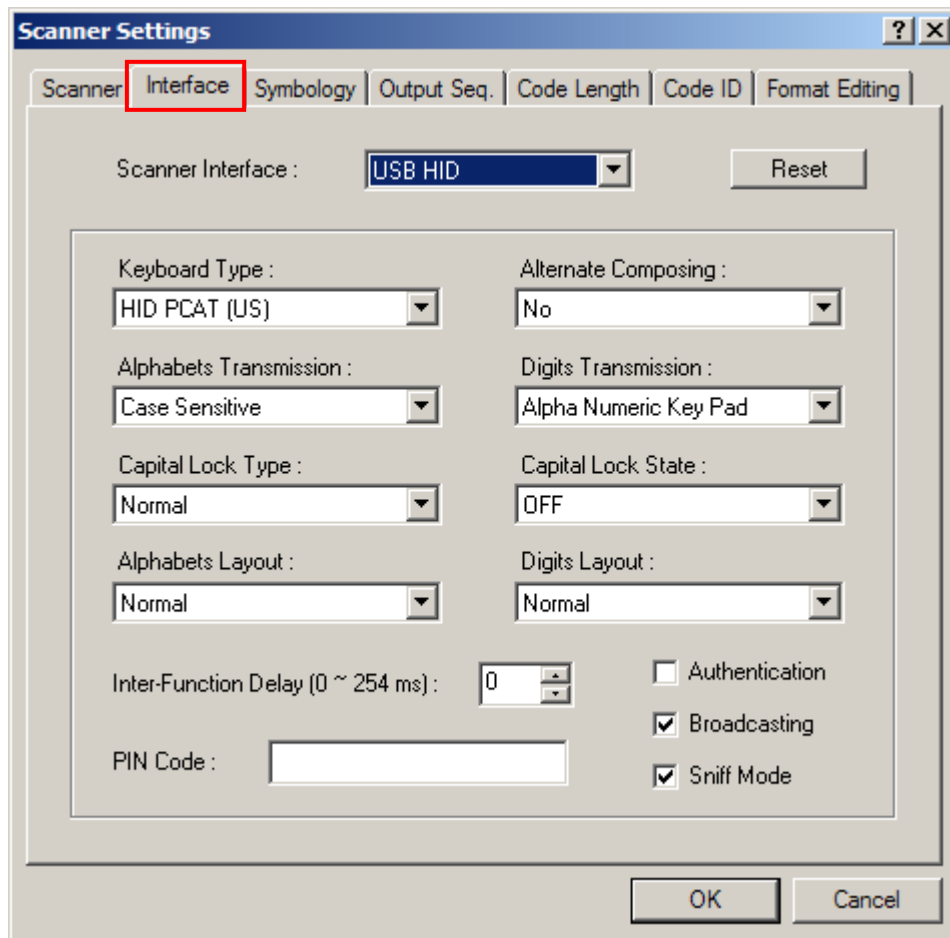
By default, the scanner sends data to the host without waiting for an ACK/NAK response before sending more data. Enter a value, ranging from 1 to 99 in units of 0.1 second. If no response within the specified period of time, the scanner will attempt to send the same data three more times. If all the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

---

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

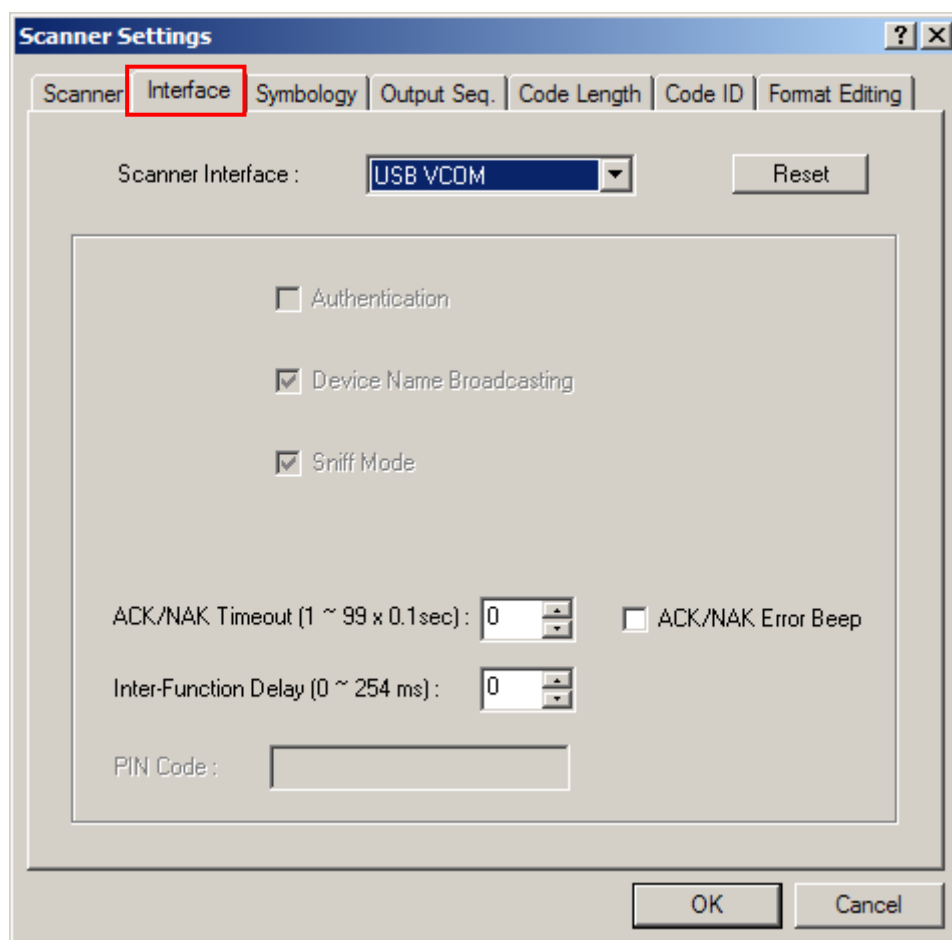
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Refer to [2.4 Bluetooth HID](#).



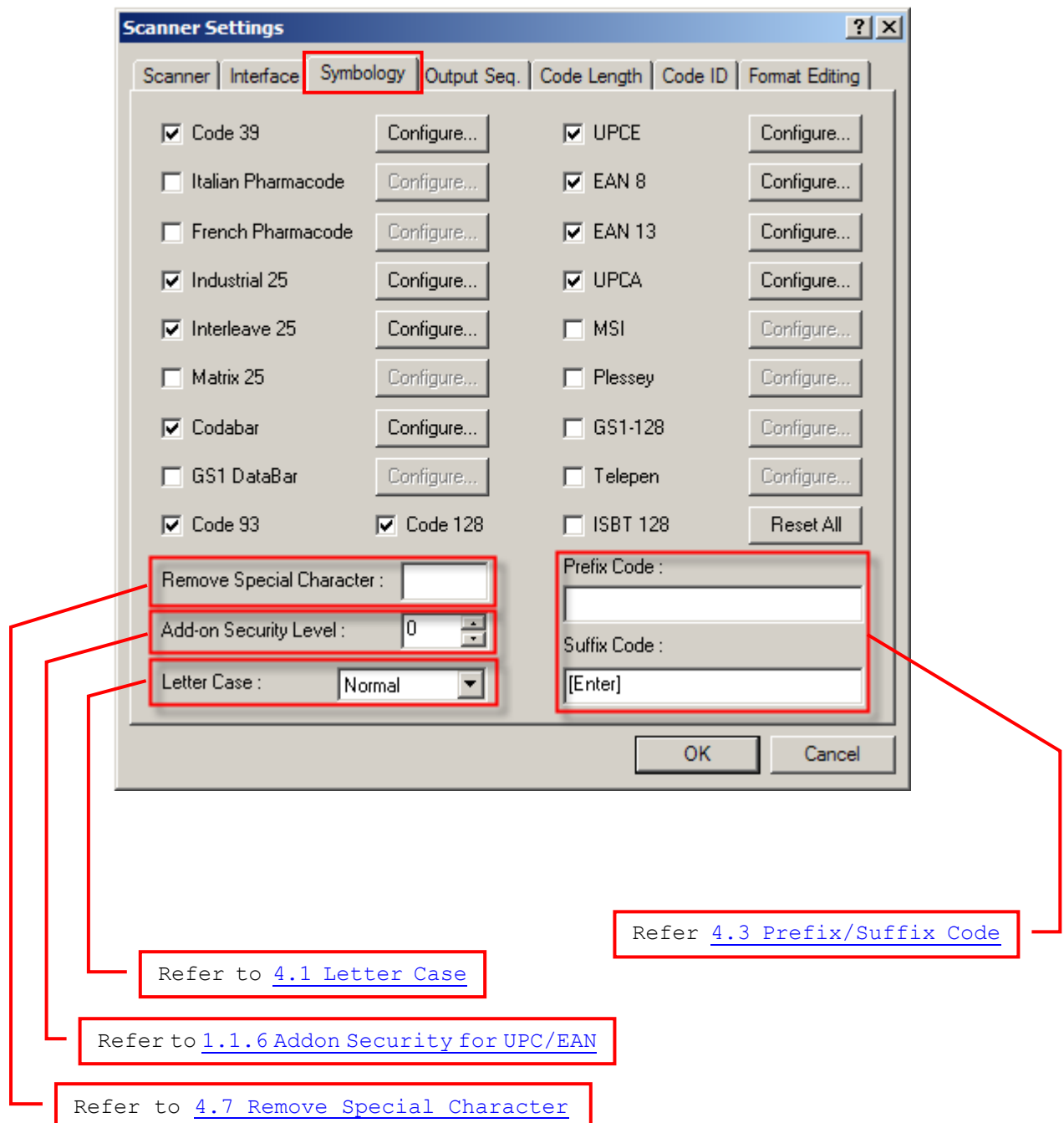
## 2.7 USB VIRTUAL COM

Refer to [2.5 Bluetooth SPP](#).



## CHANGING SYMBOLOGY SETTINGS

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.



## IN THIS CHAPTER

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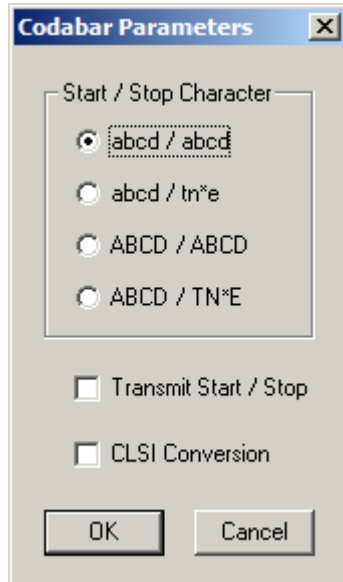
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### 3.1 CODABAR

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

- ▶ Advanced settings are provided as shown below.



#### Start/Stop Character

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

#### Transmit Start/Stop Character

Select the check box so that the selected start/stop characters will be included in the data being transmitted.

#### CLSI Conversion

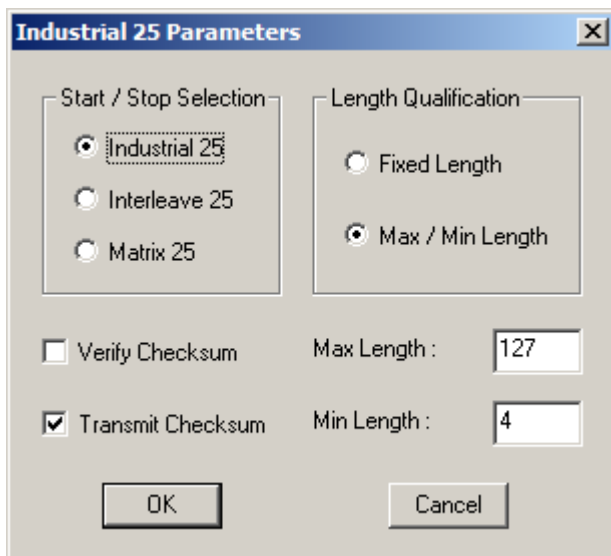
Select the check box so that the start/stop characters will be stripped and a space will be inserted after the first, fifth, and tenth characters of a 14-character barcode.

- ▶ This applies to 14-character barcodes only; barcode length does not include the start and stop characters.

## 3.2 CODE 25 – INDUSTRIAL 25

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

- ▶ Advanced settings are provided as shown below.



### 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 be set to Interleaved 25.

### Verify Checksum

Select the check box so that the scanner will perform checksum verification when decoding Industrial 25 barcodes. If the checksum is incorrect, the barcode will not be accepted.

### Transmit Checksum

The checksum character will be included in the data being transmitted.

Cancel the check box if the checksum character is not desired.

### Length Qualification

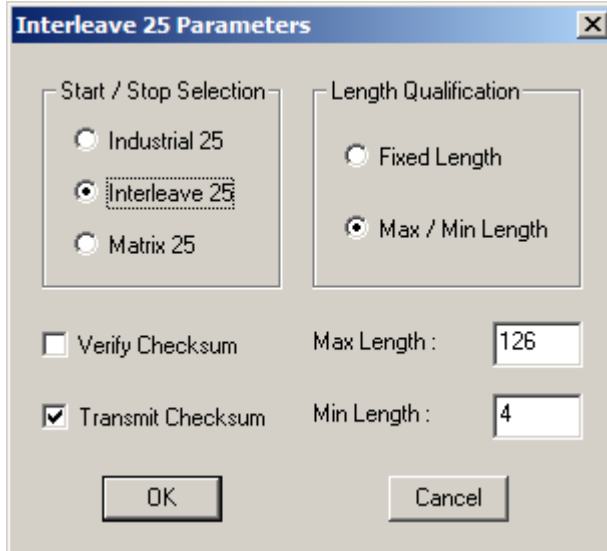
Because of the weak structure of the 2 of 5 barcodes, it is possible to make a "short scan" error. To prevent the "short scan" error, configure the "Length Qualification" settings to ensure that the correct barcode is read by qualifying the allowable code length. The barcode can be qualified by "Fixed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

### 3.3 CODE 25 – INTERLEAVED 25

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

- ▶ Advanced settings are provided as shown below. Refer to Industrial 25.



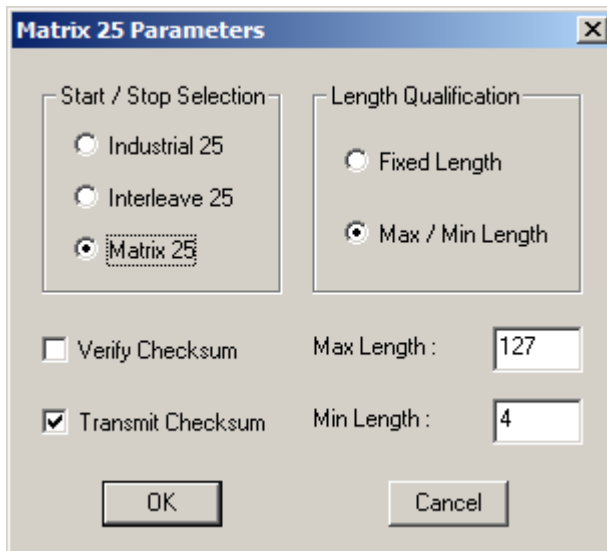
The 'Interleave 25 Parameters' dialog box contains the following settings:

- Start / Stop Selection:**
  - ☐ Industrial 25
  - ☒ Interleave 25
  - ☐ Matrix 25
- Length Qualification:**
  - ☐ Fixed Length
  - ☒ Max / Min Length
- ☐ Verify Checksum
- ☒ Transmit Checksum
- Max Length:** 126
- Min Length:** 4
- Buttons:** OK, Cancel

### 3.4 CODE 25 – MATRIX 25

Select the check box so that the scanner can read Matrix 25 barcodes.

- ▶ Advanced settings are provided as shown below. Refer to Industrial 25.



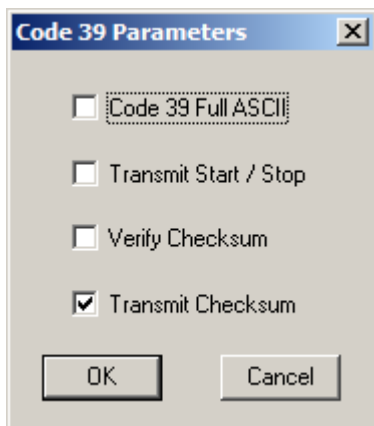
The 'Matrix 25 Parameters' dialog box contains the following settings:

- Start / Stop Selection:**
  - ☐ Industrial 25
  - ☐ Interleave 25
  - ☒ Matrix 25
- Length Qualification:**
  - ☐ Fixed Length
  - ☒ Max / Min Length
- ☐ Verify Checksum
- ☒ Transmit Checksum
- Max Length:** 127
- Min Length:** 4
- Buttons:** OK, Cancel

### 3.5 CODE 39

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

- ▶ Advanced settings are provided as shown below.



#### Code 39 Full ASCII

Select the check box so that the scanner will support Code 39 Full ASCII that includes all the alphanumeric and special characters.

#### Transmit Start/Stop

Select the check box so that the start/stop characters will be included in the data being transmitted.

#### Verify Checksum

Select the check box so that the scanner will perform checksum verification when decoding Code 39 barcodes. If the checksum is incorrect, the barcode will not be accepted.

#### Transmit Checksum

The checksum character will be included in the data being transmitted.  
Cancel the check box if the checksum character is not desired.

### 3.6 CODE 93

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

- ▶ No advanced settings are available.

### 3.7 CODE 128

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

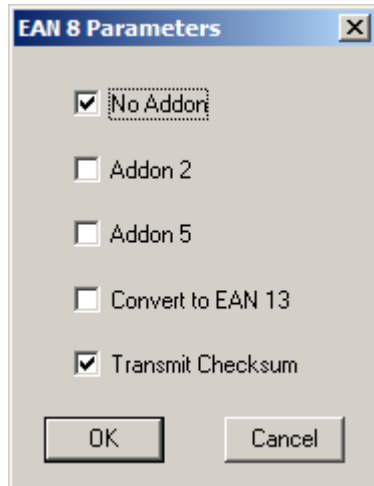
- ▶ No advanced settings are available.

### 3.8 EAN-8

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

Options of 2-digit and 5-digit extensions are available. Select the check box so that it can read Addon 2 and/or Addon 5.

- ▶ Advanced settings are provided as shown below.



#### EAN-8 Family

Select the check box to enable at least one type of the EAN-8 barcodes.

- ▶ EAN-8 (No Addon)
- ▶ EAN-8 Addon 2
- ▶ EAN-8 Addon 5

#### Convert to EAN-13

Select the check box so that the EAN-8 reading will be expanded into EAN-13. It will then be treated as an EAN-13 barcode and processed according to the settings of EAN-13.

#### Transmit Checksum

The checksum character will be included in the data being transmitted.

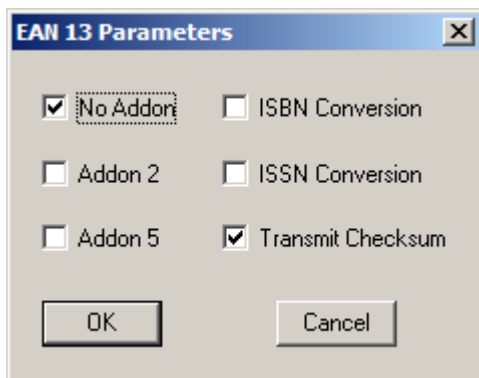
Cancel the check box if the checksum character is not desired.

### 3.9 EAN-13

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

Options of 2-digit and 5-digit extensions are available. Select the check box so that it can read Addon 2 and/or Addon 5.

- ▶ Advanced settings are provided as shown below.



#### EAN-13 Family

Select the check box to enable at least one type of the EAN-13 barcodes.

- ▶ EAN-13 (No Addon)
- ▶ EAN-13 Addon 2
- ▶ EAN-13 Addon 5

#### ISBN Conversion

Select the check box so that the reading of EAN-13 barcodes that starts with 978 and 979 will be converted to ISBN.

#### ISSN Conversion

Select the check box so that the reading of EAN-13 barcodes that starts with 977 will be converted to ISSN.

#### Transmit Checksum

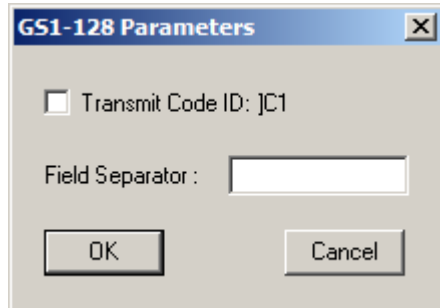
The checksum character will be included in the data being transmitted.

Cancel the check box if the checksum character is not desired.

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

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

- ▶ Advanced settings are provided as shown below.



#### Transmit Code ID

Select the check box so that the default Code ID ("]C1") will be included in the data being transmitted.

#### Field Separator

The FNC1 character is used to separate fields in the barcode. It is not represented in the readable text. To replace the FNC1 character with readable characters, click the field and choose characters from the pop-up window of Grid Control.

- ▶ Up to 2 characters can be chose from the Grid Control.
- ▶ When "Keyboard Wedge" is selected for interface, options of Key Type/Key Status are available.

### 3.11 ISBT 128

Select the check box so that the scanner can read ISBT 128 barcodes.

- ▶ No advanced settings are available.

## 3.12 MSI

Select the check box so that the scanner can read MSI barcodes.

- ▶ Advanced settings are provided as shown below.

The screenshot shows the 'MSI Parameters' dialog box. It contains three main sections with radio button options. The 'Checksum Verification' section has 'Single Modulo 10' selected. The 'Checksum Transmission' section has 'Last digit not transmitted' selected. The 'Length Qualification' section has 'Max / Min Length' selected. To the right of this section, 'Max Length' is set to 127 and 'Min Length' is set to 4. The dialog includes 'OK' and 'Cancel' buttons at the bottom.

### Checksum Verification

Select the checksum calculation used to verify MSI barcodes. If the checksum is incorrect, the barcode will not be accepted.

### Checksum Transmission

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.

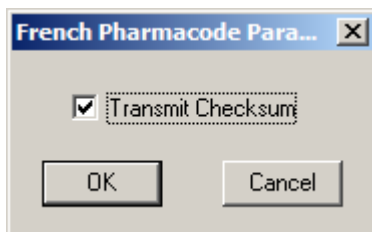


### 3.13 FRENCH PHARMACODE

Select the check box so that the scanner can read French Pharmacode barcodes.

- ▶ Advanced settings are provided as shown below.

Checksum verification will be performed when decoding these barcodes because a checksum character is always included. However, it is optional to transmit the checksum character.



#### Transmit Checksum

The checksum character will be included in the data being transmitted.

Cancel the check box if the checksum character is not desired.

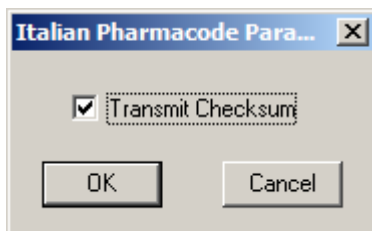
Note: These barcodes share the **Transmit Start/Stop** setting with Code 39.

### 3.14 ITALIAN PHARMACODE

Select the check box so that the scanner can read Italian Pharmacode barcodes.

- ▶ Advanced settings are provided as shown below.

Checksum verification will be performed when decoding these barcodes because a checksum character is always included. However, it is optional to transmit the checksum character.



#### Transmit Checksum

The checksum character will be included in the data being transmitted.

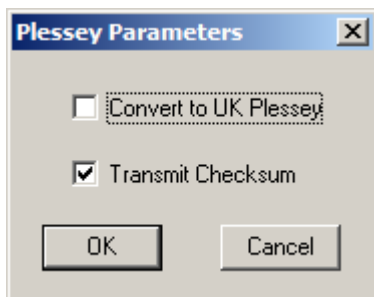
Cancel the check box if the checksum character is not desired.

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

### 3.15 PLESSEY

Select the check box so that the scanner can read Plessey barcodes.

- ▶ Advanced settings are provided as shown below.



#### Convert to UK Plessey

Select the check box so that the scanner will change each occurrence of the character "A" to character "X" in the barcodes.

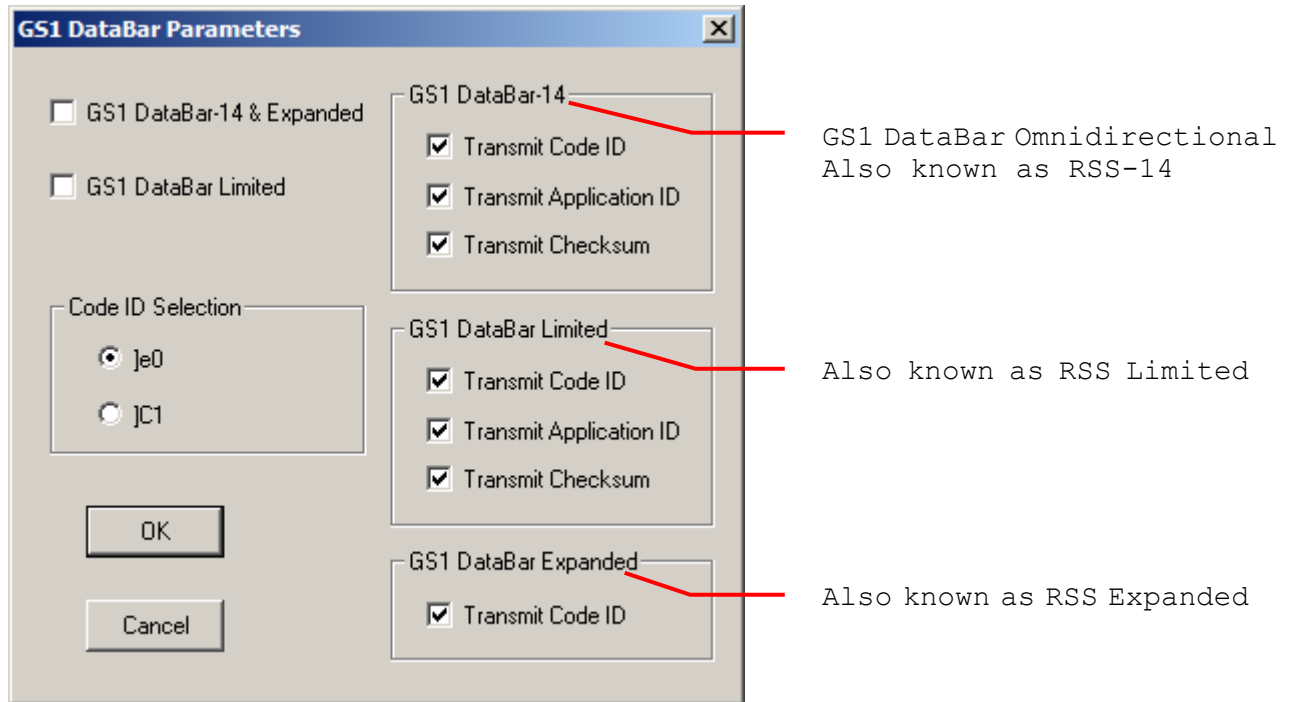
#### Transmit Checksum

The checksum characters (two digits) will be included in the data being transmitted.  
Cancel the check box if the checksum characters are not desired.

### 3.16 GS1 DATABAR (RSS FAMILY)

Select the check box so that the scanner can read GS1 DataBar (also known as RSS) barcodes.

- ▶ Advanced settings are provided as shown below.



#### GS1 DataBar (RSS Family)

Select the check box to enable at least one type of the GS1 DataBar barcodes.

- ▶ GS1 DataBar-14 & Expanded
- ▶ GS1 DataBar Limited

#### Code ID Selection

By default, the Code ID of GS1 DataBar (RSS) barcodes is "Je0". You may select to use "JC1" instead.

- ▶ "JC1" is the Code ID of GS1-128 (EAN-128) barcodes.

#### Transmit Code ID

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

Cancel the check box if the Code ID is not desired.

#### Transmit Application ID

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

Cancel the check box if the Application ID is not desired.

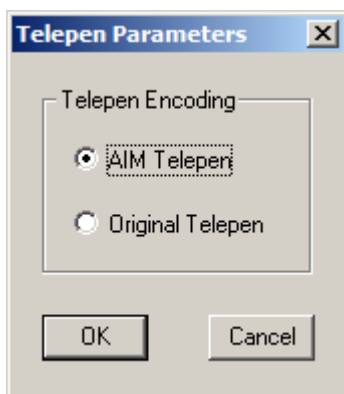
#### Transmit Check Digit

The checksum character will be included in the data being transmitted.  
Cancel the check box if the checksum character is not desired.

### 3.17 TELEPEN

Select the check box so that the scanner can read Telepen barcodes.

- ▶ Advanced settings are provided as shown below.



#### Telepen Full ASCII or Numeric

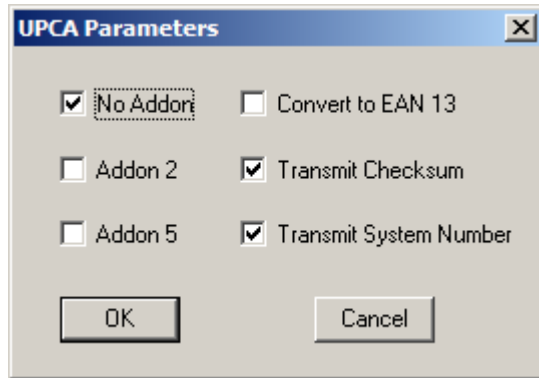
Select whether AIM Telepen (Full ASCII) or Original Telepen (Numeric) is supported.

### 3.18 UPC-A

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

Options of 2-digit and 5-digit extensions are available. Select the check box so that it can read Addon 2 and/or Addon 5.

- ▶ Advanced settings are provided as shown below.



#### UPC-A Family

Select the check box to enable at least one type of the UPC-A barcodes.

- ▶ UPC-A (No Addon)
- ▶ UPC-A Addon 2
- ▶ UPC-A Addon 5

#### Convert to EAN-13

Select the check box so that the UPC-A reading will be expanded into EAN-13. It will then be treated as an EAN-13 barcode and processed according to the settings of EAN-13.

#### Transmit Checksum

The UPC-A checksum character will be included in the data being transmitted.

Cancel the check box if the checksum character is not desired.

#### Transmit System Number

The system number will be included in the data being transmitted.

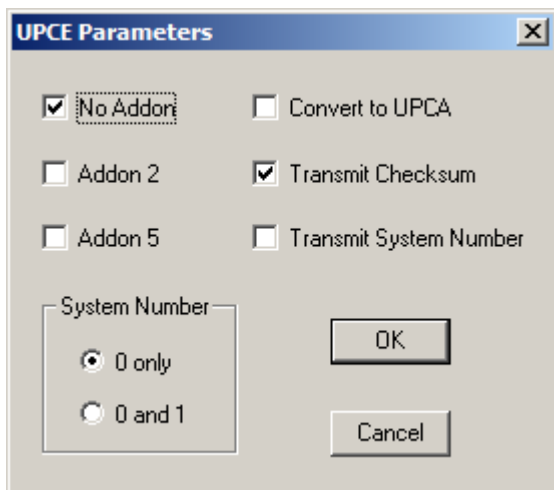
Cancel the check box if the system number is not desired.

### 3.19 UPC-E

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

Options of 2-digit and 5-digit extensions are available. Select the check box so that it can read Addon 2 and/or Addon 5.

- ▶ Advanced settings are provided as shown below.



#### UPC-E Family

Select the check box to enable at least one type of the UPC-E barcodes.

- ▶ UPC-E (No Addon)
- ▶ UPC-E Addon 2
- ▶ UPC-E Addon 5

#### System Number

By default, the System Number is "0". You may select to use both "0" and "1".

#### Convert to UPC-A

Select the check box so that the UPC-E reading will be expanded into UPC-A. It will then be treated as a UPC-A barcode and processed according to the settings of UPC-A.

#### Transmit System Number

Select the check box so that the system number will be included in the data being transmitted.

#### Transmit Checksum

The checksum character will be included in the data being transmitted.

Cancel the check box if the checksum character is not desired.

## DEFINING OUTPUT FORMAT

---

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

- 1) Perform character substitution on the data scanned.
- 2) Add [Code ID](#) and [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]

Refer to [How to Configure the Scanner](#) for the flow chart of data process.

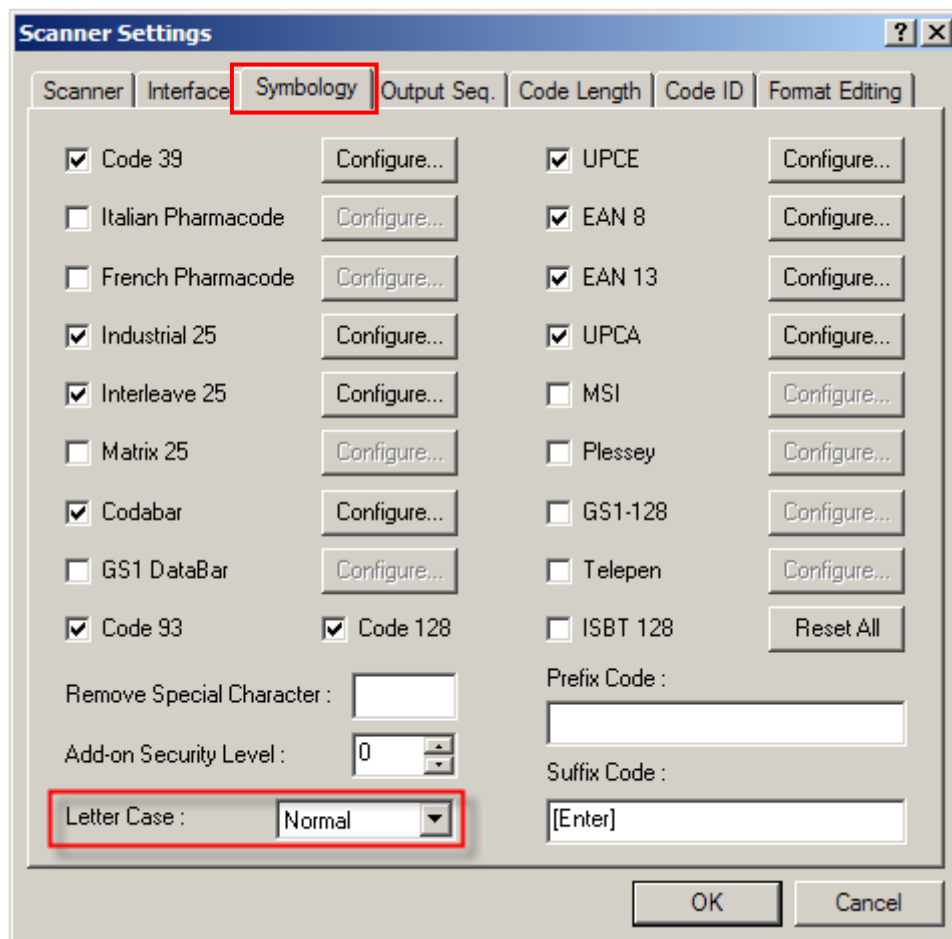
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## 4.1 LETTER CASE

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



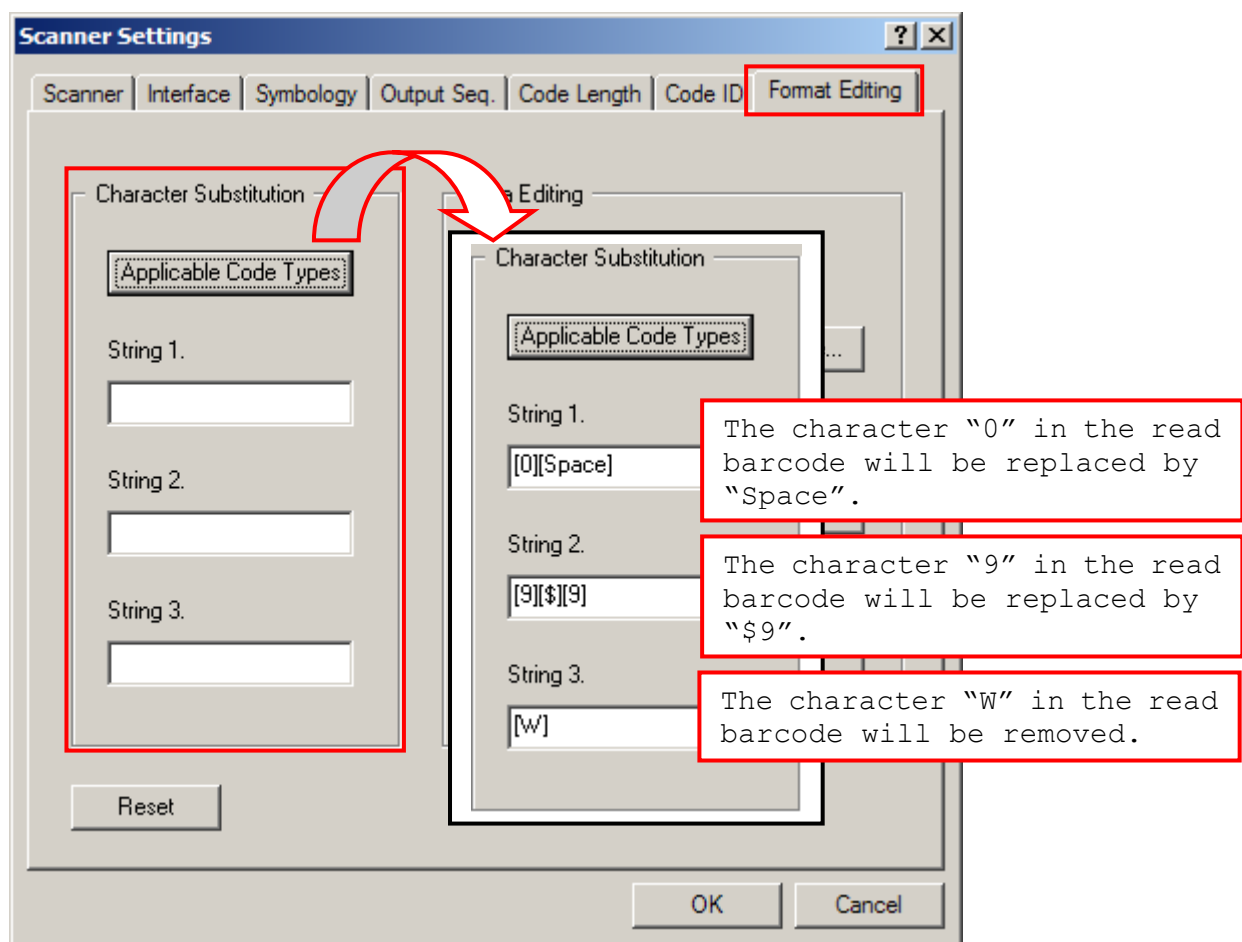


## 4.2 CHARACTER SUBSTITUTION

Character substitution is performed on every occurrence of the first character entered. Click the field to choose characters from the pop-up window of [Grid Control](#). If only one character is entered, every occurrence of that character in the barcode will be taken away.

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

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



### 4.2.1 APPLICABLE CODE TYPES

By default character substitution will be performed on all symbologies. If it is not desired with one or more symbologies, click this button and then cancel the check box of each undesired symbologies and all the three sets will not be applied to them.

### 4.3 PREFIX/SUFFIX CODE

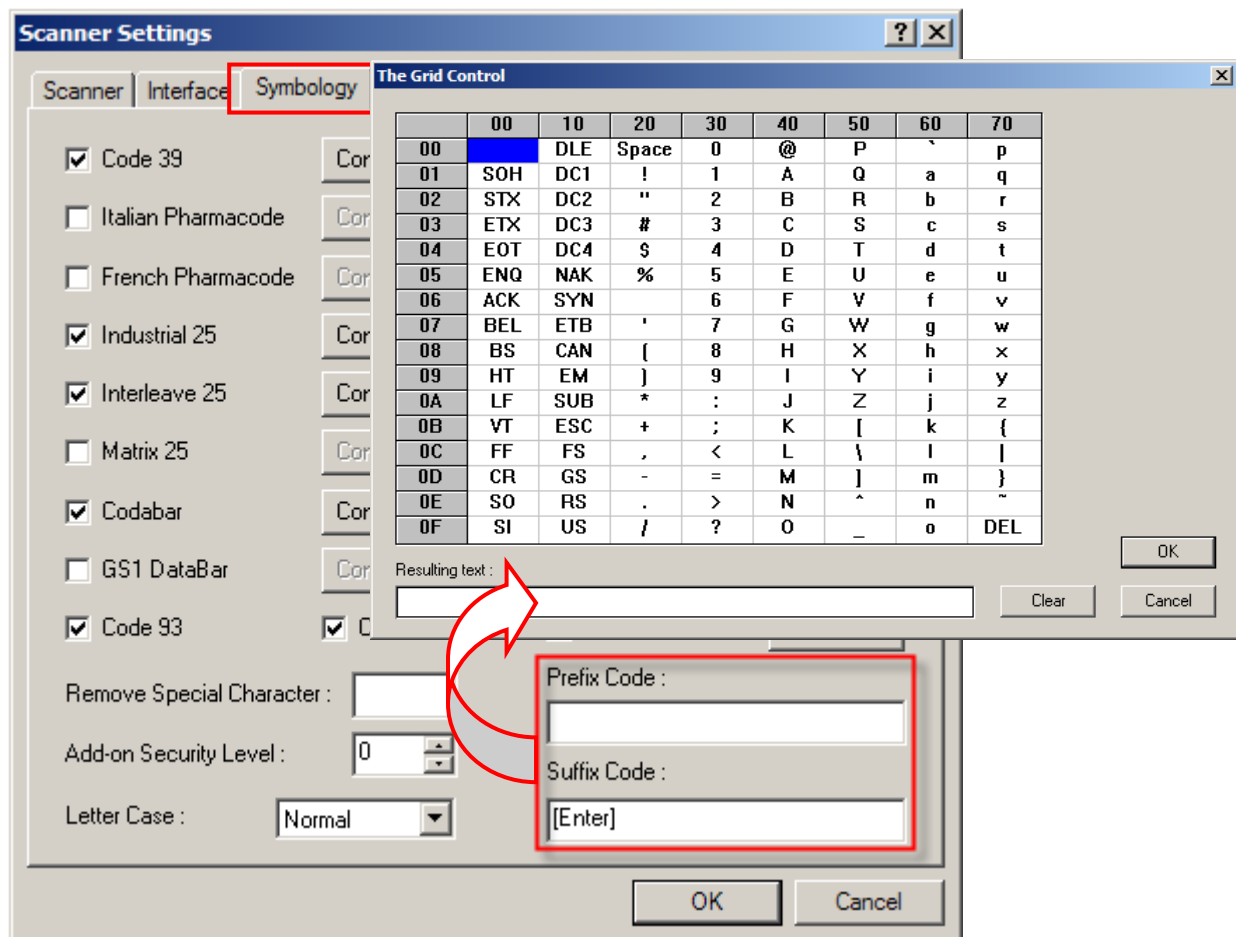
Click the Prefix Code or Suffix Code field so that you can choose characters from the pop-up window of Grid Control (see Grid Control — Original below).

- ▶ Prefix Code: None
- ▶ Suffix Code: By default, [ENTER] or [CR] (Carriage Return) is entered.

Up to eight characters can be chose 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" is selected for interface, the Grid Control will be different and provide options of Key Type/Key Status. Decide whether or not to apply Key Status when "Normal Key" is selected for Key Type.

#### 4.3.1 GRID CONTROL — ORIGINAL



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

### 4.3.2 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.

	00	10	20	30	40	50	60	70	80
00		F2	Space	0	@	P	`	p	0*
01	Insert	F3	!	1	A	Q	a	q	1*
02	Delete	F4	"	2	B	R	b	r	2*
03	Home	F5	#	3	C	S	c	s	3*
04	End	F6	\$	4	D	T	d	t	4*
05	Up	F7	%	5	E	U	e	u	5*
06	Down	F8		6	F	V	f	v	6*
07	Left	F9	'	7	G	W	g	w	7*
08	BS	F10	{	8	H	X	h	x	8*
09	HT	F11	}	9	I	Y	i	y	9*
0A	LF	F12	*	:	J	Z	j	z	
0B	Right	ESC	+	;	K	[	k	{	
0C	PgUp	Exec	,	<	L	\	l		
0D	Enter	Send	-	=	M	]	m	}	
0E	PgDn		.	>	N	^	n	~	
0F	F1		/	?	O	_	o	Delay	Enter*

Key Type:

☐ Scan Code

☒ Normal Key

Key Status:

☐ Add Shift

☐ Add Left Ctrl

☐ Add Left Alt

☐ Add Right Ctrl

☐ Add Right Alt

☐ Add Break

Resulting text : [ \$ ]

OK Clear Cancel

Note: This is available only when Keyboard Wedge is selected for interface.

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) Select the check box of "Add Left Ctrl" and "Add Shift" for Key Status.
- 4) Choose "B" from the ASCII table.
- 5) Cancel the check box of "Add Left Ctrl" and "Add Shift".
- 6) Choose "C" from the ASCII table.
- 7) Click [OK] to confirm the setting.

### 4.3.3 GRID CONTROL — SCAN CODE

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

**The Grid Control**

	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

Key Type:

☒ Scan Code

☐ Normal Key

Key Status:

☐ Add Shift

☐ Add Left Ctrl

☐ Add Left Alt

☐ Add Right Ctrl

☐ Add Right Alt

☐ Add Break

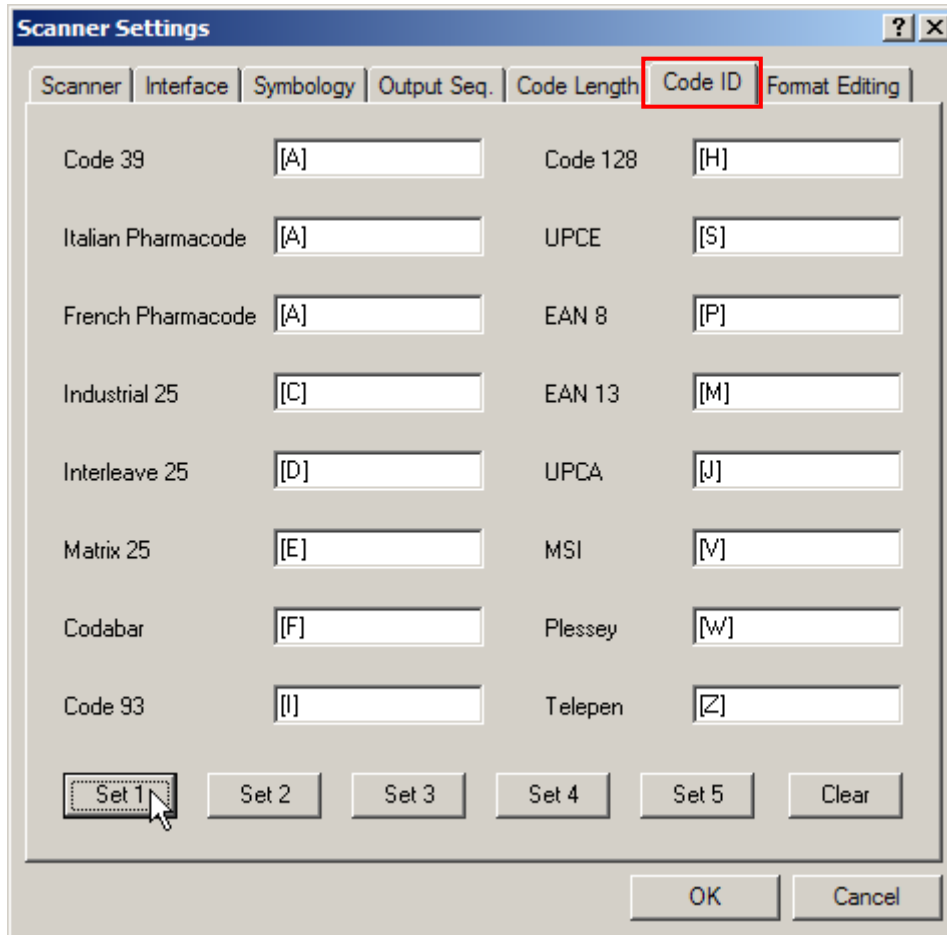
Resulting text :

OK Clear Cancel

Note: This is available only when Keyboard Wedge is selected for interface.

## 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.



Note: “[C]1” is the Code ID of GS1-128 (EAN-128) barcodes; “[e]0” is the default Code ID of GS1 DataBar (RSS) barcodes.

### 4.4.1 CODE ID SET 1~5

Code ID options	Set 1	Set 2	Set 3	Set 4	Set 5
Code 39	A	C	Y	M	A
Italian Pharmacode	A	C	Y	M	A
French Pharmacode	A	C	Y	M	A
Industrial 25	C	H	H	H	S
Interleaved 25	D	I	Z	I	S
Matrix 25	E	G	G	G	S

<i>Codabar</i>	F	N	X	N	F
<i>Code 93</i>	I	L	L	L	G
<i>Code 128</i>	H	K	K	K	C
<i>UPC-E</i>	S	E	C	E	E
<i>EAN-8</i>	P	B	B	FF	E
<i>EAN-13</i>	M	A	A	F	E
<i>UPC-A</i>	J	A	A	A	E
<i>MSI</i>	V	V	D	P	M
<i>Plessey</i>	W	W	E	Q	P
<i>Telepen</i>	Z	---	---	---	---

#### 4.4.2 CODE ID – GRID CONTROL

Up to two characters for Code ID can be configured for each symbology. To modify the Code ID, click the field next to a symbology. Then, choose your Code ID from the pop-up window of Grid Control (see [Grid Control - Original](#)).

- ▶ If "Keyboard Wedge" 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
<a href="#">Scan Code</a>	Up to 1 scan code values are allowed – each requires two hexadecimal values.	N/A
<a href="#">Normal Key</a>	Up to 2 character strings are allowed – each requires two hexadecimal values. <ul style="list-style-type: none"> <li>▶ Default setting</li> </ul>	<ul style="list-style-type: none"> <li>▶ Add Shift</li> <li>▶ Add Left Ctrl</li> <li>▶ Add Left Alt</li> <li>▶ Add Right Ctrl</li> <li>▶ Add Right Alt</li> <li>▶ Add Break</li> </ul> <p>For example, select one of the above keys, say, [Add Shift], and choose the character [A] from the Grid Control.</p>

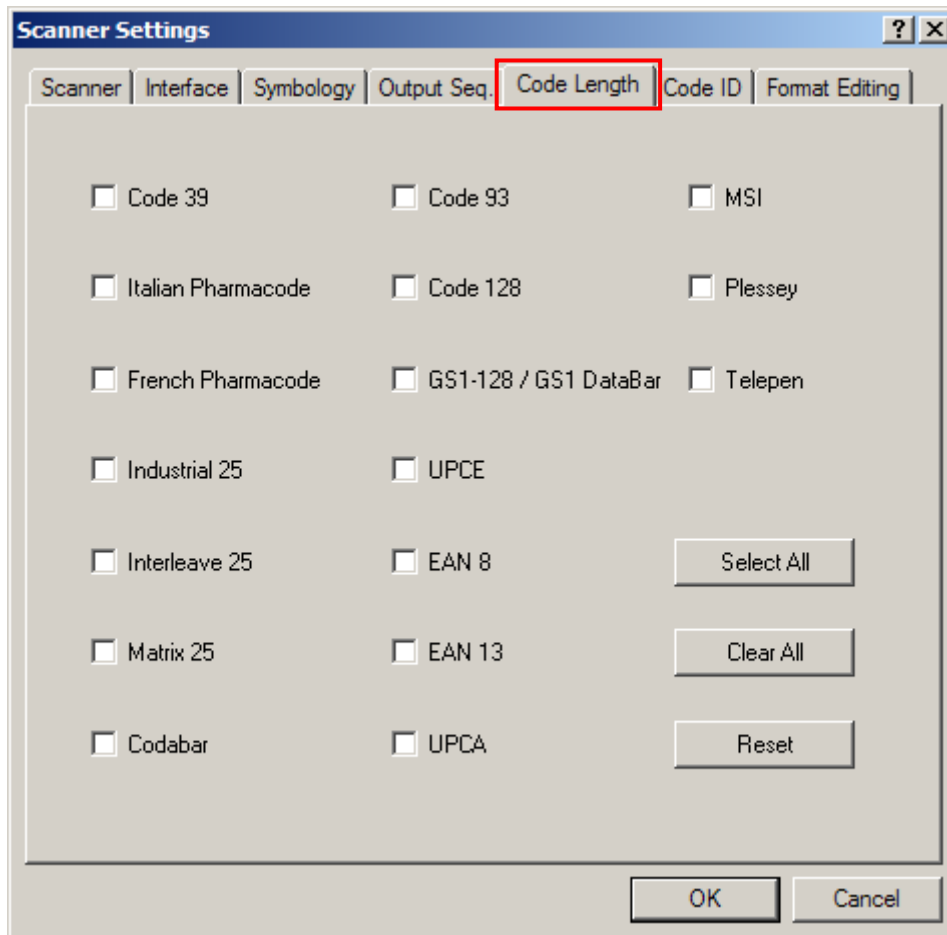
Note: "]C1" is the Code ID of GS1-128 (EAN-128) barcodes; "]e0" is the default Code ID of GS1 DataBar (RSS) barcodes.

#### 4.4.3 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 inserted in front of 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.



## 4.6 OUTPUT SEQUENCE (MULTI-BARCODE EDITOR)

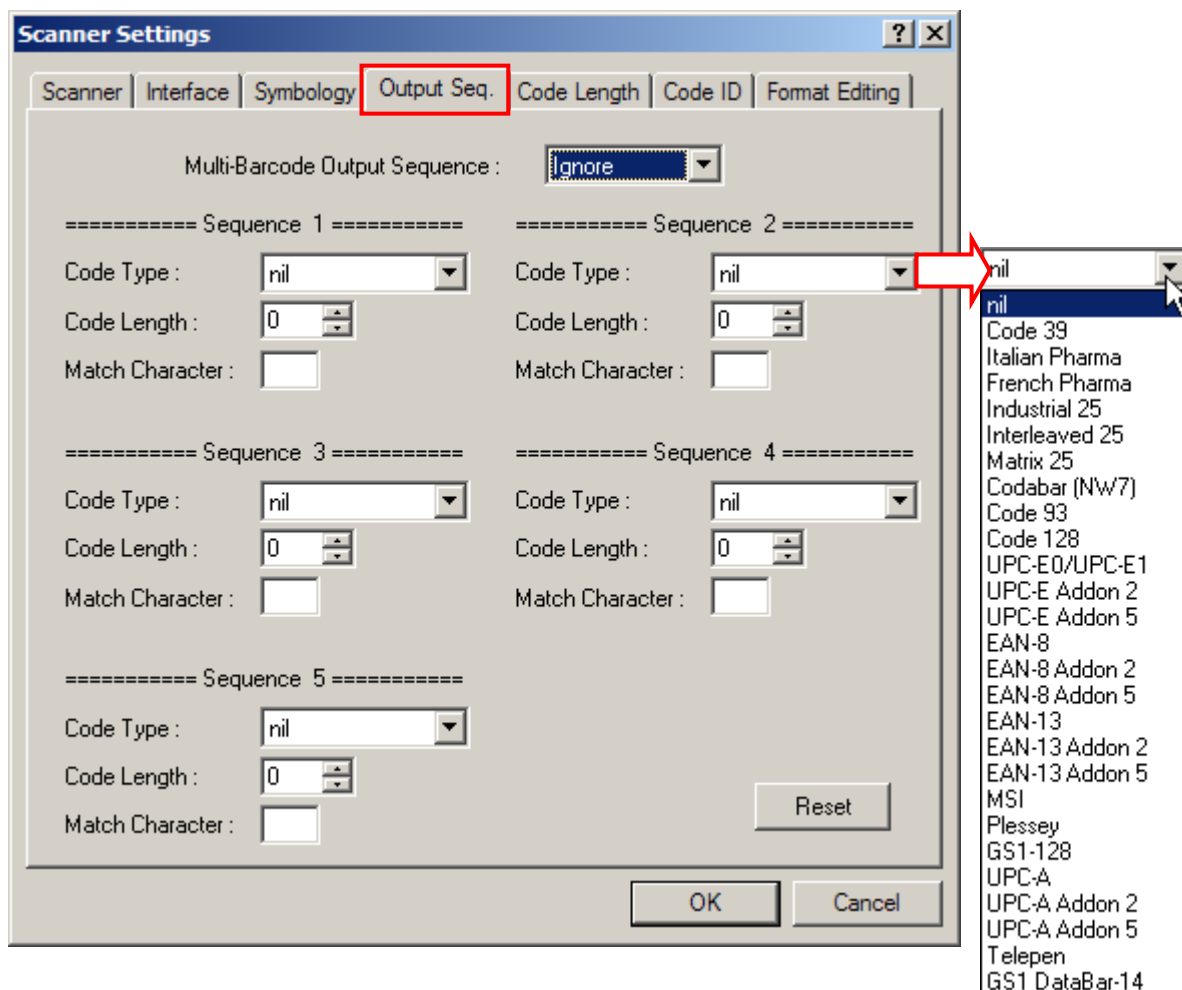
The Multi-Barcode Editor allows you to decide the output sequence of a concatenation of barcodes.

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

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

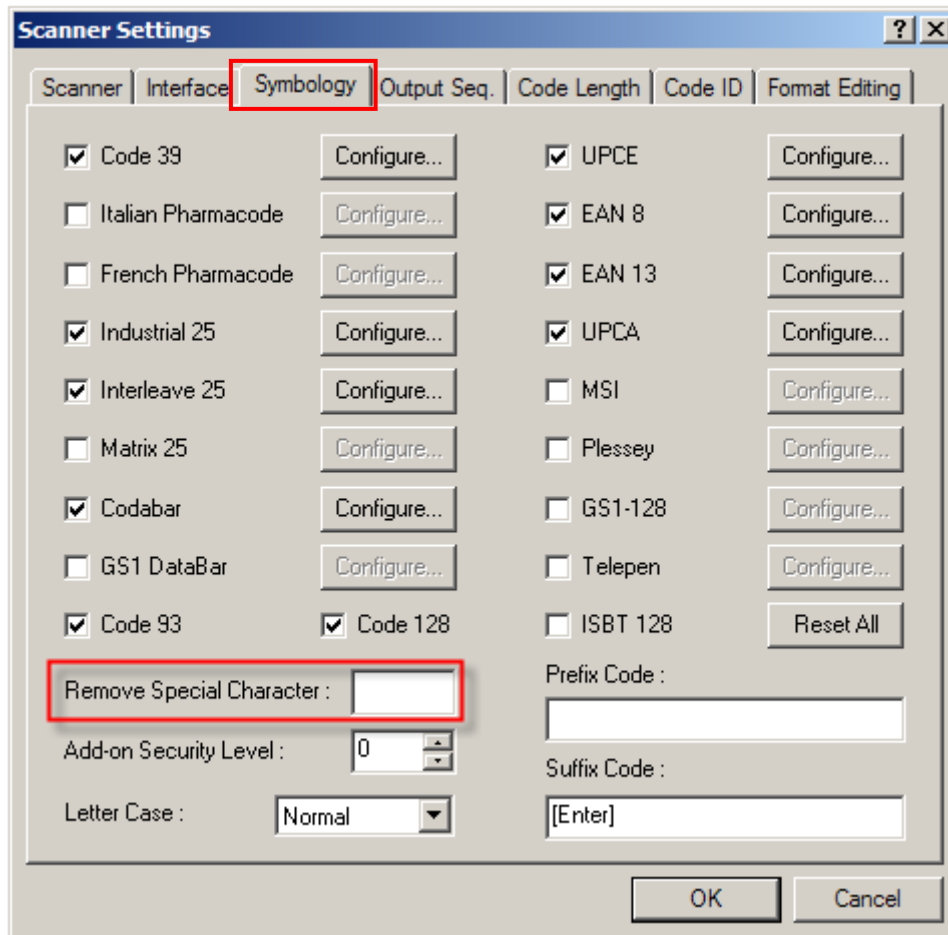
- ▶ Code Type
- ▶ Barcode length, excluding prefix, suffix, length code, etc. — set “0” to ignore length.
- ▶ Matching the first character of data — leave it blank to ignore character matching.





## 4.7 REMOVE SPECIAL CHARACTER

You can only specify 1 character, but it will remove every matching character encountered from the starting position of barcode data until a different character is met. For example, if it is 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.





APPLYING EDITING FORMATS

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

- ▶ Up to five different formats can be specified.

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## 5.1 FORMAT SELECTION

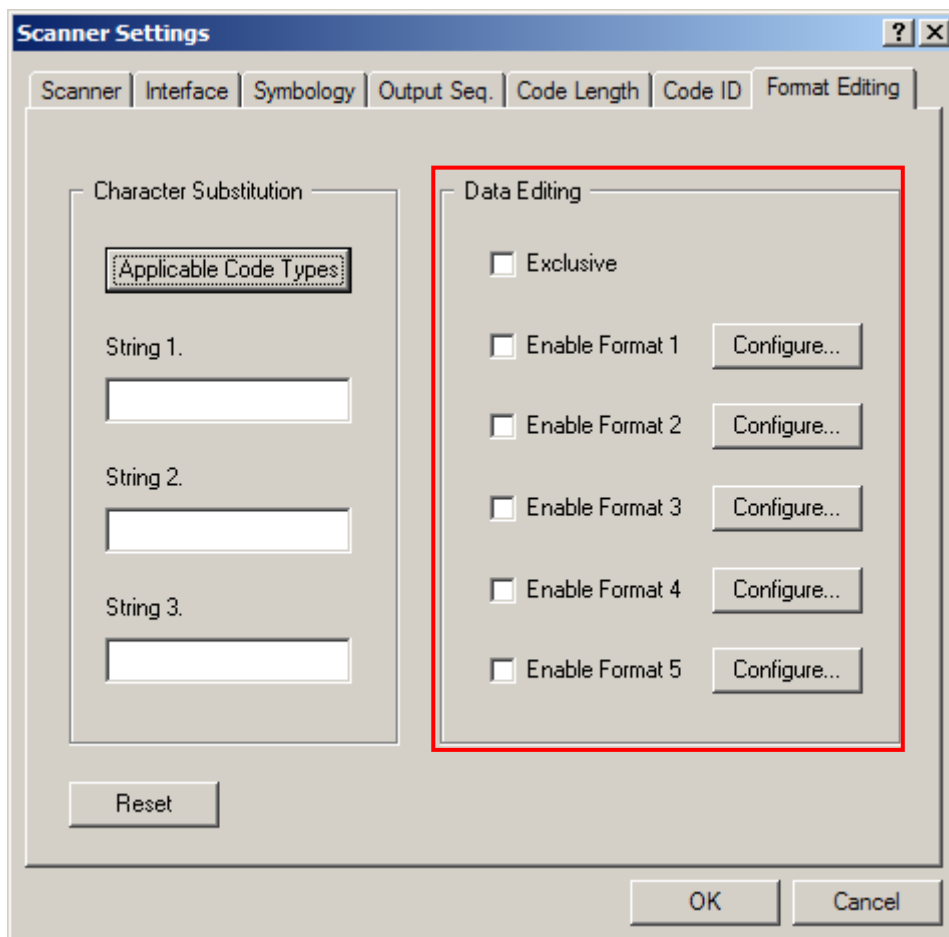
### 5.1.1 ENABLE EDITING FORMATS

If you have already configured any editing format before, you may directly apply the editing format. If not, you must start with configuring an editing format first, and then, select the check box to enable any of the five editing formats when it is desired in use.

### 5.1.2 EXCLUSIVE DATA EDITING

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

Select the check box 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.

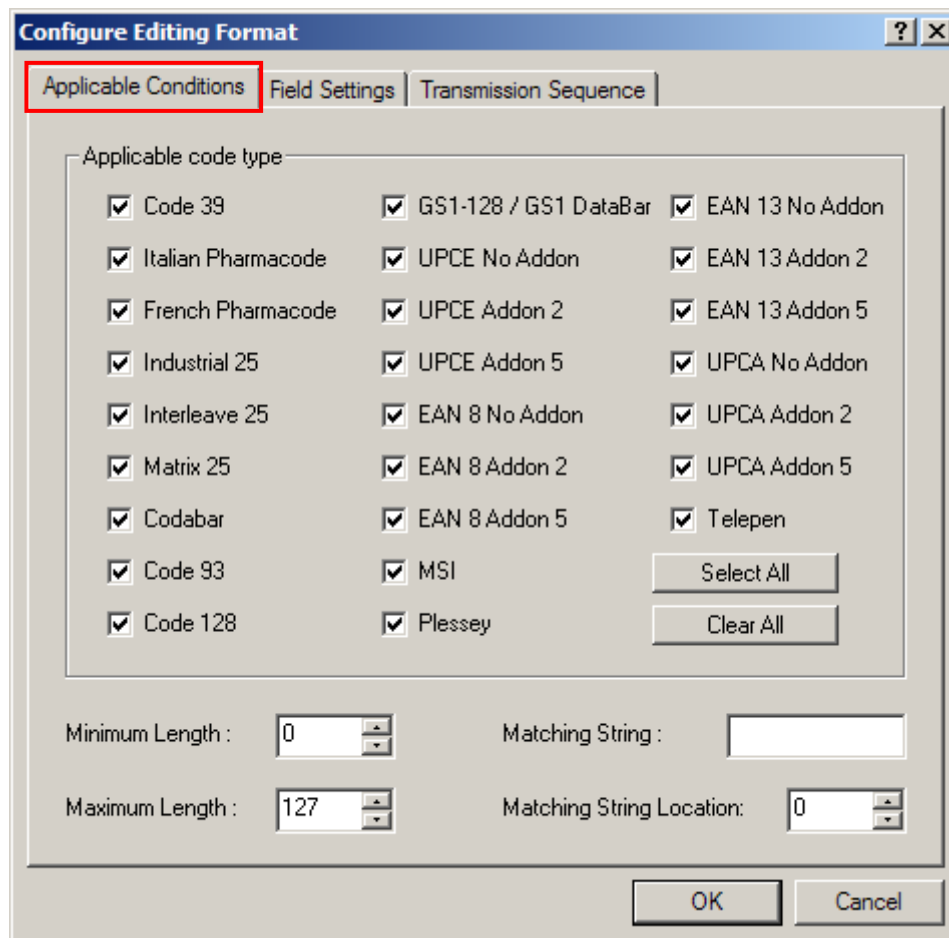


## 5.2 CONFIGURE EDITING FORMAT

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

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

### 5.2.1 APPLICABLE CONDITIONS



#### Applicable Code Type

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

- ▶ Cancel the check box next to a symbology for which data editing is not desired.

#### 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.

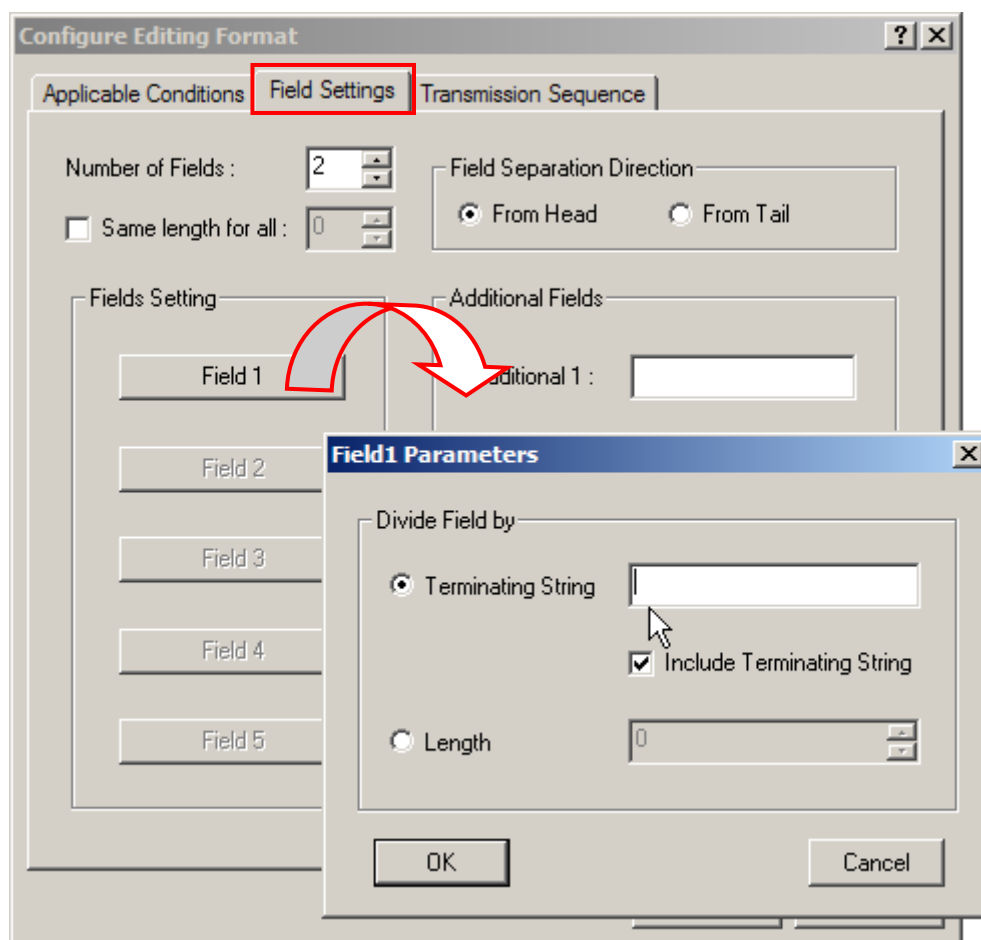
- ▶ Enter a value from 0 to 254.
- ▶ When zero is given to both, the scanner will not perform the length qualification.

### 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](#).

- ▶ 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.

## 5.2.2 FIELD SETTINGS



### 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.

**Length Adjustment**

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

**Field Separation Direction**

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

- ▶ from head (F1) to tail (F5)
- ▶ from tail (F1) to head (F5)

**Field Setting**

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](#). 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, cancel the check box.

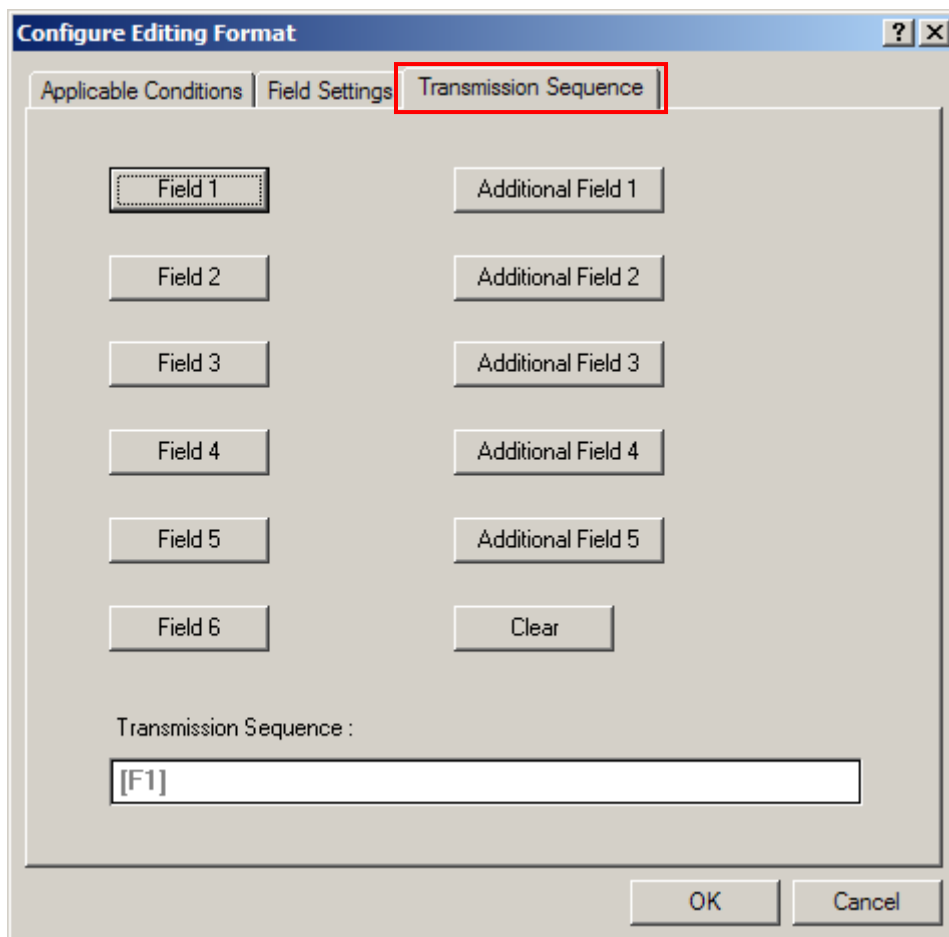
**Additional Fields**

Up to five additional fields can be created for each editing format; each of them is numbered from AF1 to AF5 accordingly. To configure the Additional Fields setting, click the associated field and choose up to four characters from the pop-up window of [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.

### 5.2.3 TRANSMISSION SEQUENCE

After configuring the data fields and additional fields, user can now program the transmission sequence of these fields that comprise the final data. Simply click on the buttons of these fields 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.



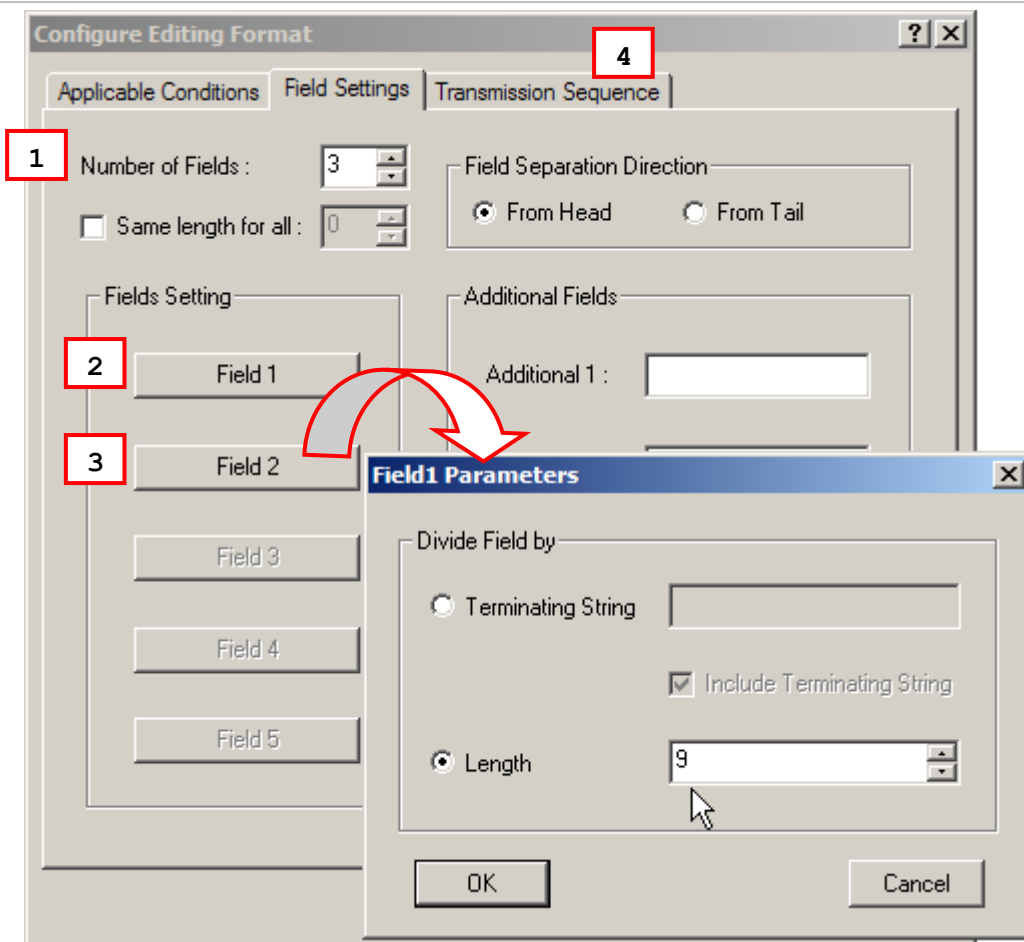


## 5.2.4 EXAMPLES

**Example 1 – Extract data from the 10th character to the 19th character...**

The editing format should be configured as follows:

1. Set Number of Fields to "3".
2. Set Field1 Parameters: divide field by Length, and set length to "9".  
Field1 = from the 1th character to the 9th character
3. Set Field2 Parameters: divide field by Length, and set length to "10".  
Field2 = from the 10th character to the 19th character
4. Set Transmission Sequence to transmit "F2" only.



**Example 2 – Extract the date code, item number, and quantity information from barcodes.**

Data is encoded in the barcode like this:

- From the 1st character to the 6th character is the date code.
- From the 7th character to the "-" character is the item number.
- After the "-" character is the quantity information.

Data will be transmitted like this:

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

The editing format should be configured as follows:

1. Set Number of Fields to "3".
2. Set Field1 Parameters: divide field by Length, and set length to "6".  
Field1 = from the 1th character to the 6th character
3. Set Field2 Parameters: divide field by Terminating String, and set the string to "-".  
Field2 = from the 7th character to the "-" character
4. Set Additional Field 1 to one "TAB" character.
5. Set Transmission Sequence to transmit "F2 A1 F1 A1 F3".

