Barcode Scanner
User settings manual

Chapter 1 Introduction

About this manual

This user guide provides instructions for installing and programming the scanner, also includes product specifications, dimensions, warranty and customer support information.

Note: The options in this user guide depend on the model you purchased.

Barcode scanners are factory programmed for the most common terminal and communication settings. If you need to change these settings, you can complete the programming by scanning the barcodes in this guide.

An asterisk (*) next to an option indicates the default setting.

Open device packaging

After opening the shipping container containing the product, perform the following steps:

- Inspect the transport for any damage and immediately report the damage to the carrier delivering the carton.
- Make sure the items in the carton match your order.
- Save the shipping container for later storage or shipment.

Connecting device

Connect USB

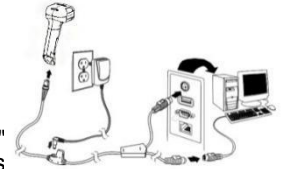The connected device scanner can be connected to the computer's USB port.

1. First connect the appropriate interface cable to the device and then to the computer.
2. The scanner beeps.
3. Verify the operation by scanning the barcode in the sample code

system on the back of this manual.

4.   The default is serial port.

Connected with a keyboard wedge

The scanner can be connected as a "keyboard wedge" between the keyboard and the PC, and the scanner provides data output similar to keyboard input. The following is an example of a keyboard wedge connection:

1.   Turn off the power and disconnect the keyboard cable from the back of the terminal/computer.

2.   Connect the appropriate interface cable to the device and terminal/computer.

3.   Re-power the terminal/computer. The scanner beeps.

4.   Verify scanner operation by scanning the barcode in the sample code system on the back of this manual. The scanner made a click.

The device defaults to IBM PC AT and a compatible keyboard wedge interface to the US keyboard. A carriage return (CR) suffix is added to the barcode data.

Connect RS232 serial port
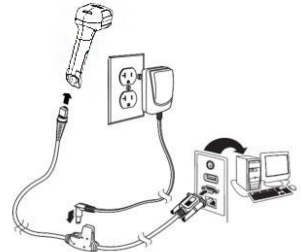
1.   Turn off the power to the terminal/computer.

2.   Connect the appropriate interface cable to the scanner.

Note: For the scanner to work properly, you must use the correct cable for your terminal/computer type.

3.   Plug the serial connector into the serial port of your computer. Tighten the two screws to secure the connector to the port.

4.   When the scanner is fully connected, turn on your computer.

The interface is programmed with 115,200 baud, 8 data bits, no parity
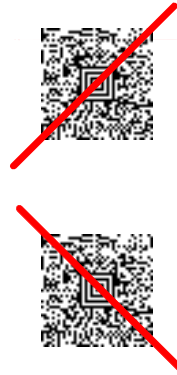
and 1 stop bit.

Reading skills

The scanner has a viewfinder that projects a bright red aiming beam that corresponds to the horizontal field of view of the scanner. The aiming beam should be at the center of the bar code, but it can be positioned in any direction to facilitate reading.

Linear bar code   **2D Matrix symbol**

When the scanner is close to the code, the aiming beam or pattern is small; when the distance code is farther, the aiming beam or pattern is larger. Smaller strips or elements (mil size) should be coded closer to reading. The larger bar or element (mil size) code should be kept away from reading. To read single or multiple code systems (on the page or on an object), keep the scanner at an appropriate distance from the target, press the button, and place the aiming beam or pattern on the code system. If the scanned code is highly reflective (eg, covered), it may be necessary to tilt the code up 15° to 18° to prevent unwanted reflections.

Menu barcode security settings

The scanner is programmed by scanning the menu bar code or by sending a serial command to the scanner. If you want to limit the ability to scan menu codes, you can use the menu bar code security settings. For more information, please contact your nearest technical support office.

Set custom defaults

You can create a set of menu commands as your own custom defaults. To do this, scan the "Set Custom Defaults" barcode below before scanning the menu commands for custom defaults. If the menu command needs to scan the numeric code first and then save the code, the entire sequence will be saved to your custom defaults. After entering all the commands you want to save for the custom defaults, scan the Save Custom Defaults barcode.

(800010)
Set custom defaults

(800011)
Save custom defaults

You may have a range of customizations and want to correct individual settings. To do this, simply scan the new settings to overwrite the old settings. For example, if you have previously saved the buzzer volume setting below the custom default and you decide to set the buzzer volume to high, simply scan the custom default barcode and scan the buzzer A menu code with a high volume, and finally saves the custom defaults. The remaining custom defaults will be retained, but the buzzer volume setting will be updated.

Reset custom defaults

If you want to restore your custom default settings to your scanner, scan the "Activate Custom Defaults" barcode below. This is the default barcode recommended by most users. It resets the scanner to a custom default setting. If there is no custom default, it resets the scanner to the factory defaults. Any settings that are not specified by a custom default will default to the factory defaults.

(800006)
Activate custom defaults

Chapter 2 Programming Interface

RS232 serial port

RS232 is scanned when connected to the serial port of a PC or terminal. The following RS232 can add a carriage return (CR) and a line feed (LF) suffix, as well as the baud rate and data format. It also changes the trigger mode to manual.

Option	Setting
Baud rate	115,200 bps
Data Format	8 data bits, no parity, 1 stop

(8810010)
RS232

RS232 Baud rate

The baud rate sends data from the scanner to the terminal at a specified rate. The host terminal must be set to the same baud rate as the scanner. Default = 115200.

(8310030)
300

(8310031)
600

(8310032)
1200

(8310033)
2400

(8310034)
4800

(8310035)
9600

(8310036)
19200

```
(8310037)
38400
```

```
(8310038)
57,600
```

```
(8310039)
*115,200
```

RS232 Word length: data bits, stop bits and parity check

Data Bit: Set the word length to 7 or 8 bits of data per character. If the application only needs ASCII hexadecimal, characters 0 to 7F decimal (text, numbers, and punctuation), select 7 data bits. For applications that require a full ASCII set, select 8 data bits for each character. Default = 8.

Stop Bit: Set the stop bit to 1 or 2. Default = 1.

Parity: Provides a way to verify the validity of the pattern of character bits. Default = none.

```
(8310063)
```
7 data bits, 1 stop character, even parity bit

```
(8310060)
```
7 data bits, 1 stop character, no parity

```
(8310066)
```
7 data bits, 1 stop character, odd parity bit

```
(8310064)
```

7 data bits, 2 stop characters, even parity bits

||||||||||||||||||||||||

(8310061)
7 data bits, 2 stop characters, no parity

||||||||||||||||||||||||

(8310067)
7 data bits, 2 stop characters, odd parity bits

||||||||||||||||||||||||

(8310065)
8 data bits, 1 stop character, even parity bit

||||||||||||||||||||||||

(8310062)
* 8 data bits, 1 stop character, no parity

||||||||||||||||||||||||

(8310068)
8 data bits, 1 stop character, odd parity bit

USB IBM SurePos

Scan the code below to program the scanner for the IBM SurePos (USB Handheld Scanner) or IBM SurePos (USB Desktop Scanner) interface.

Note: After scanning one of the codes, you must restart the cash register.

(881001128)

USB IBM SurePos

USB handheld scanner interface

(881001129)

USB IBM SurePos

USB desktop scanner interface

Each of the above barcodes also writes the following suffix for each symbology.

Symbology	Suffix	Symbology	Suffix
EAN 8	0C	Code 39	00 0A 0B
EAN 13	16	Interleaved 2 of 5	00 0D 0B
UPC A	0D	Code 128	00 18 0B
UPC E	0A	Code 39	00 0A 0B

USB PC or Macintosh Keyboard

Scan the code below to program the scanner for a USB PC keyboard or USB Macintosh keyboard. Scanning these codes will also add CR and LF.

（**881001124**）
USB Keyboard (PC)

USB HID

Scan the following code to program the scanner with a USB HID barcode.

```
║║║█║║█║║║║║█║║║║║█║║║║█║║
```

（**881001131**）

USB HID Bar code scanner

USB COM

Scan the following code to program the scanner to simulate a regular COM port based on RS232. If you are using a Microsoft® Windows® PC, you will need to download the driver. The driver will use the next available COM port number. Apple® Macintosh computers recognize the scanner as a USB CDC class device and automatically use the class driver.

```
║║║█║║█║║║║║█║║║║║█║║║║█║║
```

（**881001133**）

USB COM

Note: No additional configuration is required (e.g. baud rate).

Chapter 3 Input/Output Settings

Buzzer status at power-on

The scanner can be programmed to beep when powered. If you do not want a beep on the power, scan to turn off the barcode. Default = Start Buzzer On - Scanner.

(8410130)

Start buzzer off – scanner

**(
8
4
1
0
1
3
1
)**

* Start buzzer on – scanner

Received BEL character

buzzer response

You may want to force the scanner to beep when the command is sent by the host. You can scan the BEL character below to make a sound, and the scanner will beep every time a BEL character is received. Default = off.

(8990010)
*Beep on the BEL character

(8990011)
Beep on the BEL character

Press the scanner button buzzer status

To hear a click every time you press the scanner button, scan the barcode below. If you don't want to hear a click, scan the "off" code. (This feature has no effect on serial or automatic triggering.) Default = Trigger Click to close.

(8410140)
*Trigger click to close

(8410141)
Trigger click to open

Read good and error indication

Buzzer – good reading

The buzzer can be set to a good read on or off. If off, only the beep sounds under good reading conditions, the wrong beep can still be heard. Default = Buzzer - Read well on.

(8410010)
Buzzer - read good off

||||| ||| || ||| ||||| || ||||||
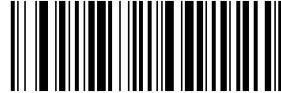**(8410011)**
*Buzzer - read well open

Buzzer volume - read well

The buzzer volume code modifies the amount of buzzer sound that the scanner makes when it reads well. Default = high.

||| ||||| || ||| ||| ||| |||||
(8410091)
Low

||| ||| || || ||| ||| |||||
(8410092)
Medium

||| ||||| ||| ||| |||||
(8410093)
* High

||| ||| || ||| ||| |||||
(8410090)
OFF

Buzzer pitch – good reading

Buzzer pitch code, modify the tone of the beep sounded by the scanner when reading well, default = medium.

(8410061600)
Low(1600 Hz)

(8410062700)
* Medium(2700 Hz)

(8410064200)
High(4200 Hz)

Buzzer pitch - error

When there is an erroneous reading, the buzzer pitch encoding modifies the pitch (frequency) of the sound emitted by the scanner. Default = Razz.

(841007250)
* Razz (250 Hz)

(8410073250)
Medium(3250 Hz)

(8410074200)
High(4200 Hz)

Buzzer duration – good reading

The buzzer duration code, which modifies the length of the beep that the scanner makes when it reads well. Default = normal.

(8410020)
* Normal buzzer

(8410021)
Short beep

LED –Read well

The LEDs can be set to on or off in response to good readings. Default = On.

(8410081)
*LED –Read well open

(8410080)
LED –Read well off

Read delay

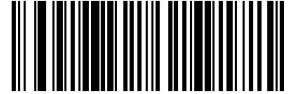This sets the minimum time before the scanner reads another barcode. Default = 0ms / no delay.

(8510060)
* No delay

```
||| ||| || ||| |||| ||| || |||
(851006500)
```
Short delay (500 ms)

```
||| |||| ||| |||| |||| || |||
(8510061000)
```
Medium delay (1,000 ms)

```
||| || ||| |||| ||| |||| |||
(8510061500)
```
Long delay(1,500 ms)

Manual trigger mode

In manual trigger mode, the scanner does not scan until the barcode is read or until the button is released.

```
||| |||| ||| ||| |||| ||| |||
(801030)
```
* Manual trigger – normal

Mobile phone reading mode

When this mode is selected, the scanner will be optimized to read the barcode from the phone or other LED display. However, when this mode is enabled, scanning the bar code may be slightly slower. Note: To turn off the phone reading mode, scan the manual trigger mode barcode.

```
||| |||| ||| ||| ||||
(801031)
```
Handheld scanning – mobile

```
||| |||| ||| |||| |||| || |||
(801033)
```
Presentation Scan - Mobile

Chapter 4 Data Editing

Prefix/suffix overview

When the barcode is scanned, additional information is sent to the host along with the barcode data. This set of barcode data and additional, user-defined data is called a "message string." The selections in this section are used to build user-defined data into a message string.

Prefixes and suffixes can choose to send characters before or after scanning data. You can specify whether to send it with all code systems or only with a specific code system. The following image shows a breakdown of the message string:

Prefix	Scan data	Suffix
1-11 alpha numeric & control characters	variable length	1-11 alpha numeric & control characters

Points to remember

- There is no need to build a message string. The options in this chapter are only used if you want to change the default settings. Default prefix = none. Default suffix = none.
- You can add or clear a prefix or suffix for a code or all code system.
- You can add any prefix or suffix from the ASCII conversion table, plus the code I.D. and AIM I.D.
- You can concatenate several entries for multiple code systems at once.
- Enter the prefix and suffix in the order you want them to appear in the output.
- When setting a specific code system as opposed to all code systems, the specific code ID value will be counted as the added prefix or suffix character.
- The maximum size of the prefix or suffix configuration is 200 characters, including the header information.

Add a prefix or suffix:

Step 1. Scan to add a prefix or add a suffix code.

(889002)
Add prefix

Step 2. To apply a prefix or suffix code system, determine the 2-digit hexadecimal value from the code chart. For example, for Code 128, the code ID is "j" and the Hex ID is "6A".

Step 3. Scan 2 hex digits in the programming chart on the back cover of this manual, or scan 9, 9 to find all code systems.

Step 4. For the prefix or suffix to be entered, the hexadecimal value is determined from the ASCII conversion table.

Step 5. For the prefix or suffix to be entered, the hexadecimal value is determined from the ASCII conversion table.

Step 6. Repeat steps 4 and 5 for each prefix or suffix character.

Step 7. To add the code I.D., scan 5, C, 8, 0.

To add AIM I.D., scan 5, C, 8, 1.

To add a backslash (\), scan 5, C, 5, C.

Note: To add a backslash (\) in step 7, you must scan 5C twice - once to create a leading backslash, and then create a backslash itself.

Step 8. The scan saves exit and saves, or the scan discards and exits without saving. Repeat steps 1-6 to add a prefix or suffix to other code systems.

Example: Add a suffix to a specific code system

Send a CR (carriage return) suffix to U.P.C. only:

Step 1. Scan add suffix。

Step 2. Determine the 2-digit hexadecimal value of U.P.C from the code chart.

Step 3. Scan 6, 3 from the programming diagram on the back cover of this manual.

Step 4. For carriage return, the hexadecimal value is determined from the ASCII conversion table.

Step 5. Scan 0, D from the programming diagram on the back cover of this manual.

Step 6. Scan save, or scan to abandon without saving.

(888002)
Add suffix

(S6S)
Scan6

(S3S)
Scan3

(S0S)
Scan0

(SDS)
Scan D

(800002)

Add a carriage return suffix for all code systems

If you want to add a carriage return suffix to all code systems at once, scan the barcode below. This action first clears all current suffixes and then writes a carriage return suffix for all code systems.

(890000)
Add a carriage return suffix for all code systems

Clear one or all prefix suffixes

You can clear a single prefix or suffix, or clear all prefixes/suffixes of the symbology. If you enter a single code prefix and suffix, you can use Clear One Prefix (Suffix) to remove a specific character from the code system. When all prefixes (suffixes) are cleared, all prefixes (suffixes) of the code system are removed.

Step 1. Scan to clear a prefix or clear a suffix symbol.

Step 2. For the code system from which the prefix or suffix is to be cleared, the 2-digit hexadecimal value is determined from the code system diagram.

Step 3. Scan the 2-digit hexadecimal value in the programming chart on the back cover of this manual. Scan 9.9 applies to all code systems.

Step 4. Scan save.

(889004)
Clear a prefix

（888004）
Clear a suffix

（800002）

Prefix selection

(889002)
Add prefix

（**889004**）
Clear a prefix

（**889003**）
Clear all prefix

Suffix selection

(888002)
Add suffix

（**888004**）
Clear a suffix

（**888003**）
Clear all suffix

Function code transmission

When this selection is enabled and the scan code contains a function code, the scanner sends the function code to the terminal. When the scanner is in keyboard wedge mode, the scan code is converted to a key code before transmission. Default = Enabled.

(8870010)
* Enable

(8870011)
Disable

Delay between messages

An interframe message delay of up to 5000 milliseconds (in 5 ms increments) can be placed between each scan transmission. Scan the information below to delay the barcode, then scan the 5ms delay and save the barcode using the programming diagram on the back cover of this manual.
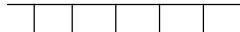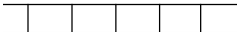
First scan transmission   **Second scan transmission**

(851004)
Information delay

To eliminate this delay, scan the inter-message delay barcode and set the delay to 0. Use the programming map scan on the back cover of this manual to save the barcode.

Chapter 5 Data Format

Introduction to the Data Format Editor

You can use the Data Format Editor to change the output of the scanner. For example, you can use the Data Format Editor to scan for bar code data to insert characters at specific points. The options in the following pages are only used if you wish to change the output. Default data format setting = none.

Normally, when you scan a barcode, it is automatically output; however, when you create a format, you must use the Send command in the format program to output the data.

Multiple formats can be programmed into the scanner. They are stacked in the order they are entered. However, the following list shows the order in which the formats are applied:

1. Specific terminal ID, actual code ID, actual length
2. Specific terminal ID, actual code ID, universal length
3. Specific terminal ID, universal code ID, actual length
4. Specific terminal ID, universal code ID, universal length
5. Universal terminal ID, actual code ID, actual length
6. Universal terminal ID, actual code ID, universal length
7. Universal terminal ID, universal code ID, actual length
8. Universal terminal ID, universal code ID, universal length

The data format is configured to a maximum of 2000 bytes, including header information.

If you changed the data formatting and want to clear all formatting and return to the factory defaults, scan the default data format below.

(886000)
* Default data format

Increase data format

Step 1. Scan input data format code system

Step 2. Select primary/alternate format
Determine if this is your primary data format or one of the 3 alternate formats. This allows you to save a total of 4 different data formats. To write the main format, use the programming chart scan 0 on the back cover of this manual. If you want to write an alternate format, scan 1, 2 or 3 depending on your needs.

Step 3. Terminal type
Please refer to the terminal ID table and find the terminal ID number of the PC. Scan the three digital barcodes in the back cover to program the terminal ID for the scanner (you must enter 3 digits). For example: scan 0 0 3 means AT wedge.

Note: The wildcard for all terminal types is 099.

Step 4. Code I.D.
In the code chart, find the code system to which you want to apply the data format. Find the hexadecimal value of the code and scan the 2-digit hexadecimal value in the programming chart on the back cover of this manual.

Note: If you want to create a data format for the number of batch modes, use 35 as the code I.D.

Step 5. Length
Specify an acceptable length for this code system (up to 9999 characters). Scan the four-digit data length from the programming chart on the back cover of this manual. (Note: Enter 50 characters as 0050. 9999 is a universal number indicating all lengths.)

Step 6. Editor command
See the data format editor command. Scans the code system that represents the command to be entered.

Step 7. Scan save to save the data format, or discard the exit without saving the changes.

(886002)
Input data format

24

(800000)
Quit

Other programming options

Clear a data format
This will delete a data format of a code system. If you want to clear the main format, scan 0 from the programming chart on the back cover of this manual. If you want to clear the alternate format, scan 1, 2 or 3 depending on the format you want to clear. Scan the terminal type and code I.D., and the length of the barcode data for the specific data format to be deleted. All other formats are not affected.

Clear all data formats
This will clear all data formats.
Save and exit to save changes to the data format.
Abandon the exit without saving any changes to the data format.

(886004)
Clear a data format

(886003)
Clear all data formats

(800002)
Save

(800000)
Quit

25

Data formatter

When the data formatter is closed, the barcode data is read as output to the host, including the prefix and suffix.

(8860010)
Data formatter closes

You may want to ask for data to match the data format you created and saved. The following settings can be applied to your data format:

Data formatter is open, no need, keep prefix/suffix
 The scanned data is modified according to your data format and the prefix and suffix are transmitted.

Requires data format, retain prefix/suffix
 The scanned data is modified according to your data format and the prefix and suffix are transmitted. Any data that does not match your data format requirements will produce an error tone and will not transfer the data in that barcode.

Primary/alternative data format

You can save up to four data formats and switch between them. Your main data format is saved below 0. Your other three formats are saved under 1, 2 and 3. To set your device to use one of the following formats, scan one of the barcodes below.

(8850010)
Main data format

(8850011)
Data format 1

(8850012)
Data format 2

(8850013)
Data format 3

Chapter 6 Code System

This programming section contains the following menu options.

- All Symbologies
- Codabar
- Code 39
- Interleaved 2 of 5
- NEC 2 of 5
- Code 93
- Straight 2 of 5 Industrial (three-bar start/stop)
- Straight 2 of 5 IATA (two-bar start/stop)
- Matrix 2 of 5
- Code 11
- Code 128
- GS1-128
- Telepen
- UPC-A
- UPC-E0
- UPC-E1
- EAN/JAN-13
- EAN/JAN-8
- MSI
- GS1 DataBar Omnidirectional
- GS1 DataBar Limited
- GS1 DataBar Expanded
- PDF417
- QR Code
- Data Matrix
- Aztec Code
- China Post (Hong Kong 2 of 5)
- Korea Post

All code system

If you want to solve all the code systems allowed by the scanner, scan all code opening codes. On the other hand, if you want to solve only the specific code system, scan all code systems to turn off, and then scan the open code system of the specific code system.

All codes enable

All codes disable

Note: 2D postal code is not enabled when scanning all code enable. The 2D postal code must be enabled separately.

Information length description

You can set a valid read length for some barcode codes. If the data length of the scanned barcode does not match the valid read length, the scanner will emit an error tone. You may want to set the same value for the minimum and maximum lengths to force the scanner to read fixed-length barcode data. This helps reduce the possibility of misreading.

Example: Only those barcodes with a count of 9-20 characters are solved.
Minimum length = 09. Maximum length = 20
Example: Only those barcodes with a number of 15 characters are solved.
Minimum length = 15. Maximum length = 15

For values other than the default values for the minimum and maximum message lengths, scan the barcode contained in the description, then scan the numeric value of the length of the message and save the barcode on the programming chart in the back cover of this manual. The minimum and maximum lengths as well as the default values are included in the corresponding code system.

Codabar

Default setting

||||| |||||||||||||||||

Codabar Enable/Disable

||| ||| |||||||||||||||||
* Enable
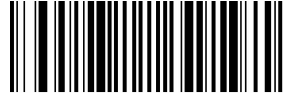
||| ||| |||||||||||||||||||
Disable

Codabar Start/stop character

Start/stop character identifies the front and end of the barcode. You can transmit or not transfer Start/stop character。Default = no transfer.

||| ||||||||||| ||||||||||
Transmission

||| ||||||||||||||||||| |||
* Do not transmission

Codabar Check character

30

Create Codabar check characters with different "modulos". You can program the scanner to read-only Codabar barcodes with Modulo 16 check characters. Default = no check character.

No check character indicates bar code data with or without check characters when the scanner reads and sends.

When "Check Character" is set to Verify and Transfer, the scanner will only read the Codabar barcode printed with the check character and will transfer the character at the end of the scan data.

When "Check Character" is set to "Verify" but "Do Not Send", the unit will only read the Codabar barcode printed with the check character, but will not send the check character along with the scanned data.

* Do not check characters

Verify Modulo 16, but not transfer

Verify Modulo 16 and transfer

Codabar cascading

Codabar supports code hierarchy. When cascading is enabled, the scanner looks for a Codabar code system with a "D" start character, which is adjacent to a code system with a "D" stop character. In this case, the two messages are concatenated into one, omitting the "D" character.

A 1 2 3 4 D D 5 6 7 8 A

The selection is required to prevent the scanner from decoding a single "D" Codabar code system without its companion. This selection has no effect on Codabar without stopping/starting D characters.

Enable

*Disable

Codabar Length of information

Scan the barcode below to change the length of the message. For additional information on Disable, please refer to the information length description minimum and maximum length = 2-60. Minimum default = 4, maximum default = 60.

Minimum message length
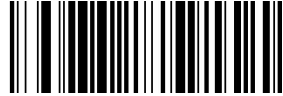
Maximum message length

Code 39

Default setting
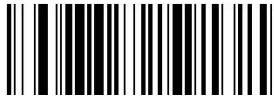
Code 39 Enable/Disable

*Enable
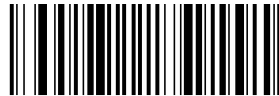
Disable

Code 39 Start/stop character

The start/stop character identifies the front and end of the bar code.You can choose to Transmission or Do not transmission start/stop character. Default =Do not transmission.

Transmission

* Do not transmission

Code 39 Check character

No check character indicates bar code data with or without check characters when the scanner reads and sends.

When the "Check Character" is set to "Verify" but "Do Not Send", the unit reads only the Code 39 barcode printed using the check character, but does not send the check character along with the scan data.

When the Check Character is set to Verify and Transfer, the scanner reads only the Code 39 barcode printed with the check character and transmits the character at the end of the scanned data. Default = no check characters.

* Do not check character

Do not transmission

Check and Transmission

Code 39 Length of information

Scan the barcode below to change the length of the message. For additional information on Disable, please see the information length description minimum and maximum length = 0-48. Minimum default = 0, maximum default = 48.

Minimum message length

Maximum message length

Code 39 Append

This feature allows the scanner to attach data from multiple Code 39 barcodes before transmitting the data to the host. When the scanner encounters a Code 39 barcode with an additional trigger character, it buffers the Code 39 barcode until it reads the Code 39 barcode without an additional trigger. The data is then sent in the order in which the barcode is read (FIFO). Default = Disable.

Enable

Disable

Code 32 Pharmaceutical (PARAF)

Code 32 Pharmaceutical is a form of Code 39 code used by Italian pharmacies. This code system is also known as PARAF.

Enable

* Disable

FULL ASCII

If FULL ASCII Code39 decoding is enabled, some characters in the barcode system will be interpreted as a single character. For example: $V will be decoded as the ASCII character SYN, and /C will be decoded as ASCII character #. Default = Disable.

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

The character pairs /M and /N are decoded into a minus sign and a period respectively. The character pair / P to / Y is decoded from 0 to 9.

FULL ASCII Enable

* FULL ASCII Disable

Code 39 code page

The Code page defines the mapping of character codes to characters. If the received data does not display the correct characters, it may be because the barcode being scanned was created using a different Code page than the one expected by the host program. If this is the case, scan the barcode below, select the Code page used to create the barcode, scan the values in the internal programming diagram on the back cover of this manual, and save the barcode. The data characters should then be displayed correctly.

Code 39 code page

Interleaved 2 of 5

Default setting

||||| ||| |||||||||||| |||||| |||

Interleaved 2 of 5 Enable/Disable

||| ||||||||||||| |||| ||||||
* Enable

||| | |||||||||||| ||||||||| |
Disable

Check character

No check character indicates that the scanner reads and transmits barcode data with or without a check character.

When the check character is set to "Verify" but "Do Not Send", the unit reads only the Interleaved 2 of 5 barcode with the check character printed, but does not transmit the check character with the scanned data.

When the check character is set to verify and send, the scanner reads the Interleaved 2 of 5 barcode printed with the check character and will send the character at the end of the scan data. Default = no check character.

|||| ||||||||| ||||||| ||||||
* No check character

||| ||||||||||| ||||| |||||||
Check, but do not transmission

||| |||||||||||| |||||||| |
Check and transmission

Interleaved 2 of 5 Length of information

Scan the barcode below to change the Length of information. Minimum and Maximum length is 2-80, Minimum length default=4, Maximum length default=80.

Minimum message length
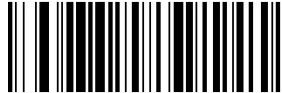
Maximum message length

NEC 2 of 5

Default setting

Barcode: Default setting

NEC 2 of 5 Enable/Disable

Barcode: *** Enable**

Barcode: **Disable**

Check character

The unprocessed check character indicates that the scanner reads the

barcode with or without the check character to send the data.

When the check character is set to be processed but not transmitted, scanner can only read NEC2 which is among 5pcs barcodes with check character, but not transfer the check character with scan data.

When the check character is set to be processed and transmitted,scanner read NEC2 which is among 5pcs barcodes with check character, and will send the figure at the end of scan data. Default=no check character.

Barcode: **unprocessed check character**
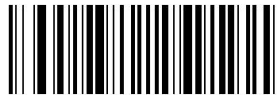
Barcode: **Process check characters but not transfer**

Process check characters and transfer

NEC 2 of 5 Length of information

Read the following setup code to set the length of the NEC 2 of 5. Minimum and Maximum length is 2-80, Minimum length default=4, Maximum length default=80.

Minimum message length

Maximum message length

Code 93

Default setting

‖‖ ‖‖‖‖‖ ‖‖ ‖‖‖ ‖‖‖

Code 93 Enable/Disable

‖‖‖‖‖‖‖ ‖‖‖‖‖ ‖‖‖‖
*Enable

‖‖ ‖‖‖‖ ‖‖‖ ‖‖‖‖‖
Disable

Code 93 Length of

information

Read the following setup code to set the length of the Code93 barcode.
Minimum and Maximum length is 0-80, Minimum length default=0,
Maximum length default=80.

‖‖ ‖‖‖‖‖‖ ‖‖ ‖‖‖‖‖
Minimum message length

‖‖ ‖‖‖‖‖ ‖‖ ‖‖‖‖‖
Maximum message length

44

Straight 2 of 5 Industrial (three-bar start/stop)

Default setting

Straight 2 of 5 Industrial Enable/Disable

Enable
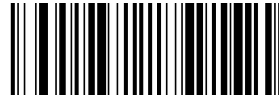
* Disable

Straight 2 of 5 Industrial Length of information

Read the following setup code to set the length of the Straight 2 of 5

Industrial barcode. Minimum and Maximum length is 1-48, Minimum
length default=4, Maximum length default=48.

Minimum message length

Maximum message length

Straight 2 of 5 IATA (two-bar start/stop)

Default setting

Straight 2 of 5 IATA Enable/Disable

Enable

*Disable

Straight 2 of 5 IATA Length of information

Read the following setup code to set the length of the Straight 2 of 5
IATA barcode. Minimum and Maximum length is 1-48, Minimum length
default=4, Maximum length default=48

Minimum message length
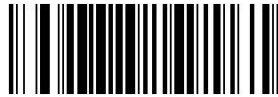
Maximum message length

Matrix 2 of 5

Default setting

‖‖‖ ‖‖‖‖‖ ‖‖‖‖‖‖‖

Matrix 2 of 5 Enable/Disable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
Enable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
*Disable

Matrix 2 of 5 Length of information

Read the following setup code to set the length of the Matrix 2 of 5

barcode. Minimum and Maximum length is 1-80, Minimum length

default=4, Maximum length default=80

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
Minimum message length

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
Maximum message length

Code 11

Default setting
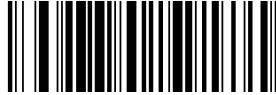
Code 11 Enable/Disable

Enable

* Disable

Code 11 Required check character

This setting is for Code 11 barcode to get one or two check characters.
Default = two check characters.

One check character

* One check characters

48

Code 11 Length of information

Read the following setup code to set the length of the Code11 barcode. Minimum and Maximum length is 1-80, Minimum length default=4, Maximum length default=80.

Minimum message length
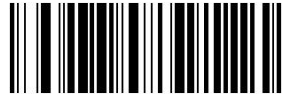
Maximum message length

Code 128

Default setting
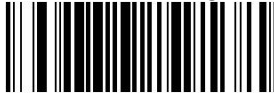
Code 128 Enable/Disable

* Enable

Disable

ISBT 128 cascading

In 1994, the international society for blood transfusion (ISBT) approved a standard for communicating Disable blood information in a uniform manner.The ISBT format requires a paid license. ISBT 128 application specification describes 1) Disable key data elements for marking blood products, 2) due to its highly secure and space-saving design, the current recommendation to use Code 128, 3) Code 128 variants support adjacent Code system connections, and 4) the standard layout of bar codes on blood product labels.Use the bar code below to Enable or Disable the connection.Default =Disable close.

Enable

* Disable

Code 128 Length of information

Read the following setup code to set the length of the Code 128

barcode. Minimum and Maximum length is 0-80, Minimum length

default=0, Maximum length default=80.

Minimum message length
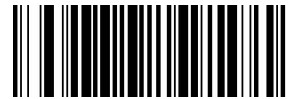
*Maximum message length

GS1-128

Defaut setting

GS1-128 Enable/Disable

* Enable

Disable

GS1-128 Length of information

Read the following setup code to set the length of the GS1-128
barcode. Minimum and Maximum length is 1-80, Minimum length
default=1, Maximum length default=80.

Minimum message length

Maximum message length

Telepen

Default setting

‖‖‖‖‖‖‖‖‖‖‖‖‖‖

Telepen Enable/Disable

‖‖‖‖‖‖‖‖‖‖‖‖

Enable

‖‖‖‖‖‖‖‖‖‖‖‖

* Disable

Telepen Length of information

Read the following setup code to set the length of the Telepen barcode. Minimum and Maximum length is 1-60, Minimum length default=1, Maximum
length default=60.

‖‖‖‖‖‖‖‖‖‖‖‖

Minimum message length

‖‖‖‖‖‖‖‖‖‖‖‖

Maximum message length

UPC-A

Default setting

* Enable

Disable

Note: When reading UPC-A Disable, UPC-A barcode do as EAN-13 Transmission.

UPC-A check character

This option allows you to specify whether the Transmission check character should be at the end of the scan data. Default = Enable.

* Enable

Disable

UPC-A Number System

Digital system digital symbols for UPC type barcodes are typically sent transmisson at the beginning of the scanned data, but the unit can be programmed to prevent Transmission. Default= Enable.

* Enable

Disable

UPC-A Addenda

This setting adds two or five additional codes to the end of all scanned UPC-A data. The default setting is to disable two-digit and five-digit additional codes.

EnableTwo-digit additional code

* Disable Two-digit additional code

Enable Five-digit additional code

* Disable Five-digit additional code

UPC-A Addenda Required

When set to have an additional code, the scanner can only decode UPC-A barcodes with additional codes. Then you must turn on the enable of the two or five digit additional code. The default setting is that there is no need to have an additional code.

Additional code

*No additional code

UPC-A Addenda Separator

When this function is turned on, there will be spaces between the barcode and the additional code when the data is scanned. When off, there is no space separation. The default setting is on.

* Enable

Disable

UPC-E0

Default setting

UPC-E0 Enable/Disable

Most U.P.C. barcodes start with a 0 number system.To read this code, use the UPC-E0 Enable option.If you need to read code that uses a 1-number system, use UPC-E1. Default = Enable.

* UPC-E0 Enable

UPC-E0 Disable

UPC-E0 Expand

Upc-E Expand extend the UPC-E code to 12-bit UPC-A format.Default =Disable close.

Enable

* Disable

UPC-E0 Addenda Required

When set to have an additional code, the scanner can only decode
UPC-E barcodes with additional codes. The default setting is
that there is no need to have an additional code.

Additional code

*No additional code *

UPC-E0 Addenda Separator

When this function is turned on, there will be spaces between the
barcode and the additional code. When Disable off, there is no space separation.
The default setting is on.

* Enable

Disable

UPC-E0 check character

The check character specifies whether the Transmission check character
should be at the end of the scan data.Default= Enable.

*Enable

Disable

57

UPC-E0 Number System

U.P.C digital system, code system usually scan data in the Enable head Transmission, but can be programmed to the unit, so that it will not be transmitted, to prevent the Transmission, please scan Disable close. Default= Enable.

* Enable

Disable

UPC-E0 Addenda

This setting adds two or five additional codes to the end of all scanned

UPC-E0 data. The default setting is two-digit and five-digit

additional codes disable close.

Two-digit additional code Enable

* Two-digit additional code Disable

Five-digit additional code Enable

* Five-digit additional code Disable

UPC-E1

Most U.P.C. barcodes start with a 0 number system.To read this code, use the
UPC-E1 Enable option. If you need to read code that uses a 1-number system, use
UPC-E1. Default = Enable.

UPC-E1 Enable

* UPC-E1 Disable

EAN/JAN-13

Default setting

EAN/JAN-13 Enable/Disable

*Enable

Disable

Note: if you want to convert the UPC-A bar code to EAN-13 format, scan the
UPC-A Disable close barcode.

EAN/JAN-13 check character

This option allows you to specify whether the Transmission check character should be at the end of the scan data. Default= Enable.

* Enable

Disable

EAN/JAN-13 Addenda

This configuration adds two or five additional codes to the end of all scanned EAN/JAN-13 data. The default setting is Disable close for two-digit and five-digit additional codes.

two-digit additional code Enable

*two-digit additional code Disable

five-digit additional code Enable
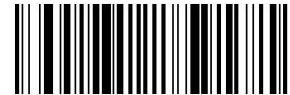
*five-digit additional code Disable

EAN/JAN-13 Addenda Required

When set to have an additional code, the scanner can only solve the

EAN/JAN-13 barcode with the additional code. The default setting is that there is no need to have an additional code.

additional code

*no additional code

EAN/JAN-13 Addenda Separator

When this function is turned on, there will be spaces between the barcode and the additional code when the data is scanned. When off, there is no space separation. The default setting is on.
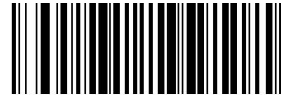
* Enable

Disable

Note: to enable or disable EAN13 with extended coupon code, refer to UPC-A / EAN-13 with extended coupon code.

ISBN Translation

When scanning Enable, the EAN-13 Bookland code system converts to the equivalent ISBN number format. Default =Disable close

Enable

* Disable

EAN/JAN-8

Default setting

||||||||||||||||||||||||||||

EAN/JAN-8 Enable/Disable

||||||||||||||||||||||||||||

* Enable

||||||||||||||||||||||||||||

Disable

EAN/JAN-8 check character

This option allows you to specify whether the Transmission check character should be at the end of the scan data.Default = Enable.

||||||||||||||||||||||||||||

* Enable

||||||||||||||||||||||||||||

Disable

EAN/JAN-8 Addenda

This configuration adds two or five additional codes to the end of all scanned EAN/JAN-8 data. The default setting is to add two-digit and five-digit additional codes=Disable close.

||||||||||||||||||||||||||||

two-digit additional code enable

* two-digit additional code Disable

five-digit additional code Enable
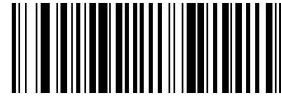
* five-digit additional code Disable

EAN/JAN-8 Addenda Required

When set to have an additional code, the scanner can only solve the EAN/JAN-8 barcode with the additional code. The default setting is that there is no need to have an additional code.

Additional code

* No additional code

EAN/JAN-8 Addenda Separator

When this function is turned on, there will be spaces between the barcode and the additional code when the data is scanned. When off, there is no space separation. The default setting is on.

* Enable

Disable

MSI

Default setting

||| |||||| ||| ||||| |||||| ||||||||

MSIEnable/Disable

||||||||||| |||||| ||||| |||||

Enable

|| ||||||||||| ||| |||| ||| ||||

* Disable

MSI check character

MSI barcodes use different types of check characters.You can program the scanner to read the MSI barcode using the type 10 check character.Default = verify type 10, but Do not transmission.

When the "check character" is set to "Verify Type10 and Transmission", the scanner will only read and print the MSI barcode using the specified type check character, and will send the character at the end of the scanned data.

When the "check character" is set to "Verify Type10, Do not transmission", the device will only read and use the MSI barcode printed with the specified type of check character, but not send the check character with scan.

* Verify Type10, Do not transmission

Verify Type10 and Transmission

Disable MSI check characters

MSI Length of information

Read the following setup code to set the length of information. Minimum and Maximum length is 4-48, Minimum length default=4, Maximum length default=48.

Minimum message length

Maximum message length

GS1 DataBar Omnidirectional

Default setting

||||| ||||||||||||||||||||| |||||

GS1 DataBar Omnidirectional Enable/Disable

|||||||||||||||||||||||||||||
* Enable

|||||||||||||||||||||||||||||||
Disable

GS1 DataBar Limited

Default setting

||||| ||||||||||||||||||||||

GS1 DataBar Limited Enable/Disable

||||||||||||||||||||||||||||||
* Enable

|||||||||||||||||||||||||||||
Disable

GS1 DataBar Expanded

Default setting

||| ||||||||||||||||||||| |||||

GS1 DataBar Expanded Enable/Disable

|||||||||||||||||||||||||||||
* Enable

|||||||||||||||||||||||||||||
Disable

GS1 DataBar Expanded Length of information

Read the following setup code to set the length of information. Minimum

and Maximum length is 4-74, Minimum length default=4, Maximum length default=74.

Minimum message length

Maximum message length

PDF417

Default setting

PDF417 Enable/Disable

*Enable

Disable

PDF417 Length of information

Read the following setup code to set the length of information. Minimum
and Maximum length is 1-2750, Minimum length default=1, Maximum
length default=2750.

Minimum message length

Maximum message length

QR Code

Default setting

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

QR Code Enable/Disable

This option applies to both QR codes and Micro QR codes.

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

* Enable

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
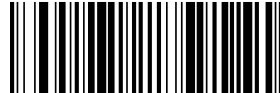
Disable

QR Code Length of

information

Read the following setup code to set the length of information. Minimum and Maximum length is 1-7089, Minimum length default=1, Maximum length default=7089

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

Minimum message length

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖

Maximum message length

Data Matrix

Default setting

Data Matrix Enable/Disable

* Enable

Disable

Data Matrix Length of

information

Read the following setup code to set the length of information. Minimum and Maximum length is 1-3116, Minimum length default=1, Maximum length default=3116.

Minimum message length

Maximum message length

Aztec Code

Default setting

||||| |||| ||| |||||| ||| |||||

Aztec Code Enable/Disable

|||| ||| |||| ||||| ||||| |||
* Enable

||| ||||| |||| ||||| |||||
Disable

Aztec Code Length of information

Read the following setup code to set the length of information. Minimum and Maximum length is 1-3832, Minimum length default=1, Maximum length default=3832.

||| ||||| ||| ||||| |||||
Minimum message length

||| ||||| ||| ||||| |||||
Maximum message length

Postal Codes - Linear

Linear zip codes are listed below.Any combination of linear zip code selection is flexible.

China Post (Hong Kong 2 of 5)

Default setting

China Post (Hong Kong 2 of 5) Enable/Disable

Enable

* Disable

China Post (Hong Kong 2 of 5)Length of information

Read the following setup code to set the length of information. Minimum and Maximum length is 2-80, Minimum length default=4, Maximum length default=80.

Minimum message length

Maximum message length

Korea Post

Default setting

(937000)

Korea Post Enable/Disable

(9370011)
Enable

(9370010)
* Disable

Korea Post Length of information

Read the following setup code to set the length of information. Minimum and Maximum length is 2-80, Minimum length default=4, Maximum length default=48

(937003)
Minimum message length

(937002)
Maximum message length

Korea Post check character

This option allows you to specify whether the Transmission check character should be at the end of the scan data. Default =Do not transmission.

(9370041)
Transmission check character

* Do not transmission check character

Chapter 7 Factory default setting

Show version number

Scan the barcode below to output the current software version, cell serial number,

and other product information.

Show the revised version

Reset factory defaults

This selection removes all settings and resets the scanner to original factory default value. It also disables all plug-ins.

If you are unsure of the programming options in the scanner, or if you have changed some of the options and want to restore the scanner to factory default settings, scan "Remove custom default" bar code first, then scan "Enable default". This resets the scanner to factory default settings.

Remove custom default

Enable default

Appendix Reference charts

Symbol graph

Note: "m" represents the AIM modifier character. For detailed information on the DisableAIM modifier characters, refer to the international technical specification, symbolic identifiers.

The prefix/suffix entry for a particular symbol system overrides the generic (all symbols, 99) entry.

For information about Disable using code ID and AIM ID, refer to editing starting from page 4-1 Enable and data formatting starting from page 5-1 Enable.

Linear symbols

| Symbology | AIM | | Optima | |
	ID	Possible Modifiers （m）	ID	Hex
All Symbologies				99
Codabar	]Fm	0-1	a	61
Code 11	]H3		h	68
Code 128	]Cm	0, 1, 2, 4	j	6A
Code 32 Pharmaceutical (PARAF)	]X0		<	3C
Code 39 (supports Full ASCII mode)	]Am	0, 1, 3, 4, 5, 7	b	62
TCIF Linked Code 39 (TLC39)	]L2		T	54
Code 93 and 93i	]Gm	0-9, A-Z, a-m	i	69

EAN	]Em	0, 1, 3, 4	d	64
EAN-13 (including Bookland EAN)	]E0		d	64
EAN-13 with Add-On	]E3		d	64
EAN-13 with Extended Coupon Code	]E3		d	64
EAN-8	]E4		D	44
EAN-8 with Add-On	]E3		D	44

Symbology	AIM		Optima	
	ID	Possible Modifiers （m）	ID	Hex
GS1				
GS1 DataBar	]em	0	y	79
GS1 DataBar Limited	]em		{	7B
GS1 DataBar Expanded	]em		}	7D
GS1-128	]C1		I	49
2 of 5				
China Post (Hong Kong 2 of 5)	]X0		Q	51
Interleaved 2 of 5	]Im	0, 1, 3	e	65
Matrix 2 of 5	]X0		m	6D
NEC 2 of 5	]X0		Y	59
Straight 2 of 5 IATA	]Rm	0, 1, 3	f	66
Straight 2 of 5 Industrial	]S0		f	66
MSI	]Mm	0, 1	g	67
Telepen	]Bm		t	74
UPC		0, 1, 2, 3, 8, 9, A, B, C		
UPC-A	]E0		c	63
UPC-A with Add-On	]E3		c	63
UPC-A with Extended Coupon Code	]E3		c	63
UPC-E	]E0		E	45
UPC-E with Add-On	]E3		E	45
UPC-E1	]X0		E	45

Add Optima Code ID				5C80
Add AIM Code ID				5C81
Add Backslash				5C5C
Batch mode quantity			5	35

2D Symbologies

Symbology	AIM		Optima	
	ID	Possible Modifiers （m）	ID	Hex
All Symbologies				99
Aztec Code	]zm	0-9, A-C	z	7A
Chinese Sensible Code (Han Xin Code)	]X0		H	48
Codablock A	]O6	0, 1, 4, 5, 6	V	56
Codablock F	]Om	0, 1, 4, 5, 6	q	71
Code 49	]Tm	0, 1, 2, 4	l	6C
Data Matrix	]dm	0-6	w	77
GS1	]em	0-3	y	79
GS1 Composite	]em	0-3	y	79
GS1 DataBar Omnidirectional	]em	0-3	y	79
MaxiCode	]Um	0-3	x	78
PDF417	]Lm	0-2	r	72
MicroPDF417	]Lm	0-5	R	52
QR Code	]Qm	0-6	s	73
Micro QR Code	]Qm		s	73

Postal Symbologies

Symbology	AIM		Optima	
	ID	Possible Modifiers （m）	ID	Hex
All Symbologies				99
Australian Post	]X0		A	41
British Post	]X0		B	42
Canadian Post	]X0		C	43

Symbology	AIM		Optima	
	ID	Possible Modifiers （m）	ID	Hex
China Post	]X0		Q	51
InfoMail	]X0		,	2c
Intelligent Mail Bar Code	]X0		M	4D
Japanese Post	]X0		J	4A
KIX (Netherlands) Post	]X0		K	4B
Korea Post	]X0		?	3F
Planet Code	]X0		L	4C
Postal-4i	]X0		N	4E
Postnet	]X0		P	50

ASCII Conversion Chart (Code Page 1252)

In keyboard applications, ASCII control characters can be represented in three different ways, as shown below.CTRL + X functionality depends on the operating system and the application.The following table lists some common Microsoft features.This table is suitable for American keyboards.Some characters may be different depending on the country/region code/PC locale.

Non-printable ASCII ASCII control characters			Keyboard Control + ASCII (CTRL+X) Mode (CTRL + X)		
				Windows Mode Control + X Mode On (KBDCAS2)	
DEC	HEX	Char	Control + X Mode Off (KBDCAS0)	CTRL + X	CTRL + X function
0	00	NUL	Reserved	CTRL+ @	
1	01	SOH	NP Enter	CTRL+ A	Select all
2	02	STX	Caps Lock	CTRL+ B	Bold
3	03	ETX	ALT Make	CTRL+ C	Copy
4	04	EOT	ALT Break	CTRL+ D	Bookmark
5	05	ENQ	CTRL Make	CTRL+ E	Center
6	06	ACK	CTRL Break	CTRL+ F	Find
7	07	BEL	Enter / Ret	CTRL+ G	
8	08	BS	(Apple Make)	CTRL+ H	History
9	09	HT	Tab	CTRL+ I	Italic
10	0A	LF	(Apple Break)	CTRL+ J	Justify

Non-printable ASCII control characters			Keyboard Control + ASCII (CTRL+X) Mode		
				Windows Mode Control + X Mode On (KBDCAS2)	
DEC	HEX	Char	Control + X Mode Off (KBDCAS0)	CTRL + X	CTRL + X function
11	0B	VT	Tab	CTRL+ K	hyperlink
12	0C	FF	Delete	CTRL+ L	list, left align
13	0D	CR	Enter / Ret	CTRL+ M	
14	0E	SO	Insert	CTRL+ N	New
15	0F	SI	ESC	CTRL+ O	Open
16	10	DLE	F11	CTRL+ P	Print
17	11	DC1	Home	CTRL+ Q	Quit
18	12	DC2	PrtScn	CTRL+ R	
19	13	DC3	Backspace	CTRL+ S	Save
20	14	DC4	Back Tab	CTRL+ T	
21	15	NAK	F12	CTRL+ U	
22	16	SYN	F1	CTRL+ V	Paste
23	17	ETB	F2	CTRL+ W	
24	18	CAN	F3	CTRL+ X	
25	19	EM	F4	CTRL+ Y	
26	1A	SUB	F5	CTRL+ Z	
27	1B	ESC	F6	CTRL+ [	
28	1C	FS	F7	CTRL+ \	
29	1D	GS	F8	CTRL+]	
30	1E	RS	F9	CTRL+ ^	
31	1F	US	F10	CTRL+ -	
127	7F	⌂	NP Enter		

Lower ASCII Reference Table

Note: Windows code page 1252 and lower ASCII use the same characters.

Printable Characters								
DEC	HEX	Character	DEC	HEX	Character	DEC	HEX	Character
32	20	<SPACE>	64	40	@	96	60	`
33	21	!	65	41	A	97	61	a
34	22	"	66	42	B	98	62	b
35	23	#	67	43	C	99	63	c

Printable Characters (Continued)								
DEC	HEX	Character	DEC	HEX	Character	DEC	HEX	Character
36	24	$	68	44	D	100	64	d
37	25	%	69	45	E	101	65	e
38	26	&	70	46	F	102	66	f
39	27	'	71	47	G	103	67	g
40	28	(	72	48	H	104	68	h
41	29	)	73	49	I	105	69	i
42	2A	*	74	4A	J	106	6A	j
43	2B	+	75	4B	K	107	6B	k
44	2C	,	76	4C	L	108	6C	l
45	2D	-	77	4D	M	109	6D	m
46	2E	.	78	4E	N	110	6E	n
47	2F	/	79	4F	O	111	6F	o
48	30	0	80	50	P	112	70	p
49	31	1	81	51	Q	113	71	q
50	32	2	82	52	R	114	72	r
51	33	3	83	53	S	115	73	s
52	34	4	84	54	T	116	74	t
53	35	5	85	55	U	117	75	u
54	36	6	86	56	V	118	76	v
55	37	7	87	57	W	119	77	w
56	38	8	88	58	X	120	78	x
57	39	9	89	59	Y	121	79	y
58	3A	:	90	5A	Z	122	7A	z
59	3B	;	91	5B	[	123	7B	{
60	3C	<	92	5C	\	124	7C		
61	3D	=	93	5D	]	125	7D	}
62	3E	>	94	5E	^	126	7E	~
63	3F	?	95	5F	_	127	7F	⌂

Extended ASCII Characters					
DEC	HEX	CP 1252	ASCII	Alternate Extended	PS2 Scan Code
128	80	€	Ç	up arrow ↑	0x48
129	81		ü	down arrow ↓	0x50
130	82	,	é	right arrow ⟶	0x4B
131	83	ƒ	â	left arrow ⟵	0x4D
132	84	„	ä	Insert	0x52
133	85	…	à	Delete	0x53

Extended ASCII Characters (Continued)					
DEC	HEX	CP 1252	ASCII	Alternate Extended	PS2 Scan Code
134	86	†	å	Home	0x47
135	87	‡	ç	End	0x4F
136	88	ˆ	ê	Page Up	0x49
137	89	‰	ë	Page Down	0x51
138	8A	Š	è	Right ALT	0x38
139	8B	‹	ï	Right CTRL	0x1D
140	8C	Œ	î	Reserved	n/a
141	8D		ì	Reserved	n/a
142	8E	Ž	Ä	Numeric Keypad Enter	0x1C
143	8F		Å	Numeric Keypad /	0x35
144	90		É	F1	0x3B
145	91	'	æ	F2	0x3C
146	92	'	Æ	F3	0x3D
147	93	"	ô	F4	0x3E
148	94	"	ö	F5	0x3F
149	95	•	ò	F6	0x40
150	96	–	û	F7	0x41
151	97	—	ù	F8	0x42
152	98	˜	ÿ	F9	0x43
153	99	™	Ö	F10	0x44
154	9A	š	Ü	F11	0x57
155	9B	›	¢	F12	0x58
156	9C	œ	£	Numeric Keypad +	0x4E
157	9D		¥	Numeric Keypad -	0x4A
158	9E	ž	Pts	Numeric Keypad *	0x37
159	9F	Ÿ	ƒ	Caps Lock	0x3A
160	A0		á	Num Lock	0x45
161	A1	¡	í	Left Alt	0x38
162	A2	¢	ó	Left Ctrl	0x1D
163	A3	£	ú	Left Shift	0x2A
164	A4	¤	ñ	Right Shift	0x36
165	A5	¥	Ñ	Print Screen	n/a
166	A6	¦	ª	Tab	0x0F
167	A7	§	º	Shift Tab	0x8F
168	A8	¨	¿	Enter	0x1C
169	A9	©	⌐	Esc	0x01
170	AA	ª	¬	Alt Make	0x36
171	AB	«	½	Alt Break	0xB6
172	AC	¬	¼	Control Make	0x1D

Extended ASCII Characters (Continued)					
DEC	HEX	CP 1252	ASCII	Alternate Extended	PS2 Scan Code
173	AD		¡	Control Break	0x9D
174	AE	®	«	Alt Sequence with 1 Character	0x36
175	AF	¯	»	Ctrl Sequence with 1 Character	0x1D
176	B0	°	▒		
177	B1	±	▓		
178	B2	²	█		
179	B3	³	│		
180	B4	´	┤		
181	B5	µ	╡		
182	B6	¶	╢		
183	B7	·	╖		
184	B8	¸	╕		
185	B9	¹	╣		
186	BA	º	║		
187	BB	»	╗		
188	BC	¼	╝		
189	BD	½	╜		
190	BE	¾	╛		
191	BF	¿	┐		
192	C0	À	└		
193	C1	Á	┴		
194	C2	Â	┬		
195	C3	Ã	├		
196	C4	Ä	─		
197	C5	Å	í		
198	C6	Æ	╞		
199	C7	Ç	╟		
200	C8	È	╚		
201	C9	É	╔		
202	CA	Ê	╩		
203	CB	Ë	╦		
204	CC	Ì	╠		
205	CD	Í	=		
206	CE	Î	╬		
207	CF	Ï	╧		
208	D0	Ð	╨		
209	D1	Ñ	╤		
210	D2	Ò	╥		
211	D3	Ó	╙		

DEC	HEX	CP 1252	ASCII	Alternate Extended	PS2 Scan Code
				Extended ASCII Characters (Continued)	
212	D4	Ô	╘		
213	D5	Õ	╒		
214	D6	Ö	╓		
215	D7	×	╫		
216	D8	Ø	╪		
217	D9	Ù	┘		
218	DA	Ú	┌		
219	DB	Û	█		
220	DC	Ü	▄		
221	DD	Ý	▌		
222	DE	Þ	▐		
223	DF	ß	▀		
224	E0	à	α		
225	E1	á	ß		
226	E2	â	Γ		
227	E3	ã	π		
228	E4	ä	Σ		
229	E5	å	σ		
230	E6	æ	µ		
231	E7	ç	τ		
232	E8	è	Φ		
233	E9	é	Θ		
234	EA	ê	Ω		
235	EB	ë	δ		
236	EC	ì	∞		
237	ED	í	φ		
238	EE	î	ε		
239	EF	ï	∩		
240	F0	ð	≡		
241	F1	ñ	±		
242	F2	ò	≥		
243	F3	ó	≤		
244	F4	ô	⌠		
245	F5	õ	⌡		
246	F6	ö	÷		
247	F7	÷	≈		
248	F8	ø	°		
249	F9	ù	·		
250	FA	ú	·		

DEC	HEX	CP 1252	ASCII	Alternate Extended	PS2 Scan Code
				Extended ASCII Characters (Continued)	
251	FB	û	$\sqrt{}$		
252	FC	ü	^{n}		
253	FD	ý	^{2}		
254	FE	þ	■		
255	FF	ÿ			

ISO 2022/ISO 646 Character Replacements

Code pages defines the mapping of character code-to-character. If the received data does not display the correct characters, it may be because the barcode being scanned was created using a different Code pages from the host program expected. In this case, please select Code pages for creating a barcode, data characters should then be displayed correctly.

Code Page Selection Method/Country	Standard	Keyboard Country	Optima Code Page Option
United States (standard ASCII)	ISO/IEC 646 - IRV	n/a	1
Automatic National Character Replacement	**ISO/IEC 2022**	**n/a**	**2 (default)**
Binary Code page	n/a	n/a	3
Default "Automatic National Character replacement" will select the below Optima Code Page options for Code128, Code 39 and Code 93.			
United States	ISO/IEC 646 - 06	0	1
Canada	ISO /IEC 646 - 121	54	95
Canada	ISO /IEC 646 - 122	18	96

Japan	ISO/IEC 646‑14	28	98
China	ISO/IEC 646‑57	92	99
Great Britain (UK)	ISO /IEC 646‑04	7	87

Code Page Selection Method/Country	Standard	Keyboard Country	Optima Code Page Option
France	ISO /IEC 646‑69	3	83
Germany	ISO/IEC646‑21	4	84
Switzerland	ISO /IEC 646‑CH	6	86
Sweden / Finland (extended Annex C)	ISO/IEC 646‑11	2	82
Ireland	ISO /IEC 646‑207	73	97
Denmark	ISO/IEC 646‑08	8	88
Norway	ISO/IEC 646‑60	9	94
Italy	ISO/IEC 646‑15	5	85
Portugal	ISO/IEC 646‑16	13	92
Spain	ISO/IEC 646‑17	10	90
Spain	ISO/IEC 646‑85	51	91

	Dec		35	36	64	91	92	93	94	96	123	124	125	126
	Hex		23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E
US	0	1	#	$	@	[	\	]	^	`	{	|	}	~
CA	54	95	#	$	à	â	ç	ê	î	ô	é	ù	è	û
CA	18	96	#	$	à	â	ç	ê	É	ô	é	ù	è	û
JP	28	98	#	$	@	[	¥	]	^	`	{	|	}	
CN	92	99	#	¥	@	[	\	]	^	`	{	|	}	
GB	7	87	£	$	@	[	\	]	^	`	{	|	}	~
FR	3	83	£	$	à	°	ç	§	^	µ	é	ù	è	¨
DE	4	84	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
CH	6	86	ù	$	à	é	ç	ê	î	ô	ä	ö	ü	û
SE/FI	2	82	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
DK	8	88	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~
NO	9	94	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	¨
IE	73	97	£	$	Ó	É	Í	Ú	Á	ó	é	í	ú	á
IT	5	85	£	$	§	°	ç	é	^	ù	à	ò	è	ì
PT	13	92	#	$	§	Ã	Ç	Õ	^	`	ã	ç	õ	°
ES	10	90	#	$	§	¡	Ñ	¿	^	`	°	ñ	ç	~
ES	51	91	#	$	·	¡	Ñ	Ç	¿	`	´	ñ	ç	¨

Unicode Key Maps

6E	70	71	72	73	74	75	76	77	78	79	7A	7B	7C	7D

01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0F

10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D

1E 1F 20 21 22 23 24 25 26 27 28 29 2B

2C 2E 2F 30 31 32 33 34 35 36 37 39

3A 3B 3C 3D 3E 3F 38 40

7E

4B 50 55

4C 51 56

53

4F 54 59

5A 5F 64
69
5B 60 65
6A
5C 61 66
5D 62 67 6C
63 68

104 Key U.S. Style Keyboard

6E 70 71 72 73 74 75 76 77 78 79 7A 7B

01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0F

10 11 12 13 14 15 16 17 18 19 1A 1B 1C
2B

1E 1F 20 21 22 23 24 25 26 27 28 29 2A

2C 2D 2E 2F 30 31 32 33 34 35 36 37
39

3A 3B 3C 3D 3E 3F 38 40

7C 7D
7E

4B 50 55

4C 51 56

53

4F 54 59

5A 5F 64
69
5B 60 65
6A
5C 61 66
5D 62 67 6C
63 68

105 Key European Style Keyboard

Sample Symbols

UPC-A

0 123456 7890

Code 128

Code 128

Code 39

BC321

Interleaved 2 of 5

1234567890

EAN-13

9 780330 290951

Codabar

A13579B

92

Code 93

123456-9$

Straight 2 of 5 Industrial

123456

Matrix 2 of 5

6543210

GS1 DataBar

(01)0012345678901

PDF417

Car Registration

Data Matrix

Test Symbol

QR Code

Numbers

4-CB (4-State Customer Bar Code)

01,234,567094,987654321,01234567891

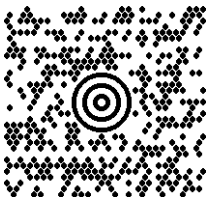**ID-tag (UPU 4-State)**

J18CUSA8E6N062315014880T

Aztec

Package Label

Micro PDF417

Test Message

MaxiCode

Test Message

Postnet

Zip Code

Programming Chart

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0
```

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1
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2
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3
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4
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5
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6
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7
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8
```

```
9
```

95

A

B

C

D

E

F

Save

Discard

Note: if an error occurs while scanning letters or numbers (before scanning Save), please scan Discard, scan the correct letters or numbers, and then save again.