ZBA Inc.

User's manual

ZBA Inc.

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For CE-countries
This scanner is in conformity with CE standards. Please note that an approved, CE-marked power supply unit should be used in order to maintain CE conformance.

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1. Instruction

This miniature CCD scan module is especially designed for embedded scanning solution. It only weights 15 grams and sized as small as a match box. There are 3 LED indicators on top allowing immediate scanning response and a test button for performance test. There are mounting holes on the back of the case reserved for quick and easy installation.

The module has a newly designed CCD scan engine with light beam bright and clear as laser beam that gives user best visual indication and its powerful high resolution CCD acts in outstanding performance.

The scanner includes key features as,

- ◆ World's smallest CCD scan module
- ◆ Industrial standard design
- ◆ A "TEST" button on top for performance testing
- ◆ Mounting holes at bottom for easy installation
- ◆ Great CCD scanning performance and have future upgradeability on firmware
- ◆ Best for embedded applications, kiosks, lottery machine, and others where space is limited.

2. Outline
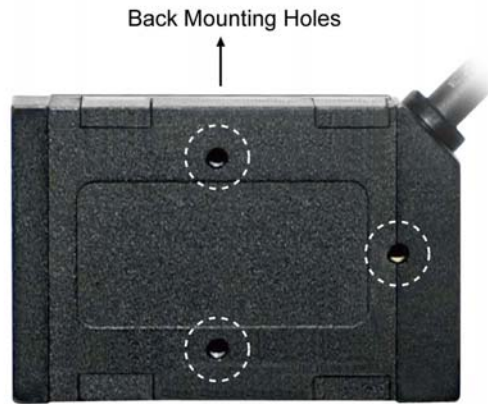
3. Mounting Recommendations

The scanner is designed to embed into any space limited devices, and it has 3 screwed mounting holes reserved at the bottom.

Screw description: M1.6
Screw quantity: 3 pieces
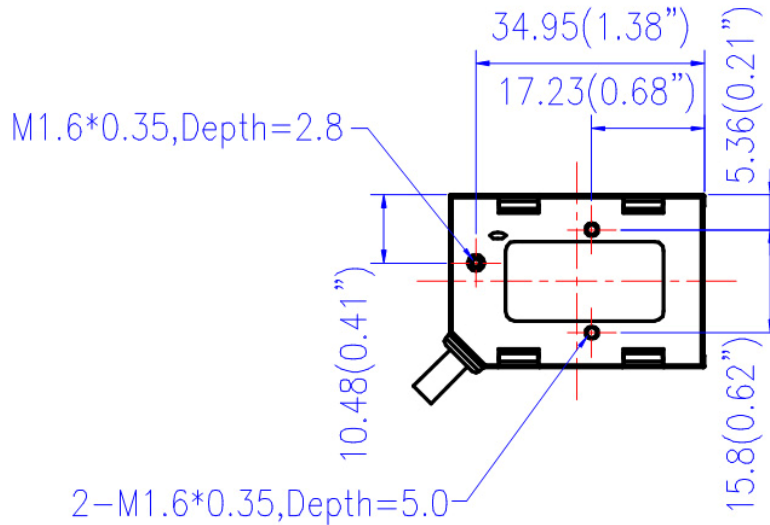
Figure : Screw Position

To ensure the scanner reaches its best performance, the following points need to be noticed when mounting the scanner:
(a) Do not place the scanner under direct sunlight or any other bright light source illuminating.
(b) When placing the barcode label, one must be careful not to over tilt, skew and/or pitch the barcode (Refer to figure 2)
(c) Do not place the device at specula reflection position. The LED light of the scanner reflects directly back on the scanner if it is placed at specula reflection position. As to the nature of CCD sensor, it will not be able to read any barcodes.

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(d) The barcode label must be placed within the effective depth of field (D.O.F.) since it is the effective reading distance for the barcode from the scanner. For the best placing position, please refer to the Decode Depth of Field drawing. (Figure 3)

✎	Different quality and density of a barcode could effect its decode depth of field. Usually when a barcode has poor printing quality or high density, the depth of field would be shorter. It is highly suggested **not** place the barcode label at the extremes of depth of field as it is often easy to move out from the reading range.
✎	Test condition: using a 100% EAN 13 barcode, 0.33mm (13 mil), at a distance of 14cm (5.5") in optimal lighting conditions.

Pitch Angle: ±65° normal
Specular Reflection: ±5°
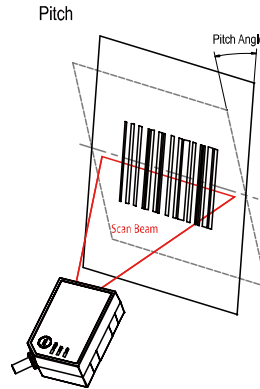
Skew Angle: ±65° normal
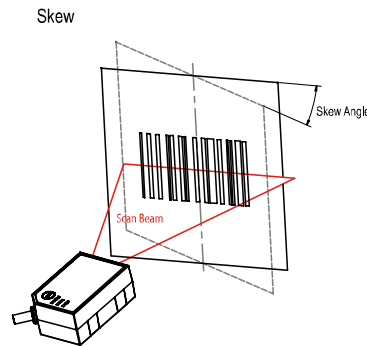
Roll Angle: ±20° normal (Prevents reading of a barcode if all the bars are not inside the reading beam or if tilt is more than 20°.)

Roll

Roll Angle

Scan Beam
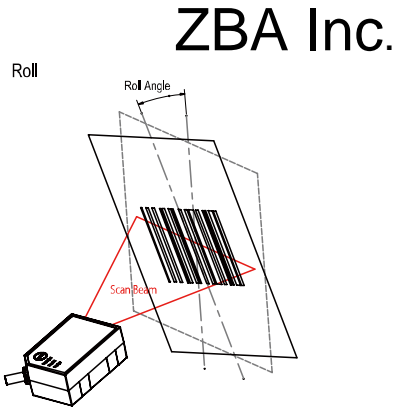
Figure 2: Skew, Pitch and Roll Angle Illustration

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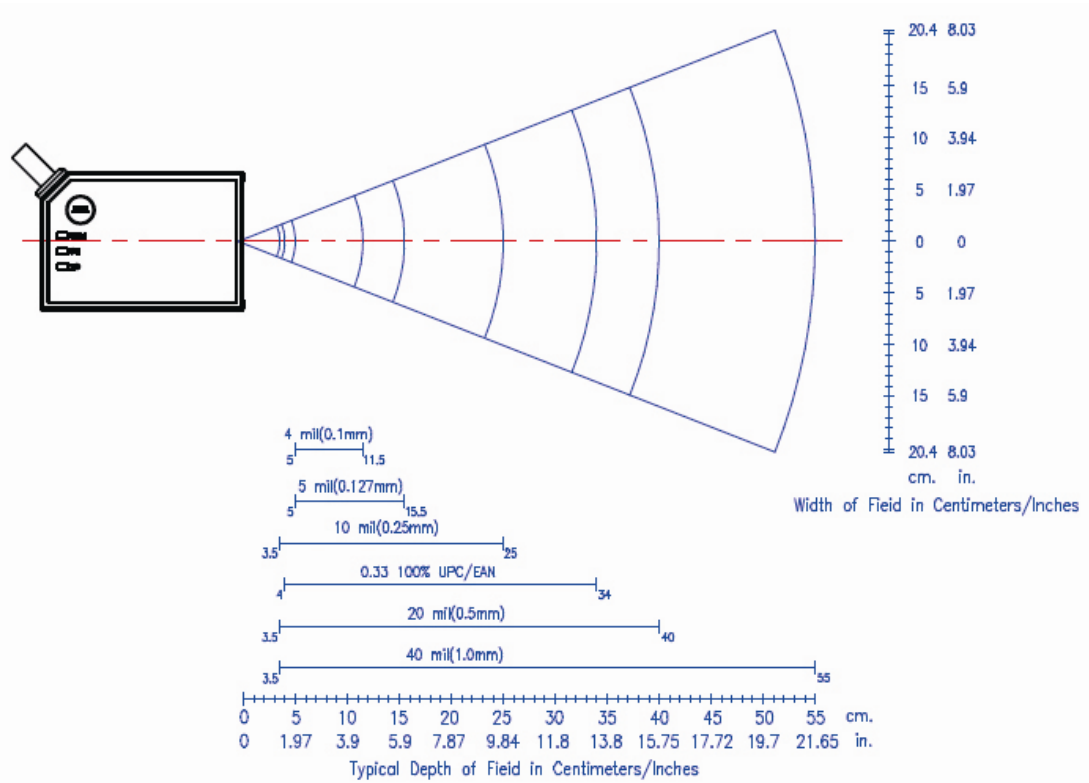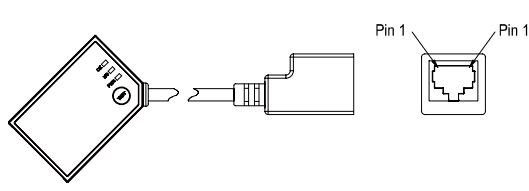
Figure 3: Decode Depth of Field

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4. Interface Selection
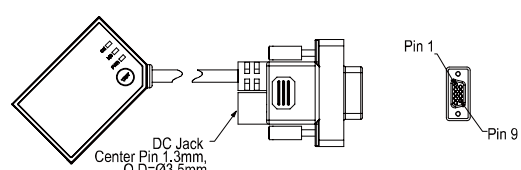
The scan module has 3 different kinds of interface connections to suit customer's desire; the standard cable is black, straight and 2 m (6.5 feet) in length. Below shows the connector types and pin out configuration for each interface.

(a) All interface – RS-45 10P10C for multi-interface connection

Pin #	Function
1	RTS_EIA
2	USB_D+
3	USB_D-
4	GND
5	CTS_EIA
6	RX_EIA
7	Trigger_In
8	+5V Input
9	N.C.
10	TX_EIA

(b) RS-232 interface – Power adapter required if host can not provide sufficient power.

Pin #	Function
1	N.C.
2	TX_EIA
3	RX_EIA
4	N.C.
5	GND
6	N.C.
7	CTS_EIA
8	RTS_EIA
9	+5V Input
Inner of DC-Jack: +5V DC	
Outer of DC-Jack: GND	

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(c) USB interface connection

Pin #	Function
1	N.C.
2	TX_EIA
3	RX_EIA
4	N.C.

#1

#4
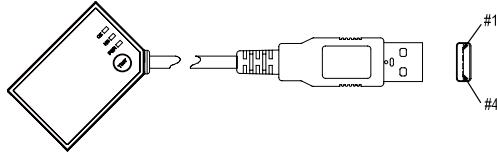
5. Blink Mode

After the scanner has been inactive for a period of time, the light beam would automatically start blinking. To stop the scanner from blinking, simply present an object close to the scanner window or press the test button. The Blink Mode feature is included to reduce power consumption and to extend scanner life. Use the barcodes in page 27 to change the blink mode settings

6. TEST Button Function

On top of the scan module, there is a "TEST" button, and it controls two function modes:

  5-1   Trigger mode
  5-2   Scan performance test mode

The "TEST" button can be set to function as complex modes or only single mode using the set-up barcodes below:
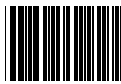
‖‖‖‖‖‖‖‖‖‖ Start of Configuration	Scan this barcode to enter set-up process.
‖‖‖‖‖‖‖‖‖‖ Complex modes	Scan this barcode to set-up the TEST button to control both trigger mode and scan performance test mode. When the scanner is set in this mode, briskly and continuously press down TEST button twice to activate scan performance test function.
‖‖‖‖‖‖‖‖‖‖	Scan this barcode and the TEST button only functions as scan performance test mode.

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Scan performance test mode

When the scanner is set in this mode, continuously press down TEST button over 2 seconds to activate scan performance test function.

Trigger mode

Scan this barcode and the TEST button only functions as a trigger.

End of Configuration

Scan this barcode to save the change and exit from set-up.

12.1 5-1 Trigger Mode

In trigger mode, simply aim the scan module at the barcode and press the TEST button to trigger scan light beam and decode.

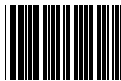## 12.2 5-2 Scan Performance Test Mode

To enter into scan performance test mode, briskly and continuously press down the TEST button twice, and all LED indicators are off with two short beep sound simultaneously. The module successfully enters into the mode, and places a barcode label within its scanning range to get the best scan performance result.

The result is indicated with LED lights with different read rate as below:

Read Rate %	50%	75%	90%
OK_LED	On	On	On
NG_LED	x	On	On
PWR_LED	x	x	On

Press the TEST button once; it exits from the scan performance test mode and return to normal operation.

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7. Technical Specification

Power Requirement	
Input voltage	5V ±5% VDC
LED on	87mA typical
LED off	37mA typical
Decode	120mA typical
	150mA @ 100msec
	Max. 250mA @ 1msec peak
Operational	
Sensor	2,500 pixels CCD
Illumination	617nm visible red LED
Depth of field	40 – 235mm
	(UPC/EAN 100%, PCS=90%)
Scan rate	200 scans per second
Minimum bar width	0.125mm (5mil) (0.1mm actually)
	(Code 39, PCS=90%, contact)
Print contrast	30% @ UPC/EAN 100%
Indicators (LED)	"OK", "NG", "PWR" and "TEST"
Beeper operation	Programmable tone & beep time
Scan angle	43°
Pitch angle	±65°
Skew angle	±65°
Specular reflection angle	±5°
System interface	RS-232C, HID USB, and
	USB-Virtual COM port emulation
Environment	
Operating temperature	0℃ ~ 50℃ (32℉ ~ 122℉)
Storage temperature	
Humidity	-20℃ ~ 60℃ (-4℉ ~ 140℉)
Ambient light immunity	5% to 95% non-condensing
Shock	7,000 Lux max. (fluorescence)
Vibration	2,000G
	Unpowered engine withstands a random vibration along each of the X, Y and Z axis for a period of 10 min. per axis, defined as follows:
	● 20~80Hz ramp up to 0.04G^2/Hz at the rate of 3dB/oct.
	● 80~350Hz 0.04G^2/Hz

	● 350~2000Hz ramp down at the rate of 3dB/oct.

~Technical Specification Continued~

Physical dimension	
Height	15.8mm (0.62")
Width	26.6mm (1.05")
Depth	39.0mm (1.54")
Weight	15g
Mounting	3-M1.6 * 0.35 screw hole
Regulatory	
Regulator approval	According CE, FCC, VCCI, RoHS compliant
Decode symbology	UPC/JAN/EAN, Code 39, Code 93, Codabar, Interleave 2 of 5, IATA, Standard 2 of 5, ISBN/ISSN, Chinese post code, MSI/Plessy, EAN 128, Code 128

8. Dimension

Units: mm(inch.)
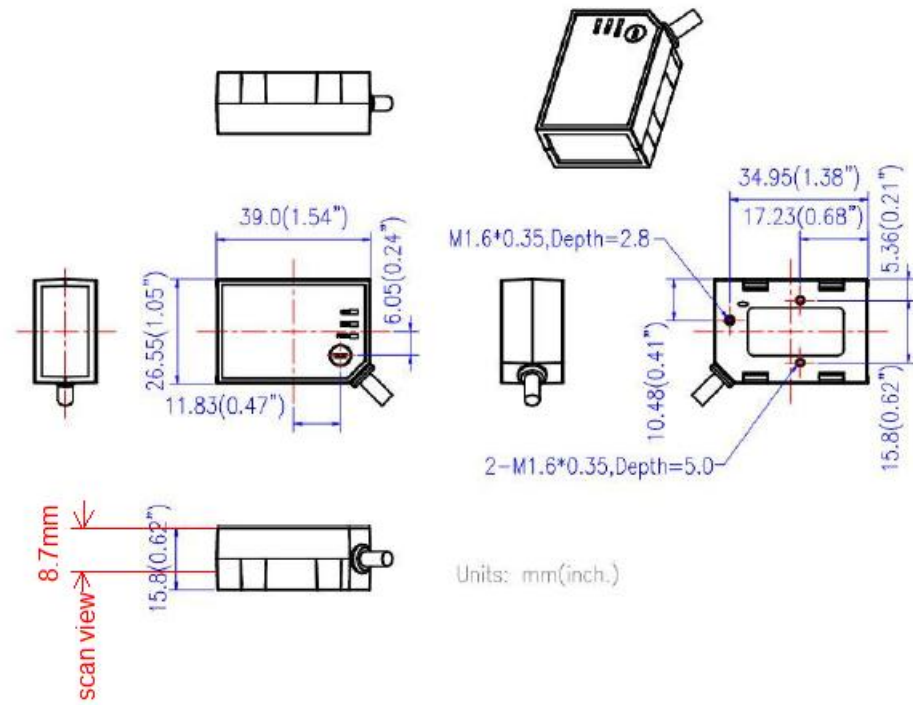
9. Maintaining the Scanner

The scanner is designed for long-term trouble-free operation and rarely requires any maintenance. Only an occasional cleaning of the scanner window is necessary in order to remove dirt and fingerprints.

Wipe the scan window with a soft lint-free cloth and a non-abrasive cleaner to avoid scratching and damaging the scan window. The scan window may be cleaned while the scanner is running.

⚠	Scratching the scanner window can reduce the scanning performance. We suggest you either recess the window into the housing or apply a hard-coat on window.

10.Programming Guide

Scanning a series of programming bar code labels can configure the scanner. This allows decoding options and interface protocols to be tailored to a specific application. The configuration is stored in non-volatile memory and will not be lost by removing power from the scanner.

The scanner must be properly powered before programming. For RS-232C type scanners, an external power adapter might be necessary to supply DC power to the scanner.

During the programming mode, the scanner will acknowledge a good and valid reading with a short beep. It will give long beeps for either an invalid or bad reading.
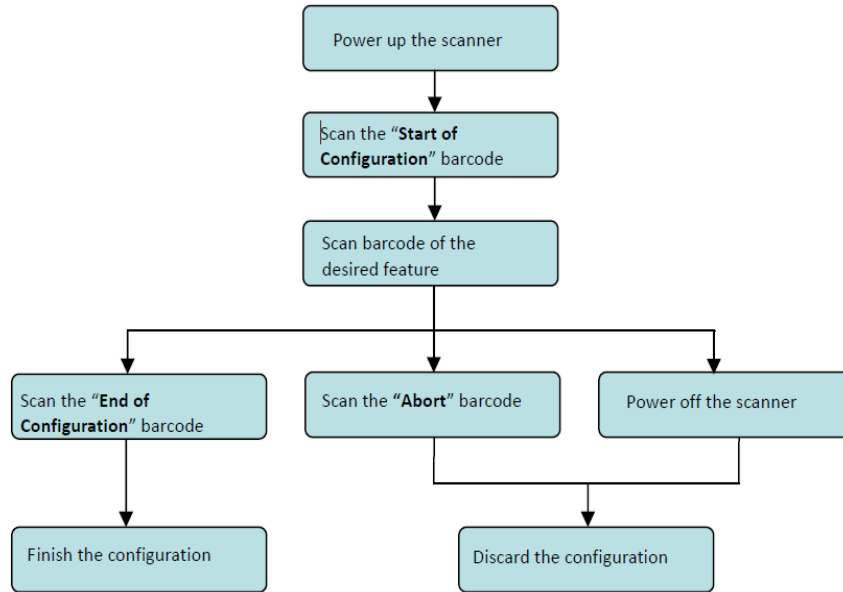
Table 1 gives the default settings of all the programmable parameters. The default settings will be restored whenever the "Reset" programming label is scanned.

12.3 Programming Procedure

Below is the programming procedure for using barcodes in this guide.
1. Power up the scanner.
2. Scan the **Start of Configuration** barcode.
3. Scan the barcode for the desired feature. Multiple features can be enabled/disabled before scanning the **End of Configuration** barcode.
4. Scan the **End of Configuration** barcode and save the new configuration.
5. To give up a configuration change, power off the scanner before scanning the **End of Configuration** barcode or scan the **Abort** barcode.
6. For some parameter setting, such as barcode length and identifier code, it is required to scan the **Set** barcode to save the configuration.

Default values are highlighted in gray background.

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```
┌─────────────────────────┐
│   Power up the scanner   │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│ Scan the "Start of       │
│ Configuration" barcode   │
└─────────────────────────┘
            │
            ▼
┌─────────────────────────┐
│ Scan barcode of the      │
│ desired feature          │
└─────────────────────────┘
```

Scan the "End of Configuration" barcode	Scan the "Abort" barcode	Power off the scanner

Finish the configuration	Discard the configuration

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12.4 Table 1: Factory Default Settings

This table gives the default settings of all the programmable parameters. The default settings would be restored whenever the laser scanner reads the "Reset" programming label in programming mode. If you wish to change any setting, scan the appropriate barcodes below.

Scanner Timing	Default
Same code delay	500msec
Scan mode	Auto scan
RS-232 communication	**Default**
Baud rate	9600
Parity	none
Data bits	8
Stop bit	1
RTS/CTS	off
Terminator	<CR><LF>
USB Communication	**Default**
Terminator type	Enter
Code mode	Scan code
Decoder Selection	**Default**
EAN/UPC	Enable
CODE 39	Enable
Code 32	Disable
CODABAR	Enable
ITF 2 OF 5	Enable
MSI/Plessy	Disable
Chinese post code	Disable
Code 93	Enable
Code 128	Enable
EAN-128	Disable
Standard 2 of 5	Disable
NEC 2 of 5	Disable
Beeper sound	**Default**
Frequency	High
Duration	100msec
Code Identifiers	**Default**
Code ID	Off
Code 39 identifier	M

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ITF 2 of 5 identifier	I
Chinese post code identifier code	H
UPC-A identifier code	A
UPC-E identifier code	E
EAN-13 identifier code	F

EAN-8 identifier code	FF
Codabar identifier code	N
Code 128 identifier code	K
Code 93 identifier code	L
MSI identifier code	P
Standard 2 of 5 identifier code	S
NEC 2 of 5 identifier code	G
LED/Beep transmission	**Default**
LED/beep before transmission	On

12.5 Table 2: Default Data Transmit Format

Code	Message format
EAN-13	D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13
EAN-8	D1 D2 D3 D4 D5 D6 D7 D8
UPCA	D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12
UPCE	D1 D2 D3 D4 D5 D6 D7 D8
Code 128	D1-Dx (default 3~32)
EAN 128	C1 D1-Dx (default 3~32)
Code 39	D1-Dx (default 3~32)
Code 32	D1-Dx (default 3~32)
CODABAR	D1-Dx (default 6~32)
Interleaved 2 of 5	D1-Dx (default 6~32)
Chinese Post Code	D1-Dx (default 8~32)
Code 93	D1-Dx (default 3~32)
MSI	D1-Dx (default 6~32)
Coop 2 of 5	D1-Dx (default 6~32)

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12.6 Table 3: Trigger Command Format
(Only for RS-232C and USB-Virtual COM Port)

Command	Description
<ESC>A0<CR>	Level trigger command; scan off when trigger off command
<ESC>A1<CR>	Trigger off command
<ESC>A0.mm<CR> mm=1~60(Sec)	Edge trigger command It is not controlled by the trigger off command. Scanner starts next scan if it receives an edge trigger command and the device remains "mm" time.
<ESC>A2<CR>	Scan once (same as trigger mode)
<ESC>A2.xx<CR>	Scan once (scan off when time out)
NG LED When no read function is active, the LED indicates simultaneously.	

11.Parameter setting

✏	Default settings are highlighted in gray background.

Start Of Configuration
- Scan this barcode to enter set-up process.

11.1. System Function Setting

Reset
- Returns Parameters to default settings
Note: Does not change interface setting

Display firmware version

Return as customer default

Save as customer default

Abort
-Exit programming mode(no update)

Power-up beeper tone enable

Power-up beeper tone disable

Speaker Disable

End Of Configuration

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|||||||||||| Start Of Configuration
- Scan this barcode to enter set-up process.

|||||||||||| High beeper tone

|||||||||||| Medium beeper tone

|||||||||||| Low beeper tone

|||||||||||| Loud volume

|||||||||||| Medium volume

|||||||||||| Slight volume

|||||||||||| Good read beep sound duration (500msec)

|||||||||||| Good read beep sound duration (200msec)

|||||||||||| Good read beep sound duration (100msec)

|||||||||||| Good read beep sound duration (50msec)

|||||||||||| Good read beep sound duration (20msec)

|||||||||||| Good read beep sound duration (5msec)

|||||||||||| LED/Beep after transmission
- indicate a "good read" after a barcode is successfully decoded.

|||||||||||| LED/Beep before transmission
- indicate a "good read" after successfully transmitting the barcode data to the host.

|||||||||||| End Of Configuration

11.2. Scan Function Setting

Start Of Configuration

- Scan this barcode to enter set-up process.

Trigger mode
- The scanner becomes inactive as soon as the data is transmitted. It must be triggered to active again.

Auto scan mode
- The light beam is active always, and the same barcode can not be read twice in this mode.

Alternate mode
- The light beam active when press the trigger and turns off till next triggering.

Repeat mode
- It is similar to auto scan mode, but double reading on the same barcode is permitted if uses trigger.

11.3. "TEST" Button Function Setting

Complex mode
- Scan this barcode to set-up the test button to control both trigger mode and scan performance test mode.

Scan performance test mode only
- Scan this barcode and the test button only functions as scan performance test mode.
- Press down "TEST" button continuously over 2 seconds and it starts to perform scan test.

Trigger mode only
- Scan this barcode and the test button only functions as a trigger.

End Of Configuration

11.4. Interface Setting

‖‖‖‖‖‖‖‖	Start Of Configuration
‖‖‖‖‖‖‖‖	Enable USB-Virtual COM port
‖‖‖‖‖‖‖‖	Enable HID USB keyboard
‖‖‖‖‖‖‖‖	Enable RS-232 communication

11.5. HID USB Keyboard Wedge Setting

‖‖‖‖‖‖‖‖	Enable Alt mode
‖‖‖‖‖‖‖‖	Keyboard language support - USA
‖‖‖‖‖‖‖‖	Keyboard language support - Japan
‖‖‖‖‖‖‖‖	Capital lock on
‖‖‖‖‖‖‖‖	Capital lock off
‖‖‖‖‖‖‖‖	Function key emulation enable
‖‖‖‖‖‖‖‖	Function key emulation disable
‖‖‖‖‖‖‖‖	Send number as normal data
‖‖‖‖‖‖‖‖	Send number as keypad data

‖‖‖‖‖‖‖‖	End Of Configuration

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‖‖‖‖‖‖‖‖‖ Start Of Configuration

‖‖‖‖‖‖‖‖‖ Alphabet follow as keyboard

‖‖‖‖‖‖‖‖‖ Alphabet always upper case

‖‖‖‖‖‖‖‖‖ Alphabet always lower case

‖‖‖‖‖‖‖‖‖ Keyboard terminator - none

‖‖‖‖‖‖‖‖‖ Keyboard terminator - enter

‖‖‖‖‖‖‖‖‖ Keyboard terminator – H. Tab

11.6. RS-232 Interface Setting

Baud Rate

‖‖‖‖‖‖‖‖‖ Baud rate 115200

‖‖‖‖‖‖‖‖‖ Baud rate 57600

‖‖‖‖‖‖‖‖‖ Baud rate 38400

‖‖‖‖‖‖‖‖‖ Baud rate 19200

‖‖‖‖‖‖‖‖‖ Baud rate 9600

‖‖‖‖‖‖‖‖‖ Baud rate 4800

‖‖‖‖‖‖‖‖‖ End Of Configuration

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|||||||||||||||| Start Of Configuration

Baud Rate (Continued)

|||||||||||||||| Baud rate 2400

|||||||||||||||| Baud rate 1200

|||||||||||||||| Baud rate 600

|||||||||||||||| Baud rate 300

Parity
|||||||||||||||| Even parity

|||||||||||||||| Odd parity

|||||||||||||||| Mark parity

|||||||||||||||| Space parity

|||||||||||||||| None parity

Stop Bit
|||||||||||||||| 1 stop bit

|||||||||||||||| 2 stop bit

Data Bit
|||||||||||||||| 7 data bit

|||||||||||||||| 8 data bit

|||||||||||||||| End Of Configuration

|||||||||||||||| Start Of Configuration

Handshaking

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No handshaking

ACK/NAK

Xon/Xoff

RTS/CTS (Character handshaking)

Standard CTS polarity
- high=inactive, do not send,
- low=active, do not send
Invert CTS polarity
- High=active, OK to send
- Low=inactive, do not send
Active RTS, do not wait for CTS

Active RTS, wait for CTS

RTS/CTS message handshaking

Enable beeper ON <BEL> character

Ignore beeper ON <BEL> character

ACK/NAK response time 500ms

ACK/NAK response time 300ms

ACK/NAK response time 5s

ACK/NAK response time 3s

ACK/NAK response time 2s

ACK/NAK response time 1s

ACK/NAK response time infinity

End Of Configuration

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Start Of Configuration

Message Terminator

RS-232 message terminator – none

RS-232 message terminator – CR/LF

RS-232 message terminator – CR

RS-232 message terminator – LF

RS-232 message terminator – H tab

RS-232 message terminator – STX/ETX

RS-232 message terminator – EOT

End Of Configuration

12. The Symbologies Settings

12.1 Codabar

Start Of Configuration

Codabar enable

Codabar disable

Codabar start/stop character transmission – None

Codabar start/stop character transmission – A,B,C,D

Codabar start/stop character transmission – DC1~DC4

Codabar start/stop character transmission – a/t, b/n, c/*, d/e

Codabar maximum length setting

Codabar minimum length setting

Save setting to confirm (for length setting)

Codabar concatenation disable

Codabar concatenation enable

No check character

Validate modulo 16,but don't transmit

Validate modulo 16,but transmit

Codabar data redundant check=off

Codabar data redundant check=1

Codabar data redundant check=2

Codabar data redundant check=3

End Of Configuration

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Start Of Configuration

Code 39 enable

Code 39 disable

Code 32 enable

Code 32 disable

Code 39 data redundant check=off

Code 39 data redundant check=1

Code 39 data redundant check=2

Code 39 data redundant check=3

Standard code 39

Full ASCII code 39

Code 39 start/stop character transmission

Code 39 start/stop character without transmission

Code 39 check digit calculate and transmit

Code 39 check digit calculate but without transmit

No check character

Code 39 maximum length setting

Code 39 minimum length setting

Save setting to confirm (for length setting)

Code 39 (Continued)

Start Of Configuration

Code 39 concatenation enable

Code 39 concatenation disable

Code 32 (Italian pharmacy) transmit "A" character

Code 32 (Italian pharmacy) without transmit "A" character

End Of Configuration

Start Of Configuration

Code 93 enable

Code 93 disable

Code 93 data redundant check=off

Code 93 data redundant check=1

Code 93 data redundant check=2

Code 93 data redundant check=3

Code 93 maximum length setting

Code 93 minimum length setting

	Save setting to confirm (for length setting)
	Code 93 check digit calculated but without transmit
	Code 93 check digit not calculated and without transmit
	Code 93 check digit calculated and transmit
	End Of Configuration

12.4 Code 128

‖‖‖‖‖‖‖‖‖	Start Of Configuration
‖‖‖‖‖‖‖‖‖	Code 128 enable
‖‖‖‖‖‖‖‖‖	Code 128 disable
‖‖‖‖‖‖‖‖‖	EAN-128 enable
‖‖‖‖‖‖‖‖‖	EAN-128 disable
‖‖‖‖‖‖‖‖‖	Code 128 data redundant check=off
‖‖‖‖‖‖‖‖‖	Code 128 data redundant check=1
‖‖‖‖‖‖‖‖‖	Code 128 data redundant check=2
‖‖‖‖‖‖‖‖‖	Code 128 data redundant check=3
‖‖‖‖‖‖‖‖‖	Code128 FNC2 concatenation enable
‖‖‖‖‖‖‖‖‖	Code128 FNC2 concatenation disable
‖‖‖‖‖‖‖‖‖	No check character
‖‖‖‖‖‖‖‖‖	Calculate but not transmit
‖‖‖‖‖‖‖‖‖	Calculate and transmit
‖‖‖‖‖‖‖‖‖	Code 128 maximum length setting
‖‖‖‖‖‖‖‖‖	Code 128 minimum length setting

‖‖‖‖‖‖‖‖‖ **Save setting to confirm (for length setting**)

‖‖‖‖‖‖‖‖‖ End Of Configuration

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12.5 Chinese Post Code

Start Of Configuration

Chinese post code enable

Chinese post code disable

Chinese post code data redundant check=off

Chinese post code data redundant check=1

Chinese post code data redundant check=2

Chinese post code data redundant check=3

Chinese post code maximum length setting

Chinese post code minimum length setting

Chinese post code no check digit

Chinese post code check digit calculate and transmit

Chinese post code check digit calculate but without transmit

Save setting to confirm (for length setting)

End Of Configuration

12.6 MSI/Plessy

Start Of Configuration

MSI enable

MSI disable

MSI data redundant check= off

MSI data redundant check=1

MSI data redundant check=2

MSI data redundant check=3

MSI/PLESSY maximum length setting

MSI/PLESSY minimum length setting

Save setting to confirm (for length setting)

MSI/Plessy double check digit calculate but not transmit

MSI/Plessy double check digit without calculate and transmit

MSI/Plessy double check digit calculate but only first digit transmit

MSI/Plessy double check digit calculate and both transmit

MSI/Plessy single check digit calculate but without transmit

MSI/Plessy single check digit calculate and   transmit

End Of Configuration

12.7 Interleaved 2 of 5

Start Of Configuration

ITF 2 of 5 enable

ITF 2 of 5 disable

IATA code enable

IATA disable

ITF 2 of 5 data redundant check=off

ITF 2 of 5 data redundant check=1

ITF 2 of 5 data redundant check=2

ITF 2 of 5 data redundant check=3

ITF 2 of 5 code maximum length setting

ITF 2 of 5 code minimum length setting

ITF 2 of 5 no check character

ITF 2 of 5 check digit calculate and transmit

ITF 2 of 5 check digit calculate but without transmit

ITF 2 of 5 one fixed length setting

ITF 2 of 5 two fixed length setting

End Of Configuration

12.8   UPC/EAN/JAN

‖‖‖‖‖‖‖‖	Start Of Configuration
‖‖‖‖‖‖‖‖	EAN convert to ISSN/ISBN enable
‖‖‖‖‖‖‖‖	EAN convert to ISSN/ISBN disable
‖‖‖‖‖‖‖‖	UPC/EAN/JAN enable
‖‖‖‖‖‖‖‖	UPC/EAN/JAN disable
‖‖‖‖‖‖‖‖	UPC/EAN/JAN all enable
‖‖‖‖‖‖‖‖	EAN-8 or EAN-13 enable
‖‖‖‖‖‖‖‖	UPC-A and EAN-13 enable
‖‖‖‖‖‖‖‖	UPC-A and UPC-E enable
‖‖‖‖‖‖‖‖	UPC-A enable
‖‖‖‖‖‖‖‖	UPC-E enable
‖‖‖‖‖‖‖‖	EAN-13 enable
‖‖‖‖‖‖‖‖	EAN-8 enable
‖‖‖‖‖‖‖‖	UPC/EAN add on off
‖‖‖‖‖‖‖‖	Add on 5 only
‖‖‖‖‖‖‖‖	Add on 2 only
‖‖‖‖‖‖‖‖	Add on 2 or 5
‖‖‖‖‖‖‖‖	Force UPC-E to UPC-A format enable
‖‖‖‖‖‖‖‖	Force UPC-E to UPC-A format disable
‖‖‖‖‖‖‖‖	Force UPC-A to EAN-13 format enable

‖‖‖‖‖‖‖‖	End Of Configuration

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Start Of Configuration

Force UPC-A to EAN-13 format disable

Transmit UPC-A check digit enable

Transmit UPC-A check digit disable

Transmit UPC-E leading character enable

Transmit UPC-E leading character disable

Transmit UPC-E check digit enable

Transmit UPC-E check digit disable

Transmit EAN-8 check digit enable

Transmit EAN-8 check digit disable

Transmit EAN-13 check digit enable

Transmit EAN-13 check digit disable

Transmit UPC-A leading character enable

Transmit UPC-A leading character disable

Add on format with separator

Add on format without separator

EAN/UPC +add on (none mandatory)

End Of Configuration

UPC/EAN/JAN (Continued)

Start Of Configuration
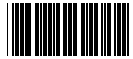
EAN/UPC +add on (mandatory)

Force EAN-8 to EAN-13 format enable

Force EAN-8 to EAN-13 format disable

EAN-13 first "0" can transmitted

EAN-13 first:"0" can't transmitted

EAN-13 with first 0 ID code same as "UPC-A"

EAN-13 with first 0 ID code same as "EAN-13"

EAN/UPC +add on mandatory 491 Japanese
(bookland)   Supplement requirement, optionally
for other

EAN/UPC +add on mandatory for 491 Japanese
(bookland)   Supplement requirement, not sent
for other
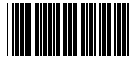
EAN/UPC +add on mandatory for 978/977
(bookland)
Supplement requirement, optionally for other

EAN/UPC +add on mandatory for 978/977
(bookland)
Supplement requirement, not sent for other

End Of Configuration

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12.9 Data Editing

‖‖‖‖‖‖‖‖	Start Of Configuration
‖‖‖‖‖‖‖‖	Code 39 identifier code setting
‖‖‖‖‖‖‖‖	ITF 2 of 5 identifier code setting
‖‖‖‖‖‖‖‖	Chinese Post Code identifier code setting
‖‖‖‖‖‖‖‖	UPC-E identifier code setting
‖‖‖‖‖‖‖‖	UPC-A identifier code setting
‖‖‖‖‖‖‖‖	EAN-13 identifier code setting
‖‖‖‖‖‖‖‖	EAN-8 identifier code setting
‖‖‖‖‖‖‖‖	Codabar identifier code setting
‖‖‖‖‖‖‖‖	Code 128 identifier code setting
‖‖‖‖‖‖‖‖	Code 93 identifier code setting
‖‖‖‖‖‖‖‖	MSI identifier code setting
‖‖‖‖‖‖‖‖	Standard 2 of 5 identifier code setting
‖‖‖‖‖‖‖‖	Coop 2 of 5 identifier code setting (For specific model only)

‖‖‖‖‖‖‖‖	**Save setting to confirm (for length setting)**

‖‖‖‖‖‖‖‖	End Of Configuration

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Data Editing (Continued)

|||||||||| Start Of Configuration

|||||||||| Add code length as header enable (all barcode)

|||||||||| Add code length as header disable (all barcode)

|||||||||| Header (preamble)

|||||||||| Trailer (postamble)

|||||||||| **Save setting to confirm (for length setting)**

|||||||||| Truncate header character

|||||||||| Truncate trailer character

|||||||||| Inter character delay 100ms

|||||||||| Inter character delay 90ms

|||||||||| Inter character delay 50ms

|||||||||| Inter character delay 20ms

|||||||||| Inter character delay 10ms

|||||||||| End Of Configuration

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Data Editing (Continued)

Start Of Configuration

Inter character delay 5ms

Inter character delay 2ms

Inter character delay 0ms

Inter message delay 1000ms

Inter message delay 500ms

Inter message delay 100ms

Inter message delay 0ms

Disable identifier code

Enable identifier code table as manufacturer standard

End Of Configuration

12.10 Standard 2 of 5

|||||||||||||||	Start Of Configuration
|||||||||||||||	Standard 2 of 5 code enable
|||||||||||||||	Standard 2 of 5 code disable
|||||||||||||||	Standard 2 of 5 code maximum length setting
|||||||||||||||	Standard 2 of 5 code minimum length setting
|||||||||||||||	Standard 2 of 5 code no check character
|||||||||||||||	Standard 2 of 5 code check digit calculate and transmit
|||||||||||||||	Standard 2 of 5 code check digit calculate but without transmit

12.11 Industrial 2 of 5

|||||||||||||||	Industrial 2 of 5 code enable
|||||||||||||||	Industrial 2 of 5 code disable
|||||||||||||||	Industrial 2 of 5 code maximum length setting
|||||||||||||||	Industrial 2 of 5 code minimum length setting
|||||||||||||||	Industrial 2 of 5 code no check character
|||||||||||||||	Industrial 2 of 5 code check digit calculate and transmit
|||||||||||||||	Industrial 2 of 5 code check digit calculate but without transmit
|||||||||||||||	End Of Configuration

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13.Code 39 Full ASCII Table

‖|‖|‖|‖| Start Of Configuration

Code 39 Full ASCII Table

Code 39	ASCII	Hexa-code	Code 39	ASCII	Hexa-code
‖|‖|‖|‖|	Full ASCII ---NUL	00	‖|‖|‖|‖|	Full ASCII ---SI Function key-----"Shift"	0F
‖|‖|‖|‖|	Full ASCII ---SOH Function key-----"Ins"	01	‖|‖|‖|‖|	Full ASCII ---DLE Function key-----"5(num)"	10
‖|‖|‖|‖|	Full ASCII ---STX Function key-----"Del"	02	‖|‖|‖|‖|	Full ASCII ---DC1 Function key-----"F1"	11
‖|‖|‖|‖|	Full ASCII ---ETX Function key-----"Home"	03	‖|‖|‖|‖|	Full ASCII ---DC2 Function key-----"F2"	12
‖|‖|‖|‖|	Full ASCII ---EOT Function key-----"End"	04	‖|‖|‖|‖|	Full ASCII ---DC3 Function key-----"F3"	13
‖|‖|‖|‖|	Full ASCII ---ENQ Function key-----"Up arrow"	05	‖|‖|‖|‖|	Full ASCII ---DC4 Function key-----"F4"	14
‖|‖|‖|‖|	Full ASCII ---ACK Function key-----"Down arrow"	06	‖|‖|‖|‖|	Full ASCII ---NAK Function key-----"F5"	15
‖|‖|‖|‖|	Full ASCII ---BEL Function key-----"Left arrow"	07	‖|‖|‖|‖|	Full ASCII ---SYN Function key-----"F6"	16
‖|‖|‖|‖|	Full ASCII ---BS Function key-----"Backspace"	08	‖|‖|‖|‖|	Full ASCII ---ETB Function key-----"F7"	17
‖|‖|‖|‖|	Full ASCII ---HT Function key-----"TAB"	09	‖|‖|‖|‖|	Full ASCII ---CAN Function key-----"F8"	18
‖|‖|‖|‖|	Full ASCII ---LF Function key-----"Enter (alpha numeric"	0A	‖|‖|‖|‖|	Full ASCII ---EN Function key-----"F9"	19
‖|‖|‖|‖|	Full ASCII ---VT Function key-----"right arrow"	0B	‖|‖|‖|‖|	Full ASCII ---SUB Function key-----"F10"	1A
‖|‖|‖|‖|	Full ASCII ---FF Function key-----"PgUp"	0C	‖|‖|‖|‖|	Full ASCII ---ESC Function key-----"F11"	1B
‖|‖|‖|‖|	Full ASCII ---CR Function key-----"Enetr(num.)"	0D	‖|‖|‖|‖|	Full ASCII ---FS Function key-----"F12"	1C
‖|‖|‖|‖|	Full ASCII ---SO Function key-----"PgDn"	0E	‖|‖|‖|‖|	Full ASCII ---GS Function key-----"ESC"	1D

‖|‖|‖|‖| End Of Configuration

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Code 39 Full ASCII Table (Continued)

Code 39	ASCII	Hexa-code	Code 39	ASCII	Hexa-code
	Full ASCII ---RS Function key-----"CTL(L)"	1E		Full ASCII ----	2D
	Full ASCII ---US Function key-----"ALT(L)"	1F		Full ASCII ---.	2E
	Full ASCII ---SP	20		Full ASCII ---/	2F
	Full ASCII ---!	21		Full ASCII ---0	30
	Full ASCII ---"	22		Full ASCII ---1	31
	Full ASCII ---#	23		Full ASCII ---2	32
	Full ASCII ---$	24		Full ASCII ---3	33
	Full ASCII ---%	25		Full ASCII ---4	34
	Full ASCII ---&	26		Full ASCII ---5	35
	Full ASCII ---'	27		Full ASCII ---6	36
	Full ASCII --- (	28		Full ASCII ---7	37
	Full ASCII ---)	29		Full ASCII ---8	38
	Full ASCII ---*	2A		Full ASCII ---9	39
	Full ASCII ---+	2B		Full ASCII ---:	3A
	Full ASCII ---,	2C		Full ASCII ---;	3B

End Of Configuration

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Code 39 Full ASCII Table (Continued)

Code 39	ASCII	Hexa-code	Code 39	ASCII	Hexa-code
	Full ASCII ---RS Function key-----"CTL(L)"	1E		Full ASCII ----	2D
	Full ASCII ---US Function key-----"ALT(L)"	1F		Full ASCII ---.	2E
	Full ASCII ---SP	20		Full ASCII ---/	2F
	Full ASCII ---!	21		Full ASCII ---0	30
	Full ASCII ---"	22		Full ASCII ---1	31
	Full ASCII ---#	23		Full ASCII ---2	32
	Full ASCII ---$	24		Full ASCII ---3	33
	Full ASCII ---%	25		Full ASCII ---4	34
	Full ASCII ---&	26		Full ASCII ---5	35
	Full ASCII ---'	27		Full ASCII ---6	36
	Full ASCII --- (	28		Full ASCII ---7	37
	Full ASCII ---)	29		Full ASCII ---8	38
	Full ASCII ---*	2A		Full ASCII ---9	39
	Full ASCII ---+	2B		Full ASCII ---:	3A
	Full ASCII ---,	2C		Full ASCII ---;	3B

End Of Configuration

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Code 39 Full ASCII Table (Continued)

Code 39	ASCII	Hexa-code	Code 39	ASCII	Hexa-code
	Full ASCII ---<	3C		Full ASCII ---K	4B
	Full ASCII ---=	3D		Full ASCII ---L	4C
	Full ASCII --->	3E		Full ASCII ---M	4D
	Full ASCII ---?	3F		Full ASCII ---N	4E
	Full ASCII ---@	40		Full ASCII ---O	4F
	Full ASCII ---A	41		Full ASCII ---P	50
	Full ASCII ---B	42		Full ASCII ---Q	51
	Full ASCII ---C	43		Full ASCII ---R	52
	Full ASCII ---D	44		Full ASCII ---S	53
	Full ASCII ---E	45		Full ASCII ---T	54
	Full ASCII ---F	46		Full ASCII ---U	55
	Full ASCII ---G	47		Full ASCII ---V	56
	Full ASCII ---H	48		Full ASCII ---W	57
	Full ASCII ---I	49		Full ASCII ---X	58
	Full ASCII ---J	4A		Full ASCII ---Y	59

End Of Configuration

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Code 39 Full ASCII Table (Continued)

Code 39	ASCII	Hexa-code	Code 39	ASCII	Hexa-code
	Full ASCII ---Z	5A		Full ASCII ---i	69
	Full ASCII ---[	5B		Full ASCII ---j	6A
	Full ASCII ---\	5C		Full ASCII ---k	6B
	Full ASCII ---]	5D		Full ASCII ---l	6C
	Full ASCII ---^	5E		Full ASCII ---m	6D
	Full ASCII ---_	5F		Full ASCII ---n	6E
	Full ASCII ---`	60		Full ASCII ---o	6F
	Full ASCII ---a	61		Full ASCII ---p	70
	Full ASCII ---b	62		Full ASCII ---q	71
	Full ASCII ---c	63		Full ASCII ---r	72
	Full ASCII ---d	64		Full ASCII ---s	73
	Full ASCII ---e	65		Full ASCII ---t	74
	Full ASCII ---f	66		Full ASCII ---u	75
	Full ASCII ---g	67		Full ASCII ---v	76
	Full ASCII ---h	68		Full ASCII ---w	77

End Of Configuration

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Code 39 Full ASCII Table (Continued)

Code 39	ASCII	Hexa-code	Code 39	ASCII	Hexa-code
|||||||||||||	Full ASCII ---x	78	|||||||||||||	Full ASCII ---|	7C
|||||||||||||	Full ASCII ---y	79	|||||||||||||	Full ASCII ---}	7D
|||||||||||||	Full ASCII ---z	7A	|||||||||||||	Full ASCII ---~	7E
|||||||||||||	Full ASCII ---{	7B	|||||||||||||	Full ASCII ---DEL	7F

|||||||||||| End Of Configuration

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Notes