User's manual

Revision History

Changes to the original manual are listed below:

Version	Date	Description of Version
1.0	September. 03, 2010	Initial release.
1.1	February 21, 2011	Added Power save mode and examples for trigger command.
1.2	April 27, 2011	Corrected blurry barcode images in the Performance Test Mode Beeper Selection section.
1.3	June 22, 2011	Added description in Edge Trigger Command.
1.4	2013/12/18	Corrected Full ASCII ---US Function key-----"ALT(L) barcode

Important Notice

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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.

Guidance for Printing
1. This manual is in A5 size. Please double check your printer setting before printing it out.
2. When printing barcodes for programming, the use of a high-resolution laser printer is strongly suggested for the best scan result.

Table of Contents

Introduction

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 in its class
- Industrial standard design
- A "Test" button on top for performance testing
- Mounting holes at bottom for easy installation
- Great CCD scanning performance
- Future upgradeability on firmware
- Best for embedded applications, kiosks, lottery machine, and others where space is limited.

Overview

OK
NG
Power
Test Button
Interface Cable
Front Window
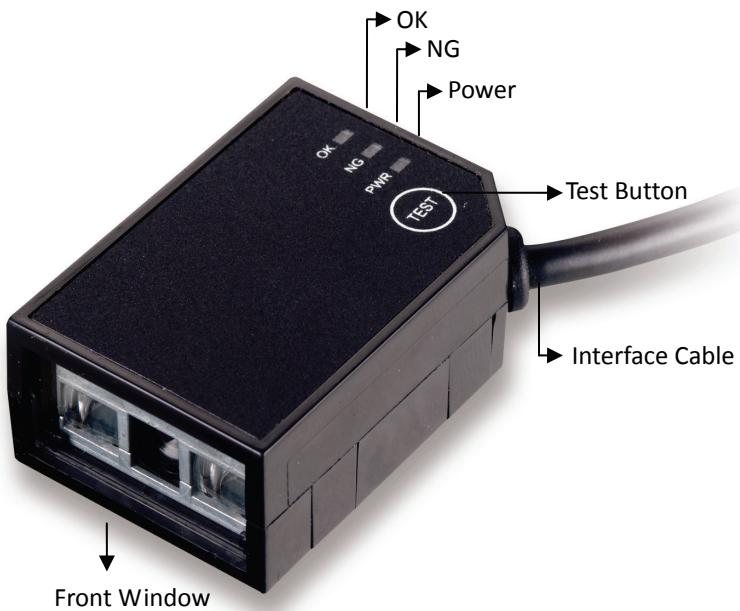
Components

Description	Function
OK	Indicates a successful reading
NG	Indicates a failed reading
Power	Indicates the power status
Test Button	Used for performance test or trigger scan
Interface Cable	Used to connect to the host
Front Window	CCD aperture

Mounting

Back Mounting Holes
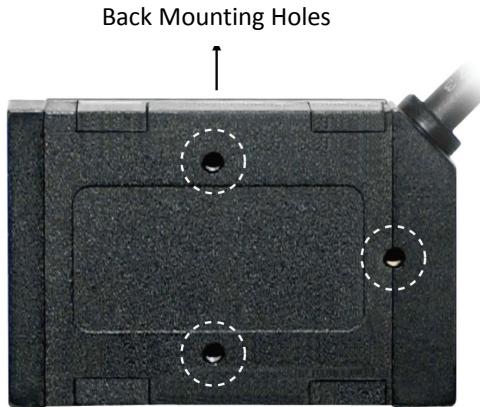
The scanner is designed to embed into any space limited devices, and it has 3 screwed mounting holes reserved at the bottom.
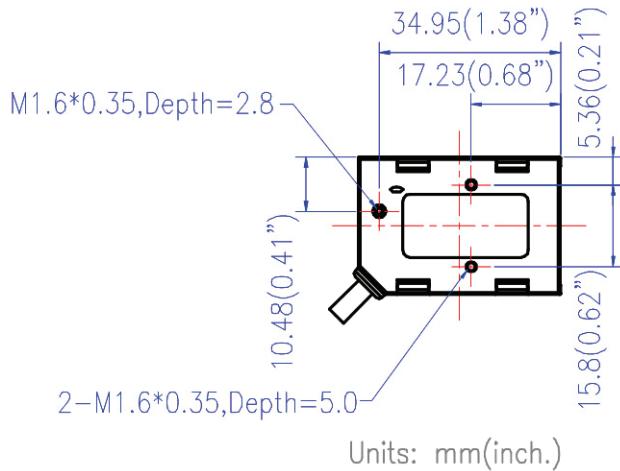
Figure 1: Screw Position

Scanner Operation

Precautions

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.

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)

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.

Scan Angles

See the following illustrations for the effective barcode reading angles.

Pitch Angle: ±65° normal
Specular Reflection: ±5°
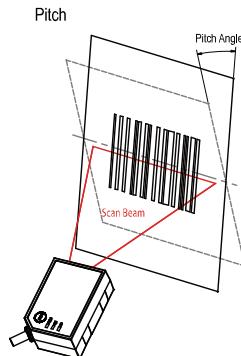
Skew Angle: ±65° normal
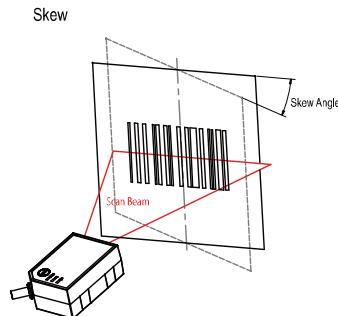
Roll Angle: ±20° normal
(Prevents reading of a barcode if all the bars are not inside the reading beam or if tilt is more than 20°.)
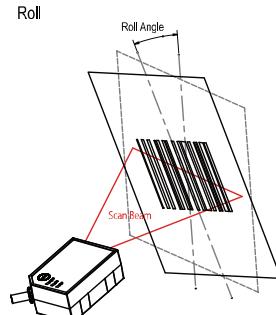
Figure 2: Skew, Pitch and Roll Angle Illustration

Test condition: using a 100% EAN 13 barcode, 0.33mm (13 mil), at a distance of 14cm (5.5") in optimal lighting conditions.

Scan Zone

The effective reading distance for the scanner is illustrated as below.
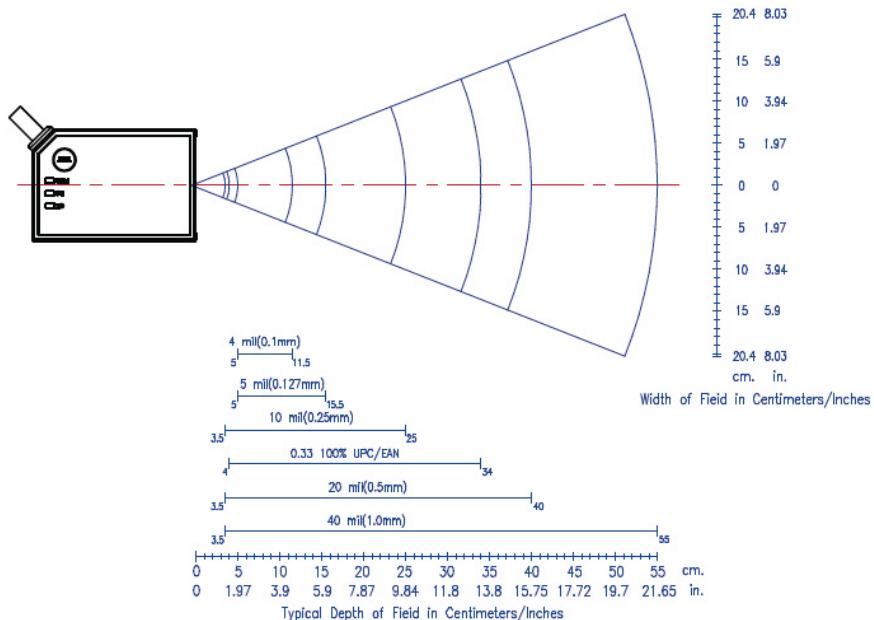
Figure 3: Scan Zone

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.

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

Test Button Function

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

- Trigger mode
- Scan performance test mode

Trigger Mode

When the module is in trigger mode, the reading light beam remains off and scanning is only made when the "Test" button is depressed.

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

Performance Test Mode

To enter into scan performance test mode, press the "Test" button twice quickly. The LED indicators will be turned off and you will hear three short beep sounds. This indicates that the module has successfully entered the test mode. Place the barcode label within its scan 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	Off	On	On
PWR_LED	Off	Off	On

Press the "Test" button once to exit the scan performance test mode and return to its original setting.

The LED will stay on for 1 second every time you turn on the module. You may only use the light beam to scan the "Start Of Configuration" barcode in this second. This feature is designed for users to change settings without pressing the "Test" button when the module is in trigger mode.

Test Mode Settings

The "Test" button and the performance test settings can be configured using the following set-up barcodes:

*Default values are highlighted in gray background.

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

"Test" Button Function Setting

Barcode Value	Barcode Label	Description
ST01	||||||||||||||	Complex mode -The test button controls both trigger mode and scan performance test mode.
		When the scanner is set in this mode, press the "Test" button once to scan and press the "Test" button twice quickly to activate the scan performance test function.
ST02	||||||||||||||	Scan performance test mode only -Pressing the "Test" button will activate scan performance test mode only.
		When the scanner is set in this mode, press and hold the "Test" button for 2 seconds to perform a scan test.
ST03	||||||||||||||	Trigger mode only -The test button only functions as a trigger.

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

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

Performance Test Mode Beeper Selection

Barcode Value	Barcode Label	Description
LB13	||||||||||||||||	Beeper disable -Beeper disabled in performance test.
LB14	||||||||||||||||	Beeper enable -Beeper enabled in performance test.

Performance Test Mode Data Transmission

Barcode Value	Barcode Label	Description
LB15	||||||||||||||||	Data transmission disable in performance test -Data not transmitted in performance test.
LB16	||||||||||||||||	Data transmission enable in performance test -Data is transmitted in performance test.

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

Advanced Miniature CCD Scan Module   9

Connection

The scan module has 3 different kinds of interface connection 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.

Free interface
RS-45 10P10C for multi-interface connection
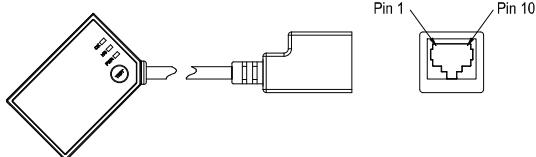
Pin #	Function
1	RTS_EIA
2	USB_D+
3	USB_D-
4	GND
5	CTS_EIA
6	RX_EIA
7	Trigger In
8	+5V Input
9	N.C.
10	TX_EIA

RS-232 interface
Power adapter required if host can not provide sufficient power.
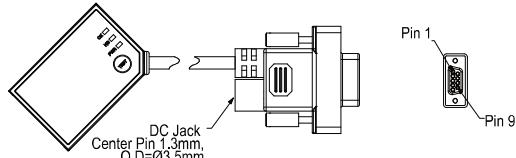
Pin #	Function
1	N.C.
2	TX_EIA
3	RX_EIA
4	N.C.
5	GND
6	N.C.
7	CTS_EIA
8	RTS_EIA
9	+5V Input
Inner of DC-Jack: +5V DC	
Outer of DC-Jack: GND	

USB interface connection
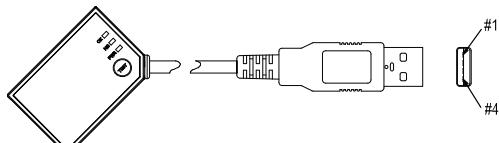
Pin #	Function
1	VBUS
2	D-
3	D+
4	VSS

Technical Specification

Power Requirement	
Input voltage	5V ±10% VDC
LED on	105mA typical
LED off	55mA typical
Decode	120mA typical
	Max. 250mA @ 1msec peak
Operational	
Sensor	Linear CCD array
Illumination	617nm visible red LED
Depth of field	280mm
	(UPC/EAN 100%, PCS=90%)
Scan rate	330 scans per second
Minimum bar width	0.1mm (0.07mm actually)
	(Code 39, PCS=90%)
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°F ~ 122°F)
Storage temperature	-20℃ ~ 60℃ (-4°F ~ 140°F)
Humidity	5% to 95% non-condensing
Ambient light immunity	100,000 Lux max. (Sunlight)
Shock	2,000G
Vibration	● 5~2KHz.
	● 6.0G rms.
	● 3-axis.

~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, **BSMI**,RoHS compliant
Decode symbology	UPC/JAN/EAN, UPC A & E, EAN-8, EAN-13, ISBN/ISSN, Code 39, Codabar, Code 128, EAN 128, Code 93, Interleave 2 of 5, Addendum 2 or 5, IATA Code, MSI/Plessy, Chinese Postal Code, Code 32 (Italian Pharmacode), Industrial 2 of 5, Standard 2 of 5, Matrix 2 of 5 (JAP), Code 11, GS1 DataBar, Telepen

Dimension

15.8(0.62")

26.55(1.05")

11.83(0.47")

39.0(1.54")

6.05(0.24")

Units: mm(inch.)

2-M1.6*0.35,Depth=5.0

M1.6*0.35,Depth=2.8

10.48(0.41")

17.23(0.68")

34.95(1.38")

15.8(0.62")

5.36(0.21")

Advanced Miniature CCD Scan Module   13
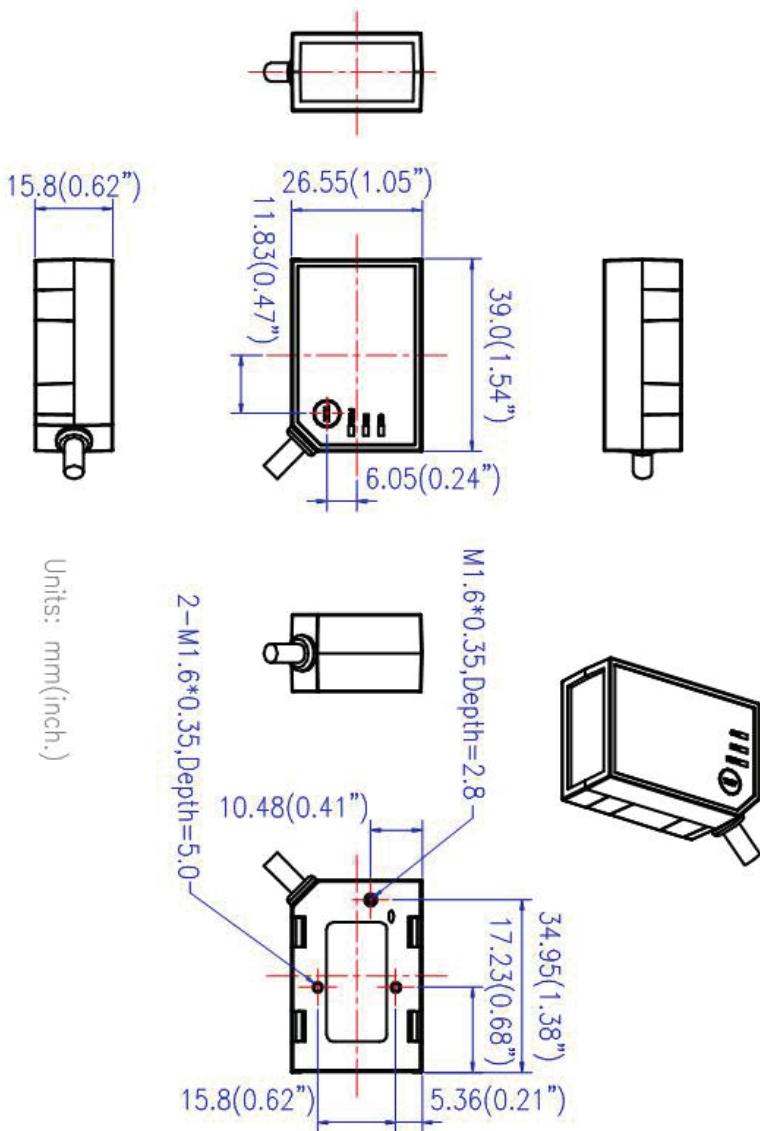
Programming Guide

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.

See the Default Parameter section for all the programmable parameters. The default settings will be restored whenever the "Reset" programming label is scanned.

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.

```
                        ┌─────────────────────────┐
                        │  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
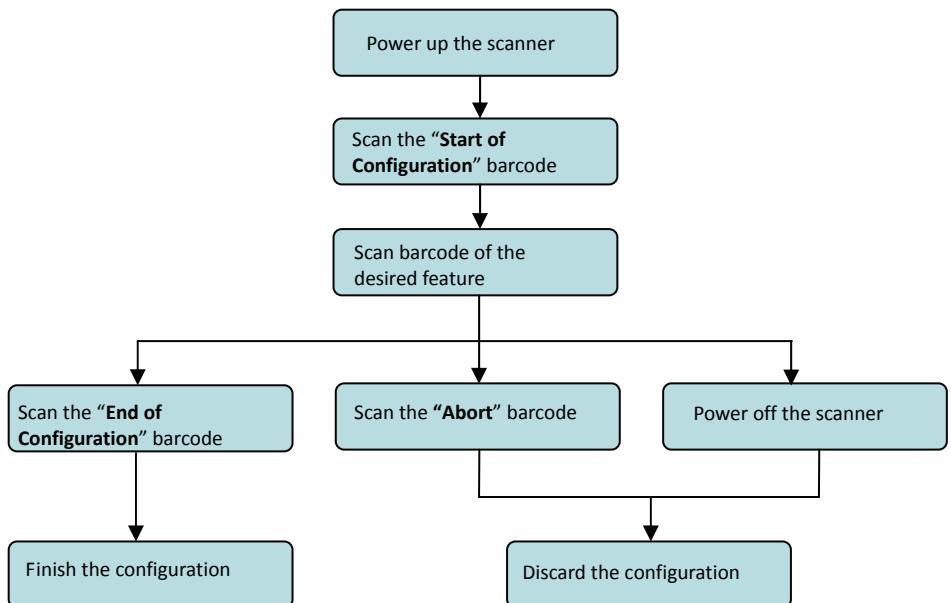
Default values are highlighted in gray background.

Default Parameters

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 Operation

Parameter	Default
Same code delay	500ms
Scan mode	Auto scan
Beeping frequency	Medium
Beeping duration	50ms
Power save mode	Off
Blink mode timers	500ms
LED/Beep before data transmission	On
Header and trailer	None
Inter message delay	None
Inter character delay	None

Interface Communication

Parameter	Default
RS-232 Interface	
Baud rate	9600
Parity	none
Data Bits	8
Stop Bit	1
RTS/CTS	off
Terminator	<CR><LF>
USB Interface	
Terminator type	Enter
Code mode	Scan code
Keyboard	US keyboard
Wand Emulation	
Wand emulation speed	Normal
Data output	Black=high

Symbologies

Parameter	Default
Decoder Selection	
EAN/UPC	Enable
Code 39	Enable
Code 32	Disable
Codabar	Enable
ITF 2 of 5	Enable
MSI	Disable
Chinese Post Code	Disable
Code 93	Enable
Code 128	Enable
EAN-128	Disable
Telepen	Disable
Code 11	Disable
Standard 2 of 5	Disable
Industrial 2 of 5	Disable
Matrix 2 of 5	Disable
GS1 DataBar	Disable
Code Identifiers	
Identifier code as factory standard	Disable
Identifier code as AIM standard	Disable
Code 39 identifier code	M
ITF 2 of 5 identifier code	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
Code 11 identifier code	O
Standard 2 of 5 identifier code	S
Industrial 2 of 5 identifier code	D
Matrix 2 of 5 identifier code	G
GS1 DataBar identifier code	RS

GS1 DataBar Limited identifier code		RL
GS1 DataBar Expanded identifier code		RX
Barcode Length		
Codabar Code 11 Standard 2 of 5 Industrial 2 of 5 Matrix 2 of 5	maximum	32
	minimum	6
Code 39 Code 93 Code 128	maximum	62
	minimum	3
Chinese Post Code	maximum	16
	minimum	10
MSI ITF 2 of 5	maximum	32
	minimum	4
GS1 DataBar GS1 DataBar Limited	maximum	14
	minimum	14
GS1 DataBar Expanded	maximum	48
	minimum	6

Data Formating

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
UPC-A	D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12
UPC-E	D1 D2 D3 D4 D5 D6 D7 D8
Code 128	D1-Dx (default 3~62)
EAN-128	C1 D1-Dx (default 3~62)
Code 39	D1-Dx (default 3~62)
Codabar	D1-Dx (default 6~32)
ITF 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)

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

Level Trigger Command	
Command	Description
<ESC>A0<CR>	- When the scanner receives this command, the CCD/laser would light up and start scanning barcodes entering its scan filed. - The light would be switched off when the scanner receives a trigger off command.
Edge Trigger Command	
Command	Description
<ESC>A0.mm<CR>	- When the scanner receives this command, the CCD/laser would light up and start scanning barcodes entering its scan field. - The light would remain on until the scanner reads a barcode or until "mm" period is over (mm=01~60, unit: second). - The edge trigger command is not controlled by the trigger off command.
<ESC>A2<CR>	- When the scanner receives this command, the CCD/laser light would light up and remain on but the device can only scan once. - The light would be switched off when the scanner receives a trigger off command.
<ESC>A2.mm<CR>	- When the scanner receives this command, the CCD/laser light would light up and remain on until "mm" period is over. - If the scanner read a barcode before "mm" period is over, the light-off countdown would re-start. - The scanner is not controlled by the trigger off command.
Trigger Off Command	
Command	Description
<ESC>A1<CR>	The CCD/laser light would be switched off when the scanner receives a trigger off command.

Example:
- Sending <ESC> "A0" <CR> (0x1b 0x41 0x30 0x0d) to scan module will activate the module for scanning.
- Sending <ESC> "A1" <CR> (0x1b 0x41 0x31 0x0d) to scan module will turn off the scan.

Advanced Miniature CCD Scan Module   19

Parameter Setting

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

Scanner Operation

System Function Setting

Barcode Value	Barcode Label	Description
--	||||| |||| ||||| |||	Reset (return to factory default)
%/	||||| |||| ||||| |||	Display firmware version
++	||||| |||| ||||| |||	Abort :exit programming mode with no update
KE94	||||| |||| ||||| ||| |||	Return to customer default
KE95	||||| |||| ||||| ||| |||	Save as customer default

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

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

Interface Setting

Barcode Value	Barcode Label	Description
KE97	||||||||||||	Return to USB default
KE99	||||||||||||	Return to RS-232 default
KE87	||||||||||||	Enable USB virtual COM **(Virtual COM driver required. For installation steps refer to Appendix 1.)**
KE01	||||||||||||	Enable IBM PC/AT/PS/2 Keyboard emulation
KE05	||||||||||||	Enable stand-alone keyboard **(Required no keyboard or key simulator. Only available for special firmware version.)**
KE98	||||||||||||	Enable wand emulation **(Only available for special firmware version.)**
KE77	||||||||||||	Enable OPOS/JPOS **(Available for USB interface only and requires driver. For RS-232 interface, the scanner needs reset and identifier code has to be enabled.)**

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

Advanced Miniature CCD Scan Module

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

Operation Function Setting

Good Read Beeper Tone Selection

Barcode Value	Barcode Label	Description
GR02	||||||||||||||||	Low beeper tone
GR01	||||||||||||||||	Medium beeper tone
GR03	||||||||||||||||	High beeper tone
GR05	||||||||||||||||	Speaker disable

Beeper Sound Selection

Barcode Value	Barcode Label	Description
GR13	||||||||||||||||	Very short (5 ms)
GR12	||||||||||||||||	Short (20 ms)
GR11	||||||||||||||||	Medium (50 ms)
GR10	||||||||||||||||	Long (100 ms)
GR14	||||||||||||||||	Very Long (200 ms)
GR15	||||||||||||||||	Ultra long (500 ms)

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

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

Beeper Volume Selection

Barcode Value	Barcode Label	Description
GR20	||||||||||||||||	Loud
GR21	||||||||||||||||	Medium
GR22	||||||||||||||||	Slight

Beeper Timing Selection

Barcode Value	Barcode Label	Description
LB00	||||||||||||||||	LED/Beep after transmission • Use this barcode to indicate a "good read" after a barcode has been successfully decoded.
LB01	||||||||||||||||	LED/Beep before transmission • Use this barcode to indicate a "good read" before successfully transmitting the barcode data to the host.
LB03	||||||||||||||||	Power-on tone enable
LB04	||||||||||||||||	Power-on tone disable

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

Advanced Miniature CCD Scan Module

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

Scan Function Setting

Barcode Value	Barcode Label	Description
SM01	||||||||||||	Trigger mode • The scanner becomes inactive once the data is transmitted. It must be triggered to active again.
SM02	||||||||||||	Auto scan mode • The scanner will actively scan and decode barcodes, and the same barcode cannot be read twice.
SM05	||||||||||||	Repeat mode • It is similar to auto scan mode, but double reading on the same barcode is permitted if uses trigger.

"Test" Button Function Setting

Barcode Value	Barcode Label	Description
ST01	||||||||||||	Complex mode • The test button controls both trigger mode and scan performance test mode.
ST02	||||||||||||	Scan performance test mode only • 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.
ST03	||||||||||||	Trigger mode only • The test button only functions as a trigger.

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

		Start Of Configuration

Performance Test Mode Beeper Selection

Barcode Value	Barcode Label	Description
LB13		Beeper disable • Beeper disabled in performance test.
LB14		Beeper enable • Beeper enabled in performance test.

Performance Test Mode Data Transmission

Barcode Value	Barcode Label	Description
LB15		Data transmission disable in performance test • Data not transmitted in performance test.
LB16		Data transmission enable in performance test • Data is transmitted in performance test.

	End Of Configuration

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

Power Save Mode Selection

Barcode Value	Barcode Label	Description
MT00	||||||||||||||||||	Power save mode off
MT01	||||||||||||||||||	Power save after 5 min
MT02	||||||||||||||||||	Power save after 10 min
MT03	||||||||||||||||||	Power save after 20 min
MT04	||||||||||||||||||	Power save after 30 min
MT05	||||||||||||||||||	Power save after 60 min
MT12	||||||||||||||||||	Power save after every trigger scan

*Power Save mode: After the scanner has been inactive for a period of time, the device powers down to reduce power consumption.

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

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

Blink Mode Setting (Available for Auto Scan mode only)

Barcode Value	Barcode Label	Description
LS00	||||||||||||||||	Blink Mode off. • Module never enters blink mode
LS01	||||||||||||||||	Blink mode timer 5 s
LS02	||||||||||||||||	Blink mode timer 10 s
LS03	||||||||||||||||	Blink mode timer 15 s
LS04	||||||||||||||||	Blink mode timer 20 s
LS05	||||||||||||||||	Blink mode timer 30 s
LS06	||||||||||||||||	Blink mode timer 60 s
LS15	||||||||||||||||	Light beam blinks in blink mode

The blink mode is design to protect the LED and prolong its working hours. The scanner would automatically switch to the blink mode after being idle for a specific period of time. To stop the blinking when the scanner is in blink mode, press the "Test" button.

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

Advanced Miniature CCD Scan Module

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

Inter Message Delay

Barcode Value	Barcode Label	Description
IM01	||||||||||||||||	0 ms
IM02	||||||||||||||||	100 ms
IM03	||||||||||||||||	500 ms
IM04	||||||||||||||||	1000 ms

Inter Character Delay

Barcode Value	Barcode Label	Description
IC01	||||||||||||||||	0 ms
IC05	||||||||||||||||	2 ms
IC00	||||||||||||||||	5 ms
IC02	||||||||||||||||	10 ms
IC03	||||||||||||||||	20 ms
IC04	||||||||||||||||	50 ms

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

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

Same Code Delay

Barcode Value	Barcode Label	Description
SD01	||||||| ||| ||||| |||	Same code delay time 50 ms
SD02	||||||| ||| ||||| |||	Same code delay time 100 ms
SD03	||||||| ||| ||||| |||	Same code delay time 200 ms
SD04	||||||| ||| ||||| |||	Same code delay time 300 ms
SD05	||||||| ||| ||||| |||	Same code delay time 400 ms
SD06	||||||| ||| ||||| |||	Same code delay time 500 ms
SD07	||||||| ||| ||||| |||	Same code delay time 600 ms
SD08	||||||| ||| ||||| |||	Same code delay time 700 ms
SD09	||||||| ||| ||||| |||	Same code delay time 800 ms
SD10	||||||| ||| ||||| |||	Same code delay time 900 ms
SD11	||||||| ||| ||||| |||	Same code delay time 1000 ms
SD12	||||||| ||| ||||| |||	Same code delay time Infinite

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

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

Interface Configuration

RS-232C Interface Setting

Same Code Delay

Barcode Value	Barcode Label	Description
BR09	||||||||||||||||||||	115200
BR08	||||||||||||||||||||	57600
BR00	||||||||||||||||||||	38400
BR01	||||||||||||||||||||	19200
BR02	||||||||||||||||||||	9600
BR03	||||||||||||||||||||	4800
BR04	||||||||||||||||||||	2400
BR05	||||||||||||||||||||	1200

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

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

Parity Bit

Barcode Value	Barcode Label	Description
PB01	||||||||||||||||	Even parity
PB02	||||||||||||||||	Odd parity
PB03	||||||||||||||||	Mark parity
PB04	||||||||||||||||	Space parity
PB05	||||||||||||||||	None parity

Stop Bit

Barcode Value	Barcode Label	Description
SB01	||||||||||||||||	1 stop bit
SB02	||||||||||||||||	2 stop bit

Data Bit

Barcode Value	Barcode Label	Description
DB07	||||||||||||||||	7 data bit
DB08	||||||||||||||||	8 data bit

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

|||||| Start Of Configuration

Handshaking Protocol

Barcode Value	Barcode Label	Description
HP01	||||||	None handshaking
HP02	||||||	ACK/NAK
HP03	||||||	Xon/Xoff
HP04	||||||	RTS/CTS
LB07	||||||	Enable beeper on <BEL> character
LB08	||||||	Ignore beep on <BEL> character
LB09	||||||	Disable ACK/NAK timeout beeper
RT01	||||||	ACK/NAK response time 300 ms
RT03	||||||	ACK/NAK response time 500 ms
RT05	||||||	ACK/NAK response time 1 s
RT02	||||||	ACK/NAK response time 2 s
RT04	||||||	ACK/NAK response time 3 s
RT06	||||||	ACK/NAK response time 5 s
RT07	||||||	ACK/NAK response time infinity

|||||| End Of Configuration

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

Message Terminator

Barcode Value	Barcode Label	Description
DT11	|||||||||||||||||||	RS-232 message terminator—none
DT12	|||||||||||||||||||	RS-232 message terminator—CR/LF
DT13	|||||||||||||||||||	RS-232 message terminator—CR
DT14	|||||||||||||||||||	RS-232 message terminator—LF
DT15	|||||||||||||||||||	RS-232 message terminator—H-tab
DT16	|||||||||||||||||||	RS-232 message terminator—STX/ETX
DT17	|||||||||||||||||||	RS-232 message terminator—EOT

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

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

Keyboard Setting

Barcode Value	Barcode Label	Description
CP00	|||||||||||||	Capital lock on
CP01	|||||||||||||	Capital lock off
CP05	|||||||||||||	Function key emulation enable
CP06	|||||||||||||	Function key emulation disable
CP18	|||||||||||||	Send number as normal data
CP19	|||||||||||||	Send number as keypad data
CP20	|||||||||||||	Alphabet follow as keyboard
CP21	|||||||||||||	Alphabet always upper case
CP22	|||||||||||||	Alphabet always Lower case

Message Terminator

Barcode Value	Barcode Label	Description
DT01	|||||||||||||	Keyboard terminator---none
DT02	|||||||||||||	Keyboard terminator---Enter
DT03	|||||||||||||	Keyboard terminator---H-TAB

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

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

Wand Emulation Setting

Wand emulation is a standard interface but requires special firmware. If needed, please contact your distributor.

Barcode Value	Barcode Label	Description
WD01	|||| |||||| ||| ||| |||	All barcode will be decoded and transmitted in that symbology
WD02	|||| ||||| ||| ||| |||	Enable Wand output data format as Code 39
WO01	|||| ||||| ||| ||| |||	Wand emulation data output black = high • Scan this barcode to set quiet zones and spaces low and bars =high.
WO02	|||| ||||| ||| ||| |||	Wand emulation data output black=low • Scan this barcode to set quiet zones and spaces high and bars=low
WO03	|||| ||||| ||| ||| |||	Idle = high • Idle state refers to the TTL logic level of the Wand Emulation signal when not in use
WO04	|||| ||||| ||| ||| |||	Idle = low • Idle state refers to the TTL logic level of the Wand Emulation signal when not in use
WS01	|||| ||||| ||| ||| |||	Wand emulation speed---Low • This option allows the transmission of wand emulation at 1ms narrow element width
WS02	|||| ||||| ||| ||| |||	Wand emulation speed---medium • This option allows the transmission of wand emulation at 600us narrow element width

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

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

Wand Emulation Speed

Barcode Value	Barcode Label	Description
WS03	||||||||||||||||||	Wand emulation speed---normal
WS04	||||||||||||||||||	Wand emulation speed---high • This option allows the transmission of wand emulation at 300us narrow element width
WS05	||||||||||||||||||	Wand emulation speed---higher • This option allows the transmission of wand emulation at 100 us narrow element width
WS00	||||||||||||||||||	Wand emulation narrow/wide ratio 1:2
WS08	||||||||||||||||||	Wand emulation narrow/wide ratio 1:3

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

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

The Symbologies

Codabar Parameter Setting

Barcode Value	Barcode Label	Description
RC02	||||||||||||||	Codabar enable
RD02	||||||||||||||	Codabar disable
CB05	||||||||||||||	Codabar start/stop character transmission－none
CB06	||||||||||||||	Codabar start/stop character transmission－A,B,C,D
CB07	||||||||||||||	Codabar start/stop character transmission－DC1~DC4
CB08	||||||||||||||	Codabar start/stop character transmission－a/t,b/n,c/*,d/e
CB09	||||||||||||||	Codabar maximum length setting
CB10	||||||||||||||	Codabar minimum length setting
SET	||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)
CB11	||||||||||||||	Codabar concatenation disable
CB12	||||||||||||||	Codabar concatenation enable

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

Advanced Miniature CCD Scan Module   37

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

Codabar (Continued)

Barcode Value	Barcode Label	Description
CB13	||||||||||||||||||||	No check character
CB14	||||||||||||||||||||	Validate modulo 16,but don't transmit
CB15	||||||||||||||||||||	Validate modulo 16 and transmit
DC50	||||||||||||||||||||	Codabar data redundant check=off
DC51	||||||||||||||||||||	Codabar data redundant check=1
DC52	||||||||||||||||||||	Codabar data redundant check=2
DC53	||||||||||||||||||||	Codabar data redundant check=3

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

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

Code 39 Parameter Setting

Barcode Value	Barcode Label	Description
RC01		Code 39 enable
RD01		Code 39 disable
RC13		Code 32 enable
RD13		Code 32 disable
DC00		Code 39 data redundant check=off
DC01		Code 39 data redundant check=1
DC02		Code 39 data redundant check=2
DC03		Code 39 data redundant check=3
3901		Standard code 39
3902		Full ASCII code 39
3903		Code 39 start/stop character transmission
3904		Code 39 start/stop character without transmission

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

Advanced Miniature CCD Scan Module

	Start Of Configuration

Code 39 (Continued)

Barcode Value	Barcode Label	Description
3905		Code 39 check digit calculate and transmit
3906		Code 39 check digit calculate but without transmit
3907		No check character
3908		Code 39 maximum length setting
3909		Code 39 minimum length setting
SET		Confirm to save this setting (required for reading full ASCII table and length setting)
3910		Code 39 concatenation enable
3911		Code 39 concatenation disable
3912		Code 32 (Italian pharmacy) transmit "A" character
3913		Code 32 (Italian pharmacy) without transmit "A" character

	End Of Configuration

		Start Of Configuration

Code 93 Parameter Setting

Barcode Value	Barcode Label	Description
RC08		Code 93 enable
RD08		Code 93 disable
DC30		Code 93 data redundant check=off
DC31		Code 93 data redundant check=1
DC32		Code 93 data redundant check=2
DC33		Code 93 data redundant check=3
9301		Code 93 maximum length setting
9302		Code 93 minimum length setting
SET		Confirm to save this setting (required for reading full ASCII table and length setting)
9303		Code 93 check digit calculate but without transmit
9304		Code 93 check digit not calculate and without transmit
9305		Code 93 check digit calculate and transmit

		End Of Configuration

Advanced Miniature CCD Scan Module 41

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

Code 128 Parameter Setting

Barcode Value	Barcode Label	Description
RC06	|||||||||||||||||||	Code 128 enable
RD06	|||||||||||||||||||	Code 128 disable
RC10	|||||||||||||||||||	EAN-128 enable
RD10	|||||||||||||||||||	EAN-128 disable
DC40	|||||||||||||||||||	Code 128 data redundant check=off
DC41	|||||||||||||||||||	Code 128 data redundant check=1
DC42	|||||||||||||||||||	Code 128 data redundant check=2
DC43	|||||||||||||||||||	Code 128 data redundant check=3
1801	|||||||||||||||||||	Code128 FNC2 concatenation enable
1802	|||||||||||||||||||	Code128 FNC2 concatenation disable
1803	|||||||||||||||||||	No check character
1804	|||||||||||||||||||	Calculate but not transmitted
1805	|||||||||||||||||||	Calculate and transmit
1806	|||||||||||||||||||	Code 128 maximum length setting
1807	|||||||||||||||||||	Code 128 minimum length setting
SET	|||||||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)

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

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

Chinese Post Code Parameter Setting

Barcode Value	Barcode Label	Description
RC05	|||||||||||||||||	Chinese post code enable
RD05	|||||||||||||||||	Chinese post code disable
DC60	|||||||||||||||||	Chinese post code data redundant check=off
DC61	|||||||||||||||||	Chinese post code data redundant check=1
DC62	|||||||||||||||||	Chinese post code data redundant check=2
DC63	|||||||||||||||||	Chinese post code data redundant check=3
SZ01	|||||||||||||||||	Chinese post code maximum length setting
SZ02	|||||||||||||||||	Chinese post code minimum length setting

SET	|||||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)

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

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

MSI/Plessy Parameter Setting

Barcode Value	Barcode Label	Description
RC14	|||||||||||||||||	MSI enable
RD14	|||||||||||||||||	MSI disable
DC70	|||||||||||||||||	MSI data redundant check= off
DC71	|||||||||||||||||	MSI data redundant check=1
DC72	|||||||||||||||||	MSI data redundant check=2
DC73	|||||||||||||||||	MSI data redundant check=3
MS01	|||||||||||||||||	MSI/Plessy maximum length setting
MS02	|||||||||||||||||	MSI/Plessy minimum length setting
SET	|||||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)
MS03	|||||||||||||||||	MSI/Plessy double check digit calculate but not transmit
MS04	|||||||||||||||||	MSI/Plessy double check digit without calculate and transmit
MS05	|||||||||||||||||	MSI/Plessy double check digit calculate but only first digit transmit
MS06	|||||||||||||||||	MSI/Plessy double check digit calculate and both transmit
MS07	|||||||||||||||||	MSI/Plessy single check digit calculate but without transmit
MS08	|||||||||||||||||	MSI/Plessy single check digit calculate and transmit

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

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

Code 11 Interface Setting

Barcode Value	Barcode Label	Description
RC07	||||||||||||||||	Code 11 enable
RD07	||||||||||||||||	Code 11 disable
1101	||||||||||||||||	Code 11 maximum length setting
1102	||||||||||||||||	Code 11 minimum length setting
SET	||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)
1103	||||||||||||||||	Code 11 one check digit verification
1104	||||||||||||||||	Code 11 two check digit verification
1105	||||||||||||||||	Two Check for Code 11 check digit if code length is longer than 10 characters
1106	||||||||||||||||	Disable verification
1107	||||||||||||||||	Code 11 check digit transmitted
1108	||||||||||||||||	Code 11 check digit not transmitted

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

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

ITF 2 of 5 Parameter Setting

Barcode Value	Barcode Label	Description
RC04	||||||||||||||||	ITF 2 of 5 enable
RD04	||||||||||||||||	ITF 2 of 5 disable
RC09	||||||||||||||||	IATA code enable
RD09	||||||||||||||||	IATA disable
DC80	||||||||||||||||	ITF 25 data redundant check=off
DC81	||||||||||||||||	ITF25 data redundant check=1
DC82	||||||||||||||||	ITF25 data redundant check=2
DC83	||||||||||||||||	ITF25 data redundant check=3
IT03	||||||||||||||||	ITF 2 of 5 no check character
IT04	||||||||||||||||	ITF 2 of 5 check digit calculate and transmit
IT05	||||||||||||||||	ITF 2 of 5 check digit calculate but without transmit

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

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

ITF 2 of 5 (Continued)

Barcode Value	Barcode Label	Description
IT01	||||||||||||||||||	ITF 2 of 5 code maximum length setting
IT02	||||||||||||||||||	ITF 2 of 5 code minimum length setting
IT06	||||||||||||||||||	ITF 2 of 5 one fixed length setting
IT07	||||||||||||||||||	ITF 2 of 5 two fixed length setting

SET	||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)

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

Advanced Miniature CCD Scan Module

		Start Of Configuration

Standard 2 of 5 Parameter Setting

Barcode Value	Barcode Label	Description
RC22		Standard 2 of 5 code enable
RD22		Standard 2 of 5 code disable
D051		Standard 2 of 5 code maximum length setting
D052		Standard 2 of 5 code minimum length setting
SET		Confirm to save this setting (required for reading full ASCII table and length setting)
D053		Standard 2 of 5 code no check character
D054		Standard 2 of 5 code check digit calculate and transmit
D055		Standard 2 of 5 code check digit calculate but without transmit

		End Of Configuration

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

Industrial 2 of 5 Parameter Setting

Barcode Value	Barcode Label	Description
RC21	||||||||||||||	Industrial 2 of 5 code enable
RD21	||||||||||||||	Industrial 2 of 5 code disable
D251	||||||||||||||	Industrial 2 of 5 code maximum length setting
D252	||||||||||||||	Industrial 2 of 5 code minimum length setting
SET	||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)
D253	||||||||||||||	Industrial 2 of 5 code no check character
D254	||||||||||||||	Industrial 2 of 5 code check digit calculate and transmit
D255	||||||||||||||	Industrial 2 of 5 code check digit calculate but without transmission

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

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

UPC/EAN/JAN Parameter Setting

Barcode Value	Barcode Label	Description
RC11	|||||||||||||||	EAN convert to ISSN/ISBN enable
RD11	|||||||||||||||	EAN convert to ISSN/ISBN disable
RC03	|||||||||||||||	UPC/EAN/JAN enable
RD03	|||||||||||||||	UPC/EAN/JAN disable
UE01	|||||||||||||||	UPC/EAN/JAN all enable
UE02	|||||||||||||||	EAN-8 or EAN-13 enable
UE03	|||||||||||||||	UPC-A and EAN-13 enable
UE04	|||||||||||||||	UPC-A and UPC-E enable
UE05	|||||||||||||||	UPC-A enable
UE06	|||||||||||||||	UPC-E enable
UE07	|||||||||||||||	EAN-13 enable
UE08	|||||||||||||||	EAN-8 enable
UE09	|||||||||||||||	UPC/EAN Addendum disable

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

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

UPC/EAN/JAN (Continued)

Barcode Value	Barcode Label	Description
UE10	||||||||||||||	Add on 5 only
UE11	||||||||||||||	Add on 2 only
UE12	||||||||||||||	Add on 2 or 5
UE13	||||||||||||||	Force UPC-E to UPC-A format enable
UE14	||||||||||||||	Force UPC-E to UPC-A format disable
UE15	||||||||||||||	Force UPC-A to EAN-13 format enable
UE16	||||||||||||||	Force UPC-A to EAN-13 format disable
UE44	||||||||||||||	Force EAN-8 to EAN-13 format enable
UE45	||||||||||||||	Force EAN-8 to EAN-13 format disable
UE17	||||||||||||||	Transmit UPC-A check digit enable
UE18	||||||||||||||	Transmit UPC-A check digit disable
UE19	||||||||||||||	Transmit UPC-E leading character enable
UE20	||||||||||||||	Transmit UPC-E leading character disable
UE21	||||||||||||||	Transmit UPC-E check digit enable
UE22	||||||||||||||	Transmit UPC-E check digit disable

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

Advanced Miniature CCD Scan Module   51

Start Of Configuration

UPC/EAN/JAN (Continued)

Barcode Value	Barcode Label	Description
UE23		Transmit EAN-8 check digit enable
UE24		Transmit EAN-8 check digit disable
UE25		Transmit EAN-13 check digit enable
UE26		Transmit EAN-13 check digit disable
UE27		Transmit UPC-A leading character enable
UE28		Transmit UPC-A leading character disable
UE30		Add-on format with separator
UE31		Add-on format without separator
UE60		EAN-13 country code first "0" can transmitted
UE61		EAN-13 country code first:"0" can't transmitted
UE66		EAN-13 with first 0 ID code same as "UPC-A"
UE67		EAN-13 with first 0 ID code same as "EAN-13"
DC10		UPC-A data redundant check=off
DC11		UPC-A data redundant check=1

End Of Configuration

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

UPC/EAN/JAN (Continued)

Barcode Value	Barcode Label	Description
DC12	||||||||||||||	UPC-A data redundant check=2
DC13	||||||||||||||	UPC-A data redundant check=3
DC14	||||||||||||||	UPC-E data redundant check=off
DC15	||||||||||||||	UPC-E data redundant check=1
DC16	||||||||||||||	UPC-E data redundant check=2
DC17	||||||||||||||	UPC-E data redundant check=3
DC20	||||||||||||||	EAN-13 data redundant check=off
DC21	||||||||||||||	EAN-13 data redundant check=1
DC22	||||||||||||||	EAN-13 data redundant check=2
DC23	||||||||||||||	EAN-13 data redundant check=3
DC24	||||||||||||||	EAN-8 data redundant check=off
DC25	||||||||||||||	EAN-8 data redundant check=1
DC26	||||||||||||||	EAN-8 data redundant check=2
DC27	||||||||||||||	EAN-8 data redundant check=3
UE32	||||||||||||||	EAN/UPC +add-on (none mandatory)
UE33	||||||||||||||	EAN/UPC +add-on (mandatory)

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

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

UPC/EAN/JAN (Continued)

Barcode Value	Barcode Label	Description
UE35	||||||||||||||||||	EAN/UPC +add-on mandatory for 978/977 bookland **(Supplement requirement, not sent for other)**
UE38	||||||||||||||||||	EAN/UPC +addon mandatory for 978/977 bookland **(Supplement requirement, optionally for other)**
UE42	||||||||||||||||||	EAN/UPC +addon mandatory for 491 Japanese bookland **(Supplement requirement, not sent for other)**
UE43	||||||||||||||||||	EAN/UPC +addon mandatory 491 Japanese bookland **(Supplement requirement, optionally for other)**

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

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

Telepen Parameter Setting

Barcode Value	Barcode Label	Description
RC25	||||||||||||||||	Telepen enable
RD25	||||||||||||||||	Telepen disable
TE03	||||||||||||||||	Telepen numeric mode enable
TE04	||||||||||||||||	AIM Telepen enable

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

Advanced Miniature CCD Scan Module   55

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

Matrix 2 of 5 Parameter Setting

Barcode Value	Barcode Label	Description
RC12	||||||||||||||||||	Matrix 2 of 5 enable
RD12	||||||||||||||||||	Matrix 2 of 5 disable
D151	||||||||||||||||||	Matrix 2 of 5 maximum length setting
D152	||||||||||||||||||	Matrix 2 of 5 minimum length setting

SET	||||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)

D153	||||||||||||||||||	Matrix 2 of 5 no check character
D154	||||||||||||||||||	Matrix 2 of 5 check digit calculate and transmit
D155	||||||||||||||||||	Matrix 2 of 5 check digit calculate but without transmission

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

‖‖‖‖‖‖‖‖‖	Start Of Configuration

GS1 DataBar Parameter Setting

There are 7 kinds of barcodes in the GS1 DataBar family and they are categorized into three groups. Barcode types in the same group use the same barcodes for setting.

Group	Representative	Contents
Group 1	GS1 DataBar Omnidirectional **(Formally RSS-14)**	GS1 DataBar Omnidirectional GS1 DataBar Truncated GS1 DataBar Stacked GS1 DataBar Stacked Omnidirectional
Group 2	GS1 DataBar Limited **(Formally RSS Limited)**	GS1 DataBar Limited
Group 3	GS1 DataBar Expanded **(Formally RSS Expanded)**	GS1 DataBar Expanded GS1 DataBar Expanded Stacked

GS1 DataBar Omnidirectional (Formally RSS-14)

Barcode Value	Barcode Label	Description
RC15	‖‖‖‖‖‖‖‖‖	GS1 DataBar Omnidirectional enable
RD15	‖‖‖‖‖‖‖‖‖	GS1 DataBar Omnidirectional disable
SS00	‖‖‖‖‖‖‖‖‖	Transmit GS1 DataBar Omnidirectional check digit
SS01	‖‖‖‖‖‖‖‖‖	Do not transmit GS1 DataBar Omnidirectional check digit
SS02	‖‖‖‖‖‖‖‖‖	Transmit GS1 DataBar Omnidirectional application ID (01)
SS03	‖‖‖‖‖‖‖‖‖	Do not transmit GS1 DataBar Omnidirectional application ID (01)
SS05	‖‖‖‖‖‖‖‖‖	GS1 DataBar Omnidirectional /EAN-128 emulation enable
SS04	‖‖‖‖‖‖‖‖‖	GS1 DataBar Omnidirectional /EAN-128 emulation disable

‖‖‖‖‖‖‖‖‖	End Of Configuration

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

GS1 DataBar Limited (Formally RSS Limited)

Barcode Value	Barcode Label	Description
RC16	||||||||||||||||||||	GS1 DataBar Limited enable
RD16	||||||||||||||||||||	GS1 DataBar Limited disable
SS10	||||||||||||||||||||	Transmit GS1 DataBar Limited check digit
SS11	||||||||||||||||||||	Don't transmit GS1 DataBar Limited check digit
SS12	||||||||||||||||||||	Transmit GS1 DataBar limited application ID (01)
SS13	||||||||||||||||||||	Do not transmit GS1 DataBar limited application ID

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

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

GS1 DataBar Expanded (Formally RSS Expanded)

Barcode Value	Barcode Label	Description
RC17	|||||||||||||||||	GS1 DataBar Expanded enable
RD17	|||||||||||||||||	GS1 DataBar Expanded disable
SS07	|||||||||||||||||	GS1 DataBar Expanded/EAN-128 emulation enable
SS06	|||||||||||||||||	GS1 DataBar Expanded/EAN-128 emulation disable
SS08	|||||||||||||||||	GS1 DataBar Expanded check digital enable
SS09	|||||||||||||||||	GS1 DataBar Expanded check digital disable
SS16	|||||||||||||||||	Transmit GS1 DataBar Expanded application ID (01)
SS17	|||||||||||||||||	Do not transmit GS1 DataBar Expanded application ID

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

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

Data Editing

Identifier Code

Barcode Value	Barcode Label	Description
IS00	|||||||||||||||||||	Disable identifier code
IS01	|||||||||||||||||||	Enable identifier code table as factory standard
IS03	|||||||||||||||||||	Enable identifier code table as AIM standard.
CI01	|||||||||||||||||||	Code 39 identifier code setting
CI02	|||||||||||||||||||	ITF 2 of 5 identifier code setting
CI03	|||||||||||||||||||	Chinese Post Code identifier code setting
CI04	|||||||||||||||||||	UPC-E identifier code setting
CI05	|||||||||||||||||||	UPC-A identifier code setting
CI06	|||||||||||||||||||	EAN-13 identifier code setting
CI07	|||||||||||||||||||	EAN-8 identifier code setting

SET	|||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)

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

Advanced Miniature CCD Scan Module

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

Barcode Value	Barcode Label	Description
CI08	||||||||||||||	Codabar identifier code setting
CI09	||||||||||||||	Code 128 identifier code setting
CI10	||||||||||||||	Code 93 identifier code setting
CI11	||||||||||||||	MSI identifier code setting
CI12	||||||||||||||	GS1 DataBar Omnidirectional identifier code setting
CI13	||||||||||||||	GS1 DataBar Limited identifier code setting
CI14	||||||||||||||	GS1 DataBar expanded identifier code setting
CI15	||||||||||||||	Industrial 2 of 5 identifier code setting
CI16	||||||||||||||	Code 11 Identifier code setting
CI17	||||||||||||||	Standard 2 of 5 identifier code setting
CI18	||||||||||||||	Matrix 2 of 5 identifier code setting
SET	||||||||||||||	Confirm to save this setting (required for reading full ASCII table and length setting)

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

Advanced Miniature CCD Scan Module 61

		Start Of Configuration

Header and Trailer

Barcode Value	Barcode Label	Description
CP11		Add code length as header enable (2 digits)
CP12		Add code length as header disable (2 digits)
HT01		Header (Preamble)
HT02		Trailer (Postamble)
HT03		Truncate header character
HT04		Truncate trailer character

SET		Confirm to save this setting (required for reading full ASCII table and length setting)

Appendix 1: USB Virtual COM Driver Installation

Contact your distributor to get the driver and follow the steps below to enable USB virtual COM port.

1.   Connect the handheld scanner and the host (e.g. a PC) with a USB interface cable.

2.   Enable USB virtual COM port with programming barcodes on page 21.

3.   After the programming, the host would request driver installation. Browse your files to locate the driver and start installation.

4.   The USB virtual COM port is ready for use after driver installation.

# Appendix 2: Barcode Length Setting

Introduction

The length of a barcode is the number of characters it contains, including check digits. As listed in the Default Parameters section, each barcode type has different default length. You may change the setting by the following procedure.

To set up barcode length, the paramours to be determined are barcode type and the desired barcode length. Barcode length is consisted of 2 digits. For numbers smaller than 10, you need to add a "0" in the front.

Example

If the barcode length is 4 to 12 digits, the steps would be as below:

| Start | Set up barcode length | End |
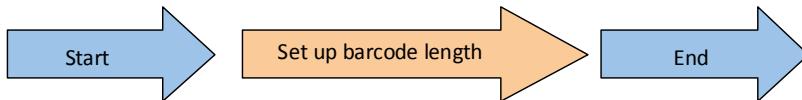
Start of Configuration	Set up minimum barcode length	Set up maximum barcode length	End of Configuration
Scan the "**Start of configuration**" barcode	Scan the "**Min**" barcode	Set the "**Max**" barcode	Scan the "**Set**" barcode to save this setting
Read the "**Full ASCII code 39**" barcode	Scan the first digit: **0**	Set up the first digit: **1**	Scan the "**End of configuration**" barcode
Turn to the page of the barcode type to be set up	Scan the second digit: **4**	Set up the second digit: **2**	

Use the ASCII table (Appendix 4) to set up barcode length. Be sure to enable the full ASCII code 39 option before you start and read the "Set" label to set your choice into memory.

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

Appendix 3: Full ASCII Code 39 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

Start Of Configuration

Full ASCII Code 39 Table

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

Start Of Configuration

Full ASCII Code 39 Table

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

Advanced Miniature CCD Scan Module

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

Full ASCII Code 39 Table

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

Start Of Configuration

Full ASCII Code 39 Table

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

End Of Configuration

Advanced Miniature CCD Scan Module