CD-3860 Bar Code Scanner
User's Manual

Rev. Original

Important Notice

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General Handling Precautions

Do not dispose of the scanner in fire.
Do not put the scanner directly in the sun or by any heat source.
Do not use or store the scanner in a very humid place.
Do not drop the scanner or allow it to collide violently with other objects.
Do not take the scanner apart without authorization.

Printing Guidance

This programming guide is in A5 size. Please double check your printer setting before printing it out.
When barcodes are to be printed out for programming, the use of a high-resolution laser printer is strongly suggested for the best scan result.

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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.

Table of Contents

About This Guide

This programming guide applies to various handheld scanners, including

* Advanced Handheld Contact CCD Scanner,

* Advanced Middle-Range Handheld CCD Scanner,

Some settings are not available for certain models. If you are not sure about the model of your scanner at hand, refer to the device label or contact your distributor.

This document is in A5 size. Please check your printing setting before printing it out. When barcodes are to be printed out for programming, the use of a high-resolution laser printer is strongly suggested for the best scan result.

The settings herein shall be updated periodically without prior notice. For the latest version, please contact your distributor.

Introduction to Scanner Configuration

Scanning a series of programming barcode labels can configure the series scanners. 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 must be used to supply DC power to the scanner. If a keyboard emulation type scanner is used with an IBM PC/XT/ AT, PS/2 or any fully compatible computers, power will be drawn from the keyboard port. No external power adapter is required. If keyboard emulation type scanner is used with any other non IBM PC compatible computers, an external power adapter may be needed.

Programmable options are divided into four groups. The second group governs the operation of different interfaces, RS-232 serial ports, keyboard, and USB. The third group sets the decoding parameters for each barcode symbology. The last group is about more advanced data formatting.

Default Parameters

This table gives the default settings of all the programmable parameters. The default settings would be restored whenever the 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	500msec
Beeping frequency	Medium
Beeping duration	50msec
LED/Beep before data transmission	On
Scan mode	Trigger mode
Stand mode (only available for specific models)	Enable
Header and trailer	None
Inter message delay	0msec
Inter character delay	0msec

Interface Communication

Parameter	Default
RS-232 Interface	
Baud rate	9600
Parity	none
Data Bits	8
Stop Bit	1
RTS/CTS	off
Terminator	<CR><LF>
Keyboard Wedge Interface	
Terminal Type	PC/AT
Keyboard	US keyboard
Terminator	Enter
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
PDF417	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
PDF417 identifier code		X
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)

Programming Procedure

Below is the programming procedure by 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
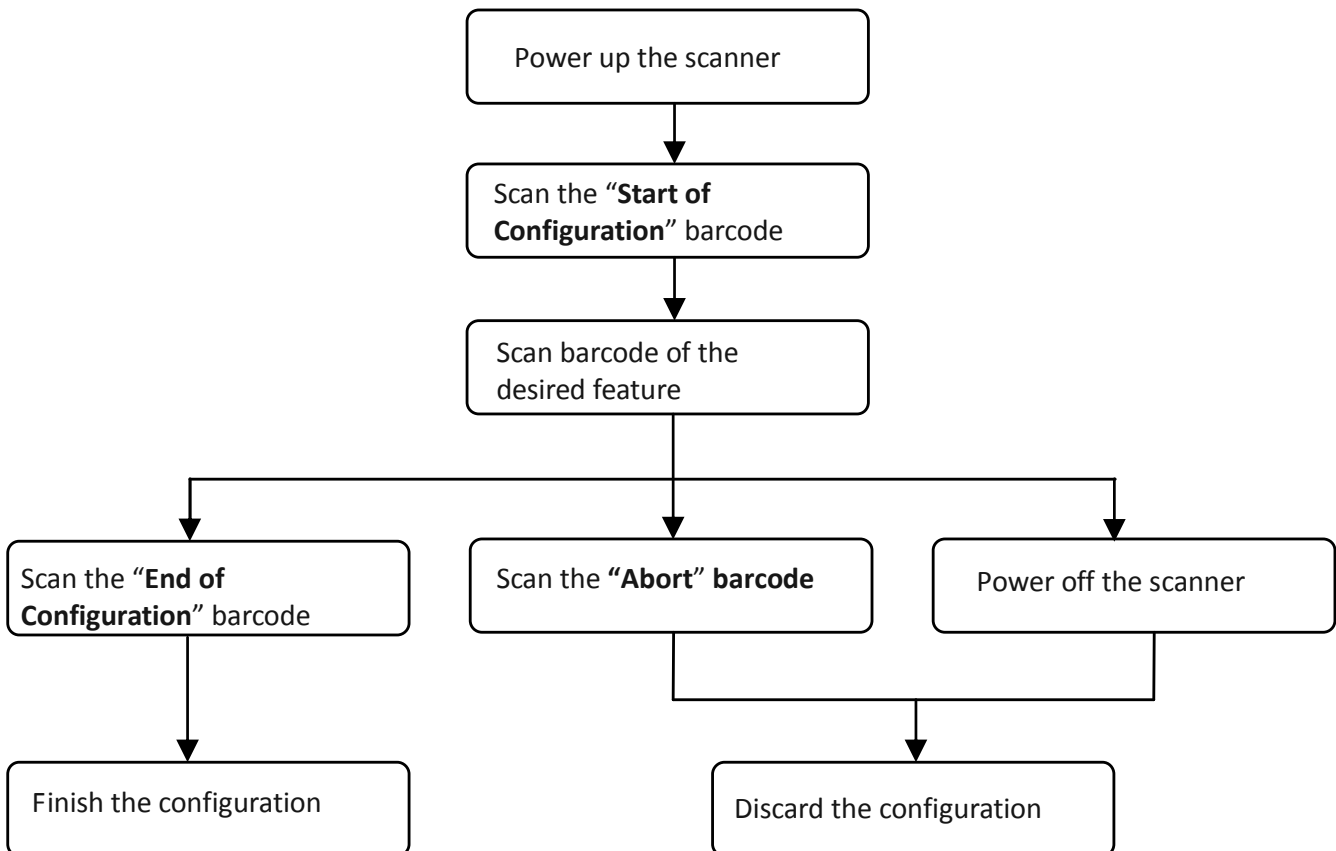
Default values are highlighted in gray background.

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Parameter Setting

‖‖‖‖‖‖‖‖ Start Of Configuration

Scanner Operation

1. 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

2. 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

3. General Scan Mode Setting

Handheld Operation

Barcode Value	Barcode Label	Description
SM01	||||| |||||	**Trigger Mode** • The scanner becomes inactive as soon as the data is transmitted. It must be triggered to become active again.
SM02	||||| |||||	Auto Scan Mode • The scanner is still active after the data is transmitted but the successive transmission of the same barcode is not allowed when the trigger switch is pressed again.
SM04	||||| |||||	Pulse Mode • The scanner will light up and blink when press the scanner trigger switch once and the scanner will turn off after next pressing.
SM05	||||| |||||	Repeat Mode • This mode is similar to Auto Scan Mode, but double reading for the same barcode is prohibited if the scanner switch is pressed.
SM06	||||| |||||	Momentary mode • The scanner will light up only when the trigger switch is pressed the scanner will turn off when the trigger switch is release.

Stand Operation

Barcode Value	Barcode Label	Description
SM20	‖‖‖‖‖‖‖‖‖‖	IR On (Auto scan on stand) • The scanner automatically activates scans and transmits data when detecting object.
SM21	‖‖‖‖‖‖‖‖‖‖	IR Off (Scan by manual trigger)

‖‖‖‖‖‖‖‖‖‖
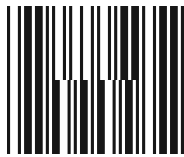
End Of Configuration
Start Of Configuration

4.   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 msec)
GR12	‖‖‖‖‖‖‖‖‖‖	Short (20 msec)

GR11	|||||||||||||	Medium (50 msec)
GR10	|||||||||||||	Long (100 msec)
GR14	|||||||||||||	Very Long (200 msec)
GR15	|||||||||||||	Ultra long (500 msec)

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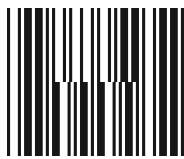
End Of Configuration
Start Of Configuration

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

‖‖‖‖‖‖‖‖‖
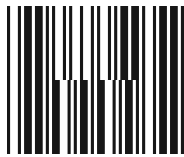
End Of Configuration
Start Of Configuration

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	‖‖‖‖‖‖‖‖‖	0ms
IC00	‖‖‖‖‖‖‖‖‖	5ms
IC02	‖‖‖‖‖‖‖‖‖	10ms

IC03																					20ms
IC04																					50ms
IC05																					2ms
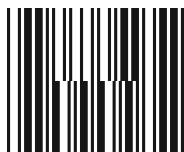
|||||||||||||||||||| End Of Configuration
Start Of Configuration

Same Code Delay

Barcode Value	Barcode Label	Description
SD01	|||||||||||||||||||	Same code delay time 50msec
SD02	|||||||||||||||||||	Same code delay time 100msec
SD03	|||||||||||||||||||	Same code delay time 200msec
SD04	|||||||||||||||||||	Same code delay time 300msec
SD05	|||||||||||||||||||	Same code delay time 400msec
SD06	|||||||||||||||||||	Same code delay time 500msec
SD07	|||||||||||||||||||	Same code delay time 600msec
SD08	|||||||||||||||||||	Same code delay time 700msec
SD09	|||||||||||||||||||	Same code delay time 800msec

SD10	|||||||||||||	Same code delay time 900msec
SD11	|||||||||||||	Same code delay time 1000msec
SD12	|||||||||||||	Same code delay time Infinite
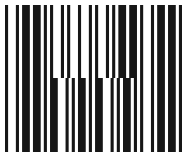
||||||||||||| End Of Configuration
Start Of Configuration

Connection to an Omnidirectional Scanner

Instead of connecting to a host, sometimes the handheld scanner is to be connected to the AUX port of an omnidirectional scanner and transmit data to the host system via this omnidirectional scanner. Such application is not uncommon in places like hypermarkets and home improvement shops where there are products too heavy or bulky to be put on the counter and need a handheld scanner to read their barcodes.

In most cases, the auxiliary input port's data transmission format would follow the main output format of the omnidirectional scanner, including barcode symbologies and related parameters. For example, if the handheld scanner can read Codabar while the omnidirectional scanner can not, the handheld scanner would decode a Codabar barcode without transmitting the data. To complete the data transmission process, you have to re-program the omnidirectional scanner and enable Codabar decoding capability.

The following barcode allows you to enable and disable the AUX port. For more application and connection instructions, refer to the manual of the omnidirectional scanner.

Barcode Value	Barcode Label	Description
AUXS	|||||||||||||	Enable AUX function

<table>
<tr><td>[note icon]</td><td>Not all firmware versions support the AUX function. Please contact your distributor if you have any questions.</td></tr>
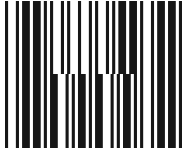</table>
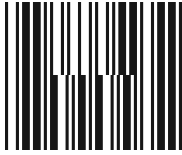
 End Of Configuration
Start Of Configuration

Interface Configuration

1. 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	

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

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DB07	‖‖‖‖‖‖‖‖‖	7 data bit
DB08	‖‖‖‖‖‖‖‖‖	8 data bit
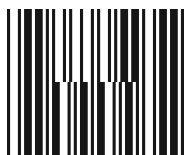
‖‖‖‖‖‖‖‖‖	End Of Configuration Start Of Configuration

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 300ms
RT03	‖‖‖‖‖‖‖‖‖	ACK/NAK response time 500ms
RT05	‖‖‖‖‖‖‖‖‖	ACK/NAK response time 1 sec
RT02	‖‖‖‖‖‖‖‖‖	ACK/NAK response time 2 sec
RT04	‖‖‖‖‖‖‖‖‖	ACK/NAK response time 3 sec
RT06	‖‖‖‖‖‖‖‖‖	ACK/NAK response time 5 sec

RT07 |||||||||||||||||| ACK/NAK response time infinity
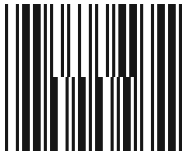
|||||||||||||||||| End Of Configuration
Start Of Configuration

Message Terminator

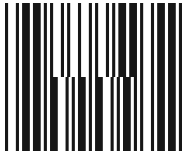| Barcode Value	Barcode Label	Description
DT11	||||||||||||||||||	RS-232 message terminator—none
DT12	||||||||||||||||||	RS-232 message terminator—CR/LF
DT13	||||||||||||||||||	RS-232 message terminator—CR
DT14	||||||||||||||||||	RS-232 message terminator—LF
DT15	||||||||||||||||||	RS-232 message terminator—H-tab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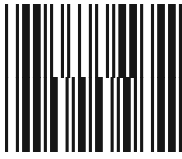
	End Of Configuration
	Start Of Configuration

2. Keyboard Wedge and USB Interface Setting

Language Support

Barcode Value	Barcode Label	Description
KL00		International Keyboard mode (ALT mode)
KL01		Keyboard language support－USA
KL02		Keyboard language support－UK
KL03		Keyboard language support－Germany
KL04		Keyboard language support－French
KL05		Keyboard language support－Spanish
KL06		Keyboard language support－Italian
KL07		Keyboard language support－Switzerland
KL08		Keyboard language support－Sweden
KL09		Keyboard language support－Belgium
KL10		Keyboard language support－Portugal
KL11		Keyboard language support－Turkish
KL15		Keyboard language support－Japanese

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
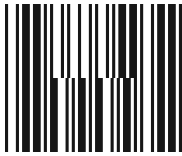
3. Want Emulation Setting

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
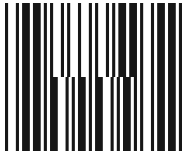
End Of Configuration
Start Of Configuration

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
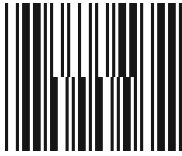
The Symbologies

1. Codabar **Parameter Setting**

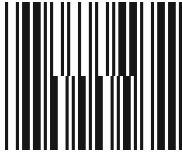| Barcode Value	Barcode Label	Description
RC02		Codabar enable
RD02		Codabar disable
CB05		Codabar start/stop character transmission－none
CB06		Codabar start/stop character transmission－A,B,C,D
CB07		Codabar start/stop character transmission－DC1~DC4
CB08		Codabar start/stop character transmission－a/t,b/n,c/*,d/e
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
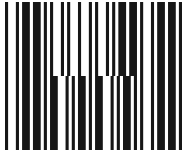
Barcode Value	Barcode Label	Description
CB13		No check character
CB14		Validate modulo 16,but don't transmit
CB15		Validate modulo 16 and transmit
DC50		Codabar data redundant check=off
DC51		Codabar data redundant check=1
DC52		Codabar data redundant check=2
DC53		Codabar data redundant check=3

2. Code 39 Parameter Setting

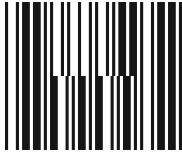| Barcode Value	Barcode Label	Description
RC01		Code 39 enable
RD01		Code 39 disable
RC13		Code 32 enable
RD13		Code 32 disable
DC00		Code 39 data redundant check=off
DC01		Code 39 data redundant check=1
DC02		Code 39 data redundant check=2
DC03		Code 39 data redundant check=3
3901		Standard code 39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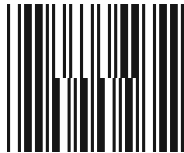
		End Of Configuration
		Start Of Configuration

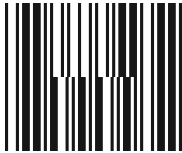| Barcode Value	Barcode Label	Description
3905		Code 39 check digit calculate and transmit
3906		Code 39 check digit calculate but without transmit
3907		No check character
3908		Code 39 maximum length setting
3909		Code 39 minimum length setting
SET		Confirm to save this setting (required for reading 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

3. 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

4. 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)
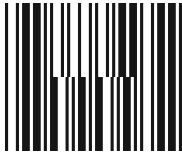
5.   Chinese Post Code Parameter Setting

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)
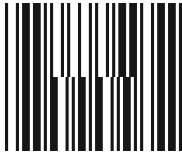
6. MSI/Plessy Parameter Setting

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

7. 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
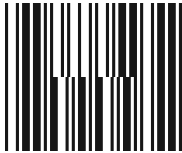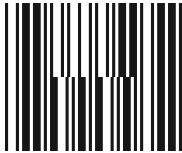
8. **ITF 2 of 5 Parameter Setting**

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
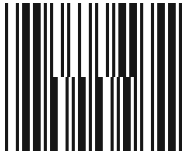
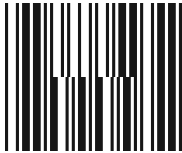| Barcode Value	Barcode Label	Description
IT01		ITF 2 of 5 code maximum length setting
IT02		ITF 2 of 5 code minimum length setting
IT06		ITF 2 of 5 one fixed length setting
IT07		ITF 2 of 5 two fixed length setting
SET		Confirm to save this setting (required for reading full ASCII table and length setting)

9. Standard 2 of 5 Parameter Setting

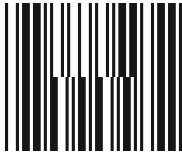| Barcode Value	Barcode Label	Description
RC22		Standard 2 of 5 code enable
RD22		Standard 2 of 5 code disable
D051		Standard 2 of 5 code maximum length setting
D052		Standard 2 of 5 code minimum length setting
SET		Confirm to save this setting (required for reading full ASCII table and length setting)
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

10.   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

11. 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

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

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

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

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)**
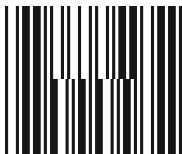
		End Of Configuration Start Of Configuration

12. Telepen Parameter Setting

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

13. 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

14. 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

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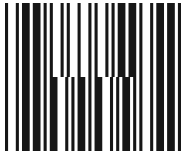
GS1 DataBar Limited (Formally RSS Limited)

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
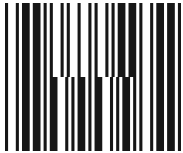
GS1 DataBar Expanded (Formally RSS Expanded)

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
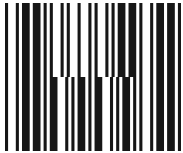
	End Of Configuration
	Start Of Configuration

Data Editing

1. **Identifier Code**

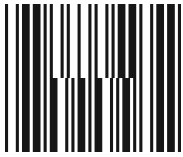| Barcode Value	Barcode Label	Description
IS00		Disable identifier code
IS01		Enable identifier code table as factory standard
IS03		Enable identifier code table as AIM standard.
CI01		Code 39 identifier code setting
CI02		ITF 2 of 5 identifier code setting
CI03		Chinese Post Code identifier code setting
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
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 Start Of Configuration

2. 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)
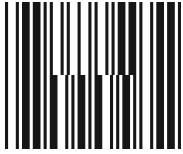
Appendix 1: USB Virtual COM Driver Installation

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 8.

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.
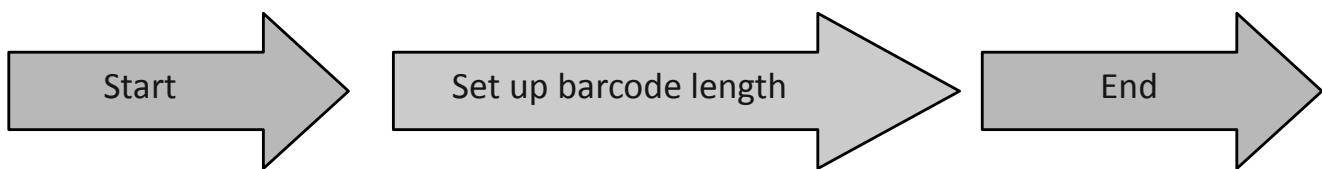
Appendix 2: Barcode Length Setting

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.

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
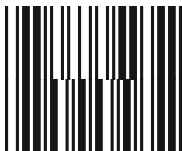
End Of Configuration
Start Of Configuration

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
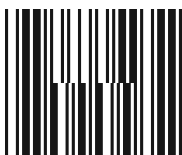
End Of Configuration
Start Of Configuration

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
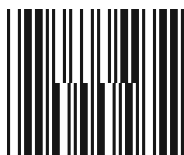
End Of Configuration
Start Of Configuration

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