

Programming Guide

2D Image Reader

Revision History

Changes to the original manual are listed below:

Version	Date	Description of Version
1.0	2016/07/22	Preliminary release
1.1	2017/12/13	Updated USB speed setting
1.2	2018/3/22	Updated RS-232 settings

Important Notice

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General Handling Precautions

Do not dispose 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

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Settings and Programming

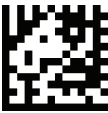
Scan selected barcodes in this manual to affect setup and programming of your handheld imaging barcode scanner. Decoding options and interface protocols can be tailored to a specific application.

Setup parameters are stored in non-volatile memory in the scanner and are retained even when power is off. Setup parameters change only when you reset them. You may need to hide adjacent code patches with your hand when scanning.

User Preferences

System Settings

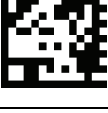
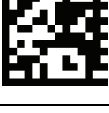
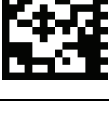
Use the following codes to set, reset, or display firmware version.

	Reset (return to factory default)
	Display firmware version

Beep Settings

Use the following codes to change beep settings.

	Medium beeper tone
	Low beeper tone
	High beeper tone
	Speaker disable
	Long sound duration (100msec)

	Medium sound duration(50msec)
	Short sound duration(20msec)
	Very short sound duration(5msec)
	Very Long sound duration (200msec)
	Ultra long sound duration (500msec)
	Loud volume (50/50 duty)
	Medium volume (30/70 duty)
	Slight volume (20/80 duty)
	Led/Beep after transmission. Use this bar code to indicate a "good read" after a bar code has been successfully decoded.
	Led/Beep before transmission, Use this bar code to indicate a good read" after successfully transmitting the bar code data to the host.
	Power –up tone enable
	Power –up tone disable

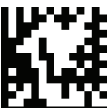
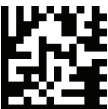
Customer's Factory Default

Scan barcodes below to set or delete customer's factory default.

	Return as customer default
	Save as customer default

Interface Switch

Your 2D Imager supports interfaces such as USB HID, RS232 serial, USB virtual COM, etc.. To switch the interface, simply select the appropriate cable and configure the proper interface by following interface selection.

	Return as USB Full Speed (default)
	Return as USB High Speed
	Return as USB-virtual COM port default (default)
	Return to HID USB default
	Return to RS232 default
	Return as OPOS port default(USB mode)
	OPOS RS232 mode

	USB Update mode
	Uart Update mode
	Image Mode

Aim Pattern

Aiming pattern works as an aiming system to aid in barcode reading. Use the following settings to enable or disable this function.

	NO_USE_ILLUM
	USE_ILLUM
	NO_USE_AIM
	USE_AIM
	AIM no flash
	AIM flash

Scan Mode

Scan a barcodes below to set the scanner to different modes.

	Trigger mode
	Auto scan mode
	Presentation mode

Same Code Delay Time

Scan a barcode below to select the duration of the delay time for scan code.

	Same Code Delay time 50msec
	Same Code Delay time 100msec
	Same Code Delay time 200msec
	Same Code Delay time 300msec
	Same Code Delay time 400msec
	Same Code Delay time 500msec

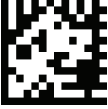
	Same Code Delay time 600msec
	Same Code Delay time 700msec
	Same Code Delay time 800msec
	Same Code Delay time 900msec
	Same Code Delay time 1000msec
	Same Code Delay time Infinite

RS232 Interface Settings

Set the imager's baud rate to match the host device. Otherwise, data may not reach the host device or may reach it in distorted form.

	Baud Rate 2400
	Baud Rate 4800
	Baud Rate 9600
	Baud Rate 19200

	Baud Rate 38400
	Baud Rate 57600
	Baud Rate 115200
	Baud Rate 230400
	Even parity
	Odd parity
	None parity
	1 stop bit
	2 stop bit
	7 data bit
	8 data bit

	ACK/NAK
	Xon/Xoff
	RTS/CTS
	None handshaking
	Enable BEEPER ON<BEL> CHARACTER
	Ignore BEEP ON <BEL> CHARACTER
	ACK/NAK response time 300ms
	ACK/NAK response time 2s
	ACK/NAK response time 500ms
	ACK/NAK response time 3s
	ACK/NAK response time 1s
	ACK/NAK response time 5s

	ACK/NAK response time infinity
	Message terminator—none
	message terminator—CR/LF
	message terminator—CR
	message terminator—LF
	message terminator—H tab
	message terminator—STX/ETX
	message terminator—EOT

Keyboard Settings

To change any option, scan the appropriate barcode(s) provided.

	Keyboard language support---USA
	Keyboard language support---UK send scan code
	Keyboard language support---GERMANY
	Keyboard language support---FRENCH send scan code
	Keyboard language support---SPANISH send scan code
	Keyboard language support---ITALIAN send scan code
	Keyboard language support--- Switzerland
	Keyboard language support---Sweden send scan code
	Keyboard language support---Belgium send scan code
	Keyboard language support---Portugal send scan code
	Keyboard language support---Turkish send scan code

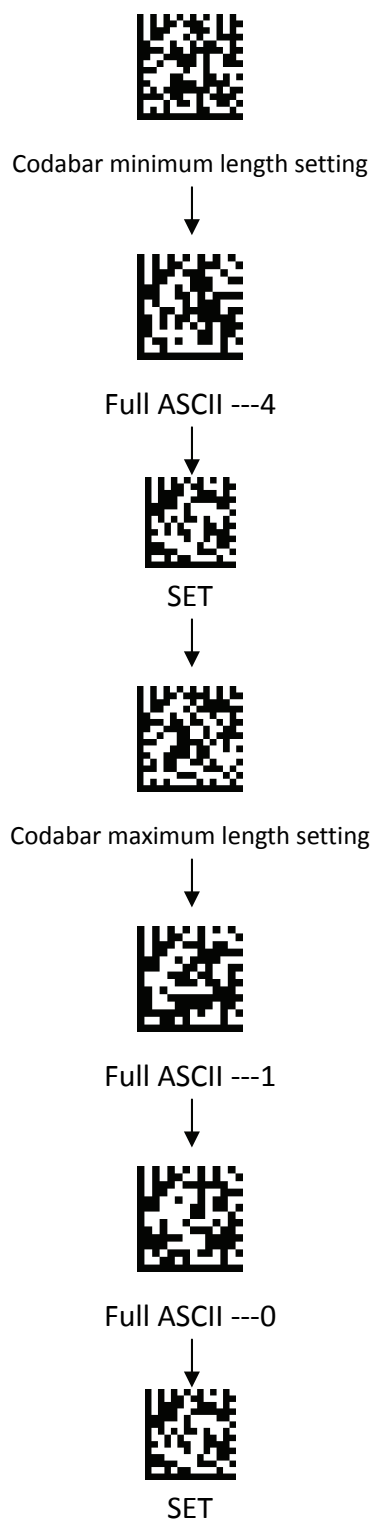
	Keyboard language support---Hungary
	Keyboard language support---Japanese
	Keyboard language support---iMac-French
	Capital lock on
	Capital lock off
	Function key emulation enable
	Function key emulation disable
	Send number as normal data
	Send number as keypad data
	Alphabet follow as keyboard RS-232 also available
	Alphabet always upper case RS-232 also available
	Alphabet always Lower case RS-232 also available

	Alphabet always follow as keyboard enable
	Alphabet always follow as keyboard disable
	Enable Alt mode.

Symbology Settings

This section provides the programming barcodes for enabling and disabling symbology functions. If the default values suit requirements, programming is not necessary.

Example: Felting length 4 to 10 characters





Set

Codabar Settings

To change any option, scan the appropriate barcode(s) provided.

	Codabar enable
	CODABAR disable
	Codabar data redundant check=off
	Codabar data redundant check=1
	Codabar data redundant check=2
	Codabar data redundant check=3
	Codabar start/stop character transmission-----none
	Codabar start/stop character transmission-----A,B,C,D
	Codabar start/stop character transmission-----DC1~DC4
	Codabar start/stop character transmission-----a/t,b/n,c/*,d/e
	Codabar start/stop character transmission -a,b,c,d

	Codabar maximum length setting
	Codabar minimum length setting
	No check character
	Validate modulo 16, but don't transmit
	Validate modulo 16, but transmit



Code 39/Code 32 Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	Code 39 enable
	Code 39 disable
	Code 32 enable
	Code 32 disable
	Code 39 data redundant check=off
	Code 39 data redundant check=1
	Code 39 data redundant check=2
	Code 39 data redundant check=3
	Standard code 39
	FULL ASCII code 39
	Code 39 start/stop character transmission



Set

	Code 39 start/stop character without transmission
	Code 39 check digit calculate and transmit
	Code 39 check digit calculate but without transmit
	No check character
	Code 39 maximum length setting
	Code 39 minimum length setting
	Code39 Data Redundant check = off
	Code39 Data Redundant check = 1
	Code39 Data Redundant check = 2
	Code39 Data Redundant check = 3
	Code 32 (Italian pharmacy)transmit "A" character
	Code 32 (Italian pharmacy)without transmit "A" character

Code 93 Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	Code 93 enable
	Code 93 disable
	Code 93 data redundant check=off
	Code 93 data redundant check=1
	Code 93 data redundant check=2
	Code 93 data redundant check=3
	Code 93 maximum length setting
	Code 93 minimum length setting

Code 128/EAN 128 Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	Code 128 enable
	Code 128 disable
	EAN –128 enable
	EAN-128 disable
	Code 128 data redundant check=off
	Code 128 data redundant check=1
	Code 128 data redundant check=2
	Code 128 data redundant check=3
	Code 128 maximum length setting
	Code 128 minimum length setting

Chinese Postcode Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	Chinese post code enable
	Chinese post code disable
	Chinese post code data redundant check=off
	Chinese post code data redundant check=1
	Chinese post code data redundant check=2
	Chinese post code data redundant check=3
	Chinese post code check digit calculate and transmit
	Chinese post code check digit calculate but without transmit

MSI Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	MSI enable
	MSI disable
	MSI/PLESSY maximum length setting
	MSI/PLESSY minimum length setting
	MSI/Plessy double check digit calculate but not transmit
	MSI/Plessy double check digit without calculate and transmit
	MSI/Plessy double check digit calculate but only first digit transmit
	MSI/Plessy double check digit calculate and both transmit
	MSI/Plessy single check digit calculate but without transmit
	MSI/Plessy single check digit calculate and transmit

Code 11 Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	CODE 11 enable
	CODE 11 disable
	CODE 11 maximum length setting Default length 6 ~32 character
	CODE 11 minimum length setting
	Disable verification
	Code 11 check digit transmitted
	Code 11 check digit not transmitted



Set

ITF 2 of 5 Settings

To change any option, scan the appropriate barcode(s) provided.

	ITF 2 of 5 enable
	ITF 2 of 5 disable
	ITF 25 data redundant check=off
	ITF25 data redundant check=1
	ITF25 data redundant check=2
	ITF 25 data redundant check=3
	ITF 2 of 5 code maximum length setting
	ITF 2 of 5 code minimum length setting
	ITF 2 of 5 no check character
	ITF 2 of 5 check digit calculate and transmit
	ITF 2 of 5 check digit calculate but without transmit

	ITF 2 of 5 one Fixed length setting
	ITF 2 of 5 two Fixed length setting
	ITF 2 of 5 length variable



Telepen Settings

To change any option, scan the appropriate barcode(s) provided.

	Telepen Enable
	Telepen Disable

Pharmacode Settings

To change any option, scan the appropriate barcode(s) provided.

	Pharmacode Enable
	Pharmacode Disable

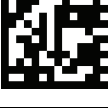
UPC/EAN/JAN Settings

To change any option, scan the appropriate barcode(s) provided.

	EAN convert to ISSN/ISBN enable
	EAN convert to ISSN/ISBN disable
	UPC/EAN/JAN enable
	UPC/EAN/JAN disable
	EAN-8 OR EAN-13 ENABLE
	UPC-A AND EAN-13 ENABLE
	UPC-A AND UPC-E ENABLE
	UPC-A ENABEL
	UPC-E ENABLE
	EAN-13 ENABLE
	EAN-8 ENABEL

	UPC/EAN ADDon off
	Addon 5 only
	Addon 2 only
	Addon 2 or 5
	Force UPC-E to UPC-A format enable
	Force UPC-E to UPC-A format disable
	Force UPC-A to EAN-13 format enable
	Force UPC-A to EAN-13 format disable
	Transmit UPC-A check digit enable
	Transmit UPC-A check digit disable
	Transmit UPC-E leading character enable
	Transmit UPC-E leading character disable

	Transmit UPC-E check digit enable
	Transmit UPC-E check digit disable
	Transmit EAN-8 check digit enable
	Transmit EAN-8 check digit disable
	Transmit EAN-13 check digit enable
	Transmit EAN-13 check digit disable
	Transmit UPC-A leading character enable
	Transmit UPC-A leading character disable
	Addon format with separator
	Addon format without separator
	EAN/UPC +addon (none mandatory)
	EAN/UPC +addon (mandatory)

	EAN-8 to EAN-13 format enable
	force EAN-8 to EAN-13 format disable
	EAN-13 first "0" can be transmitted
	EAN-13 first "0" can't be transmitted
	EAN-13 with first 0 ID code same as "UPC-A"
	EAN-13 with first 0 ID code same as "EAN-13"
	double code disable(9784/192)
	double code enable(9784/192)
	double code send for other
	double code not send for other
	EAN/UPC + add-on mandatory for 491 Japanese (bookland) Supplement requirement, not sent for other
	EAN/UPC + add-on mandatory 491 Japanese (bookland) Supplement requirement, optionally for other

	EAN/UPC +addon mandatory for 978/977 (bookland) Supplement requirement, not sent for other
	EAN/UPC +addon mandatory for 978/977 (bookland) Supplement requirement, optionally for other
	UPC-A data redundant check=off
	UPC-A data redundant check=1
	UPC-A data redundant check=2
	UPC-A data redundant check=3
	UPC-E data redundant check=off
	UPC-E data redundant check=1
	UPC-E data redundant check=2
	UPC-E data redundant check=3
	EAN-13 data redundant check=off
	EAN-13 data redundant check=1

	EAN-13 data redundant check=2
	EAN-13 data redundant check=3
	EAN-8 data redundant check=off
	EAN-8 data redundant check=1
	EAN-8 data redundant check=2
	EAN-8 data redundant check=3

STD 2 of 5 Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	STD 2 of 5 code enable
	STD 2 of 5 code disable
	Standard 2 of 5 check digit calculate and transmit
	Standard 2 of 5 check digit calculate without transmit
	STD 2 of 5 code maximum length setting Default:6~32
	STD 2 of 5 code minimum length setting

Industrial 2 of 5 Settings

To change any option, scan the appropriate barcode(s) provided.



	Industrial 2 of 5 Enable
	Industrial 2 of 5 Disable
	Industrial 2 of 5 check digit calculate and transmit
	Industrial 2 of 5 check digit calculate without transmit
	Industrial 2 of 5 code maximum length setting Default:6~32
	Industrial 2 of 5 code minimum length setting



Set

Matrix 2 of 5 Settings

To change any option, scan the appropriate barcode(s) provided.

	Matrix 2 of 5 code enable
	Matrix 2 of 5 code disable
	Matrix(Japanese) 2 of 5 code enable
	Matrix(Japanese) 2 of 5 code disable
	Matrix 2 of 5 code maximum length setting
	Matrix 2 of 5 code minimum length setting
	Matrix 2 of 5 check digit calculate and transmit
	Matrix 2 of 5 check digit calculate without transmit

GS1 Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	GS1 Databar enable
	GS1 Databar disable
	GS1 Databar LIMITED enable
	GS1 Databar LIMITED disable
	GS1 Databar EXPANDED enable
	GS1 Databar EXPANDED disable
	GS1 Data Redundant check = off
	GS1 Data Redundant check = 1
	GS1 Data Redundant check = 2
	GS1 Data Redundant check = 3
	GS1 Limited Data Redundant check = off



Set

	GS1 Limited Data Redundant check = 1
	GS1 Limited Data Redundant check = 2
	GS1 Limited Data Redundant check = 3
	GS1 Expanded Data Redundant check = off
	GS1 Expanded Data Redundant check = 1
	GS1 Expanded Data Redundant check = 2
	GS1 Expanded Data Redundant check = 3

QR Code Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	QR Code enable
	QR Code disable
	Micro QR Code enable
	QR Mode1 1 Code enable
	QR Mode1 1 Code disable
	Micro QR Code disable
	QR Code Mirror enable
	QR Code Mirror disable
	QR/MQR polarity setting = Dark on Light
	QR/MQR polarity setting = Light on Dark
	QR/MQR polarity setting = either

Data Matrix Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	DataMatrix enable
	DataMatrix disable
	DataMatrix Mirror enable
	DataMatrix Mirror disable
	DataMatrix polarity setting = Dark on Light
	DataMatrix polarity setting = Light on Dark
	DataMatrix polarity setting = either

PDF417 Settings

To change any option, scan the appropriate barcode(s) provided.



	PDF417 enable
	PDF417 disable
	Micro PDF417 enable
	Micro PDF417e disable
	PDF417 Data Redundant check = off
	PDF417 Data Redundant check = 1
	PDF417 Data Redundant check = 2
	PDF417 Data Redundant check = 3

Aztec Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	Aztec enable
	Aztec disable
	Aztec Mirror enable
	Aztec Mirror disable
	Aztec polarity setting = Dark on Light
	Aztec polarity setting = Light on Dark
	Aztec polarity setting = either

Maxicode Settings

To change any option, scan the appropriate barcode(s) provided.

	Maxi code enable
	Maxi code disable



Set

Postcode Settings

To change any option, scan the appropriate barcode(s) provided.

	PostNet Enable
	PostNet Disable
	PLANET Enable
	PLANET Disable
	Australia Post Enable
	Australia Post Disable
	Royal Post Enable
	Royal Post Disable

Codabloc F Settings

To change any option, scan the appropriate barcode(s) provided.



Set

	CODABLOC F Disable
	CODABLOC F CCA Enable
	CODABLOC F CCB Enable
	CODABLOC F CCC Enable
	CODABLOC F ALL Enable

Identifier Code Settings

To change any option, scan the appropriate barcode(s) provided.

	Disable identifier code
	Enable identifier code table as ZEBEX standard
	Enable identifier code table as AIM standard. Refer to appendix A.
	CODE 39 identifier code setting



Set

	ITF 2 of 5 identifier code setting
	UPC-E identifier code setting
	UPC-A identifier code setting
	EAN-13 identifier code setting
	EAN-8 identifier code setting
	CODABAR identifier code setting
	CODE 128 identifier code setting
	CODE 93 identifier code setting
	MSI identifier code setting
	GS1 Databar identifier code setting
	GS1 Databar limited identifier code setting
	GS1 Databar expanded identifier code setting



Set

	Industrial 2 of 5 Identifier code setting
	Code 11 Identifier code setting
	Standard 2 of 5 Identifier code setting
	Matrix 2of 5 (Japanese) Identifier code setting
	Telepen identifier code setting
	PDF417 identifier code setting
	QR Code identifier code setting
	DataMatrix identifier code setting
	AZTEC identifier code setting
	Maxi code identifier code setting



Set

Character Settings

To change any option, scan the appropriate barcode(s) provided.

	Add code length as header enable(all barcode)
	Add code length as header disable (all barcode)
	Header (Preamble)
	Trailer (Postamble)
	Truncate header character
	Truncate trailer character
	Inter character delay 0ms
	Inter character delay 2ms
	Inter character delay 5ms
	Inter character delay 10ms
	Inter character delay 20ms

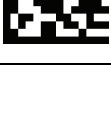


Set

	Inter character delay 50ms
	Inter character delay 90msec
	Inter character delay 100msec
	Inter message delay 0 ms
	Inter message delay 100 ms
	Inter message delay 500 ms
	Inter message delay 1000 ms

Full ASCII Data Matrix Table

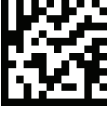
Data Matrix	ASCII	Hexa-code
	Full ASCII ---NUL	00
	Full ASCII ---SOH Function key-----“Ins”	01
	Full ASCII ---STX Function key-----“Del”	02
	Full ASCII ---ETX Function key-----“Home”	03
	Full ASCII ---EOT Function key-----“End”	04
	Full ASCII ---ENQ Function key-----“Up arrow”	05
	Full ASCII ---ACK Function key-----“Down arrow”	06
	Full ASCII ---BEL Function key-----“Left arrow”	07
	Full ASCII ---BS Function key-----“Backspace”	08
	Full ASCII ---HT Function key-----“TAB”	09

	Full ASCII ---LF Function key-----“Enter (alpha numeric”	0A
	Full ASCII ---VT Function key-----“right arrow”	0B
	Full ASCII ---FF Function key-----“PgUp”	0C
	Full ASCII ---CR Function key-----“Enetr(num.)”	0D
	Full ASCII ---SO Function key-----“PgDn”	0E
	Full ASCII ---SI Function key-----“Shift”	0F
	Full ASCII ---DLE Function key-----“5(num)”	10
	Full ASCII ---DC1 Function key-----“F1”	11
	Full ASCII ---DC2 Function key-----“F2”	12
	Full ASCII ---DC3 Function key-----“F3”	13
	Full ASCII ---DC4 Function key-----“F4”	14
	Full ASCII ---NAK Function key-----“F5”	15

	Full ASCII ---SYN Function key-----“F6”	16
	Full ASCII ---ETB Function key-----“F7”	17
	Full ASCII ---CAN Function key-----“F8”	18
	Full ASCII ---EN Function key-----“F9”	19
	Full ASCII ---SUB Function key-----“F10”	1A
	Full ASCII ---ESC Function key-----“F11”	1B
	Full ASCII ---FS Function key-----“F12”	1C
	Full ASCII ---GS Function key-----“ESC”	1D
	Full ASCII ---RS Function key-----“CTL(L)”	1E
	Full ASCII ---US Function key-----“ALT(L)”	1F
	Full ASCII ---SP	20
	Full ASCII ---!	21

	Full ASCII ---“	22
	Full ASCII ---#	23
	Full ASCII ---\$	24
	Full ASCII ---%	25
	Full ASCII ---&	26
	Full ASCII ---‘	27
	Full ASCII --- (	28
	Full ASCII ---)	29
	Full ASCII ---*	2A
	Full ASCII ---+	2B
	Full ASCII ---,	2C
	Full ASCII ----	2D

	Full ASCII ---.	2E
	Full ASCII ---/	2F
	Full ASCII ---0	30
	Full ASCII ---1	31
	Full ASCII ---2	32
	Full ASCII ---3	33
	Full ASCII ---4	34
	Full ASCII ---5	35
	Full ASCII ---6	36
	Full ASCII ---7	37
	Full ASCII ---8	38
	Full ASCII ---9	39

	Full ASCII ---:	3A
	Full ASCII ---;	3B
	Full ASCII ---<	3C
	Full ASCII ---=	3D
	Full ASCII --->	3E
	Full ASCII ---?	3F
	Full ASCII ---@	40
	Full ASCII ---A	41
	Full ASCII ---B	42
	Full ASCII ---C	43
	Full ASCII ---D	44
	Full ASCII ---E	45

	Full ASCII ---F	46
	Full ASCII ---G	47
	Full ASCII ---H	48
	Full ASCII ---I	49
	Full ASCII ---J	4A
	Full ASCII ---K	4B
	Full ASCII ---L	4C
	Full ASCII ---M	4D
	Full ASCII ---N	4E
	Full ASCII ---O	4F
	Full ASCII ---P	50
	Full ASCII ---Q	51

	Full ASCII ---R	52
	Full ASCII ---S	53
	Full ASCII ---T	54
	Full ASCII ---U	55
	Full ASCII ---V	56
	Full ASCII ---W	57
	Full ASCII ---X	58
	Full ASCII ---Y	59
	Full ASCII ---Z	5A
	Full ASCII ---[	5B
	Full ASCII ---\	5C
	Full ASCII ---]	5D

	Full ASCII ---^	5E
	Full ASCII ---_	5F
	Full ASCII ---`	60
	Full ASCII ---a	61
	Full ASCII ---b	62
	Full ASCII ---c	63
	Full ASCII ---d	64
	Full ASCII ---e	65
	Full ASCII ---f	66
	Full ASCII ---g	67
	Full ASCII ---h	68
	Full ASCII ---i	69

	Full ASCII ---j	6A
	Full ASCII ---k	6B
	Full ASCII ---l	6C
	Full ASCII ---m	6D
	Full ASCII ---n	6E
	Full ASCII ---o	6F
	Full ASCII ---p	70
	Full ASCII ---q	71
	Full ASCII ---r	72
	Full ASCII ---s	73
	Full ASCII ---t	74
	Full ASCII ---u	75

	Full ASCII ---v	76
	Full ASCII ---w	77
	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