



Programming

User's Manual

Ver1.4.5

www.virtuos.cz

Start Configuration((+SETF))



Chap.1 System Information



Set All default((+RETF))



S/W Version((+SFUR))

Chap.2 System Installation

2.1 Interface Selection



Keyboard((+A1A))



RS-232((+A1B))



<USB_Keyboard>((+A1C))



USB_COM((+A1D))

2.2.1 Keyboard Language



<U.S.A>((+B2A))



Italian((+B2B))



Spanish((+B2C))



French((+B2D))



Germany((+B2G))



Japan((+B2F))



Portugal((+B2G))



Česko((+B2P))

End Configuration((+ENDF))



Start Configuration((+SETF))



2.2.1 Language



Swedish((+B2I))



Hungary((+B2H))



Denmark((+B2K))



Norwegian((+B2J))



Turkey((+B2M))



Netherland((+B2L))



Belgium((+B2O))



UK((+B2N))

2.2.2 Keyboard Wedge function

Function Key Emulation



<OFF>((+B3A))



ON((+B3B))

KB Emulation



<OFF>((+B4A))



ON((+B4B))

ALT Mode



<OFF>((+BCB))



ON((+BCA))

End Configuration((+ENDF))



Start Configuration((+SETF))



Caps Lock



<OFF>((+B5A))



ON((+B5B))

Num Lock



<OFF>((+B6A))



ON((+B6B))

2.2.3 Inter-character Delay (Default:00)



Appendix A (00H — 64H)((+B7A))

2.2.4 Message Terminator for keyboard &USB interface



None((+B9A))



<CR>((+B9B))



Tab((+B9C))



ESC((+B9D))

End Configuration((+ENDF))



**2.3.1 RS-232 Parameters****BAUD Rate**

2400((+C8B))



<9600>((+C8D))



4800((+C8C))



38400((+C8F))



19200((+C8E))

Data bits

7 ((+C7B))



<8>((+C7A))

Stop Bit

<1>((+C6A))



2((+C6B))

Parity

<None>((+C5A))



Odd((+C5B))



Even((+C5C))



Start Configuration((+SETF))



2.3.2 Message Terminator for RS232 interface



None((+C9A))



<CR+LF>((+C9B))



CR((+C9C))



LF((+C9D))



TAB((+C9E))



STX/ETX((+C9F))



EOT((+C9G))

RS-232 Function Installation

Inter-character Delay (Default: 00)



Appendix A (00H-64H)((+C2A))

Delay time=set up data*100(ms)

Handshaking Protocol Delay (Default: 00)



Appendix A (00H-0AH)((+C4A))

Handshaking Protocol



<None>((+C1A))



RTS/CTS((+C1B))



ACK/NAK((+C1C))



Xon/Xoff((+C1D))

End Configuration((+ENDF))



**2.4 Scan Mode**

Time out set up

1. Scan the barcode of "Continuous/Timeout OFF"
2. Scan 2 digits of the ASCII code of the Appendix A
3. Scan the "End" of the Appendix A
4. Scan the End Configuration to end the procedure
5. The settings unit is a second. Ex:0*39 stands for 1 minute

Trigger On/Off
((+E1A))<Trigger On/Good read off>
((+E1B))Continuous/Trigger Off
((+E1C))Testing
((+E1D))Continuous/LED always On
((+E1E))Continuous/Timeout Off
((+E1F))Flash On (**CCD only**)
((+E1G))Continuous/No Trigger
((+E1H))Auto Scan
((+E1J))

Start Configuration((+SETF))



Blinking mode(Option)



<OFF>((+EFA))



10 sec((+EFC))



5 sec((+EFB))



20 sec((+EFE))



15 sec((+EFD))



30 sec((+EFF))



60 sec((+EFG))



Always ON((+EFH))

End Configuration((+ENDF))





2.5 Buzzer Set-up

You can pitch the buzzer tone and adjust the buzzer time. Besides, you can set the voice of boot and decoding..

Frequency (Default: 09H)



Appendix A(00-10H)((+E2A))

Adjust Buzzer Tone (Default: 04H)



Appendix A(00-10H)((+E3A))

Power On Tone



<ON>((+EBA))



OFF((+EBB))

Good read Beep



<ON>((+ECA))



OFF((+ECB))

2.6 Character Installation

The preamble and postamble character: You can put 10 ASCII at most in front of the barcode data. When the installation is "0" that means you don't need to add the first and last character. Please find the format as below:

Preamble Character	Barcode	Postamble Character
--------------------	---------	---------------------

The process for adding the first and last character to the barcode:

1. Scan the barcode of "Start Configuration" and "The Preamble Character Installation".
2. Check the ASCII table to get the ASCII code of the first and last character.
3. Scan the barcode of ASCII in the Appendix.
4. Scan the "End Configuration".

G1/G2 character Insertion: You can put 10 ASCII at most in

End Configuration((+ENDF))





front of the barcode data. When the installation is "0" that means you don't need to add the first and last character.

1. Scan the barcode of the "Start Configuration" and "G1 Insert Character".
2. Check the ASCII table to get the ASCII code of the first and last character.
3. Scan the barcode of ASCII in the Appendix.
4. Scan the "End Configuration".
5. Repeat the same process to the G2 insertion.
6. Scan the "End Configuration".

The position of G1/G2 character insertion: To select a character insert to the barcode. You can't insert any character while the installation is "0"

1. Scan the barcode of the "Start Configuration" and "G1 character insertion position"
2. Check the ASCII table to get the corresponding ASCII code of the insertion position.
3. Scan the "End Configuration".
4. Repeat the same process to the G2 character insertion position.
5. Scan the "End Configuration".

Code Transmission: If your application needs to transmit the code (barcode type ID), you have to set "ON" for this feature and the format is ID + Barcode data.

The Preamble Installation (Default:00)



Appendix A((+E4A))

The Postamble Installation (Default:00)



Appendix A((+E5A))

G1 Character Insertion (Default:00)



Appendix A((+E6A))

G2 Character Insertion (Default:00)



Appendix A((+E7A))



Start Configuration((+SETF))



G1 Character Insertion Position(Default:00)



Appendix A((+E8A))

G2 Character Insertion Position(Default:00)



Appendix A((+E9A))

Code ID Transmission



ON((+EAA))



<OFF>((+EAB))

2.7 Other Installation

Scanning Precision: You can set to scan once or twice and then transfer the bar code data. The twice will reduce the error reading.

Bar Reverse Output Installation: This feature can read the highlight barcode.

Scanning Verify



<Single>((+EDA))



Multi-verify(Max:2)
((+EDB))

End Configuration((+ENDF))





Chap.3 BAR-CODE INSTALLATION**3.1 UPC-A****Reading**

OFF((+F1A))

**Code ID (Default:F)**

<20H-7EH>((+F2A))

<ON>((+F1B))

UPC-A convert to EAN-13

<OFF>((+F3A))

**Transmit Check Character**

OFF((+F4A))

**Truncate Leading Zero**

<OFF>((+F5A))



ON((+F5B))

Truncate Leading Digit(Default:00)

<00H-0DH>((+F6A))

Truncate Last Digit(Default:00)

<00H-0DH>((+F7A))

Select Insertion(Default:00)

<00H-02H>((+F9A))



Start Configuration((+SETF))



3.1 UPC-A

Add-On 2/5



<None>((+F8A))



2 digit((+F8B))



5 digit((+F8C))



2 or 5 digit((+F8D))



AUTO_Enable
((+F8E))

End Configuration((+ENDF))



Start Configuration((+SETF))



3.2 UPC-E

Reading



OFF((+G1A))



<ON>((+G1B))

Code ID (Default:G)



<20H-7EH>((+G2A))

UPC-E Convert to UPC-A



<OFF>((+G3A))



ON((+G3B))

Transmit Check Character



OFF((+G4A))



<ON>((+G4B))

Truncate Leading Zero



<OFF>((+G7A))



ON((+G7B))

Truncate Leading Digit(Default:00)



<00H-08H>((+G5A))

Truncate Last Digit(Default:00)



<00H-08H>((+G6A))

Select Insertion(Default:00)



<00H-02H>((+G9A))

End Configuration((+ENDF))





3.2 UPC-E

Add-On 2/5



<None>((+G8A))



2digit((+G8B))



5digit((+G8C))



2 or 5 digit((+G8D))



AUTO_Enable
((+G8E))



Start Configuration((+SETF))



3.3 EAN-13

Reading



OFF((+H1A))



<ON>((+H1B))

Code ID (Default: H)



<20H-7EH>((+H2A))

Transmit Check Character



OFF((+H3A))



<ON>((+H3B))

Truncate Leading Digit (Default:00)



<00H-0DH>((+H4A))

Truncate Last Digit (Default:00)



<00H-0DH>((+H5A))

Select Insertion (Default:00)



<00H-02H>((+H8A))

End Configuration((+ENDF))



Start Configuration((+SETF))



3.3 EAN-13

Add-On 2/5



<None>((+H6A))



2 Digit((+H6B))



5 Digit((+H6C))



2 or 5 Digit((+H6D))



AUTO_Enable
((+H6E))

ISBN/ISSN Convert



<OFF>((+H7A))



ON((+H7B))

End Configuration((+ENDF))



Start Configuration((+SETF))



3.4 EAN-8

Reading



OFF((+I1A))



Code ID (Default: 1)



<20H-7EH>((+I2A))

<ON>((+I1B))

Transmit Check Character



OFF((+I3A))



<ON>((+I3B))

Truncate Leading Digit (Default:00)



<00H-08H>((+I4A))

Truncate Last Digit (Default:00)



<00H-08H>((+I5A))

Select Insertion (Default:00)



<00H-02H>((+I7A))

End Configuration((+ENDF))



Start Configuration((+SETF))



Add-On 2/5



<None>((+I6A))



2 digit((+I6B))



5 digit((+I6C))



2 or 5 digit((+I6D))



AUTO_Enable
((+I6E))

End Configuration((+ENDF))





3.5 Code 39

Reading



OFF((+J1A))



<ON>((+J1B))

Code ID (Default: J)



(20H-7EH)((+J2A))

Verification



<OFF>((+J3A))



ON((+J3B))

Transmit Check Character



OFF((+J4A))



<ON>((+J4B))

Min. Length (Default:01)



<01H-50H>((+J6A))

Max. Length

(Default:50H)



<01H-50H>((+J7A))



Start Configuration((+SETF))



3.5 Code 39

Format



<Standard Code39> ((+J9A))



Full ASCII Code39
((+J9B))



Trioptic CODE39
((+J9C))

Transfer Start / End Character



<OFF>((+JDA))



ON((+JDB))

Code 39 Concatenation



<OFF>((+JFA))



ON((+JFB))

Truncate Leading Digit(Default:00)



<00H-32H>((+JAA))

Truncate Last Digit(Default:00)



<00H-32H>((+JBA))

Select Insertion(Default:00)



<00H-02H>((+JCA))

End Configuration((+ENDF))





3.6 Codabar

Reading



OFF((+K2A))



<ON>((+K1B))

Code ID (Default: K)



<20H-7EH>((+K2A))

Verification



<OFF>((+K3A))



ON((+K3B))

Transmit Check Character



<OFF>((+K4A))



ON((+K4B))

Truncate Leading Digit(Default:00)



<00H-7EH>((+K6A))

Truncate Last Digit(Default:00)



<00H-7EH>((+K7A))

Select Insertion (Default:00)



<00H-02H>((+KCA))



Start Configuration((+SETF))



3.6 Codabar

Start / End Character Type



<ABCD/ABCD>((+K8A))



abcd/abcd((+K8B))



abcd/tn*e((+K8C))

Transmit Start / End Character



OFF((+K9A))



<ON>((+K9B))

Min. Length (Default:06)



<01H-50H>((+KAA))

Max. Length (Default:50H)



<01H-50H>((+KBA))

End Configuration((+ENDF))



Start Configuration((+SETF))



3.7 Code93

Reading



OFF((+L1A))



Code ID (Default: L)

<ON>((+L1B))



<20H-7EH>((+L2A))

Verification



OFF((+L3A))



<ON>((+L3B))

Transmit Check Character



<OFF>((+L4A))



ON((+L4B))

Select Insertion (Default:00)



<00H-02H>((+L9A))

Truncate Leading Digit (Default:00)



<00H-7EH>((+L7A))

Truncate Last Digit (Default:00)



<00H-7EH>((+L8A))

Min. Length(Default:03)



<01H-50H>((+L5A))

Max. Length(Default:50H)



<01H-50H>((+L6A))

End Configuration((+ENDF))





3.8 Code 128

Reading



OFF((+M1A))



Code ID (Default: M)

<ON>((+M1B))



<20H-7EH>((+M2A))

Verification



OFF((+M3A))



Transmit Check Character

<ON>((+M3B))



<OFF>((+M4A))



ON((+M4B))

Truncate Leading Digit(Default:00)



<00H-7FH>((+M8A))

Truncate Last Digit(Default:00)



<00H-7FH>((+M9A))

Select Insertion(Default:00)



<00H-02H>((+MCA))

Min. Length(Default:03)



<01H-50H>((+MAA))

Max. Length(Default:50H)



<01H-50H>((+MBA))





UCC/EAN128

<OFF>((+M6A))



ON((+M6B))

FNC1 Transmit

OFF((+M7A))



<ON>((+M7B))

FNC2 Concatenation

<OFF>((+M5A))



ON((+M5B))

Application ID transmit

01 & Terminator ((+MDD))



OFF& Terminator ((+MDC))



01 Transmit((+MDA))



(01) Transmit ((+MDB))

Application ID Terminator

<00H-7EH>((+MEA))

IATA Code

<OFF>((+V1A))



ON((+V1B))

End Configuration((+ENDF))



Start Configuration((+SETF))



3.9 Interleaved 2 of 5

Reading



OFF((+N1A))



Code ID (Default: N)



<20H-7EH>((+N2A))

<ON>((+N1B))

Verification



<OFF>((+N3A))



Transmit Check Character



OFF((+N4A))

ON((+N3B))



<ON>((+N4B))

Truncate Leading Digit(Default:00)



<00H-7EH>((+N5A))

Truncate Last Digit(Default:00)



<00H-7EH>((+N6A))

Select Insertion(Default:00)



<00H-02H>((+N9A))

Min. Length(Default:06)



<01H-50H>((+N7A))

Max. Length(Default:50H)



<01H-50H>((+N8A))

End Configuration((+ENDF))



Start Configuration((+SETF))



3.10 Industrial 2 of 5

Reading



<OFF>((+O1A))



ON((+O1B))

Code ID (Default: 0)



<00H-7EH>((+O2A))

Verification



<OFF>((+O7A))



ON((+O7B))

Transmit Check Character



<OFF>((+O8A))



ON((+O8B))

Truncate Leading Digit(Default:00)



<00H-32H>((+O5A))

Truncate Last Digit(Default:00)



<00H-32H>((+O6A))

Select Insertion (Default:00)



<00H-02H>((+O9A))

Min. Length (Default:06)



<01H-50H>((+O3A))

Max. Length(Default:50H)



<01H-50H>((+O4A))

End Configuration((+ENDF))



**3.11 Matrix 2 of 5****Reading**

<OFF>((+P1A))



ON((+P1B))

Code ID (Default: P)

<20H-7EH>((+P2A))

Verification

<OFF>((+P3A))



ON((+P3B))

Transmit Check Character

<OFF>((+P4A))



ON ((+P4B))

Truncate Leading Digit(Default:00)

<00H-50H>((+P5A))

Truncate Last Digit(Default:00)

<00H-50H>((+P6A))

Select Insertion(Default:00)

<00H-02H>((+P9A))

Min. Length(Default:06)

<01H-50H>((+P7A))

Max. Length(Default:50H)

<01H-50H>((+P8A))



**3.12 China Post Code****Reading**

<OFF>((+Q1A))



ON((+Q1B))

Code ID (Default: Q)

<20H-7EH>((+Q2A))

Verification

<OFF>((+Q3A))



ON((+Q3B))

Transmit Check Character

<OFF>((+Q4A))



ON((+Q4B))

Truncate Leading Digit(Default:00)

<00H-50H>((+Q5A))

Truncate Last Digit(Default:00)

<00H-50H>((+Q6A))

Select Insertion(Default:00)

<(00H-02H)>((+Q9A))

Min. Length(Default:06)

<01H-50H>((+Q7A))

Max. Length(Default:50H)

<01H-50H>((+Q8A))



**3.13 MSI / Plessey****Reading**

<OFF>((+R1A))



ON((+R1B))

Code ID (Default: R)

<20H-7EH>((+R2A))

Verification

<OFF>((+R3A))



MOD 11/10((+R3D))



MOD 10((+R3B))



MOD 10/10((+R3C))

Transmit Check Character

OFF((+R4A))



<ON>((+R4B))

Truncate Leading Digit (Default:00)

<00H-3CH>((+R5A))

Truncate Last Digit (Default:00)

<00H-3CH>((+R6A))

Select Insertion (Default:00)

<00H-02H>((+R9A))



Start Configuration((+SETF))



3.13 MSI / Plessey

Min. Length (Default:06)



<01H-50H>((+R7A))

Max. Length (Default:50H)



<01H-50H>((+R8A))

End Configuration((+ENDF))



Start Configuration((+SETF))



3.14 CODE32

Reading



<OFF>((+S1A))



ON((+S1B))

Code ID (Default: S)



<20H-7FH>((+S2A))

Verification



<OFF>((+S3A))



ON((+S3B))

Transmit Check Character



<OFF>((+S4A))



ON((+S4B))

Truncate Leading Digit(Default:00)



<00H-0AH>((+S5A))

Truncate Last Digit(Default:00)



<00H-0AH>((+S6A))

Select Insertion (Default:00)



<00-02H>((+S7A))

Transmit "A"



<OFF>((+S8A))



ON((+S8B))

End Configuration((+ENDF))



**3.15 Code 11****Reading**

<OFF>((+T1A))



ON((+T1B))

Code ID (Default: T)

<20H-7EH>((+T2A))

Verification

<OFF>((+T3A))



ON((+T3B))

Transmit Check Character

<OFF>((+T4A))



ON ((+T4B))

Truncate Leading Digit (Default:00)

<00H-50H>((+T5A))

Truncate Last Digit (Default:00)

<00H-50H>((+T6A))

Select Insertion(Default:00)

<00H-02H>((+T9A))

Min. Length (Default:06)

<01H-50H>((+T7A))

Max. Length (Default:50H)

<01H-50H>((+T8A))



Start Configuration((+SETF))



3.16 GS1 Code

GS1-14

Reading



OFF ((+U1B))



<ON> ((+U1A))

Code ID (Default: U)



<20H-7EH>((+UUA))

Application ID transmit



OFF ((+UAA))



01 ((+UAB))



(01) ((+UAC))

Symbol ID transmit



OFF((+UDA))



ON ((+UDB))

Transmit Check Character



OFF((+UGA))



<ON> ((+UGB))

GS1-14 To UPC/EAN



<OFF> ((+U4B))



ON ((+U4A))

End Configuration((+ENDF))



Start Configuration((+SETF))



GS1- Limited

Reading



<OFF> ((+U2B))



<ON >((+U2A))

Code ID (Default: V)



<20H-7EH>((+UVA))

Application ID transmit



OFF((+UBA))



01 ((+UBB))



(01) ((+UBC))

Symbol ID transmit



OFF((+UEA))



ON ((+UEB))

Transmit Check Character



OFF((+UHA))



<ON >((+UHB))

End Configuration((+ENDF))



Start Configuration((+SETF))



GS1- Expanded

Reading



OFF ((+U3B))



<ON> ((+U3A))

Code ID (Default: W)



<20H-7EH> ((+UWA))

Application ID transmit



01 & Terminator ((+MDD))



OFF& Terminator ((+MDC))



(01) ((+MDB))



01 ((+MDA))

FNC1 Transmit



OFF((+M7A))



<ON> ((+M7B))

Application ID Terminator(Default:00)



<01H-7EH> ((+MEA))

Symbol ID transmit



<OFF> ((+UFA))



ON ((+UFB))

End Configuration((+ENDF))





APPENDIX A -- ASCII

CODE



0



1



2



3



4



5



6



7



8



9



A



B



C



D



E



F



Y



N





ASCII Table

	0	1	2	3	4	5	6	7
0	NUL	DLE	SP	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	“	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	\$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	‘	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	¥	l	
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL





APPENDIX B -- Function Key Table

	0	1
0	NULL	CTRL
1	UP	F1
2	DOWN	F2
3	LEFT	F3
4	RIGHT	F4
5	PAGE UP	F5
6	PAGE DOWN	F6
7		F7
8	BS	F8
9	TAB	F9
A		F10
B	HOME	ESC
C	END	F11
D	ENTER	F12
E	INSERT	ALT
F	DELETE	SHIFT



Start Configuration((+SETF))



Function Key Code

Before scanning, please turn on the Full CODE 39.



UP(\$A)



F10(\$Z)



F1(\$Q)



F5(\$U)



HOME(\$K)



CTRL-L(\$G)



DOWN(\$B)



PAGE
DOWN(\$F)



ESC(%A)



ALT-L(\$J)



F2(\$R)



F6(\$V)



END(\$L)



SHIFT-L(\$P)



LEFT(\$C)



F11(%B)



F3(\$S)



F7(\$W)



F12(%C)



RIGHT(\$D)



BS(\$H)



INSERT(\$N)



F4(\$T)



F8(\$X)



DELETE(\$O)



PAGE
UP(\$E)



TAB(\$I)



ENTER(\$M)



F9(\$Y)

End Configuration((+ENDF))



Start Configuration((+SETF))



End Configuration((+ENDF))

