

# Programming Manual

MS-120 Series

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#### **Setup Procedures**

- 1) Locate a group that contains the parameters to be changed.
- 2) Scan the “Enter Group” label. The Reader will sound 3 beeps to indicate that setup is in progress.
- 3) Scan the label representing the parameter to be changed.
- 4) Scan the labels representing the parameter values.
- 5) Repeat the above two steps, if necessary, to change the parameters in the same group.
- 6) Scan the “Exit” label to end the group currently selected. The Reader will sound 2 beeps.

7) Repeat the procedure for other groups, if needed, which include the parameters to be changed.

### **Batch Setup**

Having configured a scanner, you may duplicate the settings of the scanner (master) to the others. You can do this by producing a set of custom setup labels derived from the master scanner and scanning these labels by other scanners.

The following label is called “dump settings” label. Scan that label, the settings of a scanner will dump to the screen as one or several ASCII string(s). Printing the string(s) into bar code labels in Code 39, you get the batch setup labels to duplicate other scanner.



Dump Settings

Bar Code Setup Menu

**1 Device Selection and Default**



Enter Group 1



Group Default



0



1



2



3



4



5



6



7



8



9



Factory Default



Exit

<b>Keyboard Wedge Reader</b>	
Device ID	Device Type
00	IBM PC/XT
<b>01</b>	<b><u>IBM PC/AT, PS/2 mod 40, 60, 80 etc.</u></b>
02	IBM PS/2 MOD 25, 56, 70, 90
06	Keyboardless Wedge
03	Macintosh ADB bus
<b>RS-232 Reader</b>	
Device ID	Device Type
04	RS232 Serial Decoder

## 2 Beep and Delay



Enter Group 2



Group Default



0



1



2



3



4



5



6



7



8




9





Review




Exit

Beep Tone (On Decoding):		 A1	
0	None	3	High
1	Low	4	Low to High
<b>2</b>	<b>Medium</b>	5	High to Low

Beep Tone (On ACK):		 A2	
0	None	3	High
1	Low	4	Low to High
<b>2</b>	<b>Medium</b>	5	High to Low

Inter-Character Delay:		 A3	
<b>0</b>	<b>1 ms</b>	3	20 ms
1	5 ms	4	50 ms
2	10 ms	5	100 ms

Inter-Block Delay:		 A4	
<b>0</b>	<b>10 ms</b>	3	500 ms
1	50 ms	4	1 second
2	100 ms	5	5 seconds



### 3 Keyboard Wedge



Enter Group 3



Group Default



0



1



2



3



4



5



6



7



8




9





Review



Exit

Function Code:		 B1	
0	Off	<u>1</u>	<u>On</u>

Upper/Lower Case:		 B2	
<u>0</u>	<u>Lower Case</u>	1	Upper Case

Function Code:		 B3	
<u>0</u>	<u>US</u>		
1	UK		
2	Swiss		
3	Swedish		
4	Spanish		
5	Norwegian		
6	Italian		
7	German		
8	French		
9	Alt Key Mode		

## 4 RS232 Serial Setting



Enter Group 4



Group Default



0



1



2



3



4



5



6



7



8










9



Review



Exit

Baud Rate:						 C1		
0	300	1	600	2	1200	3	2400	
4	4800	<b>5</b>	<b>9600</b>	6	19200			
Parity:						 C2		
0	Even	1	Odd	2	Mark			
3	Space	4	<b>None</b>					
Data Bit:						 C3		
0	7	1	<b>8</b>					
CTS/RTS:						 C4		
<b>0</b>	<b>Ignore</b>	1	RTS enable in transmission					
2	RTS enable at Power ON							
ACK/NAK:						 C5		
<b>0</b>	<b>Off</b>	1	On					
Check Character: (CC)						 C6		
<b>0</b>	<b>Off</b>	1	On					
Time Out:						 C7		
0	1 second	2	10 seconds					
<b>1</b>	<b>3 seconds</b>	3	No limit					

Format:

Preamble	Code ID	Length	Data
Terminator	Postamble	CC	

## 5 Scanner



Enter Group 5



Group Default



0



1



2



3



4



5



6



7



8




9




Review



Exit

<b>Double verification:</b>		 D1	
<u>0</u>	<u>Off</u>	1	On

<b>Label Type:</b>		 D4	
<u>0</u>	<u>Positive</u>	1	Positive and Negative

## 6 Data Format



Enter Group 6



Group Default



Review



Exit



0



1



2



3



4



5



6



7



8









9

Default Code ID Table

Sym- bology	Set1	Set2
UPC-A	A	A
UPC-E	E	C
EAN-13	F	A
EAN-8	FF	B
I 2 OF 5	I	I
S 2 OF 5	H	H
Code 39	M	Y
Codabar	N	N
Code93	L	L
Code 128	K	K
MSI	O	M
Code 11	J	J

If the "User Defined" option is selected, the default ID is Set1.

Preamble	Code ID	Length	Data
Terminator		Postamble	BCC

<b>Terminator:</b>		 E1	
<u>0</u>	<b>Enter (CR/LF)</b>	2	Return(LF)
1	Field Exit(CR)	3	None
<b>Code ID:</b>		 E2	
<u>0</u>	<b>None</b>	2	Default Set I
1	User Defined	3	Default Set II
<b>Define Code ID:</b>		 E3	
00	Code 39 Full ASCII	07	Codabar
01	Code 39 Standard	08	Code128
02	EAN-13	09	Code 93
03	UPC-A	10	S 2 of 5
04	EAN-8	11	MSI
05	UPC-E	12	Code 11
06	I 2 of 5	13	
<b>Data Length:</b>		 E4	
<u>0</u>	<b>Exclude</b>	1	Include
 PP		 OO	
<b>Preamble:</b> Scan "PP" to program preamble. Scan characters from Full ASCII table to define preamble. Maximum 16 characters. Scan "PP" to end.		<b>Postamble:</b> Scan "OO" to program preamble. Scan characters from Full ASCII table to define preamble. Maximum 16 characters. Scan "OO" to end.	



**7 Symbolologies(I): Code 39/I2 of 5/  
S2 of 5/Delta Distance Code/Code 32**



Enter Group 7



Group Default



0



1



2



3



4



5



6



7



8



9



MM Minimum Length




NN Maximum Length







Review



Exit

<b>Code 32:</b>		
		<b>F5</b>
0/1	<b>Disable/Enable</b>	
2/3	<b>Leading Character Send / No Send</b>	
4/5	<b>Trailing Character Send /No Send</b>	

<b>Code 39:</b>		 F1
0/1	Disable/ <b>Enable</b>	2/3 <b>Full ASCII</b> /Standard
4	Check Digit Calculate and Send	
5	Check Digit Calculate but Not Send	
6	<b>Check Digit Not Calculate</b>	
7/8	Send/ <b>Not Send Start &amp; Stop</b>	
0~48	Min <b>0</b> / Max <b>48</b>	
<b>Interleaved 2 of 5:</b>		 F2
0/1	Disable/ <b>Enable</b>	
2/3	<b>Fix Length On</b> /Off (by first three reads)	
4	Check Digit Calculate and Send	
5	Check Digit Calculate but Not Send	
6	<b>Check Digit Not Calculate</b>	
7	First Digit Suppressed.	
8	Last Digit Not Suppressed.	
9	<b>Not Suppressed.</b>	
4~64	Min <b>10</b> / Max <b>64</b>	
<b>Standard 2 of 5 / Toshiba:</b>		 F3
0/1	Disable/ <b>Enable</b>	
2/3	<b>Fix Length On</b> /Off	
4	Check Digit Calculate and Send	
5	Check Digit Calculate but Not Send	
6	<b>Check Digit Not Calculate</b>	
4~48	Min <b>8</b> / Max <b>48</b>	
<b>Delta Distance Code:</b>		 F4
0/1	Disable/ <b>Enable</b>	
2/3	Check Digit <b>Not Send</b> / Send	
4/5	Check Digit Calculate/ <b>Not Calculate</b>	

**8 Symbolologies(II): Code128 / MSI / Code93 / Codabar /Label Code**



Enter Group 8



Group Default



0



1



2



3



4



5



6



7



8



9



MM Minimum Length



NN Maximum Length





Review





Exit

<b>Code 128 / Label</b>			
<b>Code:</b>		G1	
0/1	Disable/Enable	1~64	Min 1 / Max 64

MSI / Plessey Code:		 G2	
<u>0/1</u>	<b>Disable/Enable</b>	<u>2/3</u>	CD Send / <b>No Send</b>
<b>4</b>	<b>CD Double Module 10</b>		
5	CD Double Module 11 Plus 10		
6	CD Module 10 or 11		
1-16	Min <b>1</b> / Max <b>16</b>		

<b>Code 93:</b>		 G3	
<u>0/1</u>	Disable/ <b>Enable</b>	1~48	Min <b>1</b> / Max <b>48</b>

Code 11:		 G4	
<u>0/1</u>	<b>Disable/Enable</b>	<u>2/3</u>	One/Two CD
<u>4/5</u>	CD Send / <b>No Send</b>		
1-48	Min <b>1</b> / Max <b>48</b>		

Codabar:		 G5	
<u>0/1</u>	Disable/ <b>Enable</b>	<u>2/3</u>	S & S Send / <b>No Send</b>
4	CD Check & Send		
5	CD Check but not Send		
<b>6</b>	<b>CD not Check</b>		
<u>7/8</u>	CLSI Format On / <b>Off</b>		
3-48	Min <b>3</b> / Max <b>48</b>		

### 9 Symbologies(III): UPC/EAN



Enter Group 9



Group Default



0



1



2



3



4



5



6



7



8







9




Review



Exit

UPC-A:		 H1
0/1	Disable/Enable	
2/3	First Digit <b>Send</b> / No Send	
4/5	CD <b>Send</b> / No Send	
UPC-E:		 H2
0/1	Disable/Enable	
2/3	First Digit <b>Send</b> / No Send	
4/5	CD <b>Send</b> / No Send	
6/7	Zero Expansion On / <b>Off</b>	
EAN-13:		 H3
0/1	Disable/Enable	
2/3	First Digit <b>Send</b> / No Send	
4/5	CD <b>Send</b> / No Send	
6/7	ISBN Enable / <b>Disable</b>	
EAN-8:		 H4
0/1	Disable/Enable	
2/3	First Digit <b>Send</b> / No Send	
4/5	CD <b>Send</b> / No Send	

Supplement Code:		 H5
0/1	2 Add-on Code <b>Off</b> / On	
2/3	5 Add-on Code <b>Off</b> / On	
4	Transmitted if Present	
5	<b>Must Present.</b>	
6/7	Space Added / <b>Not Added</b>	

## Function Code for PC



F1 (%VA)



F3 (%VC)



F5 (%VE)



F7 (%VG)



F9 (%VI)



F11 (%VK)



Cursor Right (/FC)



Cursor Up (/FE)



PgUp (/FG)



TAB (/FI)



ESC (/FK)



Right Ctrl (/FO)



F2 (%VB)



F4 (%VD)



F6 (%VF)



F8 (%VH)



F10 (%VJ)



F12 (%VL)



Cursor Left (/FD)



Cursor Down (/FF)



PgDn (/FH)



Back Tab (/FJ)



Enter (/FL)



Right Enter(/FM)



Del (FX)



Ins (FW)



## Function Code for MAC



F1 (%VA)



F3 (%VC)



F5 (%VE)



F7 (%VG)



F9 (%VI)



F11 (%VK)



F13 (%VM)



F15 (%VO)



Cursor Right (/FC)



Cursor Up (/FE)



page up (/FG)



Ttab (/F1)



F2 (%VB)



F4 (%VD)



F6 (%VF)



F8 (%VH)



F10 (%VJ)



F12 (%VL)



F14 (%VN)



Cursor Left (/FD)



Cursor Down (/FF)



Page down (/FH)



ins (/FJ)



Enter (/FL)



Esc (/FK)



return (/FM)



Option Make (%VP)



Option Break (%VQ)



Control Make (%VR)



Control Break (%VS)



Shift Make (%VT)



Shift Break (%VU)



Apple Make (%VV)



Apple Break (%VW)

## Function Code for IBM Terminal



F1 (%VA)



F3 (%VC)



F5 (%VE)



F7 (%VG)



F9 (%VI)



F11 (%VK)



F13 (%VM)



F15 (%VO)



F17 (%VQ)



F19 (%VS)



F21 (%VU)



F23 (%VW)



F2 (%VB)



F4 (%VD)



F6 (%VF)



F8 (%VH)



F10 (%VJ)



F12 (%VL)



F14 (%VN)



F16 (%VP)



F18 (%VR)



F20 (%VT)



F22 (%VV)



F24 (%VX)



Home (/FA)



End (/FB)



TAB (/FI)



Enter (/FL)



Return (/FM)



Field Exit (/FO)



Field + (/FP)



Field - (/FQ)



RESET (/FV)

## Full ASCII Table



NUL (%U)



STX (\$B)



EOT (\$D)



ACK (\$F)



BS (\$H)



LF (\$J)



FF (\$L)



SO (\$N)



DLE (\$P)



DC2 (\$R)



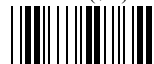
DC4 (\$T)



SYN (\$V)



SOH (\$A)



ETX (\$C)



ENQ (\$E)



BEL (\$G)



HT (\$I)



VT (\$K)



CR (\$M)



SI (\$O)



DC1 (\$Q)



DC3 (\$S)



NAK (\$U)



ETB (\$W)



CAN (\$X)



SUB (\$Z)



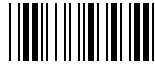
FS (%B)



RS (%D)



SP



" (/B)



\$



& (/F)



( (/H)



\* (/J)



, (/L)



.



EM (\$Y)



ESC (%A)



GS (%C)



US (%E)



! (/A)



# (/C)



%



' (/G)



) (/I)



























+

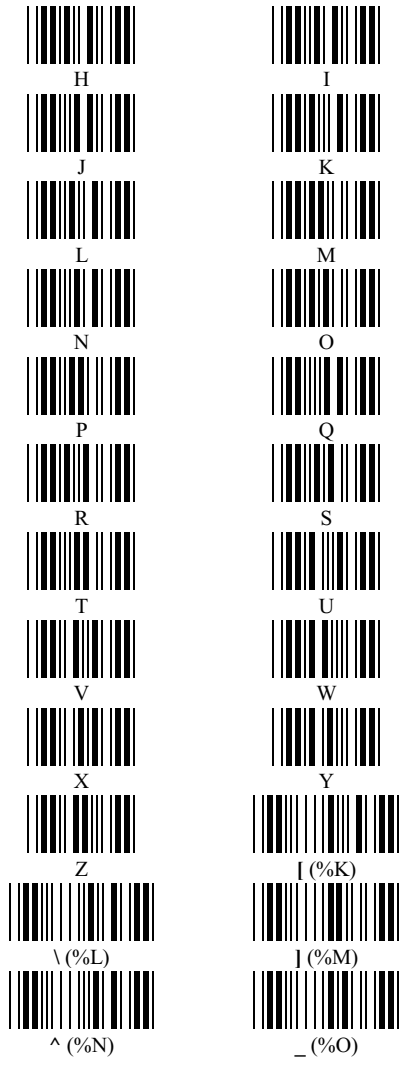


-



/

	
0	1
	
2	3
	
4	5
	
6	7
	
8	9
	
: (/Z)	; (%F)
	
< (%G)	= (%H)
	
> (%I)	? (%J)
	
@ (%V)	A
	
B	C
	
D	E
	
F	G







\ (%W)



b (+B)



d (+D)



f (+F)



h (+H)



j (+J)



l (+L)



n (+N)



p (+P)



r (+R)



t (+T)



v (+V)



a (+A)



c (+C)



e (+E)



g (+G)



i (+I)



k (+K)



m (+M)



o (+O)



q (+Q)



s (+S)



u (+U)



w (+W)



x (+X)



z (+Z)



| (%Q)



~ (%S)



y (+Y)



{ (%P)



} (%R)



DEL (%T)

**Test Chart**

**EAN-13**



**EAN-8**



**UPC-A**



**UPC-E**



ISBN 957-630-239-0



Code 39



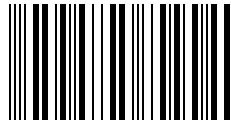
W+ E + D + G + E

Code 39 with C/D



UNI TECH- E

Interleaved 2 of 5



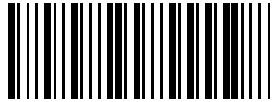
0987654321

Codabar



A22357000599876B

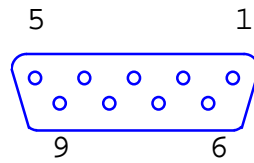
MSI



1234558

### RS232 Serial interface:

DB9 Connector:



**DB9 Female**

<b>PIN #</b>	<b>Function</b>	<b>Color</b>
<b>1</b>	<b>N/C</b>	
<b>2</b>	<b>TXD</b>	<b>Orange</b>
<b>3</b>	<b>RXD</b>	<b>Blue</b>
<b>4</b>	<b>N/C</b>	
<b>5</b>	<b>GND</b>	<b>Brown</b>
<b>6</b>	<b>N/C</b>	
<b>7</b>	<b>CTS</b>	<b>Violet</b>
<b>8</b>	<b>RTS</b>	<b>Green</b>
<b>9</b>	<b>+5 VCC</b>	<b>Red</b>

External Power Connector:

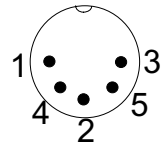


<b>PIN #</b>	<b>Function</b>	<b>Color</b>
<b>Center</b>	<b>+5 VCC</b>	<b>Red</b>
<b>Side</b>	<b>GND</b>	<b>Black</b>

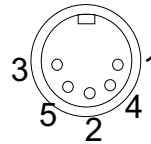
Notice: If the DB9 can supply the +5VCC, you do not need the external power.

# Keyboard Wedge for PC Interface:

DIN connector:



DIN5 Male



DIN5 Female

180° Din-5p Male		180° Din-5p Female	
Pin #	Signal	Pin #	Signal
1	Clock	1	Clock
2	Data	2	Data
3	Reset	3	Reset
4	GND	4	GND
5	VCC	5	VCC