



# **Decoder & Scanner**

## **Programming Manual**

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## **Getting Started**

### **Installing Keyboard Wedge Scanner**

To install a keyboard wedge scanner, follow the steps listed below:

- 1) Make sure that the scanner has the correct cable for the system (a PC or terminal)
- 2) Turn off the power of the system
- 3) Unplug the keyboard from the system
- 4) Connect the cable to the system and keyboard
- 5) Turn on the power of the system
- 6) If the indicator LED lights up and the buzzer sounds, the scanner is ready for reading

### **Installing an RS-232 Interface Scanner**

To install an RS-232 interface scanner, the host device should have an RS-232 port to receive data from the scanner, follow the steps listed below:

- 1) Make sure that the scanner has the right connector for the RS-232 port of the host device
- 2) Make sure that there is a power supply to the scanner (if necessary)
- 3) Connect the cable to the RS-232 port of the device
- 4) If the indicator LED lights up and the buzzer sounds, the scanner is ready for reading

### **Installing a USB Interface Scanner**

To install a USB interface scanner, the host device should have a USB port to receive data from the scanner, follow the steps listed below:

- 1) Make sure that the scanner has the right connector for the USB port of the host device
- 2) Connect the cable to the USB port of the device
- 3) If the indicator LED lights up and the buzzer sounds, the scanner is ready for reading

## Setup Procedures

- 1) Locate a group that contains the parameters to be changed.
- 2) Scan the "Enter Group #" label. The scanner will sound beeps indicate that setup is in progress
- 3) Scan the label representing the parameter to be changed
- 4) Scan the "Exit" to end the group currently selected, the scanner will sound beeps
- 5) Repeat the procedure for other groups including the parameters to be changed

### Example 1:

Set the operating mode to "Continuous mode"

- 1) Scan "Enter Group 5"
- 2) Scan "Continuous/Trigger off"
- 3) Scan "Exit"

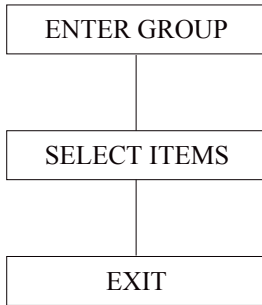
### Example 2

Assign Preamble string as "#", and postamble string as "END"

- 1) Scan "Enter Group 6"
- 2) Scan Preamble
- 3) Scan "#" from "Full ASCII Table and Table-Hex."
- 4) Scan "Confirm" Label in Table-Hex
- 5) Scan "Postamble"
- 6) Scan "E", "N", "D" from "Full ASCII Table and Table Hex" consecutively
- 7) Scan "Confirm" Label in Table-Hex.
- 8) Scan Exit

## Setup Flow Chart

---



Set All Defaults



Show Version

Note: (\*) denotes default setting. Options marked by ( ) are only available upon request.

## Group 0: Interface Selection



ENTER GROUP



EXIT



KEYBOARD



RS-232



(OCIA)



(DTMF)



Reserved 2



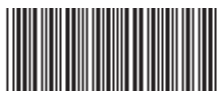
Resered 3



Reserved 4

Note: The interface is pre-set at factory according to the model of the device.

## Group 1: Device Selection for Keyboard Interface



ENTER GROUP



EXIT



PC/AT, PS/2 50,60,70,80(\*)



PC/XT



PS/2 25, 30



(NEC 9801)



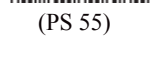
(IBM 5550)



(PS 55)



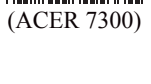
(NEC N5520)



(ACER 7300)



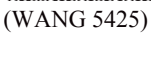
(KW105D/  
CT-700A/WANG 5120)



(WANG 5425)



(MAC\_SE)



(LC-6533)

Note: Options marked by ( ) are only available upon request.

## Group 1: Device Selection for Keyboard Interface



ENTER GROUP



EXIT



(IBM3196, 3197, 3476, 3477)



Reserved R



IBM3197



IBM3477



Reserved 6



Reserved 8



Reserved Q



Reserved T



IBM 3476



Reserved 5



Reserved 7



Reserved 9



## Group 2: Intercharacter Delay



ENTER GROUP



EXIT



Start Keyboard Setting

Scan Enter Group 2 Label -->  
Scan Start Keyboard (or RS-232/USB) Setting Label -->  
Scan two digits labels in Table-Hex -->  
Scan Exit Label



Start USB Setting



Start RS-232 Setting

Keyboard Default Value: 05  
RS-232 Default Value : 00  
USB Default Value: 05

### Group 3: Language for Keyboard Interface



ENTER GROUP



EXIT



U.S. (\*)



ENGLAND



FRANCE



GERMANY



ITALY



BELGIUM



SWEDEN/FINLAND



SPANISH



DENMARK



PORTUGAL

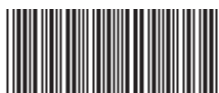


SWISS



NORWAY

### Group 3: Language for Keyboard Interface



ENTER GROUP



EXIT



CANADA



HOLLAND



POLAND



LATIN



JAPAN



Reserved 1



Reserved 2



Reserved 3



(IBM THINK-PAD FOR JAPAN)



(PANASONIC CF-II  
FOR JAPAN)

Note: Options marked by ( ) are only available upon request.

## Group 4: Terminator



ENTER GROUP



EXIT

## KEYBOARD

NONE



CR



(\*)

SPACE



TAB



ESC



CTRL-C



EXEC



## Group 4: Terminator



ENTER GROUP



EXIT

## RS-232



NONE



CR/LF



SPACE



ESC



STX..ETX



EOT



CR (\*)



LF



TAB



CTRL-C



XON..XOFF

## Group 5: Scan Mode



ENTER GROUP



EXIT



1: Trigger On/Off



2: Trigger On/  
Good Read Off (\*)



3: Trigger On/  
Good Read Off/  
Delay Timeout = ?



4: Continuous/  
Trigger Off



5: Continuous/  
LED Always on



6: Continuous/  
No Trigger



7: Continuous/  
Testing



8: Continuous/  
Trigger Off/  
Delay Timeout = ?

### Delay Timeout Setting:

Scan Enter Group 5 Label -->

Scan 3 or 8 Label -->

Scan two digit labels in Table-Hex

--> (Page 43) -->

Scan Confirm Label in Table-Hex (Page 43)

--> Scan Exit Label

Note: Scan mode setting is only available for CCD/LASER type scanner.

## Group 5: Scan Mode



ENTER GROUP



EXIT



FLASH OFF(\*)



FLASH ON

Note: This programming setting is only available under continuous mode.

## Group 6: Preamble and Postamble



ENTER GROUP



EXIT



Preamble



Postamble

### **Preamble & Postamble Setting:**

Scan Enter Group 6 Label -->

Scan Preamble or Postamble Label -->

Refer to ASCII Table (Page 44), scan two digits in Table-Hex (Page 43) representing one character, maximum 10 characters can be accepted-->

Scan Confirm Label in Table-Hex (Page 43)

Scan Exit Label



Clear

Clear Preamble & Postamble :

Scan Enter Group 6 Label -->

Scan Preamble or Postamble Label -->

Scan Clear Label-->

Scan Exit Label



## Group 7: RS-232 Parameters



ENTER GROUP



EXIT

## Baud Rate



600



1200



2400



4800



9600(\*)



19200



38400

## Data Bit



BIT 7

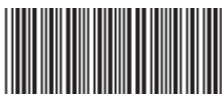


BIT 8 (\*)

## Group 7: RS-232 Parameters



ENTER GROUP



EXIT

## Parity :



NONE (\*)



ODD



EVEN

## Handshaking:



NONE (\*)



XON/XOFF



Scanner Ready



Data Ready



ACK/NAK

**Group 7: RS-232 Parameters**



ENTER GROUP



EXIT

**(ACK/NAK Response Time  
CTS Observation Time:)**



100 ms



300 ms



500 ms



1 sec



3 sec (\*)



5 sec



10 sec



00

**Group 8: CODE 39 / CODE 32**



ENTER GROUP



EXIT

**Code 39**



Enable (\*)



Disable



Full ASCII



Standard (\*)

**Transmit Start/End Character**



Enable



Disable (\*)

**Transmit Check Character**



Enable (\*)



Disable

**Verify Checksum**



Enable



Disable (\*)

**Group 8: CODE 39 / CODE 32**



ENTER GROUP



EXIT



Enable CODE 32



Disable CODE 32(\*)



Verify Normal



Verify Strick (\*)

## Group 9-1: Interleaved 2 OF 5



ENTER GROUP



EXIT



Enable



Disable(\*)

### Transmit Check Character



Enable (\*)



Disable

### Verify Checksum



Enable



Disable (\*)



#### Barcode Length Setting:

Scan Enter Group 9-1 Label -->

Scan Length Define Label -->

Scan Four Digit Labels in Table Hex (Page 43) -->

Scan Confirm Label in Table-Hex (Page 43) -->

Scan Exit Label

Length Define

Min: 4

Max: 48



#### User Define Length Setting:

Scan Enter Group 9-1 Label

Scan User Define Label-->

Scan Six Digit Labels in Table Hex (Page 43)

(Only 3 sets of length can be defined)

Scan Confirm Label in Table Hex (Page 43) -->

Scan Exit Label

User Define

3 Sets Available

## Group 9-2: Industrial 2 OF 5 / IATA



ENTER GROUP



EXIT



Enable



Disable (\*)

### Transmit Check Character



Enable (\*)



Disable

### Verify Checksum



Enable



Disable (\*)



### Barcode Length Setting:

Scan Enter Group 9-2 Label -->

Scan Length Define Label -->

Scan Four Digit Labels in Table Hex (Page 43) -->

Scan Confirm Label in Table-Hex --> (Page 43)

Scan Exit Label

Length Define

Min: 2

Max: 24



### User Define Length Setting:

Scan Enter Group 9-2 Label

Scan User Define Label-->

Scan Six Digit Labels in Table Hex (Page 43)

(Only 3 sets of length can be defined)

Scan Confirm Label in Table Hex (Page 43) -->

Scan Exit Label

User Define

3 Sets Available

### IATA



Enable



Disable (\*)

### Group 9-3: Matrix 2 OF 5



ENTER GROUP



EXIT



Enable



Disable (\*)

### Transmit Check Character



Enable (\*)



Disable

### Verify Checksum



Enable



Disable (\*)



### Barcode Length Setting:

Scan Enter Group 9-3 Label -->

Scan Length Define Label -->

Scan Four Digit Labels in Table Hex (Page 43) -->

Scan Confirm Label in Table-Hex (Page 43) -->

Scan Exit Label

Length Define

Min: 2

Max: 40



### User Define Length Setting:

Scan Enter Group 9-3 Label

Scan User Define Label-->

Scan Six Digit Labels in Table Hex (Page 43)

(Only 3 sets of length can be defined)

Scan Confirm Label in Table Hex (Page 43)-->

Scan Exit Label

User Define

3 Sets Available



## Group 9-4: CHINA POSTAGE



ENTER GROUP



EXIT



Enable



Disable (\*)

### Transmit Check Character



Enable (\*)



Disable

### Verify Checksum



Enable



Disable (\*)



#### Barcode Length Setting:

Scan Enter Group 9-4 Label -->

Scan Length Define Label -->

Scan Four Digit Labels in Table Hex (Page 43) -->

Scan Confirm Label in Table-Hex (Page 43) -->

Scan Exit Label

Length Define

Min: 2

Max: 40



#### User Define Length Setting:

Scan Enter Group 9-4 Label

Scan User Define Label-->

Scan Six Digit Labels in Table Hex (Page 43)

(Only 3 sets of length can be defined) -->

Scan Confirm Label in Table Hex (Page 43) -->

Scan Exit Label

User Define

3 Sets Available

**Group 10: Code 128**



ENTER GROUP



EXIT



Enable



Disable(\*)

**Enable/Disable Checkdigit**



Enable (\*)  
(not send checkdigit)



Disable

**UCC/EAN/128**



Enable



Disable (\*)

**Group 11: CODE 11**



ENTER GROUP



EXIT



Enable (\*)



Disable

**Number of Check Character**



Two (\*)



One

**Transmit Check Character**



Enable (\*)



Disable

**Enable/Disable Checkdigit**



Enable (\*)



Disable

**Group 12: Code 93**



ENTER GROUP



EXIT



Enable



Disable (\*)

**Verify Checkdigit**



Enable (\*)



Disable

**Group 13: MSI-PLESSEY**



ENTER GROUP



EXIT



Enable (\*)



Disable

**Verify Checkdigit**



Enable (\*)



Disable

**Enable MOD**



Enable MOD 10-10



Enable MOD 10 (\*)



Enable MOD 11-10

**Transmit/Truncate Checkdigit**



Truncate 1<sup>st</sup> checkdigit



Transmit checkdigit (\*)



Truncate 1<sup>st</sup> & 2<sup>nd</sup> checkdigit

**Group 14: CODABAR / NW7**



ENTER GROUP



EXIT



Enable (\*)



Disable

**Transmit Start/End Character**



Enable



Disable (\*)

**Start/End Transmit Type**



ABCD/ABCD



ABCD/TN\*E



abcd/abcd (\*)



abcd/tn\*e

**Group 15: Code 4**



ENTER GROUP



EXIT



Enable



Disable (\*)

**Group 16-1: EAN-13/JAN-13**



ENTER GROUP



EXIT



Enable (\*)



Disable

**ADD-ON 2/5**



Enable



Disable (\*)

**Transmit Check Character**



Enable (\*)



Disable

**Truncate 1<sup>st</sup> digit**



Enable



Disable (\*)

**Truncate 2<sup>nd</sup> digit**



Enable



Disable (\*)

**EAN Checkdigit**



Enable (\*)



Disable



**Group 16-2: UPC-A**



ENTER GROUP



EXIT



Enable (\*)



Disable

**ADD-ON 2/5**



Enable



Disable (\*)

**Transmit Check Character**



Enable (\*)



Disable

**Truncate Leading Digit**



Enable



Disable (\*)

**UPC-A Convert to EAN-13**



Enable



Disable (\*)

**Group 16-3: EAN-8/JAN-8**



ENTER GROUP



EXIT



Enable (\*)



Disable

**ADD-ON 2/5**



Enable



Disable (\*)

**Transmit Check Character**



Enable (\*)



Disable

**Truncate Leading Digit**



Enable



Disable (\*)

**EAN-8 Convert to EAN-13**



Enable 1  
(add zeros in the front  
of barcode)



Disable (\*)



Enable 2  
(add zeros in the middle  
of barcode)

**Group 16-4: UPC-E**



ENTER GROUP



EXIT



Enable (\*)



Disable

**ADD-ON 2/5**



Enable



Disable (\*)

**Transmit Check Character**



Enable (\*)



Disable

**Truncate Leading Digit**



Enable



Disable (\*)

**UPC-E Convert to UPC-A**



Enable



Disable (\*)

**Group 16-5: ISBN/ISSN**



ENTER GROUP



EXIT



Enable



Disable (\*)

**ADD-ON 2/5**



Enable



Disable (\*)

## Group 17 RSS-14



ENTER GROUP



EXIT



RSS-14 Enable



RSS-14 Disable (\*)



AI Enable



AI Disable (\*)



Checksum Enable



Checksum Disable (\*)



GS1-128 Enable



GS1-128 Disable (\*)

## Group 18 : General Parameters



ENTER GROUP



EXIT



Upper Case



Lower Case (\*)



Universal



ALT Mode



Buzzer Pitch  
(Default : 21)



Buzzer Duration  
(Default: AA)

Buzzer Pitch & Buzzer Duration Setting:

Scan Enter Group 18 Label -->

Scan Buzzer Pitch or Buzzer Duration Label -->

Scan Two Digit Labels in Table-Hex (Page 43)-->

Scan Confirm Label in Table-Hex (Page 43) -->

Scan Exit Label

## Power Up Beeping



Enable (\*)



Disable

## Group 19: Code ID Setting



ENTER GROUP



EXIT



CODE 39/CODE 32



INDUSTRIAL 2 OF 5



CHINA POSTAGE



CODE 93



MSI/PLESSEY



EAN-13



UPC-E



CODE 4



INTERLEAVED 2 OF 5



MATRIX 2 OF 5



CODE 128



CODE 11



CODABAR/NW7



EAN-8



UPC-A

Note: Refer to ASCII Table (Page 44), scan two hexadecimal lables in Table Hex (Page 43) to represent one character.

**Group 20** Predefined Barcode Identifiers



ENTER GROUP



EXIT



Enable



Disable(\*)



Enable All Barcode



## Group 21: Function Key Emulation



ENTER GROUP



EXIT



Enable

Enable Function Key Emulation:

Scan Enter Group 21 Label -->

Scan Enable Label -->

Scan Exit Label



Disable (\*)

1:

To concatenate a function key with input data, please refer to Function Key Table for its hexadecimal representation.

For Example:

Preamble data with F1

Scan Enter Group 6 Label -->

Scan Preamble Label -->

Scan Label 0 and 1 respectively in Table-Hex (Page 43) -->

Scan Confirm Label in Table-Hex (Page 43) -->

Scan Exit Label

**Function Key Table** (Full ASCII Code 39 Table)

F1:01	F2:02	F3:03	F4:04
F5:05	F6:06	F7:07	F8:08
F9:09	F10:0A	F11:0B	F12:0C
Enter:0D	Tab:0E	BS:0F	Up:10
Down:11	Left:12	Home:14	End:15
PgUp:16	PgDn:17	Ins:18	Del:19
Esc:1B	Right:13	S-Tab:1C	

2:

To scan a function key barcode label, Full ASCII must be enabled. Please refer to Full ASCII Code 39 Table to produce the function key barcode label.



Full ASCII Code 39 Enable

## Function Code for PC XT/AT

---



F1 (\$A)



F2 (\$B)



F3 (\$C)



F4 (\$D)



F5 (\$E)



F6 (\$F)



F7 (\$G)



F8 (\$H)



F9 (\$I)



F10 (\$J)



F11 (\$K)



F12 (\$L)

## Function Code for PC XT/AT

---



Enter (\$M)



Tab (\$N)



BS (\$O)



Up (\$P)



Down (\$Q)



Left (\$R)



Right (\$S)



End (\$U) (\$B)



PgUp (\$V)



PgDn (\$W)



Ins (\$X)



Del (\$Y)



Esc (%A)



Home (\$T)

## Table-Hex : HEXADECIMAL

---



0



2



4



6



8



A



C



E



Confirm



1



3



5



7



9



B



D



F

## ASCII TABLE

L/H	0	1	2	3	4	5	6	7
0	NULL	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

## Hexadecimal-Decimal Conversion Table

H/I	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
B	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

For Example:

**Hexadecimal**

53 ^ H:5 L:3

D5 ^ H:D L:5

**Decimal**

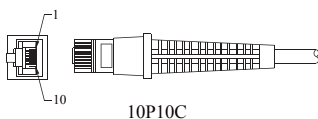
83

213

# PIN ASSIGNMENTS

## 10 Pin Modular Plug

RJ-45 Male 10P10C	TTL	KB	RS-232	KB→USB
1	×	×	RTS	×
2	×	×	CTS	×
3	PWR-CTL	×	TX	×
4	GND	GND	GND	GND
5	GOOD-READ	PC-DATA	×	PC-DATA
6	DATA	PC-CLK	×	PC-CLK
7	VCC	VCC	VCC	VCC
8	SW-DET	KB-CLK	×	×
9	S.O.S	KB-DATA	×	×
10	×	×	RX	×

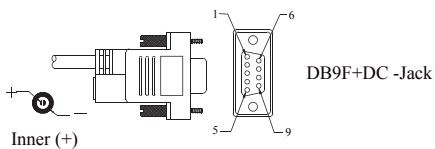


# PIN ASSIGNMENTS

## RS-232 Signal Output

Function	DB9F+DC (or without DC)
GND	5
CTS	7
RTS	8
RX	3
TX	2
VCC+5V 9	

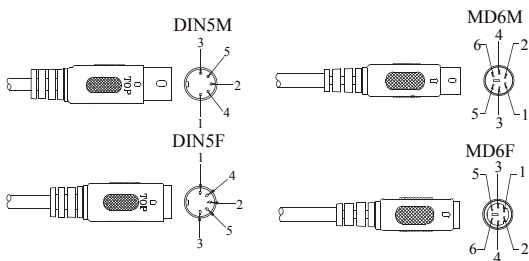
Note : For PC applications, a cable with DC power jack is required to accept external power input.





## Keyboard Signal Output

Funcion	Din5F	Din5M	Mini-Din6M	Mini-Din6F
GND	4	4	3	3
PC_Data	---	2	1	---
PC_CLK	---	1	5	---
Vcc+5V	5	5	4	4
KB_CLK	1	---	---	5
KB_Data	2	---	---	1



## USB Signal Output

FUNCTION	USB-A
GND	4
Vcc	1
D+	3
D-	2

