TechScan®

TSK-2000 SERIES

USER'S MANUAL

DOC REV 1.4

CONTENTS

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment

WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INFORMATION TO USER:

This equipment has been tested and found to comply with the limit of a Class B digital device, pursuant to Part 15 of the FCC Rules.These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation: if this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient / Relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit difference from that to which the receiver is connected.
4. Consult the dealer or an experienced radio / TV technician for help

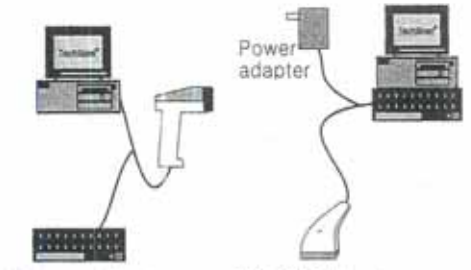
1. Getting started

▣ Installing a Keyboard Wedge Scanner

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

▣ Installing an RS - 232C interface scanner

① Make sure that there is a power supply to the scanner. (If necessary)
② Connect the cable to the RS-232C port of the device.
③ Make sure the host device should have communication program (Xcom, procomm, Hyperterminal) before transmitting data.



Keyboard Wedge RS-232C Interface

2. Setup procedure

The general procedure to program is as follows.

① Scan the command symbol "Program".
② Scan one or more parameters.
③ Scan the command symbol "End" to close procedure.

Example 1. To set the RS 232 parameters to 9600,N,8,1 (Page 7~9)

① Scan the barcode "Program".
② Scan "9600" "N" "8" "1".
③ Scan "End".

Example 2. To set additional digit for UPC/EAN. (Page 28)

① Scan "Program".
② Scan "Addenda 5 digit Enable.
③ Scan "End".

PROGRAM

3. Default setting

(*) denotes default setting

DEFAULT

4. Interface Selection

Keyboard Wedge & USB*

RS-232C

Wand Emulation

Reserved1

Reserved2

Reserved3

Reserved4

END

5. Keyboard Interface

5 - 1. Device selection

IBM PC/XT

IBM PC/AT*

IBM PC/PS2

LAPTOP

5 - 2. Function code selection

Function key On*

Function key Off

Lower Case*

Upper Case

PROGRAM

Num–Lock Off*

Num–Lock On

5 - 3. Language

US*

QWERTZ

AZERTY

Universal

Reserved

5 - 4. Scancode delay

AT Delay

XT Delay

Ex) If scanner needs 15ms of delay, scan "Program" "AT Delay" "1" "5" "AT Delay" "End".

END

Keycode Fast Transmission*

Keycode Slow Transmission

6. RS-232C setting

6 - 1. Baud rate

300 (600)

1200

2400

4800

9600*

19200

38400

PROGRAM

6 - 2. Parity

Even

Odd

None*

6 - 3. Data bits

7Bits

8Bits*

6 - 4. Stop bit

1Bit*

2Bits

END

6 - 5. Hand shaking

ACK/NAK On

ACK/NAK Off*

RTS/CTS On

RTS/CTS Off*

Wait Timeout

Ex) If delay time of 30ms is required, scan "Program" "Wait timeout" "3" "0" "Wait timeout" "End".

PROGRAM

7. Wand emulation

7 - 1. Output level

Transmit Wand Emulation as Code 39*

7 - 2. Output polarity

White High

Black High*

7 - 3. Scan speed

Low(2ms)

Medium(1ms)

High(0.5ms)*

7 - 4. Check digit

Check digit On

Check digit Off*

END

8. Data Format

8 - 1. Terminator

TAB(CR/LF)

Enter(CR)*

Return(LF)

None

8 - 2. Code ID

None*

User Defined

Default

Ex) If barcode ID for code39 (standard) is defined as "U", scan "Program" "User Defined" "Define Code ID" "Code39(standard)" "U" "Code39(standard)" "Define Code ID" "End".

PROGRAM

8 - 3. Code ID Setting

Define
Code ID

Code 39(M)
(Full ASCII)

Code 39(M)
(Standard)

EAN-13(F)

UPC-A (A)

EAN-8(F)

UPC-E (E)

Code 93 (L)

END

Codabar(N)

Code 128 (K)

I 2 of 5 (I)

S 2 of 5 (H)

D 2 of 5 (H)

M 2 of 5 (H)

China
postage(C)

Code 3 of 5 (P)

MSI/Plessey (O)

Code 11 (J)

PROGRAM

8 - 4. Custom editing

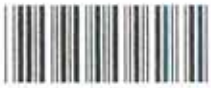
Single edit mode

Select from left

Select from right

Custom mode Enable

Ex) If 5 digits from left are required, scan
"Program" "Single edit mode" "Select from left"
"0" "5" "Select from left" "Single edit mode"
"Custom mode enable" "End".



Custum mode Disable*

Full data editing Disable

Full data editing Enable

Ex) If 5 digits from the second position are required scan as below,
"Program" "Full editing Enable" "0" "2" "." "0" "5"
"Full editing Enable" "Custom mode Disable" "End".

END

8 - 5. Data length

Exclude*

Include

8 - 6. Preamble / Postamble

Preamble

Postamble

Ex) If preamble "SN" before data is required. Scan
"Program" "Preamble" "S" "N" "Preamble" "End".

Reserved1

Reserved2

Reserved3

PROGRAM

9. Barcode setting

9-1. Code 39

Code 39 Enable*

Code 39 Disable

Full ASCII Code 39*

Standard Code 39

Code 32 Enable

Code 32 Disable*

Verify Check & Transmit

Verify Check & Not Transmit

Not Verify Check*

END

9-2. Interleaved 2 of 5

I 2 of 5 Enable*

I 2 of 5 Disable

Fix Length On

Fix Length Off*

1 st Dig. Suppress

Last Dig. Suppress

No Suppress*

Ex) If barcode length needs to be fix, scan "Program" "Fix Length On" "End" and scan barcode that you apply twice.

PROGRAM

I 2 of 5
Verify Check &
Transmit

I 2 of 5
Verify Check &
Not Transmit

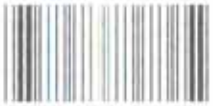
I 2 of 5
Not Verify Check*

Code 3 of 5
Enable

Code 3 of 5
Disable*

Code 3 of 5
Transmit Check

Code 3 of 5 Not
Transmit Check*



END

9-3. Standard 2 of 5

S 2 of 5
Enable

S 2 of 5
Disable*

Fix Length
On

Fix Length
Off*

Verify Check
& Transmit

Verify Check
& Not Transmit

Not Verify
Check*

PROGRAM

9-4. Industrial 2 of 5

D 2 of 5 Enable

D 2 of 5 Disable*

Fix Length On

Fix Length Off*

Verify Check & Transmit

Verify Check & Not Transmit

Not Verify Check *

END

9-5. Matrix 2 of 5

M 2 of 5 Enable

M 2 of 5 Disable *

Fix Length On

Fix Length Off*

Verify Check & Transmit

Verify Check & Not Transmit

Not Verify Check *

PROGRAM

9-6. China postage

China postage Enable

China postage Disable*

Fix Length On

Fix Length Off*

Verify Check & Transmit

Verify Check & Not Transmit

Not Verify Check *

END

9-7. Code 128

Code 128 Enable*

Code 128 Disable

EAN-128 Enable

EAN-128 Disable*

EAN-128 Separator set

Check Digit Enable*

Check Digit Disable

9-8. Code 93

Code 93 Enable*

Code 93 Disable

PROGRAM

9-9. UPC-A

UPC-A Enable*

UPC-A Disable

Leading Digit On*

Leading Digit Off

Add Leading Zero On

Add Leading Zero Off*

Transmit Check Digit*

Not Transmit Check Digit

END

9-10. UPC-E

UPC-E Enable*

UPC-E Disable

Leading Digit On*

Leading Digit Off

Transmit Check Digit*

Not Transmit Check Digit

Zero Expansion On

Zero expansion Off*

PROGRAM

9-11. EAN-8

EAN-8
Enable*

EAN-8
Disable

Leading Digit
On*

Leading Digit
Off

Transmit
Check Digit*

Not Transmit
Check Digit

END

9-12. EAN-13

EAN-13 Enable*

EAN-13 Disable

Leading Digit
On*

Leading Digit
Off

Transmit
Check Digit*

Not Transmit
Check Digit

ISBN Enable

ISBN Disable*

PROGRAM

9-13. UPC / EAN Supplements

Addenda 2 Digit Enable

Addenda 2 Digit Disable*

Addenda 5 Digit Enable

Addenda 5 Digit Disable*

ISBN Addenda Enable

ISBN Addenda Disable*

Space Separator Enable

Space Separator Disable*

Transmit if Present

Must Present

END

9-14. Codabar

Codabar Enable*

Codabar Disable

Not Transmit Start & Stop

Transmit Start & Stop ABCD*

Transmit Start & Stop TN*E

Verify check & Transmit

Verify check & Not Transmit

Not Verify check*

PROGRAM

9–15. MSI / Plessesy

Code
MSI Enable*

Code
MSI Disable

Code
Plessey
Enable*

Code
Plessey
Disable

Transmit
Check Digit

Not Transmit
Check Digit*

MSI Check Digit
MOD 10*

MSI Check Digit
MOD 11

MSI Check Digit
MOD 1010

MSI Check Digit
MOD 1110

END

10. Reading mode

Trigger On / Off*

Nomal Auto–
Trigger

Light Toggle–
Auto Trigger

Object Detection–
Auto Trigger

Testing

11. Beep tones

None

Low

Medium

High*

PROGRAM

Beep duration
Short

Beep duration
Medium

Beep duration
Long*

Beep tone
adjust

Ex) If beep tone of 230us is required, Scan "Program" "Beep tone adjust" "2" "3" "Beep tone adjust" "End".

Reserved1

Reserved2

Reserved3

Reserved4

END

12. Intercharacter delay

None*

1ms

5ms

10ms

20ms

50ms

100ms

PROGRAM

13. Intermessage delay

None*

50ms

200ms

500ms

1sec

2sec

END

14. Set max. & min. Length

Set Max & Min

Code 39
(1~64)

Code 128
(4~64)

Code 93
(4~64)

Codabar
(4~64)

I 2 of 5
(4~64)

S 2 of 5 (4~64)

D 2 of 5 (4~64)

Ex) If max. Length of code 39 is to be set 15 digits
Scan "Program" "Set Max & Min" "Code39(1~64)" "Max" "1" "5" "Max" "Set Max & Min" "End".

PROGRAM

M 2 of 5 (4~64)

Code 3 of 5
(6~7)

MSI/Plessey
(4~64)

Code 11 (4~64)

China postage
(6~64)

Max

Min

END

15. Barcode space setting

6X*

8X

10X

12X

14X

16X

PROGRAM

16. Minimum bar numbers

5

10

15*

20

25

30

40

50

END

17. Show status

Show Status

Reserved1

Reserved2

Reserved3

Reserved4

Reserved5

Reserved6

Reserved7

18. Appendix

18 - 1. Pin assignment

TTL Signal Output

PIN	D-SUB / AMP 9P Female	
	Color	Function
1		Start of Scan
2		Barcode Image Data Output
3		Good Read LED Indicator
5		Trigger signal Output
6		Power Enable
7		Supply Ground
9		+5Vdc Power Supply

Wand Emulation Signal Output

PIN	D-SUB / AMP 9P Female	
	Color	Function
2		Barcode Image Data Output
7		Supply Ground
9		+5Vdc Power Supply

RS-232C Output

PIN	D-SUB / AMP 9P Female	
	Color	Function
2		Transmit Data
3		Receive Data
5		Signal Ground
7		Clear to Send
8		Request to Send

Note : JACK connector for external power
(Regulated +5Vdc / 300mA)

Keyboard Wedge Signal output

IBM PC XT/AT

PIN	DIN 5P Male / Female	
	Color	Function
1		Keyboard Clock
2		Keyboard Data
3		-
4		Supply Ground
5		+5Vdc Power supply

IBM PC PS-2

PIN	MINIDIN 6P Male / Female	
	Color	Function
1		Keyboard Clock
2		-
3		Supply Ground
4		Power supply
5		Keyboard Clock
6		-

USB

PIN	SERIES "A" PLUG	
	Color	Function
1		VBUS
2		D-
3		D+
4		GND

18 - 2. ASCII TABLE

ASCII	HEX	DEC	ASCII	HEX	DEC
NUL	00	0	SP	20	32
SOH	01	1	!	21	33
STX	02	2	"	22	34
ETX	03	3	#	23	35
EOT	04	4	$	24	36
ENQ	05	5	%	25	37
ACK	06	6	&	26	38
BEL	07	7	'	27	39
BS	08	8	(	28	40
HT	09	9	)	29	41
LF	0A	10	*	2A	42
VT	0B	11	+	2B	43
FF	0C	12	,	2C	44
CR	0D	13	-	2D	45
SO	0E	14	.	2E	46
SI	0F	15	/	2F	47
DLE	10	16	0	30	48
DC1	11	17	1	31	49
DC2	12	18	2	32	50
DC3	13	19	3	33	51
DC4	14	20	4	34	52
NAK	15	21	5	35	53
SYN	16	22	6	36	54
ETB	17	23	7	37	55
CAN	18	24	8	38	56
EM	19	25	9	39	57
SUB	1A	26	:	3A	58
ESC	1B	27	;	3B	59
FS	1C	28	<	3C	60
GS	1D	29	=	3D	61
RS	1E	30	>	3E	62
US	1F	31	?	3F	63

ASCII	HEX	DEC	ASCII	HEX	DEC
@	40	64	`	60	96
A	41	65	a	61	97
B	42	66	b	62	98
C	43	67	c	63	99
D	44	68	d	64	100
E	45	69	e	65	101
F	46	70	f	66	102
G	47	71	g	67	103
H	48	72	h	68	104
I	49	73	i	69	105
J	4A	74	j	6A	106
K	4B	75	k	6B	107
L	4C	76	l	6C	108
M	4D	77	m	6D	109
N	4E	78	n	6E	110
O	4F	79	o	6F	111
P	50	80	p	70	112
Q	51	81	q	71	113
R	52	82	r	72	114
S	53	83	s	73	115
T	54	84	t	74	116
U	55	85	u	75	117
V	56	86	v	76	118
W	57	87	w	77	119
X	58	88	x	78	120
Y	59	89	y	79	121
Z	5A	90	z	7A	122
[	5B	91	{	7B	123
\	5C	92	|	7C	124
]	5D	93	}	7D	125
^	5E	94	~	7E	126
_	5F	95	DEL	7F	127

18 - 3. FULL ASCII TABLE

!

"

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NUL

SOH

STX

ETX

EOT

ENQ

ACK

BEL

BS

HT

LF

VT

FF

CR

SO

SI

DLE

DC1

DC2

DC3

DC4

NAK

SYN

ETB

CAN

EM

SUB

ESC

FS

GS

RS

US

SP

F1(@A)

F2(@B)

F3(@C)

F4(@D)

F5(@E)

F6(@F)

F7(@G)

F8(@H)

F9(@I)

F10(@J)

F11(@K)

F12(@L)

HOME(&A)

END(&B)

Cursor Right(&C)

Cursor Left(&D)

Cursor Up(&E)

Cursor Down(&F)

PgUp(&G)

PgDn(&H)

TAB(&I)

Back TAB(&J)

ESC(&K)

ENTER(&L)

Return(&O)

CTRL ON(&P)

CTRL OFF(&Q)

ALT ON(&R)

ALT OFF(&S)

SHIFT ON(&T)

SHIFT OFF(&U)

Sample bar codes

Code 39

Codabar

Interleaved 2 of 5

MSI/Plessey

UPC-A with 5

EAN-13 with 5