

KB-78

**Programmable Keyboard
User's Reference Manual**



Partner Tech International Pte Ltd.

705 Sims Drive #06-07A Shun Li Industrial Complex
Singapore 387384 Tel: (65) 8469809 Fax: (65) 8461509

The information in this manual has been carefully checked and is believed to be accurate. Partner Tech International Pte Ltd. assumes no responsibility for any inaccuracies in the contents, nor for any infringements of patents or other rights of third parties which may result from its use. Partner Tech International Pte Ltd. makes no commitment to update or to keep current the information contained in this manual.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in form of electronics, photocopying, recording, without the prior written permission of Partner Tech International Pte Ltd.

Partner Tech International Pte Ltd. reserves the right to make improvements to this document and/or product at any time and without notice.

You are cautioned that any changes or modifications to the equipment's not expressly approve by Partner Tech International Pte Ltd. for the compliance could void your authority to operate such equipment.

This device complies with Part 15 of the FCC Rules. Operation is subjected 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.

Partner Tech International Pte Ltd.
January 1999, Version 1.00
All rights reserved

Unpacking

The KB-78 is packed in a box. After unpacking, the KB-78 unit placed it on a raised surface and carefully inspect the unit for any damage that might have occurred during shipment.

The KB-78 package includes the following:

1. KB-78 unit x 1 pcs.
2. Utility diskettes x1 pcs.
3. User's manual x 1 pcs.
4. Keys for key lock x 3 pcs.
5. Switch covers for keys.

Make sure that all of the items listed above are present.

What To Do If There Is A Problem

If there are damaged or missing parts, contact your supplier and/or dealer immediately.

Table of Contents

CHAPTER 1	INTRODUCTION.....	5
1.1	General Description.....	5
1.2	Features.....	5
1.3	Utility support.....	6
CHAPTER 2	INSTALLATION.....	7
2.1	Keyboard Unit Interface Details.....	7
CHAPTER 3	DEFAULT KEYBOARD LAYOUT.....	8
3.1	Schematic Diagram.....	8
CHAPTER 4	KEYBOARD PROGRAMMING.....	9
4.1	How to Load Utility.....	9
4.2	How to Edit Default Keyboard Layout.....	9
4.3	How to Assign Multiple Codes to a Key.....	10
4.4	How to Define Codes of Key Lock.....	10
4.5	How to Define a Key with a String of Characters.....	11
4.6	How to assign a key with Null Function.....	11
4.7	How to save the Keyboard Layout.....	12
4.8	How to Print Keyboard Layout.....	12
4.9	How to Program the Keyboard.....	12
4.10	How to Program the Keyboard with a Previously Saved Layout.....	12
4.11	How to Test Key Function.....	13
4.12	How to Test Key Lock.....	13
4.13	How to Quit the Utility.....	13
CHAPTER 5	SPECIAL FUNCTIONS.....	14
5.1	Repeat Function.....	14
5.2	No Keyboard Function.....	14
5.3	No Click Function.....	14
5.4	Delay Function.....	14
5.5	Mode Key Function.....	14
	Table 1.....	15
	Table 2.....	15

Chapter 1

INTRODUCTION

1.1 General Description

The Q-PRO series programmable keyboards are designed for POS, banking and data processing application. All the keyboards are spill resistant, fully programmable and relegendable. Programmed keycodes are saved in the EPROM and download from the computer. Bar code interface, magnetic readers, point device and smart card are all available choices. Partner Tech International also supplies a series of smaller keyboards for applications, which require supplemental keypads and card verification.

1.2 Features

The features for KB-78, 78 key programmable keyboard:

1. All Keys are fully programmable and relegendable.
2. 78 keys, 6 x 13 keyboard matrix.
3. Spill resistant membrane key switch with tested 10 million presses.
4. IBM AT/PS 2 compatible with DIN 5 pin or mini DIN PS 2 connector.
5. Integrated magnetic reader with single, dual or three for credit cards, ATM cards and driver license. Integrated bar code interface is possible through the RJ11 connector provided on the unit.
6. External keyboard port for programming key codes and connecting with another keyboard compatible device.
7. 6 position lock for data access control.
8. Dimension: 280 mm (L) x 188 mm (W) x 42 mm (H).
9. Weight: 1.13 kg.
10. FCC, CE, EMC Approved.

1.3 Utility Support

Before you begin with the programming of the keyboard, be sure to make copy of the *KB Program Utility Diskette*.

Make sure you know the version of the application for which you are programming the keyboard. Your keyboard program utility contains executable files for several versions of certain application. For your utility to operate properly, you must execute the "**K78M.EXE**" (ver V5.00M).

This Utility has been designed as a semigraphic editor to provide the means to program the KB-78 series Programmable Keyboard. The Keyboard contains a programmable device into which can be loaded a custom layout for the keyboard. The keyboard will then assume this custom layout automatically each time the PC is booted up without user interaction.

The Utility allows any number of layouts to be stored with separate Filenames. This means that Keyboards can be re-programmed quickly and easily in the event a change in customer requirement.

Following are details of the Utility Disk Contents:

K78C.EXE	:	K78C cherry switch programmable keyboard utility.
K78M.EXE	:	K78C membrane switch programmable keyboard utility.
K120C.EXE	:	K120C cherry switch programmable keyboard utility.
K120M.EXE	:	K120M membrane switch programmable keyboard utility.
K128C.EXE	:	K128C cherry switch programmable keyboard utility.
K128M.EXE	:	K128M membrane switch programmable keyboard utility.
KBD-100.EXE	:	MSR & Barcode Decoder utility.
EGAVGA.BGI	:	Driver for EGA / VGA monitor.
HERC.BGI	:	Driver for MONO monitor.
README	:	Text file for reference.

NOTE:

The following instructions will show you how to use the editor:

- 1. It is strictly advice that the initial programming & setup of the KB-78 keyboard and the magnetic strip reader (MSR) should be done in DOS environment (i.e. if your have Windows 95 or 98, then restart your system in MS-DOS mode and proceed with the programming).**
- 2. The Numeric keypad on the right of the Standard PC keyboard will be locked in function mode.**
- 3. To insert blank spaces in the POS Keyboard matrix use key 5 on the numeric keypad.**
- 4. All keystrokes are performed on the Standard PC keyboard.**

Chapter 2

INSTALLATION

2.1 Keyboard Unit Interface Details

After unpacking the keyboard, please follow the steps for proper installation:

1. Plug the POS keyboard into the PC keyboard socket.
2. Plug a standard PC keyboard in to the Pass-through keyboard port on the LEFT side of the POS keyboard.
3. Select appropriate directory on hard disk drive, insert utility disk in "Drive A" and execute the "K78M.EXE" file. (Please refer to chapter 4 for the programming of the keyboard)

NOTE:

It is necessary to turn the key lock from "**OFF**" position to any other position to active KB-78 after programming and powering on your computer.

To use keyboard, the key lock has to operate as follows:

- A. Insert key at lock position 1
- B. Power "**ON**" the PC
- C. Move key to other position from position 1
- D. Now Keyboard is ready for operation

Keyboard will not work if key is not located at position 1 when power "**ON**" PC.
Keyboard will not work if you do not move key to other position from position 1.

Chapter 3

DEFAULT KEYBOARD LAYOUT

3.1 Schematic Diagram

KB-78 Keyboard Default Layout

1 `	2 1	3 2	4 3	5 4	6 5	7 6	8 7	9 8	10 9	11 0	12 F1	13 F2
14 Esc	15 a	16 b	17 c	18 d	19 e	20 f	21 Num Lock	22 /	23 *	24 -	25 F3	26 F4
27 Tab	28 g	29 h	30 i	31 j	32 k	33 Back Space	34 Hom e	35 Up	36 Page Up	37 +	38 F5	39 F6
40 Ctrl (left)	41 l	42 m	43 n	44 o	45 p	46 Caps Lock	47 Left	48	49 Right	50 Print Scrn	51 F7	52 F8
53 Shift (left)	54 q	55 r	56 s	57 t	58 u	59 Scroll Lock	60 End	61 Down	62 Page Down	63 Pause	64 F9	65 F10
66 Alt (left)	67 v	68 w	69 x	70 y	71 z	72 \ _	73 Ins	74 Space	75 Del	76 Enter	77 F11	78 F12

Key Lock area

1 a Shift	2 b Shift	3 c Shift	4 d Shift	5 e Shift	6 f Shift
-----------------	-----------------	-----------------	-----------------	-----------------	-----------------

Chapter 4

KEYBOARD PROGRAMMING

NOTE: It is strictly advice that the initial programming & setup of the KB-78 keyboard and the magnetic strip reader (MSR) should be done in DOS environment (i.e. if your have Windows 95 or 98, then restart your system in MS-DOS mode and proceed with the programming).

4.1 How to Load Utility

- Step 1: Please run "**A:\K78M.EXE**" after the **DOS** prompt to enter the setting screen.
- Step 2: The entry screen will be displayed. "**Press any key to continue**". The Default layout for the chosen keyboard matrix will be displayed.

4.2 How to Edit Default Keyboard Layout

- Step 3: Press **<ALT + E>** to enter the EDIT mode.
- Step 4: A pop-up menu will be displayed as follows:

CODE REDEFINE	ALT + C
FUNCTION REDEFINE	ALT + F
KEY LOCK REDEFINE	ALT + L
KEY STRING DEFINE	ALT + K
TEST KEYS	ALT + T
TEST KEY LOCK	ALT + K
NULL KEY DEFINE	ALT + N

- Step 5: Use the arrow keys to move the highlighted bar to the "**CODE REDEFINE**" option and press **<Enter>**
- Step 6: Following message will be displayed at the top left of the key matrix as follows:
CODE REDEFINE
USE LEFT, RIGHT, UP, DOWN TO SELECT AND ENTER TO CHANGE
Use the arrow keys to move around the matrix to a key of your choice and press **<Enter>** to select that key for editing.
- Step 7: Following message will be displayed at the top left of the matrix as follows:
CODE REDEFINE
PRESS ONE KEY FOR KEY NUMBER
- Step 8: Press a key on the 101 keyboard. For example press "q". The selected key is now redefined as "q".
- Step 9: By moving around the grid and repeating steps 8 to 10, inserting the desired characters, a custom keyboard layout can be created.
- Step 10: When the chosen layout is complete press **<Esc>** to exit from the Edit Menu.

4.3 How to Assign Multiple Codes to a Key

Step 11: If it is necessary to assign a combination of codes to any key, follow steps 3 & 4 and then substitute the following commands.

Step 12: Use the arrow keys to move the highlighted bar to the **"FUNCTION REDEFINE"** option and Press <Enter>.

Step 13: Following message will be displayed at the top left of the key matrix as follows:
FUNCTION REDEFINE
USE LEFT, RIGHT, UP, DOWN TO SELECT AND ENTER TO CHANGE
Use the arrow keys to move around the matrix to a key of your choice and press <Enter> to select that key for editing.

Step 14: Following message will be displayed at the top left of the matrix as follows:
FUNCTION REDEFINE
PRESS ONE KEY FOR KEY NUMBER

Step 15: Press 3 keys with combination of Ctrl, Alt or Shift and one character/number.
Ex: Press Ctrl + Alt + q. The selected key is now redefined as "Ctrl + Alt + q".

Step 16: By moving around the grid and repeating steps 16 to 18, inserting the desired characters, a custom keyboard layout can be created.

Step 17: Continue from Step 10.

4.4 How to Define Codes of Key Lock

Follow step 3 & 4 and then substitute the following commands

Step 18: Use the arrow keys to move the highlighted bar to the **"KEY LOCK REDEFINE"** option and press <Enter>.

Step 19: Following message will be displayed at the top left of matrix as follows:

KEY LOCK REDEFINE
INPUT KEY LOCK POSITION: 1 - 6

Step 20: Input the key position 1, 2, 3, 4, 5, or 6 and press <Enter> for editing.
The select area is highlighted.

Step 21: Press a key on 101 keyboard. For example pressing "q" redefines the selected key lock to "q". Also we can use a combination of Ctrl, Alt or Ctrl + Alt with one character/number. The selected lock area is redefined as desired.

Step 22: Repeat steps 20 to 22 to define key lock area layout.

Step 23: Continue from step 10.

4.5 How to Define a Key with a String of Characters

Follow step 3 & 4 and then substitute the following commands:

Step 24: Use the arrow keys to move the highlighted bar to the "**KEY STRING DEFINE**" option and press <Enter>

Step 25: Following message will be displayed at the top left of matrix as follows:

KEY STRING DEFINE
USE LEFT, RIGHT, UP, DOWN TO SELECT AND ENTER TO CHANGE
Use the arrow keys to move around the matrix to a key of your choice and press <Enter> to select that key for editing.

Step 26: Following message will be displayed at the top left of matrix as follows:

KEY STRING DEFINE
INPUT KEY STRING: 1 - 78

Step 27: Input the Key positions number you wish to edit.

Step 28: Press <Enter> for editing. The selected Key position is highlighted.

Step 29: Type a string of characters to a maximum of 16 strokes (or characters).

Step 30: Press <Enter>. The selected Key is defined as a string of characters.

Step 31: Continue from step 10.

NOTE: The shift key acts as a shift-lock toggle key in this mode.

4.6 How to assign a key with Null Function

When a key is programmed as a Null Key, it will not send a key code when pressed. Null keys are required when you use 1 x 2 or 2 x 2 keycaps. For example, if you use a 2 x 2 keycap covering 4 keys, 3 of the keys should be set as null keys.

Follow steps 3 & 4 and then substitute the following commands:

Step 32: Use the arrow keys to move the highlighted bar to the "**NULL KEY DEFINE**" option and press <Enter>.

Step 33: Following message will be displayed at the top left of matrix as follows:

NULL KEY DEFINE
INPUT KEY POSITION: 1 - 78

Step 34: Input the Key positions number of the key you wish to program as a null key and press <Enter>. The selected key is now programmed as a null key.

Step 35: Continue from Step 10.

NOTE: The 10 keypad is not functional in this mode.

4.7 How to save the Keyboard Layout

Step 36: To save your chosen layout Press **<ALT + F>**.

Step 37: A pop-up menu will be displayed as follows:

OPEN	ALT + O
SAVE	ALT + S
SAVE AS	
PRINT	
QUIT TO DOS	ALT + X

Step 38: Use the arrow keys to select the "**SAVE AS**" option and press <Enter>

Step 39: Following message will be displayed at the top left of the matrix as follows:
FILE NAME =

Step 40: Type the file name that you wish to save the layout under and press <Enter>. The layout is now saved under the chosen filename.

4.8 How to Print Keyboard Layout

To print your layout directly to printer

Step 41: To save your chosen layout Press **<ALT + F>**.

Step 42: Use arrow keys to select the "**PRINT**" option and press <Enter>. The keyboard program layout is printed and the program exits the FILE mode.

4.9 How to Program the Keyboard

Use this function to send the keyboard layout program to the EPROM of the keyboard.

Step 43: To Program the keyboard Press **<ALT + P>**.

Step 44: The utility will now program each key in turn to be stored into the EPROM.

4.10 How to Program the Keyboard with a Previously Saved Layout

Step 45: Follow steps 1 - 3 and then substitute the following commands.

Step 46: Press **<ALT+F>**

Step 47: A pop-up menu will be displayed as follows:

OPEN	ALT + O
SAVE	ALT + S
SAVE AS	
PRINT	
QUIT TO DOS	ALT + X

Step 48: Use the arrow keys to select the "**OPEN**" option and press <Enter>.

Step 49: A message will be displayed at the top left of the matrix as follows:

FILE NAME =

Step 50: Type the filename of the layout you wish to load and Press <Enter>. The chosen layout will now be displayed in the matrix.

Step 51: To "Edit" this layout, press <ESC> and then continue from step 3 and to "Program" a keyboard with this layout, press <ESC> and then continue from Step 43.

4.11 How to Test Key Function

To test whether each key is at right condition after programming.

Step 52: Press <**ALT + E**> to enter EDIT mode.

Step 53: Use arrow keys to move highlighted bar to the "**KEY TEST**" option on the pop-up menu and press <Enter>.

Step 54: Following message will be displayed at the top left of the key matrix as follows:
KEY TEST

Step 55: Press one key for key code. The code position will be highlighted with a beep. Check whether it is at the right position with the right key code as you defined. Repeat this step to check all keys.

4.12 How to Test Key Lock

To test whether LOCK is at right condition after programming.

Step 56: Press <**ALT + E**> to enter EDIT mode.

Step 57: Use arrow keys to move highlighted bar to the "**KEY LOCK TEST**" option on the pop-up menu and press <Enter>.

Step 58: Following message will be displayed at the top left of the key matrix as follows:
KEY LOCK TEST

Step 59: Press one key for key lock code. The code position will be highlighted with a beep. Check whether it is at the right position with the right key code as you defined. Repeat this step to check all key lock codes.

4.13 How to Quit the Utility

Step 60: To Quit the Utility Press <**ALT + F**>

Step 61: Use the arrow keys to select the "**QUIT TO DOS**" option and Press <Enter>
Or press ALT + X

Step 62: The POS keyboard can now be removed.

Chapter 5

SPECIAL FUNCTIONS

The following functions are set as standard when the K78.EXE program is run.

- No Repeat - The Repeat Function is "NOT" allowed.
- Keyboard - The 101-keyboard port is activated.
- Click - The depression of a key sounds a click.
- No mode key - The number one key (top left) is not designated as the mode key and the keyboard does not have three levels.
- No delay - The key depression is set to delay from 3ms to 45ms.

The following functions can be invoked when the K78.EXE program is run.

5.1 Repeat Function

When a key is held down it will repeat.

Index: K78 - Repeat

5.2 No Keyboard Function

The 101-keyboard port is disabled.

Index K78 - nokb

5.3 No Click Function

The depression of a key does not sound a click.

Index K78 - noclick

5.4 Delay Function

The key depression is set to delay from 3ms to 45ms.

Index: K78 - delay n

Where n is 1 to 15 (1 = 3ms, 2 = 6ms, 3 = 9ms, 4 = 12ms, 5 = 15ms, 6 = 18ms, 7 = 21ms, 8 = 24ms, 9 = 27ms, 10 = 30ms, 11 = 33ms, 12 = 36ms, 13 = 39ms, 14 = 42ms, 15 = 45ms).

5.5 Mode Key Function

Index K78 -modekey

The number one key (top left) is designated as the mode key and the keyboard has three levels. The keyboard consists of the layout you have programmed (number one key not included) and the following two fixed tables. The mode key is a toggle key: Your keyboard is available when the mode key is not depressed. Table 1 is available when the mode key is depressed for the first time. Table 2 is available when the mode key is depressed for the second time. Your keyboard is available when the mode key is depressed again.

NOTE: Any of the special functions can be used in combination with another special function.
For example: K78 -repeat -noclick -delay

This will provide repeat, no click and a delay of 30ms between character. You can open a program from the DOS command line by issuing the following command
K78 -program = name

KB-78 KEYBOARD TABLE 1 MODE

mod key	! 1	@ 2	# 3	\$ 4	% 5	^ 6	& 7	* 8	(9) 0	F1	F2
ESC	a	b	c	d	e	f	num lock	/	*	-	F3	F4
Tab	g	h	I	j	k	back space	7 home	8 up	9 page up	+	F5	F6
Ctrl (left)	l	m	n	o	p	cap lock	4 left	5	6 right	print scrn	F7	F8
Shift (left)	q	r	s	t	u	scroll lock	end	down	page down	pause	F9	F10
Alt (left)	v	w	x	y	z	\	insert	space	Del	enter	F11	F12

KB-78 KEYBOARD TABLE 2 MODE

mod key	'	- =	+ =	{ [}]	: ;	" '	< ,	> .	? /	F1	F2
ESC	a	b	c	d	e	f	num lock	/	*	-	F3	F4
Tab	g	h	I	j	k	back space	7 home	8 up	9 page up	+	F5	F6
Ctrl (left)	l	m	n	o	p	cap lock	4 left	5	6 right	print scrn	F7	F8
Shift (left)	q	r	s	t	u	scroll lock	end	down	page down	pause	F9	F10
Alt (left)	v	w	x	y	z	\	insert	space	Del	enter	F11	F12