POSIFLEX

KB-6800/KB-6800U Series
Programmable Keyboard
User's Manual

Rev. Original

FCC Notes:

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with limits for a Class A digital device pursuant to subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at its own expense will be required to take whatever measures to correct the interference.

Warranty Limits:

Warranty will terminate automatically when the machine is opened by any person other than the authorized technicians. The user should consult his/her dealer for the problem happened. Warranty voids if the user does not follow the instructions in application of this merchandise. The manufacturer is by no means responsible for any damage or hazard caused by improper application.

About This Manual:

This manual is written in an attempt with full strength to assist the user to utilize the powerful programmable keyboard KB-6800 series which consists of a 6 positioned electronic control key and 84 press keys which provides excellent tactile click when pressed, and an optional magnetic stripe reader for ISO standards. The KB-6800 not only is capable of being programmed to transmit whatever code a standard PC or PS2 keyboard can deliver, but also provides a great variety of programmability such that contains all capabilities of the most modern programmable keyboards.

The manufacturer of this product heartily apologizes to the user for reserving the right to change or to modify this manual without notice due to the rapid and constant progress and improvement on science and technology.

The information in this manual contains only essential hardware concerns for general user and is subject to change without notice. Posiflex reserves the right to alter product designs, layouts or drivers without notification. The system integrator shall provide applicative notices and arrangement for special options utilizing this product. The user may find the most up to date information of the hardware from web sites: http://www.posiflex.com or http://www.posiflex.com.tw

I. OVERVIEW

A. SCOPE

The KB-6800 series is a series of powerful programmable keyboard suitable for application in PC compatible system, programmable without TSR under DOS, WEPOS, Win XP pro, POSReady and Linux environment. This series provides 70 keys (max.) of a comfortable size in 6 x 9 matrix within which a 4 x 4 numerical keypad resides and a 6 position control key which is capable of altering definition set of all programmable keys and sending answer back codes according to the position of the key.

B. FEATURES

1) Powerful programming ability

KB-6800: programming under DOS, programming under Windows, multiple page, multiple level, whole range key content, time delay, position sense answer back code, etc.

KB-6800U: programming under Windows, multiple page, whole range key content, time delay, position sense answer back code, etc.)

2) True spill proof structure
3) Reliable and pleasant key click
4) Comfortable key size
5) Optional blank key, double key for alternative key group layout
6) Optional MSR (Magnetic Stripe Reader)
7) Support two types of interface, PS2 interface for KB-6800 and USB interface for KB-6800U
8) WEPOS and POSReady is supported in KB-6800U

II. INSTALLATION

A. PS2 CABLE CONNECTION

For installation in a PC or a compatible system with KB-6800 connect the 6 pin DIN male plug of cable out of the accessory bag to the 6 pin DIN female connector at the left of the bottom of the programmable keyboard. Connect the mini DIN 6 male plug of the cable to the PS2 KB port of the system. Connect the PS2 keyboard or other PS2 keyboard wedged device like a CCD scanner to the 6 pin mini DIN female connector at the bottom of the programmable keyboard if required.
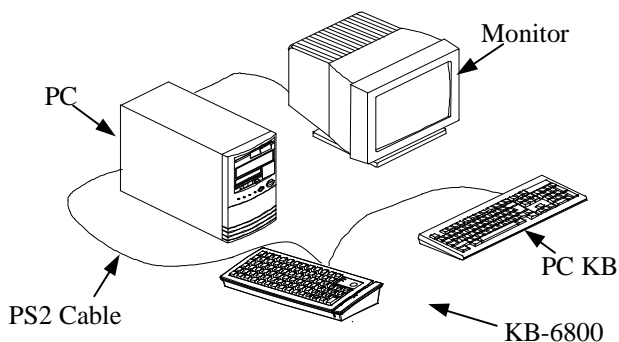
Fig.3-1

B. USB CABLE CONNECTION

For installation in a PC or a compatible system with KB-6800U connect the "B" type connector of the interface cable to the "B" type USB connector at the middle of bottom of the programmable keyboard and connect the other end of "A" type to the USB port of PC or a compatible system.
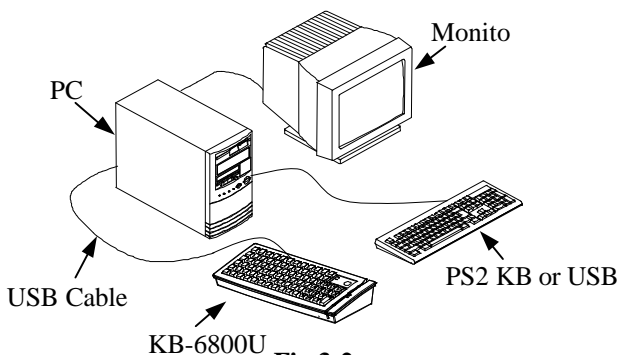

Fig.3-2

C. KEYTOP LAYOUT

The basic layout of this programmable keyboard is a matrix with 6 rows and 13 columns to provide maximum 70 keys with the 6 position control key. However, there are means for the user to break the monotony and to improve the efficiency in application of this programmable keyboard.

First of all, there are 4 legend sheets of different colours in the accessory bag that the user may want to print the identification for each programmed key into

each cell of the sticker matrix and then stick each cell printed with the identification onto the surface of the corresponding key top. A key cap from the accessory bag can be snapped on the key top to protect the sticker (ref. Fig. 3-2). In this way the user may feel a lot easier in using the programmable keyboard.

At the bottom of the programmable keyboard, the user may find an adjustable key clip which can be used to pick up the key cap whenever required (ref. Fig. 3-2). The two "feet" of the key clip should be pulled wide for use with double key and quad key (ref. Fig. 3-5). It is advisable to use a flattop (minus sign) screw driver to help getting the key top off when necessary (ref. Fig. 3-2, 3-3 and 3-4).

If there is a need to install a key top onto the programmable keyboard, the user should notice that at the bottom of each key top, one of the four walls is springy and in the hole on the keyboard to accept the bottom of the key top there is a protuberance at the lower side. The user should match the springy wall of key top against the protuberance in the hole (ref. Fig. 3-6) and press the key top down till a click sound is heard. The key cap (except the blank key) should be placed after the printed label is stuck onto the key top.

Among the options available for this programmable keyboard is a set of "numerical keys" which is composed of 12 individual keys each is pre-printed with one from the set of "0", "00", ".", "1", "2", "3", "4", "5", "6", "7", "8" and "9". These numerical keys are moulded in a little different shape from the normal individual keys and are suitable for the user to create a particular "numerical keypad" at any zone on the programmable keyboard which is convenient to the user (ref. Fig. 3-7).

Furthermore, there are blank keys available which the user can use to form visible partitions or clusters of key tops on the programmable keyboard. When the user wants to make a group of keys on the programmable keyboard clearly separated from the rest part of the keyboard for certain specific application, he/she can use the blank keys to replace the normal individual keys around the area. The top surface of a blank key is at the ground level of the key stroke for other keys (ref. Fig. 3-7). The blank key will not be pressed down when pressed. The user may order for accessional quantity of the blank keys as option for his/her application.

There are also double key and quad key available for the user to configure the programmable keyboard such that the most frequently used keys may occupy larger areas. The double key occupies two "vertically" adjacent positions and

uses only the bottom position for key content (ref. Fig. 3-3). The quad key occupies a two by two metrical area and uses only the lower right position for key content (ref. Fig. 3-4).

An example of using the above mentioned alternate key tops is shown in Fig. 3-7.
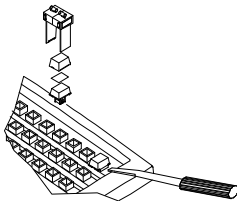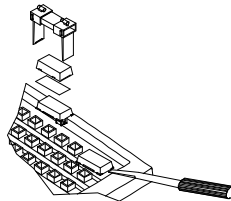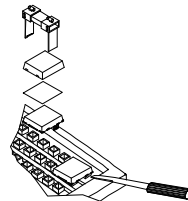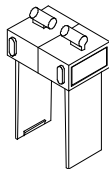

Fig. 3 - 2   **Fig. 3 - 3**   **Fig. 3 - 4**

Protuberance

Springy wall

Fig. 3 - 5   **Fig. 3 - 6**

Single key

Numerical keys

Double key
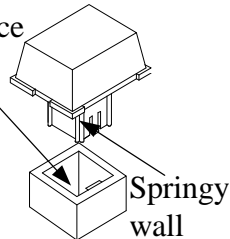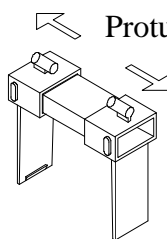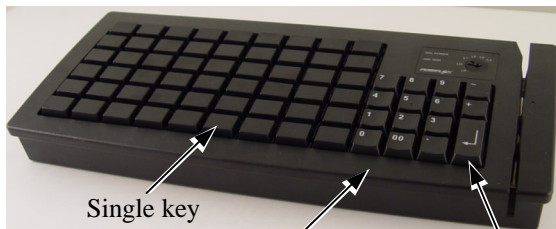
Fig. 3-7

III.   APPLICATION

A.   KEYBOARD CONSTRUCTION

MSR indicator (for KB-6800 only)   Power-on LED

6 position key switch

MSR slot

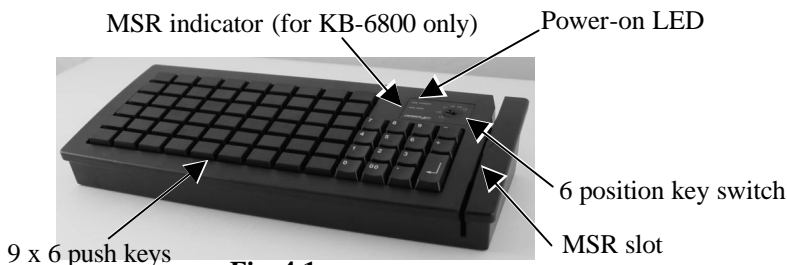9 x 6 push keys

Fig. 4-1

This keyboard is constructed of three parts on the top surface (ref. Fig. 4-1). A 6 position turning key switch area is at the upper right corner, a 13 x 6 matrix of push key switches occupies most of the top surface and a slot near the right edge is designed for the Magnetic Stripe Reader of the -M2, -M3, -MJ models.

In the rectangular area at upper right corner there are one 6 position electronic key switch and two LED's. The upper LED is for power-on indicator and under power-on LED is the MSR indicator (available in KB-6800 with MSR only). The 6 position electronic key can be turned to

	PRG	REG	Z	GT
LP	Y	N	N	N
L0	Y	Y	Y	Y
L1	Y	Y	Y	Y
L2	Y	Y	Y	Y
L3	Y	N	Y	Y
L4	N	N	N	Y

one of the following 6 positions: LP, L0, L1, L2, L3 and L4. It can only be taken out from the switch at positions L0 and L1. The purpose of this electronic key serves 3 folds: When the key is switched to (and extracted from) position L0, the whole keyboard output will be blocked off by hardware to work as a security measure. A programmable answer back code for the final position of the 6 position electronic key will be sent by the keyboard to the host computer whenever the key is switched to a new position for a programmable delay time or when the host computer sends a specific command to inquire the keyboard. The position of the electronic key determines which page of the key content table for the push keys applies, while the definitions of the same key within different pages can be programmed so absolutely independent to provide instant menu change over.
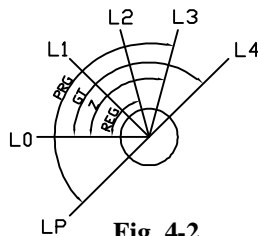

L2   L3
L1   L4
PRG
GT
Z
L0   REG

LP   **Fig. 4-2**

This turnable electronic key switch is delivered with a set of 4 pcs keys, each marked as "PRG", "REG", "Z" and "GT". The effective range of each of the 4 keys can be illustrated by the following table and drawing (ref. Fig. 4-2).

B.   MSR (Magnetic Stripe Reader)

The MSR or USB MSR slot is near the right edge of the Programmable Keyboard. The MSR indicator LED (available in KB-6800 with MSR only) is located at the upper left corner of the block containing the electronic key. There are three choices of the reader types – ISO 1, 2 dual tracks and ISO triple tracks types. For card reading, be sure to insert the card to the bottom with magnetic stripe of ISO card facing downward. The movement of an ISO card can be either inserting the card from the top surface at the upper end then sliding the card to the lower out of the slot, or sliding the card from the lower of the slot till it reaches the upper end of the slot (ref. Fig. 4-3). The MSR indicator will light up in green when the MSR is ready to read, blink during reading, and then give a green light if the reading is successful. The MSR indicator will turn to be red if the reading fails due to improper sliding or poor magnetic intensity of the magnetic stripe, the MSR indicator will then turn back to green when the MSR is again ready to read.

Fig. 4 - 3 Reading magnetic stripe cards of ISO standard

IV.   PROGRAMMING THE KEYBOARD

A.   UTILITY INSTALLATION
✧ FOR KB-6800:

There are in total three methods to program the programmable keys in the PS/2 interface KB-6800 series keyboard: "RWM.EXE" the straightforward direct read/write programming utility under DOS or Windows DOS box; "KBM.EXE" the normal programming utility under DOS or Windows DOS box or "KBW.EXE" the normal programming utility under Windows.

In the attached product information CD, please find subfolder of "KBM.xxx" in folder \Drivers\KB\KB6800\PS-II where "xxx" can represent the driver

version. In the subfolder, there is a file named "INSTALL.EXE" for installation of all the utilities into operating system like Windows and DOS. The user may install the programming utility by following the step by step instructions from this executable program. Both "KBM.EXE" and "RWM.EXE" will be installed after completion. Please select the right model when entering the "KBM.EXE" program. The user may refer to the information on our web site for a preview of this program.

A programming utility that is referred to as "KBW.EXE" in this manual is developed particularly for the Windows environment. Please find in folder \Drivers\KB\KB6800\PS-II of the product information CD the subfolder "KBW.xxx" where "xxx" can represent the driver version and double click the "Setup" program in the subfolder to install the whole utility. After completion of the "Setup", there will be a program group "Posiflex Tools" in the program files. Clicking the program "Posiflex Programmable Keyboard" in this group will activate the KBW.EXE for the KB-6800 series. Please select the right model when entering the program.

✧ **FOR KB-6800U:**
The methods to program the programmable keys in USB interface KB-6800U series keyboard is "uKBW.EXE" the only programming utility under Windows capability.

To install this utility please find in folder \Drivers\KB\KB6800\USB of the product information CD the subfolder "uKBW.xxx" where "xxx" can represent the driver version and double click the "Setup" program in the subfolder to install the whole utility. After completion of the "Setup", there will be a program group "Posiflex Tools" in the program files. Clicking the program "Posiflex USB Programmable Keyboard" in this group will activate the uKBW.EXE for the KB-6800 series. Please select the right model when entering the program.
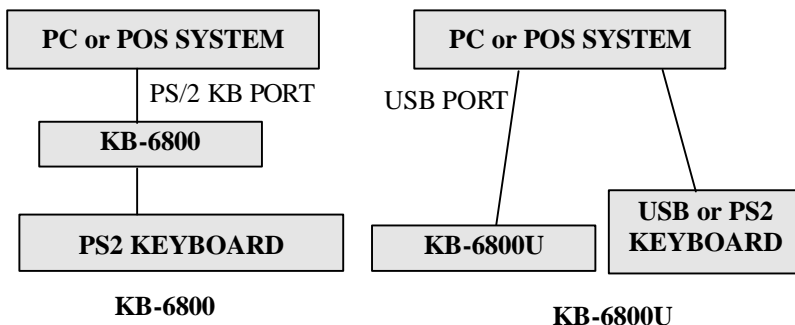
B. PROGRAMMING UTILITY

1 SETUP

Fig. 5 - 1 Preparations

2 HARDWARE LIMITATION

In case of "multiple combinations key" application which means pressing three or more keys at the same time to obtain certain data output from the keyboard, there could be some limitations inherent from the nature of keyboard structure. The CPU of keyboard detects the contact between the "horizontal" and "vertical" lines for each key press, recognizes which key is pressed and sends correspondent data to the host computer. When there are many keys pressed at the same time, and the pattern of the contacts coincides with some special relationship, there are chances that the CPU of keyboard be confused about exactly which keys are pressed. The user may change the locations of the key-definition to prevent this once such confusion happens.

3 ANSWER BACK CODE

Programming the answer back codes of the 6 position electronic key-lock is also very easy as they are included in the keyboard programming with the locations coded as "KLP", "KL0", "KL1", "KL2", "KL3" and "KL4" in the key-layout map of page L1. These answer back codes will be issued by the programmable keyboard to PC whenever the 6 position electronic key is switched to a new position (there will be a time delay as determined in the configuration of the keyboard programming utility and is adjustable by "r" and "t" key presses in "KBM.EXE", this time delay is useful to give only the answer back code of the last position of control key when it is turned across multiple positions) or when the KB-6800 or KB-6800U receives an "enquiry" command through PS/2 KB port or USB port that is generated by the Application Program (AP).

4   QUICK GUIDE on KBM.EXE for KB-6800 UNDER DOS

Please refer to our web site for every detail in programming these programmable keyboards. The following simplified guide severs as a concise tool for instant application.

Keys To Program	How to Program Them
Esc, F1 - F12, Back Space, Shift, Ctrl, Alt, Insert, Delete, End, Page Up, Page Down, Print Scrn, Scroll Lock, Break, and all Arrow Functions	**Press:** (Alt-N), Esc, "Desired Key", Down Arrow
A - Z, 0 - 9, ~ ` ! @ # $ % ^ & * ( ) - _ = + } { [ ] | \ ' ; " : /. , < > ?	**Press:** Enter, "Desired Key or Keys", Down Arrow
Tab, Enter	**Press:** (Alt-N), "Desired Key", Down Arrow
Caps Lock	**Press:** Enter, (Alt-C), Down Arrow
Multishift	**Press:** (Alt-N), (Alt-M), Down Arrow - - - - Press (Alt-M) as many times as needed.
Separator	**In Between Any Text, Press** (Alt-S)

5   SHORTCUT UTILITY RWM.EXE for KB-6800 UNDER DOS

The feature of this RWM.EXE is designed mainly for the off-line programming purpose and is very useful in quick reproduction of the preprogrammed contents of the programmable keyboard. In such application, the user should have either the preprogrammed keyboard or the preprogrammed file with ".tpl" extension name which is the result of the keyboard programming. The user may use RWM.EXE to directly transfer the programmed result of the programmable keyboard to a ".tpl" file or directly transfer a pre-stored ".tpl" file to a programmable keyboard without entering the utility "KBM.EXE" or "KBW.EXE" which may take more keystrokes. For instance, the user wants to transfer a file "XXX.tpl", which was saved before, to the programmable keyboard, he/she should type in following command in subdirectory "POSIFLEX.D":

    RWM XXX.tpl   (enter)

This operation is quite recommended to be performed on a daily basis to

ensure the system stability.

On the other hand, when the user wants to save the contents of a programmed keyboard, e.g. when he/she newly receives a programmable keyboard, to a file named "YYY.tpl", he/she should type in following command in subdirectory "POSIFLEX.D":

RWM –r YYY.tpl　　　　　(enter)

In this application, the user must be careful on the housekeeping of these template files and **never mix** such files with those originated from other programmable keyboard. In other words, transferring a file generated from other programmable keyboard to KB-6800 series could mess up the data format inside KB-6800 series, and vice versa.

6   UTILITY KBW.EXE for KB-6800 UNDER WINDOWS

This utility programs the programmable keyboard as KBM.EXE does but using Windows application interface. Please use on - line help to program the programmable keyboard. Use the connected PS/2 keyboard or separately connected USB keyboard for data entry of usual characters. Use mouse right click or the " 📑 " key on keyboard for data input of some special codes.

7   MSR CONFIGURATION for KB-6800

For setting up configuration of MSR on PS/2 interface KB-6800, please use the MSR configuration item within the keyboard programming utilities "KBM.EXE" or "KBW.EXE" mentioned above. However, in "KBM.EXE" the MSR configuration item lies within the keyboard configuration as a sub-item. The utility can set each individual track enabled or disabled for reading data, or data sending out under "Alt"+"Num" approach or having the start/end sentinels altered or changing the data transfer rate.

8   UTILITY uKBW.EXE for KB-6800U UNDER WINDOWS

This utility programs the programmable keyboard as KBW.EXE does but working on the USB interface KB-6800U. Please use on - line help to program the programmable keyboard. Use the connected PS/2 keyboard or separately connected USB keyboard for data entry of usual characters. Use mouse right click or the " 📑 " key on keyboard for data input of some special codes.

9   MSR CONFIGURATION for KB-6800U UNDER WINDOWS

For setting up configuration of MSR on USB interface KB-6800U, please use the USB MSR manager that is installed from folder \Drivers\KB\KB6800\USB\USBMSR of the product information CD. The

utility can set each individual track enabled or disabled for reading data, or data sending out under "Alt"+"Num" approach or having the start/end sentinels altered or changing the data transfer rate.

V. SPECIFICATIONS

CONSTRUCTION: Spill-proof, 70 keys + 6 position control key

LED COLOR: Power on – Green

MSR – Green & Red (for KB-6800 only)

KEY SWITCH TYPE: membrane plus rubber dome

KEY STROKE TRAVEL: 3.2 mm

KEY TOP SIZE: 18 x 22 mm for normal keys

PREPRINTED KEYS: ".", "00", "0" to "9"

KEY CAP: 18 x 22 mm transparent

PROGRAMMABILITY:

METHOD: Software programming under DOS (KB-6800 only), Win98, Win 2000, Win XP embedded or Win XP Pro without TSR program

COVERAGE: 70 keys by 5 pages + one 6-position control key with answer back code

CODE TYPE: Keyboard scan codes (KB-6800)

HID Usage ID Codes (KB-6800U)

LANGUAGE: English or European, software configured

KEY-CONTENTS

LENGTH: 1 - 255 byte(s)/key

MEMORY: Non-volatile memory, 8KB

INTERCHARACTOR

OUTPUT SPEED: programmable 0 - 140 msec

TIME DELAY: programmable 0 - 240 sec

MULTILEVEL: 8 levels max.(Only for KB-6800)

DOWN LOAD SPEED: ≤ 40 sec. For 8 KB (KB-6800)

≤ 20 sec. For 8 KB (KB-6800U)

CONTROL KEY:

- 6 positions (LP, L0, L1, L2, L3, L4), key extractable at L0 and L1
- Hardware lock off all keyboard data output at L0 after transmitting answer back code if programmed
- Capable of giving programmable answer back code of each position on position change of the key
- Capable of giving programmable answer back code of each position on receiving a specific code command from host computer
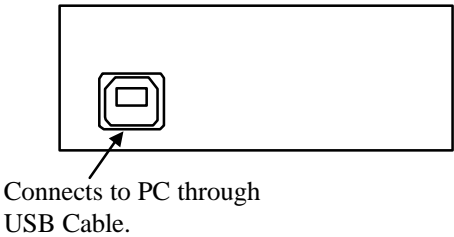
OUTPUT INTERFACE:
PS2 Interface connection (KB-6800):
- 6 pin DIN female connector: connect to host computer
- 6 pin mini DIN female connector: connect to input PS2 keyboard

Connects to PC through   Connects to PS2
PS2 Cable.   keyboard
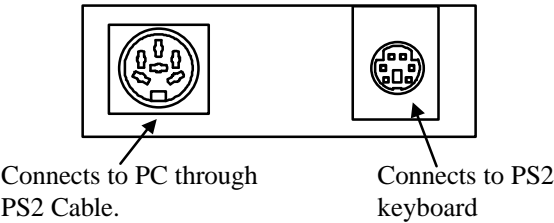
USB Interface connection (KB-6800U):
- "B" type USB connector: connect to host computer

Connects to PC through
USB Cable.

MAGNETIC STRIPE READER:
- Decoder & interface   Built in keyboard wedge (KB-6800) or
                         USB (KB-6800U) interface
- Tracks........................1 & 2 (for ISO7811) or
                         1, 2 & 3 (for ISO7811) or
                         JIS I/ II (for JIS X 6302)
- Parameters................Can be configured by software

Reader specification

Applicable card type	ISO 7811	JIS X 6302
Card feed method	Manual	Manual
Card feed direction	Bi-direction	Uni-direction
Read / write function	Read only	Read only
Card feed speed	5 to 55 inches/sec.	100 ~ 1200 mm/sec.
Error rate	Less than 0.5%	Less than 0.1%

Card data format

Card standard	IATA	ABA	THRIFT	JIS I	JIS II
Track used	Track 1	Track 2	Track 3	Track 2	Rear side
Recording method	F2 M	F2 M	F2M	F2 M	F2 M
Recording density	210 BPI	75 BPI	210 BPI	75 BPI	210 BPI
Recording capacity characters / bits	79 / 7	40 / 5	107 / 5	40 / 5	72 / 7

POWER CONSUMPTION:

Voltage.................... 5 VDC±10%
Current..................... 125 mA max. (KB-6800 w/o MSR)
                                     150 mA max. (KB-6800 w/MSR)
                                     100mA (KB-6800U w/o USB MSR)
                                     300mA (KB-6800U w/ USB MSR)

MECHANICAL:

Dimension in mm.....……340 mm x 150 mm x 58 mm
Dimension in inches.…. 13.4" x 5.9" x 2.3" (W x D x H)

ENVIRONMENTAL:

Operating temperature...... 0°C to + 50°C
Storage temperature.......... -20°C to + 70°C
Relative humidity............. 90%, non-condensing

RELIABILITY INFORMATION:

Push key switch:........ 15,000,000 strokes min.
Memory:................... 100 years min.
MSR head life: ....500,000 passes min.

APPLICABLE CONFORMITY:

CE, FCC CLASS A, RoHS