

## **KVM-9000**

**19" 1U High, Full-size  
Rackmount Chassis**

- **19" 1U Height Full-size Rackmount Chassis •**
  - **8-port KVM Switch •**
  - **LCD • Keyboard • Touchpad •**

## Copyright Disclaimers

The accuracy of contents in this manual has passed thorough checking and review before publishing. BOSER Technology Co., Ltd., the manufacturer and publisher, is not liable for any infringements of patents or other rights resulting from its use. The manufacturer will not be responsible for any direct, indirect, special, incidental or consequential damages arising from the use of this product or documentation, even if advised of the possibility of such damage(s).

This manual is copyrighted and BOSER Technology Co., Ltd. reserves all documentation rights. Unauthorized reproduction, transmission, translation, and storage of any form and means (i.e., electronic, mechanical, photocopying, recording) of this document, in whole or partly, is prohibited, unless granted permission by BOSER Technology Co., Ltd.

BOSER Technology Co., Ltd. reserves the right to change or improve the contents of this document without due notice. BOSER Technology Co., Ltd. assumes no responsibility for any errors or omissions that may appear in this manual, nor does it make any commitment to update the information contained herein.

## Trademarks

***BOSER is a registered trademark of BOSER Technology Co., Ltd.***

***ISB is a registered trademark of BOSER Technology Co., Ltd.***

***Intel is a registered trademark of Intel Corporation.***

***Award is a registered trademark of Award Software, Inc.***

***AMI is a registered trademark of American Megatrends, Inc.***

***All other trademarks, products and or product names mentioned herein are mentioned for identification purposes only, and may be trademarks and/or registered trademarks of their respective companies or owners.***



***© Copyright 2004 BOSER Technology Co., Ltd.  
All Rights Reserved.  
Edition 1.0 April 13, 2004***

## *Table of Contents*

<b>Chapter 1</b>	<b>General Description.....</b>	<b>1</b>
1.1	Features.....	2
1.2	Specifications .....	2
1.3	System Requirements.....	3
<b>Chapter 2</b>	<b>Unpacking.....</b>	<b>5</b>
2.1	Opening the Delivery Package.....	5
2.2	Inspection.....	5
<b>Chapter 3</b>	<b>Hardware Installation.....</b>	<b>7</b>
3.1	Connector Diagrams .....	7
3.2	Hardware Installation .....	8
3.3	Usage.....	9
	<b>3.3.1 Power Supply.....</b>	<b>9</b>
	<b>3.3.2 7-segment LED Indication .....</b>	<b>9</b>
	<b>3.3.3 Keyboard Hot Key Commands .....</b>	<b>10</b>
3.4	Daisy Chain Connection Diagram.....	11
3.5	Hot Plug.....	12
3.6	On Screen Display Operation.....	13
<b>Appendix A</b>	<b>Trouble Shooting.....</b>	<b>17</b>

## **Safety Instructions**

***Before getting started, read the following important cautions:***

1. The KVM-9000 does not come equipped with an operating system. An operating system must be loaded first before installing any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power core from the KVM-9000 before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the KVM-9000 is properly grounded.
4. The brightness of the flat panel display decreases with usage. However, hours of use vary depending on the application environment.
5. The flat panel display is not susceptible to shock or vibration. When assembling the KVM-9000, make sure it is securely installed.
6. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

*Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.*

*When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.*

## **Safety Approvals**

### ◆ **CE Marking**

## **CE Compliance**

This equipment is in compliance with the requirements of the following regulations: EN 55 022: CLASS B

### ◆ **FCC**

## **FCC Compliance**

This equipment has been tested and found to comply with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. This device may not cause harmful interface.
2. This device must accept any interference received, including interference that may cause undesired operation.



# *Chapter 1*

---

## **General Description**



Controlling multiple PCs from one keyboard, mouse and VGA monitor, the KVM-9000 is loaded with such features as 19" rackmount size, daisy chain up to eight units, On Screen Display menu, password security, PC server name search, hot key control, front panel push button and auto scan control. It has a complete keyboard and mouse emulation for simultaneous PC boot-up process.

## 1.1 Features

The KVM-9000 comes with the following hardware features:

- Slimmest 19" 1U high, full-size rackmount 8-port KVM switch with LCD, keyboard, touchpad design
- Supports MS Intellimouse, Intellimouse Explorer, Logitech Net Mouse or the other fully compatible MS mouse
- Provides Console PS/2 to PC serial mouse conversion
- Supports DOS, Win3.X, Win95/98/ 98SE/2K/ME/XP, WinNT, Netware, SCO UNIX, HP UNIX, Linux
- Hot plug - add PCs or remove connected PCs for maintenance without powering down the KVM switch or PCs
- Very high video quality - up to 1024 x 768, bandwidth: 200MHz
- No software required - easy PC selection via On Screen Display manual, push buttons, and hot keys
- Supports eight characters password protection and search for PC server name
- Auto scan mode for monitoring PCs and flexible scan time is 5~99 sec.
- Keyboard status restored when switching PCs
- LED display for easy status monitoring
- Buzzer sound for switching port confirmation
- Using standard VGA, keyboard, and mouse cable
- One extra built-in daisy chain port and without wasting any PC port
- No DIP switch setting needed and auto detect daisy chain bank

## 1.2 Specifications

- **PC Port:** 8
- **Console Port:** 1
- **PC Port Connector (All Female Type):** PS/2 6-pin Mini DIN keyboard, PS/2 6-pin Mini DIN mouse, 15-pin HDDB VGA
- **Daisy Chain Port Connector (All Female Type):** PS/2 6-pin Mini DIN keyboard, PS/2 6-pin Mini DIN mouse, 15-pin HDDB VGA
- **PC Selection:** On Screen Display menu, Hot Key, Push Button
- **7 Segment LED:** One bank LED, two PC port LEDs
- **On Screen Display Control:** Yes
- **Scan Intervals:** 5~99 sec.
- **Keyboard Emulation:** PS/2
- **Mouse Emulation:** PS/2
- **VGA Resolution:** 1024 x 768
- **Bandwidth:** 200MHz



- **Daisy Chain MAX Level:** 8 levels
- **MAX PC Connection:** 120
- **Housing:** Metal
- **Power:** 110/220 AC
- **Operation Temperature:** 0~40 °C
- **Storage Temperature:** -20~+60 °C
- **Humidity:** 0~90%, non-condensing
- **Size:** 19" 1U high, rackmount
- **Dimensions (cm):** 44.24 x 4.4 x 55.0

## 1.3 System Requirements

- **Specifications:**

- Console:**

- Built-in VGA monitor
  - Built-in PS/2 keyboard
  - Built-in PS/2 touchpad

- To Computers:**

- 15-pin HDB male to male VGA cables x 8
  - PS/2 cables male to male for keyboard x 8
  - PS/2 cables male to male for mouse x 8

**This page intentionally left blank.**

# Chapter 2

---

## Unpacking

### 2.1 Opening the Delivery Package

The KVM-9000 is packed in an anti-static bag. The board has components that are easily damaged by static electricity. Do not remove the anti-static wrapping until proper precautions have been taken. Safety Instructions in front of this manual describe anti-static precautions and procedures.

### 2.2 Inspection

After unpacking the board, place it on a raised surface and carefully inspect the board for any damage that might have occurred during shipment. Ground the board and exercise extreme care to prevent damage to the board from static electricity.

Integrated circuits will sometimes come out of their sockets during shipment. Examine all integrated circuits, particularly the BIOS, processor, memory modules, ROM-Disk, and keyboard controller chip to ensure that they are firmly seated. The KVM-9000 delivery package contains the following items:

- ◆ KVM-9000 x 1
- ◆ AC to DC Power adapter x 1
- ◆ Daisy Chain cable x 1
- ◆ Rackmount Kit x 2
- ◆ User's Manual

The KVM-9000 system along with its accessories is packed in several bags and boxes, all packed in one carton. Before you start, carefully read the safety instructions in front of this User's Manual.

It is recommended that you keep all the parts of the delivery package intact and store them in a safe, dry place for any unforeseen event requiring the return shipment of the product. In case you discover any missing and/or damaged items from the list of items, please contact your dealer immediately.











**This page intentionally left blank.**

# Chapter 3

## Hardware Installation

Before installation, please make sure all of peripherals and computers have been turned off.

### 3.1 Connector Diagrams

PS/2 Keyboard Cable (Male to Male)		
PS/2 Mouse Cable (Male to Male)		
VGA Cable (Male to Male)		
AT to PS/2 KB adapter (optional) (5-pin Male to 6-pin Female))		
PS/2 to DB9 adapter (optional) (6-pin Female to 9-pin Female)		

## 3.2 Hardware Installation

1. Find a convenient place to put your KVM-9000. When mounting to a rack, attach the included brackets to the sides of the KVM-9000. Take note of the length of your cables so that your computers keyboard, mouse and monitor are distanced properly.



2. Now the PC connections can be made with the monitor (VGA) connections first. Connect a VGA cable (15-pin HDDB male/ male) with the male side to both of the PC and the rear panel of the KVM switch to the connector labeled VGA. Repeat this for all PCs.



3. Connect the first computer's mouse cable to the KVM-9000. If using a PS/2 cable, connect one end to the PS/2 mouse port on the computer, while the other end is connected to the PC1 PS/2 mouse port on the back of KVM-9000.



4. Connect the first computer's keyboard cable to the KVM switch. When another PS/2 cable is used connect one end to PS/2 keyboard port on the computer, while the other end is connected to the PC1 keyboard port on the back of KVM-9000. If your computer has an AT type keyboard port, you will need a PS/2 to AT keyboard adapter.



5. Double-check all of the connections. You can check the color of the keyboard and mouse connectors to make sure the keyboard and mouse cables go to the correct ports.
6. Repeat step2 to 5 for the remainder of the computers.
7. Attach the power supply to the KVM-9000 unit and plug the other end into an electrical receptacle. Now you will see the LED for Port 1 light up, and you will hear a beep.

### 3.3 Usage

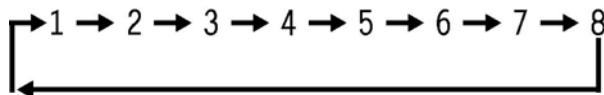
#### 3.3.1 Power Supply

When you power on the KVM-9000, it will ask you for the password, **the default password is eight zero – “00000000”**. Please key in eight zeros and enter the same value in the retyped field.

**NOTE:** *If you are not familiar with the operation of OSD menu, please don't change the password – i.e. keep default at eight zero (00000000) value, otherwise, if you have set the password and unfortunately forget the password, you need send it back to your distributor for maintaining the password.*

#### 3.3.2 7-segment LED Indication

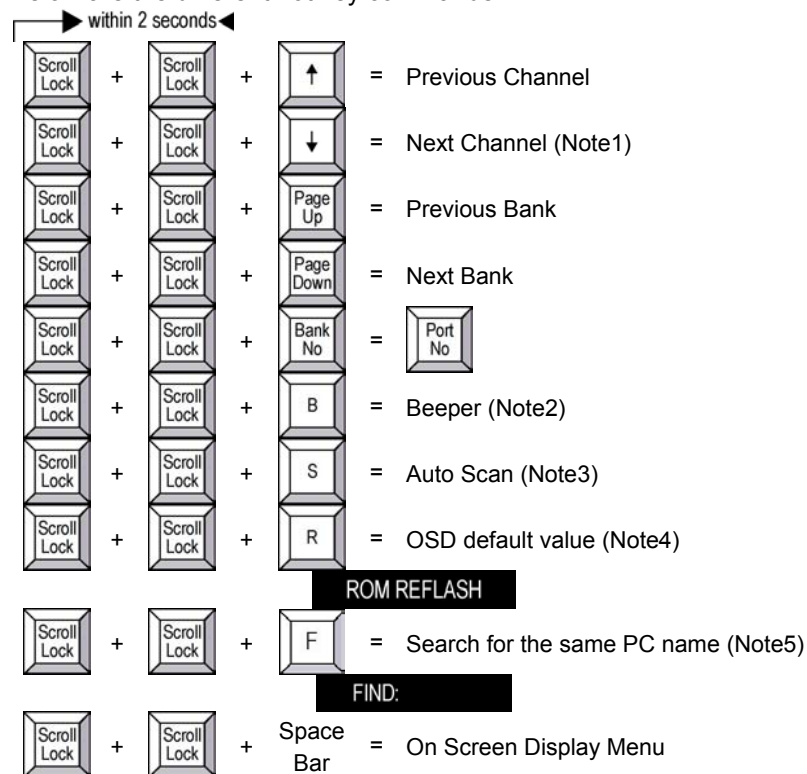
When you select one of the eight PC ports and this PC is shut down or this PC port is disconnected to the PC, the selected port LED will flash. When you select one of the eight PC ports and this PC is powered on, the selected port LED is lit.



### 3.3.3 Keyboard Hot Key Commands

You can also conveniently command the KVM-9000 by switching ports through simple key sequences. To send commands to the KVM-9000, **the “SCROLL LOCK” key must be pressed twice within 2 seconds**. You will hear a beep for confirmation and the keyboard is in hot key mode. If you have not pressed any key in hot key mode within 2 seconds, the keyboard will go back to normal Operation System control state.

Below are the different hot key commands:





**Example:**

- A. To access a computer attached to Port 6 of the fifth Bank, you can press the hot keys as below:

**Scroll lock + Scroll lock + “5” + “0” “6”**

- B. To access a computer attached from Bank 3 to Bank 4, you can press the hot keys as below:

**Scroll lock + Scroll lock + Page Down**

**NOTE1:** *You also could press “up arrow key” or “down arrow key” for a period of time to speed up selecting the destination port*

**NOTE2:** *The default Beeper function is ON and beeper control is only available for Scan Mode*

**NOTE3:** *To get out of Auto Scan Mode, press any key or SPACE bar*

**NOTE4:** *Password not included*

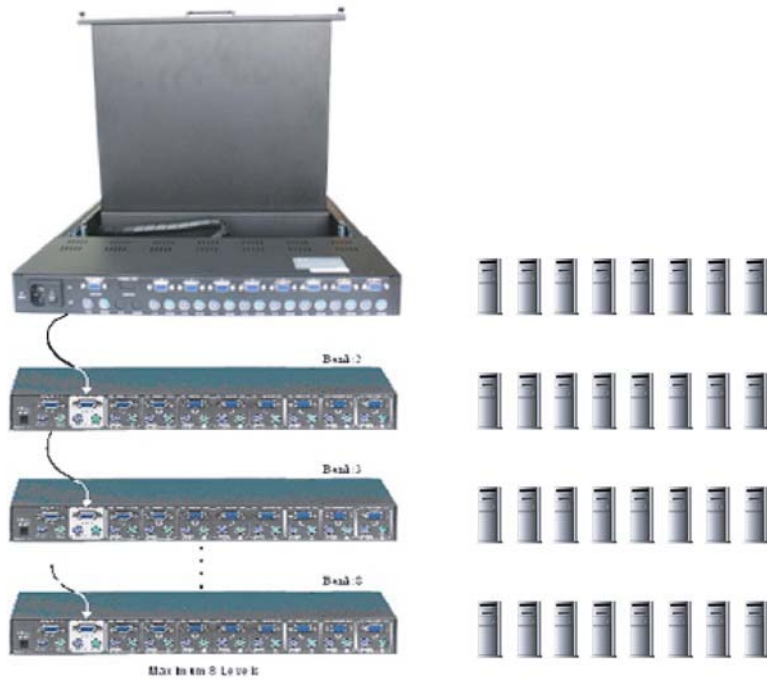
**NOTE5:** *Search for PC name starting from 1<sup>st</sup> PC port)*

**NOTE6:** *Bank no. and Port no. selection must be made using the numeric keys on the keyboard. Numeric keys on the keypad are not available as a hot key command.*

### **3.4 Daisy Chain Connection Diagram**

Please use the attached 3-foot 3-in-one daisy chain cable kit for the KVM-9000.

- A. Connect keyboard, mouse and monitor to the console port (white color block) of bank 1 KVM-9000.
- B. Use one end of 3-in-one cable kit to connect the daisy chain port of bank 1 while the other end for the console port (white color block) of bank2 KVM-9000.
- C. Please repeat item B to daisy chain more banks as you want. But, the maximum daisy chain bank is eight.
- D. Before chaining the slave bank up to six banks, you need a VGA extender between the fifth bank and the sixth bank to enhance the VGA signal.



### 3.5 Hot Plug

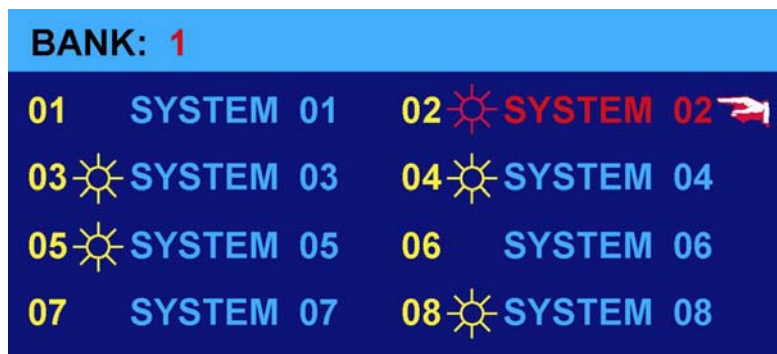
The KVM-9000 supports “Hot Plug” function for easy addition or removal of PCs. The user can arrange or maintain PCs as follows:

- A PC can be disconnected and reconnected to the same or different port of the KVM-9000 unit without having to power it off as long as it is not the Daisy-chain port or does not pass through port.
- You may unplug the mouse or the keyboard from the console port and plug it back in at any time.

**NOTE:** *Some O.S. (Operation Systems) like SCO Unix are unable to support “Hot Plug” function. If you apply “Hot Plug” to this kind of O.S., it will cause unpredictable behavior or shut down the PC. Before attempting to use “Hot Plug”, please make sure your O.S. and software driver supports the “Hot Plug” function.*

### 3.6 On Screen Display Operation

When you pop up the OSD menu window going through the hot key is popped up, you will see the following small windows on your monitor.



- The 1<sup>st</sup> line bar is Bank no.
- The 2<sup>nd</sup> block is your PC system name list. You will find the system number list from 01 to 8. You can define your PC name in a maximum of 8 characters. The factory default names for all ports are "SYSTEM 01" to "SYSTEM 08". Besides, the sun symbol near the PC name represents the PC system that is powered on.

↑/↓ : SELECT PORT

To use up arrow key "↑" or down arrow key "↓" to select port for destined PC name. After you have selected the PC port already, you can press the ENTER Key to switch the PC port you want immediately

PgDn/PgUp: BANK Select

To use "PgUp" key or "PgDn" key for selecting previous or next Bank no. (or Box No.)

ESC: QUIT      ENTER: COMPLETE  
TAB: NEXT      INSERT: EDIT

After editing a PC name by pressing the "INS" key, please press "Enter" key for saving the information.

OSD: 10 SEC.	CHANGE PASSWORD
SCAN: 10 SEC.	CONSOLE ON/OFF

To use “Tab” key to select items like Bank, OSD, SCAN, CHANGE PASSWORD, CONSOLE ON/OFF, etc.

15	SYSTEM	15	16	SYSTEM	16
OSD: 10 SEC.		CHANGE PASSWORD			
SCAN: 10 SEC.		CONSOLE ON/OFF			
ESC: QUIT		ENTER: COMPLETE			
TAB: NEXT		INSERT: EDIT			

- A. The “OSD: 10 SEC.” means that the OSD windows displays or PC system name exists for 10 sec. on your monitor. You can modify it from 05 sec. to 99 sec. The factory default value is 10 sec.
- B. The “SCAN TIME” means that scan interval from one PC port to next PC port. The default SCAN time is 10 sec. and the maximum scan time is 99 sec.
- C. The “CHANGE PASSWORD” is for user to avoid all PC systems to be intruded by the other person. The default password is 8 digits “00000000”.

ENTER PASSWORD:	
ESC: QUIT	ENTER: COMPLETE

An “ENTER PASSWORD” window will show when you select this item and then press the Enter. Eight digits is the maximum for the password. After keying in the password, press the Enter key. Another window for confirming your typed password will show.

ENTER NEW PASSWORD:	
ESC: QUIT	ENTER: COMPLETE

RETYPE NEW PASSWORD:	
ESC: QUIT	ENTER: COMPLETE

You need to retype the password to check whether it is confirmed to be right or not.

NEW PASSWORD COMPLETE	
ESC: QUIT	ENTER: COMPLETE

- D. The “CONSOLE ON/OFF” means to manage the KVM-9000. If you select “CONSOLE ON”, it means that any user can use the console. If you select “CONSOLE OFF” (OFF state by default), it means that any user will not be allowed to use the console unless you enter the password.
- E. When you finish the setting up of PC name and exiting the OSD setting mode, you will find the PC name is showed on the top, left corner of the monitor. Now, you can use “ESC” key to clear the message right away if you don’t need it.

## 102 SYSTEM 02

- F. If you want OSD to return back to factory default value, you can execute “SCROLL LOCK”, “R” keys in this order. The seven segment LEDs on the front panel will flash during the refresh process.

## ROM REFLASH

When the OSD value is back to default setting, the seven segment LEDs on the front panel will stop flashing.

**This page intentionally left blank.**

# Appendix A

---

## Trouble Shooting

1. Make sure that all cables are well seated. Label all of cables with the number for each respective computer to avoid confusion.
2. The recommended VGA and PS/2 cable distance is 5 meters maximum without ghosting and degradation. Normally, the cable length is based on driver capacity of your VGA card and PS/2 port. If you need longer VGA or PS/2 cable, please use VGA and PS/2 extender to accomplish your applications.
3. Don't press any keys on the keyboard while the selected computer is booting up; otherwise, it might cause the keyboard to err or not to be detected by PC.
4. The booting of computer is fine, but keyboard doesn't work, meaning that you have to:
  - Make sure the keyboard port works on the computer.
  - Try an independent keyboard with the computer.
5. If the mouse is not detected during the booting up of the PC, it means that you have to:
  - Make sure the mouse port works on the computer.
  - Try an independent mouse with the computer.
  - Avoid moving the mouse or press the mouse button when switching ports.
  - Avoid switching ports during shutting down the PC.
  - Switch one PC port to another by setting the scan time at 5 sec. or more. Normally, it takes a few seconds for the VGA monitor to change from one resolution mode to another.
6. If forgetting the “password” you typed, please contact your supplier.

**This page intentionally left blank.**