8-Port / 16-Port
KVM SWITCH
User's Manual

Version 1.0

1. Introduction

The 8-Port/16-Port KVM Switch are high quality and durable systems that will allow you to control 8/16 host computers (or servers) by connecting to PS/2 or USB connectors from one console (PS/2 / USB Mouse, PS/2 / USB Keyboard, and Monitor).

Both KCF series and KCB series are with very similar design in hardware and user interface. The following table lists the basic configuration:

Model	Number of PCs Support	Console Port	Difference
KCF-1161S	16 PCs (w/h PS/2 & USB)	PS/2 & USB	Console USB
KCF-181S	8 PCs (w/h PS/2 & USB)	PS/2 & USB	
KCB-1161S	16 PCs (w/h PS/2 & USB)	PS/2	No console USB
KCB-181S	8 PCs (w/h PS/2 & USB)	PS/2	

1.1 Features

- ✧ Controls 8 / 16 computers from a single console (Keyboard/Mouse) over either PS/2 and/or USB connections
- ✧ The PC ports support Windows, Linux, Mac OS9/OSX, Sun Microsystems.
- ✧ Keyboard emulation on each un-selected PC to allow it to boot normally without a keyboard error
- ✧ Hot-swap support. All devices connected to the KVM switch can be added or removed at any time without shutting the unit down.
- ✧ On-Screen-Display (OSD) function provides an intuitive menu driven user interface for quick and efficient navigation.
- ✧ Cascade Chain function supports 3 level of cascading to expand the number of PC connections. Three level of switch cascading can control up to 64/256/4096 PCs, from a single console and no special configuration is required.
- ✧ Support 3 types of switching: (1) Hardware Push Button control, (2) Hot key command control from PS/2 or USB keyboard, (3) Menu driven OSD.
- ✧ Provide Auto-scan function to alternate video between computers in a preset interval sequentially by OSD.
- ✧ Provide LED display for PC status monitoring.
- ✧ Supports VGA resolutions up to 2048 x 1536.
- ✧ Provide Beeper during switching enabled.
- ✧ Fully compliant with the USB 1.1/ 2.0 specification
- ✧ Support 19" system rack mounting (1U height)

1.2 Package Contents

The product package should contain the following equipment and accessories:

- ✧ 1 x 8-Port or 16-Port KVM Switch unit
- ✧ 1 x AC Power adapter
- ✧ 1 x Rack Mounting Kit
- ✧ Combo custom 4-in-1 cables (model dependent)
- ✧ 1 x Product CD (operation manual)

2. Specifications

2.1 General Specifications

Specification		
Number Of Computers Controlled	8 / 16	
PC Port Selection Method	Push Button, Hot-Key (PS/2 or USB Keyboard), OSD	
LEDs	Red for PC Selection Green for PC On-Line ready	
PC Connectors	Video	2 / 4 x HDB -15 female
		(VGA+USB+PS/2 signal combined)
Console Ports	Keyboard	KCF models - PS/2 mini-DIN + USB A type KCB models – PS/2 mini-DIN
	Mouse	KCF models - PS/2 mini-DIN + USB A type KCB models – PS/2 mini-DIN
	Video	1 x HDB -15 female
Auto-Scan Interval	5 ~ 250 Seconds (by OSD interface)	
DDC, DDC2 monitor	Yes (Max. Resolution: 2048x1536) @ 85Hz	
Hot Swappable	Yes	
Operating systems supported	Windows 98SE/ME/2000/XP/2003 Server, Linux	
	Mac OS9/OSX and Sun Micro System	
Device driver	No Need	
Power	By external Power Adapter +5VDC/2.4A	
Dimensions (L X W X H)	44 x 15.7 x 4.5 cm (17.3 x 6.1 x 1.5 inch)	
Unit Weight	8-Port : 1750g	
	16-Port : 1900 g	
Housing material	Metal	
Operating Temperature	32~ 122°F (0~ 50°C)	
Humidity	0%~80%RH	

3. System Requirements

Console

A VGA, SVGA, Multisync monitor capable of the highest resolution.

PS/2 and/or USB Keyboard/Mouse

Computer or Server

The following equipment must be equipped with each computer or server.

- A VGA, SVGA or Multisync card.

- Type A USB port or PS/2 6 pin mini-DIN for Keyboard and Mouse.

Cables

The KVM Switch must be used with specific combo 4-in-1 cables. To purchase more cable sets, contact your dealer.

Figure 3-1 Combo 4-in-1 cable
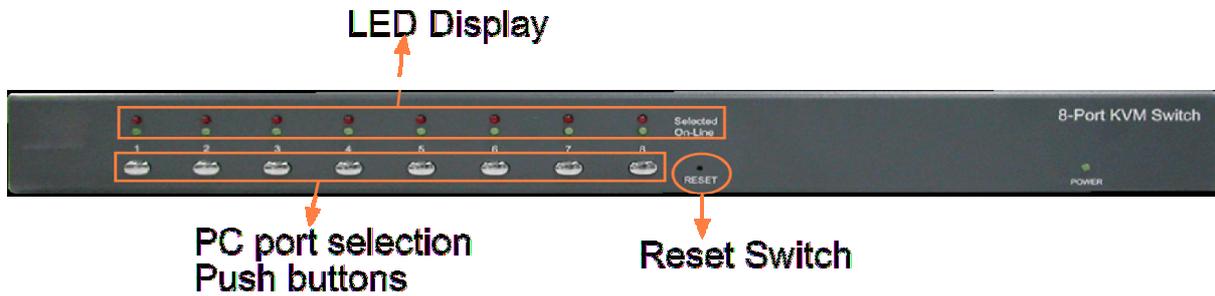
4. Installation

4.1 Front View

Figure 4-1 8-Port Models – KCB-181S, KCF-181S

Figure 4-2 16-Port Models – KCB-1161S, KCF-1161S

LED Display:

Name	Color	Function
Selected	Red	The PC port is selected.
On-Line	Green	An active PC is connected.

Reset Switch:

Press this push button switch to reset the KVM device. To push the switch, use a ball-point pen or a small stick.

PC Port Selection Push Buttons:

The push buttons are used to select an associated PC connection manually. This is a kind of hardware type control for PC port switching.
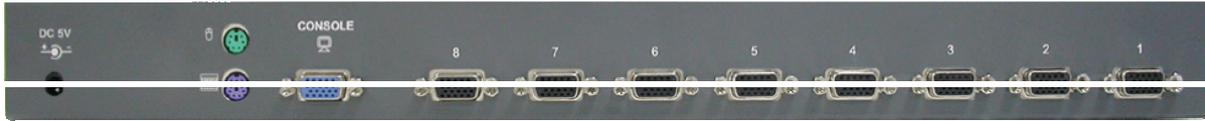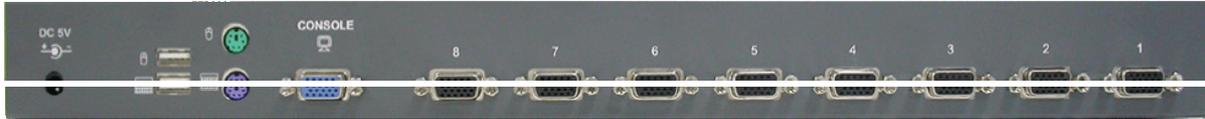
4.2 Rear View

Figure 4-3 KCB-181S

Figure 4-4 KCF-181S

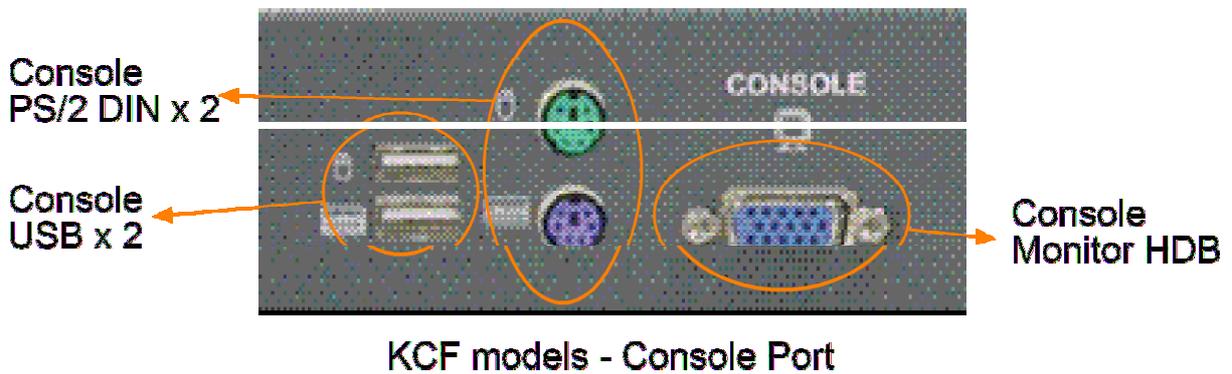Figure 4-5 KCB-1161S

Figure 4-6 KCF-1161S

KCB models - Console Port
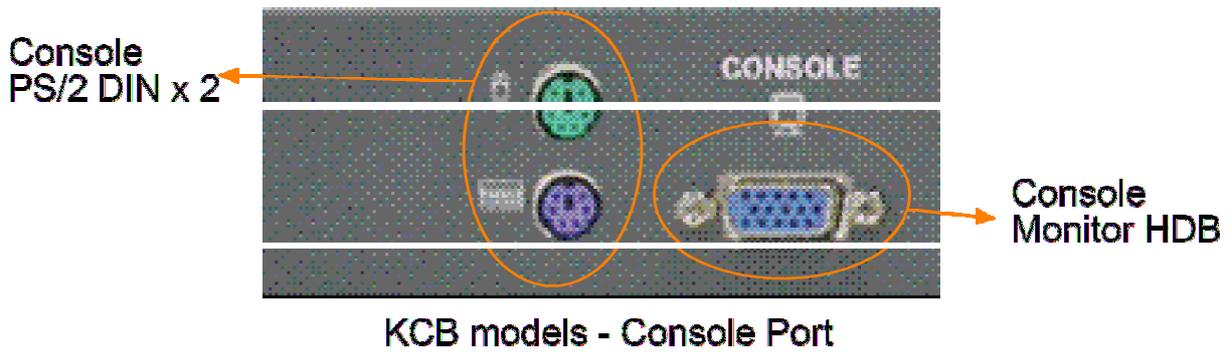

KCF models - Console Port

Figure 4-7 Console Ports

4.3 Installation

Precaution:

1. Make sure all devices are turned off when connecting to the KVM Switch. You must unplug the power cords of the computers which might have the Keyboard Power On function. Otherwise, the KVM switch will receive power from the computer.

2. When connecting Windows 98 systems, it is suggested that the PC must be plugged to PS/2 ports, because Windows 98 does not support installation at first time through USB HID installation driver.

3. Some old PCs can support USB ports during booting, but are required to open BIOS USB setting first.

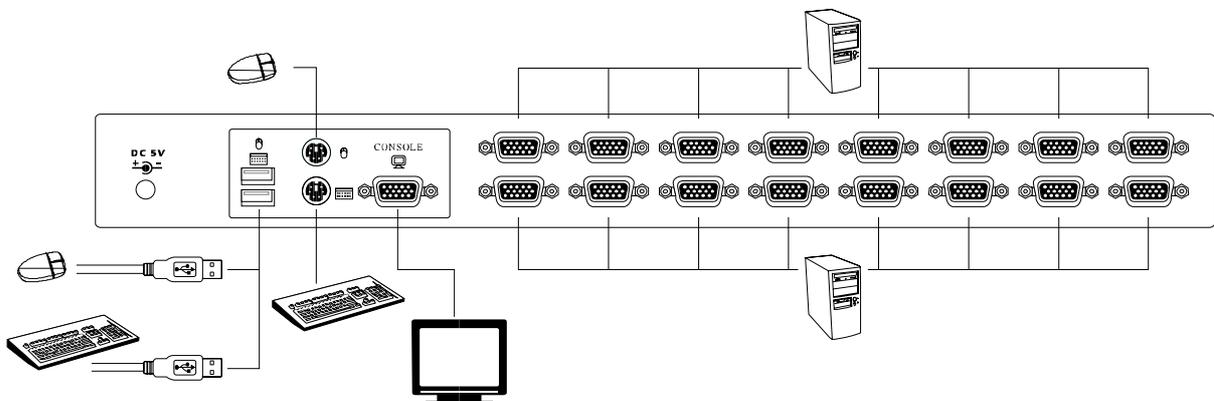4. The KVM switch does not support the USB keyboard which has built-in USB HUB.

Figure 4-8

Console connections:

Plug USB or PS/2 keyboard, USB or PS/2 mouse arbitrarily and VGA video into the Console ports located on the rear panel. A combination of USB mouse and PS/2 keyboard or a combination of PS/2 mouse and USB keyboard are all supported by the KVM Switch unit.

System connections:

Use KVM combo 4-in-1 cable (as shown in Figure 3-1) to connect an available KVM's PC port to a computer's video and USB or PS/2 ports (or even all USB and PS/2 ports of the PC).

This KVM Switch with specific combo cable provides three connecting methods.

1. Plug USB, PS/2 (keyboard/mouse) ports and VGA into PCs at same time, recommended in priority.
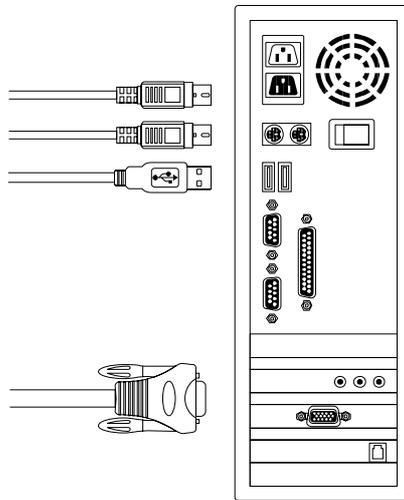

Figure 4-9 PS/2 & USB and VGA connected at same time

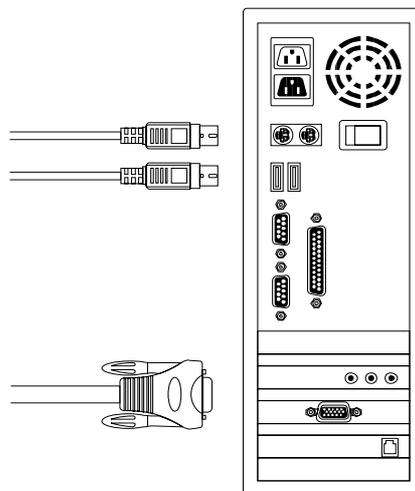2. Plug only PS/2 (keyboard / mouse) ports and VGA into PCs.

Figure 4-10 PS/2 and VGA connected
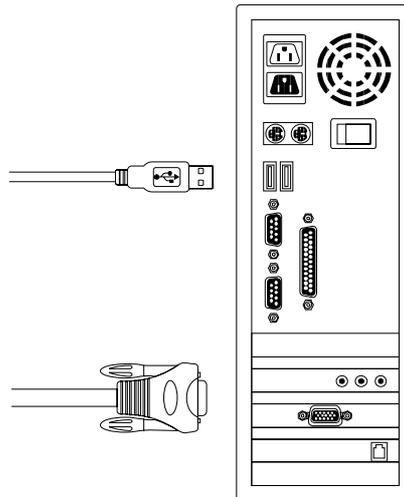
3. Plug only USB and VGA into PCs.

Figure 4-11 USB and VGA connected

4.4 Cascading the KVM Switches

For expansion of the PC connections, the switches support up to 3 levels of cascading between switches. The cascading function allows to control up to 64/256/4096 PCs from a single console and no special configuration is required.

To cascade the switches, the steps are:

1. Make sure power of all connected devices are turned off before connecting.

2. Use the KVM combo 4-in-1 cables to connect the console port of a lower level switch to an available PC port of the upper level switch. This is called switch cascading. In switch cascading, make video HDB and two PS/2 connections only and no need to use USB connection. Up to three levels are supported in such cascading. The switch in the topest level is called Master KVM switch and others are called slave switches.

   The console port of the Master switch is the main console of all cascaded KVM switches. All free PC ports of Master KVM switch and the second level KVM Switches can still be used to connect PCs.

3. Plug in the power adapter to the Master KVM Switch and those PCs which are going to connect. And then plug in power adapters to the Slave KVM Switches in next level and the PCs sequently.

4. After all switches are up, power on the computers.

Initial Power-Up Process

Power up the Master KVM Switch first before turning on other devices. Any powered-down computer and slave switches can be uplugged at any time after initial power up process completed.

Hot plug and Hot Swap

a) You can replace keyboard or mouse of the Master console port at any time without powering down the Master switch.

b) Plug-in or unplug of PC port or swap PC ports can be done at any time without powering down the switches.
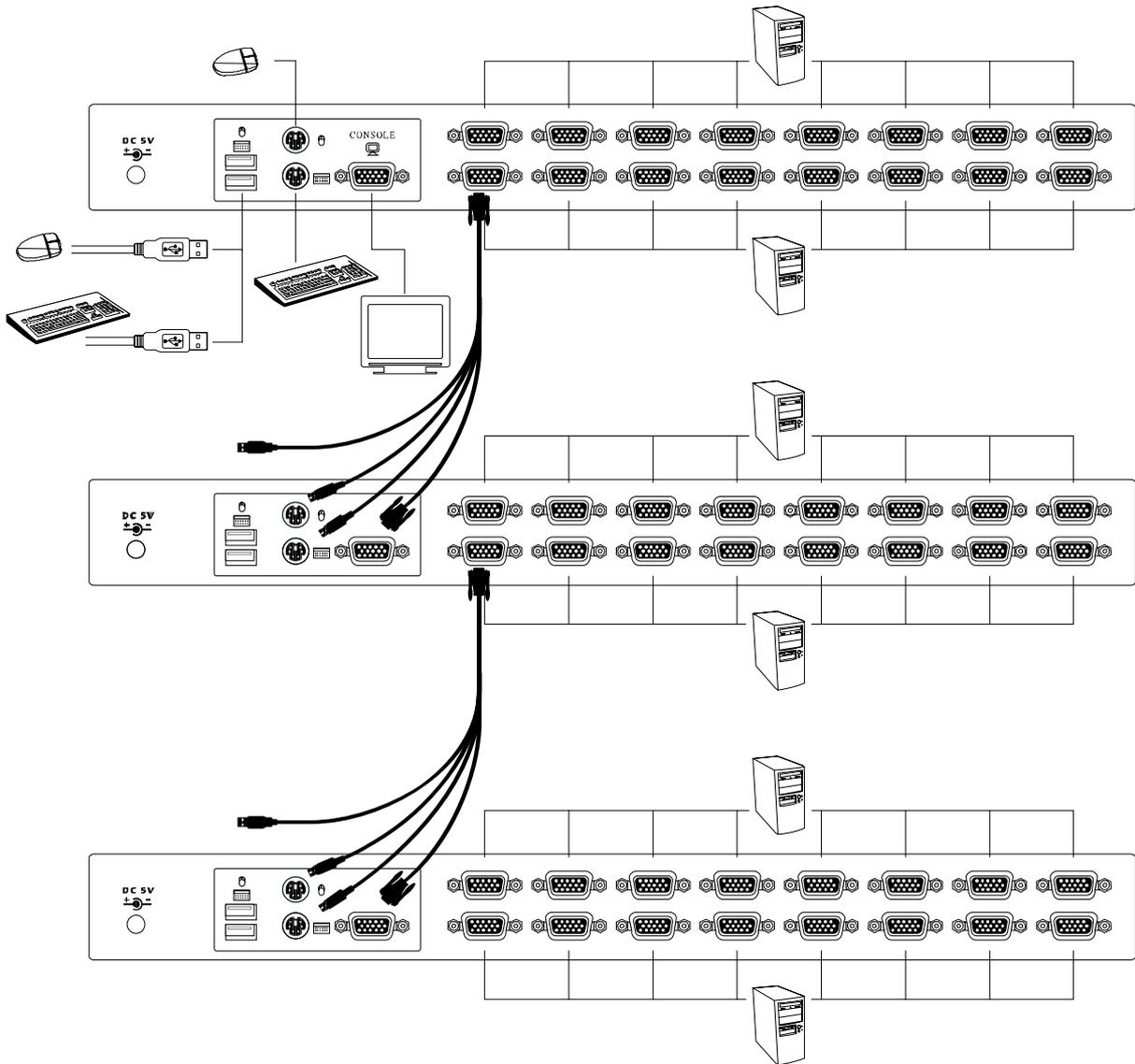
Figure 4-12 Switch Cascading
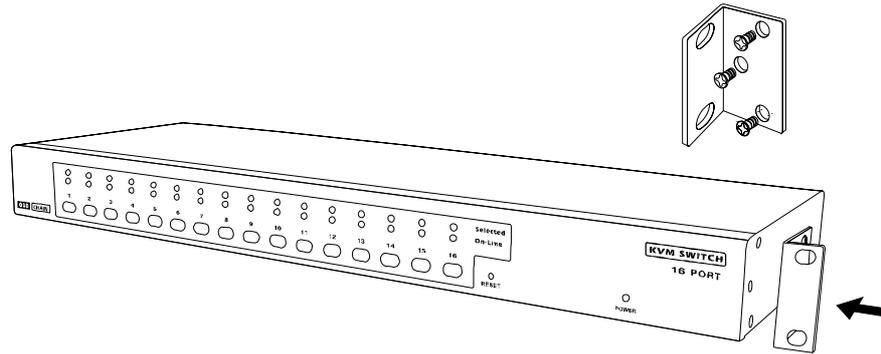
4.5 Rack Mounting

Figure 4-13 Installing the Brackets to the Switch

Above figure illustrates how to install mounting brackets to the switch unit for standard 19-inch rack cabinet. The steps are:

1. Screw the mounting brackets onto both sides of the KVM switch unit.
2. Slide the switch unit into the rack cabinet and screw it securely on the rack.

5. Hotkey Operation

The 8/16-Port KVM Switch has the ability to switch the keyboard, video, and mouse simultaneously.

Note: If your keyboard does not provide < Scroll Lock > button, use < Caps Lock > as leading key instead. The default is < Scroll Lock >.

Leading key Selection
Hot key commands:
[Ctrl] -> [Ctrl] -> [K] -> [Enter] to change current leading key to the other one

After changing the leading hotkey setting, the new setting will take effect immediately until the KVM switch is powered off or reset.

5.1 Call OSD Menu

Hot key command:
[Scroll Lock] -> [Scroll Lock] -> [Enter] to call and show OSD "Main Menu"

5.2 Channel Select (Single KVM unit mode)

Hot key commands:
[Scroll] -> [Scroll] -> [n] -> [Enter] to select PC channel n (n is a no. within 1~16)
[Left Alt] -> [Left Alt] to shift and switch to next lower PC channel
[Right Alt] -> [Right Alt] to shift and switch to next higher PC channel

Note: The function of [Alt] to shift PC channel is disabled by default. Use the following command to enable the function:
[Alt] -> [Alt] -> [Enter] to enable [Alt] shift PC channel function

OSD Menu
Use Up/Down arrow and <Enter> to switch the channel directly.

5.3 Auto-scan Function

Hot key command:

[Scroll] -> [Scroll] -> [S] -> [Enter] to start Auto-scan operation

Under Auto-scan operation, you can press any key to stop Auto-scan operation.
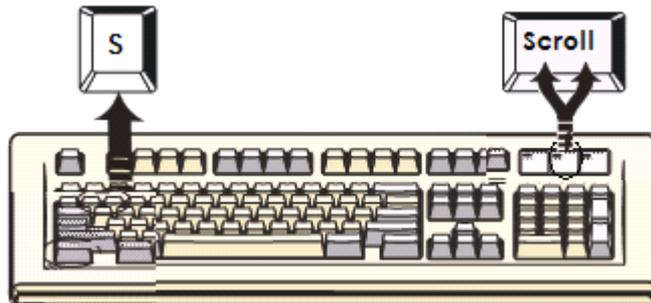
Auto-scan function allows the KVM Switch alternates the connected PCs and displays them on the console monitor.

Each PC is displayed in a time interval in a range of 5 ~ 250 seconds (The interval is adjustable by OSD) before switching to the next PC. Pressing any key will stop the Auto-scan and the console monitor screen will jump back to the original PC.

OSD Menu

[F2] to start Auto-scan operation. Auto-scan time interval setting can be changed via OSD menu operation.

5.4 Beeper Enable

Hot key commands:

[Scroll] -> [Scroll] -> [B] -> [Enter] to disable Beeper

[Scroll] -> [Scroll] -> [B] -> [Enter] to enable Beeper

The Speaker/Beeper's default setting is "Enable". While the switching connections are activated and Speaker/Beeper is in "Enable" status, the beeper has a short beep.

5.5 Special Configuration Mode
OSD Menu

[F1] to enter configuration mode. No Hot key support.

5.6 Channel Select (Cascading mode)
Hot key commands:

[Scroll] -> [Scroll] -> [D][x] [D][y] [D][z] -> [Enter] to switch to PC channel on

                Layer 1 Channel x - [D][x], x is a number within 1 - 16

                Layer 2 Channel y - [D][y], y is a number within 1 - 16

                Layer 3 Channel z - [D][z], z is a number within 1 - 16

[Scroll] -> [Scroll] -> [D][x] [D][y] -> [Enter] to switch to PC channel on

                Layer 1 Channel x - [D][x], x is a number within 1 - 16

                Layer 2 Channel y - [D][y], y is a number within 1 - 16

                Layer 3 current (last) selected channel in the unit attached to

                Layer 2 channel y, (if 3 layers are setup).

[Scroll] -> [Scroll] -> [D][x] -> [Enter] to switch to PC channel on

                Layer 1 Channel x - [D][x], x is a number within 1 - 16

                Current selected channels in Layer 2 unit and Layer 3 attached to

                Layer 1 channel x.

OSD Menu

Select channel and press <Enter> layer by layer sequentially.

5.7 Console Lock
Hot key commands:

[Scroll] -> [Scroll] -> [H] -> [Enter] to lock console

OSD Menu

[F3] to lock console ([F5]: Security mode must be ON first.)

5.8 Console Unlock

Press any key to OSD unlock window. Enter correct User Name and Password to unlock console and be back to normal operation.

5.9 Hot-Key Definition Table

Step 1	Step 2	Function
[Ctrl] + [Ctrl]	[K] + [Enter]	Change leading key of Hot-key command to the other one (default: [Scroll])
[Scroll] + [Scroll]	[K] + [Enter]	Change leading key to [Caps Lock]
[Scroll] + [Scroll]	[n] + [Enter]	Switch the active connection to PC n (single unit)
[Left Alt] + [Left Alt]	-	Switch to next lower channel number
[Right Alt] + [Right Alt]	-	Switch to next higher channel number
[Alt] + [Alt]	[Enter]	Enable [Alt] shift function
[Scroll] + [Scroll]	[DxDyDz] + [Enter]	Switch channel in 3 layer cascaded switches
[Scroll] + [Scroll]	[B] + [Enter]	Toggle disable/enable beeper
[Scroll] + [Scroll]	[S] + [Enter]	Toggle disable/enable Auto-Scan mode
[Scroll] + [Scroll]	[H] + [Enter]	Enter into console lock mode

6. Sun Microsystems Function Key Emulation

There are 16 special functions provided on Sun Microsystems keyboard. The KVM Switch can emulate those function keys on console's PS/2 and USB keyboard. The following table lists the key mapping. To activate any emulation on the PS/2 or USB keyboard, press the LEFT Window KEY first (this key usually is located between the left [Ctrl] key and left [Alt] key), then press the second associated key.

Sun Micro System Function Key	PS/2 (or USB) Keyboard
Stop	L_Win & L_Alt
Props	L_Win & L_Ctrl
Compose	L_Win & L_Shift
Front	L_Win & F1
Open	L_Win & F2
Find	L_Win & F3
Again	L_Win & F4
Undo	L_Win & F5
Copy	L_Win & F6
Paste	L_Win & F7
Cut	L_Win & F8
Help	L_Win & F11
Power	L_Win & F12
Mute	L_Win & 1
Volume Down	L_Win & 2
Volume UP	L_Win & 3

7. OSD Operation
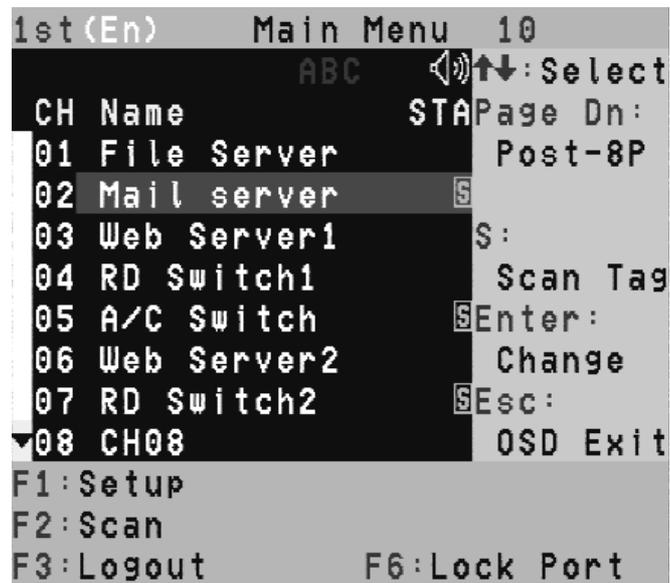## 7.1 OSD (On-Screen-Display) Operation
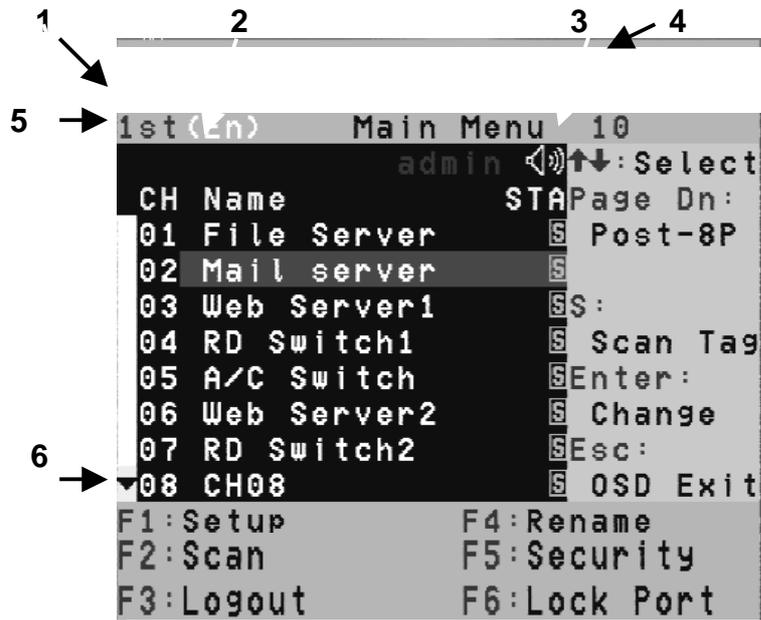
Figure 7-1 OSD Administrator Menu

Figure 7-2 OSD User Menu

7.2 OSD Main Menu Layout

# in Figure 7-1	Function
1	KVM layer number: 1st, 2nd, 3rd
2	**PC name** (configured by user): 31 characters max.
3	PC Status (STA): ◀ Buzzer sound on ✖ Buzzer sound off L Locked port indication, and normal is blank ▣ Indicating the computer is powered on **s** Indicating the channel scan function is on
4	Current selected channel
5	**Cascade channel number:** only display cascaded 2nd, 3rd layer selected channel number; if it's in 1st layer, it will show blank.
6	**Page down-up indicator:** (to next page**)** while connecting 16 port OSD KVM, it will show up & down arrows alternatively to select previous/next page's port number. (Only for 16-port KVM only.)

7.3 OSD Main Menu Function Keys

Key Function	Operation
[Scroll] [Scroll] [Enter]	Pop-up OSD Main Menu
↑	Move to next lower channel and highlight it
↓	Move to next higher channel and highlight it
[Enter]	Select
[PgDn]	Move to next channel page
[PgUp]	Move to previous channel page
[Esc]	Exit OSD
S	Scan Tag, set channel to be scan selected
[F1]	Set up: basic configuration menu
[F2]	Scan: Auto-scan function
[F3]	Logout / Lock: logout from console operation and enter into console lock mode.
[F4]	Rename: rename selected port name
[F5]	Security: security function and user priority setting
[F6]	Lock Port: PC port lock function (administrator only)
R	Return to upper layer menu

Channel Status (STA)	Indication
🖥	A active computer is connected to the channel.
No 🖥 sign	No computer is connected or it is not powered.
S	Selected for Auto-scan

OSD Information	Location in Menu Screen	Indication
Channel No.	Top right corner	Currently controlled channel
Pink bar	Highlight in channel row list	Currently pointed channel
+	Front of a channel name row	A lower layer KVM switch is connected on this channel.
1st, 2nd, 3rd	Top left corner	The layer number of this unit
Number	Upper left corner (below layer number)	The selected channel number in upper layer switch

7.4 F1: Setup Mode

Figure 7-3 OSD Setup

| Configuration	Options	Description
Scan Mode	Selected	Scan selected channels with STA status "s"
	PC ON	Scan all powered-on PC channels only
Scan Time	5 ~ 90 sec.	Auto-scan time interval for each channel Default: 5 sec.
Banner Time	5, 10, 15 sec.	Banner display time 5 sec., 10 sec., 15 sec. Default: 5 sec.
	∞	Banner display always on
Display Position	Menu	Use arrow keys to move OSD main menu to the desired position
	Banner	Use arrow keys to move channel banner to the desired position
Hot-Key	Scroll Lock	[Scroll Lock] as leading key for Hot-key control
	Caps Lock	[Caps Lock] as leading key for Hot-key control
	Ctrl	[Ctrl] as leading key for Hot-key control
Sound	ON	Beeper is enabled.
	OFF	Beeper is disabled.
Language	En	English
	De	Deutsch
	Fr	France

7.4.1 Position Adjustment
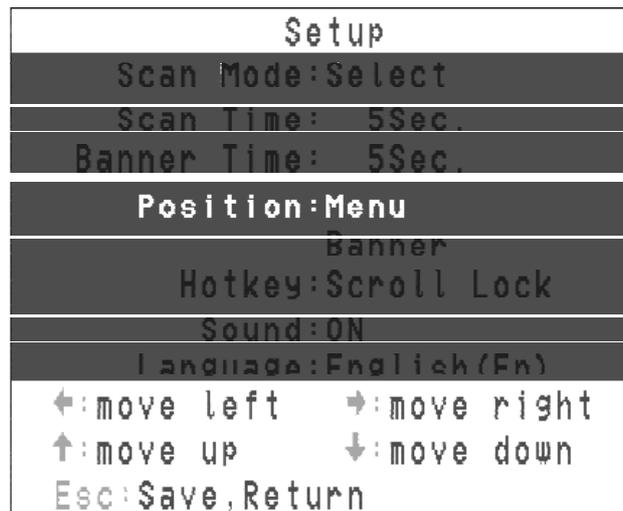
Figure 7-4 Setup Position

In banner display position mode, the display will become:

When PC is powered on or changing channel by OSD or Hot-key, the banner will display for 5 seconds and disappear. User can configure the banner display time in the Setup Mode (F1). The following are different banner styles in different modes:

Channel Banner (In single layer)   (Max. 22 characters)

```
01                    Channel 1
-----              -----------------
  |                        \__    PC (Channel) Name
  _____          Channel (PC) Number
```
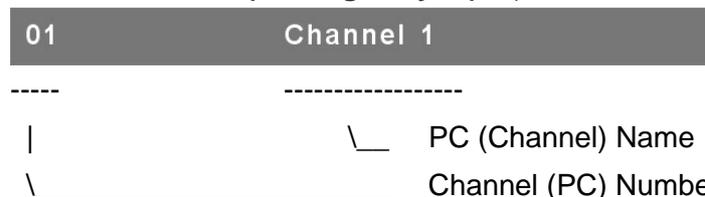
Channel Banner (In cascading / Multi-layer) (Max. 22 characters)

```
01 - 03 - 02          Channel 1
----    ----    ----              ---------------------
  |      |      |                    \_   PC (Channel) Name
  |      |      _____          Channel (PC) Number
  |      _____            2nd Layer Channel (PC) Number
  _____            1st Layer Channel (PC) Number
```
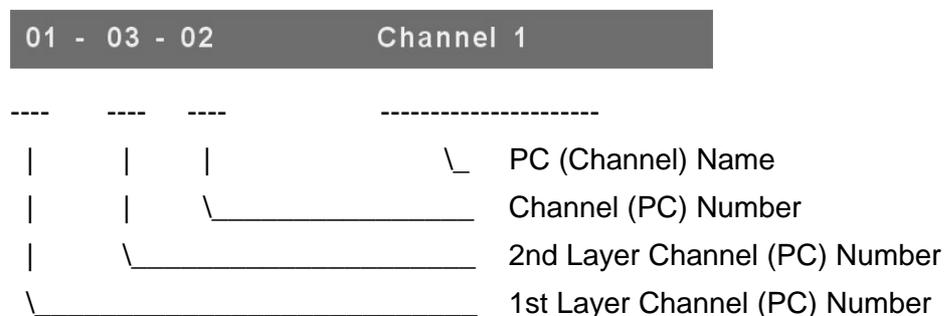
Channel Banner (In scan mode)

```
SCAN  01          Channel 1
```

```
----------  ----            ----------------------
    |       |                  \_      PC (Channel) Name
    |       _____        Channel (PC) Number
    _____        Scan Mode
```
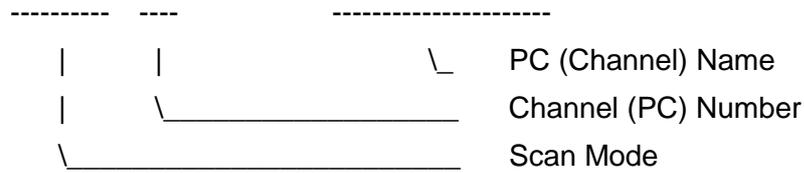
Press any key to stop scan operation. Banner will disappear when the scan stops.

7.5 F4: Rename

```
1st(En)        Main Menu   10
               admin ◁»)↑↓:Select
 CH Name           STAPage Dn:
 0          Rename
 0  Channel:03
 0  Name:    Web Server1
 0
 0  New Name:ATT12345
 0
 0  Enter:Save New Name
▾0  Esc:Without Save
F1:Setup        F4:Rename
F2:Scan         F5:Security
F3:Logout       F6:Lock Port
```

Figure 7-5 F4 Rename

The New Name length is 31 characters Max.

7.6 F5: Security Mode

The following message is prompted to enter password for security configuration:

```
Admin.      Password :
```

Entry Password:

The default password for Admin is 123456.
A correct password allows to enter Security configuration menu.

Figure 7-6 F5 Security Configuration

Only when Security mode is ON, F3 console lock function is enabled automatically and Hot-key [H] lock command also becomes available at the same time.

Pressing F3 or Hot-key [H] command allows to lock console as logout from the console until a correct username and password are entered.

Only administrator is allowed to unlock the console. But, the access right to a connected PC is limited to the user PC authorization configuration. Different users have different rights to the channels.

To change Administrator Password:

```
           Security
  Security Mode:OFF
 Admin/Password:++++++
      New Password:++++++
 Enter:Confirm
    Esc:Return
02 Mail server    ☑  ☐  ☐
03 Web Server1    ☐  ☑  ☐
04 RD Switch1     ☐  ☑  ☑
  ↑ ↓:Select
  ← →:Change Setting
 Esc:Save,Return
```

Figure 7-7 Change Admin Password

To change User Name and Password:

```
           Security
  Security Mode:OFF
  User Name:
  PERRE-HELEN LEWI█
       New Password:
  Confirm Password:

  Enter:Confirm
     Esc:Return
03 Web Server1    ☐  ☑  ☐
04 RD Switch1     ☐  ☑  ☑
  ↑ ↓:Select
  ← →:Change Setting
 Esc:Save,Return
```

Figure 7-8 Change User Name and Password

To configure User PC Channel Authorization Setting:

Figure 7-9 PC Channel Authorization Setup
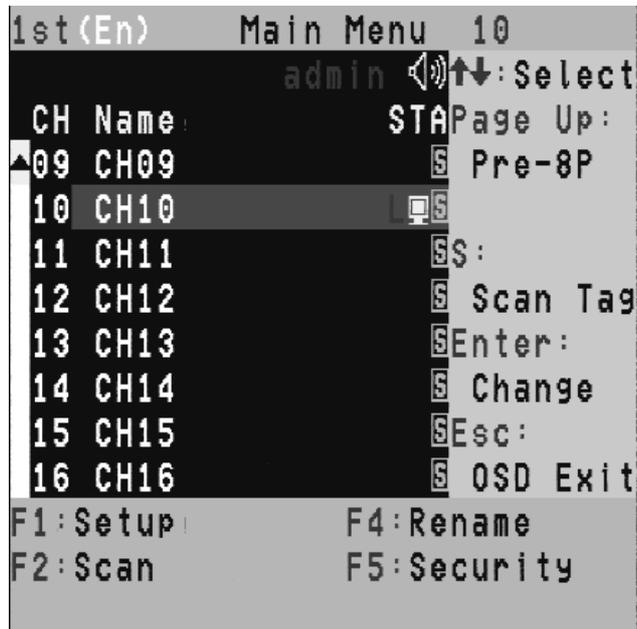
7.7 F6: Lock Port

Figure 7-10 Lock Port Setup

Press F6 to set currently highlighted channel locked. The locked channel is with a "L" mark in its STA column. Press F6 again and enter a correct password to unlock to channel.

7.8 F3: Console Lock / Logout

Press F3 to lock console (Security mode must be ON.). The console devices and KVM buttons are locked with no function. The following banner is displayed when console is locked. Only correct password is accepted on the keyboard.

Security	Mode	Protected

F3 Console Lock Mode Banner

To unlock the console, press any key to the Unlock Window as shown below:

```
Name    :  JERRY
Password :  ▮
```

Unlock Window

Then, enter User Name and Password to unlock the console. The screen will be back to normal and all devices are available to operate again (according to the authorization setting).

Note: If you forget the password, the only way to resolve the security mode is to enter an universal password to unlock KVM and restart everything. Consult your dealer for the universal password.

8. Troubleshooting

Symptom	Possible Cause	Recommended Solution
Keyboard and/or Mouse not working	Keyboard and/or Mouse need to be reset.	To unplug from console port(s), and then replug it / them into console in.
	Failed connection to the computer.	Check the cable connected from switch to computer and make sure it is connected properly.
	KVM Switch needs to be reset.	Power off all devices and then power up again.
Master/ Slave cascading not working	Incorrect configuration or improper installation procedures	Make sure the console of the Slave's connected to Master's PC port. Remove any possible power supplies to the slave (unplug all cables), before connecting it to the Master.
Double OSD images in cascaded mode	Improper slave connection procedure.	Remove any possible power supply to the Slave (unplug all cables), before connecting it to the Master.
	Failed connection	Make sure cable is connected well (Slave console link to Master port).
OSD menu is not at the proper position	OSD menu has fixed resolution and its size varies due to the changes of computer VGA resolution	Use <F1>: Set/Position to move OSD menu and banner to a proper position.

Disclaimer

Information in this document is subject to change without notice. The manufacturer does not make any representations or warranties (implied or otherwise) regarding the accuracy and completeness of this document and shall in no event be liable for any loss of profit or any other commercial damage, including but not limited to special, incidental, consequential, or other damages.

No part of this document may be reproduced or transmitted in any form by any means, electronic or mechanical, including photocopying, recording or information recording and retrieval systems without the express written permission of the manufacturer.

All brand names and product names used in this document are trademarks, or registered trademarks of their respective holders.

FCC Statement

This device generates and uses radio frequency and may cause interference to radio and television reception if not installed and used properly. This has been tested and found to comply with the limits of a Class B computing device in accordance with the specifications in Part 15 of the FCC Rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by plugging the device in and out, the user can try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the computer into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.