8/16/32　Ports　CAT5 LCD KVM　Switch

User　Manual

V1.0

C o n t e n t s

1. Introduction

The 8/16/32-port LCD KVM switch can control attaching servers and computers from local or remote console. This LCD KVM switch is loaded with features such **, plus oneoptional CAT5-basedremote console port or one optional IP-based remote console Port,** DaisyChain, On Screen Display (OSD) Menu, Password security, Hot key Control, Push Button andAutoScanControl. It has complete keyboard and mouse emulation for simultaneous computer boot-up processes.

With the CAT5-based remote console port you can remotely control servers and computers 1000 feet away. In other words, you can locate your monitor, keyboard and mouse up to 1000 feet away from the KVM switch. The built-in CAT5 transmitter synthesizes VGA monitor and keyboard/mouse signals, and transmit the signals to the remote CAT5 receiver over the popular LAN CAT5 cable.

With the IP-based remote console port you can control one or many computers locally at the server site or remotely via the Internet using a standard browser. You can securely gain BIOS level access to systems for maintenance, support, or failure recovery over the Internet. Communication is secure via SSL encryption.

1.1   Main Features

- ■   17", 19'' LCD 8/16/32-port KVM switch
- ■   Support full CAT5 interface on all computer ports for reducing KVM cable bulk
- ■   Support one local console plus one optional remote console (CAT5 or IP)
- ■   Locate computer host up to 132 feet (40 meters) away from KVM switch with superior **auto-adjust** RGB signals capability
- ■   Locate CAT5 console up to 1000 feet (300 meters) away from KVM switch with superior **auto-adjust** RGB signals capability
- ■   Support Microsoft Windows, Netware, Unix, and Linux
- ■   Support iMAC, Power MAC and Sun Micro Systems with USB port
- ■   No Software Required – easy computer selection via On Screen Display (OSD) Menu, Push

Buttons, Hotkeys

■ Provide various Hotkey (Scroll-Lock/ Caps-Lock/ Num-Lock/ Alt/ Ctrl/ Win) for switching computer port and other control functions, so Hotkey function can be used in various types of keyboards, and to avoid Hotkey duplicate problem

■ Support two levels of password security protections

■ Provide ACL (Access Control List) security function, store up to 8 independent ACLs of controllable computer lists

■ Hot Plug --- add or remove connected computers without powering off the KVM switch or computers

■ Plug-n-Play monitor support

■ Support Daisy Chain function with both Bus (8-layer) and Tree (2-layer) topologies

1.2　Package Contents

1 x LCD KVM Unit
1 x CD-ROM (User manual)
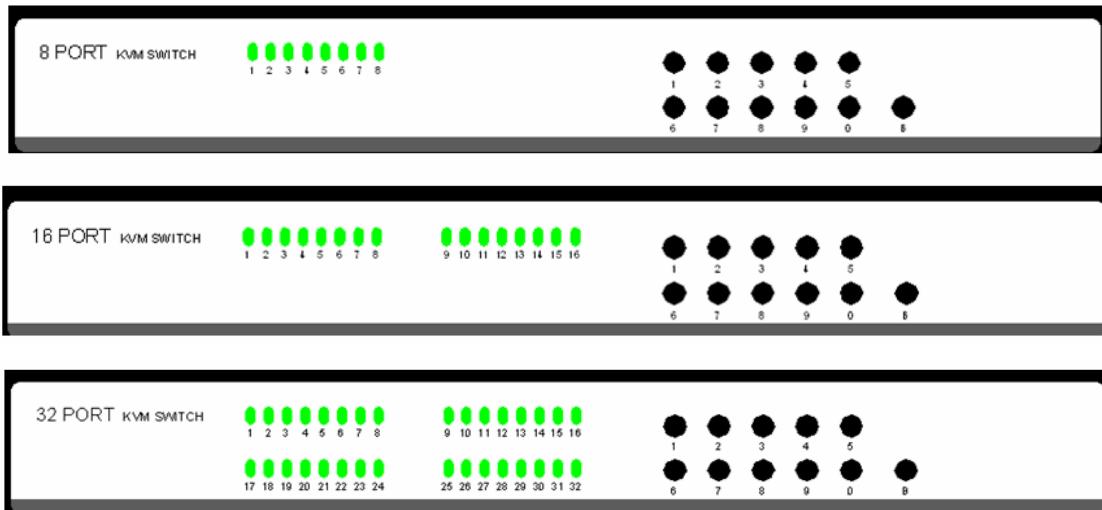1 x Power Cord
1 x Rack Mount Kit

Optional Modules

DGP	PS2 CAT5 KVM Dongle
DGU	USB CAT5 KVM Dongle
DIP-101	KVM over IP module
DCC-150T/300T	Cat5 KVM Extender module

1.3 Technical Specifications

Feature	Specification
KVM Type	17 " 19" LCD CAT5 KVM Switch
Host Port Connector	RJ-45
Host Ports	8/16/32
Console Type	USB or PS/2
Flash Port	DC2.5F
Max. Distance (KVM switch -- Host)	100 feet (30m), auto-adjust RGB signals
Video Resolution (Local Console)	1280 x 1024
Video Resolution (Remote Console)	1680 x 1050 for CAT5-Based 500 feet remote console, 1280 x 1024 for CAT5-Based 1000 feet remote console, 1600 x 1200 for IP-Based remote console
CAT5-Based Remote Module (optional)	■ RJ-45 Connector ■ CAT5 console up to 1000 feet away from KVM switch with superior **auto-adjust** RGB gain/delay control capability
IP-Based Remote Module (optional)	■ RJ-45 8P8C for 10/100M Ethernet ■ DB-9 male for Configuration console, Modem, Null modem, and serial power control ■ Mini USB 2.0 receptacle
Daisy Chain	■ Connector DB15 (Female Type) ■ Support Daisy Chaining with both Bus (8-layer) and Tree (2-layer) topologies
Computers Selection	On Screen Display (OSD) Menu, Hot Key, Push Button
Hotkey	Provide various Hotkey (Scroll-Lock/ Caps-Lock/ Num-Lock/ Alt/ Ctrl/ Win)
Host Port LED's	2 LED's per Host port: ON LINE (Red), SELECT (Blue)
Security	Provide ACL (Access Control List) security function, store up to 8 independent ACL's of controllable computer lists
Multilingual OSD (On Screen Display) control	8 languages (English, France, Germen, Spanish, Italian, Russian, Japanese, Simplified Chinese)
Auto-Scan Intervals	5 ~ 99 Sec.
Max. Connected Computers	Up to 8192
Housing	Metal
Power	AC Power input: 100 ~ 240VAC ; output : 12V,4A
Operation Temperature Storage Temperature Humidity	0 ~ 50℃ -20 ~ 60℃ 0~80%, Non-Condensing
Mechanical	19" Rack mount ,1U
Dimension (W*H*D)	448 * 42 * 580mm

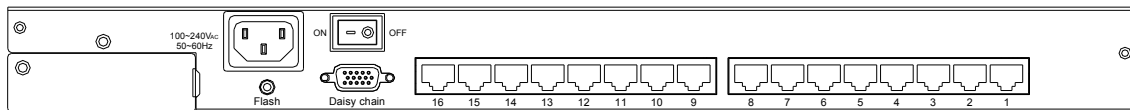## 1.4   Product Line

Figure 1.   Button Panels of the Product Line

(8 ports CAT5 KVM Switch with LCD panel)

(16 ports CAT5 KVM Switch with LCD panel)

(32 ports CAT5 KVM Switch with LCD panel)
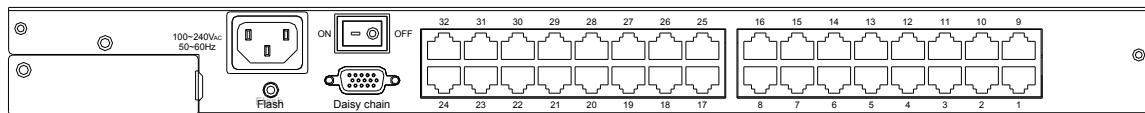
Figure 2.   Back Panels of the Product line

1.5   Button Panels

LED & Push Button for each Host Port
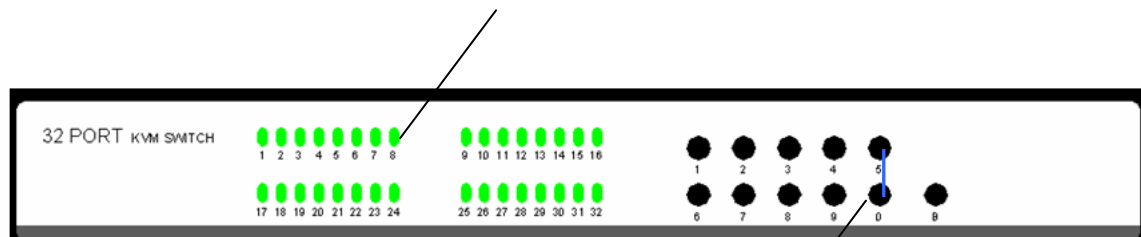
Reset Button

1.6   Port LED Indications

There are two LED's for each port:

- **ONLINE** LED: The **Red** LED on indicating a Computer is connecting to the port.
  Notice: The PC99 Computer always power on the USB or PS/2 ports and turn on Red LED even if the Computer is not power on.
- **SELECT** LED: The **Blue** LED on indicating the port has been selecting. The Blue LED will be flashing if there is no Computer connected to the port.

1.7 Buttons

There are 11 push buttons on the front panel.   The operations described in below.

(1) The "B" is the Bank Select Button.

You can select to the required bank number by press the "B" button.

The bank select were from 1 to 8 and go back to 1 cycling.   It will increase the bank number from the current selected bank to the next bank if you pressed the "B" button once.

(2) The "1", "2", "3", "4", "5", "6", "7", "8", "9", "0" are the port number select buttons

You can select to the required port number by

- Press the 2 digit port number to switch the port directly.   For example if you are in port 1 now, press "0" then "6" will switch to the port 6 immediately.
- Press the port number and wait for 2 seconds to switch the port.   At this case, you can only press single digit to select to the destination if the port number is between port 1 to port 9.

(3) If you pressed the invalid operation, the system will stay at the previous selected port.

(4) **RESET**: Press the "5" and "0" button simultaneously will restart the firmware of the KVM switch.

1.8 Back Panels

AC slot 100~240VAC input

Power switch

Daisy Chain In

Flash Upgrade Port

Connector for each Host Port

Over IP module Port
(DIP-101)
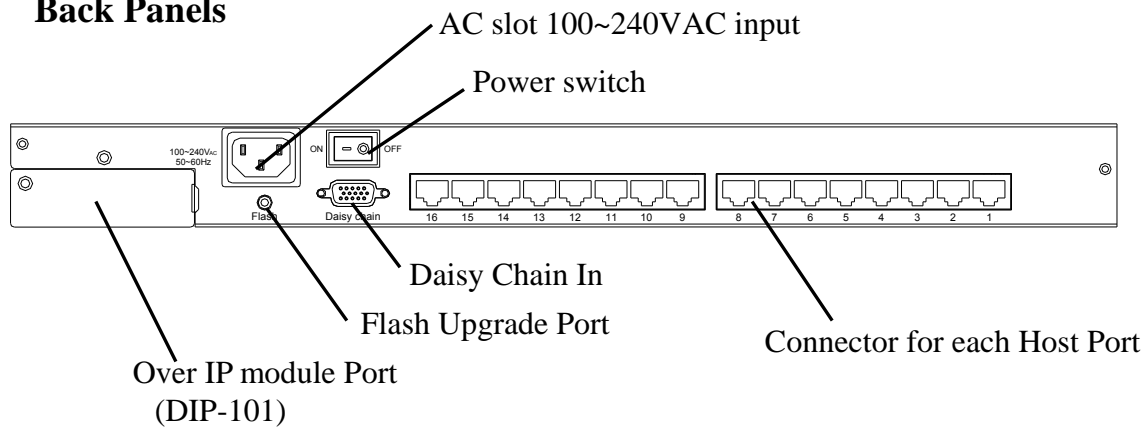
2.   Hardware Installation

2.1   Computer/Server Installation

2.1.1   CAT5 KVM on Host Side

Please refer to the "CAT5 Extender User Manual" for details. The figure below depicts the computer/server installation.
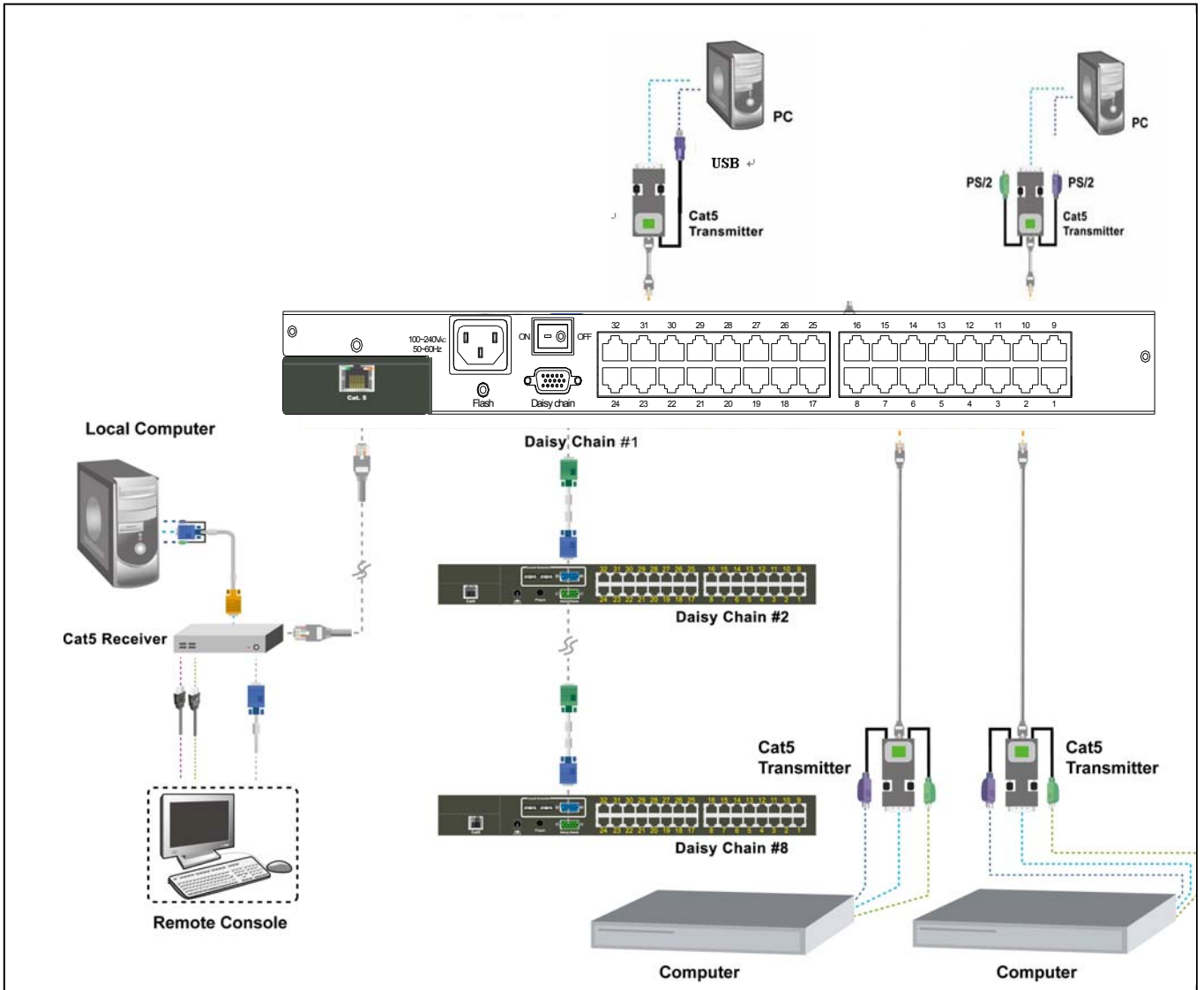
Figure 6.   Computer/Server Installation

2.2   Optional Remote Console Installation

2.2.1   IP Module

Please refer to "IP KVM Module User Manual" for details.

IP Remote Console

Installation: Power off the KVM switch firstly. Remove the cover of the add-on slot, slide in the IP Module and make sure the module is fully inserted into the slot.

The IP Module redirects local keyboard, mouse and video data to a remote administration console. It allows you to control one or many computers locally at the server site or remotely via the Internet using a standard browser.

2.3   Daisy Chain Connection

Use one end of daisy chain cable to connect to the **Daisy Chain** port of Master KVM switch and connect the other end of daisy chain cable to the **Local Console** port of the next Slave KVM switch. Please repeat the connection procedures for next Slave KVM switch. You can daisy chain up to eight banks in maximum.

Note: The Daisy Chain cable is 15 lines fully connected. This is a special VGA cable, normal VGA cable have unconnected lines.

Bank1 (Master)

Bank 2 (Slave1)

Bank 3 (Salve2)
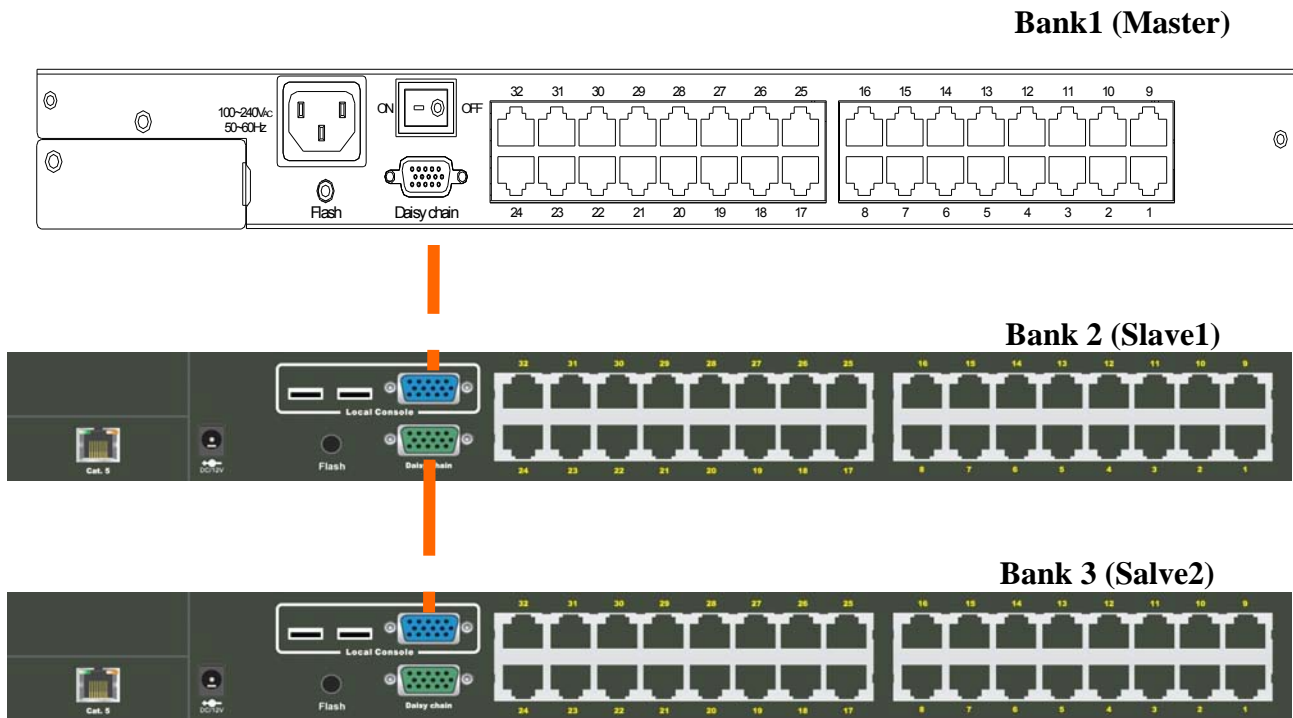
Figure 9.   Daisy Chain Connection

The console OSD menu will show only the port information of the master KVM switch. When the master unit starts up, it will query all daisy chained Slave units, and automatically set up the Bank ID for each Slave unit. please **reset** the Master unit to update the Bank ID immediately. Hot Plug function is supported in daisy chain connection.

You can also daisy chain through computer port. This daisy chain can work with other brand of KVM switch, but you need to change the Hotkey of slave KVM switches so that the master and slave KVM switches do not use the same Hotkey.
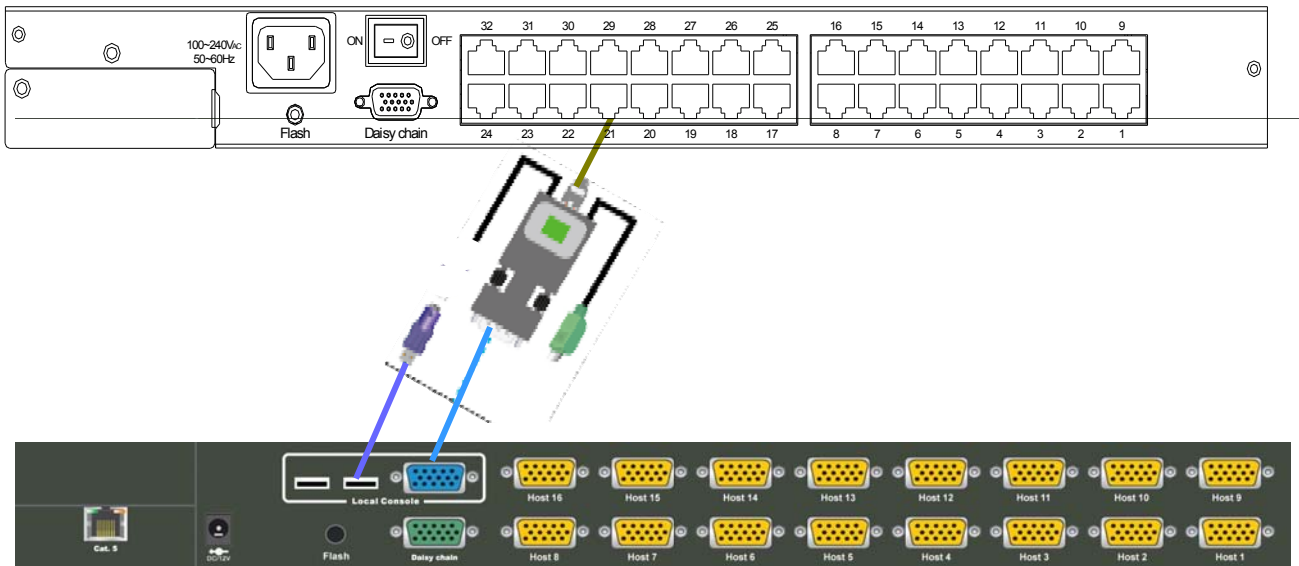
Figure 10. Daisy Chain through Computer Port

3. Usage

Now that you have connected your console and servers to your KVM Switch, it is ready for use. You can control the KVM switch by three methods:

1. Using push buttons located on the front panel of the KVM Switch
2. Through the OSD (On-Screen Display)
3. Using hot-key commands through the console keyboard

It takes approximately 1-2 seconds for the video signal to refresh after switching servers. Re-synchronization of the mouse and keyboard signals also occurs. This is normal operation and ensures that proper synchronization is established between the console and the connected servers.

When you power on KVM switch, if the security function is enabled (default is disabled), it will prompt a Login window waiting for user name and password. You need to pass the authentication so can control the KVM switch.

3.1 Hotkey Commands and OSD Operations

Hotkey

You can conveniently command LCD Drawer through a simple hot key sequence. To send commands to Drawer, you must **press the hotkey (**default **Caps Lock) twice within 2 seconds**. You will hear a beep sound confirming entering Hotkey mode. If you do not press any key during Hotkey mode over 2 seconds the Hotkey mode will be escaped and back to Normal state.

The default hotkey is **Caps Lock** but you can change hotkey as your application convenience. If you prefer to use other hotkey, please go to OSD menu and change the default hotkey to the other.
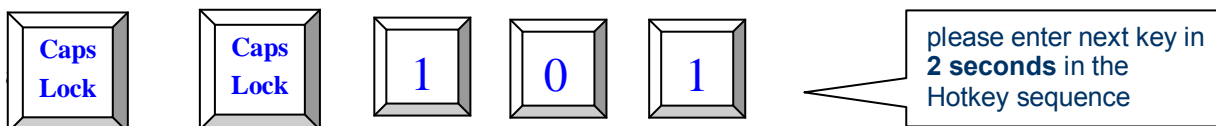The table blow lists all supported hotkey commands.

The default hotkey starts from "Caps Lock"+"Caps Lock", then the keys on the table list.

cablematic

Command	Functio
Space bar	Brings up the OSD overlay screen
↑	Switches to the previous port
↓	Switches to following port
[1,2,..,8] bank, **[01, 02,.,32] port**	■ The first digit is the Switch bank number, starting with "1". The KVM switch on the daisy chain line is on bank 1 (the Master). A standalone KVM switch is also on bank 1. ■ The second & third digits are port numbers starting with " 01 "
Pg. Up	Switches to the previous bank
Pg. Dn	Switches to next bank
B	Turns the **beep sound** on/off
R	For SUPERVISORS that will set the OSD back to the factory default value (except the User Security
S	For SUPERVISORS that activates the **Auto-Scan** function
U	For SUPERVISORS that turns the Security function on/off. **(**Default is off).
P	Log out, that's only valid when the security is on.

Example #1 – To bring up the OSD overlay window, press **Caps Lock", "Caps Lock", and the "Space Bar"**. Immediately, the OSD overlay screen will appear. The superimposed menu screen is generated by the LCD Drawer, and does not affect your computers or software function in any way.

Caps Lock	Caps Lock	Space Bar	please enter next key in **2 seconds** in the Hotkey sequence

Example #2 – To switch to Bank 1 Port1, press **"Caps Lock", "Caps Lock", and "1", "0", "1".**

Caps Lock	Caps Lock	1	0	1	please enter next key in **2 seconds** in the Hotkey sequence

Actually there are two methods to bring up the OSD overlay window.

1. **Activate OSD by press Hotkey ---** press Hotkey twice then press Space bar.
2. **Activate OSD by Mouse ---**
    Press and hold the **left button** of the mouse and hit the **Esc** key to show the **Status** screen.
    Press and hold the **right button** of the mouse and hit the **Esc** key to bring up the Main Menu.

OSD (On Screen Display)

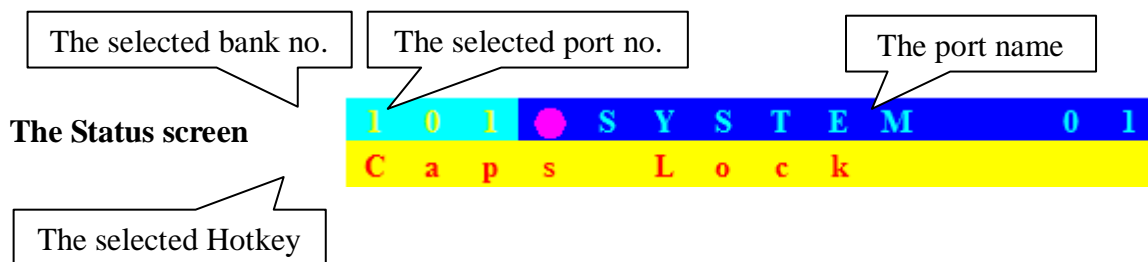OSD Menu provides a menu-driven interface to control the LCD KVM switch.

This OSD Menu has four types of display screens:

1. **Login Window** --- When powering on this LCD KVM switch, it will prompt a login window and ask for user name and password. This OSD function can setup one **SUPERVISOR** and eight **USERs**. **SUPERVISOR** can access to all OSD functions.
   USER can access to port name and port search only.

2. **Status screen** --- after the log in the Status screen will show up to display the current port settings and Hotkey type.

3. **Port Name** --- this menu displays port status, and you can switch to other port right here.

4. **Main Menu** --- there are eight menus to operate. They are listed as below:

MAIN MENU	Function
01 LANGUAGE	OSD language selection
02 PORT NAME EDIT	PORT NAME modification
03 PORT SEARCH	Quick searching by port name
04 USER SECURITY	Change password
05 ACCESS LIST	Define user access authority
06 HOTKEY	Change Hotkey
07 TIME SETTINGS	Modify auto-SCAN time interval
08 OSD MOUSE	Modify OSD MOUSE speed

Login Window

After login or port switch by panel button, OSD or Hotkey, the Status screen will show up to display the information of current settings -- one digit BANK NUMBER, two-digit PORT NUMBER, PORT NAME, and current Hotkey settings. Pressing any key or moving mouse will let the Status screen disappeared.

The selected bank no.   The selected port no.   The port name

The Status screen

1 0 1 ● S Y S T E M 0 1
C a p s   L o c k

The selected Hotkey

Auto-LOGOUT function

- In Login window, if no input for username and password over 1 minute, the screen will disappear. Hit any key to bring up the Login window again.
- At normal operation, if no input from the console keyboard or mouse over 10 minutes the LCD KVM switch will turn off the screen display and show up Login window asking for user name and password. One more minute of keyboard/mouse inactivity, the monitor will be turned off

➢ The first page shows the current port name and the selected port, and the operation hint.

The selected bank   The selected port   Operation Hint

```
P  O  R  T      N  A  M  E
B  A  N  K  :  1                    F  1  :  M  E  N  U
0  1  ●  S  Y  S  T  E  M    0  1   F  2  :  L  O  G  O  U  T
0  2  ●  S  Y  S  T  E  M    0  2   F  3  :  P  R  E  V
0  3  ●  S  Y  S  T  E  M    0  3   E  S  C  :  Q  U  I  T
0  4  ●  S  Y  S  T  E  M    0  4   E  N  T  E  R  :  C  O  M  P  L  E  T  E
0  5  ●  S  Y  S  T  E  M    0  5   ↑  /  ↓  :  S  E  L  E  C  T
0  6  ●  S  Y  S  T  E  M    0  6
0  7  ●  S  Y  S  T  E  M    0  7   P  g  U  p  /  P  g  D  n  :
0  8  ●  S  Y  S  T  E  M    0  8   B  A  N  K      S  E  L  E  C  T

                                   U  S  E  R  :
                                   S  U  P  E  R  V  I  S  O  R
                                   S  C  A  N      T  I  M  E  :
                                   1  0  S  E  C                F  W  1  V  3
```

User Level   Auto-Scan Interval   Firmware Version
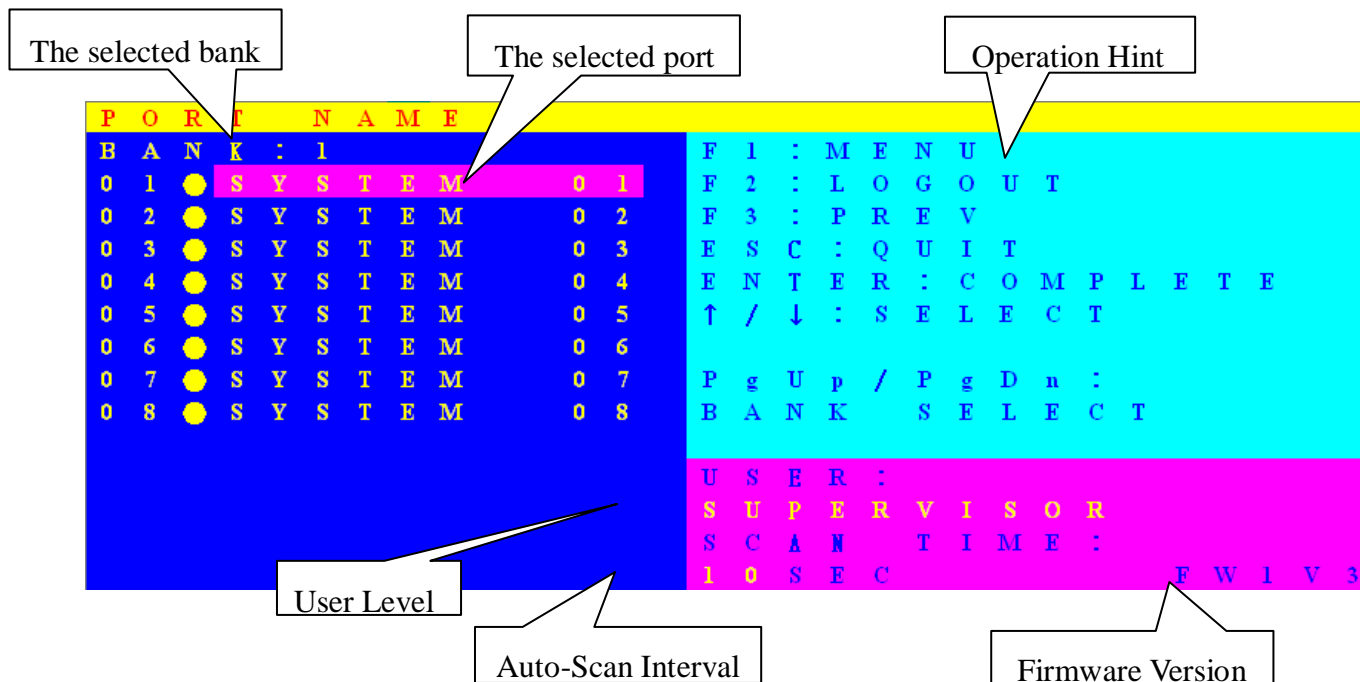
OSD Function Key	Description
F1	Go to the Main Menu
F2	To log out the OSD. If Security is enabled it will show up the Login window waiting for username and password. If Security is disabled it will show up the Status window
F3	Previous Menu
Enter	Switch to the selected port
↑ / ↓	Select the port (press Enter to switch)
PgUp	Previous Bank
PgDn	Next Bank
Esc	Exit

- ■ **USER** --- There are two types of user levels: **SUPERVISOR** and **USER**. The default is **SUPERVISOR. SUPERVISOR** can setup and change the OSD settings at Main Menu. **USER** can only do the port switch and port search.

- ■ **SCAN TIME** --- This is the time interval for auto-scan function. When auto-scan function is activated, the KVM switch will auto-scan the host port one by one in the interval as setting. Notice that the port without connecting to a computer/server will be skipped over on the scan.

- ■ The numeric keypad is not supported, while in OSD screen, the arrow keys, PgUp, PgDn, and Enter keys

  are supported.

Main Menu

There are eight menus to choose from.

3.2   DDC function

The KVM Switch support DDC (Display Data Channel). DDC is a VESA standard for communication between a monitor and a video adapter. Using DDC, a monitor can inform the video card about its properties, such as maximum resolution and color depth. The video card can then use this information to ensure that the computer is presented with valid options for configuring the display.

Note: The DDC function of KVM Switch will dynamically detect and copy the DDC data from the monitor that attached to the **LOCAL console port**, and that data will feed to the host computer during computer startup.

3.3   Hot Plug

The KVM Switch supports "Hot Plug" function for USB keyboard and mouse connectors.

| |
|---|
| **Note**:
 ■   Normally, PS/2 port is **not** Hot pluggable.
 ■   Normally, USB port is Hot pluggable, but some OS (Operation Systems), like Sun Micro and some Unix and Linux, do not support USB Hot Plug function. If you apply Hot Plug to this kind of OS, it will cause unpredictable behavior or shut down the Computer. Before attempting to use Hot Plug, please make sure OS and mouse software driver support the Hot Plug function. |

3.4   Firmware Upgrade

Please follow the following procedures:

1.   Power off the KVM switch.

2.   Prepare the DC2.5M/DB9F cable, plug the DC2.5 end to the KVM switch's phone jack
     (marked Flash) and the DB9F end to PC serial DB9 port.

3.   Power on the KVM unit. The KVM unit now will be in Flash mode, waiting for firmware
     download.

4.   Run "**Firmware Upgrade Utility.exe"**
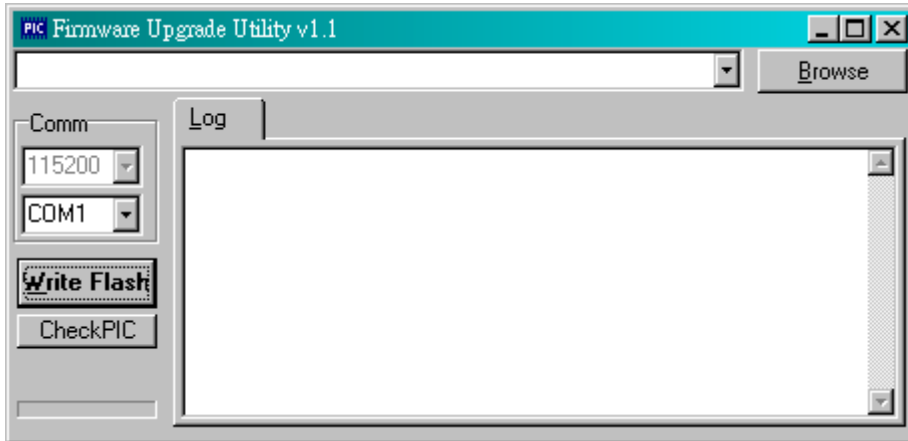
5.   Click **Browse** to select the FW upgrade file. Please make sure you select the **correct FW
     upgrade file**.

6.   Click **Write Flash** to start to upgrade. The upgrade process takes about 6 seconds, then display
     WRITE OK if complete the upgrade successfully.
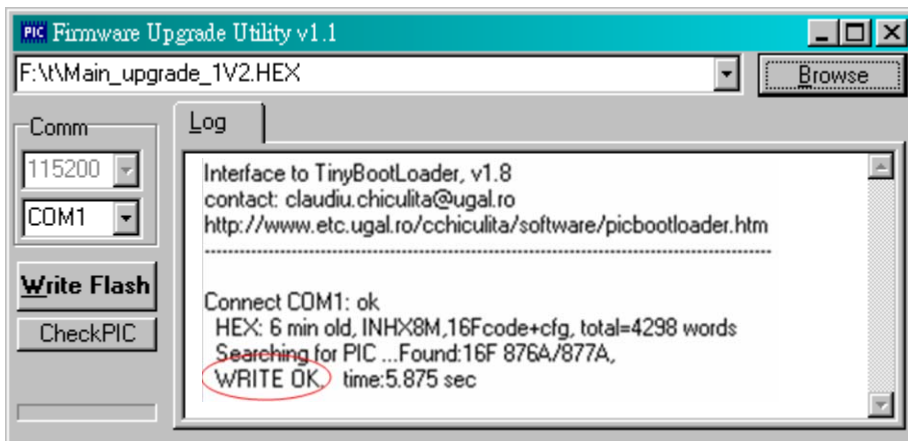
7.   Disconnect the DC2.5M/DB9F cable from the KVM unit and PC. Now the KVM unit should
     be running on the new firmware. The FW version can be seen on the bottom-right corner of the
     PORT NAME OSD window.

5. Cable Connectors

5.1   3-in-1 VGA Cable

HDDB15 male to one HDDB15 male plus two mini din 6-pin PS/2 connectors.

Figure 11. 3-in-1 VGA Cable Connectors

5.2   2-in-1 VGA Cable

PS/2 (keyboard) to USB (keyboard and mouse) changer.

Figure 12.   2-in-1 VGA Cable Connectors

5.3   Daisy Chain Cable

VGA Cable: HDDB15 Male to Male

Figure 13.   Daisy Chain Cable

Note:
Daisy chain needs the cable 15 lines fully connected. This is a special VGA cable, normal VGA cable have unconnected lines. Please contract your dealer for Daisy chain cable.

5.4   CAT5/5E/6 Straight Through UTP/STP Cable
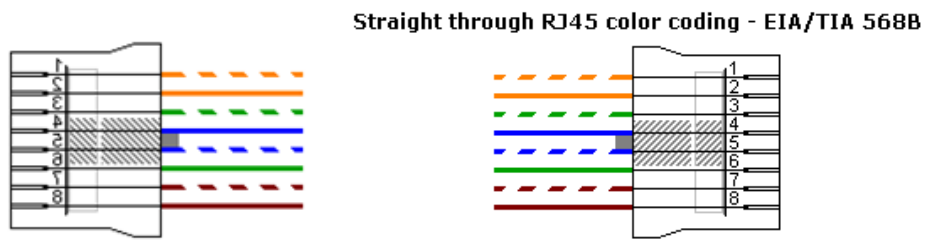

Straight through RJ45 color coding - EIA/TIA 568B

Figure 14. CAT5/5E/6 Straight Through Cable Connector (8P8C)

5.5   DC2.5M to DB9F Cable

This cable is used for Flash firmware upgrade.

Figure 15.   DC2.5M to DB9F Cable

6.   Troubleshooting

1. No LED display on T-Dongle

    ■   If the CAT5 transmitter PS/2 or USB connector is plugged into a powered on computer, this transmitter might be a defect one, please change with a good one.

2. No LED display on KVM Switch

    ■   Make sure the power cord plugged into the KVM Switch and   power switch is "ON" If the LED's still won't light, perform soft reset to KVM switch.

    ■   Power cycle KVM switch.

3. The computer has started up, but keyboard or mouse won't work

    ■   USB computer ---- please unplug and plug in the USB connector, wait few seconds for USB bus emulations and start up process to cmplete.

    ■   Do not press any keys on the keyboard while the selected computer is booting up. Otherwise it might cause the keyboard error or keyboard is not detected at Host side.

    ■   For T-Dongle to PS/2 computer, power off the computer, unplug connectors, plug in mouse first, then plug in keyboard and VGA connector, then power on again.

    ■   For T-Dongle to USB computer, unplug connectors, plug in USB first, and then plug in VGA connector.

4. No video signal is displayed on the monitor.

    ■   Connect your monitor directly to the server to verify that your monitor is functioning properly.

    ■   Please check if all connectors are connected properly

    ■   The T-Dongle VGA connector is not attached to computer during boot up process.

    ■   The power cord is not connected to the KVM switch.

    ■   Use hotkey "SPACE" to bring up the OSD, and confirm the port is selected and connected to a server

    ■   See next item, make sure the computer VGA output resolution match with the monitor's resolution

5. The computer VGA resolution does not match the monitor's resolution

    ■   Make sure VGA resolution works fine if directly connect the monitor to the computer.

    ■   Please turn off the computer, wait few seconds then turn on again. Notice that during computer startup, it will try to obtain the information of the connected monitor resolution from its VGA port. So before computer startup, the monitor and KVM switch should be

already ON and running.

■ The recommended Power ON sequence is as follows: monitor, KVM Switch, finally the computers.

6. Video signal is foggy or unclear on the screen

■ Please check if the VGA connector connected firmly.

■ There are various of CAT5 cables, such as CAT5/CAT5e/CAT6 and STP/UTP types; If your application need long distance and maintain high VGA resolution, please select high quality cables.

■ For KVM switch connecting to T-Dongle, please use switch to other port then switch back to the port to force auto-adjusting the video signal of the remote port to optimum.

7.   Glossary

The following definitions are used throughout this User Manual.

- **Auto-Scan:** A mode of operation where the KVM switch scans from one port to another, on an ongoing basis, as configured by the user.
- **BANK:** The address of a daisy-chained KVM switch.
- **Console:** The all-in-one term for the keyboard, video monitor, and mouse connected to a KVM switch.
- **Console Port:** An interface receptor on the KVM switch for the console to connect to the KVM switch via cables.
- **Control:** When discussing switching between ports, control means that the console is capable of sending input to the server. Control requires that the console also has focus on the port, and is viewing it.
- **Daisy-Chain:** A configuration of multiple KVM switches that are connected one to another in a series. A KVM switch daisy-chain uses common settings to allow seamless, complex interactions between multiple consoles for control over many servers.
- **HID:** Human Interface Device, the USB device class that includes keyboards and mice.
- **Host/Computer Port:** An interface receptor on the KVM switch for the computer/server to connect to the KVM switch via cable.
- **KVM:** Literally "Keyboard Video Mouse", this term refers to technology that allows two or more computers to be controlled by one keyboard, video monitor, and mouse; some switches that use KVM technology enable sharing of other peripherals such as audio speakers, microphones, and printers.
- **KVM Switch:** A device that allows a user to access and control multiple servers from a single console. It has at least one console port and multiple server ports.
- **OSD:** On-Screen Display, a Graphical User Interface that can be used to control and configure the KVM switch.

8. Certifications

FCC

This equipment has been tested and found to comply with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference

(2) This device must accept any interference received.   Include interference that may cause undesired operation.

CE

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

RoHS

All contents of this package, including products, packing materials and documentation comply with

RoHS.