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## **KVM-U4 & KVM-U8**

**4 Port VGA  
KVM Switch**

**8 Port VGA  
KVM Switch**

### Users Guide

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UMA 1180, Rev 1.1



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This equipment complies with the requirements of regulation:

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# MODEL KVM-U4

## 1.1 General

The KVM-U4 is a compact KVM switch for controlling up to 4 computers from a single keyboard, mouse and monitor. It is designed for desktop or rack mounting.

## 1.2 Features

- Hot key control
- Push button and Auto Scan switching
- Optional ear brackets for rack mounting
- Supports USB or PS2 (with adapter)
- Auto Scan Mode for monitoring
- Audible alerts for confirmation

## 1.3 Package Contents

The KVM-U4 package contains the following contents:

- 1x KVM-U4 Switch
- 2x Rack Mount Brackets with mounting hardware
- 1x 9V DC Power Adapter
- 1x This Users Guide

## 1.4 Installation

1. Attach monitor to the monitor port on the back of the KVM-U4.
2. Connect mouse and keyboard directly to the USB ports on the front of the KVM-U4.
3. Attach the HD15 end of a USB KVM cable (not included) to an available Host port on the back of the KVM-U4.
4. Connect the other end of the USB KVM cable to the host computer video and USB ports.
5. Power on the KVM-U4.

## 1.5 Hotkey

Hotkey Command	Function
Scroll Lock + Scroll Lock + [Up Arrow]	Previous Channel
Scroll Lock + Scroll Lock + [Down Arrow]	Next Channel
Scroll Lock + Scroll Lock + [1,2,3,4]	Go to Port...
Scroll Lock + Scroll Lock + S	Toggle Auto Scan
Scroll Lock + Scroll Lock + B	Toggle Beep

## **2 KVM-U8**

### **2.1 General**

The KVM-U8 is a single rack unit 8-port VGA KVM switch to control multiple hosts from a single console. Hosts connect to the switch via a convenient Video/USB combo cable. The switch console natively accepts USB keyboard and mouse but can use PS/2 with PS/2-USB adapters.

Up to 8 switches can be linked together to control up to 64 servers. The switch may be accessed from any computer on the LAN with optional plug-in module (KVM-U8-IP).

### **2.2 Features**

- On Screen Display (OSD) Menu
- Two levels of password security
- Hot key control
- Push button and Auto Scan switching
- Full keyboard and mouse emulation
- Provides ACL (Access Control List) security with up to 8 independent ACLs of controllable computer lists
- Hot pluggable – add or remove connected computers without powering off the KVM switch or computers
- Plug-n-Play monitor support
- Keyboard state restored when switching between computers
- Daisy chainable function with both Bus (8-layer) and Tree (2-layer) topologies
- Video/USB combo cables available in 6, 10 and 15 ft lengths.
- Optional KVM Over IP interface (KVM-U8-IP) to allow remote access to the switch from any PC on the LAN.

### **2.3 Package Contents**

The KVM-U8 package contains the following contents:

- 1x KVM-U8 Switch
- 2x Rack Mount Brackets with mounting hardware
- 4x Foot pads
- 1x 12V DC Power Adapter
- 1x This Users Guide

## 2.4 Front Panel

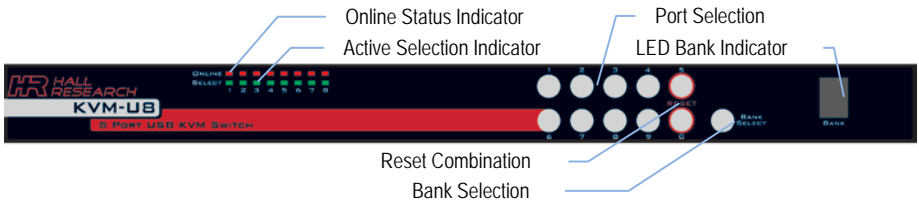


Figure 1 - Front Panel

- **Online Status Indicator:** The Red LED indicates when a computer is connected and powered.
- **Active Selection Indicator:** The Green LED indicates which port is selected. The LED will flash if no computer is connected to the port.
- **Reset Combination:** Press buttons 5 and 0 simultaneously to restart the switch.
- **LED Bank Indicator:** This 7 segment LED indicates the selected bank when multiple units are daisy-chained.
- **Bank Selection:** This button will cycle through daisy-chained banks.
- **Port Selection:** Press the 2 digit port number to immediately switch to the port. For example, press “0” then “6” to switch to port 6. Press the single digit port number and wait 2 seconds to switch to the port.

## 2.5 Rear Panel

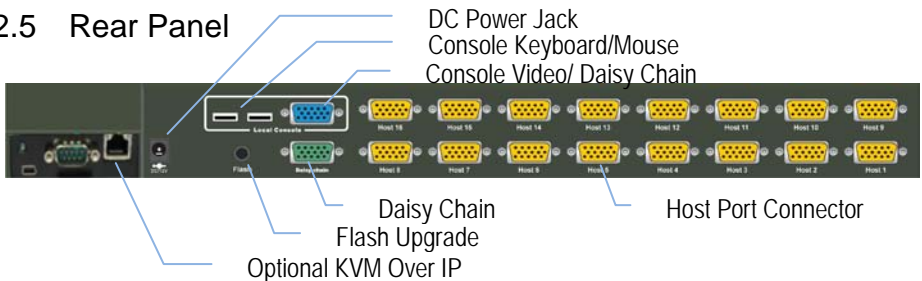


Figure 2 - Rear Panel

## 2.6 Installation

Before installation, please make sure all peripherals and computers are turned off.

## 2.7 Desktop or Rack Mount

The KVM-U8 can be mounted on a desktop surface or in a single RU of a standard 19" rack.

### 2.7.1 Desktop

1. Apply the self-adhesive footpads supplied in the package contents to the four corners of the bottom panel.

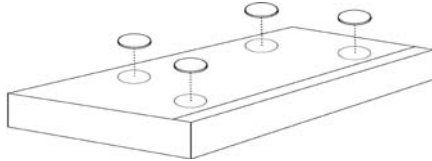


Figure 3 - Desktop Installation

### 2.7.2 Rack Mounting

1. Connect the mounting brackets to the sides of the unit as shown below.

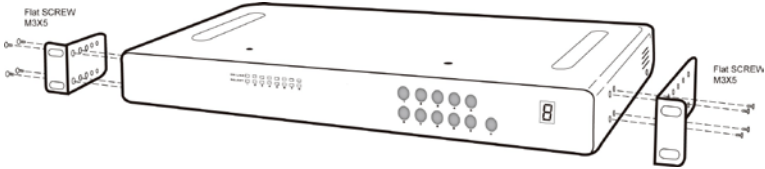


Figure 4 - Mounting Bracket Installation

2. Slide the unit into the rack and secure it to the posts.

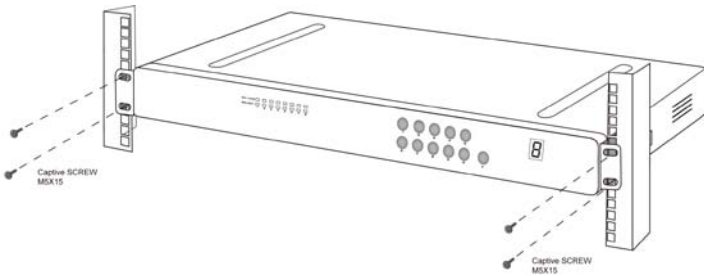


Figure 5 - Rack Mount Installation

## 2.8 Computer/Server Installation

The figure below depicts overall system installation with a single Daisy-Chain slave unit.

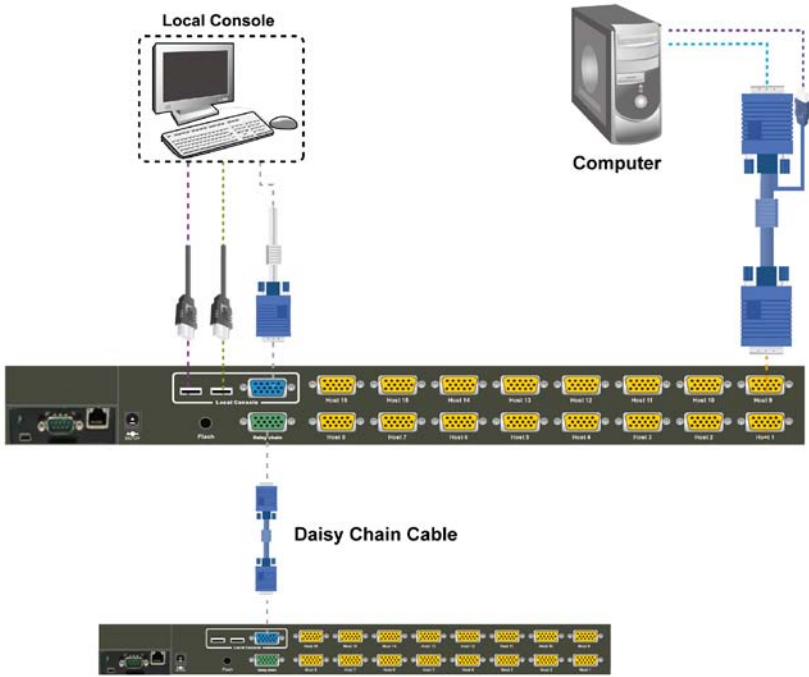


Figure 6 – Computer/Server Installation Diagram

## 4 Port VGA KVM & 8 Port VGA KVM Switches

### 2.8.1 Daisy Chain Connections

Up to 8 KVM-U8 switches can be daisy-chained together. Hall Research Ultra-Thin cables are recommended for use in the daisy chain connection but any VGA cable with 15 fully connected lines will work.

Connect the Daisy chain HD15 port of the previous switch to the Local Console VGA port of the next switch in the series as shown below.

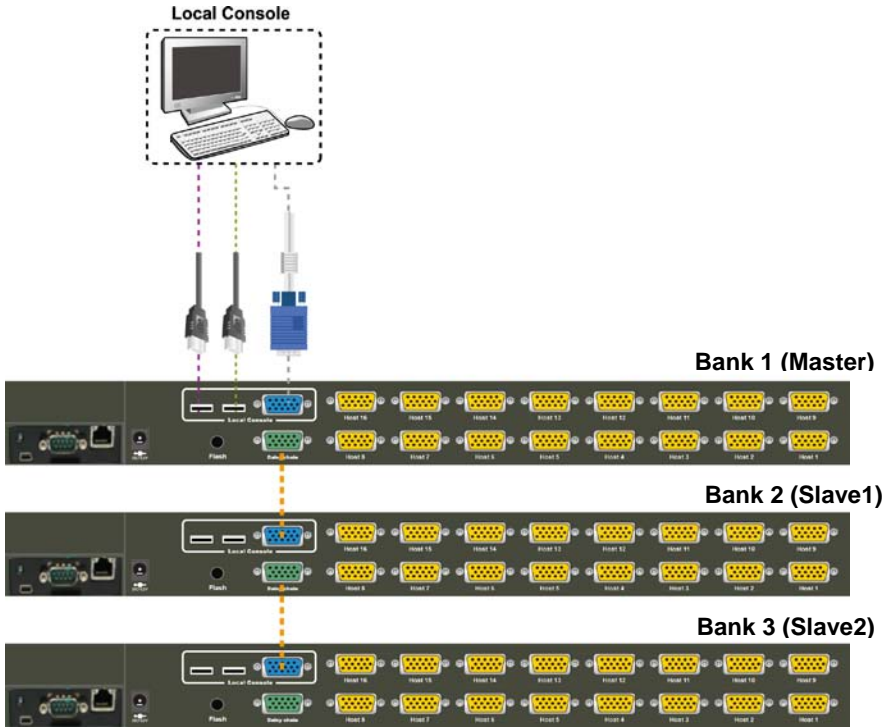


Figure 7 - Daisy Chain Connections

The console OSD menu will only show port information of the master KVM switch. When the master switch starts up, it will query all daisy chained slave units and automatically setup the Bank ID for each slave unit. The Master unit Bank ID will display 1, Slave 1 will display 2, Slave 2 will display 3, and so on. If the Bank IDs are displayed incorrectly then reset the Master unit to update the Bank ID information.

Other KVM switches can also be daisy chained to the KVM-U8 through the host ports. Note that the slave KVM switch must not use the same Hotkey as the KVM-U8.

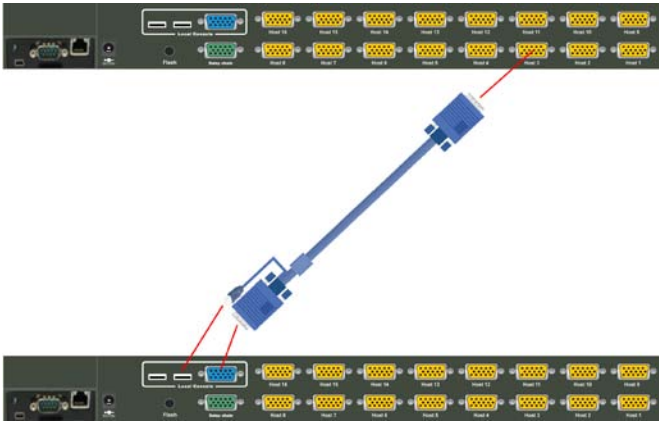


Figure 8 - Daisy Chain Through Host Port

### 2.8.2 KVM Over IP

The KVM-U8-IP is a KVM over IP module that allows the KVM switch console to be accessed through the browser of any PC on the network.

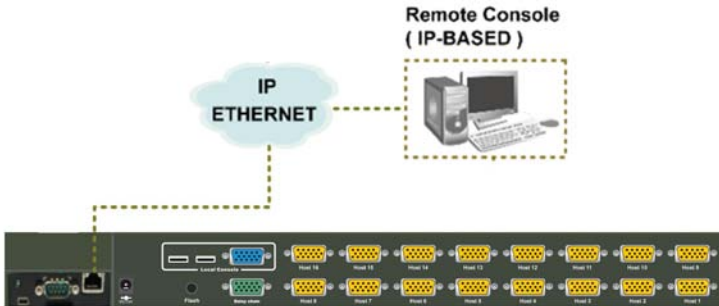


Figure 9 - KVM Over IP Console

## Installation

1. First power off the KVM-U8 switch.
2. Remove the add-on slot cover.
3. Slide in the KVM over IP module. Make sure it is fully inserted into the slot.
4. Tighten the locking screw to secure the module in place.
5. Connect the RJ45 port to your network. Refer to the KVM-U8-IP User Guide for more information about configuring and using this module.

## 2.9 Power On Sequence

Before turning anything on, verify all cables are properly connected in the correct location.

The recommended power on sequence is as follows:

1. Monitors
2. KVM Switch
3. Computers

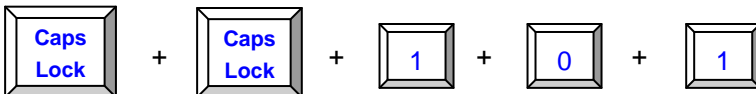
When the KVM-U8 is powered on the Port 1 Select LED will light up and you should hear a beep sound. The Online Status LED's light up when the connected host is powered on. If you encounter an error, check the cable connections for that host and reboot. If the problem persists, please refer to the Troubleshooting chapter of this Users Manual.

## 2.10 Hotkeys

The KVM-U8 has multiple hotkey commands for quick control of the switch functions.

The default hotkey is **Caps Lock + Caps Lock**. Press the key twice within 2 seconds to invoke the hotkey mode. You then have 2 seconds to enter a command before the mode times out.

You can quickly switch between hosts by performing the hotkey sequence **Caps Lock, Caps Lock, [Bank ID], [2 digit host #]**. For example, to switch to Bank 1 Port 1 type the following sequence:

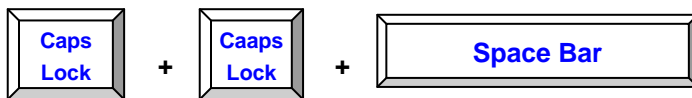


Command	Function
Space bar	Display the OSD Port Name screen
↑or↓	Move Up or Down through host ports
[1,2,...,8] bank, [01, 02,...,32] port	<ul style="list-style-type: none"> <li>■ The first digit is the bank number starting with "1".</li> <li>■ The second &amp; third digits are port number starting with "01".</li> </ul>
PgUp	Previous bank
PgDn	Next bank
B	Enable/disable beep sound
L	Enable/disable Screen Saving and auto-logout function. Default is OFF (Disable).
P	Log out current user.
R	Set OSD back to factory defaults (except User Security settings). Only SUPERVISOR can perform this action.
S	Enable/disable Auto-Scan. Only SUPERVISOR can perform this action.
U	Enable/disable Security function. Only SUPERVISOR can perform this action.

Table 1 - Hotkey Commands

There are two ways to invoke the OSD menu with hotkeys.

#### A. Keyboard – Hit Caps Lock + Caps Lock + Space




#### B. Mouse – Press and hold the left mouse button and hit Esc key to show the Status screen. Press and hold the right mouse button and hit the Esc key to bring up the OSD menu.

## 2.11 Keyboard Mapping

Sun keyboard	Windows PS/2 keyboard
Stop	Caps Lock & L_Alt
Again	Caps Lock & F4
Props	Caps Lock & L_Ctrl
Undo	Caps Lock & F5
Front	Caps Lock & F1
Copy	Caps Lock & F6
Open	Caps Lock & F2
Paste	Caps Lock & F7
Find	Caps Lock & F3
Cut	Caps Lock & F8
Mute	Caps Lock & 1
Volume down	Caps Lock & 2
Volume up	Caps Lock & 3
Power	Caps Lock & F12
Help	Caps Lock & F11
Compose	Caps Lock & L_Shift (Application)
Sun OS	Windows key

**Table 2 - SUN Keyboard Mapping**

MAC OS	Windows PS/2 keyboard
Shift	Shift
Ctrl	Ctrl
	Windows key
L Alt/Option	Alt
F13	PrtSc (Print Screen)
F14	ScrLk (Scroll Lock)
Return	Enter
Delete	Backspace
F15	Pause/Break

**Table 3 - MAC Keyboard Mapping**

## 2.12 OSD (On Screen Display)

The On Screen Display provides a graphical display and interface for controlling the KVM-U8 switch. The OSD has 4 screens:

1. **Login Window**
2. **Status Screen**
3. **Port Name**
4. **Main Menu**

## 2.13 Login Window

If the security function is enabled (disabled by default), the Login window will be displayed when the switch is powered up.

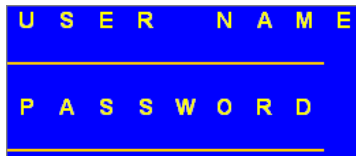


Figure 10 - Login Window

The default SUPERVISOR user name is "00000000" (8 zeros) and the default password is "00000000" (8 zeros). Keep in mind that the username and password are case-sensitive even though the OSD only displays in upper case.

## 2.14 Status Screen

The Status Screen displays setting information after login, OSD menu or anytime the host is switched. Pressing any key or button will clear the status screen.

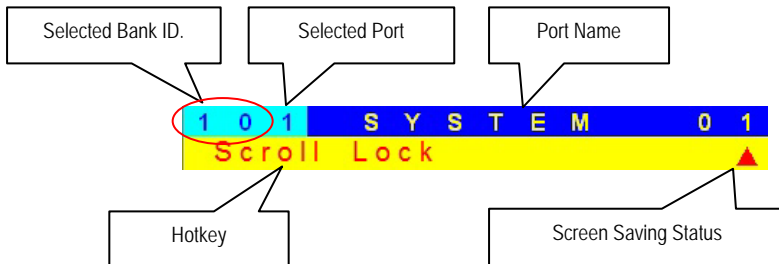


Figure 11 - Status Screen

**Screen Saving** – If this option is enabled, the switch will turn off the display and auto-logout after 10 minutes of console inactivity.

## 2.15 Port Name

The Port Name screen lists the port names and status of a particular bank.

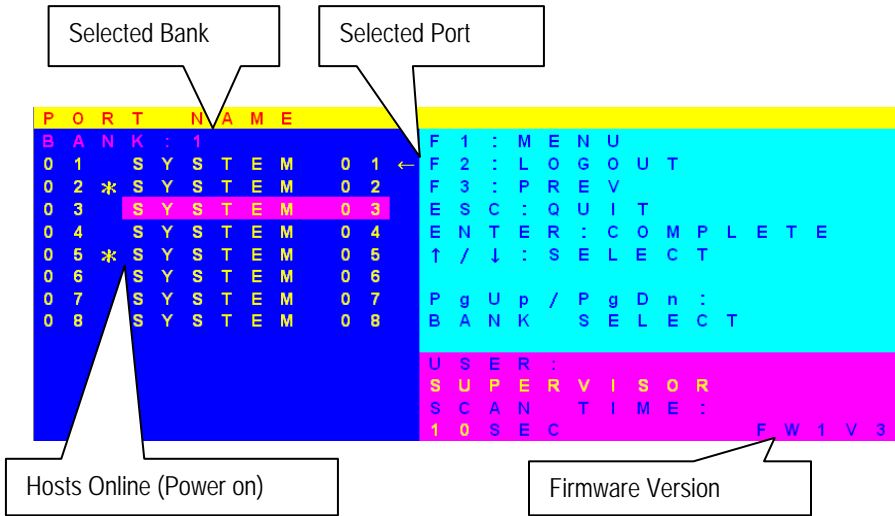


Figure 12 - Port Name Screen

Command	Description
F1	Go to Main Menu
F2	Log out
F3	Previous Menu
Enter	Switch to the selected port
↑ or ↓	Move Up or Down
PgUp	Previous Bank
PgDn	Next Bank
Esc	Exit
1	Show ports 01 ~ 08
2	Show ports 09 ~ 16
3	Show ports 17 ~ 24
4	Show ports 25 ~ 32

Table 4- Port Name Screen Commands

## 2.16 Main Menu

The Main Menu has eight options: Language, Port Name Edit, Port Search, User Security, Access List, Hotkey, Time Settings and OSD Mouse.

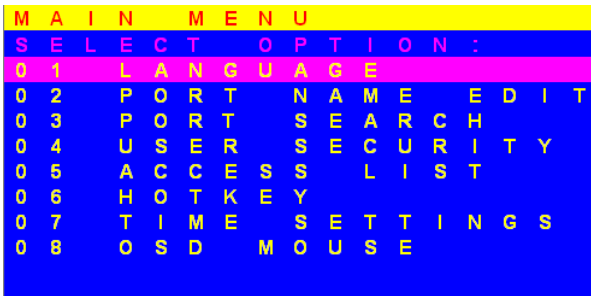


Figure 13 - Main Menu Screen

### 2.16.1 Language

The OSD supports English (default), French, German, Italian, Spanish, Simplified Chinese, Japanese, and Russian. Note that editing the settings can only be done with English alphanumeric.

### 2.16.2 Port Name Edit

You can enter custom names for each host port on any connected bank.

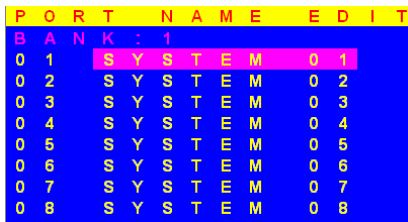


Figure 14 - Port Name Edit Window

Use keyboard arrows or mouse to navigate the list. Use **PgUp** and **PgDn** to toggle through available Banks. Select the port and press **Enter** once to edit the name and press **Enter** again to exit edit mode. Press **Esc** at any time to exit.

### 2.16.3 Port Search

Port Search allows you to search all port names for a particular string of characters.

## 4 Port VGA KVM & 8 Port VGA KVM Switches

### 2.16.4 User Security

The KVM-U8 supports two user levels: SUPERVISOR and USER. There can only be one SUPERVISOR and up to eight USERS.

USER SECURITY	
NAME	PASSWORD
S	00000000
1	
2	
3	
4	
5	
6	
7	
8	

Figure 15 - User Security Screen

The first name, S is the SUPERUSER account. The default username and password is "0000000".

### 2.16.5 Access List

The Access List allows the SUPERVISOR account to assign access privileges to individual USER accounts.

ACCESS LIST									
BANK	SYSTEM	1	2	3	4	5	6	7	8
1	SYSTEM	0	1	0	0	0	0	0	0
2	SYSTEM	0	2	0	0	0	0	0	0
3	SYSTEM	0	3	0	0	0	0	0	0
4	SYSTEM	0	4	0	0	0	0	0	0
5	SYSTEM	0	5	0	0	0	0	0	0
6	SYSTEM	0	6	0	0	0	0	0	0
7	SYSTEM	0	7	0	0	0	0	0	0
8	SYSTEM	0	8	0	0	0	0	0	0

Figure 16 - Access List Window

Use arrow keys to navigate the list. Left click mouse or press 'Enter' to toggle each cell between O=grant and X=deny user access to the port.

### 2.16.6 Hotkey

Hotkey menu allows you to change the hotkey. Hotkey must be pressed twice within two seconds to activate and will time out after two seconds if no key is pressed.

### 2.16.7 Time Settings

When Auto-Scan function is enabled the switch will auto-scan through online host ports based on the interval of the scan time setting. The interval range is 5 – 99 seconds and the default interval time is 10 seconds.

### 2.16.8 OSD Mouse

This setting allows you to change the speed of the cursor in the OSD. The three available settings are SLOW, MIDDLE, and FAST.

## 3 Troubleshooting

### 3.1 No LED display on KVM Switch

- Make sure the KVM Switch has power. If the LED's still won't light, perform a soft reset to KVM switch.
- Power cycle KVM switch.

### 3.2 Keyboard or mouse not working

- Make sure your keyboard and mouse work fine if directly plugged into the computer.
  - PS/2 computer --- keyboard and mouse are not hot pluggable, please make sure PS/2 cables are well connected then reboot the computer.
  - USB computer ---- unplug and plug in the USB connector, wait a few seconds for USB bus emulations and start up process to complete.
- Do not press any keys on the keyboard while the selected computer is booting up. Otherwise it might cause a keyboard error or keyboard to not be detected on the host side.
- Try a different keyboard. Use only 101/102/104-key keyboard.
- Power cycle the unit.
- Avoid moving the mouse or pressing the mouse buttons when switching ports.

### 3.3 No video displayed on the monitor.

- Verify all connectors are connected properly.
- Connect your monitor directly to the server to verify that your monitor is functioning properly.
- Bring up the OSD and confirm the port is selected and connected to a host.
- Make sure the computer VGA output resolution is supported by the monitor

### 3.4 Computer resolution does not match the monitor's

- Verify if the monitor works fine if directly connected to the computer.
- Turn off the computer, wait few seconds then restart. During startup, the computer will try to obtain EDID information about the monitor. Make sure the monitor and KVM switch are ON and running before restarting the computer.
- The switch will dynamically detect and copy the EDID information from the monitor attached to the LOCAL console port. That information will feed to the host computer during startup.
- The recommended Power ON sequence is as follows: monitor, KVM Switch, finally the computers.

### 3.5 Video is fuzzy or unclear

- Verify if the VGA connector is firmly connected.
- If using the remote console extender, make sure to use high quality cables free from defects.

## 4 Technical Specifications

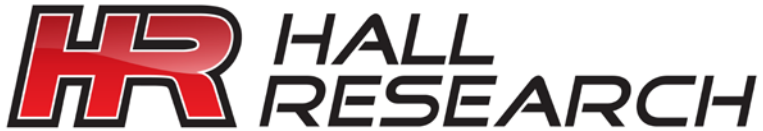
Feature	KVM-U4	KVM-U8
KVM Type	Combo VGA	Combo VGA
Host Port Connector	VGA	VGA
Host Ports	4	8
Console Type	USB or PS/2	USB or PS/2
Max. Distance (KVM switch -- Host)	16 feet (5m)	16 feet (5m)
Video Resolution (Local Console)	1920 x 1440	1920 x 1440
Video Resolution (Remote Console)	NA	1600 x 1200 for IP-Based remote console
Console Ports	Local console	Local console Optional Modules: IP-Based Remote Console
IP-Based Remote Module (KVM-U8-IP)	NA	<ul style="list-style-type: none"> <li>• RJ-45 8P8C for 10/100M Ethernet</li> <li>• DB-9 male for Configuration console, Modem, Null modem, and serial power control</li> <li>• Mini USB 2.0 receptacle</li> </ul>
Daisy Chain	NA	<ul style="list-style-type: none"> <li>• Support Daisy Chaining with both Bus (8-layer) and Tree (2-layer) topologies</li> <li>• Connector DB15 (Female Type)</li> </ul>
Computers Selection	<ul style="list-style-type: none"> <li>• Hot Key</li> <li>• Push Button</li> </ul>	<ul style="list-style-type: none"> <li>• Hot Key</li> <li>• Push Button</li> <li>• On Screen Display (OSD) Menu</li> </ul>
Hotkey	Scroll Lock + Scroll Lock	Caps Lock + Caps Lock
7-seg LED	NA	1 set for Bank display

**Table 5- Technical Specifications**

**5 Features**

Feature	KVM-U4	KVM-U8
Security	NA	Provide ACL (Access Control List) security function, store up to 8 independent ACL's of controllable computer lists
Multilingual OSD (On Screen Display) control	NA	8 languages (English, France, German, Spanish, Italian, Russian, Japanese, Simplified Chinese)
Auto-Scan Intervals	8 seconds	5 ~ 99 Sec.
Keyboard Emulation		PS/2 or USB
Mouse Emulation		PS/2 or USB
Max. Connected Computers	4	Up to 8192
Housing	Metal	Metal
Power	DC Power adapter : 9V, 500mA	DC Power adapter : 12V, 1A
Operation Temperature	0 ~ 50°C	0 ~ 50°C
Storage Temperature	-20 ~ 60°C	-20 ~ 60°C
Humidity	0~80%, Non-Condensing	0~80%, Non-Condensing
Mechanical	Desktop or 19" Rackmount, 1U	19" Rackmount, 1U
Dimension (mm)	158 x 74 x 25	444.5 x 160 x 44.3





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