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Please read this manual thoroughly and follow the **Installation** procedures to prevent any damage to the KVM switch or any connecting device.

This device is tested and complies with Part 15 of FCC/class B, CE and VCCI rules.



## Models and Rear Connectors

PS2

MNV104D

blue grey



MNV108D

blue grey



MNV116D

blue grey



MDV104D (dual video)

blue grey



MDV108D (dual video)

blue grey



USB + PS2

UNV104D

grey



UNV108D

grey



UNV116D

grey



UDV104D (dual video)

grey



UDV108D (dual video)

grey



## Introduction

### Overview

The Slim NovaView KVM Switches offer the most reliable and efficient way of managing multiple computers in server rooms where the space is at a premium. On Screen Display (OSD) features computer naming, computer selection, status indication, auto scan and much more. Up to 136 servers can be easily managed by cascading multiple KVM switches to expand the capacity. Revolutionized video enhancement technology ensures superb quality up to 1920 x 1440. For secured connection and space saving, all NovaView KVM switches require just one HDB15 connector for each computer connection.

For PS/2 MDV104D/108D & USB+PS/2 UDV104D/108D, the models are designed with Dual-Video. It's excellent for graphic designers, CAD/CAM Designers to work efficiently.

Four major models are available:

#### - Slim PS/2-only models

1. One HDB15 connector for each PS/2 computer connection: cable type CBMxxxH.

2. For dual-video models, one HDB 15 connector for each PS/2 computer connection: cable type CBMxxxH.

For the second video, you need another HDB-15 female-male cable.

#### - Slim USB+PS/2 Universal models

3. One HDB15 connector for each PS/2 or USB computer connection: cable type CBMxxxH for PS/2 computer and CBMxxxUH for USB computer.

4. For dual-video models, one HDB15 connector for each PS/2 or USB computer connection: cable type CBMxxxH for PS/2 computer and CBMxxxUH for USB computer.

For the second video, you need another HDB-15 female-male cable.

Slim Model	Product	Video Channel No.	For computer with Interface	Suitable for	Cable
PS/2-only	MNV104D	1	PS/2	PS/2-server	CBMxxxH*
	MNV108D				
	MNV116D	2			CBMxxxH*
	MDV104D				second video cable required
MDV108D					
USB+PS/2 Universal	UNV104D	1	PS/2 or USB	PS/2-server USB-Sun USB-Mac	CBMxxxH (PS/2)
	UNV108D				CBMxxxUH (USB)*
	UNV116D	2			CBMxxxH (PS/2)
	UDV104D				CBMxxxUH(USB)*
UDV108D		second video cable required			

\* Come with the KVM Switch

### Package Content

KVM Switch x 1  
Power Adapter x 1  
Foot Pad x 1 set  
Bracket x 2 (8 port / 16 port)  
User's Manual x 1  
PS/2 or USB cables x 4/8/16 for 4/8/16-port model( depend on the models)

### Features

- Cascade configuration expands system capability
- 1U-height form factor saves rack spaces
- Unique cables for secured connection
- Auto-scan function automatically selects computer sequentially
- Supports Microsoft IntelliMouse (Pro)
- Assigns computers with unique and meaningful names
- Identifies and selects computers by the names
- Programmable scan filters unused computers

- Stores system settings and name entries to non-volatile memory
- Password security locks computer from unauthorized access
- Complete control with easy-to-use OSD interface
- Hotkey functions allow easily computer access
- Keyboard states automatically saved and restored while switching computers
- Operating system independent and transparent to all applications
- Plug-and-play system configuration
- Keyboard and mouse can be hot plugged at any time
- DDC2B compatible
- Optional module supports microphones and stereo speakers
- For UNV series, it can support SUN keyboard emulation
- For MDV & UDV series, equipped with Dual-Video.

## Configurations

### Single KVM Switch Configuration

Using one PS/2 keyboard, mouse, and monitor to manage 4, 8, or 16 computers in Figure 1.

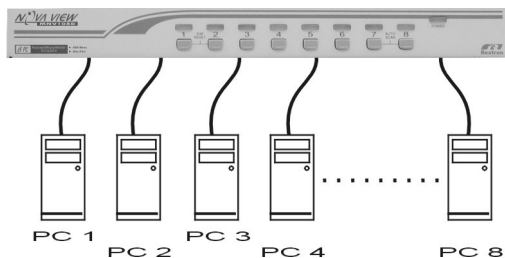


Figure 1: Single KVM Switch configuration

### Cascaded KVM Switch (Master/Slave) Configuration

A second level of *Slave* KVM Switches may connect to the *Master* unit to expand system capacity allowing you to manage computers. There is only one *Master* that connects to the PS/2 keyboard, mouse and

monitor directly operated by a user. Once connected, NovaView KVM Switches automatically configure themselves to either *Master* or *Slave*. *Slaves* of different NovaView KVM Switch models can be mixed in cascade configuration as shown in Figure 2.

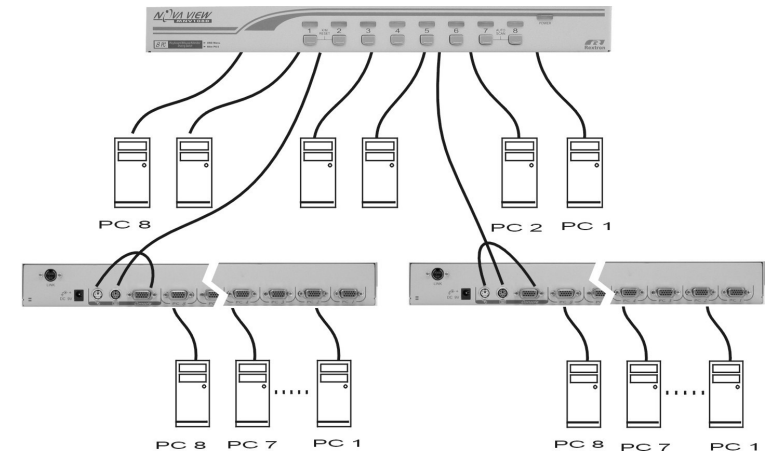


Figure 2: A cascade configuration

Throughout this manual, *Master* is the KVM Switch that connects directly to a PS/2 keyboard, mouse and monitor. *Slave* is a KVM Switch that has its **CONSOLE** port connected to the *Master*'s "PC x" port. *Slave* exists only in cascade configuration.

## Installation

**Make sure all computers and NovaView KVM Switches are powered down during the installation.**

### Cables

Using the following cables to connect computers with PS/2 interface, as shown in Figure 3.

Cable type	CBM180H	CBM300H	CBM600H	CBM102H
Length	1.8m (6ft)	3.0m (10ft)	6.0m(20ft)	10m(30ft)



Figure 3: 1-to-3 cable for PS/2 computer

Using the following cables to connect computers with USB interface, as shown in Figure 4.

Cable type	CBM180UH	CBM300UH	CBM500UH
Length	1.8m (6ft)	3.0m (10ft)	5.0m (16ft)



Figure 4: 1-to-2 cable for USB computer

## Device Connection

### Slim PS/2-only Model

(MNV104D, MNV108D, MNV116D)

Use a 1-to-3 cable to connect from one of the **PC** ports to the PS/2 keyboard port, mouse port, and monitor port of the computer, as shown in Figure 5.

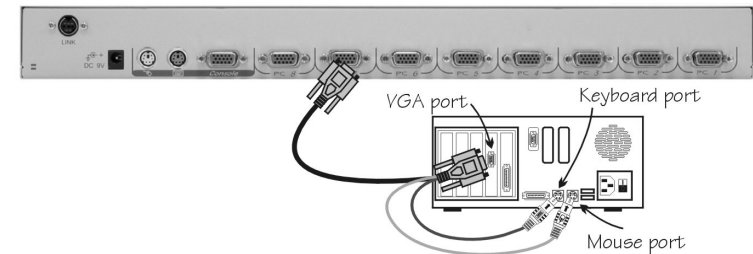


Figure 5: PS/2 computer connection

MDV104D & MDV108D computer connection is as shown in Figure 6.

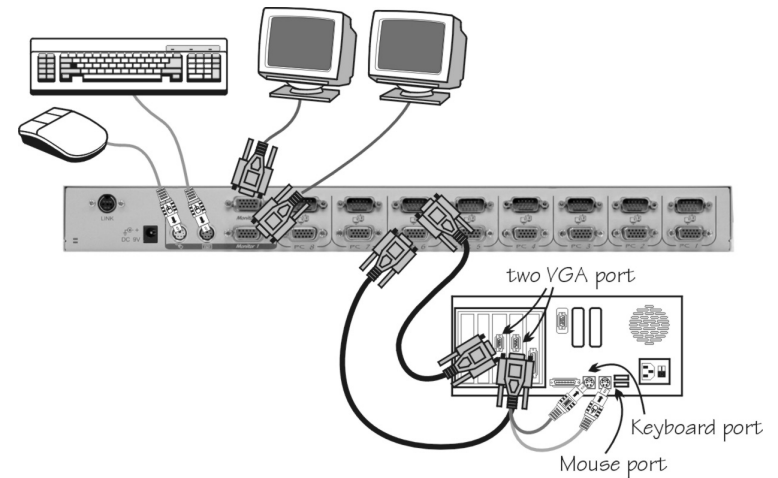


Figure 6: MDV series computer connection

### *Slim USB+PS/2 Universal Model (UNV104D, UNV108D, UNV116D)*

*To a USB computer:* Use a 1-to-2 cable to connect from one of the **PC** ports to the USB port and VGA port of a computer, as shown in Figure 6. The computer can be a USB-ready PC, Sun, HP server, or a Mac.

*To a PS/2 computer:* Use a 1-to-3 cable to connect from one of the **PC** ports to the PS/2 keyboard port, mouse port, and monitor port of a computer, as shown in Figure 5.

*To a laptop computer:* In the most cases, all you need is a piece of PS/2 Y-adapter at the laptop PS/2 port. However, some laptop computers do not follow the industry standard, please check your laptop user's manual for details.

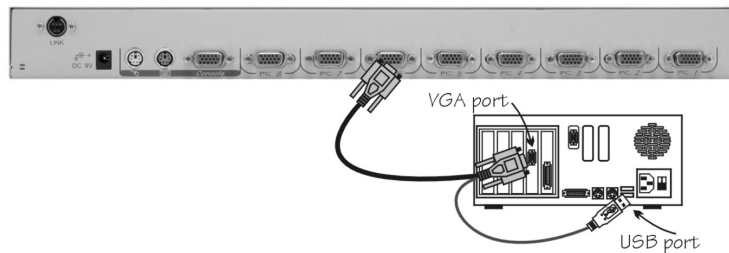


Figure 7: Computer USB Port Connection

For UDV104D & UDV108D models, the computer connection is as shown in Figure 8.

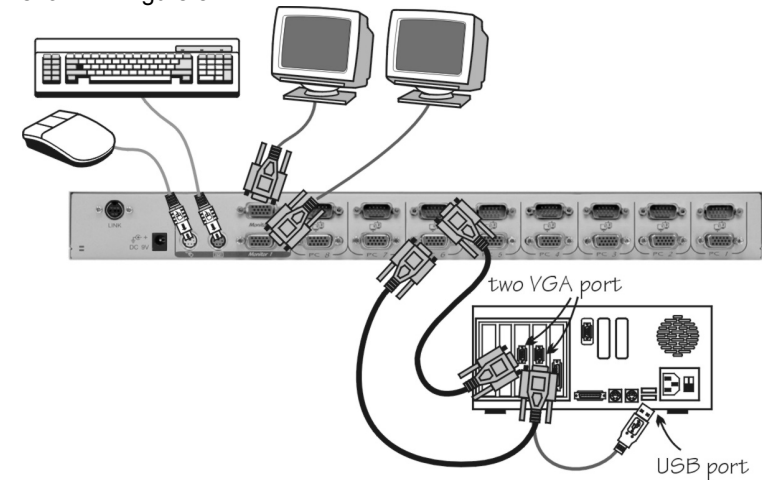


Figure 8: UDV series computer connection

## Initial Power-Up

**You must power up the Master KVM switch that has a PS/2 keyboard, mouse, and monitor connected to it before turning on any other devices.**

- *For single KVM Switch:*
  - 1) Apply a power adapter (O/P = 9V DC) to the *Master*.
  - 2) Turn on computers.
- *For cascaded KVM Switches:*
  - 1) Apply a power adapter (O/P = 9V DC) to the *Master*.
  - 2) Apply power adapters to all *Slaves*.
  - 3) Turn on computers.

**Note:** You may hot plug additional powered-down computers or slave Switches without turning any existing KVM switch or computer off after initial power up.

## Operation



Figure 9: Front push-buttons and LEDs

### Push-buttons

A computer may be selected by pressing the pushbutton directly, by issuing hotkey commands or by activating the OSD window.

**Note:** For 16-port models: "1" ~ "8" represent the lower 8 ports and "A" ~ "H" for the higher 8 ports. Port "1" and "A" share the same pushbutton, so are "2" and "B", etc. If port "1" is already selected, tap its pushbutton to select port "A". If port "1" is not selected, press and hold pushbutton "1" for 2 seconds to select port "A".

#### ■ K/M RESET

**K/M RESET** solves most problems developed by keyboard, mouse, device replacement or change of configuration. Press down both the front-panel number **1** and **2** push-buttons for 2 seconds to re-configure the whole system without turning either the KVM Switch or any computer off.

#### ■ AUTO SCAN

NovaView KVM Switch provides an easy-to-use feature to start *Auto Scanning*. For 108D and 116D, you can press down both the front-panel number **7** and **8** push-buttons for 2 seconds to start Auto Scanning. For 104D, of course, press down both **3** and **4** instead.

### LEDs

The lighting red LED indicates that port is selected. The port is either Auto Scan or Manual Scan mode if the red LED flashes. Green LED is lighting when the port connects a power-on computer. There are 2 rows of LEDs for 16-port switches, the lower row is for numerical ports ("1" ~ "8") and the upper row is for alphabetical ports ("A" ~ "H").

## OSD (On-Screen-Display) Operation

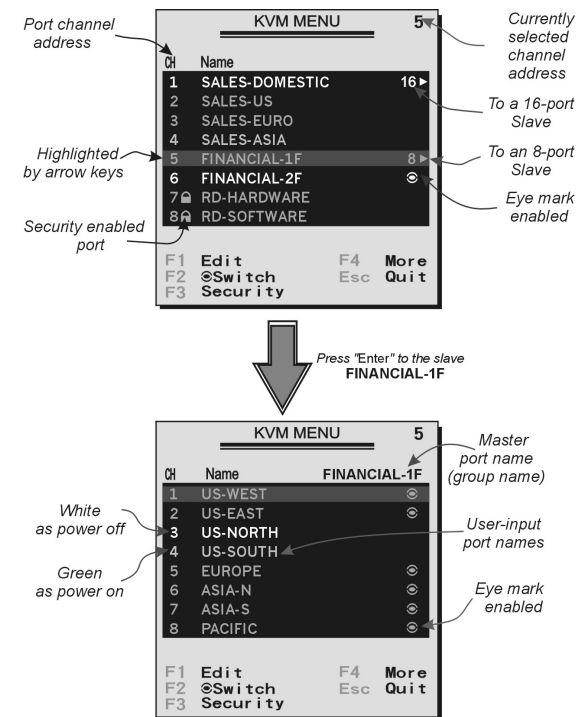


Figure 10: OSD screen illustration

USB+PS/2 Universal models offer "F5", see Function key **F5**

By hitting the **left Ctrl** key twice within two seconds, you may see the 'Hotkey Menu' if it is enabled (an OSD option). Or, by hitting the **left Ctrl** key three times within two seconds, you will see a 'KVM MENU' screen showing a list of the computers with corresponding port numbers, names, and statuses, see Figure 10.

The port number of the currently selected computer is displayed in red, same as the front indicator, at the upper-right corner of the OSD menu.

The color of a device name is green if it has power and is ready for operation, or, the white color means it has no power. OSD menu updates the color when it is activated. For 16-port models, pressing the **PageUp** and **PageDown** keys to view 8 other computers.

Using the “**↑**”, “**↓**”, “**1**” ~ “**8**” or “**A**” ~ “**H**” to highlight a computer and using the **Enter** key to select it. Or, you may press **Esc** to exit OSD and remove the OSD menu from the display; the status window returns to the display and indicates the currently selected computer or operating status.

A triangle mark (▶) to the right of a name indicates the port is cascaded to a *Slave*; the number at the left of the triangle mark shows the number of ports the *Slave* has, i.e. 8▶ for an 8-port Switch. **Enter** key brings you one level down and another screen pops up listing the names of the computers on that *Slave*. The name of the *Slave* will be shown at the upper right corner of the OSD menu. It is useful to group computers and still be able to see the group name.

An eye mark (👁) on the right of a name indicates that computer is selected and monitored in Scan mode. In the OSD, this mark can be switched on or off by function key **F2**.

Press **Esc** key to exit OSD and to return to the selected computer; the computer name is also shown on the screen.

● **Function key F1** : To edit name entry of a computer or a *Slave* with up to 14 characters. First, highlight a port then press **F1** followed by name entry. Valid characters are ‘A’~‘Z’, ‘0’~‘9’, and the dash character. Lowercase letters are converted to uppercase ones. Press **Backspace** to delete a letter one at a time. Non-volatile memory stores all name entries until you change, even if the unit is powered down.

● **Function key F2** : To switch the eye mark (👁) of a computer on or off. First, use the **UP** and **DOWN** arrow keys to highlight it, then press **F2** to switch its eye mark on or off. If *Scan Type* is ‘Ready PC +👁’, only the power-on and eye mark selected computers will be displayed sequentially in Scan mode.

● **Function key F3** : To lock a computer from unauthorized access. To lock a device, highlight it then press **F3**. Now, enter up to 4 characters (‘A’~‘Z’, ‘0’~‘9’, ‘-’) followed by **Enter** as a new password. A Security-enabled device is marked with a lock (🔒) following its port number. To *permanently* disable the security function from a locked device, highlight it, press **F3** then enter the password.

If you want to access the locked device *temporarily*, simply highlight it and press **Enter**, the OSD will ask you for the password. After entering the correct password, you are allowed to use the device. This device is automatically re-locked once you switch to another port. During Scan mode, the OSD skips the password-protected devices.

***If you forget the password, the only way to permanently erase all the passwords is to:***

***For 108D and 116D, press and hold the front panel buttons “1” and “2”, then hold “7” and “8”. Release “7” and “8”, then release “1” and “2”. For 104D, press “3” and “4” instead of “7” and “8”.***

● **Function key F4** : More functions are available by hitting **F4**. A new screen pops up displaying more functions as described below. Most of them are marked with a triangle (▶) indicating there are options to choose from. Using arrow key “**↑**”, “**↓**” to select the functions, and then press **Enter**. Available options will be shown in the middle of the screen. Again, using arrow keys “**↑**”, “**↓**” to view options, and then press **Enter** to select it. You can press **Esc** to exit at any time.

#### ■ *Auto Scan*

In this mode, the KVM switch automatically switches from one power-on computer to the next sequentially in a fixed interval. During *Auto Scan* mode, the OSD displays the name of the selected computer. When *Auto Scan* detects any keyboard or mouse activity, it suspends the scanning till activity stops; it then resumes with the next computer in sequence. To abort the *Auto Scan* mode, press the *left* **Ctrl** twice, or, press

any front button. *Scan Type* and *Scan Rate* set the scan pattern. *Scan Type* ( **F4** : More\Scan Type) determines if scanned computers must also be eye mark selected. *Scan Rate* ( **F4** : More\Scan Rate) sets the display interval when a computer is selected before selecting the next one.

#### ■ *Manual Scan*

Scan through power-on computers one by one by the keyboard control. You can type ( **F4** : More\Scan Type) to determine if scanned computers must also be eye mark selected. Press the up arrow key “ **↑** ” to select the previous computer and the down arrow key “ **↓** ” to select the next computer. Press any other key to abort the Manual Scan mode.

#### ■ *Audio Stick*

An optional multimedia module can be **LINKed** to the back of each KVM Switch for selecting microphone and stereo speaker signals. There are two options for *Audio Stick*: **On** and **Off**. When set to '**On**', audio selection follows computer selection. When set to '**Off**', audio selection stops following computer selection. It is useful if you want to listen to a particular computer's audio signal while operating other computers. The non-volatile memory stores the *Audio Stick* setting.

#### ■ *Scan Type*

**Ready PC +** : In Scan mode, scan through power-on and eye mark selected computers.

**Ready PC**: In Scan mode, scan through power-on computers.

**Only**: In Scan mode, scan through any selected computer regardless of computer power status. The non-volatile memory stores the *Scan Type* setting.

#### ■ *Scan Rate*

Sets the duration of a computer displayed in *Auto Scan* mode. The options are **3 seconds, 8 seconds, 15 seconds, and 30 seconds**. The non-volatile memory stores the *Scan Rate* setting.

#### ■ *Keyboard Speed*

NovaView KVM switch offers keyboard typematic setting that overrides the similar settings in BIOS and in Windows. Available speed options are **Low, Middle, Fast** and **Faster** as 10, 15, 20 and 30 characters/sec respectively. The non-volatile memory stores the Keyboard Speed setting.

#### ■ *Hotkey Menu*

When you hit the *left Ctrl* key twice within two seconds, the "Hotkey Menu" appears displaying a list of hotkey commands if the option is **On**. The 'Hotkey Menu' can be turned **Off** if you prefer not to see it when the *left Ctrl* key is hit twice. The non-volatile memory stores the Hotkey Menu setting.

#### ■ *CH Display*

**Auto Off**: After you select a computer, the port number and name of the computer will appear on the screen for 3 seconds then disappear automatically. **Always On**: The port number and name of a selected computer and/or OSD status displayed on the screen all the time. The non-volatile memory stores the CH Display setting.

#### ■ *Position*

The position of the selected computer and/or OSD status displays on screen during the operation. The actual display position shifts due to different VGA resolution, the higher the resolution the higher the displayed position. The non-volatile memory stores the Position setting.

**Upper Left, Upper Right,  
Lower Left, Lower Right,  
Middle.**

#### ■ *Country Code for Sun*

**(For UNV104D, UNV108D, UNV116D, UDV104D & UDV108D only)**

Sun keyboards of different languages have different layouts. The KVM switch is able to emulate a Sun keyboard for a specific language type or country such as **Arabic, Belgian, US, Yugoslavia, and so forth**. Select the proper country code that matches **ALL** of your Sun computers.

### ■ Max. Resolution

(For UNV104D, UNV108D, UNV116D, UDV104D & UDV108D only)

You can adjust the monitor resolution under this sub-menu. There are the following selections: 1024\*768, 1280\*1024, 1600\*1200, 1920\*1440, and "DDC2B Disable".

### ● Function key **F5** :

( For UNV104D, UNV108D, UNV116D, UDV104D & UDV108D only)

To switch the **Sun** mark of a port on or off indicating the computer is a Sun server as shown in Figure 11. Sun servers have more keys on the keyboard than a PC. When a **Sun**-marked port is selected, the KVM Switch starts to translate the keys from a PS/2 keyboard to a Sun keyboard. See *Sun Keyboard Mapping* for detail.

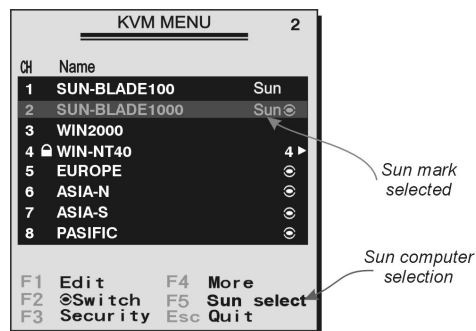


Figure 11: OSD screen for Universal models and the Sun mark

### ● **Esc** : To exit the OSD, press the **Esc** key.

## Hotkey commands

Hotkey command is a short keyboard sequence to select a computer, to activate computer scan, etc. The KVM switch interprets keystrokes for hotkeys all the time. A hotkey sequence starts with two *left* **Ctrl** keystrokes followed by one or two more keystrokes. A built-in buzzer generates a high-pitch beep for a correct hotkey command; otherwise, one low-pitch beep for an error and the bad key sequence will not be forwarded to the selected computer.

The short form hotkey menu can be turned on as an OSD function ( **F4** : More\Hotkey Menu) every time the *left* **Ctrl** key is pressed twice.

**L-CTRL**: is the **Ctrl** key located at the left side of the keyboard.

**1~8/A~H**: are the number keys '1' ~ '8' at the upper row of the keyboard and character keys 'A' ~ 'H' case insensitive. *Do not use the keypad at the right of the keyboard.*

■ To select a computer by hotkey command, you must know its port number, which is determined by the KVM Switch connection. For a computer connected to a *Master*, the label of **1~8** or **A~H** represents its port. For a computer connected to a *Slave*, two characters represent its port. The first character is the port number of the *Master* unit (**1~8**) and the second one is the port number of the *Slave* (**1~8** or **A~H**). Please note that only *Master's* 'PC 1' ~ 'PC 8' ports can be connected to a *Slave*

*Left* **Ctrl** *left* **Ctrl** **7**

Selects a computer connected to port 7 of the *Master*.

*Left* **Ctrl** *left* **Ctrl** **6** **C**

Selects a computer connected to port C of a *Slave* connected to port 6 of the *Master*.

■ To start *Auto Scan*, automatically scan power-on computers one by one at a fixed interval:

*Left* **Ctrl** *left* **Ctrl** **F1**

When *Auto Scan* detects any keyboard or mouse activity, it suspends the scanning till activity stops; it then resumes with the

next computer in sequence. The length of the *Auto Scan* interval (*Scan Rate*) is adjustable. To abort the *Auto Scan* mode, press the **left Ctrl** key twice.

**Note:** *Scan Type* determines whether an eye-marked computer is to be displayed during **Auto Scan**.

- Manual *Scan* enables you to manually switch back and forth between the power-on computers.

**Left Ctrl left Ctrl F2**

Press “**↑**”, “**↓**” to select the previous or the next computer in sequence. And, press any other key to abort the *Manual Scan*.

**Note:** *Scan Type* determines whether an eye-marked computer is to be displayed during **Auto Scan**.

- To adjust *Scan Rate* that sets the duration before switching to the next computer in *Auto Scan*:

**Left Ctrl left Ctrl F3**

The KVM switch beeps one to four times indicating the scan interval of **3, 8, 15** and **30** seconds respectively.

- To adjust keyboard typematic rate (characters/sec), this setting over-rides that of BIOS and any operating system:

**Left Ctrl left Ctrl F4**

The KVM switch beeps 1 to 4 times corresponding to **10, 15, 20**, and **30** characters/sec respectively.

- Audio Stick**

An optional multimedia module can be LINKed to the back of each KVM switch for selecting microphone and stereo speaker signals. There are two options for *Audio Stick*: **ON** and **Off**. When set to '**On**', audio selection follows computer selection. When set to '**Off**', audio selection stops to follow computer selection. It is useful if you want to listen to a particular computer's audio signal while operating other computers.

**Left Ctrl left Ctrl F5**

The KVM switch beeps once or twice corresponding to **On** and **Off** respectively.

## Cascade Configuration

### Connection

Before connecting a device (a computer or a Slave KVM Switch) to a KVM Switch under power, you must turn off the device.

**Note:** The Master must have equal or more '**PC x**' ports than that of the Slave, i.e., if an 8-port switch is the master, an 8-port or 4-port switch can be a Slave, but not a 16-port one. PS/2-only models can be cascaded with USB+PS/2 universal models.

The ports labeled "**PC 1**"~"**PC 8**" can be connected to either a computer or a Slave's **CONSOLE** port, as shown in Figure 12. The ports "**PC A**"~"**PC H**" can only be connected to computers.

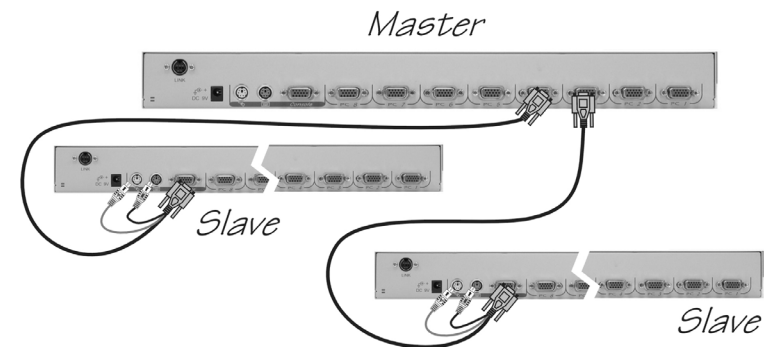


Figure 12: Slave console connection  
(All modules cascade using CBMxxxH)

**Note:** Use only 1-to-3 (PS/2) cables for connection between the Master's **PC** ports and a Slave's **CONSOLE** port in cascade application. All Slim models (PS/2-only and USB+PS/2 Universal) can mix together in cascade connection.

The maximum number of computers controlled by a master/slave configuration with all 8-port units is 64 -- with 8 Slaves and each Slave connects to 8 computers, see Figure 13.

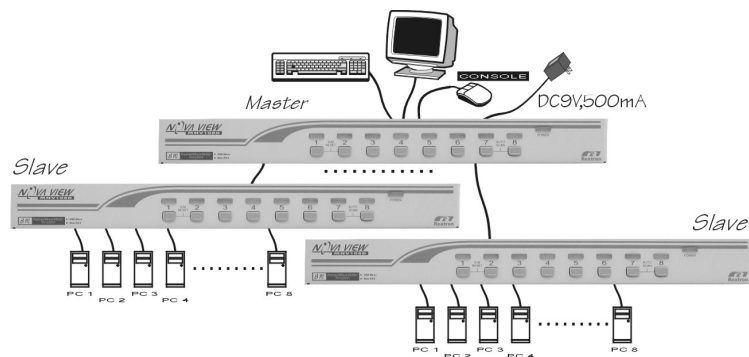


Figure 13: All 8-port KVM Switches in cascade

The maximum number of computers controlled by a master/slave configuration with all 16-port units is 136 -- with 8 units of 16-port *Slaves* (to "PC 1"~"PC 8") and each *Slave* connects to 16 computers; plus 8 more computers directly connect to the Master (to "PC A"~"PC H"), see Figure 14.

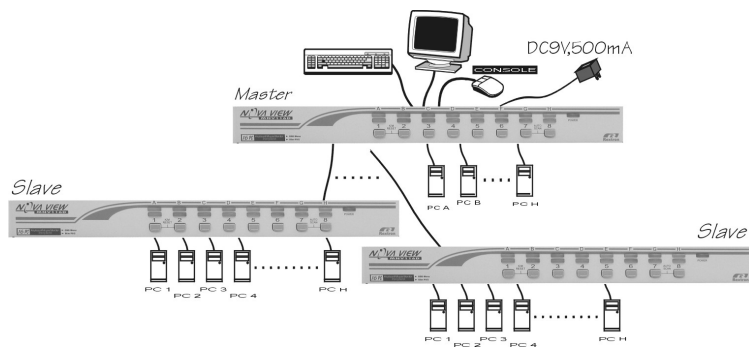


Figure 14: All 16-port KVM Switches in cascade

### For OSD menu:

After connection completed, you should re-activate the OSD menu to check if the *Master* recognizes the *Slaves*. A triangle mark (▶) is placed to the right of the channel name indicating the port is connected to a *Slave* not a computer. A number to the left of the triangle mark indicates the *Slave* model, i.e. 8 ▶ for an 8-port Switch.

## Change Configuration while Running

A device (a computer or a KVM Switch) at any 'PC x' port can be changed at any time after initial power-up. If you change any one of the "PC 1" to "PC 8" ports connection from a computer to a *Slave* KVM switch or vice versa, or replace the devices of a port; the OSD will update this change the next time it is activated.

**Note:** Any new device must be turned off before it is connected to the *Master*.

## Sun/Mac Keyboard Mapping

(For UNV104D, UNV108D, UNV116D, UDV104D & UDV108D only)

The USB+PS/2 Universal models emulate a Sun's keyboard and mouse when a computer is marked with a **Sun** in OSD menu by Function key **F5**. A Sun keyboard has more keys than a standard PS/2 one. These extra keys are simulated by tapping the lower-right **Ctrl** followed by one of the function keys on the PS/2 keyboard (i.e. combo key). For instance, tap the lower-right **Ctrl** key, and then tap the function key **F7** to activate **Open** for a Sun computer.

From PS/2 keyboard	Map to Sun keyboard	Map to Mac keyboard
right - Ctrl 1		
right - Ctrl 2		
right - Ctrl 3		
right - Ctrl 4	note	< power
right - Ctrl F1	Stop	
right - Ctrl F2	Again	
right - Ctrl F3	Props	
right - Ctrl F4	Undo	
right - Ctrl F5	Front	
right - Ctrl F6	Copy	
right - Ctrl F7	Open	
right - Ctrl F8	Paste	
right - Ctrl F9	Find	
right - Ctrl F10	Cut	
Print Screen		F13
Scroll Lock		F14
Pause Break		F15
right - Ctrl H	Help	
right -	right - ♦	right -
left -	left - ♦	left -
	Compose	
right - Alt	Alt Graph	right - Option
left - Alt	Alt	left - Option

**Note:** For Sun: The switch does not support **LowPower** option under **Power Off Select** after the command right - Ctrl 4.

\* For Japanese keyboard: The leading key for the Combo Key is replaced by 半角/全角.

## Appendices

### Slim PS/2-only models

Specifications	Slim PS/2 only models		
	MNV104D	MNV108D	MNV116D
Computer port number	4	8	16
Cascade control PC number	Up to 16*	Up to 64*	Up to 136*
Cable type	1-to-3 for PS/2 computer, CBMxxxH		
On-screen display (OSD)	Yes		
Push-button control	4	8	
Computer ready LED, green	4	8	16
Computer selected LED, red	4	8	16
Hot plug-and-play	Yes		
Hotkey control	Yes		
Rack-mounted	19" industry-standard		
Automatic scan interval	3, 8, 15, 30 seconds		
Programmable scan pattern	3 options available		
Computer name entry	14-character		
Security control	4-character password per computer		
Cable length (Max)	30M (100ft) at CONSOLE 30M (100ft) at PC ports		
VGA bandwidth	1920 x 1440, DDC2B		
Computer connector	HDB15 female x 4	HDB15 female x 8	HDB15 female x 16
Console connector	PS/2 Keyboard female x 1 PS/2 mouse female x 1 HDB-15 monitor female x 1		
H x W x D (mm)	44 x 220 x 130	44 x 438 x 180	
(Inch)	1.75 x 8.625 x 5.125	1.75 x 17.25 x 7.0	
Weight (g)	880	2200	2600
Operating Temperature	5~40°C		
Storage Temperature	-20~60°C		
Humidity	0~80%RH		
Rear-mount brackets	1U-height, included		
Size	1U		
Power supply (min)	External power adapter 9V DC, 600mA		

\* Maximum control when cascaded with models of the same type.

**Slim PS/2-only Dual video models**

Specifications	Slim PS/2 only models	
	MDV104D	MDV108D
Computer port number	4	8
Cascade control PC number	Up to 16*	Up to 64*
Cable type	1-to-3 for PS/2 computer, CBMxxxH	
On-screen display (OSD)	Yes	
Push-button control	4	8
Computer ready LED, green	4	8
Computer selected LED, red	4	8
Hot plug-and-play	Yes	
Hotkey control	Yes	
Rack-mounted	19" industry-standard	
Automatic scan interval	3, 8, 15, 30 seconds	
Programmable scan pattern	3 options available	
Computer name entry	14-character	
Security control	4-character password per computer	
Cable length (Max)	30M (100ft) at CONSOLE 30M (100ft) at PC ports	
VGA bandwidth	1920 x 1440, DDC2B	
Computer connector	HDB15 female x 4	HDB15 female x 8
Second VGA port	HDB15 male x 4	HDB15 male x 8
Console connector	PS/2 Keyboard female x 1 PS/2 mouse female x 1 HDB-15 monitor female x 1 Second HDB-15 monitor female x1	
H x W x D (mm) (inch)	44 x 220 x 130 1.75 x 8.625 x 5.125	44 x 438 x 180 1.75 x 17.25 x 7.0
Weight (g)	980	2300
Operating Temperature	5~40°C	
Storage Temperature	-20~60°C	
Humidity	0~80%RH	
Rear-mount brackets	1U-height, included	
Size	1U	
Power supply (min)	External power adapter 9V DC, 600mA	

\* Maximum control when cascaded with models of the same type.

**Slim USB+PS/2 Universal models**

Specifications	Slim USB+PS/2 Universal		
	UNV104D	UNV108D	UNV116D
Computer port number	4	8	16
Cascade control PC number	Up to 16*	Up to 64*	Up to 136*
Cable type	1-to-2, for USB computer, CBMxxxH 1-to-3, for PS/2 computer, CBMxxxUH		
Applicable to computer	PS/2 PC, USB-Sun, USB-Mac		
On-screen display (OSD)	Yes		
Push-button control	4	8	
Computer ready LED, green	4	8	16
Computer selected LED, red	4	8	16
Hot plug-and-play	Yes		
Hotkey control	Yes		
Rack-mounted	19" industry-standard		
Automatic scan interval	3, 8, 15, 30 seconds		
Programmable scan pattern	3 options available		
Computer name entry	14-character		
Security control	4-character password per computer		
Cable length (Max)	30M (100ft) at CONSOLE 30M (100ft) at PC ports for PS/2 computer 5M at PC ports for USB computer		
VGA bandwidth	1920 x 1440, DDC2B		
Computer connector	HDB15 female x 4	HDB15 female x 8	HDB15 female x 16
Console connector	PS/2 Keyboard, female x 1 PS/2 mouse, female x 1 HDB-15 monitor, female x 1		
H x W x D (mm) (inch)	44 x 220 x 130 1.75 x 8.625 x 5.125	44 x 438 x 180 1.75 x 17.25 x 7.0	
Weight (g)	880	2200	2500
Operating Temperature	5~40°C		
Storage Temperature	-20~60°C		
Humidity	0~80%RH		
Rear-mount brackets	1U-height, included		
Size	1U		
Power supply (min)	External power adapter 9V DC, 600mA		

\* Maximum control when cascaded with models of the same type.

**Slim USB+PS/2 Dual video Universal models**



Specifications	Slim USB+PS/2 Universal	
	UDV104D	UDV108D
Computer port number	4	8
Cascade control PC number	Up to 16*	Up to 64*
Cable type	1-to-2, for USB computer, CBMxxxH 1-to-3, for PS/2 computer, CBMxxxUH	
Applicable to computer	PS/2 PC, USB-Sun, USB-Mac	
On-screen display (OSD)	Yes	
Push-button control	4	8
Computer ready LED, green	4	8
Computer selected LED, red	4	8
Hot plug-and-play	Yes	
Hotkey control	Yes	
Rack-mounted	19" industry-standard	
Automatic scan interval	3, 8, 15, 30 seconds	
Programmable scan pattern	3 options available	
Computer name entry	14-character	
Security control	4-character password per computer	
Cable length (Max)	30M (100ft) at CONSOLE 30M (100ft) at PC ports for PS/2 computer 5M at PC ports for USB computer	
VGA bandwidth	1920 x 1440, DDC2B	
Computer connector	HDB15 female x 4	HDB15 female x 8
Second VGA port	HDB15 male x 4	HDB15 male x 8
Console connector	PS/2 Keyboard, female x 1 PS/2 mouse, female x 1 HDB-15 monitor, female x 1 Second HDB-15 monitor, female x1	
H x W x D (mm)	44 x 220 x 130	44 x 438 x 180
(inch)	1.75 x 8.625 x 5.125	1.75 x 17.25 x 7.0
Weight (g)	980	2300
Operating Temperature	5~40°C	
Storage Temperature	-20~60°C	
Humidity	0~80%RH	
Rear-mount brackets	1U-height, included	
Size	1U	
Power supply (min)	External power adapter 9V DC, 600mA	

\* Maximum control when cascaded with models of the same type.

**Troubleshooting:**

Ensure that all cables are well seated. Check that keyboard/mouse cables are not swapped. Label and bundle the cables for each computer to avoid confusion when connected to the KVM switch.

Symptom	Possible causes	Recommended solutions
Mouse does not work.	<ul style="list-style-type: none"> <li>Too many mouse drivers installed in the computer.</li> <li>Improper mouse driver.</li> </ul>	<ul style="list-style-type: none"> <li>Make sure there is only one mouse driver installed in each computer.</li> <li>Use M/S mouse driver.</li> </ul>
VGA monitor works fine but keyboard and mouse do not work.	<ul style="list-style-type: none"> <li>Check the keyboard and mouse connection; be sure the cables are not swapped.</li> <li>Incorrect cables.</li> </ul>	<ul style="list-style-type: none"> <li>Connect the cables according to the keyboard and mouse marks on the connectors.</li> <li>Only USB+PS/2 models support USB computer connection.</li> </ul>
VGA image is not clear.	<ul style="list-style-type: none"> <li>Poor quality VGA cables.</li> </ul>	<ul style="list-style-type: none"> <li>Use UL-2919 rated, double-shielded VGA cables.</li> </ul>
No screen image, or no OSD menu.	<ul style="list-style-type: none"> <li>A power-on computer is not selected.</li> </ul>	<ul style="list-style-type: none"> <li>Turn on a computer and select it by the front push-buttons.</li> </ul>
Unable to operate USB-Sun server.	<ul style="list-style-type: none"> <li>Incorrect KVM switch model.</li> <li><b>Sun</b> mark is not selected in OSD menu.</li> </ul>	<ul style="list-style-type: none"> <li>Use only the USB+PS/2 KVM switch model and 1-to-2 cables.</li> <li>Invoke the OSD menu, move the light bar to the port, and press <b>F5</b> to set the <b>Sun</b> mark on.</li> </ul>
Keyboard error on boot.	<ul style="list-style-type: none"> <li>Loose keyboard connection.</li> </ul>	<ul style="list-style-type: none"> <li>Make sure keyboard cables are well seated.</li> </ul>
Alphabets on the TFT LCD display are blue or have shadows.	<ul style="list-style-type: none"> <li>Improper resolution settings.</li> </ul>	<ul style="list-style-type: none"> <li>Under Control Panel, set the VGA output of computers to match the highest resolution of the LCD monitor with "Large Font" for the best performance.</li> </ul>

<i>Auto Scan</i> does not switch PC and the KVM switch beeps from time to time while a red indicator flashes.	<ul style="list-style-type: none"> <li>All PCs are off or only one PC is turned on. Scan mode works for power-on computers only.</li> <li><i>Scan type</i> is eye mark selected but no power-up PC is eye mark selected in OSD.</li> </ul>	<ul style="list-style-type: none"> <li>Turn on computers.</li> <li>Set proper <i>Scan Type</i> in OSD and determine which PCs are eye mark selected, do it in OSD.</li> <li>Press <i>left</i> CTRL key twice to abort <i>Auto Scan</i> mode.</li> <li>Press any front button to select a PC, and <i>Auto Scan</i> stops.</li> </ul>
Master/slave does not work.	<ul style="list-style-type: none"> <li>Improper installation procedures.</li> <li>Improper cables between the Master and a Slave KVM switch.</li> </ul>	<ul style="list-style-type: none"> <li>Make sure slave's CONSOLE is connected to <i>Master's</i> PC 1~PC 8 port.</li> <li>Use only 1-to-3 PS/2 cables for cascade connection.</li> <li>Press and hold the 1 and 2 push-buttons to initiate K/M reset.</li> <li>Remove any possible power supply to the slave (unplug all cables), before connecting it to the <i>Master</i>.</li> </ul>
Keyboard strokes shifted.	<ul style="list-style-type: none"> <li>The computer was in shifted state when last switched.</li> </ul>	<ul style="list-style-type: none"> <li>Press both SHIFT keys.</li> </ul>
The  and  keys do not work in <i>Manual Scan</i> .	<ul style="list-style-type: none"> <li>All PCs are off or only one PC is turned on. Scan mode works for power-on computers only.</li> <li><i>Scan type</i> is eye mark selected but no PC is eye mark selected in OSD.</li> </ul>	<ul style="list-style-type: none"> <li>Turn computers on.</li> <li>Press any other key to abort <i>Manual Scan</i> mode.</li> <li>Set proper <i>Scan type</i> in OSD and determine which PCs are eye mark selected, do it in OSD.</li> </ul>
Double OSD images at cascade configuration.	<ul style="list-style-type: none"> <li>Improper slave connection procedures.</li> </ul>	<ul style="list-style-type: none"> <li>Press push-buttons 1 and 2 down for 2 seconds to activate K/M RESET.</li> <li>Remove any possible power supply to the Slave (unplug all cables), before connecting it to the <i>Master</i>.</li> </ul>
OSD menu is not at the proper position.	<ul style="list-style-type: none"> <li>OSD menu has fixed resolution and its size varies as computer VGA resolution changes.</li> </ul>	<ul style="list-style-type: none"> <li>Use <b>F4</b> :More\Position to select UL or UR. OSD menu may appear near the middle of the screen when LL or LR is selected.</li> </ul>
Can not select a computer	<ul style="list-style-type: none"> <li>Improper <i>Master</i> unit connection.</li> </ul>	<ul style="list-style-type: none"> <li>Only <i>Master</i> ports PC1~PC8 can be connected to slaves.</li> </ul>

connected to a slave.	<ul style="list-style-type: none"> <li>Improper slave unit connection.</li> <li>Too many levels of slaves.</li> </ul>	<ul style="list-style-type: none"> <li>Connect slave CONSOLE port to PC1~PC8 ports of the <i>Master</i> by 1-to-3 PS/2 cables.</li> <li>Only one level of slave units is allowed. Pop up OSD again to check if <i>Master</i> recognizes the slave connection. Look for triangle mark and the number before it.</li> </ul>
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## Limited Warranty

IN NO EVENT SHALL THE DIRECT VENDOR'S LIABILITY FOR DIRECT OR INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFIT, LOSS OF BUSINESS, OR FINANCIAL LOSS WHICH MAY BE CAUSED BY THE USE OF THE PRODUCT EXCEEDS THE PRICE PAID FOR THE PDOCUDT.,

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PP5-ZN5100-000

PS/2 keyboard			Sun keyboard
<i>right</i> -	Ctrl	1	
<i>right</i> -	Ctrl	2	
<i>right</i> -	Ctrl	3	
<i>right</i> -	Ctrl	4	<small>note</small>
<i>right</i> -	Ctrl	F1	Stop
<i>right</i> -	Ctrl	F2	Again
<i>right</i> -	Ctrl	F3	Props
<i>right</i> -	Ctrl	F4	Undo
<i>right</i> -	Ctrl	F5	Front
<i>right</i> -	Ctrl	F6	Copy
<i>right</i> -	Ctrl	F7	Open
<i>right</i> -	Ctrl	F8	Paste
<i>right</i> -	Ctrl	F9	Find
<i>right</i> -	Ctrl	F10	Cut
<i>right</i> -	Ctrl	H	Help
<i>right</i> -			<i>right</i> -
<i>left</i> -			<i>left</i> -
			Compose
<i>right</i> -	Alt		Alt Graph
<i>left</i> -	Alt		Alt



From PS/2 keyboard		Map to Mac keyboard
<i>right</i> -	Ctrl 4	power
	Print Screen	F13
	Scroll Lock	F14
	Pause Break	F15
<i>right</i> -		<i>right</i> -
<i>left</i> -		<i>left</i> -
<i>right</i> -	Alt	<i>right</i> - Option
<i>left</i> -	Alt	<i>left</i> - Option

