ATEN®

Simply Better Connections™

HDMI Matrix Switch

USER MANUAL

VM0404H

FCC Information

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital service, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Any changes or modifications made to this equipment may void the user's authority to operate this equipment. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment 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.

FCC Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

RoHS

This product is RoHS compliant.

SJ/T 11364-2006

The following contains information that relates to China.

部件名称	有毒有害物质或元素					
	铅	汞	镉	六价铬	多溴联苯	多溴二苯醚
电器部件	●	○	○	○	○	○
机构部件	○	○	○	○	○	○

○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T 11363-2006规定的限量要求之下。

●: 表示符合欧盟的豁免条款，但该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。

×: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T 11363-2006的限量要求。

VM0404H User Manual

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International	http://eservice.aten.com

Telephone Support

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Japan	81-3-5615-5811
Korea	82-2-467-6789
North America	1-888-999-ATEN ext 4988
United Kingdom	44-8448-158923

Technical Support

- For international online technical support – including troubleshooting, documentation, and software updates:
  http://eservice.aten.com
- For North American technical support:

Email Support		support@aten-usa.com
Online Technical Support	Troubleshooting Documentation Software Updates	http://www.aten-usa.com/support
Telephone Support		1-888-999-ATEN ext 4998

Package Contents

The VM0404H 4x4 HDMI Matrix Switch package contains the following items:

- ◆ 1 VM0404H 4x4 HDMI Matrix Switch
- ◆ 1 IR Remote Control Unit
- ◆ 1 Power Adapter
- ◆ 1 Rack Mount Kit
- ◆ 1 User Instructions*

Check to make sure that all the components are present and that nothing got damaged in shipping. If you encounter a problem, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the unit, and/or any of the devices connected to it.

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* Features may have been added to the VM0404H since this manual was printed. Please visit our website to download the most up-to-date version of the manual.

Overview

With more and more HDMI devices entering the market, the need for simultaneous access to different HDMI sources is becoming increasingly important. Now, the VM0404H 4x4 HDMI Matrix Switch offers an easy and affordable way to add extra HDMI capabilities to your installation by allowing you to switch easily between four HDMI sources and four HDMI displays.

The VM0404H is a 4x4 HDMI Matrix Switch that provides a convenient way to route high definition video and audio from any of four HDMI sources to any of four HDMI displays. The VM0404H allows you to connect four HDMI devices (such as an HD camcorder or satellite box, HD-DVD player, hi-def Blu-ray player, home theater PC, stand-alone streaming media player, gaming console, etc.) to four HDMI monitors, displays, projectors or TVs at the same time. The remote control and convenient front panel pushbuttons allow you to quickly and easily cycle through HDMI sources and displays, while the front panel LEDs indicate the source device for each display at a glance.

Furthermore, for complete system and install integration, RS-232 control is standard through the VM0404H's built-in bi-directional RS-232 serial port that allows the switch to be controlled through a high-end controller, PC, and/or home automation / home theater software package.

Features

- Connects any of 4 HDMI sources to any of 4 HDMI displays
- Switch between HDMI sources and displays using a remote control or front panel pushbuttons
- Superior video quality – HDTV resolutions of 480p, 720p, 1080i, 1080p (1920x1080); VGA, SVGA, SXGA, UXGA (1600x1200), and WUXGA (1920 x 1200)
- Features EDID expert technology to set up different video configurations via different EDID modes
- HDCP compatible
- CEC enable/disable function provides an option of communicating and responding to a universal remote control
- HDMI (3D, Deep Color)
- Supports Dolby True HD and DTS HD Master Audio
- Long-distance transmission – up to 20 m (24 AWG) and 15 m (28 AWG)
- Built-in bi-directional RS-232 serial remote port for high-end system control – includes built-in comment function
- Power On Detection – if one HDMI source is powered off, the VM0404H will automatically switch to the next powered-on source
- DDC compatible
- Signaling rates up to 2.25 Gbits in support of 1080p display
- All-metal casing
- Easy and affordable way to add four HDMI inputs to your multiscreen home theater systems
- Front panel pushbutton enable/disable function for high security applications

Note: The VM0404H AP and GUI operation instructions can be downloaded from the ATEN website (www.aten.com).

System Requirements

Source Devices

◆ HDMI Type A output connector(s)

Note: A DVI/HDMI adapter is required when connecting a DVI source device.

Display Devices

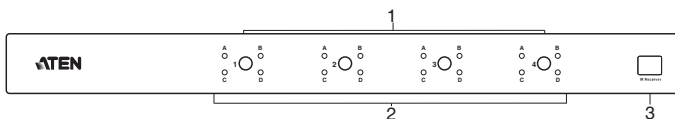◆ Display devices or receivers with an HDMI Type A input connector

Cables

◆ 1 HDMI cable for each source device you will be connecting
◆ 1 HDMI cable for each display device you will be connecting

Note: 1. No cables are included in this package. We strongly recommend that you purchase high-quality cables of appropriate length since this will affect the quality of the audio and video display. Contact your dealer to purchase the correct cable sets.

2. If you wish to utilize the VM0404H's high-end serial controller function, you need to purchase an appropriate RS-232 cable. See *Installing the RS-232 Controller*, page 11.
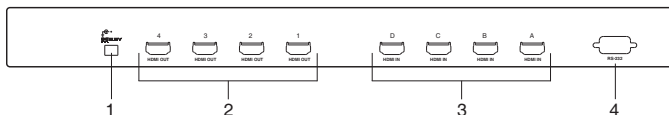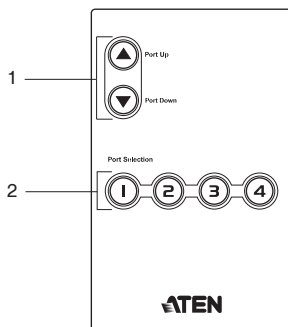
Components

VM0404H Front View

No.	Component	Function
1	Output Port Selection Pushbuttons	Pressing a port selection pushbutton cycles through the four HDMI input sources (Source A, B, C, or D) to be displayed on the display device attached to the corresponding output port (Display 1, 2, 3, or 4).
2	Input Port LEDs	The LEDs (A, B, C, and D) light to indicate that the HDMI source attached to the corresponding input port is routed to the display device attached to the corresponding output port.
3	IR Receiver	This receives signals from the IR remote control.

VM0404H Rear View

No.	Component	Function
1	Power Jack	The power adapter cable plugs in here.
2	HDMI Out Ports	The cables from your HDMI display devices plug into these ports.
3	HDMI In Ports	The cables from your HDMI source devices plug into these ports.
4	RS-232 Serial Port	This serial remote port is for input source selection and high-end system control.

IR Remote Control

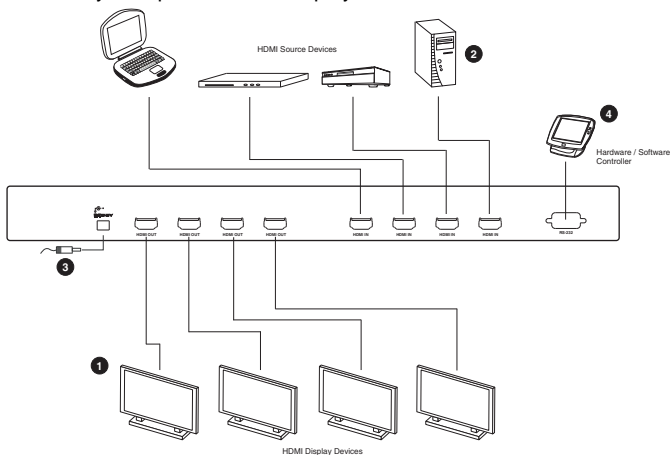| No.	Component	Function
1	Input Port Selection Buttons	Press the Port Up button to cycle forward through the HDMI source devices (A to B; B to C; C to D; D to A). Press the Port Down button to cycle backward through the HDMI source devices (A to D; D to C; C to B; B to A).
2	Output Port Selection Buttons	Press a button to bring the focus directly to the display device attached to its corresponding port.

Installation

> ⚠️ 1. Make sure that the power to any device that you connect to the installation has been turned off.
>
> 2. Make sure that all devices you will be installing are properly grounded.

Installation of the VM0404H is simply a matter of plugging in the appropriate cables. To install the switch, refer to the installation diagram below as you perform the following steps:

1. Use HDMI cables to connect the HDMI In ports on the video display devices to the **HDMI Out** ports on the rear panel of the VM0404H.

2. Use HDMI cables to connect the HDMI Out ports on the source device(s) to the **HDMI In** ports on the VM0404H. Four HDMI In ports are located on the rear panel of the switch.

3. Plug the provided power adapter into an appropriate AC power source; plug the power adapter cable into the Power Jack on the VM0404H.

4. (Optional) If you are using the serial control function (see page 11), use an appropriate RS-232 serial cable to connect the computer or serial controller to the VM0404H's **RS-232 Serial** port.

5. You may now power on the display and source devices.

Installing the RS-232 Controller

In order to use the RS-232 serial interface to attach a high-end controller (such as a PC) to the VM0404H, use a serial cable such as a modem cable. The end connecting to the VM0404H should have a 9-pin male connector. Connect this to the serial interface on the rear of the VM0404H. Refer to number 4 on the diagram on page 10.

Note: To configure the controller serial port, see page 12.

Source Device Selection

The VM0404H offers easy and flexible source and display device selection via the front panel pushbuttons, using the remote control, or through the RS-232 serial interface.

Manual Selection

To manually select an HDMI source for a display, press the pushbutton that corresponds to the port to which the display device is connected. Pressing the pushbutton will cycle through the four attached HDMI source devices via the display device.

Note: The Port LEDs light to indicate which source device is currently selected for each display.

Remote Control Selection

To select an HDMI source for a display with the remote control, press the numbered button that corresponds to the port to which the display device is connected.

Then, cycle through the source devices by pushing the **Port Up** and **Port Down** buttons on the remote control unit.

◆ Press the **Port Up** button to cycle forward through the HDMI source devices (A to B; B to C; C to D; D to A)

◆ Press the **Port Down** button to cycle backward through the HDMI source devices (A to D; D to C; C to B; B to A)

Note: Aim the remote control unit at the IR receiver located at the front panel of the VM0404H. For optimum performance, make sure there is a clear line-of-sight between the remote control unit and the IR receiver.

RS-232 Serial Interface

The VM0404H's built-in bi-directional RS-232 serial interface allows system control through a high-end controller, PC, and/or home automation / home theater software package.

Configuring the Serial Port

The controller's serial port should be configured as follows:

Baud Rate	19200
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

Switch Port Commands

The formula for Switch Port commands are as follows:

Switch Command + Input Command + Port number + Output Command + Port Number + Control + [Enter]

1. For example, to switch input port 02 (audio and video) to output port 03, type the following:

   sw i02 o03 [Enter]

2. To turn off video and audio on port 03, type the following:

   sw o3 off [Enter]

3. To switch the next output to port 2, type the following:

   sw i02 + [Enter]

The following tables show the possible values for commands:

Command	Description
sw	Switch command

Input Command	Description
i	Input command

Input Port Number	Description
xx	01-04 port (default is 01)

Output Command	Description
o	Output command

Output Port Number	Description
yy	01-04 port (default is 01)
*	All output ports

Control	Description
on	Turn on
off	Turn off
+	Next port
-	Previous port

Note: 1. Each command string can be separated with a space.

2. The **Port Number** command string can be skipped, and the default value will be used.

The following table shows the available command list:

Cmd	In	N1	Out	N2	C2	Description
sw	i	xx	o	yy *		Switch Output Port xx to Input Port yy (xx:01~04, yy:01~04, *)
sw			o	yy *	on off	Turn on Output Port yy Turn off Output Port yy (yy:01~04, *)
sw			o	yy *	+ -	Switch Next Input to Output Port yy Switch Previous Input to Output Port yy (yy:01~04, *)

Read Commands

View information from the device using the following command:

Read Command + Port + Control [Enter]

The following tables show the possible values and formats for the **Control** command:

Command	Description
read	Reads and displays information from the VM0404H

The following table shows the available command list:

Command	Enter	Description
read	[Enter]	Displays information such as firmware version and EDID

Echo Commands

If the Echo feature is enabled: for each action from the front panel (pushbuttons) or IR interface, the VM0404H sends a corresponding acknowledgement message to the attached controller or management device via the RS-232 port.

The formula for the Echo command is as follows:

Echo Command + Control (on/off) + [Enter]

For example, to enable the Echo function, type the following:

echo on [enter]

The following tables show the possible values for commands:

Command	Description
echo	Enable / Disable Echo function

Control	Description
on	Echo function on
off	Echo function off (default)

The following table shows the available command list:

Command	Control	Enter	Description
echo	on	[Enter]	Echo on
echo	off	[Enter]	Echo off

Power On Detection Commands

Enabling Power On Detection means that the VM0404H automatically switches to the next powered on device when one of the HDMI source devices is powered off. The formula for Power On Detection commands is as follows:

Power On Detection + Control command [Enter]

For example, to turn on the Power On Detection feature, input the following:

pod on [Enter]

The following tables show the possible values for the Power on Detection commands:

Command	Description
pod	Power On Detection function

Control	Description
on	Enable power on detection function
off	Disable power on detection function (default)

The following table shows the available command list::

Command	Control	Enter	Description
pod	on	[Enter]	Turn on power on detection
pod	off	[Enter]	Turn on power off detection (default)

Mute Commands

Enable or disable audio coming from the output port(s) using the following command:

Mute Command + Output Command + Port Number + Control (On / Off) [Enter]

For example, to mute the audio coming from output port 1, type the following:

mute o01 on [enter]

The following tables show the possible values for commands:

Command	Description
mute	Enable / Disable audio of HDMI output port

Output Command	Description
o	Output command

Port number	Description
yy	01-08 port (default is 01)
*	All output ports

Control	Description
on	Mute on; audio from HDMI output port is disabled
off	Mute off; audio output enabled (default)

Note: 1. Each command string can be separated with a space.

2. Skip the output port command to mute or enable the audio of all output ports.

The following table shows the available command list:

Command	Output Port	Control	Enter	Description
mute	yy *	on	[Enter]	Audio on for output port yy (yy:01~08, *)
mute	yy *	off	[Enter]	Audio off for output port yy (default) (yy:01~08, *)

CEC Commands

Consumer Electronics Control (CEC) allows interconnected HDMI devices to communicate and respond to one remote control. The formula for CEC mode selection commands is as follows:

CEC Command + Output Command + Port Number + Control (Off / On) [Enter]

For example, to enable CEC function on output port 1, type the following:

cec o01 on [enter]

The following tables show the possible values for commands:

Command	Description
cec	CEC control

Output Command	Description
o	Output command

Port number	Description
yy	01-08 port (default is 01)
*	All output ports

Control	Description
off	Disable CEC (default)
on	Enable CEC

Note: Each command string can be separated with a space.

The following table shows the available command list:

Command	Output Port	Control	Enter	Description
cec	yy *	off	[Enter]	CEC off for output port yy (default) (yy:01~08, *)
cec	yy *	on	[Enter]	CEC on for output port yy (yy:01~08, *)

Panel Button Control Commands

The formula for Panel Button commands is as follows:

Panel Button Command + Control + [Enter]

For example, to enable the front panel pushbuttons, type the following:

button on [Enter]

The following tables show the possible values for commands:

Command	Description
button	Front panel pushbutton enable/disable control

Command	Control	Description
button	on	Enable front panel pushbuttons (default)
button	off	disable front panel pushbuttons

The following table shows LED behavior under this command:

	Buttons Disabled	**Buttons Enabled**
All output on	LEDs flash every second	LEDs on
All output off	No LEDs	No LEDs
Output on and Off	On – flash every second; Off – no LEDs	On – LEDs on; Off – LEDs off

EDID Mode Selection Commands

Extended Display Identification Data (EDID) is a data format that contains a display's basic information and is used to communicate with the video source/system. You can set which EDID mode the VM0404H uses with the following command:

EDID Command + Control + [Enter]

For example, to pass the EDID from Port 1 to all sources, type the following:

edid port1 [Enter]

The following tables show the possible values for commands:

Command	Control	Description
edid	port1	The EDID from Port 1 will be passed to all video sources
edid	remix	Implement the EDID of all connected displays. The VM0404H uses the best common resolution applicable for all displays
edid	default	Implement default EDID for all (default)

Reset Commands

The formula for Reset commands is as follows:

Reset Command + [Enter]

For example, to reset the device back to the default factory settings, type the following:

reset [Enter]

The following table shows the possible values for commands:

Command	Description
reset	Reset device back to factory default settings

Verification

After entering a command, a verification message appears at the end of the command line as follows:

* **Command OK** - indicates that the command is correct and successfully performed by the switch
* **Command incorrect** - indicates that the command has the wrong format and/or values

Specifications

Function			VM0404H
Display Connections			4
HDMI Input Connections			4
Connectors	Device	HDMI In	4 x HDMI Type A Female (Black)
	Display	HDMI Out	4 x HDMI Type A Female (Black)
	RS-232 Port		1 x DB-9 Female (Black)
	Power		1 x DC Jack
Switches	Port Selection		4 x Pushbuttons
LEDs	Selected		16 (Green)
Video Resolution			HDTV resolutions up to 1080p; computer resolutions up to WUXGA (1920x1200)
Power Consumption			DC 5.3 V, 9 W (max.)
Environment	Operating Temp.		0–50ºC
	Storage Temp.		-20–60ºC
	Humidity		0–80% RH, Non-condensing
Physical Properties	Housing		Metal
	Weight		1.86 Kg
	Dimensions (L x W x H)		43.20 x 15.40 x 4.40 cm

Limited Warranty

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