16x16 Modular Matrix Switch

VM1600

reddot award 2015
winner interface design

The VM1600 Modular Matrix Switch offers advanced access and real-time control of multiple local and remote A/V input devices and displays from a single chassis. The VM1600 allows users to independently switch and route video and/or audio content directly to various monitors, displays, projectors and/or speakers simply by pressing front panel pushbuttons. A built-in Scaler encodes the video format in order to provide seamless, real-time switching. The front panel LCD shows a quick view of active port connections, with an option to select an EDID Mode that yields the best resolution across different monitors.

VM1600 is easily expandable and accommodates a lineup of hot-swappable ATEN I/O boards. Equipped with automatic signal conversion, it allows any combination of digital video formats, such as, HDBaseT (VM7514 / VM8514), HDMI (VM7804 / VM8804), DVI (VM7604 / VM8604), 3G-SDI (VM7404) and VGA (VM7104), making it ideal for large-scale A/V applications such as broadcasting stations, traffic and transportation control rooms, emergency service centers and any application that requires customizable high speed A/V signal routing.

4K 4096x2160 | 4K 3840x2160

Scaler | Seamless Switch | Video Wall | RS-232/485/422 Control | EDID | FPGA Design

(Depends on which I/O boards and reciever are used)

VM1600 Front view

VM1600 Rear view

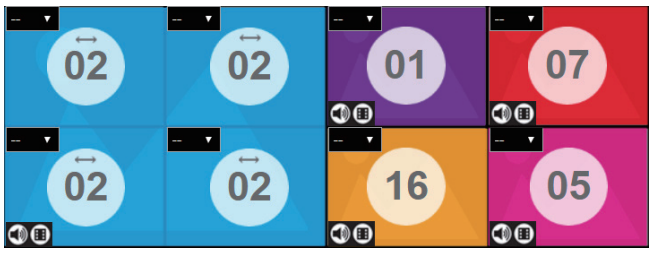
Features

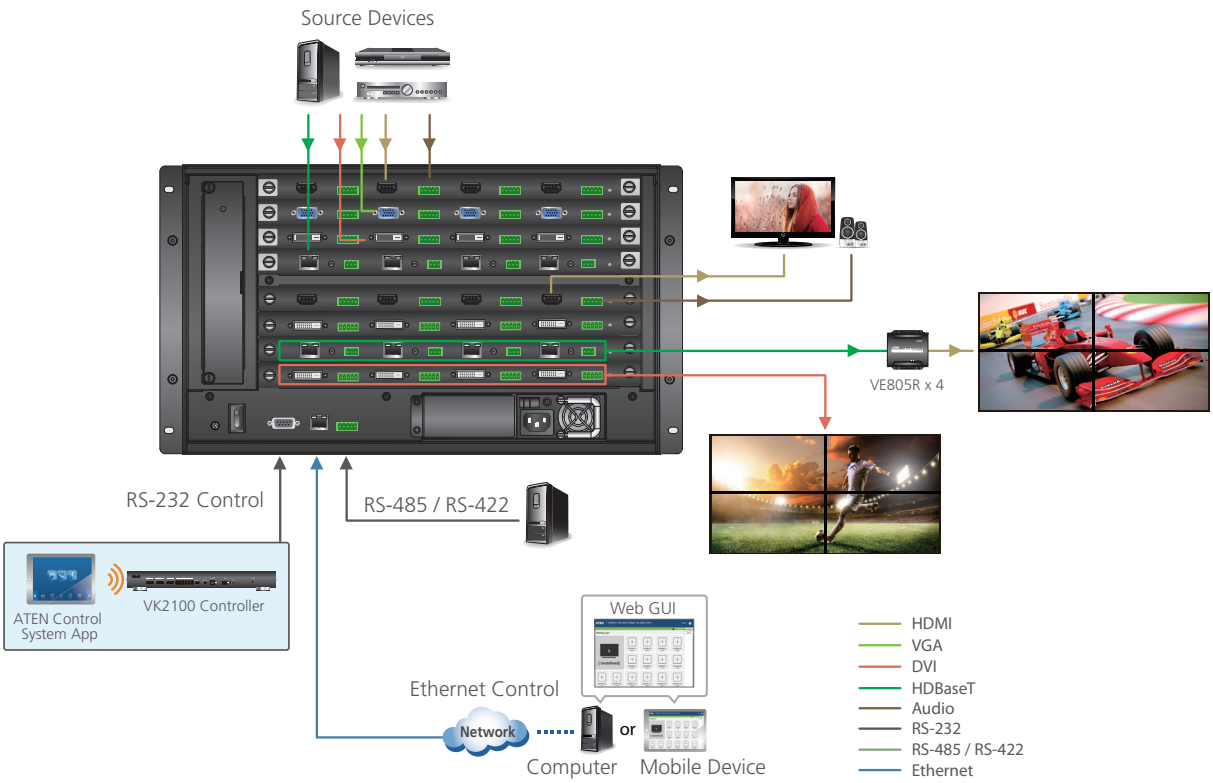
- Connects any of 16 video sources to any of 16 displays in combination with ATEN Modular Matrix Solutions
- Superior video quality – HDTV resolutions of 480p, 720p, 1080i and 1080p (1920 x 1080); VGA, SVGA, XGA, SXGA and WUXGA (1920 x 1200)
- HDMI (3D, Deep Color) (VM7804/VM8804)
- HDCP 1.4 Compatible
- Seamless Switch™ – provides continuous video streams, real-time switching and stable signal transmissions*
- Video wall – allows you to create custom video wall layouts via intuitive web GUI
- EDID Expert™ – selects optimum EDID settings for smooth power-up and the highest quality display
- Easily switch between multiple sources and multiple displays
- Hardware Configuration:
  - Front panel pushbuttons
  - RS-232 serial port
- System Operation
  - Browser-based Graphical User Interface (GUI)
  - Telnet
- Built-in bi-directional RS-232 serial remote port for high-end system control
- Hot-pluggable:
  - Modular Fan Design
  - Power Module
  - Easy integration of I/O boards
- Optional redundant power supply for continuous operation
- Firmware upgradeable via web
- Rack mountable (6U design)
- Built-in scaler on each output port to support the scaling function for different video resolutions
- Consumer Electronics Control (CEC) support (VM7804/VM8804)
- Audio-enabled, HDMI audio can be extracted and stereo audio can be embedded (VM7804/VM8804)

Note: If Seamless Switch is enabled, the video output will not display 3D, Deep Color or interlace (i.e., 1080i) resolution features. To use these features, you must disable Seamless Switch.

Highlights

Flexible Integration	The VM1600 can be configured with up to 16 video sources x 16 displays, with flexible installation that allows integration of different video interfaces and encoding of various video formats to customize system configurations for each application. The I/O slots are hot-swappable, making it easy and convenient to switch between multiple video sources and displays.
Smooth and Seamless Viewing Experience	The VM1600 has a built-in Scaler and CrossPoint design that unifies video formats and provides: continuous video streams, real-time switching, and stable signal transmissions. The VM1600 is capable of high-speed switching between all input/output ports – supporting TMDS high data transfer rates at up to 1080p / 1920 x 1200 @ 60 Hz to minimize latency.
Hot-pluggable Modular Fan and Redundant Power	Overheating slows down device performance significantly and can result in equipment breaking down mid-operation. The VM1600 is equipped with fan modules to ensure that a cooling system is always in place and working. The fans are hot-pluggable and can easily be replaced without shutting down the system. The VM1600 has two power slots that can connect to two different power supplies. If the primary power shuts down, the secondary power supply can automatically take over. ATEN ensures that your investment is protected while delivering outstanding performance.

Video Wall	The VM1600 is equipped with Video Wall functionality integrated with a scaler and Cross Point design that ensures all input sources are processed at the same time so that the video content is delivered across all screens with no delay or signal loss. The video wall functionality provides up to 32 profiles that you can customize into layouts by setting the display outputs in accordance to your preference, designed from an easy to use web GUI. Through profile setup you can form a single large screen or a variation of multiple screens in different layouts – to see what you want, how you want it. 
Audio Separation	Provides the capability to separate audio signals from their corresponding video signals; including both HDMI extracted audio and embedded stereo audio. This allows the audio and video signals from one source device to be switched and sent out to different destinations.



Optional Equipments

Available Input and Output Boards

Input Boards	Output Boards
 VM7604 (DVI Input Board)	 VM8604 (DVI Output Board)
 VM7804 (HDMI Input Board)	 VM8804 (HDMI Output Board)
 VM7514 (HDBaseT Input Board)	 VM8514 (HDBaseT Output Board)
 VM7404 (3G-SDI Input Board)	-
 VM7104 (VGA Input Board)	-

Available Accessories

VM-PWR400	Video Matrix Power Module

Input voltage	100 - 240 VAC
Power Consumption	Max.Load 378W
Operating temp.	0° to 40° C

VM-FAN60	Video Matrix Fan Module

Airflow	60 cfm
Operating voltage	10.8 - 13.8 VDC
Operating temp.	-10° to 70° C

Rack Mount Kits (Optional)

Easy Installation Rack Mount Kit	Rack Depth
2X-026G (Short)	42 - 70 cm
2X-027G (Long)	68 - 105 cm

1. Screw the mounting brackets to the rack, as shown in the diagram.

2. Slide the unit along the brackets, then screw and secure the front panel to the rack.

Specifications

Function	VM1600
Video Input	
Interfaces	Depends on which I/O board is inserted
Impedance	100 Ω
Max. Data Rate	10.2 Gbps (3.4 Gbps per lane)
Max. Pixel Clock	340 MHz
Compliance	HDMI (3D, Deep Color, 4K); HDCP 1.4 Compatible; Consumer Electronics Control (CEC); HDBaseT Compatible
Audio	
Input	Depends on which Input board is inserted
Output	Depends on which Output board is inserted
Control	
RS-232	**Connector:** 1 x DB-9 Female (Black); **Serial Control Pin Configurations:** Pin2 = Tx, Pin 3=Rx, Pin 5= Gnd; **Baud Rate and Protocol:** Baud Rate:19200, Data Bits:8, Stop Bits:1, Parity: No, Flow Control: No
RS-485/RS-422	**Connector:** 1 x Captive Screw Connector, 5 Pole
Ethernet	**Connector:** 1 x RJ-45 Female
EDID Settings	**EDID Mode:** Default / Port1 / Remix / Customized (EDID Wizard support)
Power	
Connectors	1 x 3-Prong AC Socket
Maximum Input Power Rating	100 - 240 VAC; 50 - 60Hz; 1.0 A
Consumption	378W (Max.) *A power module can be purchased for power redundancy.
Fan	**Airflow:** 60 cfm; **Operating Voltage:** 10.8 - 13.8 VDC; **perating Temp:** -10° to 70° C
Environmental	
Operating Temperature	0° to 40° C
Storage Temperature	-20° to 60° C
Humidity	0 - 80% RH, Non-Condensing
Physical Properties	
Housing	Metal
Weight	17.00 kg
Dimensions (L x W x H)	48.22 x 39.90 x 26.59 cm

Combination	Matrix Switch	VM1600				
	Input Board	VM7514	VM7804	VM7604	VM7104	VM7404
	Output Board	VM8514	VM8804	VM8604	-	-
Interface		HDBaseT (RJ-45)	HDMI	DVI	VGA	3G-SDI
Max Video Resolution		4K @ 60 Hz (4:2:0); 4K @ 30 Hz (4:4:4)***	1920 x 1080	1920 x 1200	1920 x 1200	SD: 625i (PAL) / 525i (NTSC) HD / 3G: Up to 1920 x 1080
Max Distance		100 m***	15 m	5 m	1.8 m	SD: 300 m; HD: 150 m; 3G: 90 m
Audio		V	V *	V	V	V
Scaler Support		VM8514 + VE805R**	VM8804	VM8604	N/A	N/A
Seamless Switch		VM8514 + VE805R**	VM8804	VM8604	N/A	N/A
Video Wall		VM8514 + VE805R**	VM8804	VM8604	N/A	N/A

Note:

* HDMI audio signals can be extracted into stereo audio. Stereo audio can be embedded into HDMI audio.
** For the VM8514, the Seamless Switch™, scaler and video wall functions are only available when used with the VE805R.
*** Supported resolution and distance may vary depending on which HDBaseT extender is used.

ATEN International Co., Ltd.
3F., No.125, Sec. 2, Datong Rd., Sijhih District., New Taipei City 221, Taiwan
Phone: 886-2-8692-6789 Fax: 886-2-8692-6767
www.aten.com E-mail: marketing@aten.com

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