16x16 Modular Matrix Switch
VM1600A

reddot award 2015
winner interface design

- The ATEN Modular Matrix Solution Series comprises the VM1600A/VM3200 Modular Matrix Switch in tandem with a range of hot-swappable I/O boards. The solution offers real-time control and advanced access to manage 16/32 video sources and 16/32 displays simultaneously, through modular I/O boards in a single chassis. Empowered by ATEN Seamless Switch™ technology, the VM1600A/VM3200 video matrix switches incorporate a speed-progressive video switching function and a unique scaler that integrates seamlessly with video wall systems.

The ATEN Modular Matrix Solution is easily expandable and ideal for large-scale A/V applications such as broadcasting stations, traffic and transportation-related control rooms, emergency service centers, and any application that requires customizable, high-speed A/V signal routing.

Boasting a sophisticated and intuitive design to deliver the best audio/visual distribution and control, reliability and lowest maintenance costs, the solution also incorporates ATEN's Red Dot Award-winning GUI that can be accessed from anywhere over a network or the internet. Configuring a video wall or digital signage installation has never been easier.

4K | Scaler | Seamless Switch | Video Wall | RS-232/485/422 Control | EDID | FPGA Design

- VM1600A Front view

- VM1600A Rear view

Features

- Connects any of 16 video sources to any of 16 displays in combination with ATEN Modular Matrix I/O Boards
- Multiple means for system configuration including front-panel pushbuttons, RS-232/422/485 control, and Ethernet connections for web GUI or Telnet
- 4K resolutions – up to UHD (3840 x 2160) and DCI (4096 x 2160) with refresh rates of 30 Hz (4:4:4) and 60 Hz (4:2:0)*
- Scaler – features a (4K) video scaling function to convert input resolutions to the display's native resolutions*
- Seamless Switch™ – features close-to-zero second switching for continuous video streams, real-time switching, and stable signal transmissions*
- Video wall – allows you to create custom video wall layouts via intuitive web GUI*
- Calendar-based scheduling – allows profile playing based on the pre-set schedule and RTC
- EDID Expert – selects optimum EDID settings for smooth power-up, high-quality display, and use of the best resolutions across different screens
- Audio-enabled – HDMI audio can be extracted and stereo audio can be embedded*
- Bi-directional RS-232 channel – allows you to control the connected serial devices simultaneously through the web GUI
- Supports redundant power module for higher reliability
- Hot-swappable design for I/O boards, fan module, and power supplies for easy maintenance and higher reliability
- Optional redundant power supply – ensures reliability for mission-critical applications
- Long-Reach mode up to 1080p@150m – enables extended AV transmission using the HDBaseT™ Input/Output board with ATEN HDBaseT™ Class A Video Extenders
- HDCP 2.2 Compatible*
- HDMI: 3D, Deep Color, 4K*
- Consumer Electronics Control (CEC) supported*
- Rack mountable (6U design)

Note:
1. The availability of the features with "*" depends on which I/O board is inserted.
2. When Seamless Switch™ is enabled, 3D, Deep Color, or interlace (i.e., 1080i) formats will not be supported. To use these formats, make sure to disable Seamless Switch™.
3. Videos may not display within range when Seamless Switch™ or Video Wall is enabled, in which case please adjust the display settings on your device.

Highlights

Modular Convenience with Flexibility	The VM1600A is fully flexible and expandable with modular I/O boards that provide plug-n-play connectivity with an extensive line of analog and digital A/V equipment that offers great flexibility for customization and future-proofing. The removable front panel, modular interior PCBs, hot swappable I/O board, power, and fan modules make repair and replacement easier than ever, without any interruption to services.
Smooth and Seamless Viewing Experience	ATEN Seamless Switch™ technology is powered by an exclusive seamless engine that features close-to-zero second switching for continuous video streams, real-time switching, and stable signal transmissions. This high-performance engine processes A/V signals by executing EDID and HDCP handshakes simultaneously for both the source and display – scaling all inputs for the best output resolution. By setting the output clock timing and using a frame buffer to retain input signal information, you're always guaranteed the fastest output and pleasant viewing experience.

Video Wall	The Video Wall functionality is featured with a unique scaler that utilizes ATEN FPGA technology to unify various video input signals and render optimum output resolutions on displays with uncompromised precision. With the intuitive web GUI which has won the Red Dot Interface Design award, you can easily configure up to 32 profiles and customize the display layouts. Multiple displays can be easily configured to show video as a single large screen in various layouts – to see "what you want, how you want it".
Audio Separation	The VM1600A provides the capability to separate audio signals from their corresponding video signals, including both HDMI audio extraction and stereo audio embedding. This allows the stereo audio and video signals from one source device to be switched and sent out to different destinations.
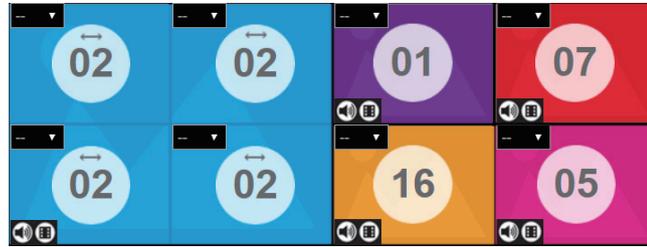
Source Device x 16

HDBaseT Extender

Display Device x 16

or

RS-232 Control

RS-485 / RS-422

ATEN Control System App

VK2100 Controller

Web GUI

Ethernet Control

Network ...... or Computer   Mobile Device

HDMI
VGA
DVI
HDBaseT
Audio
RS-232
RS-485 / RS-422
Ethernet
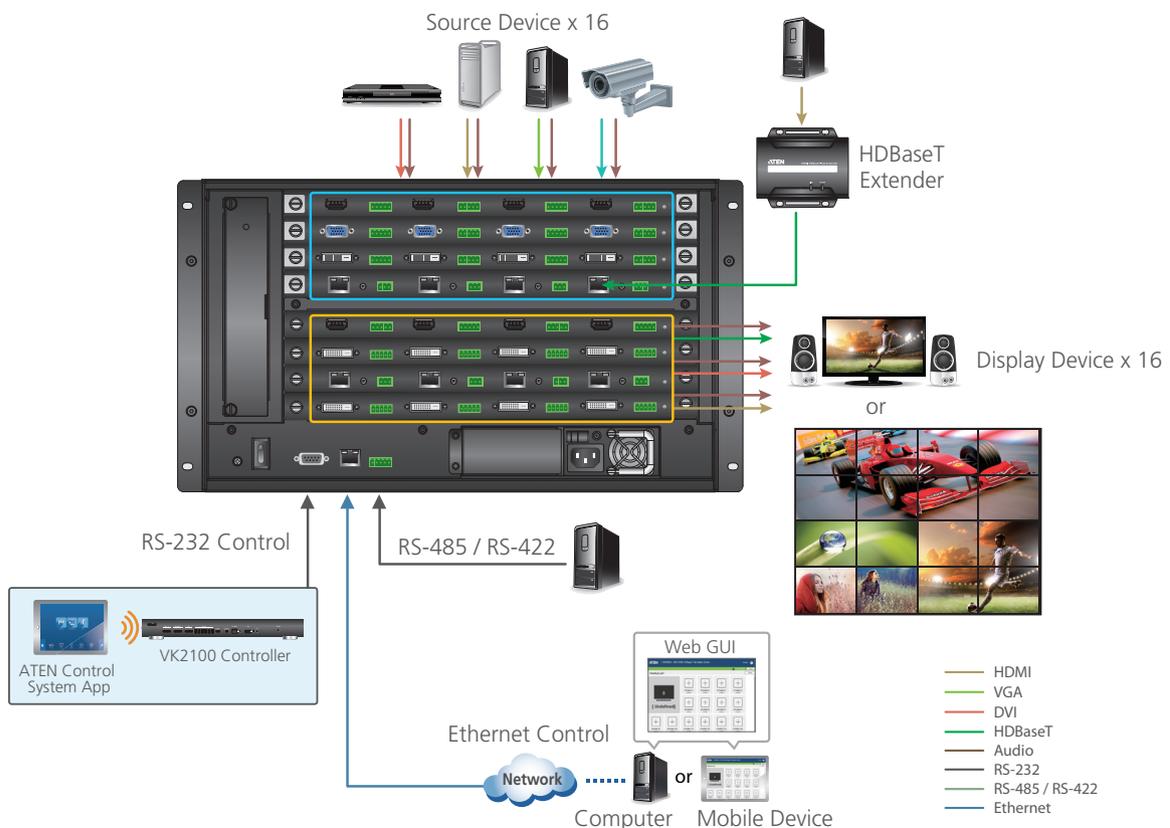
Optional Equipments

Available Input and Output Boards

Input Boards	Output Boards
VM7514 (HDBaseT Input Board)	VM8514 (HDBaseT Output Board)
VM7904 (DisplayPort Input Board)	—
VM7814 (4K HDMI Input Board)	VM8814 (4K HDMI Output Board)
VM7804 (HDMI Input Board)	VM8804 (HDMI Output Board)
VM7604 (DVI Input Board)	VM8604 (DVI Output Board)
VM7404 (3G-SDI Input Board)	—
VM7104 (VGA Input Board)	—

Combination	Matrix Switch	VM1600A						
	Input Board	VM7514	VM7904	VM7814	VM7804	VM7604	VM7404	VM7104
	Output Board	VM8514		VM8814	VM8804	VM8604		
Interface		HDBaseT (RJ-45)	DisplayPort	HDMI	HDMI	DVI	3G-SDI (BNC)	VGA
Max Video Resolution		4K@60Hz (4:2:0)[a]	4K@60Hz (4:2:0)[a]	4K@60Hz (4:2:0)[a]	1920 x 1080	1920 x 1200	1920 x 1080	1920 x 1200
Max Distance	Input	100m	5m	5m	5m	5m	SD: 300 m HD:150 m 3G:100 m	1.8m
	Output	100m	N/A	15m	15m	5m	N/A	N/A
Audio		N/A	●	●[b]	●[b]	●[b]	●[b]	●[b]
Scaler		VM8514 + VE805R / VE816R[c]	N/A	VM8814	VM8804	VM8604	N/A	N/A
Video Wall		VM8514 + VE805R/ VE816R[c]	N/A	VM8814	VM8804	VM8604	N/A	N/A
Seamless Switching		VM8514 + VE805R / VE816R[c]	N/A	VM8814	VM8804	VM8604	N/A	N/A
FrameSync		VM8514 + VE816R[c]	N/A	VM8814	N/A	N/A	N/A	N/A
Cable Quality Tester		VM8514 + VE816R[c]	N/A	●	N/A	N/A	N/A	N/A
Long Reach Mode (1080p@150m)		●[d]	N/A	N/A	N/A	N/A	N/A	N/A
RS-232 Channel		●	N/A	N/A	N/A	N/A	N/A	N/A
IR Channel		●	N/A	N/A	N/A	N/A	N/A	N/A

Note :

a. 4K resolutions are only available when the Scaler is disabled. When the Scaler function is implemented, the highest resolution available is 1080p. The Scaler function is enabled by default.

b. HDMI audio signal can be extracted as stereo audio. Stereo audio can be embedded into the HDMI audio output.

c. For the VM8514, certain functions are only available when used with the appropriate extenders.

d. Long Reach mode (1080p@150m) is only available when the HDBaseT™ Input/Output board used with ATEN HDBaseT™ Class A Video Extenders.

Available Accessories

VM-PWR460	Video Matrix Power Module

Input voltage	100 - 240Vac
Power Consumption	Max.Load 460W
Operating temp.	0˚ to 40˚ C

VM-FAN554	Video Matrix Fan Module

Airflow	55.2 cfm
Operating voltage	10.2 - 12Vdc
Operating temp.	-10˚ to 60˚ C

Rack Mount Kits (Optional)

Easy Installation Rack Mount Kit	Rack Depth
2X-026G (Short)	42 to 70 cm
2X-027G (Long)	68 to 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	VM1600A
Board Output	4 x Slot
Board Input	4 x Slot
Video Input	
Interfaces	Depends on which I/O board is inserted
Max. Data Rate	15.2 Gbps (3.8Gbps per Lane)
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)
Connectors	
Power	1 x 3-Prong AC Socket
Power	
Maximum Input Power Rating	100-240 VAC; 50-60Hz; 6.0A
Power Consumption	460W (Max.) *A power module can be purchased for power redundancy.
Fan	Airflow: 55.2 cfm Operating Voltage: 10.2 - 12VDC Operating Temp: -10 - 60°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	15.11 kg
Dimensions (L x W x H)	48.22 x 46.66 x 26.59 cm
Rack Height (U Spaces)	6U

Product information is subject to change without prior notice.