



Modular Matrix Solution Series

Complete A/V Signal Control in One Expandable System



Explore the Modular Matrix Solution Series



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Overview

When video is displayed across multiple screens to maximize marketing, live broadcasting or real-time monitoring, timing is crucial. This is made even more challenging when screens are integrated within a video wall system.

The ATEN Modular Matrix Solution Series incorporates Modular Matrix Switches with input and output board slots that provide the option for various mixed video interface combinations – including digital and analog video formats such as HDBaseT, HDMI, SDI, DVI, and VGA – in one solution, with support for up to 4K resolutions.

Models in this series feature an all-in-one control mechanism that integrates video wall processing and matrix switching in a single high performance chassis. Empowered by ATEN's unique Seamless Switch™ technology, the matrix switch distributes live video with perfect timing in any dimension.

ATEN Modular Matrix Solution Series



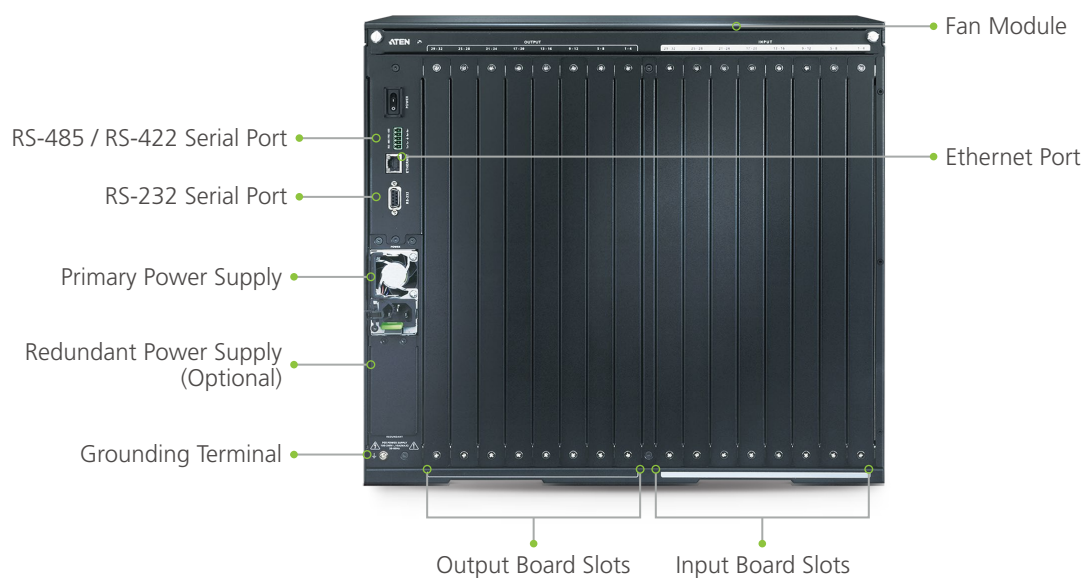
VM1600A
16x16 Modular Matrix Switch



VM3200
32x32 Modular Matrix Switch



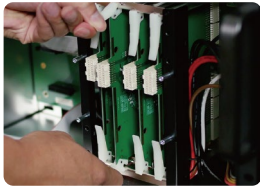
Hardware - VM3200



Features

Modular Design for Easy Maintenance and Reliability

- The removable front panel, modular interior PCBs, hot swappable I/O board, power, and fan modules make repair and replacement easier than ever.
- Redundant power design prevents single points of failure from shutting down the entire system and ensures 24/7 operation.



Interior PCBs



Fan Module



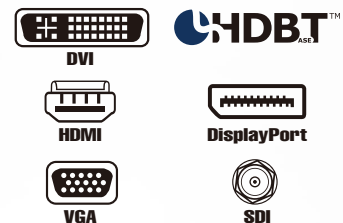
I/O Boards



Power Modules

Future-proof Expandability

Minimal cost and hassle-free expandability with a selection of modular I/O boards, including HDBaseT, HDMI, DVI, 3G-SDI, and VGA boards that enable easy future expansion.



4K Seamless Switching

ATEN's unique Seamless Switch™ technology features close-to-zero second video switching from any input to any output at up to 4K without any black screens.



Tear-free Video Walls

ATEN's FrameSync Technology prevents screen tearing by synchronizing the scaler frame rates, guaranteeing smooth video for high-motion elements and ensuring stunning tear-free video walls.



Before

After

Scaling for Optimized Output

A unique scaler utilizes ATEN FPGA technology to unify various video input signals and render optimized output resolutions on displays with uncompromised precision.



Calendar-based Scheduling

A built-in calendar-based scheduling function allows you to queue and play connection profiles via a calendar view for a specific amount of time. This easy-to-use scheduling tool is exactly what you need to set auto play by month, week, hour or minute, reducing human operation costs and saving time.



Cable Quality Testing

Allows the examination of connected cable signal quality to eliminate the need for extensive checking processes and facilitate troubleshooting.

- Bulk cable testing: Allows the simultaneous testing up to 32 cable connections with VM7814 and VM8814
- Long distance cable testing: Check the cable quality extending long distances, up to 100 meters away, with VM8514 and VE816R



Up to 32 connection can be checked at once



Check 4K HDBaseT signal extending up to 100m away

Multiple Control Methods

- Award-winning Web GUI
- ATEN Control System and Control System App
- RS-232, RS485, RS-422 and Ethernet connections
- Front-panel pushbuttons



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winner interface design

Bi-directional IR & RS232 Channel

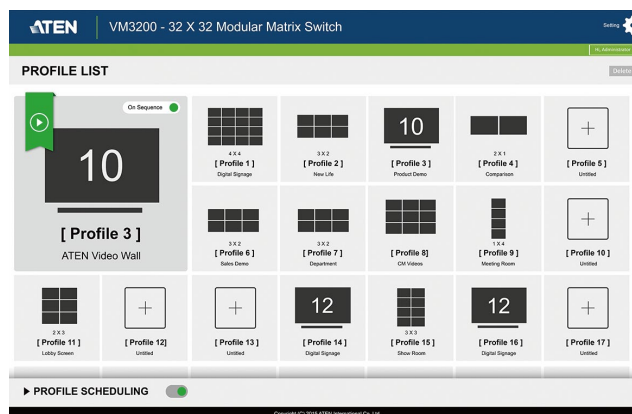
Transmits full range IR and RS-232 signals to control a display or other devices

Award-Winning Graphical User Interface



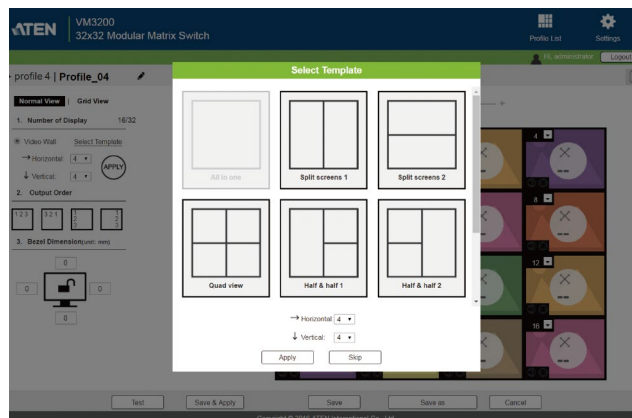
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The Modular Matrix Solution Series can be configured over a standard TCP/IP connection via its built-in Graphical User Interface (GUI). Because it can be accessed from anywhere over a network or the Internet, operators can easily log in via any web browser.



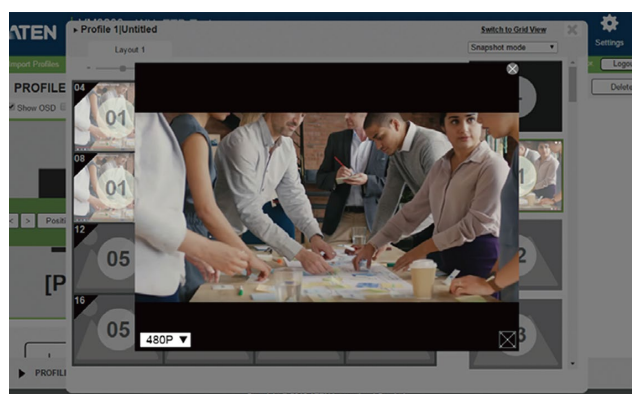
Easy Wizard for Quick Setup

No matter if you want to display video sources independently on separate monitors, or in unison on a video wall, the Modular Matrix Solution Series offers an easy Wizard for quick setup and profile creation. Choose between a Digital Signage and Video Wall layout then use the GUI to set the connections. Making a video wall or digital signage profile has never been easier.



Live Preview (VM3200)

Allows you to preview the video source in real-time before broadcasting.



Easy Video Wall Management

Provides up to 64 profiles that you can customize into layouts by setting the display outputs in accordance to your preferences. With the easy-to-use web GUI, you can form a single large screen or a variation of multiple screens in different layouts – to see what you want, how you want to see it.

VM3200 GUI with > image preview

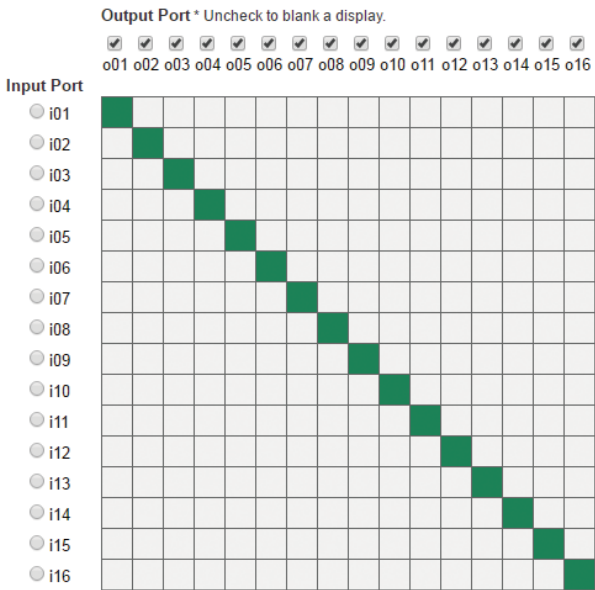
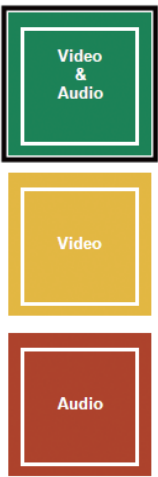


VM1600A GUI >



Grid View

You can also use the traditional view to quickly select the input-to-output and audio connections using a simple grid layout.



Broadcasting & Media

Artear, one of Argentina's longest running and most prolific television networks, decided to build a state-of-the-art newsroom so they could keep setting the pace for news broadcasting and creative, high-quality content.



Challenges

- To control a large 10x6 video wall and a smaller 5x5 video wall, and extend the content over long distances
- Required a solution that can switch among different video wall layouts and content sources easily with minimal lag
- Must be able to work 24-7 with high power stability



ATEN Solution

- Enables flexible video wall configurations with different video input and output interfaces, and provides centralized control from multiple devices
- Ensures top video quality and seamless switching between reliable video streams and instant real-time sources
- Supports long distance video transmission with HDBaseT
- Features a reliable power redundancy design

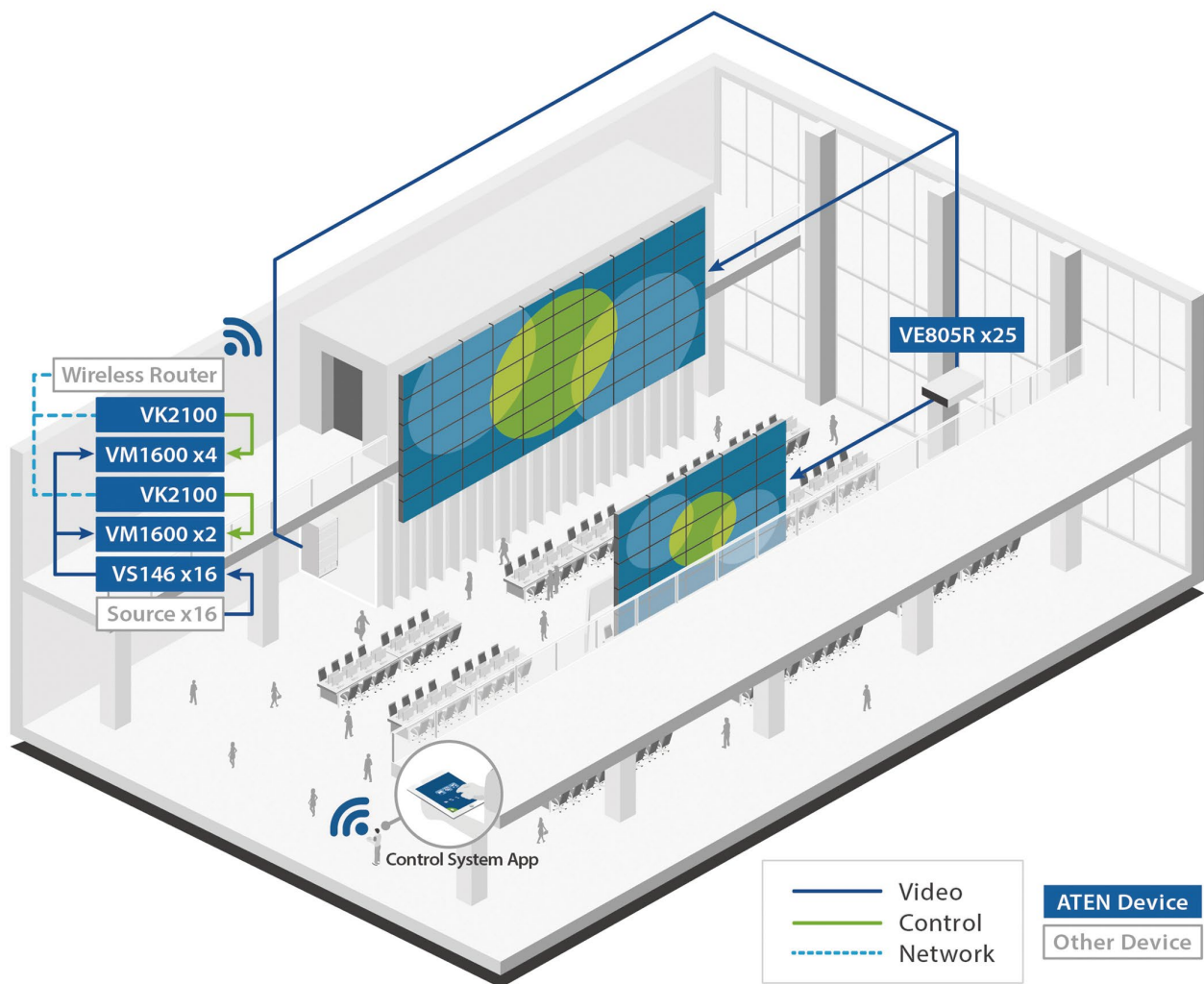


Product List

- VM1600 – 16x16 Modular Matrix Switch
- VM7404 – 4-Port 3G-SDI Input Board
- VM8804 – 4-Port HDMI Output Board with Scaler
- VK2100 – ATEN Control System - Control Box
- VS146 – 6-Port 3G-SDI Splitter
- VE805R – HDMI HDBaseT-Lite Receiver with Scaler



Solution Setup



Corporate

Medytox, a global biopharmaceutical company based in South Korea, wanted to enhance the quality and effectiveness of their meeting rooms, training facilities and offices, which required various A/V management and IT control solutions.



Challenges

- Control and seamlessly switch multiple video sources and displays both centrally and separately across several meeting spaces
- Separate audio from the HDMI signal and route to different destinations
- Integrate video sources from different interfaces and output to multiple displays with user-friendly switching methods



ATEN Solution

- Integrates A/V and IT seamlessly, and guarantees compatibility, reliability and one-stop technical support with a single brand
- Provides effortless control of PCs located in the server room from each meeting room, and enables centralized control and seamless switching of all sources
- Extends stable A/V signals over long distances with HDBaseT
- Extracts audio from HDMI signals for independent audio signal control



Product List

- VM1600 – 16x16 Modular Matrix Switch
- VM7804 – 4-Port HDMI Input Board
- VM8804 – 4-Port HDMI Output Board with Scaler
- VM5404H – 4x4 HDMI Matrix Switch with Scaler
- VE801 – HDMI HDBaseT-Lite Extender
- CS1758 – 8-Port PS/2 USB VGA/Audio KVM Switch
- UCE260 – USB 2.0 Cat 5 Extender

Hospitality

Elevens Bar & Grill, a UK sports bar owned by Wales and Real Madrid footballer Gareth Bale, decided to build an advanced digital signage entertainment solution to offer unparalleled 4K broadcasting of live sporting events to its customers.



Challenges

- Required a solution that supports 4K video transmission to up to 20 screens with synchronized sports channels shown at any time
- Must be simple, easy to operate and control by the staff, and sources need to be switched effectively under a restricted timeframe
- Facilitate the increase of video sources or displays at later stages should there be an expansion



ATEN Solution

- Delivers stable and reliable continuous video streams and quick channel switching
- Provides advanced access and centralized control via iPads to give the staff the ability to quickly switch between channels
- Supports hassle-free expandability at minimal cost with a selection of modular I/O boards including HDBaseT, HDMI, DVI, 3G-SDI, and VGA boards

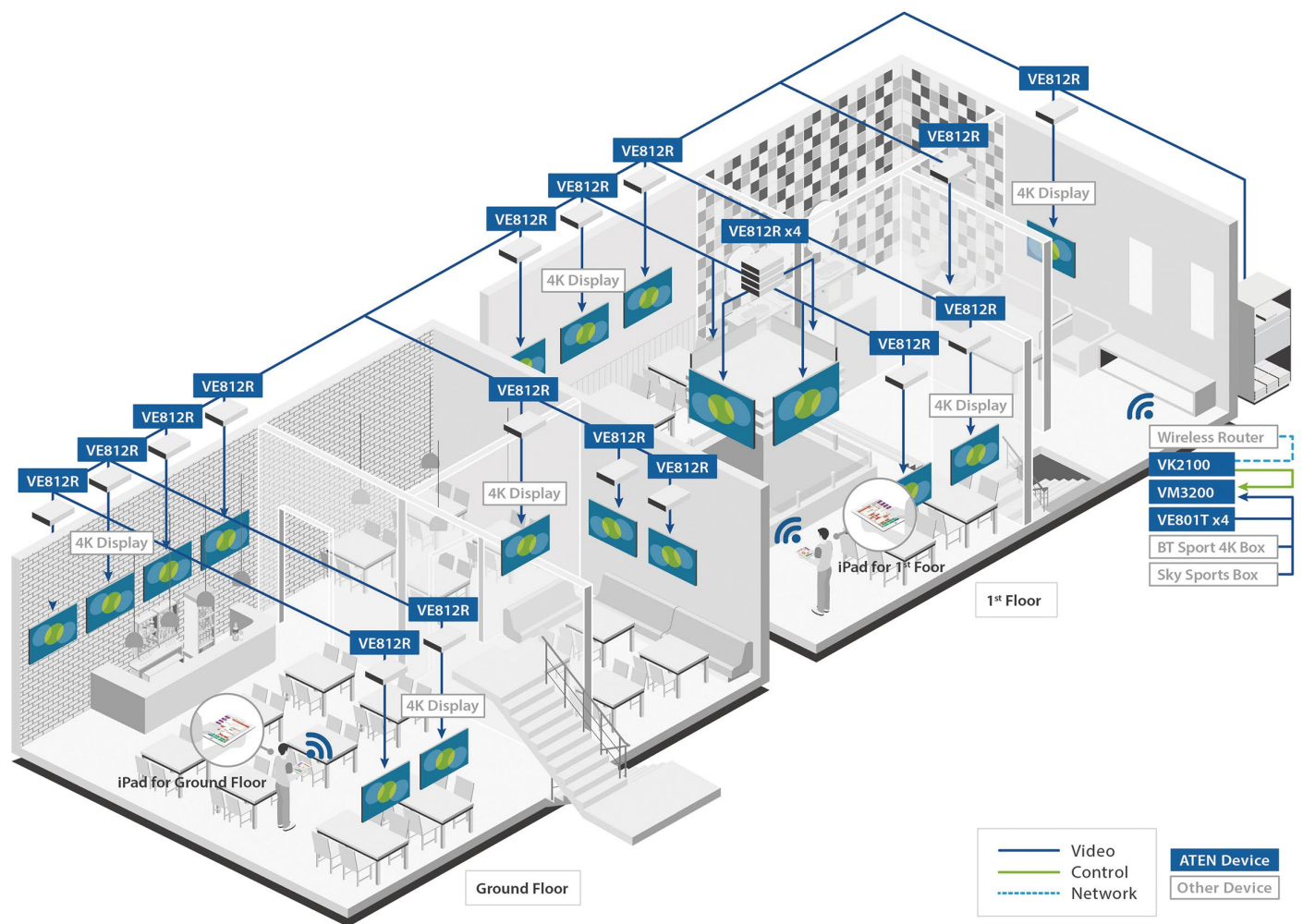


Product List

- VM3200 – 32x32 Modular Matrix Switch
- VM7514 – 4-Port HDBaseT Input Board
- VM7804 – 4-Port HDMI Input Board
- VM8514 – 4-Port HDBaseT Output Board
- VK2100 – ATEN Control System - Control Box
- VE801T – HDMI HDBaseT-Lite Transmitter
- VE812R – HDMI HDBaseT Receiver



Solution Setup



Government

The State Police in Turin, Italy, established a surveillance control center to monitor crowd behavior and detect incidents during city-wide public events. This involved the integration, access, and display of multiple camera video streams, and flexible access for both local and remote operations.



Challenges

- Required a solution that can support mass media distribution over multiple video walls installed in 3 control rooms
- Operators must be able to remotely access multiple computers which are stored in a separate server area
- Easy to manage and control for operators without any technical background



ATEN Solution

- Integrates easily with any commonly-used hardware device and provides centralized control via a dedicated, custom-designed web interface
- Offers compatibility with popular interfaces and seamlessly connects a large amount of sources and displays
- Supports user rights management and allows several authority levels to suit users' information classification needs

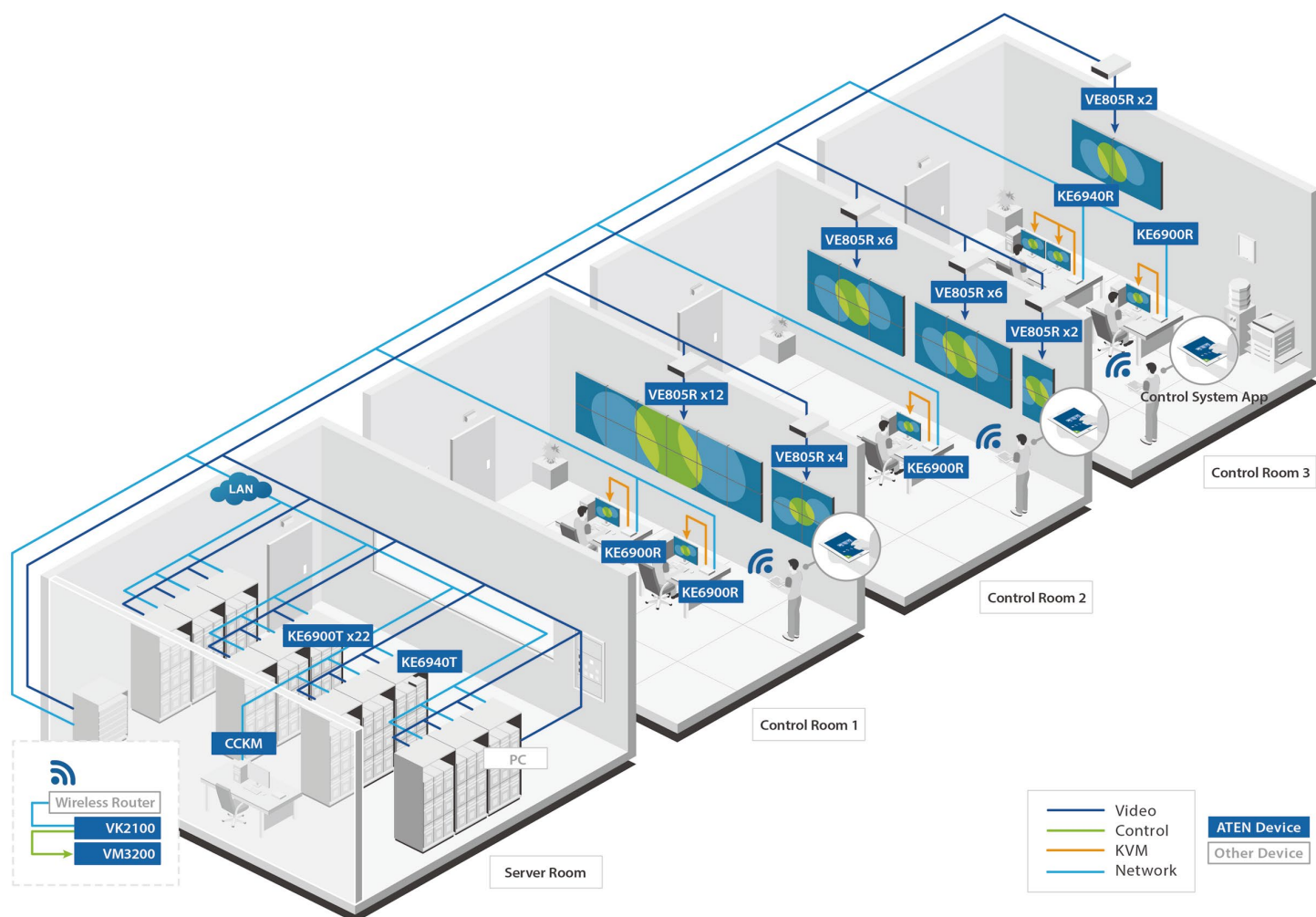


Product List

- VM3200 – 32x32 Modular Matrix Switch
- VM7604 – 4-Port DVI Input Board
- VM8514 – 4-Port HDBaseT Output Board
- VK2100 – ATEN Control System - Control Box
- VE805R – HDMI HDBaseT-Lite Receiver with Scaler
- KE6900/KE6940 – USB DVI-I Single/Dual Display KVM over IP Extender



Solution Setup



Product Specifications



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VM3200 32 x 32 Modular Matrix Switch

- 32 x 32 I/O connections via 8 x 8 I/O modular matrix board slots
- Supports redundant power module to prevent power outages
- Multiple Control Methods – system management via front-panel pushbuttons, RS-232 / RS-422 / RS-485 and Ethernet connections
- **Scaler** – features a video scaling function to integrate a video wall seamlessly with various output video formats*
- **Seamless Switch™** – features close-to-zero second switching that provides continuous video streams, real-time switching and stable signal transmissions*
- **Video Wall** – creates custom layouts via intuitive web GUI*
- **EDID Expert™** – selects optimum EDID settings for smooth power-up, high-quality display and use of the best resolution across different screens
- **Live Streaming** – supports single source live streaming via web GUI for convenient evaluation of display output
- **Content and Layout Preview** – displays thumbnails of source media in web GUI, simplifying profile configuration
- **Advanced Scheduling** – improves efficiency and saves costs by allowing media playback to be set based on time and date
- Rack-mountable (9U design)



Note: * The availability of these features depends on which I/O board is inserted.

Specifications

Function		VM3200
Input Board		8 x Slot
Output Board		8 x Slot
Video	Max. Data Rate	15.2 Gbps (3.8 Gbps per Lane)
Control	RS-232	Connector: 1 x DB-9 Female (Black) Serial Control Pin Configurations: Pin2 = Tx, Pin3 = Rx, Pin5 = 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
Power	Connectors	1 x 3-Prong AC Socket
	I/P Rating	100 - 240 VAC; 50 - 60 Hz; 1.0 A
	Consumption	800W *A redundant power supply is optional.
Environmental	Operating Temperature	0–40°C
	Storage Temperature	-20–60°C
	Humidity	0–80% RH, Non-Condensing
Physical Properties	Housing	Metal
	Weight	18.20 kg (chassis only)
	Dimensions (L x W x H)	48.20 x 47.19 x 39.90 cm (9U)
Carton Lot		1 pc
Features		VM3200
Hot-pluggable Modules		•
4K Support		•
Award-winning Web GUI		•
Video Wall Processor		•
Seamless Switch		•
Real-time Preview		•
Calendar-based Scheduling		•
Lightweight Aluminum Design		•



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winner interface design

VM1600A 16 x 16 Modular Matrix Switch

- 16 x 16 I/O connections via 4 x 4 I/O modular matrix board slots
- Supports redundant power module to prevent power outages
- Multiple Control Methods – system management via front-panel pushbuttons, RS-232 / RS-422 / RS-485 and Ethernet connections
- **Scaler** – features a video scaling function to integrate a video wall seamlessly with various output video formats*
- **Seamless Switch™** – features close-to-zero second switching that provides continuous video streams, real-time switching and stable signal transmissions*
- **Video Wall** – creates custom video wall layouts via intuitive web GUI*
- **EDID Expert™** – selects optimum EDID settings for smooth power-up, high-quality display and use of the best resolution across different screens
- Rack-mountable (6U design)



Note: * The availability of these features depends on which I/O board is inserted.

Specifications

Function		VM1600A
Input Board		4 x Slot
Output Board		4 x Slot
Video	Max. Data Rate	15.2 Gbps (3.8 Gbps per Lane)
Control	RS-232	Connector: 1 x DB-9 Female (Black) Serial Control Pin Configurations: Pin2 = Tx, Pin3 = Rx, Pin5 = 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
Power	Connectors	1 x 3-Prong AC Socket
	I/P Rating	100 - 240 VAC; 50 - 60Hz; 6.0 A
	Consumption	460W *A redundant power supply is optional.
Environmental	Operating Temperature	0–40°C
	Storage Temperature	-20–60°C
	Humidity	0–80% RH, Non-Condensing
Physical Properties	Housing	Metal
	Weight	15.11 kg (chassis only)
	Dimensions (L x W x H)	48.22 x 46.66 x 26.59 cm (6U)
Carton Lot		1 pc
Features		VM1600A
Hot-pluggable Modules		•
4K Support		•
Award-winning Web GUI		•
Video Wall Processor		•
Seamless Switch		•
Real-time Preview		
Calendar-based Scheduling		•
Lightweight Aluminum Design		

Compatible Input Boards

VM7904 4-Port DisplayPort Input Board



VM7814 4-Port 4K HDMI Input Board



VM7514 4-Port HDBaseT Input Board



VM7804 4-Port HDMI Input Board



VM7604 4-Port DVI Input Board



VM7404 4-Port 3G-SDI Input Board



VM7104 4-Port VGA Input Board



Input Boards

Model	VM7904	VM7814	VM7514	VM7804	VM7604	VM7404	VM7104
Interface	DisplayPort	HDMI	HDBaseT	HDMI	DVI	3G-SDI	VGA
Inputs	4	4	4	4	4	4	4
Max. Video Resolution	4K@30Hz (4:4:4)	4K@60Hz (4:2:0)	4K@60Hz (4:2:0)*	1920 x 1080	1920 x 1200	1920 x 1080	1920 x 1200
Audio	•	•**	N/A	•**	•**	•**	•**
Max. Distance	5m	15m	100m	15m	5m	SD:300 m HD:150 m 3G:100 m	1.8m
Cable Quality Tester	x	•	x	x	x	x	x
RS-232 Channel	x	x	•	x	x	x	x
IR Channel	x	x	•	x	x	x	x

* 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.

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

Compatible Output Boards

VM8814 4-Port 4K HDMI Output Board with Scaler



VM8514 4-Port HDBaseT Output Board



VM8804 4-Port HDMI Output Board with Scaler



VM8604 4-Port DVI Output Board with Scaler



Output Boards

Model	VM8814	VM8514	VM8804	VM8604
Interface	HDMI	HDBaseT (RJ-45)	HDMI	DVI
Outputs	4	4	4	4
Max. Video Resolution	4K@60Hz (4:2:0)	4K@60Hz (4:2:0)*	1920 x 1080	1920 x 1080
Audio	•	N/A	•**	•
Max. Distance	15m	100m	15m	5m
FrameSync	•	VM8514 + VE816R***	x	x
Seamless Switching	•	VM8514 + VE805R/VE816R***	•	•
Scaler	•	VM8514 + VE805R/VE816R***	•	•
Video Wall	•	VM8514 + VE805R/VE816R***	•	•
Cable Quality Tester	•	VM8514 + VE816R***	x	x
RS-232 Channel	x	•	x	x
IR Channel	x	•	x	x

* 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.

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

*** For the VM8514, certain features are only available when used with the appropriate extenders.

HDBaseT Matrix Solutions for Long Distance Extension

VM3200 / VM1600A

32x32 / 16x16 Modular Matrix Switch

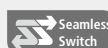
VM7514 / VM8514

Compatible HDBaseT I/O Boards



VE805R

HDMI HDBase-T-Lite Receiver with Scaler



VE816R

4K HDMI HDBaseT Receiver with Scaler



Compatible HDBaseT Transmitters/Receivers

Model No.	Transmitters and Receivers	Max. Distance	RS-232	IR*	Video Wall	4K***
VM7514	VE801T	70 m**	x	x	x	•
	VE802T	70 m**	•	•	x	•
	VE601T (DVI)	70 m**	x	x	x	x
	VE2812T	100 m	•	•	x	•
	VE1812T	100 m	•	•	x	•
	VE811T	100 m	x	x	x	•
	VE812T	100 m	x	x	x	•
	VE814AT	100 m	•	•	x	•
	VE901T (DisplayPort)	70 m**	x	x	x	•
VM8514	VE801R	70 m**	x	x	x	x
	VE802R	70 m**	•	•	x	x
	VE1812R	100 m	•	•	x	•
	VE601R (DVI)	70 m**	x	x	x	x
	VE805R (w/ Scaler)	70 m**	•	•	•****	x
	VE811R	100 m	x	x	x	•
	VE812R	100 m	x	x	x	•
	VE814AR	100 m	•	•	x	•
	VE816R (w/ Scaler)	100 m	•	•	•****	•
	VE901R (DisplayPort)	70 m**	x	x	x	•

Notes:

* Supports full frequency IR signals from 30 KHz to 60KHz; however, the IR receiver cable included with the package only supports 30 KHz to 56 KHz.

** Cat 6a Ethernet cable is required to extend the distance up to 70 meters.

*** 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.

**** For the VM8514, the Seamless Switch, scaler, and video wall functions are only available when used with the VE805R or VE816R.

Accessories

VM3200

VM-PWR800	Power Module
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Input voltage	100 - 240VAC
Power consumption	Max. Load 800 W
Operating temp.	0–40 °C

VM-FAN556	Fan Module
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Airflow	55.2 cfm
Operating voltage	10.2 - 12VDC
Operating temp.	-10–60 °C

Rack Mount Kit	Rack Depth
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2X-034G (Short)



2X-035G (Long)



2X-034G (Short)	41-72 cm
2X-035G (Long)	68-108 cm

VM1600A

VM-PWR460	Power Module
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Input voltage	100 - 240VAC
Power consumption	Max. Load 460 W
Operating temp.	0–40 °C

VM-FAN554	Fan Module
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Airflow	55.2 cfm
Operating voltage	10.2 - 12VDC
Operating temp.	-10–60 °C

Rack Mount Kit	Rack Depth
----------------	------------

2X-026G (Short)



2X-027G (Long)



2X-026G (Short)	41-70 cm
2X-027G (Long)	68-105 cm



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About ATEN

ATEN International Co., Ltd., established in 1979, is the leading provider of IT connectivity and management solutions. Offering integrated KVM, Professional Audiovisual, and Intelligent Power solutions, ATEN products connect, manage, and optimize electronics in corporate, government, industrial, educational, and retail environments. ATEN has 500+ issued international patents and a global R&D team that produces a constant stream of innovative solutions, resulting in a comprehensive portfolio of products available worldwide.

