ATEN

Modular Matrix Solution Series
Complete A/V Signal Control in One Expandable System

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 of various mixed video interface combinations – including digital and analog video formats such as HDBaseT, HDMI, SDI, DVI, and VGA – in one solution.

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

VM1600
16x16 Modular Matrix Switch

VM3200
32x32 Modular Matrix Switch

VM7514/VM8514
4-Port HDBaseT Input / Output Board

VM7804/VM8804
4-Port HDMI Input / Output Board
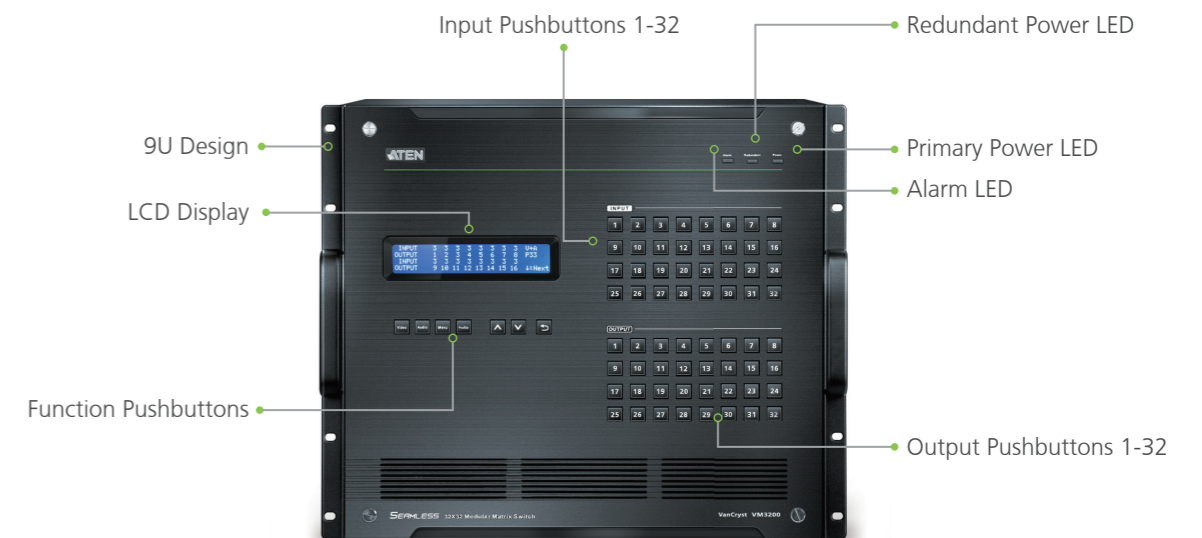
VM7604/VM8604
4-Port DVI Input / Output Board

VM7404
4-Port 3G-SDI Input Board

VM7104
4-Port VGA Input Board

Hardware - VM3200

- Input Pushbuttons 1-32
- Redundant Power LED
- 9U Design
- Primary Power LED
- Alarm LED
- LCD Display
- Function Pushbuttons
- Output Pushbuttons 1-32

- Fan Module
- RS-485 / RS-422 Serial Port
- Ethernet Port
- RS-232 Serial Port
- Primary Power Supply
- Input Board Slots
- Output Board Slots
- Redundant Power Supply (Optional)
- Grounding Terminal

Features

Modular Convenience

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.

Expandability

The system is fully 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.

Seamless Switch™

ATEN Seamless Switch™ technology is powered by an exclusive seamless engine that features instantaneous video switching and Full HD video. 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 possible.

Video Wall Integration with Scaler

A unique scaler utilizing ATEN FPGA technology is built in to the Modular Matrix Solution Series to unify various video input signals and render optimum output resolutions on displays with uncompromised precision.
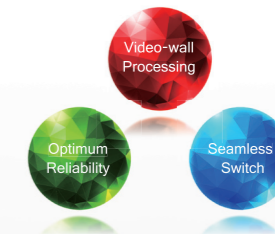
Easy Video Wall Setup

Through a simple point-and-click web interface, the Modular Matrix Solution Series provides easy video wall setup and up to 64 different connection profiles – to see what you want, how you want it.

Integrated Control

The Modular Matrix Solution Series features an all-in-one control mechanism that integrates video wall processing and matrix switching in a single chassis. This new approach simplifies video installations with streamlined management and contributes to overall system reliability.
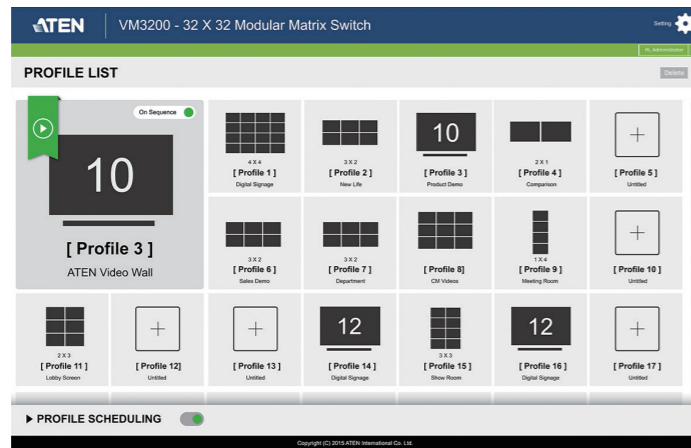
Video-wall Processing

Optimum Reliability

Seamless Switch

Uninterruptable Power, High-Availability System

The Modular Matrix Solution Series is equipped with a spare power module slot for redundancy. This prevents single points of failure from shutting down the entire system, keeping it up and running at all times with no video service interruptions.
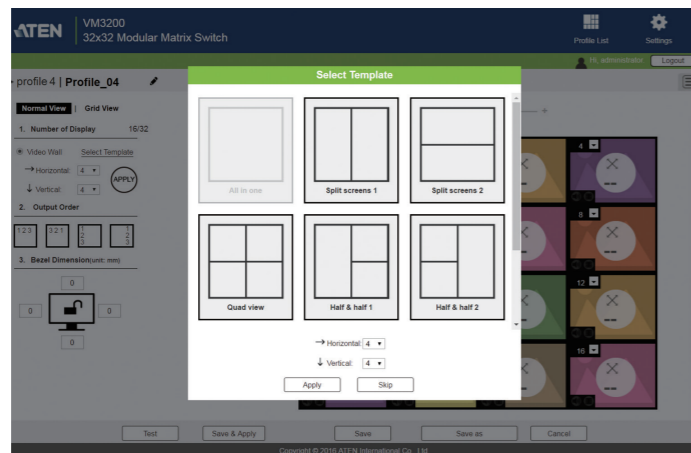
Award-Winning Graphical User Interface

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.
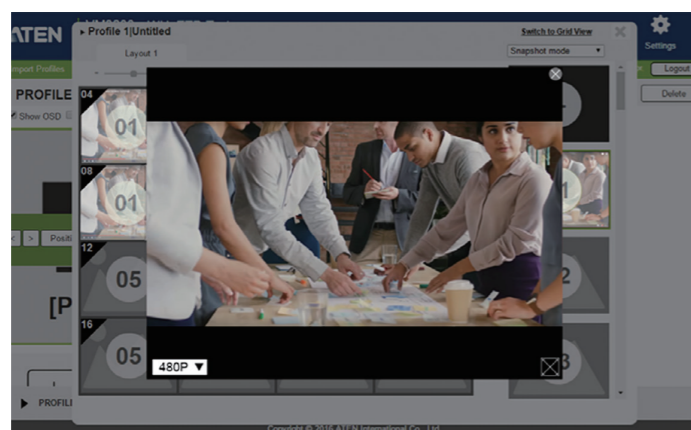

Easy Wizard for Quick Setup

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

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

What you see is what you get

Video wall setup provides 64 connection profiles that you can customize into separate layouts using a simple point-and-click web interface. Video walls allow you to setup multiple displays that combine to form and show video as one large screen, in various layouts – to see what you want, how you want it.
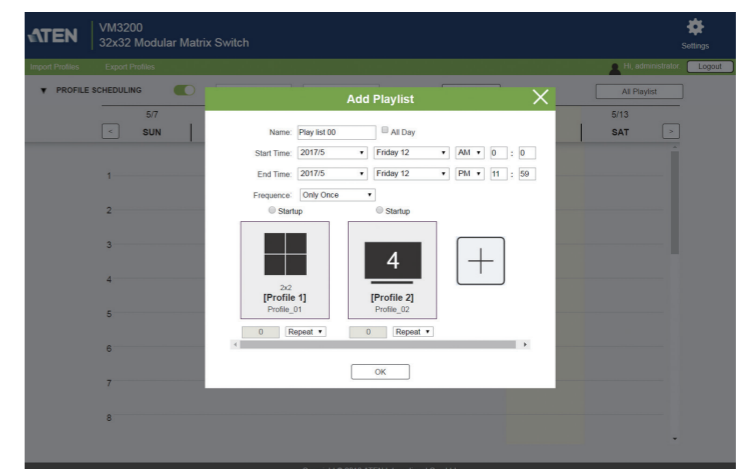
Display >

GUI >

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.

Success Stories

The Bierkeller, UK

Distribution/IoT Control Solution
(Control System + Modular Matrix Switch + Extender + Splitter)

Three jointly-owned pubs located at an entertainment complex in the UK adopted ATEN's professional A/V Solution to successfully deliver eight video sources (3 Skybox receivers, 4 media players, 1 live feed) to 60 displays located across their three venues. The solution included a Modular Matrix Switch (VM1600) for video switching, and HDMI receivers (VE814R/VE802R) for extending the video signals throughout the three pubs.

Long distance and high-quality HDMI signal transmission

The ATEN Modular Matrix Switch used together with the VE814R HDBaseT Receiver, easily delivers 1080p video transmissions up to 100 meters via Cat 5e/6 cable across the three pubs – without signal interference or loss.

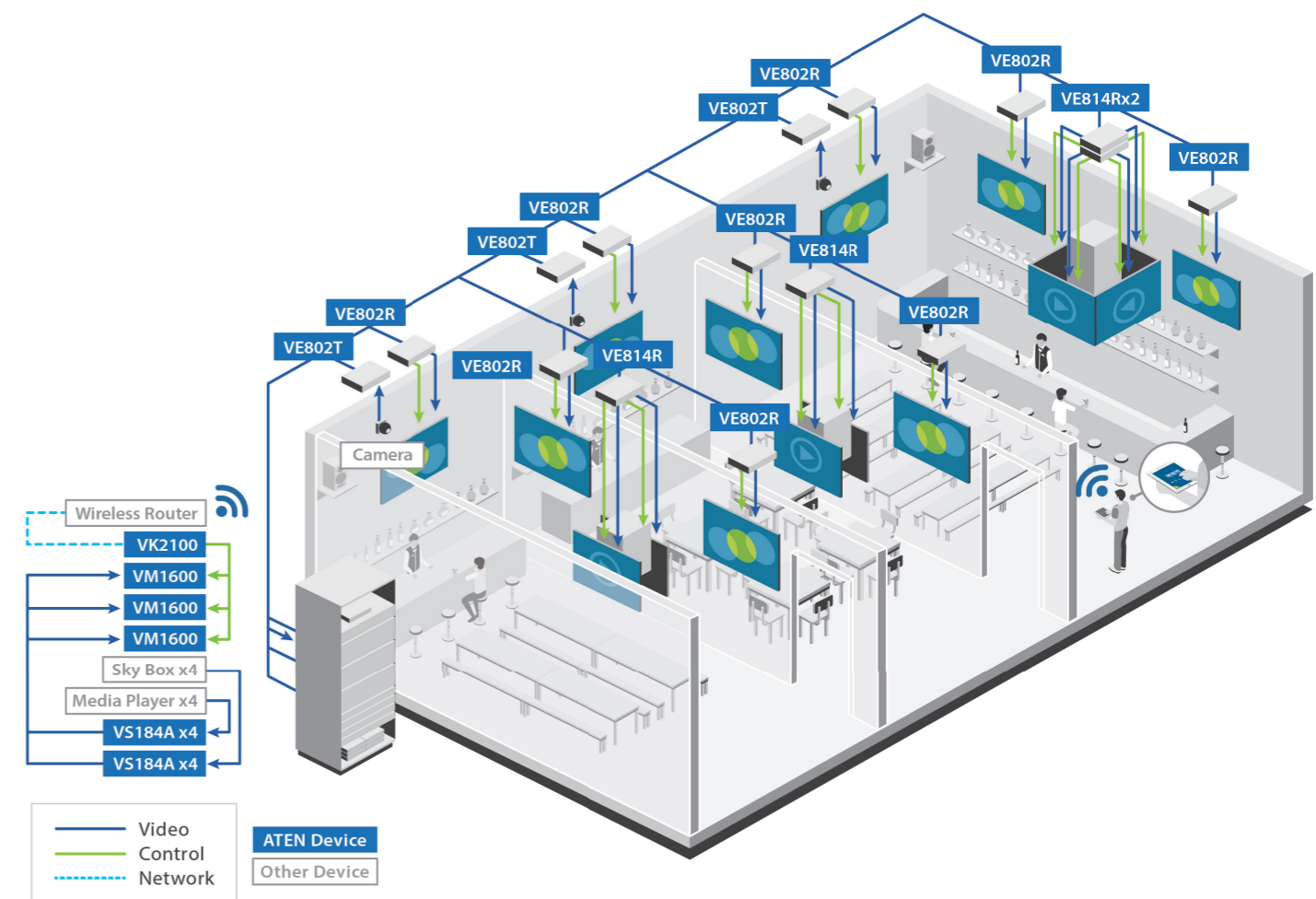---

Dual display, saving cost and effort

The VE814R extender features dual HDMI ports which allow two HDTVs to be connected to one unit, reducing the number of receivers and amount of cable needed for installation. This decreases installation time for the system integrator and lowers the cost for the pub owner.

A smooth, seamless viewing experience

Since one of the venues will have live bands performing, delivering live video feeds to different locations is critical to the pub owner. Thanks to ATEN's close-to-zero second switching, the Modular Matrix Switch provides a smooth viewing experience with no black screen when the video is switched – leaving the customer entertained without being interrupted.

Broadcast commands to the displays all at once

With the VM1600's broadcast feature, staff can remotely power on and off all the displays, all at once, with the push of a button. This eliminates the need to power on and off each display, one by one, every day.

VE802R
VE802R
VE802T
VE814Rx2
VE802R
VE802R
VE802R
VE802T
VE802R
VE814R
VE802R
VE814R
VE802R
VE802T
VE802R
VE814R
VE802R
Camera

Wireless Router
VK2100
VM1600
VM1600
VM1600
Sky Box x4
Media Player x4
VS184A x4
VS184A x4

—— Video
—— Control
----- Network

ATEN Device
Other Device

Primary School, Hong Kong

Distribution Solution
(Modular Matrix Switch + Extender + Converter)

A primary school in Hong Kong was looking for a major upgrade to its A/V multimedia system. The school required up to 1080p signal transmission from 6 different sources (VGA and HDMI) to 1 website and 13 displays (VGA and HDMI) across their campus. The solution needed to extend up to 60 meters across 3 floors and carry a diverse range of source content, including the headmaster's addresses during assembly and other events (camera), school announcements (camera), experiments and science projects (digital overhead projector), and educational movies (DVD player).

Award-winning usability

Designed with the user in mind, the VM1600 16x16 Modular Matrix Switch is a pro A/V solution for video wall and digital signage applications. With its Red Dot Design Award-winning interface, the VM1600 reduces the complexity associated with video wall configurations, digital signage setups, and their control, ensuring the shortest learning curve for all staff at the school.
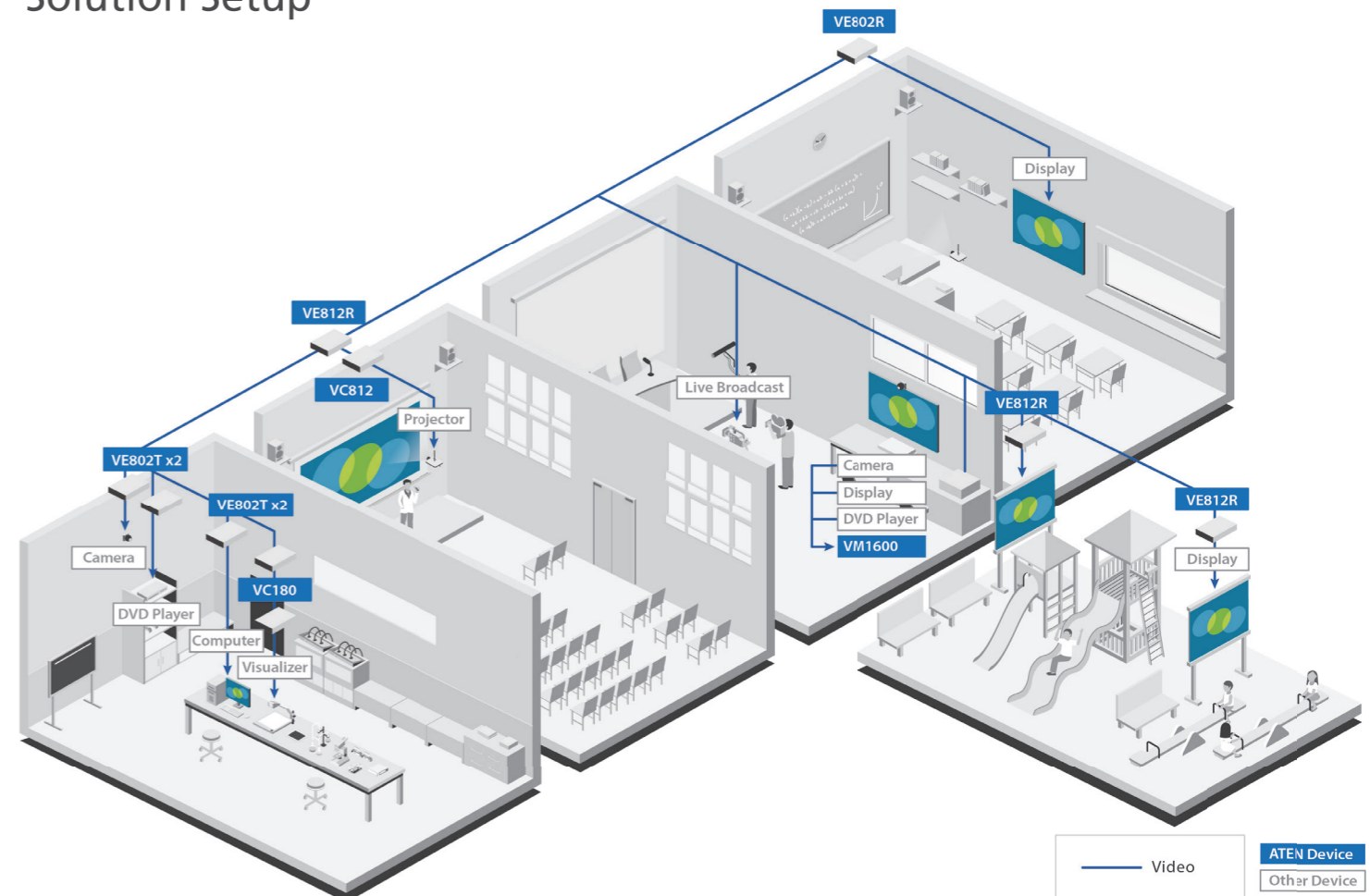
Long distance and high-quality HDMI

The HDBaseT-Lite Extenders (VE802T / VE802R) are able to deliver 1080p HDMI video transmissions up to 70m via Cat 6a cables, without signal interference. Thanks to Power over HDBaseT (POH) technology, the VE802 is powered entirely through its Ethernet cable and does not require an external power source – providing the lowest installation hassle and cost for the school-wide system.

Future-proof

The VM1600's module-like design, which allows a variety of different input/output boards to be switched in and out, ensures that the ATEN A/V solution is both dynamic and easily upgradeable. Furthermore, as both the VM1600 and VE802 extenders support 4K transmissions when using Cat 6a cabling (to 40m – easily upgradeable to 70m with the VE812), the school is already set for the future standard in ultra high definition broadcasts.

Solution Setup

Traffic Control Center, Thailand

Video Wall Solution

(Modular Matrix Switch + Extender + Splitter)

A municipal traffic control center in Chiang Mai, the largest city in Northern Thailand, was planning to install a digital surveillance system on the city's main streets to monitor the public areas and ensure the safety of the public and its property. They required centralized and real-time monitoring of the video captured from cameras in various locations that are transmitted to the traffic control center in the municipal office, and to also display clear images with fine detail captured by 5-Megapixel cameras to be shown on a large video wall for analyzing events.

Centralized management

The ATEN Modular Matrix switch integrated seamlessly with the surveillance system to provide centralized management of video from multiple cameras in different locations to help officers take action when events occur.

Seamless switching between video sources

Instantly change the camera source when any suspicious event occurs – selected video images displayed with precision and clarity can easily be switched to and shown on the large video wall with ATEN's unique scaling function.

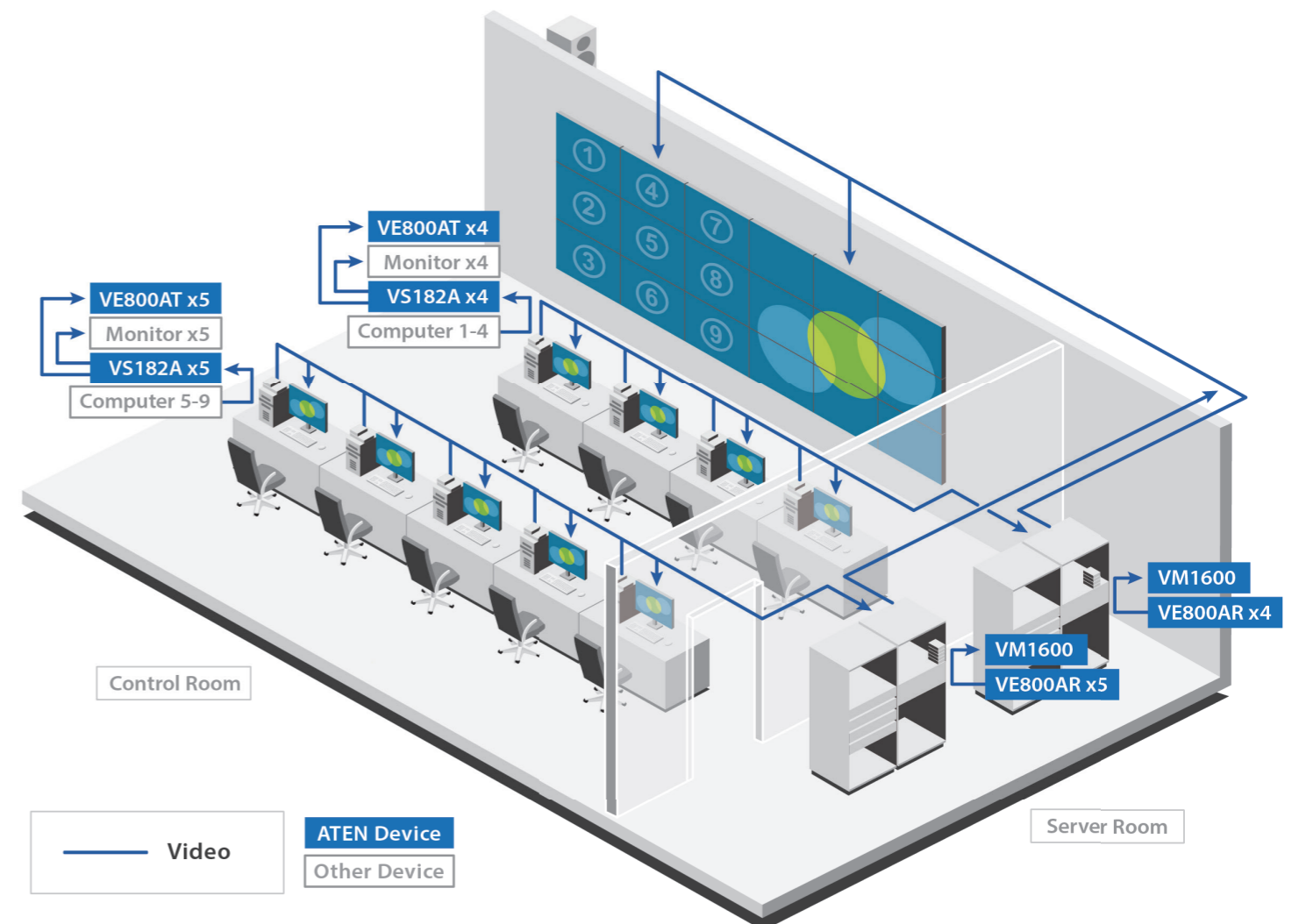**Video wall with superior video quality**

The solution provides up to 32 connection profiles that can be customized into layouts using the web GUI at HDTV resolutions of up to 1080p.

Cost-effective solution

Provides a cost-effective solution that allows the Municipality to maximize the performance of their surveillance system with a limited budget.

Solution Setup

Product Introduction

VM3200 32 x 32 Modular Matrix Switch

reddot award 2015
winner interface design

[RS-232/485/422 Functionality] [EDID] [FPGA Design]

- 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-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 (See page VIII for definition of each EDID mode)
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℃
	Storage Temperature	-20–60℃
	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
4K Support	•
Award-winning Web GUI	•
Video Wall Processor	•
Seamless Switch	•
Real-time Preview	•
Scheduling	•
Lightweight Aluminum Design	•

VM1600 16 x 16 Modular Matrix Switch

reddot award 2015
winner interface design

[RS-232/485/422 Functionality] [EDID] [FPGA Design]

- 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-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 – allows you to create 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		VM1600
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 (See page VIII for definition of each EDID mode)
Power	Connectors	1 x 3-Prong AC Socket
	I/P Rating	100 - 240 VAC; 50 - 60Hz; 1.0 A
	Consumption	120 VAC, 180W; 230 VAC,172W *A redundant power supply is optional.
Environmental	Operating Temperature	0–40℃
	Storage Temperature	-20–60℃
	Humidity	0–80% RH, Non-Condensing
Physical Properties	Housing	Metal
	Weight	17.00 kg (chassis only)
	Dimensions (L x W x H)	48.22 x 39.90 x 26.59 cm (6U)
Carton Lot		1 pc

Features	VM1600
Hot-pluggable Modules	•
4K Support	•
Award-winning Web GUI	•
Video Wall Processor	•
Seamless Switch	•
Real-time Preview	
Scheduling	
Lightweight Aluminum Design	

Compatible Input Boards

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	VM7514	VM7804	VM7604	VM7404	VM7104
Interface	HDBaseT RJ-45	HDMI	DVI	3G-SDI	VGA
Inputs	4	4	4	4	4
Outputs	0	0	0	0	0
Audio	•	•**	•	•	•
Max. Video Resolution	4K@60Hz (4:2:0)*	1920 x 1080	1920 x 1200	SD: 625i (PAL) / 525i (NTSC) HD/3G: Up to 1920 x 1080	1920 x 1200
Max. Distance	100 m	15 m	5 m	SD: 300 m HD: 150 m 3G: 100 m	1.8 m
RS-232 Channel	•				
IR Channel	•				
Power Consumption	24.5W	7W	10.62W	16.0W	7.1W

* 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

VM8514 4-Port HDBaseT Output Board

VM8804 4-Port HDMI Output Board
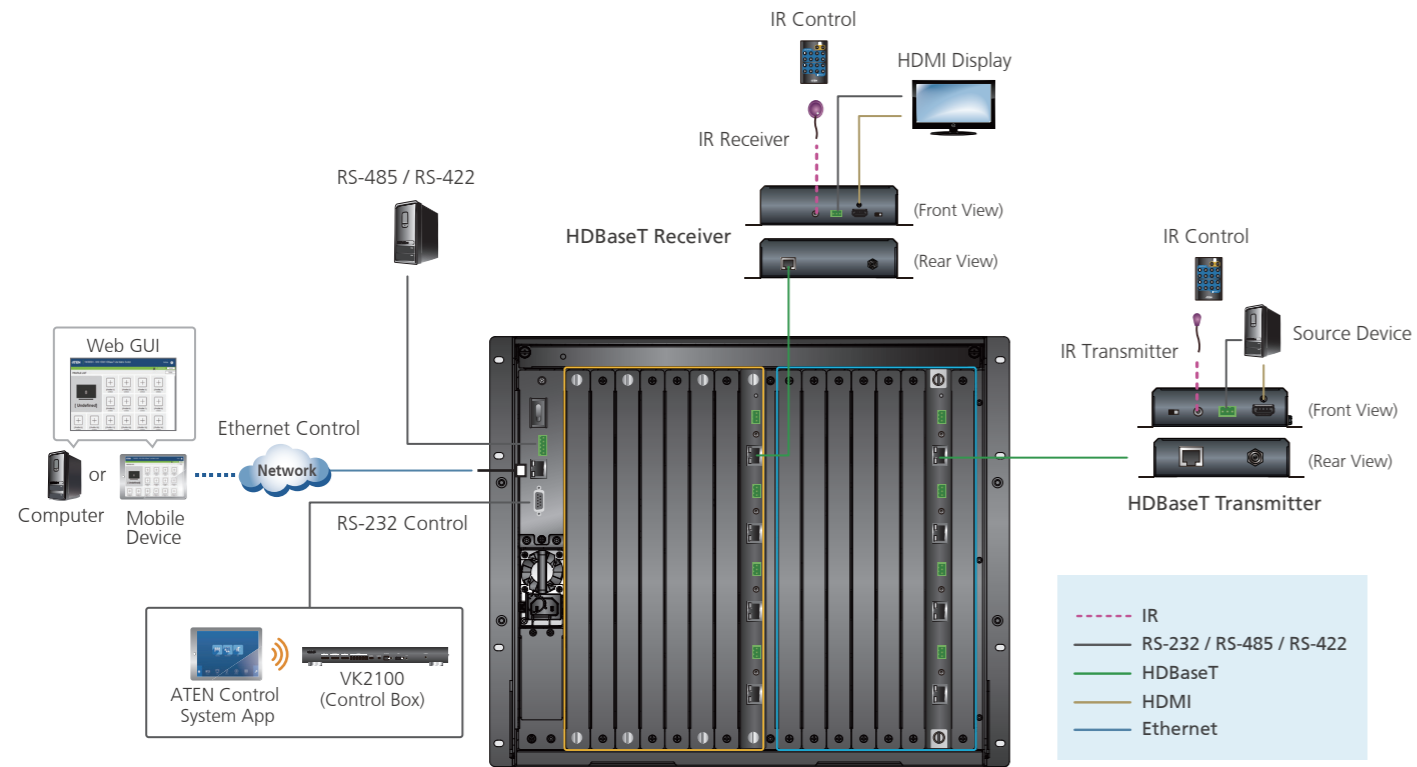
VM8604 4-Port DVI Output Board

Output Boards

Model	VM8514	VM8804	VM8604
Interface	HDBaseT RJ-45	HDMI	DVI
Inputs	0	0	0
Outputs	4	4	4
Audio	•	•**	•
Max. Video Resolution	4K@60Hz (4:2:0)*	1920 x 1080	1920 x 1200
Max. Distance	100 m	15 m	5 m
RS-232 Channel	•		
IR Channel	•		
Power Consumption	12.2W	23.13W	20.10W

*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.

Solution Setup

Modular Matrix Switch + HDBaseT I/O Boards + HDBaseT Transmitter/Receiver

	IR
-------	IR
———	RS-232 / RS-485 / RS-422
———	HDBaseT
———	HDMI
———	Ethernet

Model No.	Transmitters and Receivers	Max. Distance	RS-232	IR*	Video Wall	4K***
VM7514	VE801T	70 m**				•
	VE802T	70 m**	•	•		•
	VE601T (DVI)	70 m**				
	VE812T	100 m				•
	VE813T	100 m				•
	VE814T	100 m	•			•
	VE901T	70 m**				•
VM8514	VE801R	70 m**				
	VE802R	70 m**	•	•		
	VE601R	70 m**				
	VE805R	70 m**	•	•	•****	
	VE812R	100 m				•
	VE813R	100 m				•
	VE814R	100 m	•			•
	VE901R	70 m**				•

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.

**** When the VM8514 is used in combination with the VE805R, the setup will support the Seamless Switch™ and Scaler functions.

Accessories

VM3200

VM-PWR800	Power Module

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

VM-FAN556	Fan Module

Airflow	55.2 cfm
Operating voltage	10.8 - 13.8 VDC
Operating temp.	-10–70 °C

Rack Mount Kit	Rack Depth

2X-034G (Short)	2X-035G (Long)

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

VM1600

VM-PWR400	Power Module

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

VM-FAN60	Fan Module

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

Rack Mount Kit	Rack Depth

2X-026G (Short)	2X-027G (Long)

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

ATEN
Simply Better Connections

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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.