

# **ATEN Video Matrix Switches**

Fixed I/O Solutions to Empower Connected Signage



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### Introduction



As AV networks become increasingly complex, whether it is streamlining business operations or maximizing the benefits of media distribution, the use of video matrix switches is paramount in various applications due to the growing number of devices and rooms that need to be connected and managed.

ATEN Video Matrix Switches simplify the task of routing AV signals from multiple input sources to various output destinations. Each input can be directed to any or all outputs, giving you the ultimate flexibility to extend your installation with excellent video quality. No matter the size, environment, or complexity of your installation, each series is optimally designed for any AV application needs.

#### ATEN Video Matrix Switches

Standard Series	Seamless Series	HDBaseT™ Series
Offers an easy and cost-effective way to route any input to output with up to True 4K HDR support.	Features ATEN's advanced proprietary technologies for delivering an extra seamless visual experience.	Built on HDBaseT™ technology to deliver AV signals across long distances in combination with ATEN HDBaseT™ Receivers.
	Application Characteristics	
- Simple AV routing in any space to deliver high-quality AV switching	<ul> <li>Super-fast source switching</li> <li>Ultra-smooth visual experience for high- motion elements</li> <li>Video wall visualization</li> </ul>	<ul> <li>Installations with long-distance transmission</li> <li>Flexibility for fast source switching, video walls, and support for high-motion elements</li> </ul>
	Models	
VM0404HB, VM0808HB, VM0202H, VM0404HA, VM0808HA, VS0202, VM0404	VM6404H, VM6809H, VM5404H, VM5808H, VM51616H, VM5808D	VM3404H, VM3909H

### **Key Features**

ATEN develops and utilizes proprietary technologies to deliver excellent video processing capabilities, as well as adopts human-centric designs for device operation and control. Each series comprises models with outstanding features.

			ATEN Video Matrix Sw	itches	
			Standard Series	Seamless Series	HDBaseT <sup>™</sup> Series
	Models		VM0404HB, VM0808HB, VM0202H, VM0404HA, VM0808HA, VS0202, VM0404	VM6404H, VM6809H, VM5404H, VM5808H, VM51616H, VM5808D	VM3404H, VM3909H
Key Features					
	HDBaseT™				٠
	Seamless Swite	ch™		•	•*
Video	Scaler			•	•*
Transmission & Processing Fram	FrameSync			• (VM6404H, VM6809H, VM51616H)	ø*
True 4K, HDR			• (VM0404HB, VM0808HB)		
	EDID Expert™		•	•	•
Compatibility	HDCP Expert		•	•	•
	HDMI Certified	J***	•	•	•
		Pushbuttons	•	•	٠
	Built-in	RS-232	•	•	٠
	Control Interfaces**	IR	•	٠	٠
Control		Ethernet	•	٠	•
	Mobile App		•	•	٠
ATEN Control System & 3rd Party Devices		System & 3rd	•	•	٠
	Audio De-emb	edding		• (VM6809H, VM51616H)	
Extra	Local Preview Function			• (VM51616H)	
	HDMI LockPro	TM * * *	•	•	٠

\* The availability of these features depends on the ATEN HDBaseT™ Receiver used.

\*\* The supported control interfaces are not available in all models. Please refer to the Comparison Table on pg. 13 for more details.

\*\*\* Supported by models with HDMI interfaces.

### Video Transmission & Processing

#### **HDBaseT™**

ATEN HDBaseT Video Matrix Switches maximize the capabilities of HDBaseT 5Play<sup>™</sup> technology to deliver HDMI, Audio, Ethernet, Control, and Power simultaneously over a single cable. Benefits include:

- Long Distance Transmission Connects sources and displays via one cable up to 70m
- HDBaseT Anti-jamming Resists signal interference during high-quality video transmission
- Power over HDBaseT (POH) Supplies power from the switch to the receiver



HDBaseT Authorized Trainer Certificate



HDBaseT Product Certificate

#### Seamless Switch<sup>™</sup>

ATEN Seamless Switch<sup>™</sup> technology enables close-to-zero second video switching without any black screens. An exclusive seamless engine processes AV signals by executing EDID and HDCP handshakes simultaneously at both source and display ends, scaling inputs for the best output resolution while setting the output clock timing and using a frame buffer to retain input signal information for the fastest output.

#### Seamless Engine



### **Scaler Technology**

ATEN Video Matrix Switches equipped with Video Wall and Scaler functionalities ensure all input sources are rendered at optimum output resolutions on displays with uncompromised precision. The unique Scaler, utilizing ATEN FPGA technology, guarantees that all video content is delivered across all screens with no delays or signal loss.



### FrameSync

ATEN's FrameSync Technology prevents screen tearing by synchronizing frame rates, guaranteeing smooth video for high-motion elements and ensuring stunning tear-free video walls, especially when a fast-moving object appears on the screen.



#### **Before FrameSync**

After FrameSync



#### True 4K, HDR

Features models with up to True 4K resolutions with HDR that supports all popular HDR formats on the market, including HDR10+, HDR10, Dolby Vision, and Hybrid Log Gamma (HLG), and both static and dynamic HDR, delivering a much wider range of color and contrast to produce more vivid and vibrant video than ever before.



## Compatibility

### EDID Expert<sup>™</sup>

The exclusive ATEN EDID Expert<sup>™</sup> technology offers applicable EDID modes for selection that optimize the output capability throughout your installations for faster and smoother video performance.



### **HDCP Expert**

For digital signals with protected content, ATEN's unique HDCP technology manages authentication of HDCP-compliant sources and displays, and allows you to select HDCP settings between input and output ports in order to ensure that HDCP-encrypted content can be transmitted and switched reliably without any compatibility issues.

### **HDMI** Certified

As an Adopter of the HDMI specification, ATEN's HDMI products are submitted to Authorized Testing Centers (ATC) for compliance testing and certification. HDMI certification assures the reliability and performance of HDMI products according to the HDMI specification as well as validation according to leading industry standards. Identify our HDMI-certified products by the HDMI logo.





### Control

### **Built-in Control Interfaces**

ATEN Video Matrix Switches offer multiple built-in control options for you to select from, including pushbuttons, IR remote control, RS-232 and Ethernet interfaces, as well as the award-winning Web Graphical User Interface (GUI).



Pushbuttons



#### Award-winning Web GUI



RS-232 & Ethernet

reddot award 2015 winner interface design



Create custom Digital Signage and Video Wall Layouts

### ATEN Video Matrix Control App\*

The ATEN Video Matrix Control App is a free mobile app for iOS and Android. It provides direct access to manage ATEN Video Matrix Switches, making control easier than ever before.

- Profile Change: Select and apply profile via visualized Profile ID
- Source Switching: Switch input sources instantly via graphical layout preview
- Audio Control: Turn on/off or embed/de-embed audio with ease





\* Please see ATEN website for VM model app support.

### ATEN Control System and 3rd Party Devices

By supporting RS-232, Telnet protocols, the ATEN Video Matrix easily integrates with the ATEN Control System as well as 3rd-party devices, enabling you to conveniently configure your entire installation to work together or integrate into any existing network.



### **Extra Key Features**

#### Audio De-embedding

Models with built-in audio extraction function are capable of de-embedding HDMI digital audio input into stereo audio output. This feature improves your installation efficiency by directly routing independent audio to audio processors, saving you time and setup costs.

#### **Local Preview**

Models designed with local HDMI output enable real-time monitoring of multiple sources on a single display exactly where the device is located, such as in the server or control room. Select different Array Modes to simply view all the contents required in the installation.



#### ATEN LockPro™

Secure HDMI connections to ATEN Video by utilizing LockPro<sup>™</sup>, a patented ATEN accessory that prevents signal loss by ensuring a durable physical connection between your HDMI cables and devices in a simple, one-piece design.



### **Standard Series**

### 4 x 4 / 8 x 8 True 4K HDMI Matrix Switch

#### VM0404HB / VM0808HB

- 4 x 4 or 8 x 8 HDMI inputs and outputs
- Supports up to 4096 x 2160 @60Hz (4:4:4)
- HDCP 2.2 compatible
- Features HDR for vivid video image performance





# 2 x 2 / 4 x 4 / 8 x 8 4K HDMI Matrix Switch

### VM0202H / VM0404HA / VM0808HA

- $\bullet$  2 x 2 or 4 x 4 or 8 x 8 HDMI inputs and outputs
- Supports up to 4096 x 2160 @60Hz (4:2:0)
- HDCP 2.2 compatible (VM0808HA)



### 2 x 2 / 4 x 4 VGA /Audio Matrix Switch

#### VS0202 / VM0404

- 2 x 2 or 4 x 4 VGA/Audio inputs and outpus
- Supports up to 1920 x 1200



### **Seamless Series**

reddot award 2015 winner interface design

### 4 x 4 / 8 x 9 4K HDMI Matrix Switch with Scaler

#### VM6404H / VM6809H

- 4 x 4 or 8 x 9 HDMI inputs and outputs
- Supports up to 4096 x 2160 @60Hz (4:2:0)
- HDCP 2.2 compatible
- FrameSync guarantees smooth video for high-motion elements and tear-free video walls
- Supports Seamless Switch™ and Video Wall functionality



# 4 x 4 / 8 x 8 HDMI Matrix Switch with Scaler

#### VM5404H / VM5808H

- 4 x 4 or 8 x 8 HDMI inputs and outputs
- Supports up to 1080p
- HDCP 1.4 compatible
- Supports Seamless Switch™ and Video Wall functionality





# 16 x 16 HDMI Matrix Switch with Scaler

#### VM51616H

- 16 x 16 HDMI inputs and outputs
- Supports up to 1080p
- HDCP 1.4 compatible
- FrameSync guarantees smooth video for high-motion elements and tear-free video walls
- Supports Seamless Switch<sup>™</sup> and Video Wall functionality
- Audio-enabled; HDMI audio can be extracted to stereo audio
- Local HDMI output allows multiple preview of 16 sources





# 8 x 8 DVI Matrix Switch with Scaler

- 8 x 8 DVI inputs and outputs
- Supports up to 1920 x 1200
- HDCP 1.4 compatible
- Supports Seamless Switch™ and Video Wall functionality





### HDBaseT<sup>™</sup> Series

### 4 x 4 / 9 x 9 HDMI HDBaseT-Lite Matrix Switch

#### VM3404H / VM3909H

- 4 / 9 HDMI inputs and HDBaseT outputs, with mirrored 4 / 9 HDMI and HDBaseT outputs
- Supports up to 4096 x 2160 @60Hz (4:2:0)
- HDCP 1.4 compatible
- HDBaseT Connectivity with Anti-Jamming support for high quality long distance video transmission
- Supports Seamless Switch™, Video Wall, FrameSync, POH with compatible ATEN receiver



#### **Compatible Receivers**

Model	Max. Distance	IR	4K	Seamless Switch™	Video Wall	РОН	Dual View	FrameSync	Audo De-embedding
VE801R	70m*	N/A	•	N/A	N/A	N/A	N/A	N/A	N/A
VE802R	70m*	•	•	N/A	N/A	•	N/A	N/A	N/A
VE805R (with Scaler)	70m*	•	N/A	•	•	N/A	N/A	N/A	N/A
VE816R (with Scaler)	70m*	•	•	•	•	N/A	N/A	•	N/A
VE814AR	70m*	•	•	N/A	N/A	N/A	•	N/A	N/A
VE601R (DVI)	70m*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VE901R	70m*	N/A	•	N/A	N/A	N/A	N/A	N/A	N/A
VE2812R	100m*	•	•	N/A	N/A	N/A	N/A	N/A	•

\* We strongly recommend that you use a Cat 6a cable or ATEN 2L-2910 Cat 6 cable for best product performance.



# **Comparison Table**

Series	Standard					
Interface		HDMI	VGA			
Model	VM0404HB VM0808HB	VM0404HA VM0808HA	VM0202H	VM0404	VS0202	
Inputs to Outputs	4 to 4 / 8 to 8	4 to 4 / 8 to 8	2 to 2	4 to 4	2 to 2	
Max. Resolution	4K@60Hz (4:4:4)	4K@60Hz (4:2:0) 4K@30Hz (4:4:4)	4K@60Hz (4:2:0) 4K@30Hz (4:4:4)	1920 x 1440	1920 x 1200	
HDR	•	N/A	N/A	N/A	N/A	
HDCP	2.2	VM0404HA: 1.4 VM0808HA: 2.2	1.4	N/A	N/A	
Audio	• (HDMI)	• (HDMI)	• (HDMI)	٠	٠	
Seamless Swtich™	N/A	N/A	N/A	N/A	N/A	
Scaler	N/A	N/A	N/A	N/A	N/A	
Video Wall	N/A	N/A	N/A	N/A	N/A	
Web GUI	•	• (VM0808HA)	N/A	N/A	N/A	
RS-232 Control	•	•	•	•	N/A	
IR Control	•	•	•	•	N/A	
Ethernet Control	•	• (VM0808HA)	N/A	N/A	N/A	

Series		HDBaseT™				
Interface		HD	DVI	HDBaseT™ / HDMI		
Model	VM6404H	VM6809H	VM5404H VM5808H	VM51616H	VM5808D	VM3404H VM3909H
Inputs to Outputs	4 to 4	8 to 9	4 to 4 / 8 to 8	16 to 16	8 to 8	4 to 4 / 9 to 9
Max. Resolution	4K@60Hz (4:2:0) 4K@30Hz (4:4:4)	4K@60Hz (4:2:0) 4K@30Hz (4:4:4)	1080p	1080p	1920 x 1200	4K@60Hz (4:2:0) 4K@30Hz (4:4:4)
HDCP	2.2	2.2	1.4	1.4	1.4	1.4
Audio	• (HDMI)	• (HDMI, Stereo)	• (HDMI)	• (HDMI, Stereo)	N/A	• (HDMI)
Seamless Swtich™	•	•	•	•	•	•*
Scaler	•	•	•	•	•	•*
Video Wall	•	•	•	•	•	•*
FrameSync	•	•	N/A	•	N/A	•*
Audio De-embedding	N/A	•	N/A	•	N/A	•*
Web GUI	•	•	•	•	٠	•*
RS-232 Control	•	•	•	•	•	•*
IR Control	٠	N/A	٠	N/A	٠	• (VM3404H)
Ethernet Control	•	٠	٠	•	•	•*

\* The availability of these features depends on the ATEN HDBaseT™ Receiver used.

# **Optional Accessories**

ltem	Images	Part No.	Length (m)	To PC / Source Interface	To Switch Interface
HDMI Cable		2L-7DA3H 2L-7DA6H 2L-7D01H 2L-7D02H-1 2L-7D03H 2L-7D03H 2L-7D05H 2L-7D10H 2L-7D15H 2L-7D20H	0.3 0.6 1 1.8 2 3 5 10 15 20	HDMI Male	HDMI Male
		2L-7D03DD 2L-7D05DD	3 5	DVI-D Male (Dual Link)	DVI-D Male (Dual Link)
DVI Cable		2L-7D02V	1.8	DVI-D Male (Single Link)	DVI-D Male (Single Link)
VGA Cable		2L-2402A 2L-2502A 2L-2503A 2L-2505A 2L-2510A 2L-2515A 2L-2515A 2L-2520A	1.8 2 3 5 10 15 20	HDB-15 Male Audio Plug	HDB-15 Female
VGA Cable		2L-2401 2L-2403 2L-2406 2L-2410 2L-2420	1.8 3 6 10 20	MDB-15 Male	💻 HDB-15 Female
HDBaseT Cat6 Cable		2L-2910 (Shielded)	305	RJ-45	RJ-45
True 4K HDMI 2.0 Active Optical Cable		VE7832 VE7833 VE7834 VE7835	15 30 60 100	HDMI Male	HDMI Male
ATEN LockPro™ HDMI Cable Lock		2X-EA12			

Note: For more cable accessories, please visit the ATEN Website for latest updates.

### Success Stories - Corporate

# **Meeting Room**

**Optoma**, Taiwan



Optoma, a leading designer and manufacturer of projection and audio products, decided to renovate their main meeting room with a high-performance presentation and conferencing system.

### Challenges

- A solution to cover all meeting room activities without the need for multiple remote controls
- Automated controls that can shift quickly among various lighting environments, source feeds from computers, and a variety of mix-andmatch AV outputs
- Easily switch between video sources while splitting audio to a separate audio system
- Share presentations locally on multiple screens and remotely via video conferencing

### **ATEN Solution Benefits**

- Simplifies control via IR function that can turn devices ON/OFF and lighting control to quickly adapt to each situation
- Allows flexible audio configuration through separation of audio from video sources
- Delivers easy and centralized wireless control from any mobile device through a fully customizable UI

### Product List

- VM5404H 4 x 4 HDMI Matrix Switch with Scaler
- VK2100 ATEN Control System Control Box
- VE801 HDMI HDBaseT-Lite Extender
- VC880 HDMI Repeater Plus Audio De-embedder



### Success Stories - Retail

# **4K Distribution Solution**

**3C Chain Store, India** 



One of the leading consumer electronics retail chain stores in India needed to

deliver high-quality promotional information and announcements across shop floors to create an alluring shopping atmosphere.

#### Challenges

- A solution that is compatible with multiple displays of 4K and 1080p resolutions, various sizes, brands, and specifications
- Support a diverse array of source devices for playback, with the capability to play video through specific software and apps
- Transmit video content across an average distance of 50m between source and display, and support a dual 4K video output to displays located up to 100m away

### **ATEN Solution Benefits**

- An HDCP-compliant solution that is compatible with multiple displays of various brands and specifications
- Allows easy up/downscale of 4K and 1080p content
- Provides dual 4K video output to receivers up to 100m away using a single cable

### **Product List**

- VM6404H 4 x 4 4K HDMI Matrix Switch with Scaler
- VE814 HDMI HDBaseT Extender with Dual Output
- VS0108HA 8-Port VGA/Audio Splitter



### Success Stories - Transportation

Video Wall Taipei Main Station, Taiwan



A large train station in Taipei decided to build two large video walls to deliver transportation information to travelers and also advertisements from companies who want to get information to their target audience.

#### Challenges

- Ability to display different content in different layouts seamlessly on two 6 x 4 video walls located on the first-floor hall
- Project content from three separate OTT BOX image sources
- Control the advertising system remotely via their own control system to change and schedule the advertising content displayed on the screens

### **ATEN Solution Benefits**

- Integrates seamlessly with existing AV distribution architecture
- Provides continuous video streams, real-time control, and stable signal transmissions for customized video wall layouts

#### **Product List**

• VM5808H - 8 x 8 HDMI Matrix Switch with Scaler





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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.



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