HDMI HDBaseT Extender with PoH

VE1812 User Manual

www.aten.com

EMC Information

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Warning: Operation of this equipment in a residential environment could cause radio interference.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Achtung: Der Gebrauch dieses Geräts in Wohnumgebung kann Funkstörungen verursachen.

Suggestion: Shielded twisted pair (STP) cables must be used with the unit to ensure compliance with FCC & CE standards.

KCC Statement

유선 제품용 / A 급 기기 (업무용 방송 통신 기기)
이 기기는 업무용 (A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며 , 가정 외의 지역에서 사용하는 것을 목적으로 합니다 .

RoHS

This product is RoHS compliant.

User Information

Online Registration

Be sure to register your product at our online support center:

International	http://eservice.aten.com

Telephone Support

For telephone support, call this number:

International	886-2-8692-6959
China	86-400-810-0-810
Japan	81-3-5615-5811
Korea	82-2-467-6789
North America	1-888-999-ATEN ext 4988
	1-949-428-1111

User Notice

All information, documentation, and specifications contained in this manual are subject to change without prior notification by the manufacturer. The manufacturer makes no representations or warranties, either expressed or implied, with respect to the contents hereof and specifically disclaims any warranties as to merchantability or fitness for any particular purpose. Any of the manufacturer's software described in this manual is sold or licensed *as is*. Should the programs prove defective following their purchase, the buyer (and not the manufacturer, its distributor, or its dealer), assumes the entire cost of all necessary servicing, repair and any incidental or consequential damages resulting from any defect in the software.

The manufacturer of this system is not responsible for any radio and/or TV interference caused by unauthorized modifications to this device. It is the responsibility of the user to correct such interference.

The manufacturer is not responsible for any damage incurred in the operation of this system if the correct operational voltage setting was not selected prior to operation. PLEASE VERIFY THAT THE VOLTAGE SETTING IS CORRECT BEFORE USE.

Package Contents

VE1812 Package Contents

1 VE1812T/R HDMI HDBaseT Extender with PoH
1 Power Adapter
1 IR Transmitter
1 IR Receiver*
2 RS-232 Terminal Blocks
1 User Instructions

VE1812T Package Contents

1 VE1812T HDMI HDBaseT Extender with PoH
1 Power Adapter
1 RS-232 Terminal Block
1 User Instructions

VE1812R Package Contents

1 VE1812R HDMI HDBaseT Extender with PoH
1 RS-232 Terminal Block
1 Power Adapter
1 User Instructions

Check to make sure that all the components are present and that nothing got damaged in shipping. If you encounter a problem, contact your dealer.

Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the unit, and/or any of the devices connected to it.

Features may have been added to the VE1812 since this manual was published. Please visit our website to download the most up-to-date version of the manual.

Note: The included IR receiver supports full frequency IR signals from 30kHz to 60kHz. The IR receiver cable included with the package, however, only supports signals from 30kHz to 56 kHz.

Table of Contents

About this Manual

This User Manual is provided to help you get the most from your system. It covers all aspects of installation, configuration and operation. An overview of the information found in the manual is provided below.

Chapter 1, Introduction, introduces you to the VE1812 system. Its purpose, features and benefits are presented, and its front and back panel components are described.

Chapter 2, Hardware Setup, describes the steps that are necessary to quickly and safely set up your installation.

An Appendix, provides specifications and other technical information regarding the VE1812.

Conventions

This manual uses the following conventions:

Monospaced	Indicates text that you should key in.
[ ]	Indicates keys you should press. For example, [Enter] means to press the **Enter** key. If keys need to be chorded, they appear together in the same bracket with a plus sign between them: [Ctrl+Alt].
1.	Numbered lists represent procedures with sequential steps.
♦	Bullet lists provide information, but do not involve sequential steps.
→	Indicates selecting the option (on a menu or dialog box, for example), that comes next. For example, Start → Run means to open the *Start* menu, and then select *Run*.
⚠	Indicates critical information.

Product Information

For information about all ATEN products and how they can help you connect without limits, visit ATEN on the Web or contact an ATEN Authorized Reseller. Visit ATEN on the Web for a list of locations and telephone numbers:

International	http://www.aten.com
North America	http://www.aten-usa.com

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Chapter 1
Introduction

Overview

The USB DVI KVMP™ Switch extends an HDBaseT signal up to 100m from the HDBaseT source using one Cat 5e/6/6a cable. With Long Reach mode enabled, the VE1812 can extend HDMI signal up to 150m. The VE1812 supports RS-232 and IR signaling pass-through, allowing you to control the HDMI source device from the VE1812 receiver while also granting access to the HDMI display device from the VE1812 transmitter unit. IR signals can also be extended in both directions. The VE1812 features Power over HDBaseT (PoH) which can send power over Cat 5e/6/6a cable without an additional power supply. The VE1812 is HDMI (3D, Deep Color,4K x 2K) and HDCP compatible. The VE1812 is perfect for a digital entertainment center or any installation that requires superior video quality.

Features

- HDBaseT Connectivity – extends an HDMI connection over a long distance via one Cat 5e/6/6a cable
- 4K x 2K HDMI transmission up to 100m over one Cat 6a / ATEN 2L-2910 Cat 6 cable
- Long Reach Mode – extends HDMI signal up to 150m @ 1080p
- HDBaseT Anti-jamming – resists signal interference during high-quality video transmission using HDBaseT technology
- PoH (Power over HDBaseT) – supplies power from Transmitter to Receiver over a long distance via one Cat 5e/6/6a cable
- A bi-directional RS-232 serial port to connect with a high-end system for more device control
- A bi-directional IR channel for IR signal control; IR transmission is processed one way at a time
- Supports IR signal frequencies from 30 kHz to 60 kHz*
- Rack-mountable

Note: The included IR receiver supports full frequency IR signals from 30 kHz to 60 kHz. The IR receiver cable included with the package, however, only supports signals from 30 kHz to 56 kHz.

Requirements

Display

 An HDMI display capable of the highest required resolution

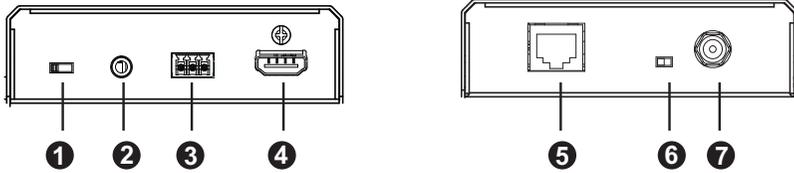## Source Device

 A source device with an HDMI port

Cables

 To connect the VE1812 transmitter and receiver units, we recommend using cables of Cat 5e/6/6a to ensure video quality.

 For better video quality, we strongly suggest using ATEN 2L-2910 Cat 6 cable.

 Maximum cable distances are as follows:

Connection	Interface	Distance
Computer to Transmitter (VE1812T)	HDMI	1.8 m
Transmitter (VE1812T) to Receiver (VE1812R)	Cat 5e / 6 / 6a	100 m*
Receiver (VE1812R) to monitor	HDMI	5 m

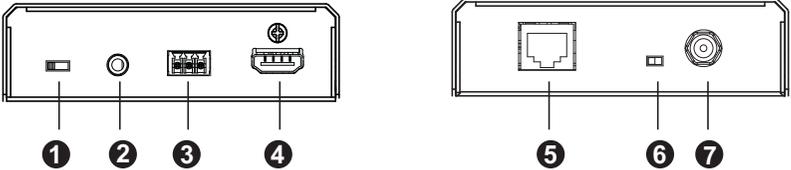**Note:** The maximum transmission distance using a Cat 5e/6/6a is 100m and 150m when Long Reach Mode is enabled.

Components

Transmitter Panel View

No.	Component	Description
1	F/W Upgrade Switch	The Firmware upgrade port is reserved for tech support. If you would like to do a firmware upgrade yourself, please contact your dealer.
2	IR Port	Connect an IR Receiver to the IR port on the VE1812R.
3	RS-232 Port	You can connect RS-232 serial devices or peripherals to the VE1812, such as touchscreens and bar code scanners.
4	HDMI Input Port	Connect the HDMI Input Port on the VE1812T to the HDMI Output Port on the video source device using an HDMI cable.
5	HDBaseT Output Port	The Cat 5e/6/6a cables that connects the Receiver Units, plug in here.
6	HDBaseT Long Reach mode Switch	Use the dip switch to enable long reach mode. When long reach mode is enabled, signal transmission can be extended up to 150 m @ 1080p.
7	Power Jack	The cable from the Power adapter connects here.

Receiver Front and Rear View

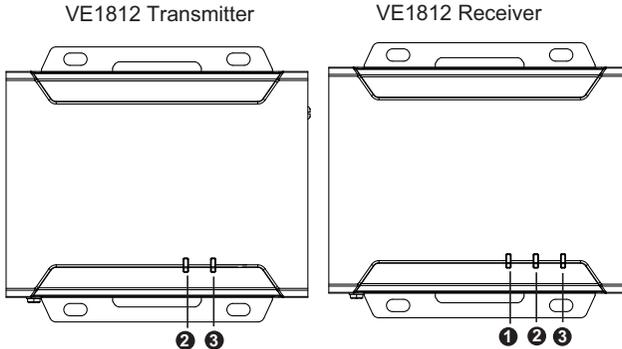| No.	Component	Description
1	F/W Upgrade Switch	The Firmware upgrade port is reserved for tech support. If you would like to do a firmware upgrade yourself, please contact ATEN technical support.
2	IR Port	Connect an IR Transmitter to the IR port on the VE1812T.
3	RS-232 Port	You can connect the RS-232 main controller to the VE1812, such as the PC or Control system.
4	HDMI Output Port	Connect the HDMI display to this port.
5	HDBaseT Input Port	The Cat 5e/6/6a cable that connects to the Transmitter Unit plugs in here.
6	HDBaseT Long Reach mode Switch	Use the dip switch to enable long reach mode. When long reach mode is enabled, signal transmission can be extended up to 150 m @1080p.
7	Power Jack	The cable from the Power adapter connects here.

LED Display

The VE1812 Transmitter and Receiver units have top panel LEDs to indicate their operating status, as shown in the table below:

VE1812 Transmitter   VE1812 Receiver

No.	LED	Indication
1	HDMI Out* (Orange)	◆ Light is static when HDMI display is normal with HDCP key. ◆ Flashes when HDMI display is normal without HDCP key. ◆ OFF when there is no HDMI signal.
2	Link (Orange)	Light is static to indicate that the connection to the Transmitter and Receiver units are stable.
3	Power (Green)	Lights to indicate that the system is receiving power.

Note: The HDMI Out LED is available on VE1812R only.

Enabling the Long Reach Mode

Long Reach mode provides a more robust modulation where the transmission distance is extended while compromising on the maximum supported rate. If your system is not required to support video rates higher than 1080p, 24 bpp, 60 Hz, you may activate *Long Reach Mode* to enable longer cable reach of 150 meters with a Cat 5e/6/6a cable.

To enable the Long Reach mode, put the dip switch to **ON** at either the transmitter or the receiver.
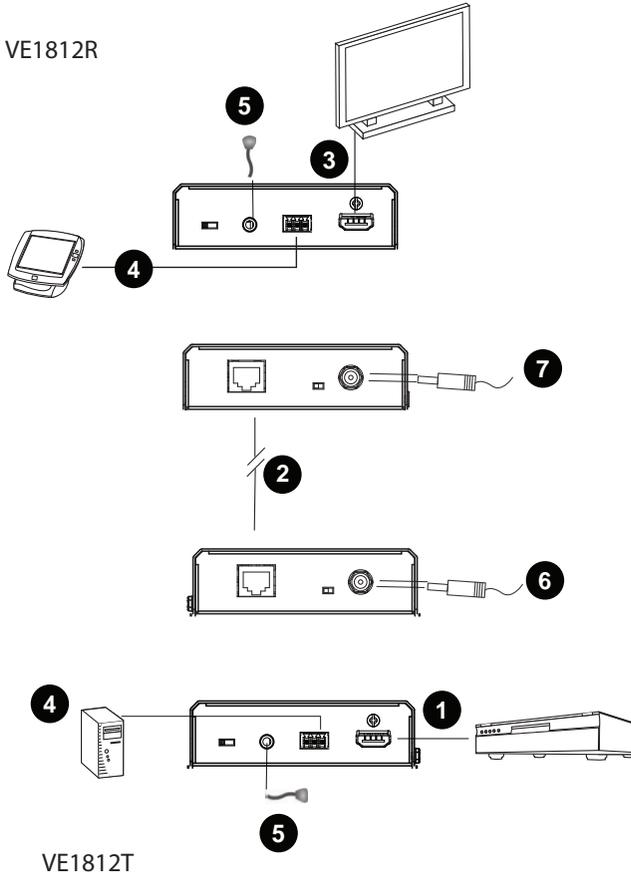
Chapter 2
Hardware Setup

1. Please review important safety information regarding the placement of this device in *Safety Instructions*, page 11.

2. Make sure not to power on the VE1812 devices until all the necessary hardware is connected.

Setting Up

Setting up the VE1812 USB DVI KVMP™ Switch system is simply a matter of plugging in the cables. Make sure that all the equipment to be connected are powered off, then refer to the installation diagram on the next page and do the following:

1. Connect the HDMI Input port on the VE1812T to the HDMI Output port on your video source device using HDMI cable.

2. Connect one end of the RJ-45 cable to the HDBaseT Output port on the transmitter. Then connect the other end of the RJ-45 cable to the HDBaseT Input port on the receiver.

3. Connect the HDMI Output port on the VE1812R to the HDMI Input port on your video display device using HDMI Cable.

4. (Optional) Connect your computer or control system to the RS-232 terminal block on the VE1812.

5. Optional) Connect an IR transmitter / receiver to the IR port on the VE1812.

6. Plug the power adapter cable into the power jack on the VE1812T.

7. (Optional) Plug the power adapter cable into the power jack on the VE1812R.

7

Installation Diagram

VE1812R

VE1812T

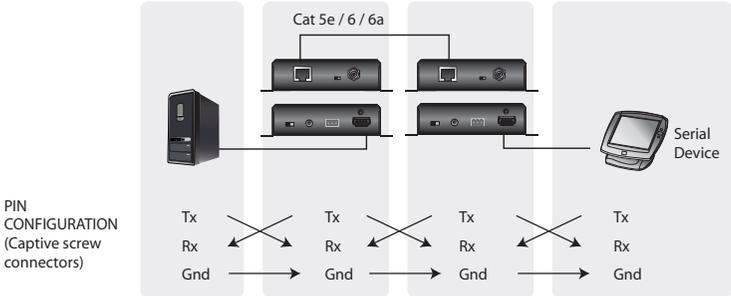## RS-232 Channel Transmission

You can connect RS-232 serial devices/peripherals to the VE1812, such as touchscreens and bar code scanners. The RS-232 signal transmission flow is shown in the following example:

From a source device, the RS-232 signal is transmitted (Tx) to the VE1812T receiving (Rx) unit; the VE1812R transmits (Tx) signals to the display device (Rx).

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Appendix

Safety Instructions

<u>General</u>

- Read all of these instructions. Save them for future reference.

- Follow all warnings and instructions marked on the device.

- This product is for indoor use only.

- Do not place the device on any unstable surface (cart, stand, table, etc.). If the device falls, serious damage will result.

- Do not use the device near water.

- Do not place the device near, or over, radiators or heat registers.

- The device cabinet is provided with slots and openings to allow for adequate ventilation. To ensure reliable operation, and to protect against overheating, these openings must never be blocked or covered.

- The device should never be placed on a soft surface (bed, sofa, rug, etc.) as this will block its ventilation openings. Likewise, the device should not be placed in a built in enclosure unless adequate ventilation has been provided.

- Never spill liquid of any kind on the device.

- Unplug the device from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.

- The device should be operated from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.

- To prevent damage to your installation, it is important that all devices are properly grounded.

- Do not allow anything to rest on the power cord or cables. Route the power cord and cables so that they cannot be stepped on or tripped over.

- Position system cables and power cables carefully; Be sure that nothing rests on any cables.

- Never push objects of any kind into or through cabinet slots. They may touch dangerous voltage points or short out parts resulting in a risk of fire or electrical shock.

- Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.

- If the following conditions occur, unplug the device from the wall outlet and bring it to qualified service personnel for repair.
    - The power cord or plug has become damaged or frayed.
    - Liquid has been spilled into the device.
    - The device has been exposed to rain or water.
    - The device has been dropped, or the cabinet has been damaged.
    - The device exhibits a distinct change in performance, indicating a need for service.
    - The device does not operate normally when the operating instructions are followed.
- Only adjust those controls that are covered in the operating instructions. Improper adjustment of other controls may result in damage that will require extensive work by a qualified technician to repair.
- This product is for indoor use only.

Technical Support

International

- For online technical support – including troubleshooting, documentation, and software updates: http://eservice.aten.com

- For telephone support, see *Telephone Support*, page iv.

North America

Email Support		support@aten-usa.com
Online Technical Support	Troubleshooting Documentation Software Updates	http://www.aten-usa.com/support
Telephone Support		1-888-999-ATEN ext. 4988

When you contact us, please have the following information ready beforehand:

- Product model number, serial number, and date of purchase

- Your computer configuration, including operating system, revision level, expansion cards, and software

- Any error messages displayed at the time the error occurred

- The sequence of operations that led up to the error

- Any other information you feel may be of help

Specifications

Function	VE1812R	VE1812T
Video Input		
Interfaces	N/A	1 x HDMI Type A Female (Black)
Impedance	N/A	100W
Max. Distance	N/A	1.8 m
Video Output		
Interfaces	1 x HDMI Type A Female (Black)	N/A
Impedance	100 Ω	N/A
Video		
Max. Data Rate	10.2Gbps (3.4Gbps per lane)	
Max. Pixel Clock	340 MHz	
Compliance	HDMI (3D, Deep Color, 4K) HDCP Compatible Consumer Electronics Control (CEC)	
Max. resolutions / Distances	Up to: ◆ 4K@70m (Cat 5e/6) / 100m (Cat 6a / ATEN 2L-2910 Cat 6) ◆ 1080p@100m (Cat 5e/6/6a) 4K supported: ◆ 4069 x 2160 / 3840 x 2160 @ 60Hz (4:2:0) ◆ 4096 x 2160 / 3840 x 2160 @ 30Hz (4:4:4)	
Audio		
Input	N/A	1 x HDMI Type A Female (Black)
Output	1 x HDMI Type A Female (Black)	N/A

Function		VE1812R	VE1812T
Control			
RS-232	Connector	1 x Terminal Block, 3 pole	
	Baud Rate	19200	
	Data Bits	8	
	Stop Bits	1, no parity and flow control	
IR		1 x Mini Stereo Jack Female (Black)	
Switches			
Long Reach Mode Switch		1 x Slide Switch - ON/OFF	
Firmware Upgrade		1 x Slide Switch - ON/OFF	
Power			
Connectors		1 x DC Jack (Black) with locking	
Consumption		DC 5V, 6.4W	DC 5V, 4.3W
Environment			
Operating Temperature		0 - 40ºC	
Storage Temperature		-20 - 60°C	
Humidity		0 - 80% RH, Non-Condensing	
Physical Properties			
Housing		Metal	
Weight		0.45 Kg (0.99 lb)	0.47 Kg (1.04 lb)
Dimensions (L x W x H) with bracket		14.04 x 12.30 x 3.00 cm (5.53 x 4.84 x 1.18 in.)	
Dimensions (L x W x H) without bracket		13.60 x 10.10 x 2.90 cm (5.35 x 3.98 x 1.14 in.)	

Limited Warranty

ATEN warrants its hardware in the country of purchase against flaws in materials and workmanship for a Warranty Period of two [2] years (warranty period may vary in certain regions/countries) commencing on the date of original purchase. This warranty period includes the LCD panel of ATEN LCD KVM switches. Select products are warranted for an additional year (see *A+ Warranty* for further details). Cables and accessories are not covered by the Standard Warranty.

What is covered by the Limited Hardware Warranty
ATEN will provide a repair service, without charge, during the Warranty Period. If a product is detective, ATEN will, at its discretion, have the option to (1) repair said product with new or repaired components, or (2) replace the entire product with an identical product or with a similar product which fulfills the same function as the defective product. Replaced products assume the warranty of the original product for the remaining period or a period of 90 days, whichever is longer. When the products or components are replaced, the replacing articles shall become customer property and the replaced articles shall become the property of ATEN.

To learn more about our warranty policies, please visit our website:
http://www.aten.com/global/en/legal/policies/warranty-policy/