True 4K HDMI HDBaseT-Lite Extender
VE1830 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.

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Manual Date: 2020-12-16

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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

- 1 VE1830T True 4K HDMI HDBaseT-Lite Extender Transmitter
- 1 VE1830R True 4K HDMI HDBaseT-Lite Extender Receiver
- 2 RS-232 Terminal Blocks
- 1 Power Adapters
- 1 User Instructions

Note: 1. Make sure that all of the items are present and in good order. If anything is missing or was damaged in shipping, please contact your dealer for further assistance.

2. 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.

3. Features may have been added to the VE1830 since this manual was published. Please visit our webiste to download the most up-do-date version of the manual.

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About this Manual

This user manual is provided to help you get the most from the VE1830 unit. 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 True 4K HDMI HDBaseT-Lite Extender. Its purpose, features, and installation considerations are described.

Chapter 2, *Hardware Setup* describes the panel components of the True 4K HDMI HDBaseT-Lite Extender and details the steps that are necessary to quickly and safely set up your installation.

Appendix provides a list of safety instructions and precautions, contact information for ATEN technical support, product specifications, and other technical information.

Note:

- Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the unit or any connected devices.
- ATEN regularly updates its product documentation for new features and fixes. For an up-to-date VE1830 documentation, visit http://www.aten.com/global/en/

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 VE1830 True 4K HDMI HDBaseT-Lite Extender provides great flexibility in professional A/V installation with its high-quality transmitter VE1830T and receiver VE1830R. Powered by HDBaseT™ technology, the VE1830 transmits True 4K HDMI signals up to 35m using a single Cat 5e/6 cable. This HDBaseT-Lite Extender supports HDCP 2.2 and meets the HDMI specifications (3D, Deep Color, 4k) to ensure visually lossless high quality video and image. In addition, it features PoC (Power over Cable) which can power the receiver unit from the transmitter side with power supply.

With its compact size design, the VE1830 is a handy and easy-to-use extender. It is an ideal solution for professional A/V installations that require superior HDMI video quality, such as in digital classrooms, video conference rooms and home theater.

Features

- HDMI (3D, Deep Color, True 4K); HDCP 2.2 compliant
- Superior video quality
  - Extends True 4K HDMI signals (3840 x 2160 @ 60Hz 4:4:4) up to 35 m
  - Extends Full HD 1080p signals up to 70 m
- Supports HDR10+*
- Features PoC (Power over Cable) - supplies power from the VE1830T unit to the VE1830R unit
- Features RS-232 serial port for connecting peripherals such as touch screens, and barcode scanners
- Plug-and-play
- Compact size for space saving
- Rack-mountable with attached rack mounting kit in the package

Note: When supporting HDR10+, the resolution is up to 3840 x 2160 @ 60Hz, 4:2:0.

Requirements

Display

- An HDMI display capable of the highest required resolution

Source Device

- A source device with an HDMI port

Cables

- 2 HDMI cables
- To connect the VE1830 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 follow:

Connection	Interface	Distance
Computer to Transmitter (VE1830T)	HDMI	1.8 m
Transmitter (VE1830T) to Receiver (VE1830R)	Cat 5e / 6 / 6a	70 m*
Receiver (VE1830R) to monitor	HDMI	1.8 m

Note: 70 m is the maximum cable distance when using a Cat 6a or above cable with resolution 1080p.

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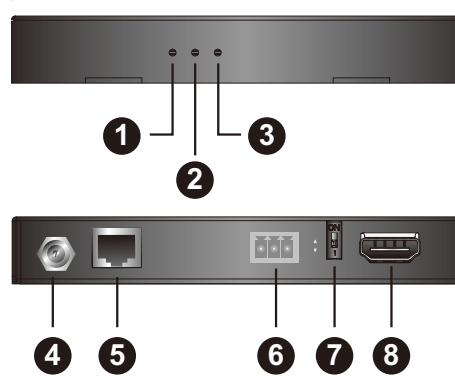
Chapter 2
Hardware Setup

1. Please review the safety information regarding the placement of this device in *Safety Instructions*, page 11.
2. Do not power on the VE1830 until all the necessary hardware is connected.

Hardware Overview

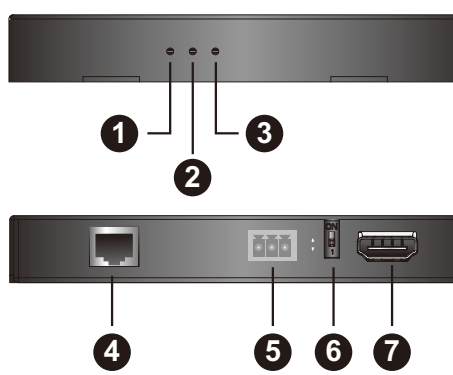
VE1830T



No.	Component	Description
1	Power LED	Lights blue: The unit is receiving power.
2	Link LED	Lights blue: The connection to the Transmitter and Receiver units are stable.
		Flashes blue: The connection to the Transmitter and Receiver units are unstable.
		Off: When there is no connection to the Transmitter and Receiver units.

No.	Component	Description
3	Signal LED	Lights blue: The HDMI display is normal with HDCP key.
		Off: When there is no HDMI signal.
4	Power Jack	Receives a power adapter cable.
5	HDBaseT Out	The Cat 5e/6/6a cable that connects the Receiver Unit plugs in here.
6	RS-232 Port	Connects to an RS-232 serial controller, such as a PC or a control system.
7	Firmware Upgrade Switch	The Firmware Upgrade port is reserved for technical support. If you would like to do a firmware upgrade yourself, please contact your dealer.
8	HDMI In	Connects the HDMI In port on the VE1830T to the HDMI output port on the video source device using an HDMI cable.

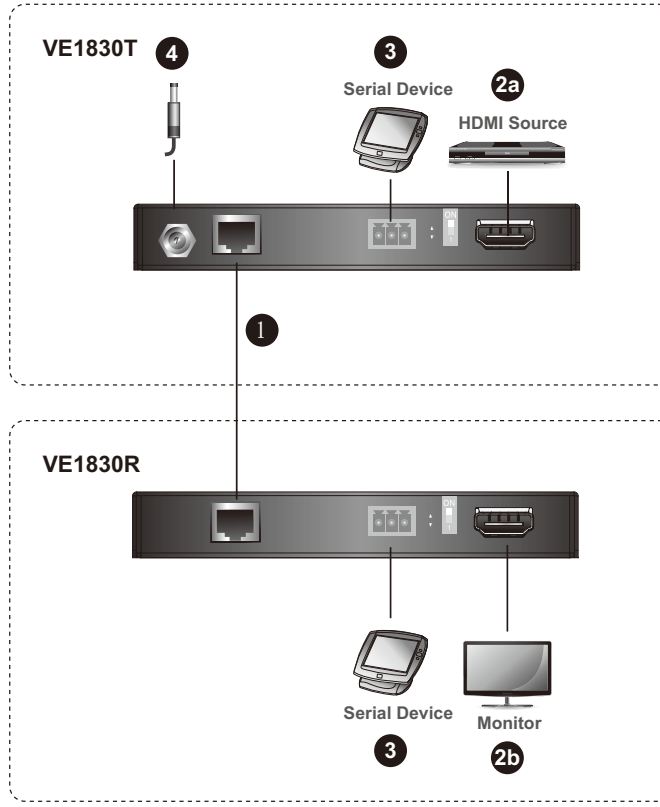
VE1830R



No.	Component	Description
1	Power LED	Lights blue: The unit is receiving power.
2	Link LED	Lights blue: The connection to the Transmitter and Receiver units are stable.
		Flashes blue: The connection to the Transmitter and Receiver units are unstable.
		Off: When there is no connection to the Transmitter and Receiver units.
3	Signal LED	Lights blue: The HDMI display is normal HDCP key.
		Off: When there is no HDMI signal.
4	HDBaseT In	The Cat 5e/6/6a cable that connects to the Transmitter Unit plugs in here.
5	RS-232 Port	Connects to an RS-232 serial device, such as a touchscreen or a bar code scanner.
6	Firmware Upgrade Switch	The Firmware Upgrade port is reserved for technical support. If you would like to do a firmware upgrade yourself, please contact your dealer.
7	HDMI Out	Connects the HDMI display to this port.

Hardware Installation

Follow the steps below to safely install the VE1830 to a source, a display device, and other devices as required.



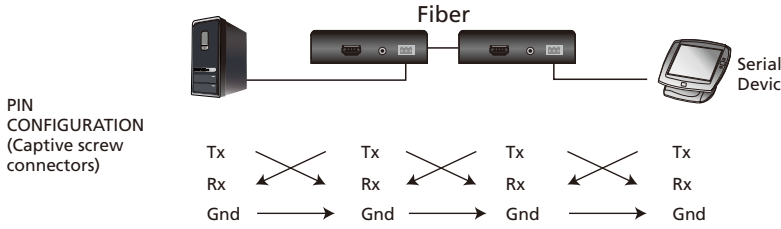
1. Connect one end of a Cat 6a/ATEN 2L-2910 cable to the HDBaseT Out port on the VE1830T and the other end to the HDBaseT In port on the VE1830R.

- Extends full HD 1080p, HDMI signals up to 70 m
- Extends 4K/2K, 60Hz HDMI signals (4:4:4) up to 35 m

2. To extend an HDMI source, do the following:
   a) Connect the HDMI In port on the VE1830T to the HDMI Out port of your video source using an HDMI cable.
   b) Connect the HDMI Out port on the VE1830R to the HDMI In port on a monitor using an HDMI cable.
3. To extend RS-232 serial signals, connect a computer or a serial controller to the RS-232 Serial port on the VE1830T or the VE1830R. The RS-232 pins are Tx, Rx, and GND from left to right.
4. Plug the power cord into the power jack on the VE1830T.
5. Power on all the connected devices.

RS-232 Channel Transmission

You can utilize the VE1830 to extend RS-232 serial control signals between two serial devices, for example, such as a computer and a bar code scanner. The flow of the RS-232 signal transmission can be illustrated as follows:



From a source device, the RS-232 signals is transmitted (Tx) to the VE1830 receiving (Rx) unit; the VE1830R transmits (Tx) signals to the display device (Rx).

Appendix

Safety Instructions

General

- This product is for indoor use only.
- Read all of these instructions. Save them for future reference.
- Follow all warnings and instructions marked on the device.
- 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.

Technical Support

International

- For online technical support – including troubleshooting, documentation, and software updates: http://support.aten.com
- For telephone support, see *Telephone Support*, page iii.

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	VE1830R	VE1830T
Video Input		
Interfaces	N/A	1 x HDMI Type A Female (Black)
Impedance	N/A	100 Ω
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	10.2 Gbps (3.4 Gbps per Lane)	
Max. Pixel Clock	340 MHz	
Compliance	HDMI (3D, Deep Color, 4K); 4K HDR HDCP2.2 Compatible Consumer Electronics Control (CEC)	
Max. Resolutions / Distances	Up to True 4K: 3840 x 2160 @ 60Hz (4:4:4) @35m (Cat 5e/6); Up to 1080p @70m (Cat 6a/ATEN 2L-2910 Cat 6)	
Supported Resolutions / Distances	4096 x 2160 / 3840 x 2160 @ 60Hz (4:2:0) @35m (Cat 5e/6); 4096 x 2160 / 3840 x 2160 @ 30Hz (4:4:4) @35m (Cat 5e/6); 1080p @60m (Cat 5e/6)	
Audio		
Input	N/A	1 x HDMI Type A Female (Black)
Output	1 x HDMI Type A Female (Black)	N/A
Connectors		
Unit to Unit	1 x RJ-45 Female	
Power	1 x RJ-45 Female (Power over cable, power supply from VE1830T)	1 x DC Jack (Black) with Locking
Control		
RS-232 Channel	Connector: 1 x Terminal Block, 3 Pole	
Power Consumption	12.432WBTU	

Function	VE1830R	VE1830T
Switches		
Firmware Upgrade	1 x Slide Switch - ON/OFF	
Environmental		
Operating Temperature	0 - 40°C	
Storage Temperature	-20 - 60°C	
Humidity	0 x 80% RH, Non-Condensing	
Physical Properties		
Housing	Metal	
Weight	0.12 kg (0.28 lb)	0.15 kg (0.35 lb)
Dimensions (L x W x H)	11.86 x 7.19 x 1.68 cm (4.67 x 2.83 x 0.66 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/