4K HDMI HDBaseT Extender with ExtremeUSB® VE813A
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.

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.

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.

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

The VE813A package consists of:

◆ VE813AT 4K HDMI HDBaseT Extender with ExtremeUSB®

◆ VE813AR 4K HDMI HDBaseT Extender with ExtremeUSB®

◆ 1 HDMI Cable 1.8 m

◆ 1 USB Cable 1.8 m

◆ 2 Power Adapters

◆ 1 Mounting Kit

◆ 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.

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* Features may have been added to the VE813A since this manual was published. Please visit our website to download the most up-to-date version of the manual.

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 VE813A 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.

Chapter 3, Operation, explains the fundamental concepts involved in operating the VE813A

An Appendix, provides specifications and other technical information regarding the VE813A.

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 VE813A 4K HDMI HDBaseT Extender is an HDMI and USB Extender that supports HDBaseT and patented ExtremeUSB® technology. The VE813A can extend HDMI and USB 2.0 signals up to 100 meters from the HDMI source using a single Cat 5e/6 cable. The VE813A supports HDMI features such as 3D, Deep Color, 4K2K, CEC and HDCP. It is equipped with USB connectors that provide touch panel control and file transfer functionality. The extender is also great for syncing files and folders between portable and desktop computers. The VE813A is ideal for medical imaging and digital signage.

Features

- Implements HDBaseT extension technology using only one Cat 5e cable to connect the transmitter and receiver
- Anti-jamming – resists signal interference during high quality video transmissions using HDBaseT technology
- ExtremeUSB® - supports transparent USB 2.0 signals and true plug-and-play (no software or drivers required)
- Supports Dolby True HD and DTS HD Master Audio
- Supports USB peripheral audio devices
- Built-in 8KV/15KV ESD protection (Contact voltage 8KV; Air voltage 15KV)
- USB 2.0 Support* – connects devices such as keyboard, mouse, flash drive, printer, touch panel, USB 1.1 web cameras and other USB devices which require moderate amounts of bandwidth
- Works with all major operating systems: Windows®, OS X®, and Linux®
- Rack-mountable

*Note: The VE813A supports USB transfer rates of up to 40 Mbps.

Requirements

Display

- An HDMI display capable of the highest resolution you will be using

Source Device

The following equipment is required:

- A source device with an HDMI port
- A computer or device that is USB compatible
- USB 1.1 or 2.0 compatible device

Cables

- For optimal signal integrity, and to simplify the layout, we strongly recommend that you use the high quality HDMI Cable that is provided with this package.
- Cat 5e cable is required to connect the Transmitter and Receiver units. Cable of a lower standard will result in degrading of the video signal. We strongly recommend using Cat 5e cables.
- For better quality over longer distances, we suggest using 2L-2801 (350 MHz) Low Skew Cable

Maximum Cable Distances

Connection	Distance
Computer to Transmitter (VE813AT)	1.8 m
Transmitter (VE813AT) to Receiver (VE813AR)	100 m
Receiver (VE813AR) to monitor	1.8 m

Operating Systems
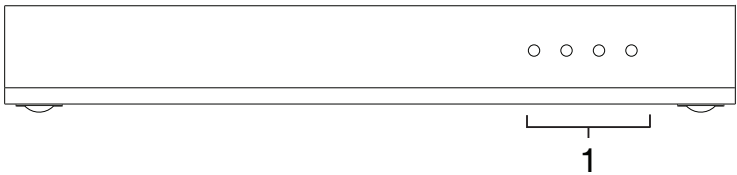
Supported operating systems are shown in the table, below:

OS		Version
Windows		2000 and higher
Linux	RedHat	9.0 and higher
	SuSE	10 / 11.1 and higher
	Debian	3.1 / 4.0
	Ubuntu	7.04 / 7.10
UNIX	FreeBSD	5.5 / 6.1 / 6.2
Novell	Netware	6.0 and higher
Mac		OS 10.1 and higher

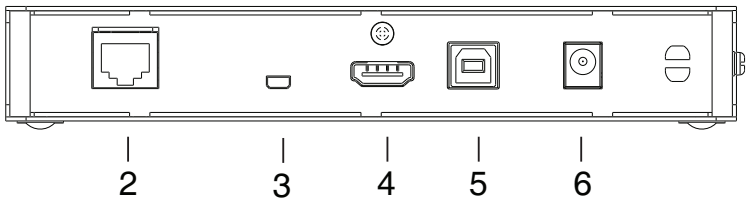**Note:** The VE813A does not support an OS that do not support USB.

Components

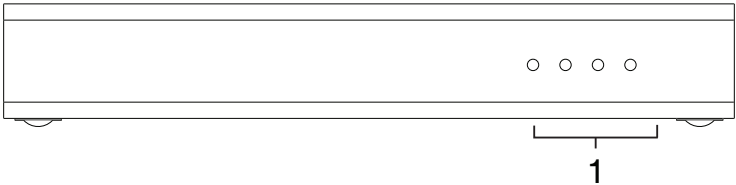## VE813AT (Transmitter) Front and Rear View

Front View

Rear View

No.	Component	Description
1	LEDs	The VE813AT has four LEDs to indicate operating status – Power, Link, USB, and Video.
2	Unit to Unit Port	The Cat 5e cable that connects the Transmitter and Receiver plugs in here.
3	Firmware Upgrade Port	The Firmware Upgrade Port is reserved for technical support. If you would like to upgrade the unit's firmware yourself, please contact your ATEN dealer.
4	HDMI In Port	Connect an HDMI cable from the source device into this port.
5	USB Type B Input	The USB cable from your computer or USB controller device plugs in here.
6	Power Jack	The cable from the Power adapter connects here.

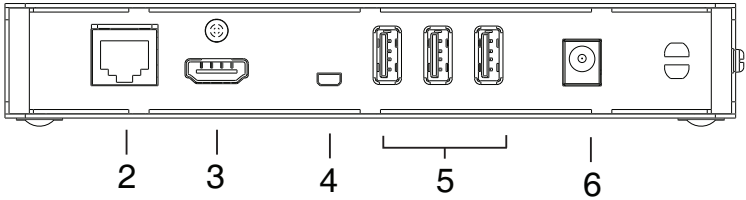## VE813AR (Receiver) Front and Rear View

Front View

Rear View

| No.	Component	Description
1	LEDs	The VE813AR has four LEDs to indicate operating status – Power, Link, USB, and Video.
2	Unit to Unit Port	The Cat 5e cable that connects the Transmitter and Receiver plugs in here.
3	HDMI Out Port	Connect an HDMI display to this port.
4	Firmware Upgrade Port	The Firmware Upgrade Port is reserved for technical support. If you would like to upgrade the unit's firmware yourself, please contact your ATEN dealer.
5	USB Type A Ports	Your USB 2.0 devices plug in here. (keyboard, mouse, web cam, flash drive, printers, scanners, cameras, external storage media, Digital Signage)
6	Power Jack	The cable from the Power adapter connects here.

Chapter 2
Hardware Setup

⚠ 1. Important safety information regarding the placement of this device is provided on page 15. Please review it before proceeding.

2. Make sure that the power to all devices connected to the installation are turned off. You must unplug the power cords of any computers that have the Keyboard Power On function.
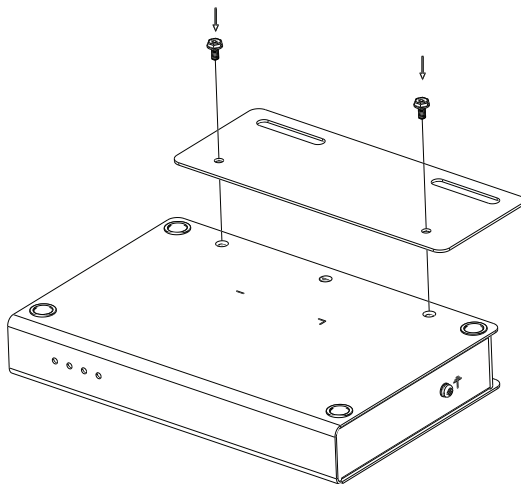
Rack Mounting

For convenience and flexibility, the VE813A can be mounted on system racks. To rack mount a unit do the following:
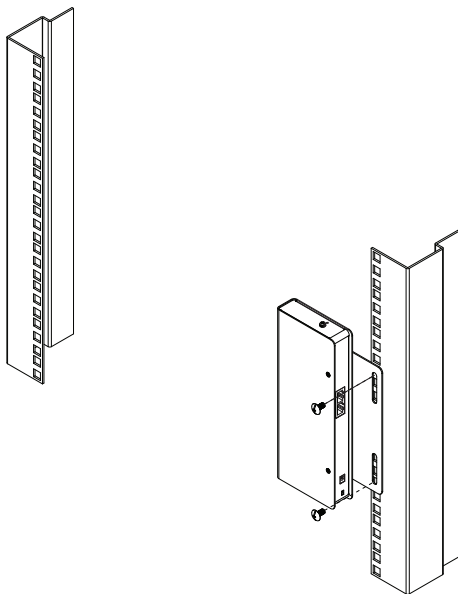
1. Remove the two screws on the bottom of the VE813A:
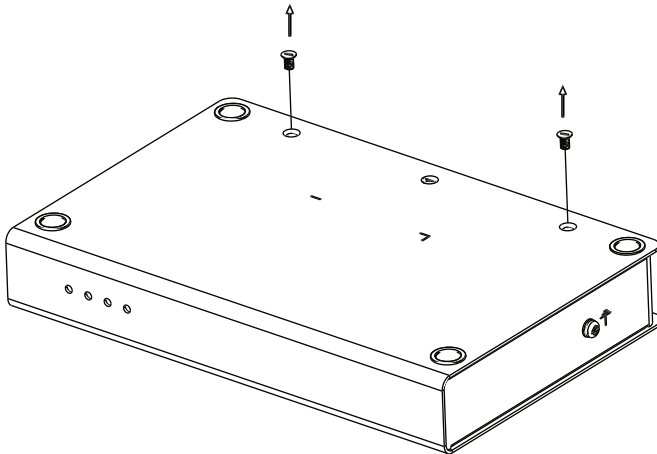
2. Using the screws provided in the Mounting Kit, screw the mounting bracket on to the bottom of the unit as show in the diagram, below:

3. Screw the bracket into any convenient location on the rack.

Note: These screws are not provided. We recommend that you use M5 x 12 Phillips Type I cross, recessed type screws.

Installation

Grounding

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

1. Use a grounding wire to ground both units by connecting one end of the wire to the grounding terminal, and the other end of the wire to a suitable grounded object.
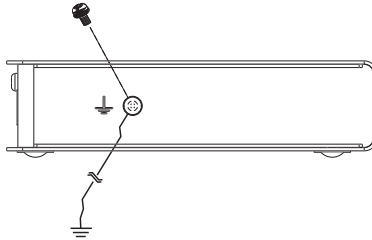
2. Make sure the computer that the Transmitter connects to and the monitor that the Receiver connects to are properly grounded.

Cat 5e cable
up to 100 m

3. For increased grounding protection, use STP (shielded twisted pair) cable to connect the Transmitter and Receiver units. There are two methods that can be used:
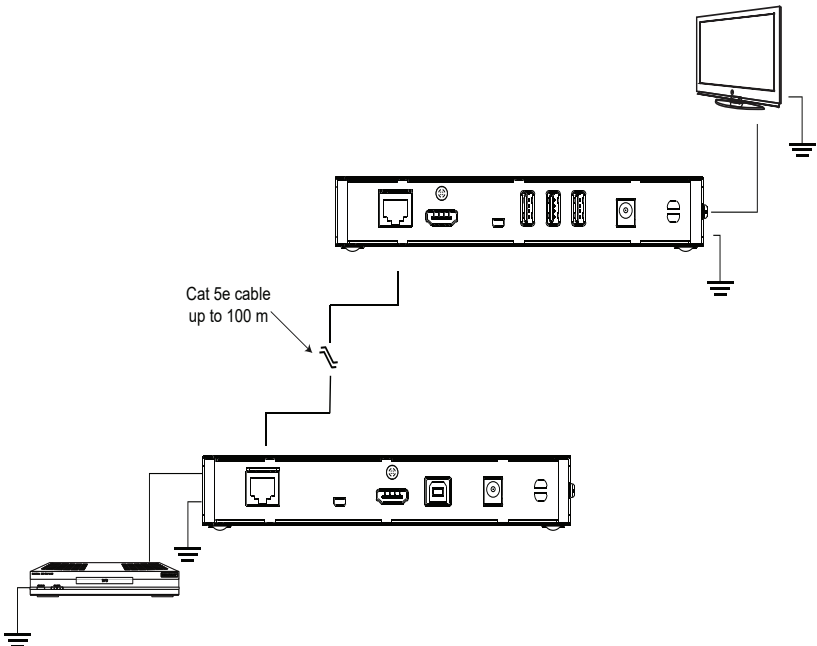
a) In addition to the eight paired wires, STP cable also contains a grounding wire. Solder this wire to the RJ-45 connector as shown in the diagram below:
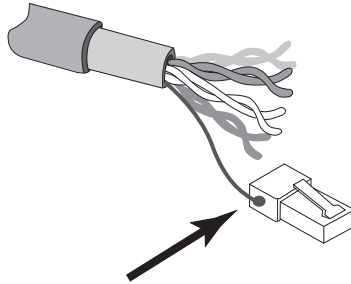
b) The second method is to use the STP cable shielding for grounding. In this case, make sure that the shielding makes tight contact with the top inside of the RJ-45 connector as shown in the diagram below:
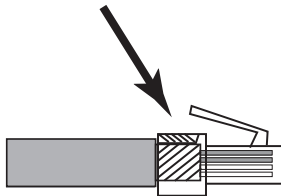
In either case, make sure that the sides of the RJ-45 connector make tight contact with the grounding contacts on the sides of the RJ-45 socket as shown in the diagram below:
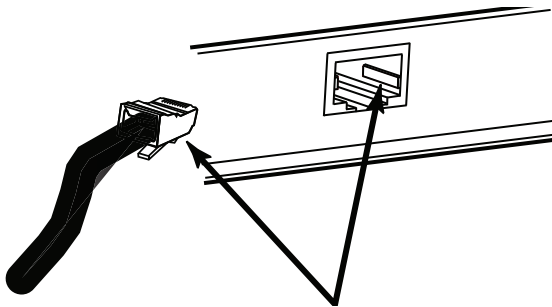
Setting Up

Setting up the VE813A HDMI Extender system is simply a matter of plugging in the cables. Make sure that all the equipment to be connected are powered off. Refer to the installation diagram on the following page and do the following:

1. Connect the USB cable supplied with the package to the **USB Type B port** on the Transmitter (VE813AT). Plug the other end of the cable into a USB Type A port on the source device.

2. Connect the HDMI cable supplied with the package into the **HDMI input port** located on the Transmitter (VE813AT). Plug the other end of the cable into the HDMI port on the source device.

3. Use a Cat 5e cable to connect the Unit to Unit port on the Transmitter (VE813AT) to the Unit to Unit port on the Receiver (VE813AR).

4. Plug one of the power adapters (supplied with this package) into a power source; plug the adapter's power cable into the VE813AT's **Power Jack**.

5. Use an HDMI cable to connect the **HDMI output port** on the Receiver (VE813AR) to the HDMI display.

6. Plug the cables from the USB devices (mouse, keyboard, flash drive, printer, scanner, web cam, etc.), into their respective **USB ports** on the Receiver (VE813AR).

7. Plug the second power adapter (supplied with this package) into a power source; plug the adapter's power cable into the VE813AR's **Power Jack**.

Installation Diagram

VE813AT Rear View

HDMI
cable

USB cable

Cat 5e cable

Local PC

VE813AR Rear View

USB Device
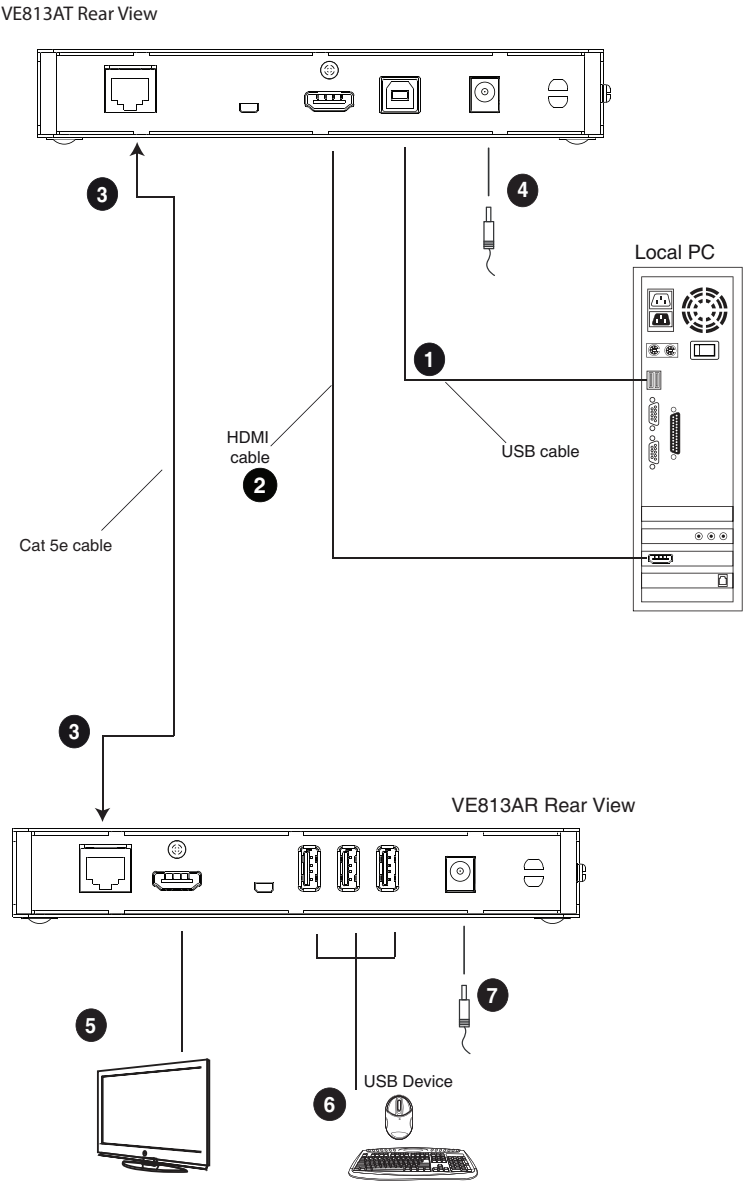
Chapter 3
Operation

LED Display

The VE813A Transmitter and Receiver units have front panel LEDs to indicate their operating status, as shown in the tables, following:

VE813AT (Transmitter) and VE813AR (Receiver)

LED	Indication
Power (Green)	Lights to indicate that the system is receiving power.
Link (Green)	◆ Lights to indicate that the connection to the Transmitter and Receiver units are ok. ◆ OFF when there is a problem with the connection.
USB (Green)	◆ Lights to indicate that the USB connection to the host computer is working. ◆ Flashes green to indicate that the host is in suspend mode. ◆ OFF indicates that the link is inactive.
Video (Green)	◆ Flashes to indicate normal video activity. ◆ Lights to indicate HDCP video activity. ◆ OFF indicates that there is no video activity.

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Appendix

Safety Instructions

General

- 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.

Mounting

- ◆ Before working on the rack, make sure that the stabilizers are secured to the rack, extended to the floor, and that the full weight of the rack rests on the floor. Install front and side stabilizers on a single rack or front stabilizers for joined multiple racks before working on the rack.

- ◆ Always load the rack from the bottom up, and load the heaviest item in the rack first.

- ◆ Make sure that the rack is level and stable before extending a device from the rack.

- ◆ Use caution when pressing the device rail release latches and sliding a device into or out of a rack; the slide rails can pinch your fingers.

- ◆ After a device is inserted into the rack, carefully extend the rail into a locking position, and then slide the device into the rack.

- ◆ Do not overload the AC supply branch circuit that provides power to the rack. The total rack load should not exceed 80 percent of the branch circuit rating.

- ◆ Make sure that all equipment used on the rack – including power strips and other electrical connectors – is properly grounded.

- ◆ Ensure that proper airflow is provided to devices in the rack.

- ◆ Ensure that the operating ambient temperature of the rack environment does not exceed the maximum ambient temperature specified for the equipment by the manufacturer.

- ◆ Do not step on or stand on any device when servicing other devices in a rack.

Technical Support

International

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

- For telephone support, *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		VE813A
Video Input	Interface	1 x HDMI Type A Female (Black)
	Impedance	100Ω
	Max distance	1.8m
Video Output	Interface	1 x HDMI Type A Female (Black)
	Impedance	100Ω
Video	Max. data rate	10.2Gbps (3.4 Gbps per lane)
	Max. pixel clock	340 MHz
	Compliance	HDMI (3D, Deep Color, 4K) HDCP Compatible Consumer Electronics Control (CEC)
	Max resolutions/ Distance	Up to 4K*@70m (Cat 5e/6) / 100m (Cat 6a); 1080p@100m
Audio	Input	1 x HDMI Type A Female (Black)
	Output	1 x HDMI Type A Female (Black)
Control	USB Channel / Connector	VE813AT: 1 x USB Type B Female VE813AR: 3 x USB Type A Female
	USB Channel / Transfer Rate	USB 2.0 (Up to 40 Mbps)
Power	Connector	1 x DC Jack (Black)
	Consumption	5 VDC, 5.75W *
Environment	Operating temp.	0-50ºC
	Storage temp.	-20-60°C
	Humidity	0-80% RH, Non-condensing
Physical Properties	Housing	Metal
	Weight	1.23 kg
	Dimensions (LxWxH)	18.00 x 11.50 x 3.00 cm
Carton Lot		5 pcs

* 4K supported: 4096 x 2160 / 3840 x 2160 @ 60Hz (4:2:0); 4096 x 2160 / 3840 x 2160 @ 30Hz (4:4:4)

**For the VE813AR, power consumption will be 13.25W when all 3 USB connectors are occupied.

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/