



Simply Better Connections

KE6948A

Rugged DVI-I Dual-Display
KVM over IP Extender
User Manual

Compliance Statements

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.

The 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.



KCC Statement

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합니다.

Industry Canada Statement

This Class A digital apparatus complies with Canadian ICES-003.

CAN ICES(A) / NMB(A)**HDMI Trademark Statement**

The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

**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
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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.

ATEN recommends installing the KE6948AT / KE6948AR at least five meters from the ship's main compass and at least three meters from the secondary compass. ATEN recommends installing the KE6948AT / KE6848AR in an open, well-ventilated area. If installation in an enclosed space is necessary, a forced exhaust ventilation system must be provided.

Application Area: This product is designed for use in control room environments as defined by DNVGL-CG-0339, i.e., enclosed spaces housing shipboard electronic control, monitoring or data-processing equipment.

Both the KE6948AT / KE6948AR units shall be installed in such environments. A server room, where the KE6948AT is typically placed, is considered equivalent control room environment due to its controlled temperature / humidity, protected location, and its function of hosting equipment essential for shipboard monitoring, communication or data handling. No additional environment testing is required beyond those applicable to control room installations.

ATEN requires the KE6948AT / KE6948AR to be used with the FSP060-DHAN3 power adapters.

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

Package Contents

Check to make sure that all the components are in working order. If you encounter any problem, please contact your dealer.

KE6948A

KE6948AT Rugged DVI-I Dual-Display KVM over IP Transmitter:

- 1 Transmitter
- 1 KVM cable
- 1 DVI cable
- 1 power adapter and power cord
- 1 user instructions

KE6948AR Rugged DVI-I Dual-Display KVM over IP Receiver:

- 1 Receiver
- 1 power adapter and power cord
- 1 user instructions

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About This Manual

This manual is provided to help you get the most out of your KVM over IP Matrix System. It covers all aspects of the device and system, including installation, configuration, and operation.

The KVM over IP Extender models covered in this user manuals are:

Models	Product Names
KE6948A	Rugged DVI-I Dual-Display KVM over IP Extender (Transmitter & Receiver)

An overview of the information found in the manual is provided below.

Chapter 1, Introduction, introduces you to the KVM over IP Matrix System, its purpose, features, and benefits, with its front and back panel components described.

Chapter 2, Hardware Setup, provides step-by-step instructions for setting up your installation, and explains some basic operation procedures.

Chapter 3, OSD Operation, explains the fundamental concepts involved in operating the KE6948A, and provides a complete description of the On Screen Displays (OSDs) and the functions contained.

Chapter 4, Firmware Upgrade Utility, explains how to download and use the Firmware Upgrade Utility for upgrading the firmware of the devices connected.

Chapter 5, CLI Commands, provides a complete list of the serial protocol and TCP/IP commands used when utilizing the RS-232 serial port or a network connection to configure the KE devices.

Appendix, provides the technical and troubleshooting information of KE devices at the end of the manual.

Note:

- ♦ Read this manual thoroughly and follow the installation and operation procedures carefully to prevent any damage to the unit or connected devices.
 - ♦ The product may be updated, with features and functions added, improved or removed since the release of this manual. For an up-to-date user manual, 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 consecutive options (such as on a menu or dialog box). For example, Start > Run means to open the <i>Start</i> menu, and then select <i>Run</i> . |
|  | Indicates critical information. |

Chapter 1

Introduction

Overview

The ATEN KE6948A is an industrial-grade KVM over IP Extender certified to **IEC 60945** and **IACS E10** standards, specifically engineered to meet **DNV** requirements for mission-critical **Maritime control rooms** and data centers. This advanced solution enables secure, zero-latency remote access to computer systems over IP networks.

System Architecture for Remote Management

The KE6948A system consists of a high-performance IP-based transmitter (KE6948AT) connected to the computer and a receiver (KE6948AR) that provides console access from a separate location. It enables remote access via USB consoles (keyboard, mouse, and DVI monitor) over an intranet, allowing systems to be placed in secure, temperature-controlled environments away from users' workstations, with support for lossless, zero-latency video resolution up to 1920×1200 @ 60 Hz.

Flexible Connectivity and Long-Distance Extension

Equipped with both RJ-45 ports and SFP slots, the KE6948A can connect directly or via a LAN using copper or fiber cabling. By utilizing 1Gbps SFP fiber modules, transmission distances can reach up to 10 km. To ensure dependable service and uptime, it features dual power supplies for power redundancy.

Scalable Deployment and Matrix Integration

As an IP-based solution, the KE6948A is highly versatile. It can function in point-to-point, point-to-multipoint, or multipoint-to-point configurations. When integrated with the CCKM (Matrix Manager), it transforms into a full multipoint-to-multipoint KVM over IP Matrix System for complex environments.

Centralized Management

Implementing the CCKM software unlocks advanced administrative features. This includes auto-detection of all KE devices on a subnet for fast installation, as well as centralized authentication and authorization. Administrators can easily define, switch, and share different connection types across the network.

Secure Access and Data Protection

Security is a priority, with support for AES 128-bit encryption and remote authentication via RADIUS, LDAP, or AD. Additionally, with built-in OSD (On-Screen Display), RS-232 support, and Auto MDIX, the KE6948A provides a cost-effective and convenient digital extension solution across any intranet.

Note: The SFP modules (2A-136G / 2A-137G) are sold separately. Contact your ATEN dealer for details. When used with SFP modules, the KE6948A has an operating temperature range of 0°C to 55°C.

Features

Designed for Marine and Control Room Environments

- ♦ DNV-certified for maritime applications, including ships, offshore platforms, and high-speed, light craft
- ♦ Certified to meet IEC 60945 and IACS E10 international marine test specifications

Advanced Features (with CCKM Integration)

- ♦ Boundless Switching – seamlessly switch between receivers (Rx) by moving the mouse cursor across screen boundaries
- ♦ Fast Switching – 0.3-second switching between transmitter-connected servers of any resolution
- ♦ Push and Pull – instantly share content to/from a single Rx or video wall with one click
- ♦ Video Wall Support – supports multiple video walls with up to 12 × 12 (144 displays) per layout
- ♦ Panel Array™ Mode – preview up to 36 video sources on a single screen

- ♦ Advanced Scheduling – improves efficiency and saves costs by allowing connections to be set based on time and date
- ♦ Channel Connections – allows Rx devices to connect to multiple Tx devices for independent streaming of video, audio, USB, and serial signals
- ♦ Virtual Transmitter – independently stream video, audio, USB, and serial sources from different Tx devices
- ♦ Multi-Display Support – group up to 4 sets of KE series devices to support complex multi-display applications

Hardware

- ♦ Industrial-grade components for enhanced durability and anti-interference capability
- ♦ Operating temperature range : -15°C to 55°C / 5°C to 55°C (DNV)
- ♦ Eco-friendly powder coating process – eliminates hazardous emissions and reduces waste during manufacturing
- ♦ Supports power and network failover – dual DC jacks for power redundancy; 1 RJ-45 and 1 SFP fiber ports for network failover
- ♦ Supports 1Gbps SFP fiber module expansion for transmission distances up to 10 km¹
- ♦ Advanced processor supports lossless and zero-latency video transmission up to 1920 × 1200 @ 60Hz; 8-bit RGB (24-bit total color)
- ♦ Supports digital (DVI) or analog (VGA) video output²
- ♦ Audio support for stereo speakers and microphone
- ♦ High-speed USB storage transmission support
- ♦ Auto-MDIX for automatic cable type detection
- ♦ Built-in 8KV / 15KV ESD protection and 2KV surge protection
- ♦ Fanless design for silent and energy-efficient operation
- ♦ Rack-mountable design (Dual Rack Mount Kit: 2X-021G / Single Rack Mount Kit: 2X-031G)

Note: 1. The SFP modules (2A-136G / 2A-137G) are sold separately. Contact your ATEN dealer for details. When used with SFP modules, the KE6948A has an operating temperature range of 0°C to 55°C.

2. To convert a DVI to VGA signal, a DVI-I to VGA converter is required.

Management

- ♦ Centralized management via KVM over IP Matrix Manager (CCKM) allows users to easily administrator all KE devices with intuitive web-based GUI
- ♦ Auto-detection of KE devices within the same subnet for fast deployment
- ♦ Configurable user and group permissions for access and control of KVM over IP extenders
- ♦ Four selectable access modes (Exclusive / Occupy / Share / View Only) – administrators can select access modes of permissions on Tx devices to boost collaboration or to avoid interference among users
- ♦ Dual console operation – control the user's system from both transmitter and receiver consoles
- ♦ OSD (On-Screen Display) for configuration
- ♦ EDID Expert™ – selects optimum EDID settings for smooth power-up and highest quality display
- ♦ Command line interface (CLI) – control all KVM over IP extenders via RS-232 or TCP/IP using a CLI or 3rd party application
- ♦ RS-232 serial ports – allow users to connect to a serial terminal for TextMenu, CLI, or serial devices such as touch screens and barcode scanners
- ♦ Supports hotkey commands
- ♦ Rx access control – enables or disables receiver access by simply pressing a control button*
- ♦ LED indicators and audio alerts for device identification
- ♦ Adjustable video compression levels for bandwidth optimization
- ♦ Compatible with all KE series devices

Note: The KVM over IP Access Control Box (2XRT-0015G) is sold separately. Contact your ATEN dealer for details.

Security

- ♦ Secure data transmission – AES 128-bit encryption to secure all data before transmitted over a network and decrypts the data on the receiver
- ♦ Supports Transport Layer Security (TLS) protocol
- ♦ Supports LDAP, Active Directory, RADIUS and TACACS+ external authentications
- ♦ Dedicated LAN port for KE direct connections – can be isolated from the corporate network

Virtual Media

- ♦ USB storage transmission mode enhances data transmission performance, ideally for file transfer, OS patching, and software installation and diagnostic testing
- ♦ Supports USB 2.0 DVD/CD drives, mass storage devices, PC hard drives and ISO image mounting
- ♦ Supports smart card / CAC reader

Requirements

Operating System

KE6948A is compatible with the following operating systems:

OS		Versions
Windows	64-bit	7 / 8.1 / 10 / 11 / Server 2012 / Server 2016 / Server 2019 / Server 2022
Linux		◆ CentOS ◆ Ubuntu ◆ openSUSE ◆ Debian

- ◆ Mac OS
- ◆ Oracle Solaris

Console

- ◆ Two DVI compatible monitors capable of the highest possible resolution
- ◆ A USB mouse
- ◆ A USB keyboard
- ◆ Microphone and speakers

Computers

The following ports must be available on each computer that is to be connected to the system:

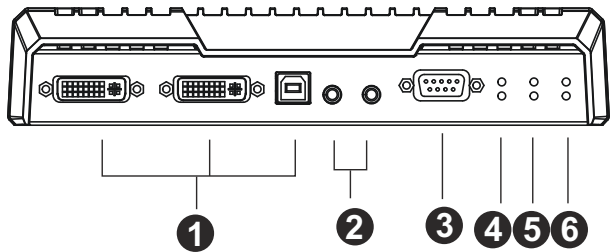
- ♦ Two DVI ports
- ♦ USB Type A port
- ♦ Audio ports

Cables

- ♦ For optimal signal integrity and to simplify the setup, we strongly recommend that you only use the high quality custom USB KVM Cable that is provided with this package.

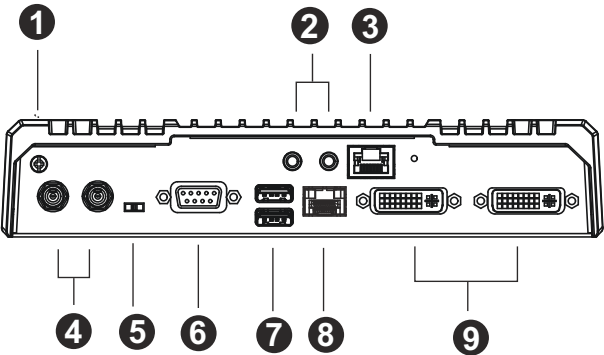
Components

KE6948AT (Transmitter) Front View



No.	Component	Description
1	KVM ports	The USB KVM cable and the DVI cable supplied with the package plugs into these ports to link the Transmitter to the computer.
2	audio ports	These mini stereo ports are for the speakers (green) and microphone (pink).
3	RS-232 serial port	This RS-232 serial port is for connecting to the computer for serial control.
4	remote / local LEDs	Lights Green to indicate which side of the installation (Local or Remote) currently has KVM control of the computer.
5	LAN 1 / LAN 2 LEDs	This LED indicates the network status. ♦ Lights when connected to the LAN and blinks when the Ethernet connection is active: ♦ Orange: 10 Mbps ♦ Orange + Green: 100 Mbps ♦ Green: 1000 Mbps ♦ Off when not connected to the LAN.
6	power 1 / power 2 LEDs	Lights blue to indicate the unit is turned on.

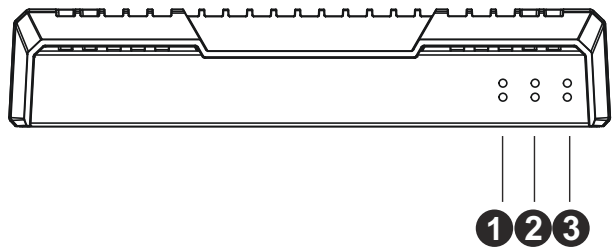
KE6948AT (Transmitter) Rear View



No.	Component	Description
1	grounding terminal	The wire used to ground the unit connects here.
2	audio ports	These mini stereo ports are for the speakers (green) and microphone (pink).
3	RJ-45 port (LAN)	The cable that connects the unit to the LAN plugs in here.
4	power jack	The cable from the DC power adapter connects here.
5	function switch	Use this slide switch to set the unit's mode to: ♦ Auto: Shared (simultaneous) KVM control of the computer at the Transmitter and Receiver console.* If the auto mode is selected, the EDID mode will be automatically applied to a pre-configured setting in the basic transmitter configuration, see <i>Basic</i>, page 98. ♦ RS-232 Config: The device is ready to be configured via serial commands through the RS-232 port. When connected to a KVM over IP Access Control Box (2XRT-0015G), users can enable / disable control privileges of the connected receivers. ♦ Local: Only the local Transmitter has KVM control of the computer. The Receiver's KVM access to the computer is locked. If local mode is selected, the EDID of the Tx local console will be used. Note: In Auto mode, RS-232 and audio functions will work on the Receiver but not on the Transmitter.
6	RS-232 serial port	This RS-232 serial port is for connecting to a serial terminal.

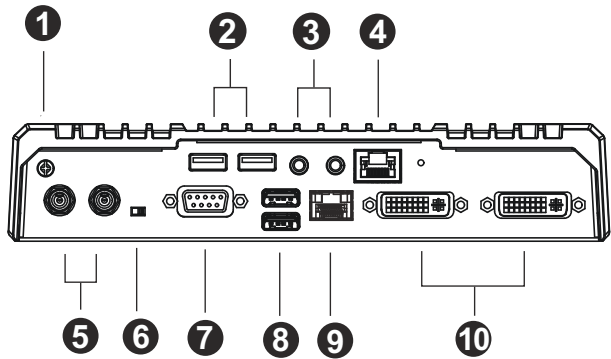
No.	Component	Description
7	USB Type-A ports (console)	The unit's USB keyboard and USB mouse plug into these ports.
8	SFP slot	The Gigabit Ethernet (GbE) optical fiber cable that connects the unit to the LAN plugs in here. Note: The SFP slot prioritizes the LAN connection over the LAN port when the optical fiber cable is plugged in.
9	DVI-I output	The cables from the local DVI monitors plug in here.

KE6948AR (Receiver) Front View



No.	Component	Description
1	remote / local LEDs	Lights Green to indicate which side of the installation (Local or Remote) currently has KVM control of the computer.
2	LAN 1 / LAN 2 LEDs	This LED indicates the network status. ◆ Lights when connected to the LAN and blinks when the Ethernet connection is active: ◆ Orange: 10 Mbps ◆ Orange + Green: 100 Mbps ◆ Green: 1000 Mbps ◆ Off when not connected to the LAN.
3	power 1 / power 2 LEDs	Lights blue to indicate the unit is turned on.

KE6948AR (Receiver) Rear View



No.	Component	Description
1	grounding terminal	The wire used to ground the unit connects here.
2	USB Type-A ports (peripherals)	The unit's USB peripherals such as USB flash drive plug into these ports.
3	audio ports	These mini stereo ports are for the speakers (green) and microphone (pink).
4	RJ-45 port (LAN)	The cable that connects the unit to the LAN plugs in here.
6	power jack	The cable from the DC power adapter connects here.
6	function switch	Use this slide switch to set the unit's mode to: ♦ Extension: Sets the device to use the normal TX to RX extension mode. ♦ RS-232 Config: The device is ready to be configured via serial commands through the RS-232 port.
7	RS-232 serial port	This RS-232 serial port is for connecting to a serial terminal.
8	USB Type-A ports (console)	The unit's USB keyboard and USB mouse plug into these ports.
9	SFP slot	The Gigabit Ethernet (GbE) optical fiber cable that connects the unit to the LAN plugs in here. Note: The SFP slot prioritizes the LAN connection over the LAN port when the optical fiber cable is plugged in.
10	DVI-I output	The cables from the local DVI monitors plug in here.

Chapter 2

Hardware Setup



1. Important safety information regard the placement of this device is found on. Please review it before proceeding.
2. Make sure that the power of all devices to be connected is turned off. You must unplug the power of any computers with Keyboard Power-on function.
3. Please operate the device with caution when under high environmental temperatures, as the surface of the device may become overheated under such conditions. For instance, the surface temperature of the device may reach 70 °C (158 °F) or higher when the environmental temperature reaches close to 50 °C 122 °F.

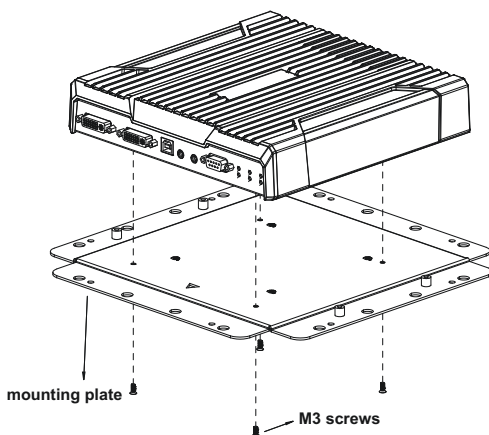
Mounting (For DNV)

For convenience and flexibility, the KE6948A can be mounted using our optional mounting kits.

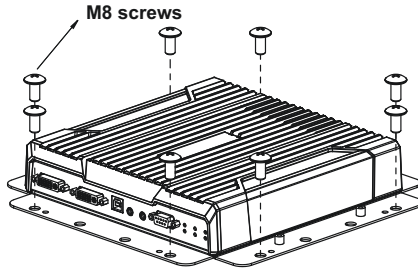
Mounting the KE6948A

Follow the steps below to attach the mounting plate on the KE6948A.

1. Use the screws provided from the optional mounting kit, attach the mounting plate to the bottom of the KE6948A, as shown below.



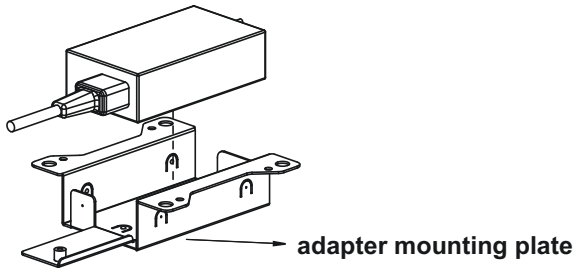
2. Use the screws provided from the optional mounting kit, screw the mounting plate with KE6948A on top of it to a convenient location.



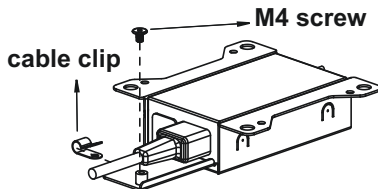
Mounting the Adapter

Follow the steps below to attach the adapter mounting plate onto the provided power adapter and power cord for stable connection.

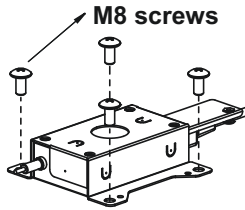
1. Attach the adapter mounting plate to the provided power adapter and power cord, as shown below.



2. Attach the cable clip provided from the optional adapter mounting kit to the power cord cable, and then use the provided screw to secure the cable clip.



3. Use the screws provided from the optional adapter mounting kit, screw the adapter mounting plate to a convenient location.



KE6948A Point-to-Point Installation

Setting up the KE6948A system in a point-to-point configuration is simply a matter of plugging in the cables.

Note: In a point-to-point configuration, no administrator setup is required.

Make sure that all equipment is powered off. Refer to the installation diagrams on the next two pages and do the following:

1. Use a grounding wire to ground the unit by connecting one end to the grounding terminal and the other end to a suitable grounded object.

Note: Do not omit this step. Proper grounding helps prevent damage to the unit from power surges or static electricity.

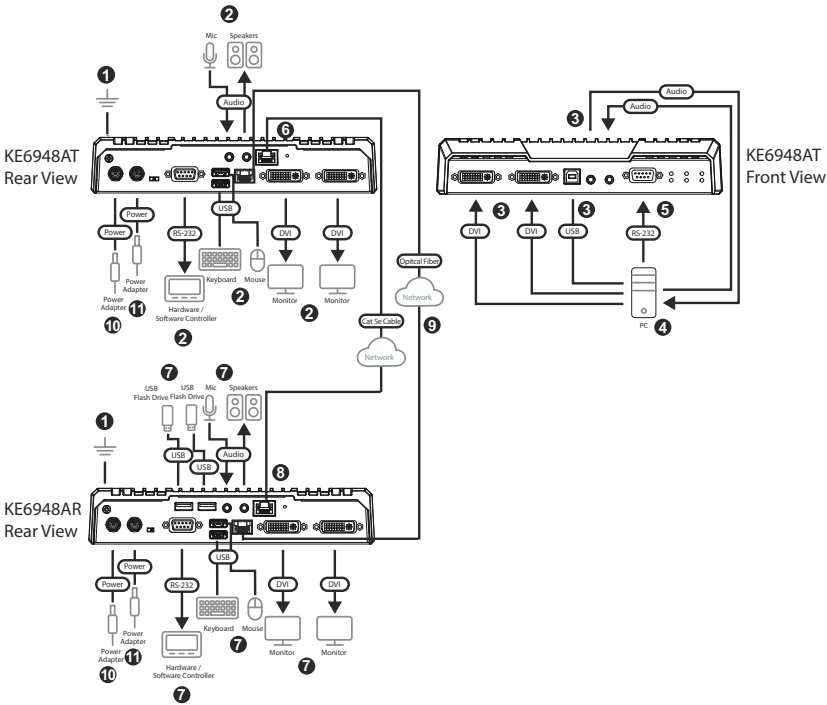
2. On the transmitter side, plug the mouse, keyboard, DVI monitor, and (optional) serial device into the ports on the console section of the KE6948AT¹.
3. Connect the DVI-D cable and the USB 2.0 Type-A to USB Type-B cable provided with this package into the KVM ports on the front of the KE6948AT.
4. Connect the other end of the USB DVI-D KVM cable into the keyboard, video, mouse, speaker, and microphone ports on the computer.
5. (Optional) For control of serial devices, connect the RS-232 serial port on the front of the KE6948AT to a serial port on the computer.
6. Connect a Cat 5e/6 cable to the KE6948AT's RJ-45 port (LAN).
7. Plug the mouse, keyboard, DVI monitor, and (optional) serial device into the ports on the console section of the KE6948AR².
8. Connect the other end of the Cat 5e/6 cable to the KE6948AR's RJ-45 port (LAN).
9. Instead of connecting through the LAN ports, you can choose to connect the extenders through the SFP slots. To do so, plug SFP modules into the KE6948AT and KE6948AR's SFP slots, then connect each end of Gigabit Ethernet (GbE) optical fiber between the SFP modules³.

10. Plug the power adapters into AC sources with the power cords and plug the other ends into the KE6948AT and KE6948AR's power jacks respectively.
11. (Optional) For power redundancy, plug the second power adapters into AC sources with the power cords and plug the other ends into the KE6948AT and KE6948AR's power jacks.
12. Power on the computer.

Note: 1. If installing the KE6948A with two DVI monitors, connect the second DVI monitor via a DVI cable into the additional ports on the KE6948A and computer.

2. A keyboard or mouse with special functions may be required to be connected using the USB ports for the functions to work (see *USB Mode*, page 118).
3. The SFP module 2A-136G / 2A-137G is sold separately. Please contact your ATEN dealer for product information. When used with SFP modules, the KE6948A has an operating temperature range of 0°C to 55°C.

KE6948A Point-to-Point Installation



KE6948A LAN Installation

Setting up the units on a network allows point-to-point, point-to-multipoint, and multipoint-to-multipoint computer to console operation by connecting multiple extender devices on the same TCP/IP LAN. Prior to the setup, we recommend laying out the plans for your KE installation using our performance guide.

A few points to note during your setup:

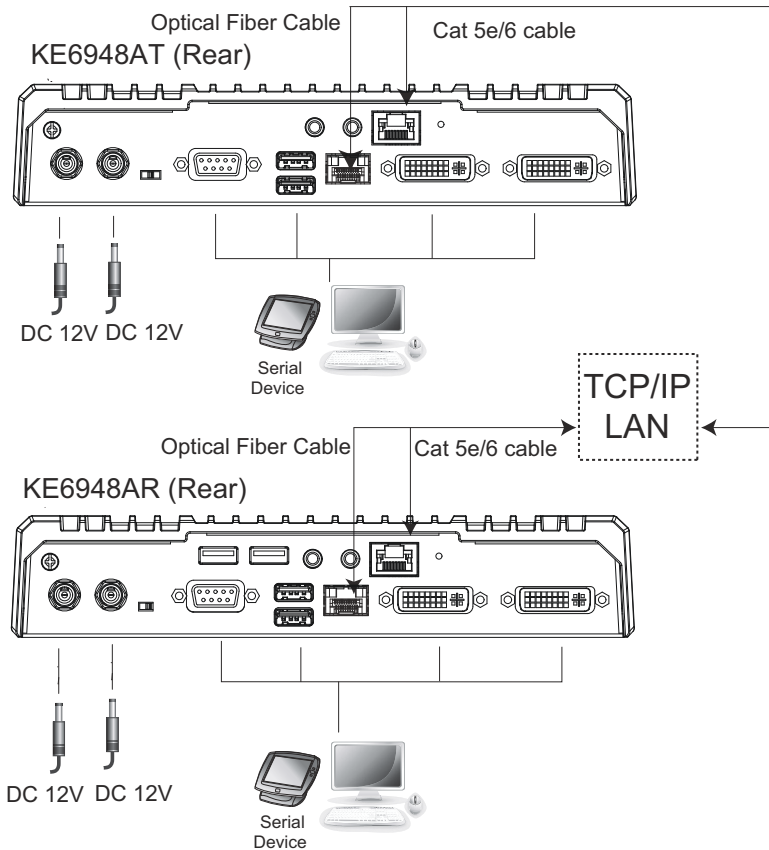
- ♦ The units are preconfigured with factory-default network settings. If you install only one set of KE Series units, you do not need to change these default network settings. See *Default IP Addresses*, page 23, for further details.
- ♦ In a network setup with multiple units, each Transmitter and Receiver must be configured with a unique IP address. See *Network Configuration*, page 22, for further details.
- ♦ We recommend using 1000-Mbps Gigabit Ethernet switches (wire speeds, non-blocking with 1 Gbps / 1.5 Mpps performance per port) between KE Series devices installed on different LAN segments under a same office network environment. 10/100 Mbps switches might cause poor performance.
- ♦ In multipoint configurations, the IGMP and flow control function of your network switches/hubs must be enabled to avoid the deterioration of data throughput. To ensure functionality use a layer 3 switch that supports IGMP queries.
- ♦ If your network uses cascaded switches, please check to ensure the data throughput is sufficient.
- ♦ To get the best performance, we suggest creating a private network for KE devices, as they are bandwidth-intensive devices.
- ♦ The unit supports network redundancy. Where both LAN and SFP ports are connected, a network redundancy is established. Please note that if you use copper SFP modules, the module has to be removed for the unit to switch to the LAN port's network. The KE series is compatible with ATEN 2A-143G, please contact your ATEN dealer for product information. For other third-party copper SFP transceivers, compatibility issues such as undetectable networking or requiring module removal for LAN port switching may occur.
- ♦ For USB keyboards / mice with advanced function designs, see *USB Mode*, page 118.

Make sure that all equipment is powered off before the installation.

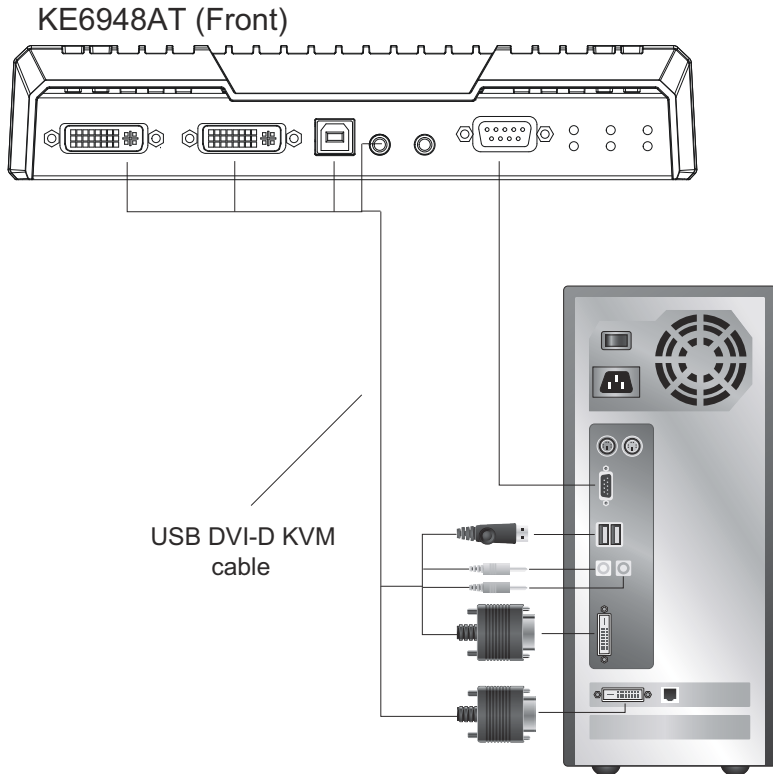
The installation is similar to that of *KE6948A Point-to-Point Installation* on page 16, with the difference in connecting the transmitter and the receiver to a local area TCP/IP network. Refer to the diagrams on the following page and connect accordingly.

Repeat these steps for each Transmitter and Receiver you wish to install on the network, and then power on the computer(s).

KE6948A Network Installation Diagram 1 of 2



KE6948A Network Installation Diagram 2 of 2



Network Configuration

This section provides instructions to configure the network settings with a fixed IP address, subnet mask, and default gateway. To use the **IP Installer** to configure the IP address, see *IP Installer*, page 98.

-
- Note:**
- Both devices are preconfigured with factory-default network settings. If you install only one set of KE Series units, you do not need to change these default network settings. See *Default IP Addresses*, page 23, for further details.
 - In a network setup with multiple units, each transmitter and receiver must be configured with a unique IP address. See *Network Configuration*, page 22, for further details.
 - We recommend using 1000-Mbps Gigabit Ethernet switches (wire speeds, non-blocking with 1 Gbps / 1.5 Mpps performance per port) between devices installed on different LAN segments under a same office network environment. 10/100 Mbps switches might cause poor performance.
 - In multipoint configurations, the IGMP and flow control function of your network switches/hubs must be enabled to avoid the deterioration of data throughput. To ensure functionality use a layer 3 switch that supports IGMP queries.
 - If your network uses cascaded switches, please check to ensure the data throughput is sufficient.
 - To get the best performance, we suggest creating a private network for KE device, as they are bandwidth-intensive devices.
-

To configure the network settings, do the following:

- Set up the hardware and connect the transmitter and receiver to the local area network (see *KE6948A LAN Installation*, page 19).
- From the receiver, tap **[Scroll Lock]** twice to invoke the OSD.
- Select the *Receiver* or *Transmitter* from the sidebar menu.
- Enter the password and click **Configure**.
The default password is: password.
- From the *Network* tab, select **Set IP address manually** and enter the following:

- ♦ *IP Address* — sets the IP address for the KE device. Key in a valid unique IP address.

Note: See *Default IP Addresses*, page 23, for the preconfigured factory-default settings.

- ♦ *Subnet Mask* — sets the subnet mask for the KE device. Key in a valid subnet mask value.

Note: The default setting is 255.255.255.0

- ♦ *Default Gateway* — sets the default gateway for the KE device. Key in a valid default gateway.

6. Click **Save**.

Exit OSD

To exit the OSD, press **[Esc]** on the keyboard, click **Logout**; tap **[Scroll Lock]** twice, or return to the OSD main page and press the front panel OSD pushbutton (receiver only).

At this point, the receiver can connect to the transmitter to access the remote computer.

Default IP Addresses

The preconfigured factory-default IP addresses for the KE Series devices are as follows:

Transmitters – 192.168.0.61

Receivers – 192.168.0.60

Note: For KE89 and KE99 Series devices, only use factory-default IP address if the DHCP is not present or if the initial configuration is done in PTP mode because DHCP is supported.

KE I/O Ports

The following table provides the I/O port use of KE Series devices.

Device	Port	Number
KE TX/RX Device (TCP)	Manager	9110
	Service	9000
	Telnet	23
	SSH	22
KE TX Device (TCP)	VM	9001
	vUSB	9002
	Serial	9003
	USB Access Mode	9009
KE RX Device (TCP)	CLI	9130
KE TX/RX Device (UDP)	Manager	9110
	Service	9000
	Array Mode	9120
	Video	0xFE00(65024) - 0xFE03(65027)
	Audio	0xFE04(65028) - 0xFE05(65029)

LED Display

Both the Transmitter and Receiver have front panel LEDs to indicate their operating and power status, as explained in the table below:

LED	Indication
LAN	This LED indicates the network status. ◆ Blinking Green: Packet transmission or reception in progress (1 Gbps) ◆ Solid Green: A valid 1 Gbps link ◆ Off: When there is no link or the packet transmission or reception in progress is under 1 Gbps
SFP	This LED indicates the SFP status. ◆ Blinking Green: Packet transmission or reception in progress (1 Gbps) ◆ Solid Green: A valid 1 Gbps link ◆ Off: When there is no link or the packet transmission or reception in progress is under 1 Gbps
Power	◆ Lights blue when the unit is powered on ◆ OFF when power is off
Local	◆ Lights green to Indicate the Transmitter has KVM focus of the computer
Remote	◆ Lights green to Indicate the Receiver has KVM focus of the computer

CCKM KVM over IP Matrix Manager

The *CCKM KVM over IP Matrix Manager* is a browser based GUI that provides management of KE Series devices over a network. You can download the KVM over IP Matrix Manager for free and manage up to 8 KE devices, or purchase a license for the KVM over IP Matrix Manager.

- ◆ To purchase a license, contact your local authorized ATEN dealer.
- ◆ To download and install the free KVM over IP Matrix Manager, and how to access and operate the software, please refer to the *ke-series-cckm-user-manual*.

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Chapter 3

OSD Operation

Overview

This chapter provides instructions to configure and operate KE6948A using the local On Screen Display (OSD). To configure the network settings with the OSD, see *Network Configuration*, page 22.

Invoking the OSD

The On Screen Display (OSD) is a keyboard/mouse-driven application on the receiver used to configure the transmitter and receiver settings. Once the receiver has discovered the transmitter over a network* or Ethernet cable connection, you can use the OSD on the receiver to configure the transmitter.

To invoke the OSD, press the OSD pushbutton on the front of the receiver, or from the keyboard tap the **Scroll Lock** key twice. The *OSD* main page will appear.

To exit the OSD, press **[Esc]** on the keyboard; click **Logout**; tap the **Scroll Lock** key twice; or return to the OSD main page and press the OSD pushbutton on the front of the receiver. The OSD disappears and the computer desktop screen or the System Login prompt is displayed.

-
- Note:**
1. For the Receiver to discover the Transmitter over a network, both must be on the same subnet of the LAN.
 2. To change the OSD hotkeys, see page 42.
 3. If the keyboard/mouse won't work when the OSD is invoked, see *USB Mode*, page 118.
-

Touch Screen Calibration

If you're using a touch screen monitor and the OSD appears off center, you can use the blinking **+** at each corner to adjust the position of the OSD.

OSD Hotkeys

The OSD hotkeys navigate the Receiver's OSD screens. The hotkeys work after logging in from the *System Login* screen (see page 43) but not the *OSD Configuration* screen. Pressing a hotkey will immediately take you to the corresponding OSD screen.

Hotkey	OSD Screen	Page
[F1]	Connections Page 1 in List Mode	44
[F2]	Connections Page 1 in Array Mode	47
[F3]	Profile Page 1	49
[F5]	Push Content Page 1	50
[F6]	Pull Content Page 1	52
[F7]	Receiver > Properties	33
[F8]	User Preferences	42
[F9]	OSD Login Screen (logs user off)	43

Users can also use the [Page Up] and [Page Down] keys to jump to the previous and next configuration pages.

Non-OSD Hotkeys

The following are the hotkeys that can be used without entering the OSD screen:

Reverting to Previous

Users can use the [K] hotkey to switch back to the transmitter channel previously accessed.

Hotkey Mode

The Hotkey Mode allows users to quickly switch from one transmitter to another. Either press [Num Lock] + [-] together or [Ctrl] + [F12] together to enter Hotkey Mode.

Once in Hotkey Mode, you can use the [Next Arrow] and [Previous Arrow] keys to quickly switch between different transmitters. You can also press a [Number Key], and then + [S] / [O] / [E] / [V], and then [Enter] to access a transmitter based on its order number in Favorites (see page 45) by Share / Occupy / Exclusive / View Only mode.

Microphone Hotkey

You can switch microphone access between Receivers with a hotkey:

1. Press and hold down [**Num Lock**].
2. Press and release [-].
3. Release [**Num Lock**].
4. Press [**1**].

Press the **Esc** key to cancel.

Local PC Switching Hotkey

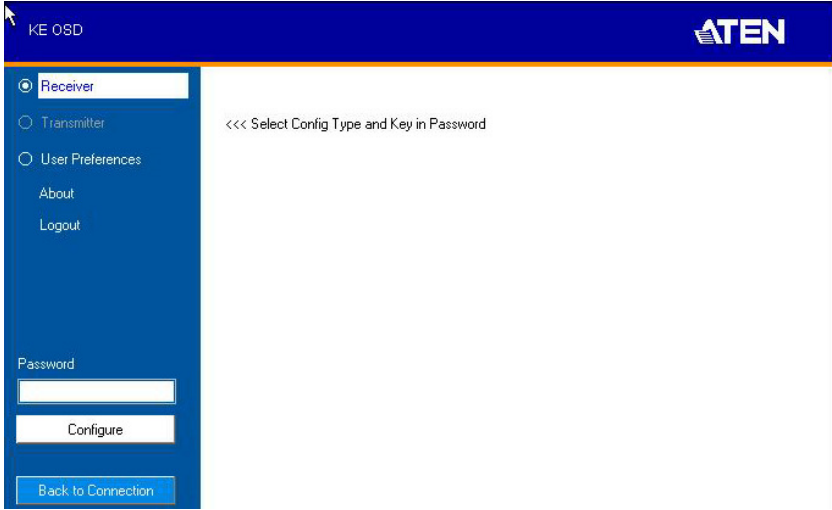
To switch between Local PC mode and OSD connection list mode with a hotkey:

1. Press and hold down [**Num Lock**].
2. Press and release [-].
3. Release [**Num Lock**].
4. Press [**Scroll Lock**] [**Scroll Lock**] [**Enter**] or [**Ctrl**] [**Ctrl**] [**Enter**].

Press the **Esc** key to cancel.

OSD Interface

After you invoke the OSD, the main page appears:



Note: A password is required to enter the OSD. The default password is: *password*. For security purposes, the system will prompt you to change the password.

The OSD components are described in the table below:

No.	Item	Description
1	Receiver	Select this radio button, enter a password, and click Configure to enter the <i>Receiver Configuration</i> screen.
2	Transmitter	Select this radio button, enter a password, and click Configure to enter the <i>Transmitter Configuration</i> screen. Note: Receiver must first discover the transmitter over the network for this option to be available.
3	User Preferences	Select this radio button, enter a password, and click Configure to enter the <i>User Preferences</i> screen.
4	About	About provides information regarding the OSD version.
5	Password	Input the OSD password and click Configure to enter the selected configuration screen. See note for password.
6	Configure	After entering a password, click Configure to enter the selected configuration screen.

No.	Item	Description
7	Back to Connection	Clicking this button exits the OSD and returns you to the computer's video display.

Logging in for the First Time

If you are the administrator, and are logging in for the first time (Receiver or User Preference radio button), use the default password (*password*).

For security purposes, the system will prompt you to change the login password immediately as shown below:



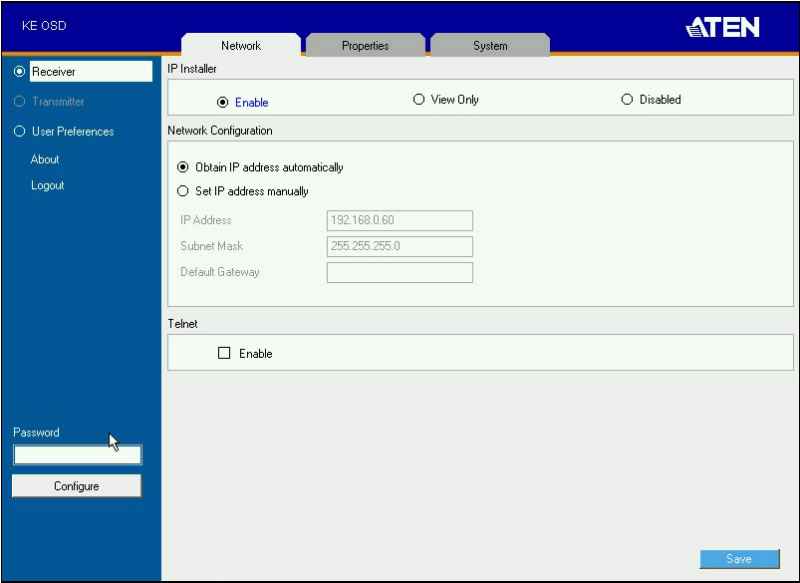
Click **OK** and change the password in the dialog box shown below:



Enter the password and confirm it in the next field. The password must be different from your original password.

Receiver Configuration

Select the *Receiver* radio button and click **Configure** to login, the Network tab appears:



Network

The Network tab allows you to configure the Receiver’s IP address settings:

Item	Description
IP Installer	The IP Installer is an external Windows-based utility for assigning an IP address to the device. Click one of the radio buttons to select Enable, View Only, or Disable for the IP Installer utility. See <i>IP Installer</i>, page 98 for instructions. Note: For security, we strongly recommend that you set this to <i>View Only</i> or <i>Disable</i> after each use.
Network Configuration	For dynamic IP address assignment (DHCP), select the Obtain IP address automatically radio button. To specify a fixed <i>IP Address</i>, <i>Subnet Mask</i>, and <i>Default Gateway</i> select the Set IP address manually radio button and fill in the fields with values appropriate for your network. For help configuring network settings with the OSD, see <i>Network Configuration</i>, page 22.

Item	Description
Telnet	Clicks Enable to enable the Telnet Function.

After entering the information, click **Save**.

Properties

The *Properties* tab allows you to configure the Receiver's settings.

The screenshot shows the 'KE OSD' interface with the 'Properties' tab selected. The left sidebar contains a 'Receiver' section with options for Receiver, Transmitter, and User Preferences, along with 'About' and 'Logout' links. The main area is divided into several sections: 'Mode' with radio buttons for 'Extender' and 'Matrix' (selected); 'RS232 Settings' with dropdowns for Baud Rate (9600), Data Bits (8), Parity (None), Stop Bits (1), and Flow Control (None); 'Manager Address' with text boxes for Manager IP (10.3.66.66) and Manager Port (9110); 'Beeper' with a checked 'Enable' checkbox; 'Touch Screen Calibration' with a 'Calibrate' button; 'USB Mode' with radio buttons for 'Virtual Media' (selected) and 'Generic USB device', and an unchecked 'Encryption Enable' checkbox; 'Receiver Keyboard' with a dropdown for 'Keyboard Country Code' set to 'English (US)'; and 'Enable Media' with checked checkboxes for Video, Audio, USB, and RS232. A 'Save' button is located at the bottom right.

Item	Description
Mode	Select Extender mode for simple one-to-one (Transmitter to Receiver) setups that are managed with the Receiver's OSD menu. Select Matrix mode to manage devices and connections from the KVM over IP Matrix Manager web GUI. This mode is for advanced administration of Transmitter to Receiver connections (see <i>Browser / Telnet Operation</i>, page 73).

Item	Description
Properties	Transmitter Video IP, Transmitter Audio IP, Transmitter USB IP, and Transmitter RS-232 IP are greyed out when the mode is set to Matrix mode. Transmitter Video IP: Enter the IP address of the transmitter. Transmitter Audio IP: Enter the IP address of the transmitter. Transmitter USB IP: Enter the IP address of the transmitter. Transmitter RS-232 IP: Enter the IP address of the transmitter. Enable Media: Select which type of media the Receiver can stream from Transmitters: Video, Audio, USB, and RS232.
RS232 Settings	Configure the serial device settings for the Receiver. The default settings are: Baud Rate: 9600 Parity: None Data Bits: 8 bits Stop bits: 1 bit Flow Control: None
Manager Address	Set the IP address and Port number of the computer running the KVM over IP Matrix Manager. The default port number is 9110.
Beeper	Check this box to allow the Receiver to beep when configuration changes are made to it.
Touch Screen Calibration	Use this button to calibrate the surface of a USB touch screen connected to the unit. When the calibration screen appears, touch the flashing + symbol at each corner until the process is complete.

Item	Description
USB Mode	Select the type of USB device you will connect to the USB ports: Virtual Media: Only select this option if you are plugging a USB flash drive into the USB ports. This will give you the highest data transfer speeds but cannot work with other USB devices. When Receivers mount or unmount USB flash drives, the keyboard and mouse operations will experience a brief delay. Each Transmitter and Receiver can respectively support up to 12 and 3 virtual media connections at the same time (including Tx local console USB keyboard and mouse). Note: KE6900ST / KE8900ST / KE9900ST transmitters only support up to 3 virtual media connections. vUSB (generic USB device): Use this option to plug USB peripherals into the USB ports. KE6900ST / KE8900ST / KE9900ST transmitters do not support vUSB (generic USB device) mode. In this mode, KE6900T / KE6940T and all Receivers support up to 2 USB connections, and all Transmitters support up to 5 USB connections (including Tx local console USB keyboard and mouse). Note: The vUSB option also allows a keyboard and mouse with special functions to be plugged into the USB ports for console use. Use this only if the special functions of the keyboard or mouse are required but do not work when plugged into the console ports. When the keyboard and mouse are plugged into the USB ports, they will not work within the OSD menus. To work within the OSD menus, the keyboard and mouse must be plugged into the console ports. Encryption: Check this box to encrypt USB drives plugged into the USB ports.
Receiver Keyboard	Use the Keyboard Country Code drop-down menu to select the Receiver's language keyboard for use in the OSD.

After entering the information, click **Save**.

System

The *System* tab allows you to configure the Receiver’s general settings:

KE OSD

ATEN

NetworkPropertiesSystem

Receiver

Transmitter

User Preferences

About

Logout

Device Information

Name

KE6948AP

Description

IP Address

10.3.66.95

MAC Address

00:10:74:df:80:12

F/W Version

V1.8.172 (Jul 15 2026 06:48:51)

MFG

Reboot

☐ Reset to factory default

Reboot

User Station Password Change

☒ Enable

Old Password

New Password

Confirm Password

Save

Password

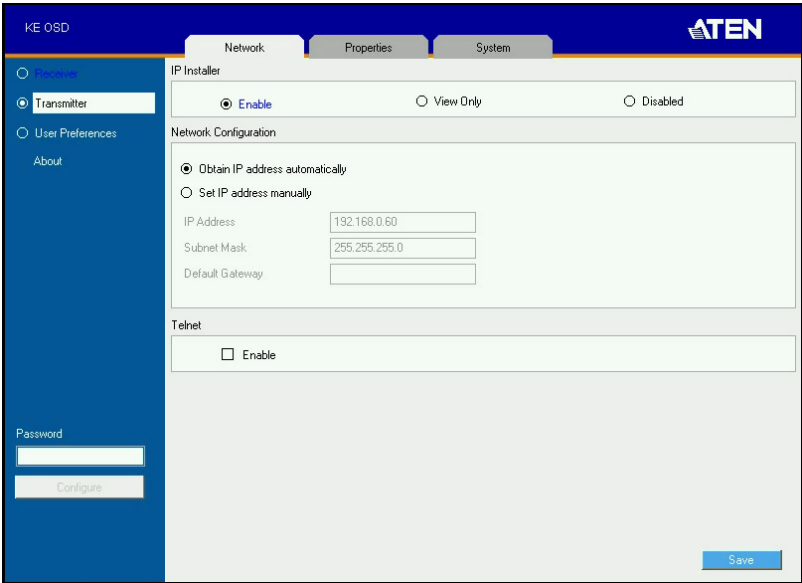
Configure

Item	Description
Device Information	Enter the Name , and Description of the Receiver. It also displays the <i>IP Address</i> , <i>MAC Address</i> , <i>F/W Version</i> , and <i>Serial Number</i> of the Receiver.
Reboot	Check the box and click Reboot to reset the Receiver’s settings back to the factory default. All custom settings (but not the login information) will be lost.
Receiver Password Change	Check Enable to require a password for access to the Receiver’s OSD configuration screen. Enter the Old Password, enter a New Password, and confirm the new password in the Confirm Password box.

After entering the information, click **Save**.

Transmitter Configuration

When you select the *Transmitter* radio button and click **Configure** to login, the Network tab appears:



Network

The *Network* tab allows you to configure the Transmitter's IP address settings:

Item	Description
IP Installer	The IP Installer is an external Windows-based utility for assigning an IP address to the device. Click one of the radio buttons to select Enable, View Only, or Disable for the IP Installer utility. See <i>IP Installer</i>, page 98 for instructions. Note: For security, we strongly recommend that you set this to <i>View Only</i> or <i>Disable</i> after each use.
Network Configuration	For dynamic IP address assignment (DHCP), select the Obtain IP address automatically radio button. To specify a fixed <i>IP Address</i>, <i>Subnet Mask</i>, and <i>Default Gateway</i> select the Set IP address manually radio button and fill in the fields with values appropriate for your network. For help configuring network settings with the OSD, see <i>Network Configuration</i>, page 22.

Item	Description
Telnet	Clicks Enable to enable the Telnet Function.

After entering the information, click **Save**.

Properties

The *Properties* tab allows you to configure the Transmitter's extender settings:

The screenshot shows the 'KE OSD' interface with the 'Properties' tab selected. The 'Mode' section has 'Extender' selected. The 'RS232 Settings' section includes dropdowns for Baud Rate (9600), Data Bits (8), Parity (None), Stop Bits (1), and Flow Control (None). The 'Manager Address' section shows Manager IP (10.3.66.66) and Manager Port (9110). The 'Transmitter Video Setting' section includes Video Type (DIGITAL), Video Quality (1), Max Color Depth (24 bits), Background Refresh (Every 32 frames), and Bandwidth Limit (1 Gbps). The 'Beeper' section has 'Enable' checked. The 'Properties' section on the right includes OS Language (English (US)), Port OS (Win/Linux1), and checkboxes for Enable Multicast Video, Enable Multicast Audio, and EDID Mode Selection (Default). The 'Enable Media' section has checkboxes for Video, Audio, USB, and RS232, with 'Digital' selected under Video. A 'Save' button is at the bottom right.

Item	Description
Mode	Select Extender mode for simple one-to-one (Transmitter to Receiver) setups that are managed with the Receiver's OSD menu. Select Matrix mode to manage devices and connections from the KVM over IP Matrix Manager web GUI. This mode is for advanced administration of Transmitter to Receiver connections (see <i>Browser / Telnet Operation</i>, page 73).

Item	Description
Properties	Port OS: Use the drop-down menu to select the operating system of the computer connected to the Transmitter. OS Language: Use the drop-down menu to select the operating system language of the computer connected to the Transmitter. Enable Multicast Video: Check this box to allow a broadcast of the Transmitter's video signal to be sent out to multiple Receivers. Enable Multicast Audio: Check this box to allow a broadcast of the Transmitter's audio signal to be sent out to multiple Receivers. EDID Mode Selection: EDID contains a display's basic information and is used by the source device to utilize the best resolution across different monitors. When <i>Manual</i> or <i>Remix</i> is selected, the Receiver's OSD will have a button allowing the local EDID setting to be configured for the connection. Select how you want the source device to acquire the display's EDID: ◆ Default: EDID is set to the default ATEN configuration. This setting must be used when connecting KE6900 devices to KE8950 devices. ◆ Auto: Checks the EDID of all connected displays and the ATEN default EDID to use the best common resolution for all displays. ◆ Manual: Manually set the EDID configuration from the Connections Page. ◆ Remix: Manually checks the EDID of all connected displays and the ATEN default EDID to use the best common resolution for all displays.
Enable Media	Select which type of media the Transmitter can stream to Receivers: Video, Audio, USB, and RS232.
RS232 Settings	Configure the serial device settings for the Transmitter. The default settings are: Baud Rate: 9600 Parity: None Data Bits: 8 bits Stop bits: 1 bit Flow Control: None
Manager Address	Set the IP address and Port number of the computer running the KVM over IP Matrix Manager. The default port number is 9110.

Item	Description
Transmitter Video Attributes	To set the Transmitter's video settings: Video Type: Select the DVI video connector being used by the display: Digital (DVI-D) or Digital (DVI-I). This option is available for KE6900, KE6940, KE6900A, KE6940A units and will be grayed out for other models. Color Depth: Select the number of bits to use for the color depth: 24, 16, or 8. This is the number of bits used to describe the color of a single pixel. A bit depth determines the number of colors that can be displayed at one time. Bandwidth Limit: Select the maximum bandwidth that the Transmitter can use to transmit video over the network. A lower bandwidth setting transmits lower quality video; a higher bandwidth setting sends higher quality video but this can affect network speed. Video Quality: Select the video quality to use. 5 is the highest video quality, and 1 is the lowest video quality. Options are: 1~5. Background Refresh: Sets how often the Transmitter refreshes the background image on the connected display. Options are to refresh every 256,128, 64, 32,16, or 0 frames.
Beeper	Check this box to allow the device to beep every time a configuration change is made.

After entering the information, click **Save**.

System

The *System* tab allows you to configure the Transmitter’s general settings:

Item	Description
Device Information	Enter the Name and Description of the Transmitter. It also displays the <i>IP Address</i> , <i>MAC Address</i> , <i>F/W Version</i> , and <i>Serial Number</i> of the Transmitter.
Reboot	Check the box and click Reboot to reset the Transmitter’s settings back to the factory default. All custom settings (but not the login information) will be lost.
Transmitter Password Change	Check Enable to require a password for access to the Transmitter’s OSD configuration screen. Enter the Old Password, enter a New Password, and confirm the new password in the Confirm Password box.

After entering the information, click **Save**.

User Preferences

When you select the *User Preferences* radio button and click **Configure** to login, the configuration screen appears:

KE OSD

ATEN

Receiver

Transmitter

User Preferences

About

Password

Configure

Back to Video

User Password Change

Old Password

New Password

Confirm Password

OSD Settings

OSD Language

English

OSD Hotkey

[Scroll lock][Scroll lock]

Hotkey mode

[Num Lock][~]

Logout Timeout

0

min (0-180)

☒ Disabled

Screen Blanker

0

min (0-30)

☒ Disabled

OSD Title Bar Duration

30

sec (3-100)

☐ Disabled

Save

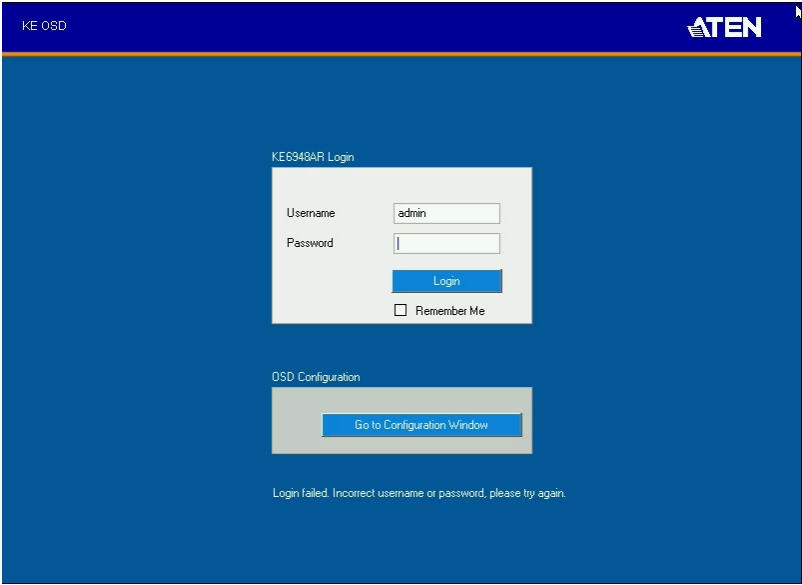
Item	Description
User Password Change	This section allows you to change the OSD password: 1. Key in the old password in the Old password field. 2. Key in the new password in the New password field. 3. Key in the new password again in the Confirm password field.
OSD Language	Click the drop-down menu to select the language you want to use for OSD sessions. Choices are: English, Chinese (Simplified), Chinese (Traditional), Japanese, Korean, Dutch, French, Spanish, Portuguese, and Russian.
OSD Hotkey	Select the hotkey combination to invoke the OSD screen.
Hotkey Mode	Use the drop-down menu to select a hotkey mode between [Number Lock] [-] and [Ctrl] [F12].
Logout Timeout	If there is no user input for the amount of time set with this function, the user is automatically logged out of the OSD. A login is necessary before the OSD can be accessed again.

Item	Description
Screen Blanker	Set how many minutes the OSD waits when a session is idle before turning off the display.
OSD Title Bar Duration	Set how many seconds the OSD title bar lasts in a session, click Disable to keep the OSD title bar on.

When you have made your choices, Click **Save**.

OSD Matrix Mode

If you set the system to Matrix mode (in Properties), you will see the *System Login* screen when you enter the invoke the OSD, which provides access to the *Connection Page* by entering a username and password:

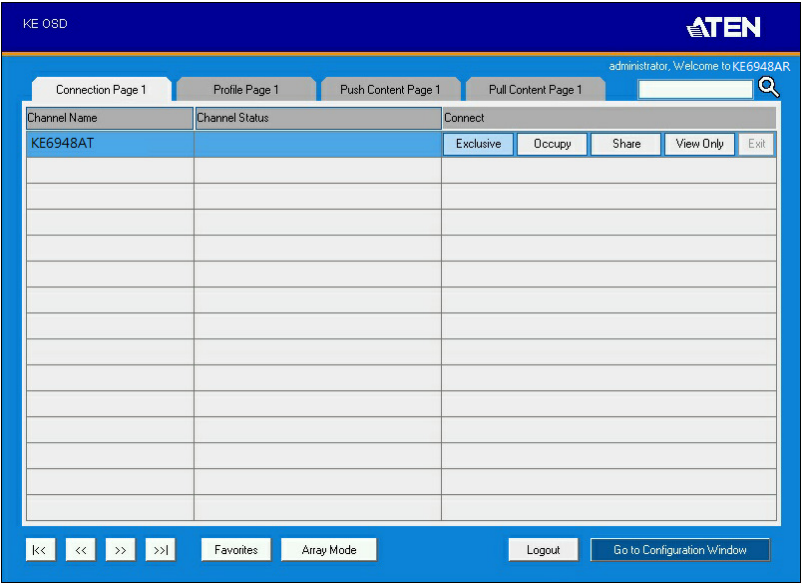


Note: 4. If the Receiver does not require a login, click *Login to system* (see *Login Required*, under *Basic*, page 116).For information about Extender and Desktop/Matrix modes, see *Mode*, page 33.

After you login the *Connection Page* appears, as shown on the next page.

Connections Page

List Mode



The *Connection Page* components are described in the table below:

No.	Item	Description
1	Channel Name	Lists the Channel connections available for the Receiver. A Channel is a defined connection to Transmitters, created in the Device Management tab of the KVM over IP Matrix Manager (see <i>Browser / Telnet Operation</i> , page 89).
2	Channel Status	This field provides the status information of the Channel, including the device name of the receiver(s) currently accessing and its operation mode. Operation modes are abbreviated as S, O, E and E for Share, Occupy, Exclusive and View Only, respectively.
3	Search	Search for transmitters based on the keyword(s) entered.

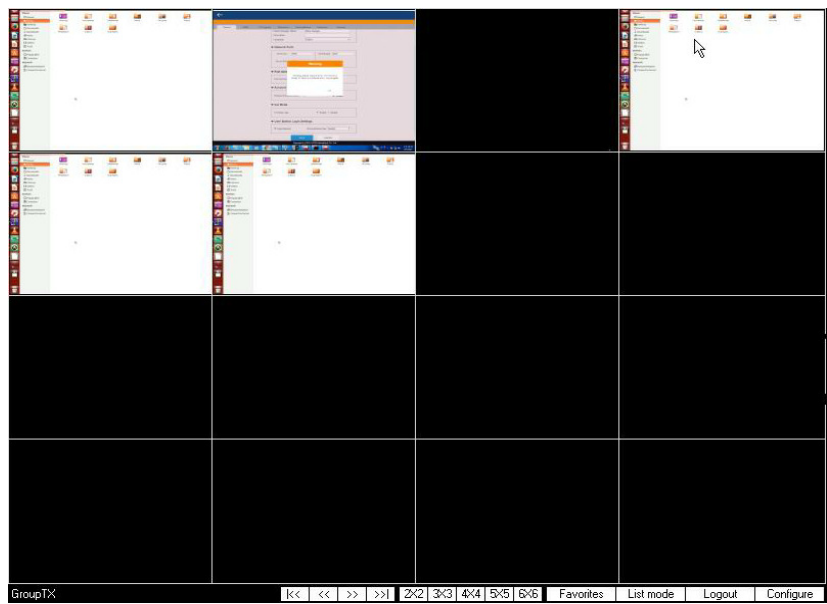
No.	Item	Description
4	Connect	To connect the Receiver to a Channel, click the access type: Exclusive: The first Receiver to access the Channel has exclusive control over the Channel. No other Receivers can view the Channel. The Timeout function does not apply to this setting. Occupy: The first Receiver to access the Channel has control over the Channel. However, additional Receivers may view the Channel's video display. If the Receiver controlling the Channel is inactive for longer than the time set in the Timeout box, control is transferred to the first Receiver to move the mouse or strike the keyboard. Share: Can simultaneously share control over the Channel. Input from the Receivers is placed in a queue and executed chronologically. View Only: Receiver connects with view only access to the Channels video display.
5	Next Arrow	Use these two buttons to navigate to the next page or to the end of the list if there are more Channels available than can be seen on the page.
6	Previous Arrow	Use these two buttons to navigate to the previous page or to the beginning of the list if there are more Channels available than can be seen on the page.
7	Favorites	Click Favorites to list only the Channels marked as favorites. Channels marked as favorites appear with a heart icon. To add/remove a Favorite, select a Channel and then right click with the mouse to select Add to Favorite or Remove from Favorite. Note: A maximum of 50 channels can be marked as <i>Favorites</i>.
8	Array Mode	Click to view the Channel connections with a video preview of each source. The list will be shown in groups of six at a time. The Array Mode is discussed on page 47.
9	List Mode	This option appears after selecting <i>Array</i> mode. Click to view the Channel connections in a list that can be sorted by name or with favorites listed first. Click the Channel Name heading to change the sort.

No.	Item	Description
10	EDID Mode	When a Transmitter's EDID is configured, depending on its setting, different buttons will or won't appear to configure the Receiver's EDID for the connection. The following rules apply to the Receiver's OSD according to the Transmitter's EDID setting: ◆ Under Default or Auto EDID mode, no EDID button appears as there is nothing to configure. ◆ Under Manual or Remix EDID mode, the EDID button appears allowing you to select <i>Manual EDID</i> or <i>Remix EDID</i>. Click Manual or Remix to adjust the EDID setting locally. To set the Transmitter's EDID Mode, see <i>Properties</i>, page 39.
11	Logout	Click this button to log out of the Connection Page.
12	Go to Configuration Window	Click this button to return to the main OSD screen.

Array Mode

Note that Array Mode is not supported by slim KVM over IP Receivers.

In *Array* Mode the screen is divided into a grid of panels, with each panel showing the video display of a particular Channel. Right-click a panel and select a mode to connect: **E**: Exclusive, **O**: Occupy, **S**: Share, **V**: View Only, **X**: Exit. While the mouse cursor hovers over a panel displaying video, if audio is being sent from that Transmitter, it can be heard at the Receiver.



No.	Item	Description
1	Next Arrow	Use these two buttons to navigate to the next page or to the end of the list if there are more Channels available than can be seen on the page.
2	Previous Arrow	Use these two buttons to navigate to the previous page or to the beginning of the list if there are more Channels available than can be seen on the page.
3	Grid Selection	Select a range for how many Channels you want to display. Options are: 2x2, 3x3, 4x4, 5x5, and 6x6.

No.	Item	Description
4	Favorites	Click Favorites to list only the Channels marked as favorites. Click All to list all Channels. To add/remove a Favorite, go to List Mode, select a Channel and then right click with the mouse to select Add to Favorite or Remove from Favorite. Note: A maximum of 50 channels can be marked as <i>Favorites</i>.
5	List Mode	Click to view the Channel connections in a list that can be sorted by name or with favorites listed first. Click the Channel Name heading to change the sort. <i>List Mode</i> is discussed on page 45.
6	Logout	Click this button to log out of the Connection Page.
10	Configure	Click this button to return to the main OSD screen.

Profile Page

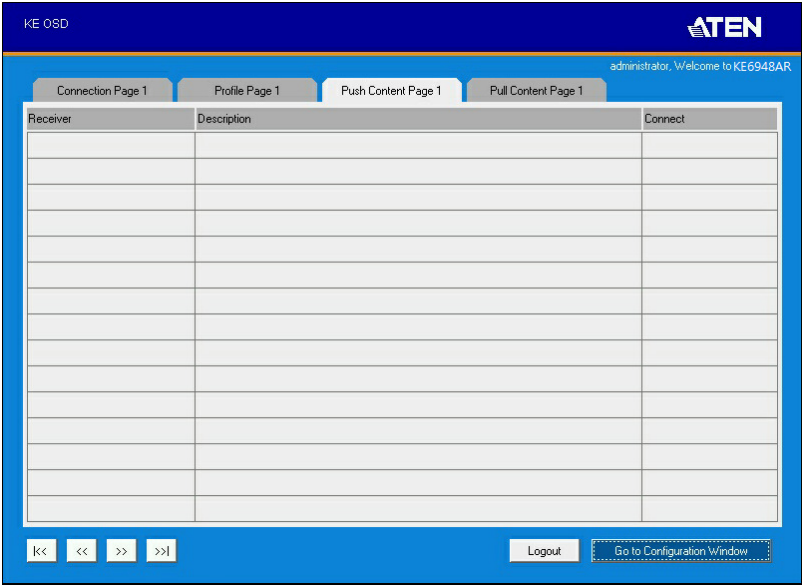
Click the *Profile Page* tab and the following screen appears:DD

The *Profile Page* components are described in the table below:

No.	Item	Description
1	Name	Lists the Profiles available. Profiles give Receivers access to Channels and allow you to push the connection.
2	Description	The field provides a description of the Profile that was entered when it was created.
3	Connect	Click Connect and the Receiver will connect with the settings of that Profile (see <i>Adding a Profile</i> , page 146).
4	Disconnect	Click Disconnect to end the current Profile connection.
5	Next Arrow	Use these two buttons to navigate to the next page or to the end of the list if there are more Profiles available than can be seen on the page.
6	Previous Arrow	Use these two buttons to navigate to the previous page or to the beginning of the list if there are more Profiles available than can be seen on the page.
7	Logout	Click this button to log out of the Connection Page.
8	Go to Configuration Window	Click this button to return to the main OSD screen.

Push Content

Push Content allows you to push the Receiver’s computer connection to another Receiver’s console, allowing both to access to the computer. Select the *Push Content* tab and the following screen appears:



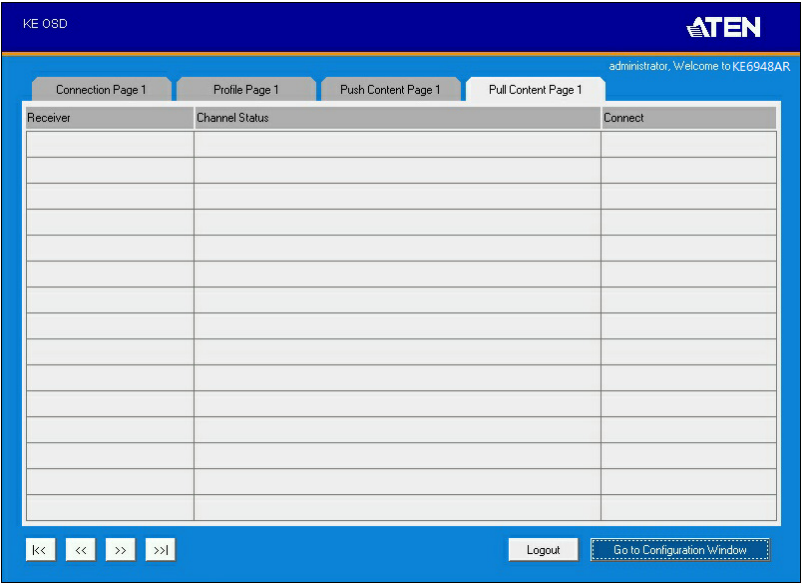
The *Push Content Page* components are described in the table, below:

No.	Item	Description
1	Receiver Name	Lists the Receivers that can be selected to push the local Receiver’s computer connection to.
2	Description	The field provides a description of the Receiver that was entered when it was created.
3	Connect	Click Push Content to push the local Receiver’s computer connection to the selected Receiver’s console. The local Receiver’s computer connection will appear on the Receiver that it was pushed to and both will share access to the computer. The access mode selected at the local Receiver will determine how access is shared (see <i>Transmitter Permissions</i> , page 121 for details).
5	Next Arrow	Use these two buttons to navigate to the next page or to the end of the list if there are more choices available than can be seen on the page.

No.	Item	Description
6	Previous Arrow	Use these two buttons to navigate to the previous page or to the beginning of the list if there are more choices available than can be seen on the page.
9	Logout	Click this button to log out of the Connection Page.
10	Go to Configuration Window	Click this button to return to the main OSD screen.

Pull Content

Pull Content allows you to pull a Receiver’s computer connection to the local Receiver’s console, allowing both to access to the computer. Click the *Pull Content* tab and the following screen appears:



The *Pull Content Page* components are described in the table, below:

No.	Item	Description
1	Receiver Name	Lists the Receiver names currently connected to the Channel listed under <i>Channel Status</i> .
2	Channel Status	Lists the name, description and access type of each available Channel connection.
3	Connect	Click Pull Content and the Receiver will pull the Channel connection to the local console using the access mode displayed under Channel Status.
5	Next Arrow	Use these two buttons to navigate to the next page or to the end of the list if there are more choices available than can be seen on the page.
6	Previous Arrow	Use these two buttons to navigate to the previous page or to the beginning of the list if there are more choices available than can be seen on the page.
9	Logout	Click this button to log out of the Connection Page.

No.	Item	Description
10	Go to Configuration Window	Click this button to return to the main OSD screen.

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Chapter 4

Firmware Upgrade Utility

The Windows-based Firmware Upgrade Utility (FWUpgrade.exe) provides a smooth, automated process for upgrading the firmware. The Utility comes as part of a Firmware Upgrade Package that is specific for each device. New firmware upgrade packages are posted on our web site as new firmware revisions become available. Check the web site regularly to find the latest packages and information relating to them:

<http://www.aten.com>

For browser based firmware upgrade, please refer to *FW Upgrade* on page 164.

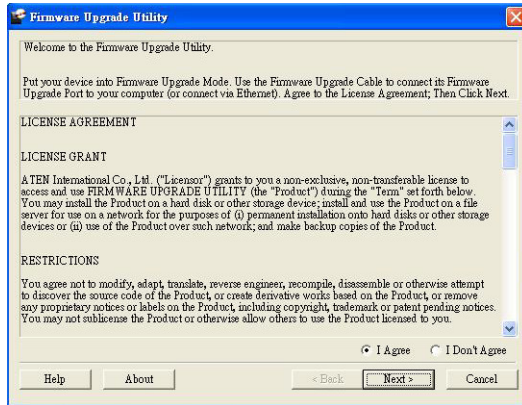
Preparation

1. From a computer that is not part of your installation go to our Internet support site and choose the model name that relates to your KE device to get a list of available Firmware Upgrade Packages.
2. Choose the Firmware Upgrade Package you want to install (usually the most recent), and download it to your computer.
3. Be sure that the computer is connected to the same LAN segment as the KE devices.

Starting the Upgrade

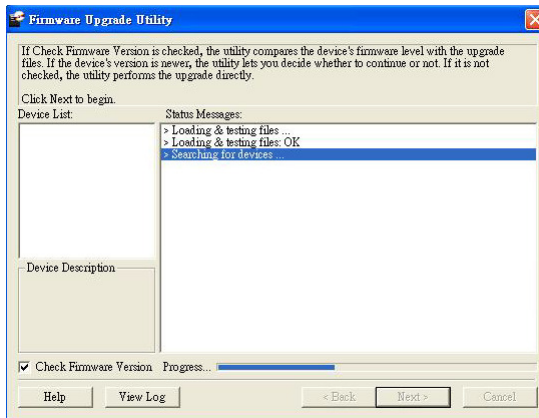
To upgrade your firmware:

1. Run the downloaded Firmware Upgrade Package file - either by double clicking the file icon, or by opening a command line and entering the full path to it. The Firmware Upgrade Utility Welcome screen appears:

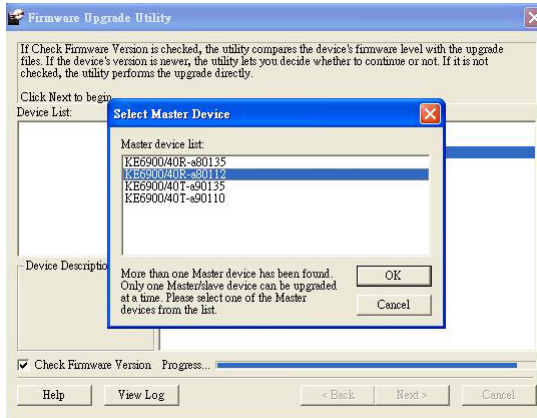


Note: The screens shown in this section are for reference only.

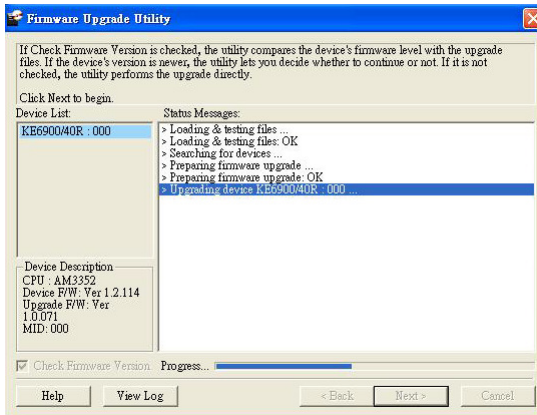
2. Read the License Agreement (enable the *I Agree* radio button).
3. Click **Next**. The Firmware Upgrade Utility main screen appears:



- The Utility inspects your installation. All the devices capable of being upgraded by the package are listed in the *Select Master Device* list.



- After you have made your device selection, Click **OK** and then **Next** to begin the upgrade.



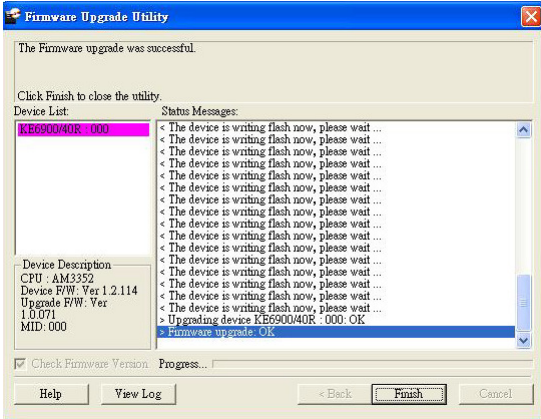
If you enabled *Check Firmware Version*, the Utility compares the device's firmware level with that of the upgrade files. If it finds that the device's version is higher than the upgrade version, it brings up a dialog box informing you of the situation and gives you the option to **Continue** or **Cancel**.

If you didn't enable *Check Firmware Version*, the Utility installs the upgrade files without checking whether they are a higher level, or not.

As the Upgrade proceeds status messages appear in the Status Messages panel, and the progress toward completion is shown on the *Progress* bar.

Upgrade Succeeded

After the upgrade has completed, a screen appears to inform you that the procedure was successful:



Firmware Upgrade Recovery

If the Upgrade Succeeded screen doesn't appear or the upgrade procedure is abnormally halted (due to computer crash, power failure, etc.), the device may become inoperable. If you find that the device does not work following a failed or interrupted upgrade, do the following

1. Power off the KE device.
2. Press the **Reset** button, then power on the KE device while holding Reset.
3. Hold **Reset** for 7 seconds after the device is powered on.
4. The device will revert to a previous firmware version and recover from the failure.
5. Upgrade the firmware to the most current version available.

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Chapter 5

CLI Commands

Serial Control Protocol Commands

The KE6948A's built-in bi-directional RS-232 serial interface and LAN port connection allows system control via Receivers through a high-end controller or PC. This control feature can also be accessed via TCP/IP through a computer running Telnet. The port for Telnet commands should be set to 9130.

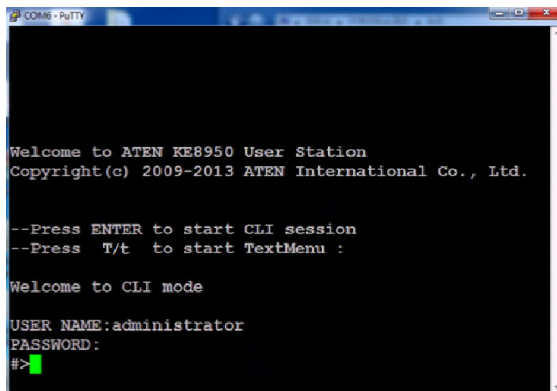
Configuring the Serial Port

The controller's serial port should be configured the same as the Receiver's default configuration, as shown below:

Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

The Receiver's **Function Switch** should be set to *RS-232 Config*. Before executing RS-232 commands across a network you must install the KVM over IP Matrix Manager on a computer and ensure that it is online.

On your computer, open a terminal (command line) session. Please press "Enter" or "T/t" to start "CLI Session" or "Text Menu".



```
COM6 - PuTTY
Welcome to ATEN KE8950 User Station
Copyright(c) 2009-2013 ATEN International Co., Ltd.

--Press ENTER to start CLI session
--Press T/t to start TextMenu :

Welcome to CLI mode

USER NAME:administrator
PASSWORD:
#>
```

Device/Profile Commands

When typing a device or profile into a command string, you can enter the name by: **IP address** (device only), **ID** or **@** with the List number for the device/profile in the command line interface.

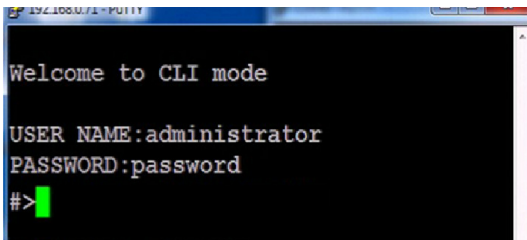
Note: To find out about the List number for a device/profile, execute a List command (page 78).

Telnet

The KE6948A can be operated and configured via a remote terminal session using Telnet. This is a useful means for configuring devices when they are first setup and connected to the network.

To log into the KE6948A device by means of a Telnet session, do the following:

1. On your computer, open a terminal (command line) session.
2. At the prompt, key in the KE6948A's IP address with port 9130 in the following way:
telnet [IP address] [port]
3. Press Enter. The login screen appears. At the login prompt, provide the Password.



Verification

After sending a command, a verification message appears at the end of the command line. Use the echo command to identify a command by number:

- ♦ **Command OK** - the command is correct and performed successfully
- ♦ **Command incorrect** - the command has the wrong format and/or values.
- ♦ **Echo Command** - at the end of a command string, type: **e1234** – where 1234 can be any number. The verification message returns with the echo number.

Switch Port Command

The formula for Switch Port commands is as follows:

Command + Output + Num1 + Input + Num2 + Mode + Stream + Connect + [Enter]

1. For example, if you want to switch the Receiver's connection to Transmitter (192.168.0.20), type the following:
sw i192.168.0.20 [Enter]
2. For example, if you want to disconnect the Receiver from its Transmitter connections, type the following:
sw off [Enter]
3. For example, if you want to connect Receiver (192.168.0.99) to Transmitter (192.168.0.79) with exclusive access to stream video and audio, type the following:
sw o192.168.0.99 i192.168.0.79 exclusive video audio on [Enter]
4. For example, to disconnect Receiver (192.168.0.11) from the video stream and return it to the OSD menu, type the following:
sw o192.168.0.11 off [Enter]
5. For example, to disconnect Receiver (192.168.0.09) from the video stream and logout the OSD, type the following:
sw o192.168.0.09 logout [Enter]
6. For example, to disconnect the Receiver's USB stream, type the following:
sw usb off [Enter]
7. For example, to switch the Receiver to the 5th Transmitter listed in the command line interface, type the following:
sw i@5 exclusive all on [Enter]
8. For example, to switch the Receiver to the 7th Transmitter listed in the command line interface with echo command 4312, type the following:
sw i@7 exclusive all on e4312
9. For example, to switch Receiver (192.168.0.12) to the 14th Transmitter listed in the command line interface with occupy access to stream video audio and USB, type the following:
sw o192.168.0.12 i@14 occupy video audio usb on [Enter]

The following tables show the possible values for the Switch Port commands:

Command	Description
sw	Switch port command

Output	Description
o	Output port command (RX)

Num1	Description
xx	Output port xx: Receiver ID or IP address
@zz	List # zz: 1~99 To use the 4th Receiver listed in the command line interface, type: o@4

Input	Description
i	Input command (TX)

Num2	Description
yy	Input port yy: Transmitter ID or IP address
@zz	List # zz: 1~99 To use the 8th Transmitter listed in the command line interface, type: i@8

Mode	Description
exclusive	Sets the Access Mode to exclusive.
share	Sets the Access Mode to share.
occupy	Sets the Access Mode to occupy.
viewonly	Sets the Access Mode to view only. If the mode is omitted, view only is used by default.

Stream	Description
video	Sets the video source stream
audio	Sets the audio source stream
serial	Sets the serial source stream

Stream	Description
usb	Sets the USB source stream
all	Sets all source streams
Connect	Description
on	Connect
off	Disconnect
logout	Logout OSD

The following table lists the available Switch Port commands:

Command	Output	Num1	Input	Num2	Mode	Stream	Connect	Description
sw	o	xx	i	yy	exclusive	video audio serial usb all	on	Switch output xx to input yy with exclusive access to source(s). xx: Receiver ID yy: Transmitter ID
sw	o	xx	i	yy	share	video audio serial usb all	on	Switch output xx to input yy with share access to stream source(s). xx: Receiver ID yy: Transmitter ID
sw	o	xx	i	yy	occupy	video audio serial usb all	on	Switch output xx to input yy with occupy access to stream source(s). xx: Receiver ID yy: Transmitter ID
sw	o	xx	i	yy	viewonly	video audio serial usb all	on	Switch output xx to input yy with viewonly access to stream source(s). xx: Receiver ID yy: Transmitter ID
sw	o	xx					off	Switch output xx, disconnect streams, return to OSD menu. xx: Receiver ID
sw	o	xx					logout	Switch output xx, disconnect streams and logout from OSD menu. xx: Receiver ID
sw						video audio serial usb all	off	Switch Receiver stream(s) to disconnect.

Command	Output	Num1	Input	Num2	Mode	Stream	Connect	Description
SW							off	Switch Receiver disconnect streams, return to OSD menu.
SW			i	@zz	exclusive share occupy viewonly	video audio serial usb all	on	Switch Receiver to input @zz with [mode] access to stream source(s). zz: Transmitter # by order listed in the command line interface.
SW	o	xx	i	@zz	exclusive	video audio serial usb all	on	Switch output xx to input @zz with [mode] access to stream source(s). xx: Receiver ID zz: Transmitter # by order listed in command line interface.

- Note:** 1. Each command string can be separated with a space.
2. The **Mode** command string can be skipped and **view only** will be used by default.
3. Skip the **Output** and **Num1** command strings to configure the local Receiver.

Mute Command

The Mute command allows you to enable or disable the audio.

The formula for the Mute command is as follows:

Command + Output + Num1 + Control + [Enter]

1. For example, to turn mute off (audio on) for the Receiver, type the following:

mute off [Enter]

2. For example, to turn mute on for Receiver (192.168.0.11), type the following:

mute o192.168.0.11 on [Enter]

3. For example, to turn mute off for Receiver (192.168.0.18), type the following:

mute o192.168.0.18 off [Enter]

The following tables show the possible values for the Mute commands:

Command	Description
mute	Mute command
Output	Description
o	Output port command
Num1	Description
xx	Output number xx: Receiver ID or IP address
Control	Description
on	Mute on; audio disabled
off	Mute off; audio enabled (default)

The following table lists the available Mute commands:

Command	Output	Num1	Control	Description
mute	o	xx	on	Turn mute on for output xx xx: Receiver ID
mute	o	xx	off	Turn mute off for output xx xx: Receiver ID

Command	Output	Num1	Control	Description
mute			on	Turn mute on for Receiver
mute			off	Turn mute off for Receiver

- Note:**
1. Each command string can be separated with a space.
 2. The **Control** command string can be skipped and **off** will be used by default.
 3. Skip the **Output** and **Num1** command strings to configure the local Receiver.
-

Profile Command

The Profile command allows you to connect profiles and video walls.

The formula for Profile commands is as follows:

Command + Profile + Num1 + Control + [Enter]

1. For example, to connect profile 8 and lock the OSD menu, type the following:
profile f8 [Enter]
2. For example, to connect profile 4 with access to the OSD menu, type the following:
profile f4 release [Enter]
3. For example, to disconnect profile 12 and return to the Receiver to the OSD menu, type the following:
profile f12 back [Enter]

The following tables show the possible values for the Profile commands:

Command	Description
profile	Profile command
Profile	Description
f	Profile ID
Num1	Description
xx	Profile or Video Wall ID xx: 1-99
Control	Description
lock	Connect profile, lock access to OSD menu (default)
release	Connect profile, allow access to OSD menu
back	Disconnect profile, return Receiver to OSD menu

The following table lists the available Profile commands:

Command	Profile	Num1	Control	Description
profile	f	xx	lock	Connect profile xx, lock OSD access xx:1~99
profile	f	xx	release	Connect profile xx, allow OSD access xx:1~99
profile	f	xx	back	Disconnect profile xx and return Receiver to OSD menu xx: 1~99

-
- Note:** 1. Each command string can be separated with a space.
2. The **Control** command string can be skipped and **lock** will be used by default.
3. For functional **lock** and **release** commands, make sure the **Lock OSD when connecting** option is checked during *Create Profile*. Refer to *Lock OSD*, page 139 for more information.
-

EDID Command

Extended Display Identification Data (EDID) is a data that contains a display's basic information and is used to communicate with the video source. The EDID commands allow you to change the EDID setting of a Transmitter. For more information on configuring EDID settings, see *Properties*, page 38.

The formula for the EDID command is as follows:

Command + Address + Number + Control + [Enter]

1. For example, if you want to configure device (192.168.0.3) to use the remix EDID mode, type the following:

edid a192.168.0.3 remix [Enter]

The following tables show the possible values for the EDID commands:

Command	Description
edid	EDID command
Address	Description
a	Address command
Number	Description
xx	Address number xx: Receiver ID or IP address
Control	Description
auto	Checks the EDID of all connected displays and the ATEN default EDID to use the best common resolution for all displays.
remix	Manually checks the EDID of all connected displays and the ATEN default EDID to use the best common resolution for all displays.
default	Implements ATEN's default EDID. (default)
manual	Manually set the EDID configuration from the Receiver's OSD.

The following table lists the available EDID commands:

Command	Address	Number	Control	Enter	Description
edid	a	xx	auto	[Enter]	Set EDID of address xx to auto. xx: Device ID or IP Address
edid	a	xx	remix	[Enter]	Set EDID of address xx to remix. xx: Device ID or IP Address
edid	a	xx	default	[Enter]	Set EDID of address xx to default. xx: Device ID or IP Address
edid	a	xx	manual	[Enter]	Set EDID of address xx to manual. xx: Device ID or IP Address

Reset Command

The Reset command allows you to reset a device back to the default factory settings. Reset includes resetting the devices IP address.

Note: The Reset command resets everything but the login information to the factory default settings. To reset the login information, refer to on page 100.

The formula for the Reset command is as follows:

Command + Address + Number + [Enter]

1. For example, to reset device (192.168.0.95), type the following:
reset a192.168.0.95 [Enter]
2. For example, to reset the Receiver, type the following:
reset [Enter]

The following tables show the possible values for the **Reset** command:

Command	Description
reset	Reset command
Address	Description
a	Address command
Number	Description
xx	Address number xx: Receiver ID or IP address

The following table lists the available Reset commands:

Command	Address	Num	Enter	Description
reset	a	xx	[Enter]	Reset address xx back to the factory default settings xx: Device ID or IP Address
reset			[Enter]	Resets the Receiver settings

- Note:**
1. Each command string can be separated with a space.
 2. Skip the **Address** and **Number** command strings to reset the local Receiver.

RS-232 Command

The RS-232 command allows you to set the RS-232 settings for a device.

The formula for the RS-232 command is as follows:

Command + Address + Number + Baud Rate + Parity + Data Bit + Stop Bit + Flow Control [Enter]

1. For example, to set device (192.168.0.33) with a baud rate of 38400, parity of none, data bit of 8, and stop bit of 1, type the following:

baud a192.168.0.33 38400 none 8 1 [Enter]

2. For example, to set the local device with a baud rate of 19200, type the following:

baud 19200 [Enter]

The following tables show the possible values for the RS-232 command:

Command	Description
baud	RS-232 command

Address	Description
a	Address command

Num1	Description
xx	Address number xx: Device ID or IP address

Baud Rate	Description
9600	Use 9600 baud rate
19200	Use 19200 baud rate
38400	Use 38400 baud rate
115200	Use 115200 baud rate

Parity	Description
None	Sets the parity to none
Even	Sets the parity to even
Odd	Sets the parity to odd

Data Bit	Description
5	Sets the data bit to 5
6	Sets the data bit to 6

Data Bit	Description
7	Sets the data bit to 7
8	Sets the data bit to 8
Stop Bit	Description
1	Sets the stop bit to 1
2	Sets the stop bit to 2
Flow Control	Description
None	Sets flow control to none
Hardware	Sets flow control to hardware
Xon	Sets flow control to Xon
Xoff	Sets flow control to Xoff

The following table lists the available Baud Rate commands:

Com mand	Address	Num 1	Baud Rate	Parity	Data Bit	Stop Bit	Flow Control	Description
baud	a	xx	9600	None Even Odd	5 6 7 8	1 2	None Hardware Xon/Xoff	Set address xx baud rate to 9600, with parity/ data bit/ stop bit / flow control setting
baud	a	xx	19200	None Even Odd	5 6 7 8	1 2	None Hardware Xon/Xoff	Set address xx baud rate to 19200, with parity/ data bit/ stop bit / flow control setting
baud	a	xx	38400	None Even Odd	5 6 7 8	1 2	None Hardware Xon/Xoff	Set address xx baud rate to 38400, with parity/ data bit/ stop bit / flow control setting
baud	a	xx	115200	None Even Odd	5 6 7 8	1 2	None Hardware Xon/Xoff	Set address xx baud rate to 115200, with parity/ data bit/ stop bit / flow control setting

Com mand	Address	Num 1	Baud Rate	Parity	Data Bit	Stop Bit	Flow Control	Description
baud			9600					Set local device baud rate to 9600
baud			19200					Set local device baud rate to 19200
baud			38400					Set local device baud rate to 38400
baud			115200					Set local device baud rate to 115200

- Note:** 1. Each command string can be separated with a space.
2. The **Baud Rate** value is required but **Parity**, **Data Bit** and **Stop Bit** can be skipped and their setting will not change.
3. Skip the **Address** and **Number** command strings to configure the local device settings.
-

OSD Command

To enable or disable the On-Screen Display (OSD) menu for a Receiver, use the following command:

Command + Output + Number + Control + [Enter]

1. For example, to enable the OSD for Receiver 192.168.0.51, type:
osd o192.168.0.51 on [Enter]
2. For example, to disable the OSD for the local Receiver, type:
osd off [Enter]

The following tables show the possible values for the OSD command:

Command	Description
osd	OSD command
Output	Description
o	Output command
Number	Description
xx	Output number xx: Receiver ID or IP address
Control	Description
on	Enable OSD functions
off	Disable OSD functions (default)

The following table lists the available OSD commands:

Command	Output	Number	Control	Enter	Description
osd	o	xx	on	[Enter]	Enable OSD functions for output xx xx: Receiver ID or IP address
osd	o	xx	off	[Enter]	Disable OSD functions for output xx off (default) xx: Receiver ID or IP address

Note: 1. Each command string can be separated with a space.

2. Skip the **Output** and **Number** command strings to configure the local Receiver.

List Command

The List command allows you to retrieve information about users, settings and connections.

The formula for the List command is as follows:

Command + Output + Input + Number + Control [Enter]

1. For example, for a complete list of available channels, type the following:
list channel [Enter]
2. For example, for a complete list of available profiles, type the following:
list profile [Enter]
3. For example, to list all users logged into all OSD menus, type the following:
4. list login [Enter]
5. For example, to list the user logged into the OSD on Receiver (192.168.0.44), type the following:
list o192.168.0.44 login [Enter]
6. For example, for a complete list of available connections, type the following:
list connection [Enter]
7. For example, to list the current connections on Transmitter (192.168.0.88), type the following:
list i192.168.0.88 connection [Enter]

The following tables show the possible values for the List command:

Command	Description
list	List command

Output	Description
o	Output command

Input	Description
i	Input command

Number	Description
xx	Output or Input number xx: Device ID or IP address

Control	Description
channel	Lists information about the available channel(s)
profile	Lists information about the available profile and TV wall connections
rx	Lists information about the Receiver
login	Lists information about users logged into the OSD menu
connection	Lists information about a Transmitters current connections

The following table lists the available List commands:

Command	Output	Input	Number	Control	Description
list	o		xx	login	List output xx user logged into OSD.
list	o		xx	rx	List output xx Receiver information
list		i	xx	connection	List input xx Transmitter information
list				channel	List all available channel information
list				profile	List all available profile information
list				rx	List information about all Receivers
list				login	List information about all OSD logins
list				connection	List information about all connections

Note: 1. Each command string can be separated with a space.

2. Skip the **Output** or **Input** and **Number** command strings to view the local Receiver.

Read Command

The Read command allows you to retrieve the properties of a device.

The formula for the Read command is as follows:

Command + Output + Input + Number + Control [Enter]

1. For example, to read all of the local Receiver's properties, type the following:
read all [Enter]
2. For example, to read all of Receiver (192.168.0.19) device properties, type the following:
read o192.168.0.19 all [Enter]
3. For example, to read all of Transmitter (192.168.0.28) device properties, type the following:
read i192.168.0.28 all [Enter]
4. For example, to read the basic properties of Receiver (192.168.0.61), type the following:
read o192.168.0.61 basic [Enter]
5. For example, to read the network properties of Transmitter (192.168.0.71), type the following:
read i192.168.0.71 network [Enter]

The following tables show the possible values for the Read command:

Command	Description
read	Read command

Output	Description
o	Output command

Input	Description
i	Input command

Number	Description
xx	Output or Input number xx: Device ID or IP address

Control	Description
all	Read all device properties

Control	Description
basic	Read basic properties
network	Read network properties
ipsettings	Read IP settings
rs232	Read RS232 properties
properties	Read connection properties
manager	Read KVM over IP Matrix Manager properties
streams	Read enable media properties
tx	Read source stream IP properties (Receiver)
usbmode	Read USB mode properties (Receiver)
multicast	Read multicast properties (Transmitter)
videoqtyadvanced	Read advanced video properties (Transmitter)
ossettings	Read OS properties (Transmitter)

The following table lists the available Read commands:

Command	Output	Input	Number	Control	Description
read	o	i	xx	all	Read output or input xx all device properties xx: Device ID or IP address
read	o	i	xx	basic	Read output or input xx basic properties xx: Device ID or IP address
read	o	i	xx	network	Read output or input xx network properties xx: Device ID or IP address
read	o	i	xx	ipsettings	Read output or input xx IP address properties xx: Device ID or IP address

Command	Output	Input	Number	Control	Description
read	o	i	xx	rs232	Read output or input xx RS-232 properties xx: Device ID or IP address
read	o	i	xx	properties	Read output or input xx connection properties xx: Device ID or IP address
read	o	i	xx	manager	Read output or input xx KVM over IP Matrix Manager IP and port properties xx: Device ID or IP address
read	o	i	xx	streams	Read output or input xx enable media properties xx: Device ID or IP address
read	o		xx	tx	Read output xx source stream IP address properties xx: Receiver ID or IP address
read	o		xx	usbmode	Read output xx USB mode properties xx: Receiver ID or IP address
read	i		xx	multicast	Read input xx multicast properties xx: Transmitter ID or IP address
read	i		xx	videoqtyadvanced	Read input xx advanced video properties xx: Transmitter ID or IP address
read	i		xx	ossettings	Read input xx OS properties xx: Transmitter ID or IP address
read				all	Read all properties of local Receiver

Command	Output	Input	Number	Control	Description
read				basic network ipsettings rs232 properties manager streams tx usbmode	Read [control] properties of local Receiver.

Note: 1. Each command string can be separated with a space.

2. Skip the **Output** or **Input** and **Number** command strings to read the local Receiver properties.

Set Command

The Set command allows you to configure the properties of a device. Some settings require that both the device and KVM over IP Matrix Manager are online or the command will fail.

The formula for the Set command is as follows:

Command + Output + Input + Number + Control + Value + [Enter]

1. For example, to set the name of the local Receiver to KE6948A, type the following:

set Name=KE6948A [Enter]

2. For example, to set the description of Transmitter (192.168.0.33) to KE Room B, type the following:

set o192.168.0.19 Description=KE Room B [Enter]

3. For example, to set the DHCP settings of Transmitter (192.168.0.28) to static, type the following:

set i192.168.0.28 dhcpFlag=STATIC [Enter]

4. For example, to set the IP settings of the local Receiver to 192.168.0.2, type the following:

set ipAddr=192.168.0.2 [Enter]

5. For example, to set the Transmitter Video IP setting to 192.168.0.44 for Receiver (192.168.0.56), type the following:

set o192.168.0.56 TxVideoIP=192.168.0.44 [Enter]

The following tables show the possible values for the Set command:

Command	Description
set	Set command

Output	Description
o	Output command

Input	Description
i	Input command

Number	Description
xx	Output or Input number xx: Device ID or IP address

Control	Description
Name	Sets the device name
Description	Sets the device description
ipInstallerFlag	Sets the IP installer option
dhcpFlag	Sets the DHCP setting
ipAddr	Sets the IP address
netmask	Sets the subnet mask
gw	Sets the default gateway
modeFlag	Sets the device mode
BaudRate	Sets the baud rate setting
Parity	Sets the parity setting
DataBit	Sets the data bit setting
StopBit	Sets the stop bit setting
FlowCtrl	Sets the flow control setting
TxVideoIP	Sets the Transmitter video IP setting
TxAudioIP	Sets the Transmitter audio IP setting
TxUSBIP	Sets the Transmitter USB IP setting
TxRSIP	Sets the Transmitter RS-232 IP setting
VideoEnFlag	Sets the (enable media) video source stream
AudioEnFlag	Sets the (enable media) audio source stream
USBEnFlag	Sets the (enable media) USB source stream
RSEnFlag	Sets the (enable media) RS232 source stream
ManagerIP	Sets the KVM over IP Matrix Manager IP
ManagerPort	Sets the KVM over IP Matrix Manager port
Beeper	Sets the beeper
RxVM	Sets the USB mode setting
USBSecure	Sets the USB encryption
PortOS	Sets the port OS setting
OSLanguage	Sets the OS language
videoMCastEn	Sets the enable multicast video setting

Control	Description
audioMCastEn	Sets the enable multicast audio setting
Edid	Sets the EDID mode selection setting
VideoType	Sets the video type setting
ColorDepth	Sets the color depth setting
BandwidthLimit	Sets the bandwidth limit setting
VideoQty	Sets the video quality setting
BGRefresh	Sets the background refresh setting
Beeper	Sets the beeper setting
OccupyTimeout	Sets the occupy timeout setting
Resolution	Sets the resolution setting
Value	Description
=yy	Set value to yy yy: Enter a value that corresponds to the control being used

The following table lists the available Set commands:

Comm and	Output	Input	Number	Control	Value	Description
Set	o	i	xx	Name	yy	Set output or input xx Name to yy xx: Device ID or IP address yy: Name value
Set	o	i	xx	Description	yy	Set output or input xx Description to yy xx: Device ID or IP address yy: Description value
Set	o	i	xx	ipInstallerFlag	yy	Set output or input xx ipInstallerFlag to yy xx: Device ID or IP address yy: enable, viewonly, disable

Comm and	Output	Input	Number	Control	Value	Description
Set	o	i	xx	dhcpFlag	yy	Set output or input xx dhcpFlag to yy xx: Device ID or IP address yy: dhcp, static
Set	o	i	xx	ipAddr	yy	Set output or input xx ipAddr to yy xx: Device ID or IP address yy: IP address value
Set	o	i	xx	netmask	yy	Set output or input xx netmask to yy xx: Device ID or IP address yy: Subnet mask value
Set	o	i	xx	gw	yy	Set output or input xx gw to yy xx: Device ID or IP address yy: Default gateway value
Set	o	i	xx	modeFlag	yy	Set output or input xx modeFlag to yy xx: Device ID or IP address yy: extender, matrix
Set	o	i	xx	BaudRate	yy	Set output or input xx BaudRate to yy xx: Device ID or IP address yy: 9600, 19200, 38400, 115200
Set	o	i	xx	Parity	yy	Set output or input xx Parity to yy xx: Device ID or IP address yy: none, even, odd
Set	o	i	xx	DataBit	yy	Set output or input xx DataBit to yy xx: Device ID or IP address yy: 5, 6, 7, 8

Comm and	Output	Input	Number	Control	Value	Description
Set	o	i	xx	StopBit	yy	Set output or input xx StopBit to yy xx: Device ID or IP address yy: 1, 1.5, 2
Set	o	i	xx	FlowCtrl	yy	Set output or input xx FlowCtrl to yy xx: Device ID or IP address yy: none, hardware, Xon, Xoff
Set	o	i	xx	TxVideoIP	yy	Set output xx TxVideoIP to yy xx: Device ID or IP address yy: IP address value
Set	o		xx	TxAudioIP	yy	Set output xx TxAudioIP to yy xx: Device ID or IP address yy: IP address value
Set	o		xx	TxUSBIP	yy	Set output xx TxUSBIP to yy xx: Device ID or IP address yy: IP address value
Set	o		xx	TxRSIP	yy	Set output xx TxRSIP to yy xx: Device ID or IP address yy: IP address value
Set	o	i	xx	VideoEnFlag	yy	Set output or input xx VideoEnFlag to yy xx: Device ID or IP address yy: enable, disable
Set	o	i	xx	AudioEnFlag	yy	Set output or input xx AudioEnFlag to yy xx: Device ID or IP address yy: enable, disable

Comm and	Output	Input	Number	Control	Value	Description
Set	o	i	xx	USBEnFlag	yy	Set output or input xx USBEnFlag to yy xx: Device ID or IP address yy: enable, disable
Set	o	i	xx	RSEnFlag	yy	Set output or input xx RSEnFlag to yy xx: Device ID or IP address yy: enable, disable
Set	o	i	xx	ManagerIP	yy	Set output or input xx ManagerIP to yy xx: Device ID or IP address yy: KVM over IP Matrix Manager IP address
Set	o	i	xx	ManagerPort	yy	Set output or input xx ManagerPort to yy xx: Device ID or IP address yy: KVM over IP Matrix Manager port
Set	o	i	xx	Beeper	yy	Set output or input xx Beeper to yy xx: Device ID or IP address yy: enable, disable
Set	o		xx	RxVM	yy	Set output xx RxVM to yy xx: Device ID or IP address yy: vm, vusb
Set	o		xx	USBSecure	yy	Set output xx USBSecure to yy xx: Device ID or IP address yy: on, off
Set		i	xx	PortOS	yy	Set input xx PortOS to yy xx: Device ID or IP address yy: win, mac, sun, other

Comm and	Output	Input	Number	Control	Value	Description
Set		i	xx	OSLanguage	yy	Set input xx OSLanguage to yy xx: Device ID or IP address yy: english, japanese, french, german, spanish, korean, chinese(traditional), english(uk), swedish, arabic, belgian, canadian-bilingual, french(canada), czech, danish, finnish, greek, hebrew, hungarian, international(iso), italian, latin american, dutch, norwegian, persian(farsi), polish, portuguese, russian, slovak, french (switzerland), german (switzerland), switzerland, reserved, turkish-q, reserved, serbo-croatian
Set		i	xx	videoMCastEn	yy	Set input xx videoMCastEn to yy xx: Device ID or IP address yy: enable, disable
Set		i	xx	audioMCastEn	yy	Set input xx audioMCastEn to yy xx: Device ID or IP address yy: enable, disable
Set		i	xx	Edid	yy	Set input xx Edid to yy xx: Device ID or IP address yy: default, auto, manual, remix
Set		i	xx	VideoType	yy	Set input xx VideoType to yy xx: Device ID or IP address yy: dvi-d, dvi-a

Comm and	Output	Input	Number	Control	Value	Description
Set		i	xx	ColorDepth	yy	Set input xx ColorDepth to yy xx: Device ID or IP address yy: 8, 16, 24, and 36 (only for KE89 Series)
Set		i	xx	BandwidthLimit	yy	Set input xx BandwidthLimit to yy xx: Device ID or IP address yy: unlimited, 100, 200, 500
Set		i	xx	VideoQty	yy	Set input xx VideoQty to yy xx: Device ID or IP address yy: 1, 2, 3, 4, 5
Set		i	xx	BGRefresh	yy	Set input xx BGRefresh to yy xx: Device ID or IP address yy: off, 16, 32, 64, 128, 256
Set		i	xx	OccupyTimeout	yy	Set input xx OccupyTimeout to yy xx: Device ID or IP address yy: 1~240

Comm and	Output	Input	Number	Control	Value	Description
Set		i	xx	Resolution=	yy	Set input xx Resolution to yy xx: Device ID or IP address yy: 1920x1200, 1920x1080, 1680x1050, 1600x1200, 1600x900, 1440x900, 1400x1050, 1366x768, 1280x1024, 1280x960, 1280x720, 1152x864, 1024x768, 800x600, 720x400, 640x480, 2560x1080*, 3840x2160*, 1920x1440*, 2560x1600*, 2560x1440*, 2048x1536* *Only for KE89 Series

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.
- ♦ Avoid circuit overloads. Before connecting equipment to a circuit, know the power supply's limit and never exceed it. Always review the electrical specifications of a circuit to ensure that you are not creating a dangerous condition or that one doesn't already exist. Circuit overloads can cause a fire and destroy equipment.
- ♦ 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 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 1-949-428-1111

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

KE6948A

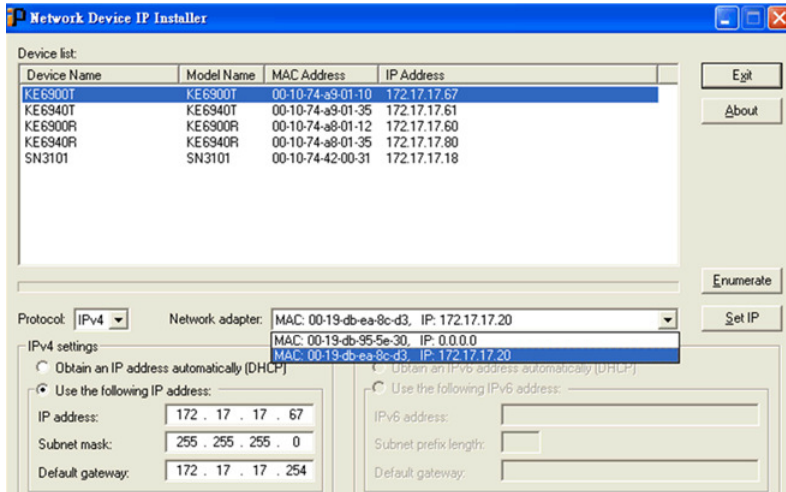
Function		KE6948AT	KE6948AR
Connectors	USB Port		2 x USB Type A Female (White)
	Console Ports	Keyboard	1 x USB Type A Female (White)
		Video	2 x DVI-I Female (White)
		Mouse	1 x USB Type A Female (White)
		Speaker	1 x Mini Stereo Jack Female (Green)
		Mic.	1 x Mini Stereo Jack Female (Pink)
		RS-232	1 x DB-9 Male (Black)
	KVM Ports	KB / Mouse	1 x USB Type B Female (White)
		Speaker	1 x Mini Stereo Jack (Green)
		Mic.	1 x Mini Stereo Jack (Pink)
		Video	2 x DVI-I Female (White)
		RS-232	1 x DB-9 Female (Black)
	Power		2 x Lockable DC Jack (Black)
	LAN Ports		1 x RJ-45 Female (Black) 1 x SFP Slot
Switches	Mode Selection		1 x Slide switch (Auto, RS-232 Config/ Access Control, Local) 1 x Slide switch (Extension, RS-232 Config)
	Reset		1 x Semi-recessed Pushbutton
LEDs	LAN		1 x LED for RJ-45 (10/100: OFF, 1000: Green) 1 x LED for SFP Slot (10/100: OFF, 1000: Green)
	Power		2 x Green
	Local		1 x Green
	Remote		1 x Green
Emulation	Keyboard / Mouse		USB

Function		KE6948AT	KE6948AR
Power Consumption		DC12V:15.88W:96BT U/H	DC12V:14.46W:110B TU/H
		Note: ♦ The measurement in Watts indicates the typical power consumption of the device with no external loading. ♦ The measurement in BTU/h indicates the power consumption of the device when it is fully loaded.	
Video Resolution		Up to 2* 1920 x 1200 @ 60Hz	
Latency		< 5ms	
Input Voltage		230V 50 Hz	
Environment	Operating Temp.	-15 – 55 °C, (5 – 55 °C for DNV)	
	Storage Temp.	-20 – 60 °C	
	Humidity	0–95% RH, Non-condensing	
Physical Properties	Housing	Metal	
	Weight	2.40 kg (5.29 lb)	2.36 kg (5.2 lb)
	Dimensions (L x W x H)	21.47 x 21.11 x 4.18 cm (8.45 x 8.31 x 1.65 in)	
Rack Mount	Weight	0.2 kg	
	Dimensions (L x W x H)	26.6 x 26.6 x 0.4 cm	
Adapter Rack Mount	Weight	0.2 kg	
	Dimensions (L x W x H)	17.87 x 11.85 x 3.32 cm	

IP Installer

From a client computer running Windows, an IP address for a transmitter or receiver can be assigned with the IP Installer utility. The utility can be obtained from the Download area of our website or from the product page on the *Software & Driver* tab. After downloading the utility to your client computer, do the following:

1. Unzip the contents of IPInstaller.zip to a directory on your hard drive.
2. Go to the directory that you unzipped the IPInstaller program to and run IPInstaller.exe. A dialog box similar to the one below appears:



3. Select the Transmitter or Receiver in the Device List.

Note: 1. If the list is empty, or your device doesn't appear, click **Enumerate** to refresh the Device List.

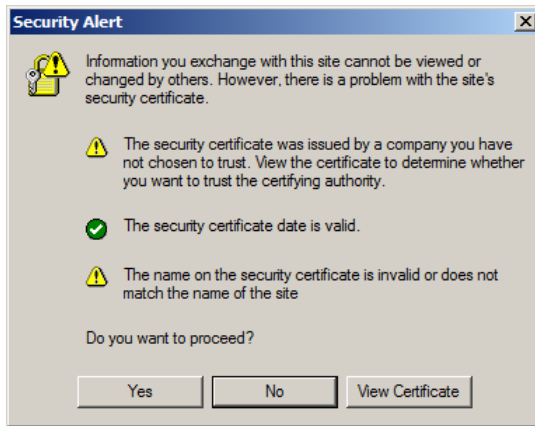
2. If there is more than one device in the list, use the MAC address to pick the one you want. The MAC address is located on the devices bottom panel.

4. Select either *Obtain an IP address automatically (DHCP)*, or *Specify an IP address*. If you chose the latter, fill the IP Address, Subnet Mask, and Gateway fields with the information appropriate to your network.
5. Click **Set IP**.
6. After the IP address shows up in the Device List, click **Exit**.

Trusted Certificates

Overview

When you try to log in to the device from your browser, a Security Alert message appears to inform you that the device's certificate is not trusted, and asks if you want to proceed.



The certificate can be trusted, but the alert is triggered because the certificate's name is not found on the Microsoft list of Trusted Authorities. You can ignore the warning and click **Yes** to go on.

Self-Signed Private Certificates

If you wish to create your own self-signed encryption key and certificate, a free utility – `openssl.exe` – is available for download over the web at **www.openssl.org**. To create your private key and certificate do the following:

1. Go to the directory where you downloaded and extracted *openssl.exe* to.
2. Run `openssl.exe` with the following parameters:

```
openssl req -new -newkey rsa:1024 -days 3653 -nodes -x509  
-keyout CA.key -out CA.cer -config openssl.cnf
```

Note: 1. The command should be entered all on one line (i.e., do not press [Enter] until all the parameters have been keyed in).

2. If there are spaces in the input, surround the entry in quotes (e.g., “ATEN International”).
-

To avoid having to input information during key generation the following additional parameters can be used:

```
/C /ST /L /O /OU /CN /emailAddress.
```

Examples

```
openssl req -new -newkey rsa:1024 -days 3653 -nodes -x509  
-keyout CA.key -out CA.cer -config openssl.cnf -subj  
"/C=yourcountry/ST=yourstateorprovince/L=yourlocationor  
city/O=yourorganization/OU=yourorganizationalunit/  
CN=yourcommonname/emailAddress=name@yourcompany.com
```

```
openssl req -new -newkey rsa:1024 -days 3653 -nodes -x509  
-keyout CA.key -out CA.cer -config openssl.cnf -subj  
"/C=CA/ST=BC/L=Richmond/O=ATEN International/OU=ATEN  
/CN=ATEN/emailAddress=eservice@aten.com.tw
```

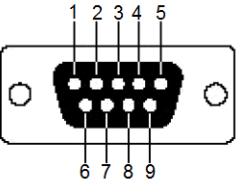
Importing the Files

After the `openssl.exe` program completes, two files – `CA.key` (the private key) and `CA.cer` (the self-signed SSL certificate) – are created in the directory that you ran the program from.

RS-232 Pin Assignments

Pin assignments for the Transmitter and Receiver’s rear RS-232 port that is used for connecting to a serial terminal are given in the table, below:

Pin	Assignment	
1	N/A	None
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request to Sent
8	CTS	Clear to Sent
9	N/A	None

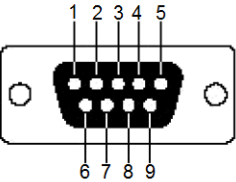


DB9 Male

Transmitter Front RS-232 Port

Pin assignments for the Transmitter’s front RS-232 port that is used for connecting to a computer for serial control are given in the table, below:

Pin	Assignment	
1	N/A	None
2	TXD	Transmit Data
3	RXD	Receive Data
4	DSR	Data Set Ready
5	GND	Signal Ground
6	DTR	Data Terminal Ready
7	CTS	Clear to Sent
8	RTS	Request to Sent
9	N/A	None



DB9 Female

Multicast IP Address

Multicasting helps to broadcast audio and video data from a transmitter to multiple Receivers over a network. To setup up Multicasting on a network switch you must know the Audio and Video Multicast IP address which can be found on the KE Transmitter. To determinate the default Multicast IP address set by the KE device use the instructions below. The Multicast IP addresses can be set manually using Telnet.

KE Multicast Rule

All Audio and Video Multicast IP addresses use the format: 230.X.Y.Z.

X.Y.Z relates to the Transmitter's IP address and **230** is always the first octet of a Multicast IP address. You use the Transmitter's IP address to find **X** and then use it to calculate the Audio and Video Multicast IP address.

Multicast IP Formula

To calculate the Audio and Video Multicast IP address, use the Transmitter's IP address to determine **X** and then use the appropriate table below to calculate the Multicast IP address for each data stream (audio/video).

Example:

Transmitter IP Address: 172.**16**.27.146; (172.X.Y.Z)

X=16

If X is between 0 ~ 127

Transmitter IP	X	Video X + 128	Audio X + 192	Multicast Video IP Address	Multicast Audio IP Address
172. 16 .27.146 (example)	16	<u>16</u> + 128 = 144	<u>16</u> + 192 = 208	230. 144 .27.146	230. 208 .27.146
		___ + 128 =	___ + 192 =	230.____.____.	230.____.____.
		___ + 128 =	___ + 192 =	230.____.____.	230.____.____.
		___ + 128 =	___ + 192 =	230.____.____.	230.____.____.

If X is between 128 ~ 192

Transmitter IP	X - 128 = A	Video A + 128	Audio A + 192	Multicast Video IP Address	Multicast Audio IP Address
172.168.27.14 (example)	168 - 128 = 40	40 + 128 = 168	40 + 192 = 232	230.168.27.14	230.232.27.14
	___ - 128 =	___ + 128 =	___ + 192 =	230.____.____.____	230.____.____.____
	___ - 128 =	___ + 128 =	___ + 192 =	230.____.____.____	230.____.____.____
	___ - 128 =	___ + 128 =	___ + 192 =	230.____.____.____	230.____.____.____

If X is 192 or higher

Transmitter IP	X - 192 = A	Video A + 128	Audio A + 192	Multicast Video IP Address	Multicast Audio IP Address
172.200.27.14 (example)	200 - 192 = 8	8 + 128 = 136	8 + 192 = 200	230.136.27.14	230.200.27.14
	___ - 192 =	___ + 128 =	___ + 192 =	230.____.____.____	230.____.____.____
	___ - 192 =	___ + 128 =	___ + 192 =	230.____.____.____	230.____.____.____
	___ - 192 =	___ + 128 =	___ + 192 =	230.____.____.____	230.____.____.____

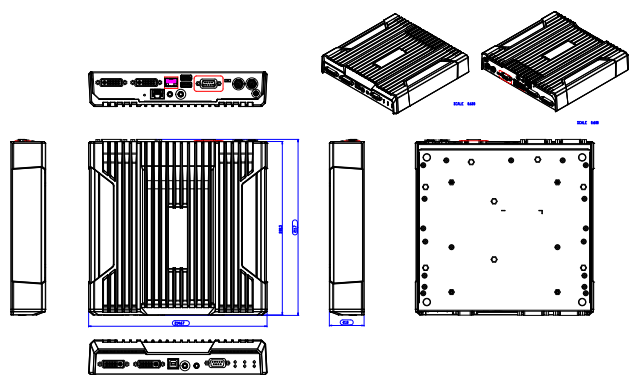
ATEN Warranty Policy

The warranty policy may vary by product category and region of purchase. For details, please visit ATEN's official website, select your purchase countries/regions and then go to the Support Center, or contact your local ATEN sales representative for further assistance.

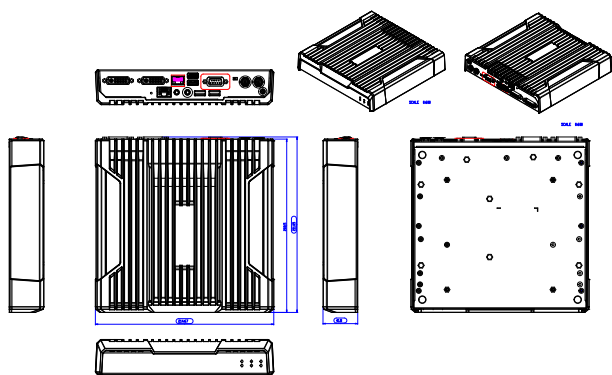
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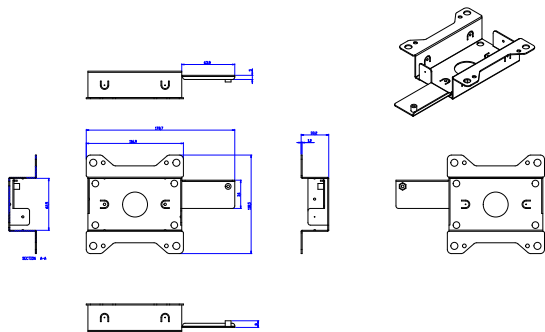
KE6948AT



KE6948AR



Optional Adapter Rack Mount (For DNV)



Optional Rack Mount (For DNV)

