

# 5K DisplayPort KVM over IP Extender

## KX9970 / KX9970F

The KX9970 / KX9970F 5K DisplayPort Single Display KVM over IP Extender consists of a high performance IP-based transmitter (KX9970T / KX9970FT) and a receiver (KX9970R / KX9970FR), where the transmitter can transmit a computer's keyboard, video, mouse, and USB signals to the receiver for providing separate console accesses from both the transmitter's and receiver's locations. The setup allows extended access to computer systems via a USB console (USB keyboard, USB mouse, DisplayPort monitor) over Intranet, enabling users to place the computers in secure and temperature-controlled environments, which may be isolated from the user workstation.

The KX9970 / KX9970F each support one DisplayPort video display for delivering video resolutions of up to 5K (5120 x 2880 @ 30 Hz), and offer flawless and lossless video quality with extremely low latency. Each KX9970 extender model is equipped with one RJ-45 port and two SFP+ slots while KX9970F is only equipped with two SFP+ slots. 10-Gbps SFP+ fiber module expansions are supported for fiber optic network connections and a transmission distance of up to 10 km. For connection flexibility, both the KX9970 transmitter and receiver models can be connected either directly to each other or via a high-speed network over a copper-based or fiber-based LAN. The KX9970 / KX9970F also features dual power supply capability for power redundancy to ensure reliable services. The KX9970 / KX9970F can be set up at the workstation, mounted onto a wall or at the rear of a rack with its space-saving 0U rack-mount design.

As an IP-based matrix extender, the KX9970 / KX9970F can be installed in flexible configurations, including point to point, point to multipoint, multipoint to point, and multipoint to multipoint. When combined with the KVM over IP Matrix Manager (CCKM), it can be integrated into a KVM over IP matrix system (multipoint-to-multipoint) for providing more flexible applications in different working environments.

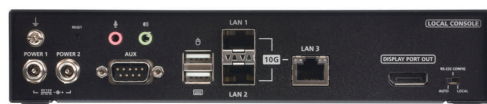
By integrating CCKM with KX9970 / KX9970F, IT administrators can benefit from advanced features such as auto detection of all KX9970 / KX9970F devices on the same subnet for the sake of fast installation or configuration, username / password authentication and authorization, and the ability to define different types of connections that can be switched and shared. Security features of the KX9970 / KX9970F include 256-bit AES encryption for secured data transmissions, as well as RADIUS, LDAP, Active Directory, TACACS+ for 3rd-party authentication services. In conclusion, the KX9970 / KX9970F is the most cost-effective and convenient way to provide full digital extension for control room applications through a network.

**Note:** \*The SFP+ module (2A-141G / 2A-142G) is sold separately. Contact your ATEN dealer for product information.

KX9970T Front View



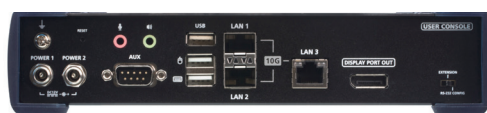
KX9970T Rear View



KX9970R Front View



KX9970R Rear View



KX9970FT Front View



KX9970FT Rear View



KX9970FR Front View



KX9970FR Rear View



## Features

### Advanced Features<sup>1</sup>

- Lossless video compression up to 5120 x 2880 including UHD or DCI with zero latency
- Native DP signal processing with color depth 24, 30, 36 bits
- Supports HDR 10, Adobe RGB
- Supports USB isochronous transfer to enable USB camera and USB speaker usage between transmitter and receiver
- ATEN Matrix Link – allows users to instantly link transmitters and receivers to perform real-time port and profile switching on an iPad
- Boundless Switching - simply moves the mouse cursor across screen borders to switch between different receivers (Rx)
- Push and Pull – shares content instantly to/from a single Rx or video wall by just one click
- Video walls – creates multiple video walls with up to 12 x 12 (144 displays max.) in each layout
- Advanced Scheduling – improves efficiency and saves costs by allowing connections to be set based on time and date
- Virtual Transmitter – independently streams video, audio, USB, and serial sources from different Tx
- Internal and external authentication support – supports LDAP, Active Directory, RADIUS and TACACS+
- Advanced User Authorization Settings – administrators can set up to four access modes on Tx devices for collaboration or prevention of interference among users
- Configurable user and group permissions for access and control of KX devices
- Tx grouping of up to 4 sets of KX transmitters to support multi-display applications
- Rx access control – users at the Tx local console can enable / disable Rx control privilege by simply pressing a control button<sup>2</sup>

### Note:

1. These advanced functions are supported when the KX transmitters are paired with KX receivers and managed by CCKM.
2. The KVM over IP Access Control Box (2XRT-0015G) is sold separately. Contact your ATEN dealer for product information.

## Hardware

- Supports DisplayPort video resolutions – up to 5120 x 1440 @ 60 Hz (4:4:4), 5120 x 2880 @ 30 Hz (4:4:4), 4096 x 2160 @ 60 Hz (4:4:4), 1920 x 1080 @ 240 Hz (4:4:4), 2560 x 1440 @ 144 Hz (4:4:4); 36-bit color depth
- DisplayPort 1.2
- Stereo speakers and microphone support
- High speed USB Storage Transmission support
- Auto-MDIX – automatically detects cable type
- Built-in 8 kV / 15 kV ESD protection and 2 kV surge protection
- Supports power redundancy – KX9970 / KX9970F has 2 DC jacks for power redundancy
- Supports network failover – 1 RJ-45 & 2 SFP+ slots for network failover to ensure constant availability for mission-critical applications (KX9970 only)
- Supports 10-Gbps SFP+ fiber module expansions for up to 10 km\*
- Rack Mountable – Mounting options:
  - 2X-021G Dual Rack Mount Kit
  - 2X-031G Single Rack Mount Kit
- Includes an industrial-grade power adapter – supports operating temperature of 0-50 °C to ensure durability and adaptability under harsh environmental conditions

**Note:** \*The SFP+ module (2A-141G / 2A-142G) is sold separately. Contact your ATEN dealer for product information.

## Management

- Integration with KVM over IP Matrix Manager (CCKM) – a software enabling easy configurations of all KX devices with an intuitive web-based GUI
- Dual console operation – controls user's system from both the transmitter's and receiver's keyboard, monitor, and mouse
- OSD (On Screen Display) – enables configuration of both Tx / Rx devices on the receiver's display screen
- EDID Expert™ – selects optimum EDID settings to prevent video compatibility issue caused by different monitors
- On-screen Preview (Panel Array™ Mode) – allows users to view the video of up to 36 displays on one screen
- Video Compression Level – allows users to increase / decrease the video quality to adjust for appropriate network bandwidth
- Command Line Interface – administrators can control all KX devices via RS-232 or Telnet by issuing commands or 3rd-party application
- Supports Hotkey Commands
- RS-232 serial ports – allows users to connect to a serial terminal for TextMenu, CLI, or to serial devices such as touch screens and barcode scanners
- All KX Tx models are compatible to be used with all Rx models

## Security

- Dedicated LAN port for KX direct connections – can be isolated from the corporate network
- Secured data transmission – 256-bit AES encryption for all data being transmitted from the transmitter to the receiver
- Supports industry standard Transport Layer Security (TLS) protocol

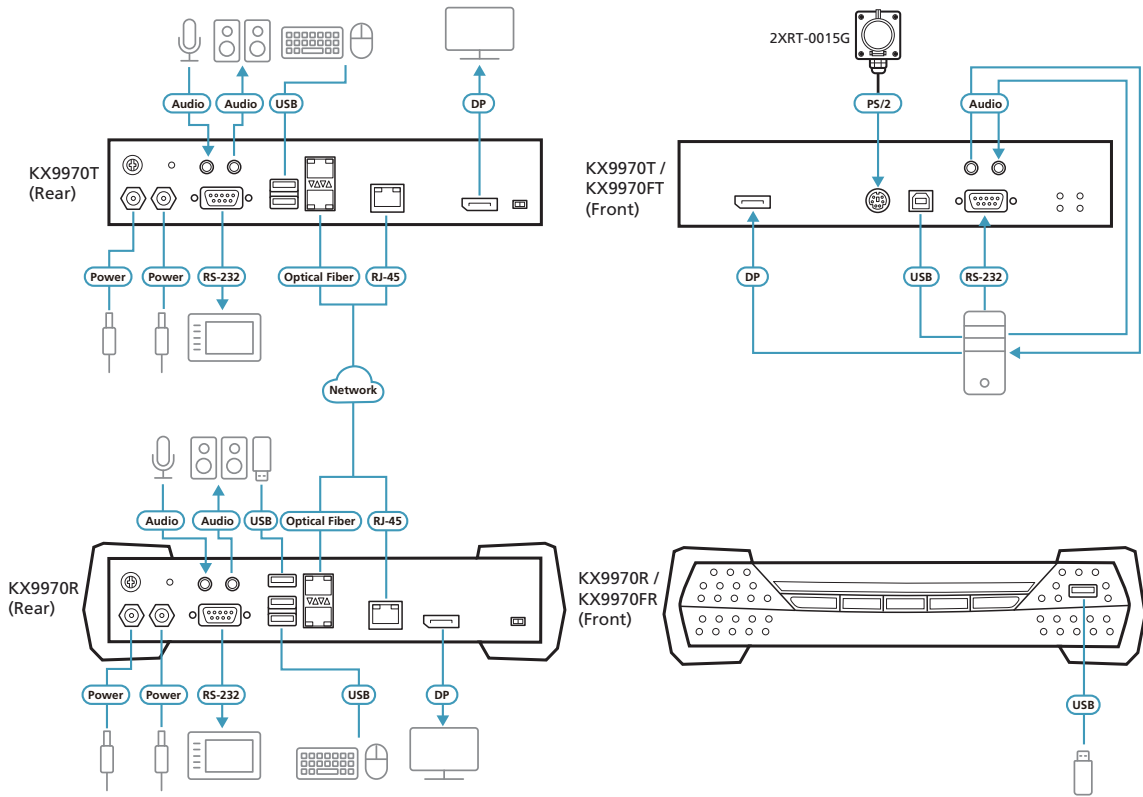
## Virtual Media

- Virtual Media mode enhances data transmission performance, and is ideal for file transfers, OS patching, software installations and diagnostic testing
- Supports USB 2.0 DVD / CD drives, USB mass storage devices, PC hard drives and ISO images
- Supports smart card / CAC reader

## Highlights

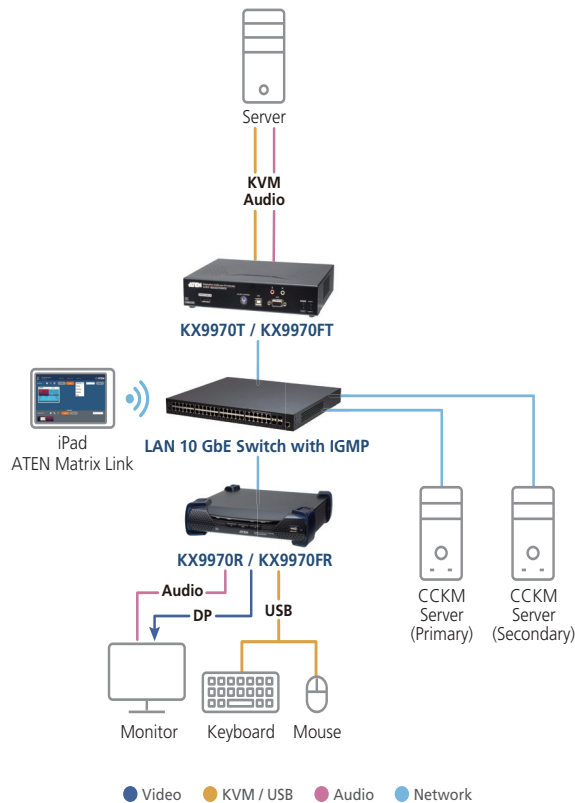
<p><b>Over IP Extension</b></p>	<p>Extends a computer's KVM console any distance over a LAN by connecting the Tx and Rx units to the same network. Extends a computer's KVM console up to 100 meters by directly connecting the Tx and Rx units with a single Cat 5e / 6 cable. Standard IP protocols ensure maximum compatibility with your existing IT infrastructure and staff skill set.</p>
<p><b>Superior Video Quality</b></p>	<p>ATEN's advanced graphics processor delivers video that ensures users to experience the same vivid and sharp image quality on the remote monitor no matter how far away the console is located. The KX9970 / KX9970F supports DisplayPort video resolutions of up to 5120 x 2880.</p>
<p><b>Redundancy</b></p>	<p>The KX9970 supports connection via one 10 Gigabit Ethernet port (RJ-45) and two SFP+ slots for failover. In addition, KX9970 / KX9970F supports dual power sources for redundant power supply.</p>
<p><b>SFP+ Module</b></p>	<p>The KX9970 / KX9970F supports 10-Gbps SFP+ fiber module expansions, enabling connections with the network switch with either Optical Fiber Channel or Active Copper SFP+ module. The single-mode SFP+ module provides 10-GbE connectivity for up to 10 km while the multi-mode SFP+ module provides 10-GbE connectivity for up to 550 m. <b>Note:</b> The SFP+ module (2A-141G / 2A-142G) is sold separately. Contact your ATEN dealer for product information.</p>
<p><b>Advanced Management</b></p>	<p>The CCKM allows users to easily administer all KVM over IP extenders over a network, using an intuitive, user-friendly web-based GUI.</p>
<p><b>Boundless Switching*</b></p>	<p>Users can simply move the mouse cursor across screen boundaries to switch between different receivers. The function expedites the process of switching between receivers for a smooth and hassle-free user experience and enables immediate monitoring and management of receivers. <b>Note:</b> *These advanced functions are supported when the KX transmitters are paired with KX receivers and managed by CCKM.</p>
<p><b>Flexibility</b></p>	<p>The KVM over IP extender allows users to access, share, and switch full control of Tx-connected computers - from any Rx (KVM console) over the network. It flexibly allows point-to-point, point-to-multipoint, multipoint-to-point, or multipoint-to-multipoint computer to KVM console connections.</p>
<p><b>Enhanced Security</b></p>	<p>Compliant with universal enterprise-grade security standards (AES encryption for secured signal transmission and Transport Layer Security (TLS) protocol), the KVM over IP extender provides different levels of username / password authentication and authorization.</p>
<p><b>Spectacular Video FPS</b></p>	<p>The KX9970's support for 1920 x 1080 @240 Hz / 2560x1440 @144 Hz allows broadcasting producers to seamlessly switch live. With eSports booming and beginning to rival traditional sports leagues in viewership, it's more important than ever to broadcast impeccable coverage of global gaming events and tournament where every tiny detail is crucial to viewers.</p>

### KX9970 / KX9970F Diagram



**Note:** The KX9970 supports RJ-45 function and the KX9970F does not.

### Scenario Diagram



## Specifications

	KX9970T	KX9970R
<b>Connectors</b>		
USB Port	N/A	2 x USB Type-A Female (White)
Console Ports	2 x USB Type-A Female (White) 1 x DisplayPort Female (Black) 1 x Mini Stereo Jack (Green) 1 x Mini Stereo Jack (Pink) 1 x DB-9 Male (Black)	
KVM Ports	1 x USB Type-B Female (White) 1 x DisplayPort Female (Black) 1 x Mini Stereo Jack (Green) 1 x Mini Stereo Jack (Pink) 1 x DB-9 Female (Black)	N/A
Power	2 x DC Jack (Black)	
LAN Ports	1 x RJ-45 (Black) 2 x SFP+ Slot	
Control	1 x PS/2 Female (Purple)	N/A
<b>Switches</b>		
OSD	1 x Pushbutton	
Port (Up)	1 x Pushbutton	
Port (Down)	1 x Pushbutton	
Reset	1 x Semi-recessed Pushbutton	
<b>LEDs</b>		
1000/10000 Mbps	1 (1000: Orange / 10000: Green)	
Power	2 (Green)	
Local	1 (Green)	
Remote	1 (Green)	
<b>Emulation</b>		
Keyboard / Mouse	USB	
Power Consumption	DC 12 V;18.88 W	DC 12 V;20.48 W
Video Resolution	Up to 5120 x 2880 @ 30 Hz, 5120 x 1440 @ 60 Hz, 4096 x 2160 @ 60 Hz (4:4:4), 2560 x 1440 @ 144 Hz, 1920 x 1080 @ 240 Hz	
<b>Environmental</b>		
Operating Temperature	0 – 50 °C	
Storage Temperature	-20 – 60 °C	
Humidity	0 – 95% RH, Non-condensing	
<b>Physical Properties</b>		
Housing	Metal	
Weight	1.10 kg	1.38 kg
Dimensions (L x W x H)	21.50 x 16.30 x 4.20 cm	22.60 x 22.40 x 5.30 cm

	KX9970FT	KX9970FR
<b>Connectors</b>		
USB Port	N/A	2 x USB Type-A Female (White)
Console Ports	2 x USB Type-A Female (White) 1 x DisplayPort Female (Black) 1 x Mini Stereo Jack (Green) 1 x Mini Stereo Jack (Pink) 1 x DB-9 Male (Black)	
KVM Ports	1 x USB Type-B Female (White) 1 x DisplayPort Female (Black) 1 x Mini Stereo Jack (Green) 1 x Mini Stereo Jack (Pink) 1 x DB-9 Female (Black)	N/A
Power	2 x DC Jack (Black)	
LAN Ports	2 x SFP+ Slot	
Control	1 x PS/2 Female (Purple)	N/A
<b>Switches</b>		
OSD	1 x Pushbutton	
Port (Up)	1 x Pushbutton	
Port (Down)	1 x Pushbutton	
Reset	1 x Semi-recessed Pushbutton	
<b>LEDs</b>		
1000/10000 Mbps	1 (1000: Orange / 10000: Green)	
Power	2 (Green)	
Local	1 (Green)	
Remote	1 (Green)	
<b>Emulation</b>		
Keyboard / Mouse	USB	
Power Consumption	DC12V:17.99W	DC12V:17.71W
Video Resolution	Up to 5120 x 2880 @ 30 Hz, 5120 x 1440 @ 60 Hz, 4096 x 2160 @ 60 Hz (4:4:4), 2560 x 1440 @ 144 Hz, 1920 x 1080 @ 240 Hz	
<b>Environmental</b>		
Operating Temperature	0 – 50 °C	
Storage Temperature	-20 – 60 °C	
Humidity	0 – 95% RH, Non-condensing	
<b>Physical Properties</b>		
Housing	Metal	
Weight	1.10 kg	1.38 kg
Dimensions (L x W x H)	21.50 x 16.30 x 4.20 cm	22.60 x 22.40 x 5.30 cm

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