

4K60 HDMI-over-Fiber Extender with USB KVM (10km)

Rack the Source, Control It from the Display — Point-to-Point 4K60 4:4:4 plus Keyboard/Mouse over One Fiber Pair, No Switch and No Network to Engineer



Racks a 4K source in a secure, climate-controlled equipment room and delivers its uncompressed picture — plus keyboard and mouse control — to a display up to 10km away over a single fiber. The matched transmitter and receiver are compact black metal units measuring 4.72" × 3.07" × 0.96" each, drawing under 4W from a locking 5V supply, with an HDMI loop-out at the source and analog audio de-embedding at the display. It is the point-to-point choice for stadiums, campuses, hospitals and control rooms where reach, signal integrity and remote control matter more than the many-to-many switching of an AV-over-IP fabric.

The link carries true 4K60 4:4:4 at 18Gbps (HDMI 2.0b) with HDCP 2.2 and full HDR10, HDR10+, Dolby Vision and HLG pass-through, alongside LPCM 7.1 and the lossless Dolby and DTS bitstreams, so chroma is not subsampled across the run. USB keyboard and mouse travel in both directions for KVM control of the source from the display end, advanced EDID management resolves the connected sinks automatically, and 10G SFP+ / LC optics let the integrator match the module to the fiber plant — single-mode to 10km or OM4 multimode to 300m. Its strongest differentiator is combining uncompressed 4K60 4:4:4 and USB KVM on one point-to-point fiber pair, where the long-run fiber extenders that reach this far are otherwise video-only.

Surge Protection Recommended — This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, or lightning strikes. Use of surge protection systems is highly recommended.

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1. Features

- ✓ Compliant with HDCP 2.2
- ✓ Video bandwidth up to 18Gbps
- ✓ Video resolution up to 4K2K@50/60Hz 4:4:4, as specified in HDMI 2.0b
- ✓ Transmission up to 10km over single-mode fiber; multimode supported via SFP module, up to 300m over OM4
- ✓ 3D video format support
- ✓ HDR, HDR10, HDR10+, Dolby Vision and HLG pass-through
- ✓ Audio formats: LPCM 2/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby TrueHD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio and DSD
- ✓ HDMI loop output on the transmitter and audio de-embedding on the receiver
- ✓ USB 1.1 keyboard/mouse transmission, bi-directional for KVM control
- ✓ Advanced EDID management
- ✓ Compact design for easy and flexible installation

2. Package Contents

- ✓ 1× 4K60 HDMI over Fiber Extender (Transmitter)
- ✓ 1× 4K60 HDMI over Fiber Extender (Receiver)
- ✓ 2× 5V/2A Multinational Locking Power Supply
- ✓ 1× USB Cable (Type A to Type B, 1.5m)
- ✓ 4× Mounting Ear
- ✓ 8× Machine Screw (KM3×6)

3. Specifications

VIDEO		
	HDMI Compliance	HDMI 2.0b
	HDCP Compliance	HDCP 2.2
	Video Bandwidth	18Gbps
	Video Resolution (Input & Output)	4096×2160p60/50, 3840×2160p60/50/30/25, 1920×1200p60RB, 1920×1080p60/50, 1360×768p60, 1280×800p60, 1280×720p60/50, 1024×768p60
	Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
	Color Depth	8/10/12-bit
	HDR	HDR10, HDR10+, Dolby Vision, HLG
AUDIO		
	Audio Formats	LPCM 2/5.1/7.1CH, Dolby Digital/Plus/EX, Dolby TrueHD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
FIBER		
	Transmission Distance	Up to 10km over single-mode fiber; up to 300m over OM4 multimode fiber
	Fiber Optic	10G SFP+ module, LC connector
	ESD Protection	IEC 61000-4-2: ±8kV (air-gap discharge), ±4kV (contact discharge)
CONNECTIONS — TRANSMITTER		



continued

Input	1× HDMI IN (Type A, 19-pin female)
Output	1× HDMI OUT loop (Type A, 19-pin female); 1× LC FIBER OUT (LC female)
Control	1× USB HOST (USB-B, 4-pin female); 1× SERVICE (USB-C update port)
CONNECTIONS — RECEIVER	
Input	1× LC FIBER IN (LC female)
Output	1× HDMI OUT (Type A, 19-pin female); 1× AUDIO OUT (3.5mm jack)
Control	1× SERVICE (USB-C update port); 1× K&M (dual-layer USB-A, keyboard & mouse)
POWER	
Power Supply	Input AC 100–240V, 50/60Hz; Output DC 5V/2A
Power Consumption	Transmitter 3.85W max; Receiver 3.3W max
PHYSICAL	
Housing	Metal enclosure, black
Dimensions (each unit)	4.72" × 3.07" × 0.96" (120 × 78 × 24.5mm) [W × D × H]
Weight — Transmitter	0.57 lbs (260g)
Weight — Receiver	0.56 lbs (256g)
ENVIRONMENTAL	
Operating Temperature	32°F ~ 104°F (0°C ~ 40°C)
Storage Temperature	-4°F ~ 140°F (-20°C ~ 60°C)
Operating Humidity	20% – 80% RH, non-condensing
Storage Humidity	10% – 90% RH, non-condensing

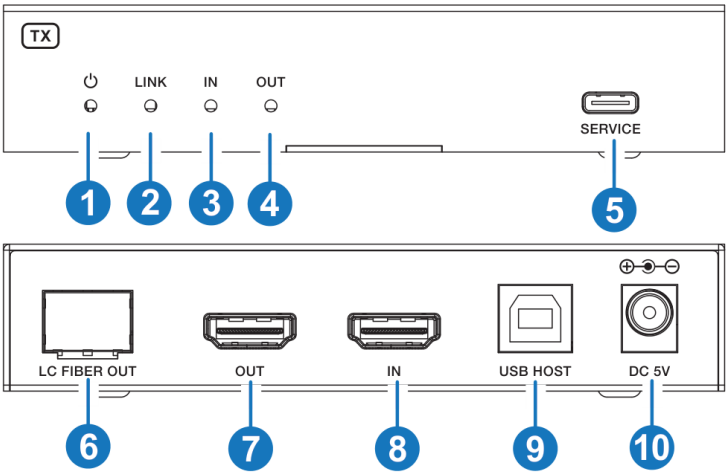
4. Introduction

This extender sends an HDMI signal up to **10 km over a single-mode fiber cable**, at resolutions up to **4K2K@60Hz 4:4:4**. The transmitter provides an HDMI loop output, and the receiver provides audio de-embedding. USB keyboard and mouse traffic is carried in both directions, so you can control the display-side device from the source end, or control the source device from the display end. The unit is designed for strong anti-interference performance, small size and light weight, which suits it to long-distance runs.

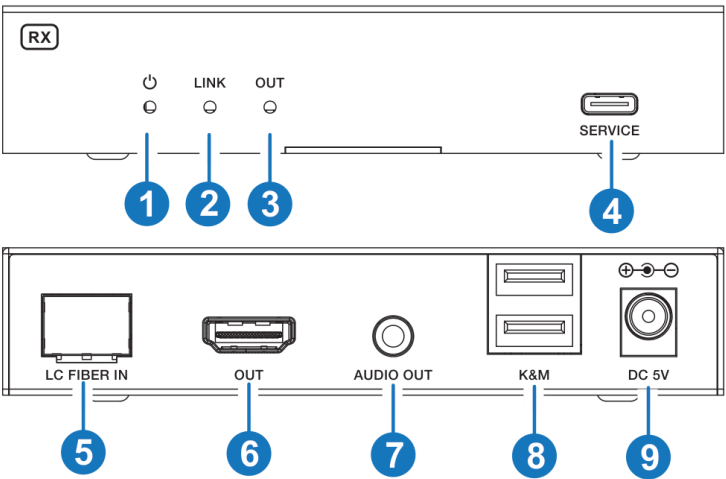
A surge-protection device is recommended: this product contains sensitive electronics that can be damaged by spikes, surges, electric shock or lightning.



5. Panel descriptions



Transmitter panel



Receiver panel

Each unit has a front face carrying its status LEDs and a rear face carrying its connectors, numbered against the manual's own diagrams (User Manual pages 4–5). The two tables below were re-read directly off those numbered diagrams by hand: the model's own pass (this run's first draft) reordered most rows on both panels against the source pages — 7 of 10 on the transmitter and 3 of 5 it called "confident" on the receiver — so nothing from that draft is carried over uncorrected.

TRANSMITTER PANEL

No.	Name	Description
1	POWER LED	Lights red when the transmitter is powered on.
2	LINK LED	Lights green when the transmitter and receiver have a connection with a normal optical-fiber signal.
3	IN LED	Lights green when a source signal is detected on the IN port.



continued

No.	Name	Description
4	OUT LED	Lights green when a display device is connected to the HDMI output port.
5	SERVICE	Firmware update port.
6	LC FIBER OUT	Fiber-optic SFP port; connect it to the LC FIBER IN port on the receiver with a fiber-optic cable.
7	HDMI OUT	HDMI loop-out port; connect it to a display such as a TV or monitor with an HDMI cable.
8	HDMI IN	HDMI input port; connect it to a source device such as a DVD player or PC with an HDMI cable.
9	USB HOST	USB Type-B port; connect it to a computer.
10	DC 5V	DC 5V/2A power input port.

RECEIVER PANEL

No.	Name	Description
1	POWER LED	Lights red when the receiver is powered on.
2	LINK LED	Lights green when the transmitter and receiver have a connection with a normal optical-fiber signal.
3	OUT LED	Lights green when a display device is connected to the HDMI output port.
4	SERVICE	Firmware update port.
5	LC FIBER IN	Fiber-optic SFP port; connect it to the LC FIBER OUT port on the transmitter with a fiber-optic cable.
6	HDMI OUT	HDMI output port; connect it to a display such as a TV or monitor with an HDMI cable.
7	AUDIO OUT	Analog audio de-embedding output; connect it to an audio device.
8	K&M	USB 1.1 Type-A ports; connect a keyboard and mouse.
9	DC 5V	DC 5V/2A power input port.

6. EDID management

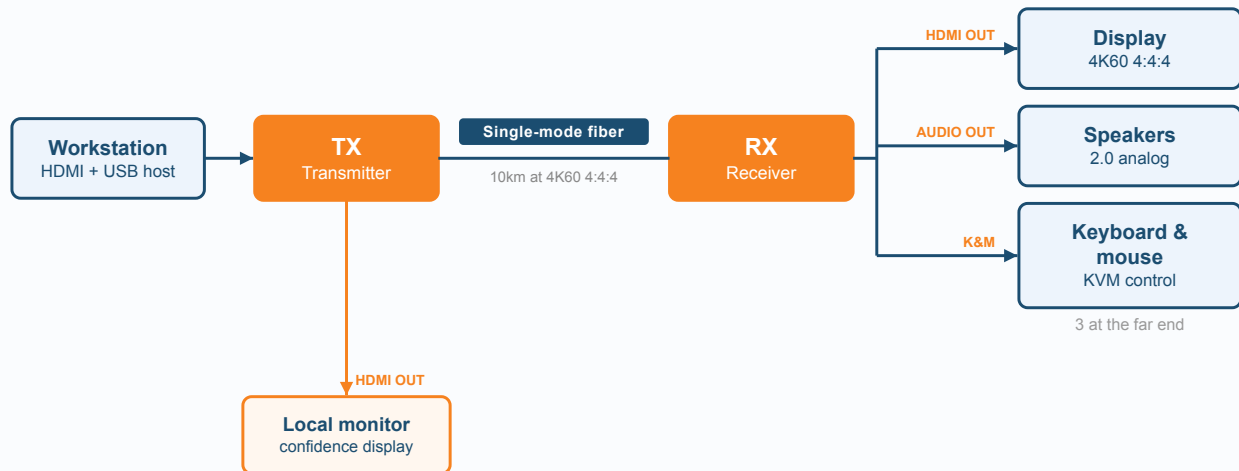
The unit manages EDID automatically. If both HDMI output ports — the one on the transmitter and the one on the receiver — are connected to displays, the extender compares the two sink EDIDs and selects the lower (more compatible) of the two. If only one end has a display connected, the extender copies the EDID from that connected sink.



7. Application Example

TYPICAL SETUP

4K60 HDMI-over-Fiber Extender with USB KVM (10km)



How it works: The link carries true 4K60 4:4:4 at 18Gbps (HDMI 2.0b) with HDCP 2.2 and full HDR10, HDR10+, Dolby Vision and HLG pass-through, alongside LPCM 7.1 and the lossless Dolby and DTS bitstreams, so chroma is not subsampled across the run. USB keyboard and mouse travel in both directions for KVM control of the source from the display end, advanced EDID management resolves the connected sinks automatically, and 10G SFP+ / LC optics let the integrator match the module to the fiber plant — single-mode to 10km or OM4 multimode to 300m. Its strongest differentiator is combining uncompressed 4K60 4:4:4 and USB KVM on one point-to-point fiber pair, where the long-run fiber extenders that reach this far are otherwise video-only.

8. Troubleshooting

Q: The EXT-HD4KFIBKVM-10KM shows no image at the display. What should I check?

A: Confirm the transmitter's POWER LED is red and the IN LED is green, which shows a source signal is detected on the HDMI IN. Then confirm the LINK LED is green on both units for a normal fiber signal, and check the OUT LED, which lights when a display is connected to the HDMI output.

Q: The LINK LED on the EXT-HD4KFIBKVM-10KM is not green. What is wrong?

A: The LINK LED lights green only when the transmitter and receiver have a normal optical-fiber connection. Verify the fiber runs from the transmitter's LC FIBER OUT to the receiver's LC FIBER IN, confirm the 10G SFP+ LC modules are seated, and check the fiber type against the distance in use (up to 10km single-mode, up to 300m OM4 multimode).

Q: There is no audio at the display end on the EXT-HD4KFIBKVM-10KM. What should I check?

A: Analog audio comes from the receiver's 3.5mm AUDIO OUT de-embedding jack, so confirm the speakers or audio device are connected there. Also confirm the link is up (LINK LED green) and that the source is outputting a supported audio format.

Q: My keyboard and mouse do not work over the EXT-HD4KFIBKVM-10KM. What should I check?

A: Confirm the computer is connected to the transmitter's USB HOST (USB-B) port and the keyboard and mouse are on the receiver's K&M USB-A ports. Then confirm the fiber link is established, shown by a green LINK LED on both units, since the USB traffic rides that link.



Need help? — For additional support, contact KanexPro technical support at support@kanexpro.com or 888.975.1368, or scan the QR code below for the product page.

9. Installation FAQ

Q: What plugs into the transmitter and receiver of the EXT-HD4KFIBKVM-10KM?

A: At the transmitter, connect the source to HDMI IN, a local display to the HDMI loop OUT, and a computer to the USB HOST (USB-B) port. At the receiver, connect the display to HDMI OUT, speakers to the 3.5mm AUDIO OUT, and a keyboard and mouse to the K&M USB-A ports.

Q: What fiber and connector does the EXT-HD4KFIBKVM-10KM link use?

A: The link runs on a 10G SFP+ module with an LC connector: connect the transmitter's LC FIBER OUT to the receiver's LC FIBER IN with a single fiber-optic cable.

Q: How is the EXT-HD4KFIBKVM-10KM powered, and what ships for power?

A: Each unit takes DC 5V/2A at its DC 5V input, fed from an AC 100-240V 50/60Hz supply, and two 5V/2A multinational locking power supplies are included. A surge-protection device is recommended, since the electronics can be damaged by spikes, surges, or lightning.

Q: Can the EXT-HD4KFIBKVM-10KM be rack- or surface-mounted?

A: Yes; each metal-enclosure unit measures 4.72 in x 3.07 in x 0.96 in, and four mounting ears with eight KM3x6 machine screws are included for fixing the units in place.

10. Integration FAQ

Q: How does the EXT-HD4KFIBKVM-10KM carry keyboard and mouse control into a system?

A: It passes USB 1.1 keyboard and mouse traffic in both directions: connect the computer to the transmitter's USB HOST port and the keyboard and mouse to the receiver's K&M USB-A ports, so an operator at the display end can drive the source computer over the same fiber link.

Q: How does the EXT-HD4KFIBKVM-10KM handle EDID with the displays in a system?

A: EDID is managed automatically: if both the transmitter and receiver HDMI outputs have displays connected, it compares the two EDIDs and selects the lower, more compatible one; if only one end has a display, it copies that sink's EDID.

Q: How does the EXT-HD4KFIBKVM-10KM fit into an audio setup?

A: The receiver de-embeds audio to a 3.5mm analog AUDIO OUT jack, so you can connect 2.0 speakers or an audio device at the display end.

Q: In a typical deployment, how are the source and displays arranged on the EXT-HD4KFIBKVM-10KM?

A: The host computer and its keyboard and mouse sit at the transmitter, a single single-mode fiber runs to the receiver, and the displays and speakers connect at the receiver. The transmitter also offers an HDMI loop output for a local display at the source end.

