4K60 HDMI-over-Fiber Extender with Full Control over One Fiber (10km)

Add IR, RS-232 & Audio De-embed to Fiber KVM — 4K60 4:4:4 HDCP 2.2 Video plus Keyboard/Mouse and Serial without Copper Ground-Loop or EMI Risk

Carries a full 4K60 4:4:4 HDMI signal — plus keyboard, mouse, IR and serial control — up to 10km on a single single-mode fiber pair. The kit pairs a transmitter and receiver in compact black metal enclosures, each drawing under 5W from a locking 5V/2A supply and light enough to mount wherever the run ends. It is the right choice for campus, broadcast and command-centre runs where distance and galvanic isolation matter more than the 100m ceiling and copper ground-loop risk of HDBaseT.

Built on HDMI 2.0b at 18Gbps with HDCP 2.2, it passes HDR10, HDR10+, Dolby Vision and HLG, breaks out de-embedded analog audio on a Phoenix connector at the receiver, and feeds a local confidence monitor from the transmitter's HDMI loop-out. Advanced EDID management and a front-panel DIP switch commission the link in the field, while bi-directional IR, RS-232 pass-through and USB 1.1 KVM share the same fiber — control that competing 10km fiber extenders drop, forcing a second cable for keyboard, mouse and serial. 10G SFP+ modules over LC single-mode fiber reach the full 10km, or up to 300m over OM4 multi-mode.

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 distance up to 10km over single-mode fiber; up to 300m over OM4 multi-mode fiber via the SFP modules
- ✓ Supports 3D video format
- ✓ 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 IR and RS-232 pass-through
- ✓ Advanced EDID management
- ✓ Compact design for easy and flexible installation

2. Specifications

VIDEO	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Video Resolution (input & output)	3840×2160p60/50, 4096×2160p60/50, 3840×2160p30/25, 1920×1200p60RB, 1920×1080p60/50, 1360×768p60, 1280×800p60, 1280×720p60/50, 1024×768p60
Color Space	RGB 4:4:4, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12-bit
HDR	HDR10, HDR10+, Dolby Vision, HLG
3D	Supported
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
TRANSMISSION	
Distance	Up to 10km over single-mode fiber; up to 300m over OM4 multi-mode fiber
Fiber Optic	10G SFP+ module, LC single-mode
EDID	Advanced EDID management
IR	
IR Level	5Vp-p
IR Frequency	Wideband 20–60kHz
TRANSMITTER CONNECTIONS	
Input	1× HDMI IN [Type A, 19-pin female]; 1× IR IN [3.5mm jack]

continued

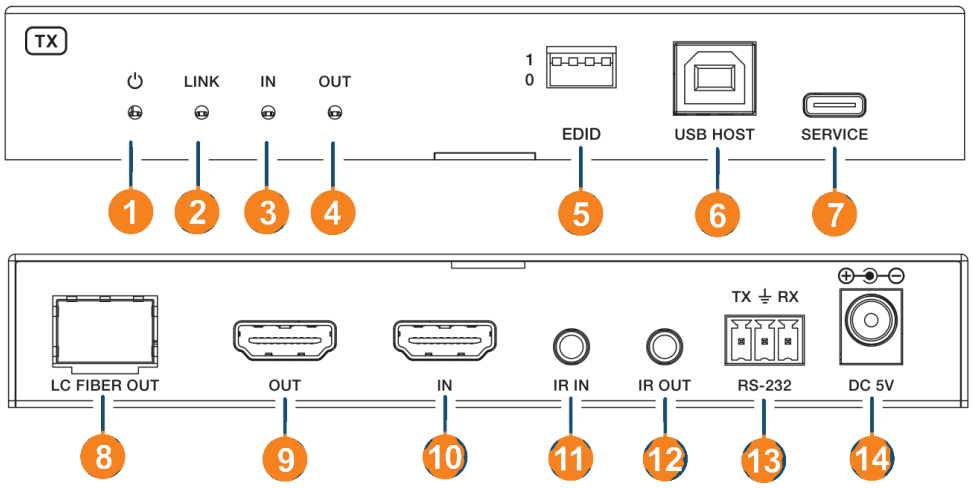
Output	1× HDMI OUT [Type A, 19-pin female]; 1× IR OUT [3.5mm jack]; 1× LC FIBER OUT [LC female]
Control	1× USB HOST [USB-B, 4-pin female]; 1× RS-232 [3-pin 3.5mm Phoenix]; 1× SERVICE [USB-C update port]
RECEIVER CONNECTIONS	
Input	1× LC FIBER IN [LC female]; 1× IR IN [3.5mm jack]
Output	1× HDMI OUT [Type A, 19-pin female]; 1× IR OUT [3.5mm jack]; 1× AUDIO OUT [3-pin 3.5mm Phoenix]
Control	1× RS-232 [3-pin 3.5mm Phoenix]; 1× SERVICE [USB-C update port]; 2× USB [USB-A, keyboard & mouse]
POWER	
Power Supply	Input AC 100–240V, 50/60Hz; Output DC 5V/2A
Power Consumption	Transmitter 5W max; Receiver 5W max
ESD Protection	IEC 61000-4-2: ±8kV air discharge, ±4kV contact discharge
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
PHYSICAL	
Housing	Metal enclosure, black
Dimensions (per unit)	5.67" × 3.07" × 0.91" (144 × 78 × 23mm)
Weight	Transmitter 0.74 lbs (337g); Receiver 0.73 lbs (330g)

3. Introduction

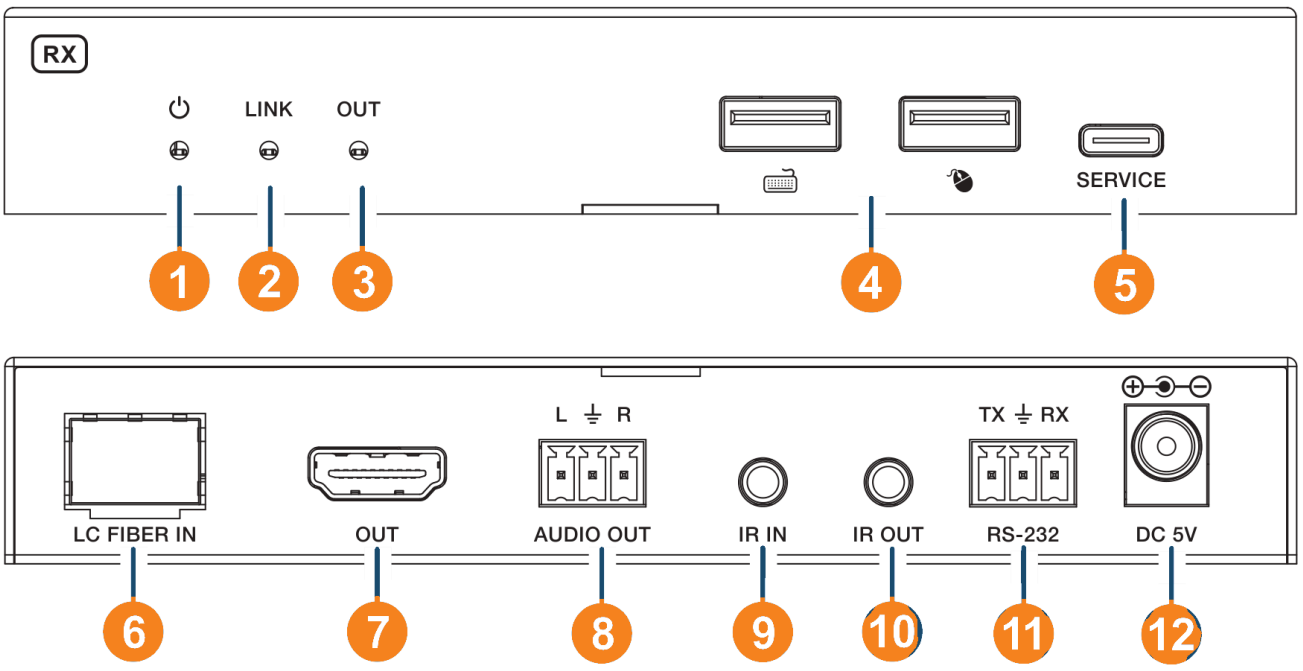
This extender sends an HDMI signal up to **10km over a single-mode fiber cable**, at resolutions up to 4K2K@60Hz 4:4:4. The Transmitter provides an HDMI loop output and the Receiver provides audio de-embedding. Bi-directional IR, RS-232 pass-through, and USB keyboard/mouse transmission are all supported, so you can control the source from the display end or the display from the source end. The unit is designed for strong anti-interference performance, safety, and a compact, lightweight form factor suited to long-distance runs.

A surge-protection device is recommended. This product contains sensitive electronics that can be damaged by electrical spikes, surges, shock, or lightning; use surge protection to protect and extend the life of your equipment.

4. Operation Controls and Functions — Panel descriptions



Transmitter panel



Receiver panel

(No. column read directly off the numbered artwork on pages 4-6 of the manual — every number below is confirmed against the diagram, not reconstructed from the scrambled table text.)

TRANSMITTER PANEL

No.	Name	Description
1	POWER LED	The red LED is on when the transmitter is powered on.
2	LINK LED	The green LED is always on when the Transmitter and Receiver have a connection with normal optical fiber signal.
3	IN LED	The green LED is on when an input source is detected on the HDMI IN port.
4	OUT LED	The green LED is on when a display device is connected to the HDMI output port.
5	EDID DIP switch	Sets the EDID mode. See the EDID table below.
6	USB HOST	USB Type-B port; connect to a computer.
7	SERVICE	Firmware-update port.
8	LC FIBER OUT	Fiber-optic SFP port; connect to the LC FIBER IN port on the Receiver with a fiber-optic cable.
9	HDMI OUT	HDMI loop-out port; connect to an HDMI display such as a TV or monitor with an HDMI cable.
10	HDMI IN	HDMI signal input; connect an HDMI source such as a DVD player or PC with an HDMI cable.
11	IR IN	IR input; connect your IR receiver here.
12	IR OUT	IR output; connect the IR wideband blaster here.
13	RS-232	3-pin 3.5mm Phoenix connector; connect a PC or control system for RS-232 command pass-through between the Transmitter and Receiver.
14	DC 5V	DC 5V/2A power input.

User-defined EDID note: To set a user-defined EDID, send the command `set user edid` through the Transmitter's SERVICE port, then import your `EDID.bin` file.

EDID DIP switch settings

DIP setting	EDID
1111	Copy RX HDMI OUT port sink EDID
1110	Copy TX HDMI OUT port sink EDID
1101	4K60 (4:4:4) HDR, 2.0CH
1100	4K60 (4:4:4) HDR, 5.1CH
1011	4K60 (4:4:4) HDR, 7.1CH
1010	4K60 (4:4:4) SDR, 2.0CH
1001	4K60 (4:4:4) SDR, 5.1CH

continued

DIP setting	EDID
1000	4K60 (4:4:4) SDR, 7.1CH
0111	1080P60 HDR, 2.0CH
0110	1080P60 HDR, 5.1CH
0101	1080P60 HDR, 7.1CH
0100	1080P60 SDR, 2.0CH
0011	1080P60 SDR, 5.1CH
0010	1080P60 SDR, 7.1CH
0001	1920×1200 SDR, 2.0CH
0000	User-defined EDID (default: 1080P60 SDR, 2.0CH)

RECEIVER PANEL

No.	Name	Description
1	POWER LED	The red LED is on when the receiver is powered on.
2	LINK LED	The green LED is always on when the Transmitter and Receiver have a connection with normal optical fiber signal.
3	OUT LED	The green LED is on when a display device is connected to the HDMI output port.
4	Keyboard & Mouse	USB 1.1 Type-A port(s); connect a keyboard and mouse. The panel shows two USB-A jacks (keyboard icon, mouse icon) sharing this one callout number.
5	SERVICE	Firmware-update port.
6	LC FIBER IN	Fiber-optic SFP port; connect to the LC FIBER OUT port on the Transmitter with a fiber-optic cable.
7	HDMI OUT	HDMI output; connect an HDMI display such as a TV or monitor with an HDMI cable.
8	AUDIO OUT	Analog audio de-embedding output (L, GND, R); connect an audio device.
9	IR IN	IR input; connect your IR receiver here.
10	IR OUT	IR output; connect the IR wideband blaster here.
11	RS-232	3-pin 3.5mm Phoenix connector; connect a PC or control system for RS-232 command pass-through between the Transmitter and Receiver.
12	DC 5V	DC 5V/2A power input.

5. IR Pin Definition

(Pin numbers read directly off the numbered diagram on page 7 of the manual.)

PIN	IR RECEIVER	IR BLASTER
1	IR Signal	IR Blaster Signal
2	Power	Power
3	Grounding	NC

Aim the IR receiver toward the remote control: within ±45° of the remote, working distance is 0–5 meters; within ±90°, working distance is 0–8 meters.

6. Application Example

TYPICAL SETUP

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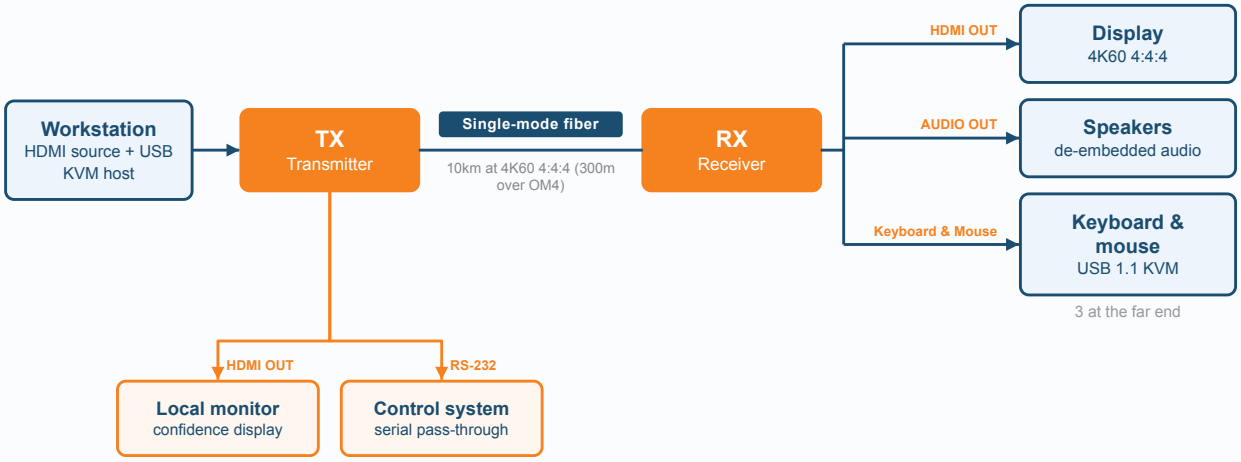

How it works: Built on HDMI 2.0b at 18Gbps with HDCP 2.2, it passes HDR10, HDR10+, Dolby Vision and HLG, breaks out de-embedded analog audio on a Phoenix connector at the receiver, and feeds a local confidence monitor from the transmitter's HDMI loop-out. Advanced EDID management and a front-panel DIP switch commission the link in the field, while bi-directional IR, RS-232 pass-through and USB 1.1 KVM share the same fiber — control that competing 10km fiber extenders drop, forcing a second cable for keyboard, mouse and serial. 10G SFP+ modules over LC single-mode fiber reach the full 10km, or up to 300m over OM4 multi-mode.

7. Troubleshooting

Q: There is no picture on the display. What do I check first?
A: Confirm the red POWER LED is lit on both units, then the green LINK LED on both, which shows a normal optical fiber signal; then check the green IN LED on the transmitter for a detected source and the green OUT LED for a connected display.

Q: The LINK LED is not green. What does that mean?
A: The green LINK LED only stays on when the transmitter and receiver have a normal optical fiber connection, so recheck the fiber run from LC FIBER OUT to LC FIBER IN and that the SFP+ modules are seated.

Q: The keyboard and mouse at the display end are not responding. What should I verify?
A: Verify the keyboard and mouse are in the receiver's two USB-A ports and that the host PC is connected to the transmitter's USB HOST port with the USB Type-A to Type-B cable.

Q: There is no sound from the speakers on the receiver. What should I check?
A: Check that the speakers are wired to the receiver's 3-pin AUDIO OUT and that the transmitter's EDID DIP switch is set to a mode whose channel count matches your audio, such as one of the 2.0CH settings.

> **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.

8. Installation FAQ

Q: What kind of fiber and module does the link require?
A: The link runs on LC single-mode fiber through a 10G SFP+ module, from the LC FIBER OUT on the transmitter to the LC FIBER IN on the receiver.

Q: How does each unit get power?
A: Each unit takes its own locking 5V/2A supply into its DC 5V input, and each supply accepts AC 100-240V at 50/60Hz.

Q: What connects at the transmitter versus the receiver?
A: At the transmitter, connect your HDMI source to HDMI IN and, if wanted, a local display to the HDMI OUT loop-out; at the receiver, connect the display to HDMI OUT and speakers to the AUDIO OUT.

Q: How do I set the EDID before running the link?
A: Set the EDID DIP switch on the transmitter to the mode you need, for example 1101 for 4K60 4:4:4 HDR 2.0CH; setting 0000 uses a user-defined EDID that defaults to 1080P60 SDR 2.0CH.

Q: Is any protection recommended on the power side?
A: A surge-protection device is recommended, since the electronics can be damaged by spikes, surges, shock, or lightning.

9. Integration FAQ

Q: What control protocols pass over the fiber?
A: Bi-directional IR and RS-232 pass through over the same fiber, so you can control the source from the display end or the display from the source end.

Q: How do I wire RS-232 control into the system?
A: Connect a PC or control system to the 3-pin 3.5mm Phoenix RS-232 port on either the transmitter or receiver, and commands pass through between the two ends.

Q: Can it act as a KVM extender for a remote workstation?
A: Yes; connect the host PC at the transmitter via the USB HOST port and plug a keyboard and mouse into the receiver's two USB-A ports for USB 1.1 keyboard/mouse transmission.

Q: How do I load a custom EDID?
A: Send the command set user edid through the transmitter's SERVICE port, then import your EDID.bin file.

Q: What does a typical deployment look like?
A: Connect an HDMI source and a host PC with keyboard and mouse at the transmitter, run one single-mode fiber to the receiver at the display, and the receiver drives the monitor plus 2.0 speakers through its audio de-embedding output.