

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

MPN: EXT-HD4KFIBKVM-10KM



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.

1 PRODUCT OVERVIEW

DESIGNED FOR

For the runs that outdistance copper — a source in a locked equipment room, IDF or data center feeding a display, control desk or operator console in another building or across a campus. It suits stadiums and arenas, airports and transit halls, surgical and imaging suites, higher-ed and corporate campuses, broadcast plants, and command-and-control rooms, wherever a single-mode fiber path already runs or can be planned and an operator needs to work at the picture while the machine stays racked and secured far away.

THE CHALLENGE

HDBaseT and Cat cabling stop around 100m, so the inter-building, press-box and remote-viewing runs that define these jobs fall outside their reach, and long copper picks up EMI, RFI and ground-loop noise in electrically hostile plant and clinical spaces. A plain fiber link solves distance but strands the source's keyboard and mouse back at the rack, forcing an operator to walk to the equipment room or leave a machine exposed on the floor — a daily cost in time, in security, and in the compromise of pulling compute out of its managed room just to reach it.

THE KANEXPRO ADVANTAGE

- Reaches up to 10km on single-mode fiber and 300m on OM4 multimode, clearing the HDBaseT distance ceiling on a single fiber pair.
- Carries USB keyboard and mouse both directions, so the operator drives the source from the display end while the machine stays racked and secured.
- Passes true uncompressed 4K60 4:4:4 at 18Gbps with HDCP 2.2 and full HDR, with no chroma subsampling across the run.
- Runs point-to-point with no network switch, no encode/decode latency and no VLAN or IGMP engineering — unlike an AV-over-IP fabric.
- Fiber is immune to EMI, RFI and ground loops for strong anti-interference performance, appropriate to medical, industrial and utility environments.

2 PRODUCT POSITIONING

The point-to-point 4K60 4:4:4 HDMI-plus-KVM fiber extender for AV integrators bridging distances beyond HDBaseT's reach — up to 10km on single-mode — who need uncompressed 18Gbps video and remote keyboard/mouse control of the source, without the copper distance ceiling or the switching, latency and network engineering of an AV-over-IP fabric.

3 APPLICATIONS



Stadium and large-venue control

A production or scoring PC lives in a locked equipment room; the operator works from a control position in the bowl or press level, hundreds of meters away on the venue's single-mode backbone. The link carries uncompressed 4K60 to the operator's monitor and returns keyboard/mouse to the machine, so the source stays racked and secured while control sits at the point of use.



Airport and transportation hubs

Flight-information and ramp-management sources in a central comms room feed concourse displays and remote operations desks across a terminal that far exceeds copper distance. Fiber's noise immunity and 10km reach suit sprawling transit footprints, and KVM lets ground-operations staff drive a distant playout or monitoring PC without walking to the rack.



Healthcare — surgical and imaging

Surgical camera or imaging-workstation output routes from the OR or modality room to a viewing room, pathology desk, or teaching space on a different floor or building. Fiber provides galvanic isolation appropriate to patient-care spaces, passes full 4:4:4 4K60 for diagnostic-grade detail, and the KVM channel lets a remote clinician or technologist operate the source machine.



Higher-ed and corporate campus

A source in a central data center or head-end drives an auditorium, lecture hall, or boardroom in a neighboring building over campus single-mode fiber, past the HDBaseT ceiling. The integrator keeps the compute in a managed room and gives presenters or AV staff keyboard/mouse control at the podium end.



Broadcast and post-production

A workstation, playout server, or camera-shading PC in the machine room extends to the gallery, MCR, or an edit/QC bay on one fiber pair, carrying uncompressed 4K60 4:4:4 with HDR passthrough. KVM keeps the operator at the console while the noisy, hot equipment stays consolidated in the rack room.



Command-and-control and utility/government

SCADA, security-operations, or dispatch sources in a secure equipment room reach operator consoles across a facility or between plant buildings. Fiber immunity to EMI/RFI suits electrically noisy industrial environments, the 10km reach covers substation-to-control-house spans, and remote KVM keeps the controlled machine physically secured away from the operator floor.

4 WHO THIS IS FOR

Stadiums/large venues

Aviation/transportation

Healthcare

Higher-ed and corporate campuses

Broadcast/production

Government/military/utility command-and-control

Large houses of worship

Ideal User

Commercial AV design-build integrator / system engineer specifying infrastructure for a fixed install with a fiber plant. Checks specs against the manual; cares about HDCP 2.2, 4:4:4 vs 4:2:0, HDR passthrough, and whether SFPs are included.

Project Types

stadiums/large venues, aviation/transportation, healthcare (surgical/imaging), higher-ed and corporate campuses, broadcast/production, government/military/utility command-and-control, large houses of worship.

Typical Buyer

On commercial jobs, the AV consultant/specifier writes it into the bill of materials; the integrator's purchasing agent buys through a distributor or specialist reseller. On IT-adjacent jobs, a control-systems or facilities engineer drives the spec.

Q: How far will this run, and on what fiber?

Up to 10km over single-mode fiber and up to 300m over OM4 multimode, using LC connections and 10G SFP+ optics. That is well beyond the roughly 100m limit of HDBaseT and Cat-based extenders, which is the reason to choose fiber for inter-building and campus-scale runs.

Q: Is it true 4K60 4:4:4, and does it pass HDR and lossless audio?

Yes. It carries uncompressed 4K60 4:4:4 at 18Gbps (HDMI 2.0b) with HDCP 2.2, and passes HDR10, HDR10+, Dolby Vision and HLG. Audio includes LPCM up to 7.1, Dolby TrueHD, Dolby Digital Plus and DTS-HD Master Audio. Unlike some long-distance fiber products that fall back to 4:2:0, chroma is not subsampled.

Q: What does the KVM do — will my keyboard and mouse work at the display end?

The receiver carries a USB keyboard and mouse connection back to the source, so an operator at the display can control the PC, server or NVR sitting at the transmitter. It is a keyboard/mouse (HID) channel over USB 1.1, not a general-purpose USB 2.0 hub, so confirm peripheral needs if a customer expects to run storage or other USB devices over the link.

Q: Single-mode or multimode — and how are the fiber optics selected?

It supports both: single-mode for the long runs up to 10km, and OM4 multimode up to 300m, selected by the 10G SFP+ optic installed. Optics and fiber are specified to the actual plant, so confirm SFP-module and fiber inclusion on the current kit at point of sale. The unit ships digital-only — there is no printed manual in the box; the setup guide is reached via the QR code on the carton.

Q: Why this instead of HDBaseT/Cat6 or a full AV-over-IP system?

Against HDBaseT and Cat, fiber clears the roughly 100m distance ceiling and is immune to EMI, RFI and ground loops. Against AV-over-IP such as SDVoE or IPMX, this is a point-to-point link with no network switch to specify, no encode/decode latency, and no VLAN or IGMP engineering — the right tool when the job is one long run with control, not a many-to-many matrix.

Q: What's in the box and how does it install?

The kit is a matched transmitter and receiver in black metal enclosures, each 4.72 by 3.07 by 0.96 inches, two multinational locking 5V/2A power supplies, a USB cable, and four mounting ears with screws for surface or shelf mounting. Documentation is digital, accessed from the QR code on the box.

Q: Is it sold as a complete kit?

Yes. It is sold as a matched transmitter and receiver pair engineered to work together, not as separate ends the integrator must pair. The transmitter provides an HDMI loop-out for a local display, and the receiver de-embeds analog audio, so a single link serves the source end and the display end together.