



# kramer

## 691

4K60 4:2:0 HDMI MM/SM Fiber Optic Transmitter with USB, Ethernet, RS-232, IR & Stereo Audio Embedding over Ultra-Reach HDBaseT 2.0

| HDMI | Ethernet - RJ-45



691 is a high-performance HDBaseT 2.0 fiber transmitter for ultra-reach extension of 4K60Hz (4:2:0) HDMI, USB, Ethernet, RS-232, IR and stereo audio signals over either multi-mode or single-mode fiber optic. 691 converts all input signals to an HDBaseT 2.0 signal that is transmitted over a fiber optic cable to a compatible receiver that converts it back to the HDMI, USB, Ethernet, RS-232, IR and stereo audio signals. It extends video signals to up to 33km (20.5 miles) over single-mode fiber at up to 4K@60Hz (4:2:0) resolution. 691 includes a multimode OSP+ transceiver, but can be used with a single mode OSP+ transceiver and fiber as well

### FEATURES

**High Performance Standard Fiber Extender** - HDBaseT 2.0 fiber transmitter for providing ultra-reach signals over either multi-mode or single-mode optical fiber infrastructures, using Kramer pluggable OSP SFP+ units. 691 is a standard fiber extender that can be connected to any market-available HDBaseT-compliant extension product.

Note: To ensure specified performance, support, and warranty of this product, use only Kramer's certified hi-performance OSP SFP+ pluggable optical units

**HDMI Signal Extension** - HDCP 1.4 compliant. Supports deep color, x.v.Color™, lip sync, HDMI uncompressed audio channels, Dolby TrueHD, DTS-HD, 2K, 4K, and 3D as specified in HDMI 2.0. EDID and CEC signals are passed through from the source to the display

**I-EDIDPro™ Kramer Intelligent EDID Processing™** - Intelligent EDID handling, processing and pass-through algorithm that ensures Plug and Play operation for HDMI source and display systems

**USB Extension** - USB 2.0 interface data flows in both directions, allowing extension of HID (Human Interface Devices) peripheral devices, such as a mouse or a keyboard. High-bandwidth USB peripheral devices, such as USB isochronous streaming cameras and audio devices, transfer data continuously and periodically.

Note: Delivery of their transferred data is not guaranteed by the USB standard and is subject to both USB and HDBaseT line bandwidth management limitations. When such devices are connected, check their functionality to ensure bandwidth limitations are not exceeded

**Ethernet Extension** - Ethernet interface data flows in both directions allowing extension of up to 100Mbps Ethernet connectivity for LAN communication and device control

**Bidirectional RS-232 Extension** - Serial interface data flows in both directions allowing data transmission and device control

**Bidirectional Infrared Extension** - IR interface data flows in both directions allowing remote control of peripheral devices located at either end of the extended line

**Audio Embedding (Adding)** - A selectable analog unbalanced stereo audio input is converted into a digital signal and embedded (added) to the transmitted HDMI signal, replacing the embedded HDMI audio input signal. This enables embedding a selectable audio source over HDMI. For example, a presenter can display a video clip and temporarily override the audio of the source media with another audio source, such as from a microphone

**Cost-Effective Maintenance** - Status LED indicators for the HDMI input and HDBT output link facilitate easy local troubleshooting. Remote device management via built-in web UI and RS-232 connection enable simple device maintenance. Local and remote firmware upgrade via mini-USB, RS-232 or Ethernet connection and the K-Upload tool ensure lasting, field-proven deployment

**Easy Installation** - Half 19" 1U rack mountable fan-less enclosure enables side-by-side mounting of 2 units in a 1U rack space



# kramer

## TECHNICAL SPECIFICATIONS

---

Inputs	1 HDMI: On HDMI connector,  1 Stereo Analog Unbalanced Audio: On a 3.5mm mini jack
Outputs	1 fiber optic: On a 10Gbps SFP+ LC connector complying with IEEE 802.3ae
Ports	1 IR: On a 3.5mm mini jack for IR link extension  1 USB: On on a female USB-B connector for USB link extension  1 RS-232: On on a 3-pin terminal block for serial link extension  1 RS-232: On on a 3-pin terminal block for transmitter control  1 100BaseT Ethernet: On on an RJ-45 female connector for device control and LAN extension
Extension Line	Optical Fiber: Multi-mode (MM) or single-mode (SM)  Optical Module: Kramer 10Gbps SFP+ IEEE 802.3ae compliant modules (MM is included)  Compliance: HDBaseT 2.0
Multi-mode Line	Compliance: G.651.1 OFNR fiber  Nominal Peak Wavelength: 850 nm  Typical Optical Transmission Power: -2.5dBm  Typical Optical Maximum Loss Budget: 8.6dB  Max Reach over OM3 MM Fiber: 3km (1.8 miles)
Single-mode Line	Compliance: G.652D OFNR fiber  Nominal Peak Wavelength: 1310 nm  Typical Optical Transmission Power: -2.5dBm ,  Typical Optical Maximum Loss Budget: 11.9dB  Max Reach over OS1 SM Fiber: 33km (20.5 miles)
Video	Max Data Rate: 10.2Gbps bandwidth (3.4Gbps per graphic channel)  Max Resolution: 4K UHD @60Hz (4:2:0) 24bpp resolution  Content Protection: HDCP 1.4 signal compliance  HDMI Support: Deep color, x.v.Color™, lip sync, HDMI uncompressed audio channels, Dolby TrueHD, DTS-HD, 2K, 4K, and 3D as specified in HDMI 2.0
Audio	Max Level: 1 Vrms, 0.03% THD + noise @1kHz at nominal level
Extended USB	Compliance: 1.1 and 2.0 host compliance  Max Data Rate: 127Mbps (out of max 480 USB)  Maximum Number of Connected USB Devices: 7 devices  Maximum Number of Connected USB Hubs: 2, Up to 8 ports per hub
Extended Ethernet	Max Data Rate: 100Mbps

Extended RS-232	Baud Rate: 300 to 115200
Supported PC Web Browsers	Windows 7 and higher: Internet Explorer (32/64 bit) version 10, Firefox version 30, Chrome version 35  MAC: Chrome version 35, Firefox version 30, Safari version 7  Note: Minimum browser window size 1024 x 768
Power	Source: 12V DC, 2A  Consumption: 1.3A
Enclosure	Size: ½ 19" 1U  Type: Aluminum  Cooling: Convection ventilation
Environmental Conditions	Operating Temperature: 0° to +40°C (32° to 104°F)  Storage Temperature: -40° to +70°C (-40° to 158°F)  Humidity: 10% to 90%, RHL non-condensing
Regulatory Compliance (Standards Compliance)	Vibration: ISTA 1A in carton (International Safe Transit Association)  Safety: CE, UL  Environmental: Complies with appropriate requirements of RoHs and WEEE
Accessories	Included: MM SFP+ transceiver, power adapter
Product Dimensions	21.46cm x 16.30cm x 4.36cm (8.45" x 6.42" x 1.72" ) W, D, H
Product Weight	1.0kg (2.1lbs) approx
Shipping Dimensions	35.10cm x 21.20cm x 7.20cm (13.82" x 8.35" x 2.83" ) W, D, H
Shipping Weight	1.5kg (3.2lbs) approx

