



691

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



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 into the transmitted HDBaseT 2.0 signal over fiber optics. The extended line receiver, such as Kramer 692, converts the HDBaseT 2.0 signal back to 4K60Hz (4:2:0) HDMI, USB 2.0, Ethernet, RS-232, IR and stereo audio output signals. **691** extends video signals to up to 33km (20.5 miles) over single-mode fiber at up to 4K@60Hz (4:2:0) resolution.

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 Kramer support and warranty of the 691 product, use only Kramer's certified hi-performance OSP SFP+ pluggable optical units. For optimum extension reach and performance, use Kramer's OSP SFP+ units and recommended Kramer cables. Non-Kramer cables may not reach these ranges.
- **HDMI Signal Extension** - HDMI 2.0 and HDCP 1.4 compliant. Supports deep color, x.v.Color™, lip sync, HDMI uncompressed audio channels, Dolby TrueHD, DTS-HD, 2K, 4K, and 3D. 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. 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 added (embedded) 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. Kramer Network support provides remote device and network management. 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.

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| 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 a female USB-B connector for USB link extension, 1 RS-232 on a 3-pin terminal block for serial link extension, 1 RS-232 on a 3-pin terminal block for transmitter control, 1 100BaseT Ethernet on an RJ-45 female connector for device control and LAN extension. |
| EXTENSION LINE: | HDBaseT 2.0 compliant; Up to 33km (20.5mile) over single-mode (SM) optical fiber, Up to 3km (1.8mile) over Multi-mode (MM) optical fiber, 2 simplex fiber strands. |
| MULTIMODE LINE: | G.651.1 compliant OFNR fiber, 850 nm nominal peak wavelength, 10.2Gbps max data rate, -2.5dBm typical optical transmission power, 8.6dB typical optical maximum loss budget, Up to 3km (1.8 miles) reach over OM3 MM fiber. |
| SINGLEMODE LINE: | G.652D compliant OFNR fiber, 1310 nm nominal peak wavelength, 10.2Gbps max data rate, -2.5dBm typical optical transmission power, 11.9dB typical optical maximum loss budget, Up to 33Km (20.5 miles) reach over OS1 SM fiber. |
| VIDEO: | Up to 10.2Gbps bandwidth (3.4Gbps per graphic channel), up to 4K UHD @60Hz (4:2:0) 24bpp resolution, HDMI 2.0 and HDCP 1.4 signal compliance. |
| AUDIO: | Up to 1 Vrms level, 0.03% THD + noise @1kHz at nominal level. |
| EXTENDED USB: | 1.1 and 2.0 host compliance, Up to 127Mbps (out of max 480 USB) extended line rate bandwidth, Up to 7 devices, Up to 2 hubs, Up to 8 ports per hub. |
| EXTENDED ETHERNET: | Up to 100Mbps Ethernet transmission bandwidth. |
| EXTENDED RS-232: | 300 to 115200 baud rate. |
| CONTROL RS-232: | 115200 baud rate. |
| 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, 1.36A. |
| POWER CONSUMPTION: | 12V DC, 600mA. |
| ENCLOSURE: | Half 19" 1U rack unit size, aluminium type. |
| COOLING: | Convection ventilation. |
| 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. |
| VIBRATION: | ISTA 1A in carton (International Safe Transit Association). |
| SAFETY REGULATORY COMPLIANCE: | CE, UL. |
| ENVIRONMENTAL REGULATORY COMPLIANCE: | Complies with appropriate requirements of RoHs and WEEE |