Single Fiber HDMI 1.3 and bi-directional RS-232 extenders over multimode fiber optical cable

Highlight features

- Single fiber HDMI 1.3a and RS-232 extension*
- Advanced EDID Management
- Pixel Accurate Reclocking
- Dual output with built-in distribution amplifier*
- Up to 1920 x 1200 or 2048 x 1080 resolution with 36 bits deep color and embedded audio

Lightware HDMI-OPT-series devices extend HDMI 1.3, DVI 1.0 with HDCP and bi-directional RS-232 signals* over one multimode fiber, and transmit the video signal with embedded audio up to 2600 meters distance.

All transmitters feature Lightware's well-known **Advanced EDID Management** with a memory of 100 EDIDs, 50 of which are user programmable. Using the Factory, Custom or Transparent EDID emulation the user can fix and lock EDID data on the transmitter's input connector.

Dual output is available on 200 series units through a built-in distribution amplifier. HDMI-OPT-TX200R has a local monitor HDMI output to enable easy monitoring of the outgoing signal and HDMI-OPT-RX200R has two identical HDMI outputs.* Pixel Accurate Reclocking feature is included in all transmitters and receivers - a Lightware technology to eliminate jitter and skew generated by low quality sources and multiple daisy-chained devices.

Single Fiber Technology makes these units fully HDMI 1.3 and HDCP 1.1 compliant without need of a second fiber cable or copper connection. To simplify cabling, the bi-directional communication – which is necessary for HDCP handshaking – is performed on the same fiber core that transmits the video signal.

Bi-directional RS-232 extension* is available on „R" versions for remote device control over the same fiber core.

Galvanic isolation between source and display helps to avoid ground loops and hum effects. No delay occurs in the signal during optical conversion, the video image is transported without any frame latency. This feature is crucial in 3D applications and systems where audio is processed separately.

Options
1U rack shelf



Standalone diagram
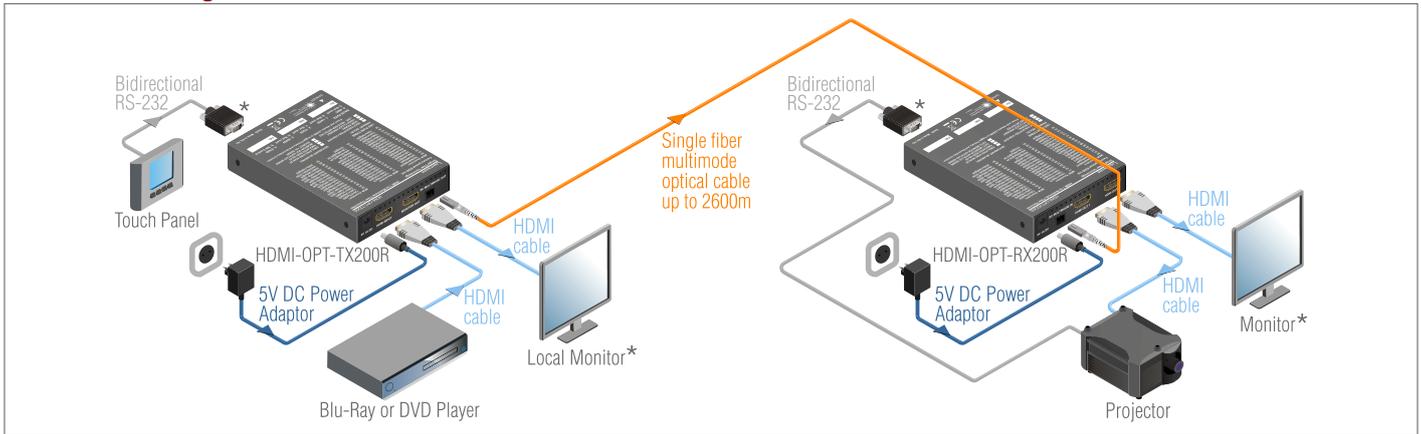
Cross compatibility between every device in Lightware's fiber optical product portfolio is ensured thanks to our attentive design. In a standalone application HDMI-OPT-TX200R and HDMI-OPT-RX200R can work together simply, but with Lightware's Hybrid Modular matrix concept, it is even possible to connect these extender boxes directly to the matrix router using an MX-HDMI-OPT series input or output optical boards. This integrated solution simplifies installation and helps reducing system costs as well.

Hybrid router application
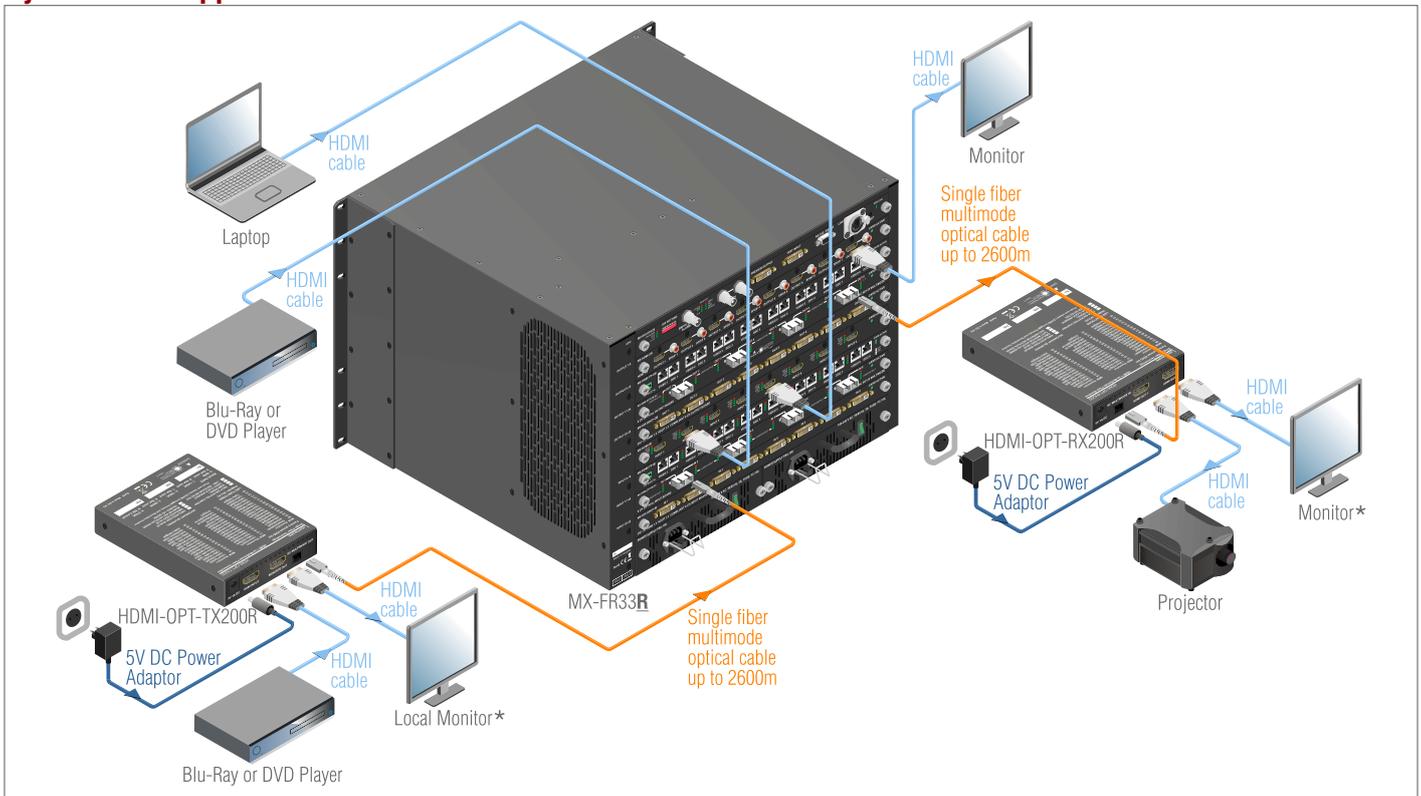
Applications

- Long distance lossless HDMI or DVI signal transmission
- Ground loop isolation
- Multiroom video and audio control
- Professional AV systems, conference rooms
- High End home cinema
- Yacht installations

Features

- Single Fiber Technology
- Extends DVI or HDMI signals over one multimode fiber core
- HDMI to DVI conversion (when using DVI monitor)
- 1920 x 1200 or 2048 x 1080 maximal resolutions
- RS-232 pass through and remote control over fiber*
- HDCP 1.1 compliant
- Pixel Accurate Reclocking
- Zero frame latency, no delay
- No compression
- SC fiber optical connectors
- Cross compatibility with any Lightware Fiber device
- Advanced EDID Management in both transmitter and receiver
- Twist and lock DC power plug
- Several status LEDs: source, display, signal, HDCP and laser detection, EDID validity
- Local monitor buffered loop output at transmitter*
- Two identical HDMI outputs at receiver*
- Robust metal housing
- Rack mountable

Locking DC plug
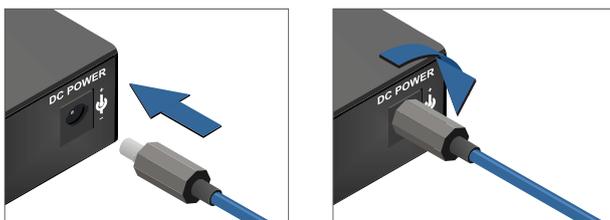
Twist 90° clockwise to lock

Compatibility table

http://www.lightware.eu/pdfs/fiber_extension_cross_comp.pdf

Specifications

Data rate:	2.25 Gbps per color
Max resolution:	1920 x 1200 or 2048 x 1080 pixels
Color depth:	24, 30 or 36 bits deep color
Video delay:	0 frames
HDCP pass through:	yes
EDID emulation:	yes, Advanced EDID Management
EDID memory:	50 factory preset, 50 user programmable EDIDs
EDID support:	256 byte extended EDID v1.3
Front panel control:	EDID selector switch, learn button
LED indicators (-TX200R):	HDCP content, HDMI signal, Video clock, Fiber link detect, EDID validity, Monitor & source detect
RS-232 pass through:	yes, bi-directional* 9.6, 14.4, 19.2, 38.4, 57.6 kBauds
Fiber:	50/125 SC Multimode (preferred) 62.5 / 125 SC Multimode
Laser wavelengths:	6 ch. CWDM: 778; 800; 825; 850 nm (high speed), 911; 980 nm (low speed)
Laser class specification:	Class 3R
Transmitter output OMA*:	-6.25 dBm (worst case)
Receiver OMA* sensitivity:	-14.25 dBm (worst case)
Optical loss budget:	8 dB (worst case)
Transmission distance:	2600 meters (using OM3e type fiber)
Power supply:	External power adaptor (100 to 240 V AC, 50/60 Hz)(5V DC, 1A)
Power cons. (-TX200R):	4 W (typ) 6 W (max)
Power cons. (-RX200R):	4 W (typ) 9 W (max)
Enclosure:	1 mm metal
Dimensions (all products):	100.4 W x 131.9 D x 26 H mm
Weight*:	see in Comparison chart
Compliance:	CE
Warranty:	3 years

OMA*:Optical Modulation Amplitude

Connectors

Power:	locking DC connector (2.5 / 5.5 mm)
HDMI:	HDMI connectors
Fiber:	SC receptacle

*This feature is available in specific product types. Please refer to the Product series comparison.

Product series comparison

Product:	RS-232 pass through:	Dual output:	Weight:
HDMI-OPT-TX200R	✓	✓	410 gramms
HDMI-OPT-RX200R	✓	✓	410 gramms
HDMI-OPT-TX100R	✓	no	400 gramms
HDMI-OPT-RX100R	✓	no	400 gramms
HDMI-OPT-TX100	no	no	400 gramms
HDMI-OPT-RX100	no	no	400 gramms

Transmitters and receivers front and back view

LED FUNCTIONS
PRIMARY (SOLID)
R HDCP ENCRYPTED CONTENT
G HDMI SIGNAL
G VIDEO CLOCK PRESENT
G LINK - RECEIVER DETECTED

SECONDARY (BLINKING)
R EMULATED EDID INVALID
G EMULATED EDID VALID
G MONITOR OUT HOTPLUG SENSE
G SOURCE +5V SENSE

Press and release LEARN to toggle Primary and Secondary function
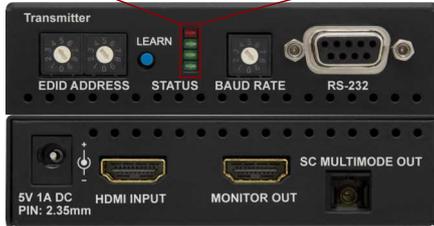
HDMI-OPT-TX200R

HDMI-OPT-TX100R
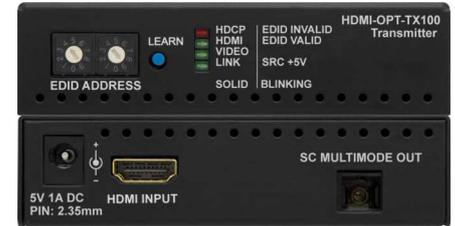
HDMI-OPT-TX100

HDMI-OPT-RX200R

HDMI-OPT-RX100R

HDMI-OPT-RX100

Supplied accessory

Universal DC adaptor
Wall power adaptor with interchangeable plug for international use. Universal input: 100-240 V AC, 50-60 Hz.

Optional accessories
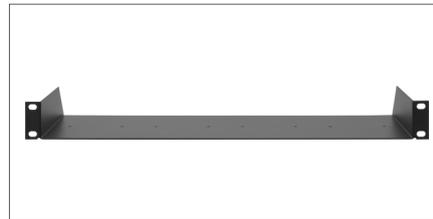
Rack shelf
The 1U high rack shelf provides mounting holes for fastening two half-rack or four quarter-rack sized units.

Under desk mounting kit
The UD-kit makes easy to mount a single device on any flat surface (e.g. furniture).