HDMI-3D-OPT-RX150RA

HDMI Optical Extender for Single Fiber

Lightware HDMI-3D-OPT-RX150RA optical receiver provides extension of uncompressed Full-HD video and audio with optional HDCP encryption plus USB HID* over one multimode fiber up to 2500 m. The unit offers an analog audio output, bi-directional RS-232 pass-through, HDCP compliance and works at all standard AV resolutions.

The interface’s 9 Gbps bandwidth is capable of transmitting 1080p (@120Hz) video signals, video up to 4K pixel resolution (4K x 2K @30Hz), as well as video with full support of content protection (HDCP). HDMI-3D-OPT-RX150RA offers a symmetrical analog output with PHOENIX connectors.

Highlighted Features

- 1920x1080@120Hz/4:4:4, 4096x2160@30Hz/4:4:4 or 60Hz/4:2:0 maximum resolutions (300MHz)
- HDCP 1.4 compliant
- Bi-directional RS-232 extension (pass-through and control)
- Extends HDMI 1.4, USB KVM and RS-232 signals over one multimode fiber cable
- Adjustable analog audio settings (volume, gain, balance)
- USB KVM (HID) extension

Stand alone application
HDMI-3D-OPT-RX150RA

**Single Fiber Technology** makes the unit fully HDMI and HDCP compliant without the need of a second fiber cable or copper connections. To simplify cabling, the bi-directional communication - necessary for HDCP handshaking and USB transfer - is performed on the same fiber core that transmits the video signal. The receiver is configurable through the **mini USB connector**.

**Intelligent HID Emulation*** is provided for two devices with full transparency. The special HID devices including keyboard and mouse – are emulated by the extender and transparently transferred to the computer with the result that no drivers are required for the proper functionality, it's as easy as Plug & Play.

*USB HID: Human Interface Device such as keyboard, mouse, presenter or Smart Card.

*USB HID (KVM) extension feature is under development, only available later.

**Applications**

- Post production studios
- Control room
- Digital Signage
- Multiroom video
- Conference rooms, collaborative telepresence

**Integrated System Operation**

**Port Diagram**

**Locking DC Plug**

Twist 90° clockwise to lock

**Receiver Front and Rear View**
HDMI-3D-OPT-RX150RA

Features
- Built-in Event Manager control automation feature
- Supports HDMI 3D signal formats (frame packing, side-by-side and top-bottom)
- HDMI 1.4, HDCP 1.4 and DVI 1.0 compliant
- Bi-directional RS-232 extension (pass-through)
- Uncompressed video up to 9 Gbps datarate (300 MHz pixel clock)
- No signal latency, zero frame delay
- Extends HDMI 1.4 and RS-232 signals over one multimode fiber cable
- Single Fiber Technology
- Audio de-embedding
- Firmware upgrade through USB
- Supports all embedded audio formats (including PCM, Dolby Digital and DTS high bitrate audio)
- Extension distance up to 2500 meters (with OM3 fiber, 1920x1080@60)
- Cross compatible with OPT series Lightware fiber extenders and I/O boards
- Advanced EDID Management
- Pixel Accurate Reclocking
- Intuitive control software for device configuration
- Device control via USB
- Device control via RS-232 and USB
- Supports HDMI 4K signal formats (4K UHD @30Hz RGB 4:4:4 or @60Hz YUV 4:2:0, up to 9 Gbps)
- No video compression
- Automatic or adjustable video format conversion (HDMI to DVI)
- Built-in video test pattern generator
- Bi-directional RS-232 and IR extension (pass-through and control)
- Status LEDs (fiber link, source, signal type and monitor detect)
- Twist-and-lock DC power connector
- Frame Detector (analyze detailed video timings)
- External universal power adaptor
- 5-pole Phoenix balanced analog audio connectors
- Mounting options for rack, furniture or truss

Analog Audio Output
Volume: -78 .. 0 dB
Bass: 0 .. 24 dB
Treble: 0 .. 6 dB
Balance: 0 .. 100%
Phase invert: On/Off
De-emphasis: On/Off

Maximum Extension Distances

<table>
<thead>
<tr>
<th>Resolution</th>
<th>OM1 (62.5/125)</th>
<th>OM2 (50/125)</th>
<th>OM3 (50/125)</th>
<th>OM4 (50/125)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1080p@60Hz 24 bpp</td>
<td>250 m</td>
<td>600 m</td>
<td>1200 m</td>
<td>2500 m</td>
</tr>
<tr>
<td>1080p@60Hz 36 bpp</td>
<td>150 m</td>
<td>400 m</td>
<td>800 m</td>
<td>1300 m</td>
</tr>
</tbody>
</table>

Specifications
- Data rate: 9 Gbps maximum
- Resolution: Up to 4Kx2K @30Hz or 1080p @120Hz or 720p/1080i @120Hz
- EDID support: Transparent
- HDCP pass through: Yes
- RS-232 pass through: Yes
- Fiber: 50/125 SC Multimode (preferred)
- Transmission distance: 2500 m @ 1600x1200 60Hz 24bit
- Power: Universal power adaptor, DC 5 V 2.5 A
- Power consumption: 3.9 W (typ) 6.5 W (max)
- Enclosure: 1 mm metal
- Dimensions: 100.4 W x 131.9 D x 26 H mm
- Weight: 430 grams
- Compliance: CE
- Warranty: 3 years

Connectors
- Fiber input: SC receptacle
- HDMI output: HDMI connector
- USB HID (RX): 2 x USB-A female connector
- Analog audio output: 5 pole PHOENIX connector
- USB control: Mini USB-B female connector
- Serial port: 9-pole D-sub
- Power: Locking DC connector (2.5 / 5.5 mm)

Supported Audio Formats

<table>
<thead>
<tr>
<th>Embedded audio</th>
<th>Unbalanced analog out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multichannel PCM (max 8 channel, up to 192 kHz)</td>
<td>Stereo PCM (up to 48 kHz)</td>
</tr>
<tr>
<td>Dolby Digital 2.1</td>
<td>x</td>
</tr>
<tr>
<td>Dolby Digital 5.1</td>
<td>x</td>
</tr>
<tr>
<td>Dolby Digital 7.1</td>
<td>x</td>
</tr>
<tr>
<td>DTS 2.1</td>
<td>x</td>
</tr>
<tr>
<td>DTS 5.1</td>
<td>x</td>
</tr>
<tr>
<td>DTS 7.1</td>
<td>x</td>
</tr>
<tr>
<td>Dolby TrueHD (HBR)</td>
<td>x</td>
</tr>
<tr>
<td>DTS-HD (HBR)</td>
<td>x</td>
</tr>
<tr>
<td>DTS-HD Master Audio (HBR)</td>
<td>x</td>
</tr>
<tr>
<td>All other HDMI specified standards</td>
<td>x</td>
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</tbody>
</table>
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Supplied Accessory

PSU-5VU Universal DC adaptor
(Part No: 1180 0049)
Wall power adaptor with interchangeable plug for international use. Universal input: 100-240 V AC, 50-60 Hz.

Optional Accessories

Under desk mounting kit
(Part No: 5240 0275)
The UD-kit makes it easy to mount a single device on any flat surface (e.g. furniture).

Under desk mounting kit double
(Part No: 5240 0276)
The UD-kit double makes it easy to mount a single device or multiple devices on any flat surface (e.g. furniture).

Rack shelf (Part No: 5240 0269)
The 1U high rack shelf provides mounting holes for fastening two half-rack or four quarter-rack sized units.