**Quick Start Guide**

**HDMI-3D-OPT-RX150RA**

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### Important Safety Instructions

Please read and keep the information in the attached safety instructions supplied with the product before you start using the device.

The receiver is a Class 2 laser product. Caution! Invisible Class 2 laser radiation! Avoid exposure to the beam!

**Adventures in Optical Extender Concept**

HDMI-3D-OPT-RX150RA receiver has a multi-mode single fiber input interface which is able to receive different type of signals at the same time. The device accepts digital video and digital audio, RS-232, and USB KVM signals over a single fiber cable. The device is able to de-embed the audio signal to the analog (5-pole Phoenix) and the digital (S/PDIF) ports and transmit it to the audio sink devices. The unit can be controlled from the USB interface (USB mini B-type) and from a single fiber connection (S/PDIF audio output).

**Mounting**

To mount the receiver Lightware supplies optional accessories for different usage. There are three kinds of mounting kits with similar fixing method. The receiver has two mounting holes with inner thread on the bottom side. Fasten the device by the screws enclosed to the accessory.

Using different (e.g. longer) screws may cause damage to the device.

**Box Contents**

- Receiver unit
- SV DC adapter with interchangeable plugs
- Phoenix Combicon 5-pole connector
- Safety and warranty info, Quick Start Guide
- Locking DC Plug

**Connecting Steps**

1. **USB KVM ports**
   - USB KVM ports for HD-compatible devices (preferably keyboard and mouse).

2. **Power LED**
   - The LED indicates the power status of the device. It lights when the receiver is powered.

3. **USB control port**
   - USB interface for LDC connection, and firmware upgrade purpose.

4. **Function button**
   - Factory default settings can be called by pressing the button.

5. **Status LEDs**
   - The LEDs give immediate feedback about actual state of the device.

6. **RS-232 port**
   - D-sub connector for RS-232 serial port.

7. **5V DC input**
   - Local power in; connect the output of the supplied 5V DC power adapter.

8. **SC fiber input**
   - Connect a multi-mode single fiber optical cable between the receiver and the transmitter.

9. **S/PDIF output**
   - S/PDIF connector for digital audio output signal.

10. **Analog audio output**
    - 5-pole Phoenix connector for balanced analog audio output signal.

11. **HDMI output**
    - HDMI connector for DVI video or HDMI video and audio.

**Optical Extender Concept**

HDMI-3D-OPT-RX150RA receiver supports HD-compliant (Human Interface Device) devices to transmit USB signal between the source and sink devices. The transmitter connects to the controlled device (e.g. PC) and the controlling devices (e.g. computer mouse, keyboard, touch panel) are connected to the receiver. USB KVM function can be used in two different modes: Transparent and Composite mode. The related settings are available in the Lightweight Device Controller (LDC) software.

**Software Control – Using Lightweight Device Controller (LDC)**

The device can be controlled from a computer through the USB or RS-232 ports using Lightweight Device Controller. Please download the application from [www.lightware.eu](http://www.lightware.eu), install on a Windows PC or a Mac OS X and connect to the device.

**Further information**

The document is valid with the following firmware version: 2.0.0

See the Downloads section on the website of the product.

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Dec. ver. 2.1

Lightware Visual Engineering LLC.

See the [Downloads](#) section on the website of the product.
### Factory Default Settings

<table>
<thead>
<tr>
<th>Optical input port properties</th>
<th>HDMI output port properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Signal type</strong></td>
<td>Auto</td>
</tr>
<tr>
<td><strong>HDCP mode</strong></td>
<td>Auto</td>
</tr>
<tr>
<td><strong>Power 5V mode</strong></td>
<td>Always on</td>
</tr>
<tr>
<td><strong>Test pattern mode</strong></td>
<td>Off</td>
</tr>
<tr>
<td><strong>Test pattern clock source</strong></td>
<td>480p</td>
</tr>
<tr>
<td><strong>Test pattern</strong></td>
<td>Bra</td>
</tr>
</tbody>
</table>

**Optical output port properties**

- **Volume (%):** 100
- **Volume (dB):** 0.00
- **Balance:** 0 (center)
- **Bass (dB):** 0
- **Treble (dB):** 0
- **Phase invert:** Disabled

**RS-232 settings**

- **RS-232 mode:** Pass-through
- **Control protocol:** LW2
- **Port setting:** 8E7E00 BAUD, 8, N, 1

To restore factory default settings, do the following steps:

1. Keep the Function button pressed for 10 seconds.
2. Keep the front panel LEDs start to blink, release the button.
3. The device restarted and the factory default settings are restored.

### Maximum Fiber Cable Extension Distances

<table>
<thead>
<tr>
<th>OM1</th>
<th>OM2</th>
<th>OM3</th>
<th>OM4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000p/60Hz 24 bpp</td>
<td>250 m</td>
<td>600 m</td>
<td>1200 m</td>
</tr>
<tr>
<td>1000p/60Hz 36 bpp</td>
<td>150 m</td>
<td>400 m</td>
<td>800 m</td>
</tr>
<tr>
<td>400x24bpp/30Hz 24 bpp</td>
<td>Not supported</td>
<td>350 m</td>
<td>700 m</td>
</tr>
</tbody>
</table>

### Typical application

**Standalone application**

**Integrated system diagram**

### Audio Outputs

The table below shows the supported audio formats by output ports.

<table>
<thead>
<tr>
<th>Audio formats</th>
<th>Embedded audio</th>
<th>S/PDIF output</th>
<th>Analog audio output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multichannel PCM</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dolby Digital 2.1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dolby Digital 5.1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dolby Digital 7.1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DTS 2.1</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
</tr>
<tr>
<td>DTS 5.1</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
</tr>
<tr>
<td>DTS 7.1</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
</tr>
<tr>
<td>Dolby TrueHD (HBR)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DTS-HD (HBR)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DTS-HD Master Audio (HBR)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>All other HDMI specified</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

### Audio Cable Wiring Guide

HDMI-3D-OPT-RX150RA receiver is built with 5-pole Phoenix output connector. See below a few examples of the most common assembling cases:

- **From balanced output to balanced input**
  - **Phoenix - 2 x 6.3 (1/4") TRS**
  - **Phoenix cable - 2 x XLR plugs**

### Typical application

**Audio formats**

- DTS 2.1
- DTS 5.1
- DTS 7.1
- Dolby TrueHD (HBR)
- DTS-HD (HBR)
- DTS-HD Master Audio (HBR)
- All other HDMI specified standards

From balanced output to unbalanced input:
- **Phoenix - 2 x 6.3 (1/4") TRS**
- **Phoenix - 2 x 3.5 (1/8") TRS**
- **Phoenix cable - 2 x RCA**

For more information about audio cable wiring see the user's manual of the device or the Audio Cable Wiring Guide on our website: www.lightware.eu.