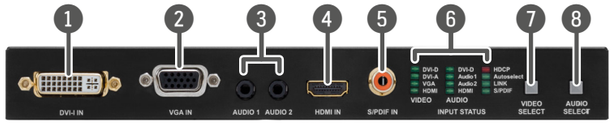
visual engineering
LIGHTWARE

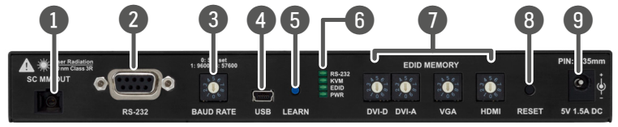
Quick Start Guide

UMX-OPT-TX150R

Front and Rear View



1	**DVI-I In**	DVI-I connector for connecting the video source to the transmitter via DVI cable.
2	**VGA In**	D-sub connector for analog video signal.
3	**Audio 1-2 In**	3.5 mm jack connector for unbalanced analog stereo audio input signal with right and left channel.
4	**HDMI In**	HDMI connector for DVI video or HDMI video and audio.
5	**S/PDIF In**	RCA jack connector with S/PDIF digital audio signal.
6	**Status LEDs**	The LEDs give feedback about state of the unit and the video and audio signals.
7	**Video Select**	Button for switching between video inputs (DVI-D / DVI-A / VGA / HDMI / Autoselect).
8	**Audio Select**	Button for switching between audio inputs (DVI-D / Audio 1 / Audio 2 / HDMI / S/PDIF).



1	**SC Fiber Out**	Optical connector for 50/125 multimode fiber optical cable (OM4 is recommended).
2	**RS-232 Port**	9-pole D-sub female connector for standard RS-232 port.
3	**Baud Rate Rotary Switch**	The rotary switch selects one of the five speeds of the serial communication (#1 .. #4) or the Software Control mode (#0). The #8 is used for special functions.
4	**USB Port**	USB mini-B type port for software control and firmware upgrade.
5	**Learn Button**	Stores the EDID of the display device attached to receiver device's video output in the selected memory address.
6	**Status LEDs**	The LEDs give feedback about the state of the device.
7	**EDID Memory Rotary Switch**	The rotary switches select one of the EDID memory addresses.
8	**RESET Button**	Hardware reset button. It resets the whole device, however saved settings and EDIDs will be preserved.
9	**DC 5V In**	Local power in; connect the output of the supplied 5V DC power adaptor.

Front Panel LEDs

VIDEO Sources

- ON when the video input port is selected and there is a valid video signal on it.
- BLINKING when the video input port is selected and there is no valid video signal on it.
- OFF when the video input port is NOT selected. Another port is active or there was a disconnect command.

AUDIO Sources

- ON when the audio input port is selected.
- OFF when the audio input port is NOT selected. Another port is active or there was a disconnect command.

Rear Panel LEDs

HDCP LED is

- ON when the HDCP setting of the output video signal is Always.
- OFF when the HDCP setting of the output video signal is AUTO.

Autoselect LED is

- ON when the autoselect mode is selected and a valid video signal is found.
- BLINKING when the autoselect mode is selected and video signal searching is in progress.
- OFF when autoselect mode is not selected and video input port can be chosen manually.

LINK LED is

- ON when the TX and the RX (or OPT-IB) are connected to each other via the optical cable and they can communicate.
- OFF when the TX and RX (or OPT-IB) are not connected or they CANNOT communicate.

RS-232 LED is

- ON when the RS-232 port is in Control mode.
- OFF when the RS-232 port is in Pass mode.

EDID LED is

- ON when there is a valid EDID on the currently active input port.
- BLINKING FAST continuously when there is an invalid EDID on the currently active input port.
- BLINKS FAST THREE TIMES when EDID learning was unsuccessful.
- BLINKS SLOW THREE TIMES when EDID learning was successful.

PWR LED is

- ON when the transmitter unit is powered with 5V DC and ready to use.
- BLINKING when the transmitter unit is powered but an error occurred.
- OFF when the transmitter unit is NOT powered or out of order.

KVM LED is always off and reserved for future developments.

Important Safety Instructions

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

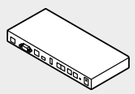
The transmitter is a Class 3R laser product.

Caution! Invisible Class 3R laser radiation! Avoid exposure to the beam!

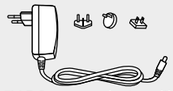
Introduction

The Lightware UMX-OPT-TX150R is a universal video and audio transmitter (TX) device, providing signal extension over a single multimode fiber cable up to 2500m. The transmitter was designed to handle digital and analog signals for both video and audio e.g. VGA, DVI and HDMI with analog stereo, 5.1 S/PDIF and even 7.1 HDMI embedded audio. The UMX-OPT-TX150R handles bidirectional RS-232 pass-through, HDCP encryption and has an HDCP enable/disable function.

Box Contents



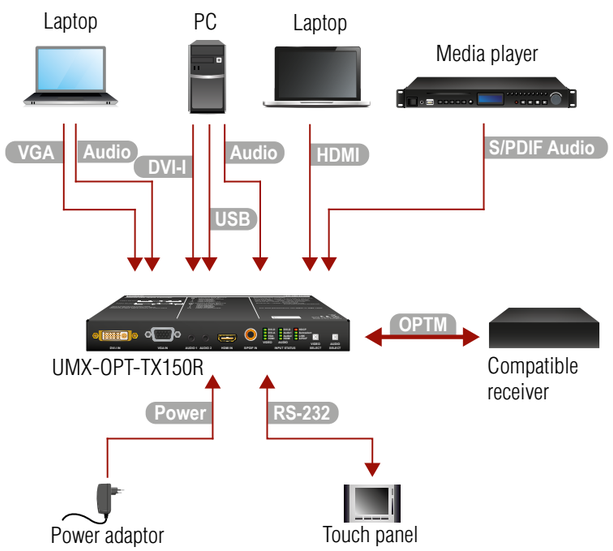
Transmitter unit



5V DC power adaptor with interchangeable plugs

Safety and Warranty Info
Quick Start Guide

Connecting Steps



VGA DVI HDMI	Connect the transmitter and the sources using the proper (VGA / DVI-I / HDMI) cables.
Audio	Optionally connect an audio device (e.g. the VGA laptop) to one of the audio input port.
S/PDIF Audio	Optionally connect a digital audio device (e.g. the Media player) to the S/PDIF audio input port.
USB	Optionally connect a USB A – Mini USB B cable between the transmitter unit and the computer in order to control the device.
RS-232	Optionally for RS-232 control: connect a controller/controlled device (e.g. Touch panel) to the RS-232 port.
OPTM	Connect a multimode (OPTM) fiber cable to the SC fiber output port of the transmitter to the SC fiber input port of the compatible receiver.
Power	Firstly connect the power adaptor to the DC input of the transmitter, then to the AC power socket.

Mounting

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

Under-desk double mounting kit

1U high rack shelf

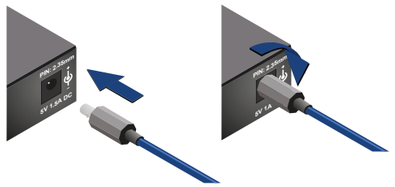
The Under-desk double mounting kit makes easy to mount a single device on any flat surface, e.g. furniture. 1U high rack shelf provides mounting holes for fastening two half-rack or four quarter-rack sized units. Pocket-sized devices can also be fastened on the shelf. To order mounting accessories please contact sales@lightware.eu.

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

The switcher is half-rack sized.

Locking DC plug

Twist 90° clockwise to lock.



Setup the RS-232 Baud Rate

Turn the BAUD RATE rotary switch to the desired position to select the speed of the serial communication. (Speed of the RS-232 extension and also the RS-232 control.) In case of #0 the baud rate can be set with protocol commands to a desired value (default is 57600).

BAUD RATE

#0: SW set.	#1: 9600	#2: 19200	#3: 38400	#4: 57600
#5: Not used	#6: Not used	#7: Not used	#8: Set RS-232 mode	#9: Not used

RS-232 Extension (PASS mode)

A serial device (e.g. controller) can be connected to the RS-232 port to use the serial data pass-through function. The speed of the extended serial communication (baud rate) is set up by the BAUD RATE rotary switch. To select the best fitting baud rate on the transmitter please read the user's manual of all serial devices.

Toggle between PASS and CONTROL mode

Turn the BAUD RATE rotary switch to the #8 (set RS-232 mode) position and press and hold the LEARN button for approximately 3 seconds to change the RS-232 working mode. Set the RS-232 baud rate to the desired value after changing.

Compatible Devices

Thanks to the Lightware design, UMX-OPT-150R transmitters are compatible with the following receivers and input boards:

- DVIDL-OPT-RX100
- DVI-OPT-RX110
- DVI-OPT-RX220-Pro
- HDMI-3D-OPT-RX150RA
- HDMI-OPT-RX100
- HDMI-OPT-RX100R
- HDMI-OPT-RX200R
- MX-DVI-OPT-IB
- MX-HDMI-OPT-IB

Further information

The document is valid with the following firmware version: 1.0.4b1
The User's manual of this appliance is available on www.lightware.eu.
See the Downloads section on the website of the product.

Contact us

sales@lightware.eu

+36 1 255 3800

support@lightware.eu

+36 1 255 3810

Lightware Visual Engineering LLC.

Peterdy 15, Budapest H-1071, Hungary

Doc. ver.: 2.1
19200059

Video Input Selection

The desired video input can be selected by the **Video Select** button on the front panel. The selection order of the inputs is following:

DVI-D → DVI-A → VGA → HDMI → Autoselect

Audio Input Selection

The audio selection depends on the selected video input. After the **Audio Select** button is pushed, the next input will be chosen. Audio LEDs give you a feedback.

If analog video input is selected (DVI-A and VGA) all audio inputs can be chosen.

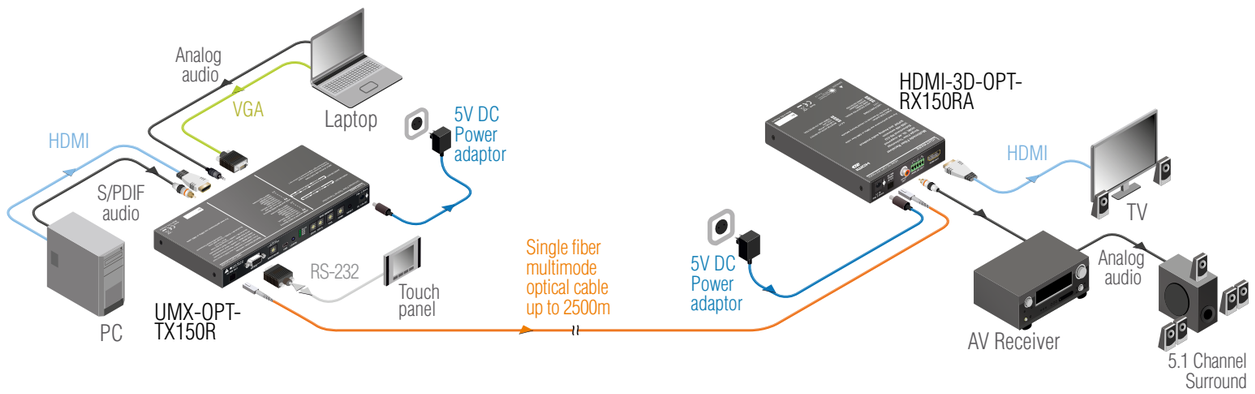
DVI-D (embedded) → Audio 1 → Audio 2 → HDMI (embedded) → S/PDIF

In case of digital video inputs, you can select the embedded audio input of the selected video input (either DVI-D or HDMI, only one of them), the analog audio 1, analog audio 2 and the S/PDIF audio inputs.

Audio 1 → Audio 2 → Video input: DVI-D **DVI-D (embedded)** / Video input: HDMI **HDMI (embedded)** → S/PDIF

The inputs can be also selected by using LDC (Lightware Device Controller), sending a protocol command, or using Autoselect.

Standalone Application



Software Control – Using Lightware Device Controller (LDC)

Connect the device to the computer by a USB Mini-B cable or in RS-232 CONTROL mode an RS-232 straight (male – female) serial cable and start the Lightware Device Controller software to access the advanced settings. In case of serial connection the RS-232 baud rate must be set.

Firmware Upgrade - Using Lightware Device Updater (LDU)

Threre is an easy and comfortable way to keep your device up-to-date. Steps of firmware upgrade are the following:

1. Download and install LDU software from the company's website www.lightware.eu.
2. Get the latest firmware package from Lightware Support (support@lightware.eu).
3. Establish the connection between the extender and the computer over USB or serial cable.
4. Start LDU software and select the Extender mode.
5. Load the new firmware file.
6. Please read the displayed instructions related to this model.
7. Select your upgradeable device.
8. Review the list of selected devices.
9. Start firmware upgrade.
10. Please wait until it is completed and device is rebooted.
11. Ready.

⚠ ***In certain cases new firmware version requires a factory reset to apply all new features in the device. In this case "Factory reset" option is enabled by default and not changeable by the user.***

EDID Memory

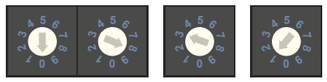
ℹ *Switching EDID for any inputs is available only with rotary switches.*

Each video input has own, separated EDID rotary switch and has the same EDID memory structure.

- Address #0: copy of the last attached monitor's EDID from connected receiver.
- Address #1: Lightware's UNIVERSAL EDID.
- Address #2..#5: factory preprogrammed EDIDs and cannot be changed.
- Address #6..#9: user programmable.

Selecting and EDID

Turn the EDID ADDRESS rotary switches to the desired position. Use a flat head screwdriver to change the address. The EDID status LED provides feedback.



⚠ ***Avoid the use of keys, coins, knives and other sharp objects.***

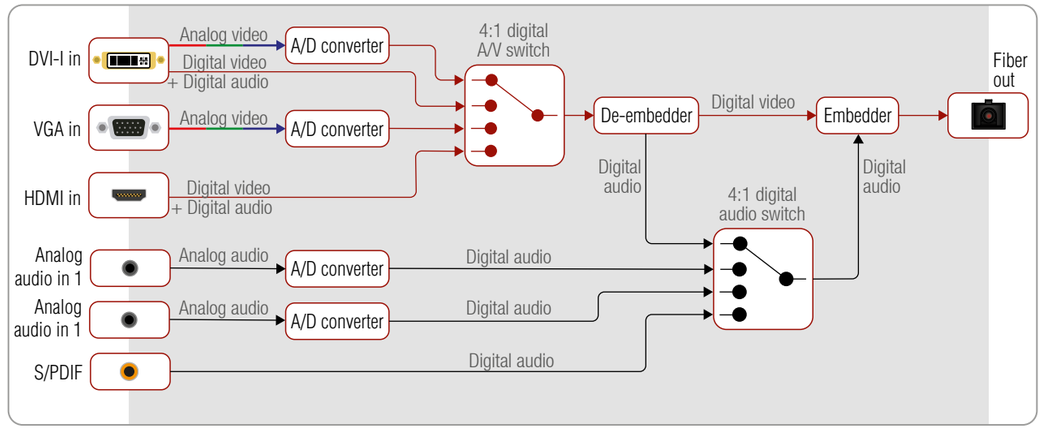
Learning EDID

The input ports have separate EDID memory. To use the same EDID on different inputs, each input has to be taught separately.

ℹ *Learning is not available in Autoselect mode.*

1. Connect the sink device to the RX's MONITOR OUT (or select an EDID on OPT-IB).
2. Turn the EDID ADDRESS rotary switches to the desired position, where you want to store the attached display's EDID (between user addresses #6..#9).
3. Press and hold the LEARN button for approximately 3 seconds. The EDID Status LED provides feedback.

Port Diagram



Restore Factory Default Settings

Factory default settings can be reloaded with the procedure below:

= Restore factory defaults

Turn all of the rotary switches to address #0, and press and hold the LEARN button for approximately 10 seconds. LEDs give you a feedback as they light up from top to bottom.

Input port	DVI-D
HDCP	Enabled
No sync color	Enabled
No sync color	7F7F7F (grey)
Output video mode	Auto
Output HDCP mode	Auto
Video Auto Select	NonPriority, First detect
Audio Auto Select	First detect: Embedded, S/PDIF, Analog 2
Control protocol	LW2
Baud rate	57600
Databits	8
Parity	No
Stopbits	1
Operation mode	Pass-through

Factory EDID List

DVI-D	DVI-D EDID Rotary	EDID reference in protocol
#0	Copy from SC MM OUT (Dynamic EDID)	D01
#1	**Factory EDID Universal HDMI (default)**	**F01**
#2	Factory EDID (DVI) 1024x768@60	F02
#3	Factory EDID (HDMI) 1280x720p@60	F03
#4	Factory EDID (HDMI) 1920x1080p@60	F04
#5	Factory EDID (DVI) 1920x1200@60	F05
#6	User EDID (default: Univ. HDMI EDID)	U01
#7		U02
#8		U03
#9		U04

DVI-A	DVI-A Rotary	EDID reference in protocol
#0	Copy from SC MM OUT (Dynamic EDID)	D01
#1	**Factory EDID Universal Analog (default)**	**F06**
#2	Factory EDID (Analog) 1024x768@60	F07
#3	Factory EDID (Analog) 1280x720@60	F08
#4	Factory EDID (Analog) 1920x1080@60	F09
#5	Factory EDID (Analog) 1920x1200@60	F10
#6	User EDID (default: Univ. Analog EDID)	U05
#7		U06
#8		U07
#9		U08

VGA	VGA Rotary	EDID reference in protocol
#0	Copy from SC MM OUT (Dynamic EDID)	D01
#1	**Factory EDID Universal Analog (default)**	**F11**
#2	Factory EDID (Analog) 1024x768@60	F12
#3	Factory EDID (Analog) 1280x720@60	F13
#4	Factory EDID (Analog) 1920x1080@60	F14
#5	Factory EDID (Analog) 1920x1200@60	F15
#6	User EDID (default: Univ. Analog EDID)	U09
#7		U10
#8		U11
#9		U12

HDMI	HDMI Rotary	EDID reference in protocol
#0	Copy from SC MM OUT (Dynamic EDID)	D01
#1	**Factory EDID Universal HDMI (default)**	**F16**
#2	Factory EDID (DVI) 1024x768@60	F17
#3	Factory EDID (HDMI) 1280x720p@60	F18
#4	Factory EDID (HDMI) 1920x1080p@60	F19
#5	Factory EDID (DVI) 1920x1200@60	F20
#6	User EDID (default: Univ. HDMI EDID)	U13
#7		U14
#8		U15
#9		U16