User Manual

TL-IPFO

Fiber Optic AV over IP Extenders

Version: TL-IPFO_170911

Safety Instructions

1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.

3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.

4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
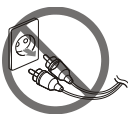
5. Do not place sources of open flames, such as lit candles, on the unit.

6. Clean this apparatus only with dry cloth.

7. Unplug this apparatus during lightning storms or when unused for long periods of time.

8. Protect the power cord from being walked on or pinched, particularly at plugs.

9. Only use attachments / accessories specified by the manufacturer.

10. Refer all servicing to qualified service personnel.

FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.
-- Increase the separation between the equipment and receiver.
-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Introduction

TL-IPFO series encoders and decoders provide the flexible, powerful, and scalable solution at resolutions up to 4096x2160@60Hz, 3840x2160@60Hz (4:4:4) and 3840x2160@60Hz (4:2:0 10-bit HDR). They allow uncompressed UHD media to be switched and distributed over standard 10GbE Ethernet networks. A local area network is covered with a range up to 984 ft (300 m) over fiber optic cable with the included GBIC modules. Standard features like, bi-directional RS232, bi-directional IR, and independent analog audio input/output are included. TL-IPFO series encoders and decoders are the perfect solution for any zero-frame latency and signal routing applications. Common applications include classrooms, conference rooms, performing arts, and broadcasts.

Key Features

Transmitter
- Encodes (transmits) audio & video to compatible decoders
- Operates in point-to-point, point-to-many, many-to-point, many-to-many & video wall modes
- Transmits 18G HDMI over a 10G network switch
- 4K seamless switching
- Doesn't require a proprietary network switch
- True IP switching – runs on a stand-alone network or on a standard data network
- Deploys IGMP snooping and won't slow down network data traffic
- Fiber optic network connection with exchangeable 10GbE SFP+
- HDMI & DisplayPort inputs with auto or manual switching
- HDMI 2.0 compliant
- HDCP 2.2 compliant
- Supports maximum resolutions of 4K@60 4:4:4 & 4K@60 4:2:0 HDR
- Implements minimal compression on signals over 10G
- Zero frame latency
- Seamless switching between sources
- Bi-directional IR & RS232 pass-through
- Ethernet pass-through (1G) for network and web-enabled device connectivity
- Built-in video wall processing with bezel correction
- Analog audio embedding or de-embedding
- 1,000 ft. (300m) max distance on multimode fiber-based networks
- 30km max distance on single mode fiber-based networks when exchanging the 10GbE SFP+ module
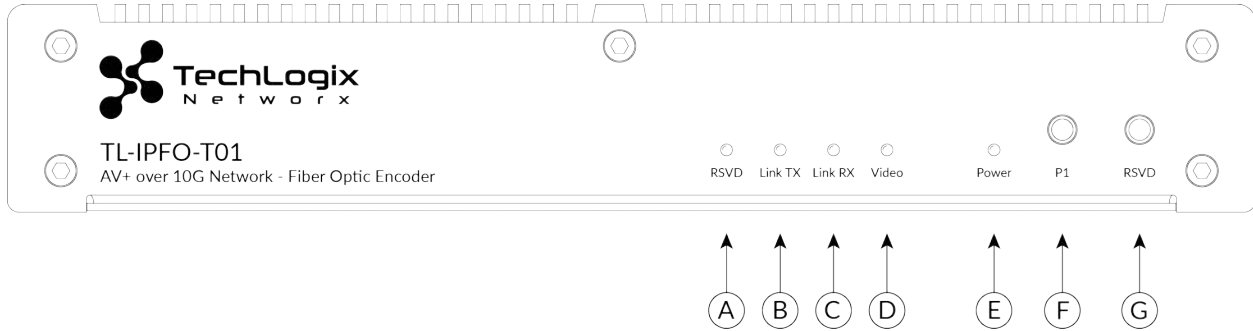
Receiver

- Decodes (receives) audio & video from compatible encoders
- Operates in point-to-point, point-to-many, many-to-point, many-to-many & video wall modes
- Receives 18G HDMI over a 10G network switch
- 4K seamless switching
- Doesn't require a proprietary network switch
- True IP switching – runs on a stand-alone network or on a standard data network
- Deploys IGMP snooping and won't slow down network data traffic
- Fiber optic network connection with exchangeable 10GbE SFP+
- HDMI output
- HDMI 2.0 compliant
- HDCP 2.2 compliant
- Supports maximum resolutions of 4K@60 4:4:4 & 4K@60 4:2:0 HDR
- Implements minimal compression on signals over 10G
- Zero frame latency
- Seamless switching between sources
- Bi-directional IR & RS232 pass-through
- Ethernet pass-through (1G) for network and web-enabled device connectivity
- Built-in video wall processing with bezel correction
- Analog audio de-embedding
- 1,000 ft. (300m) max distance on multimode fiber-based networks
- 30km max distance on single mode fiber-based networks when exchanging the 10GbE SFP+ module
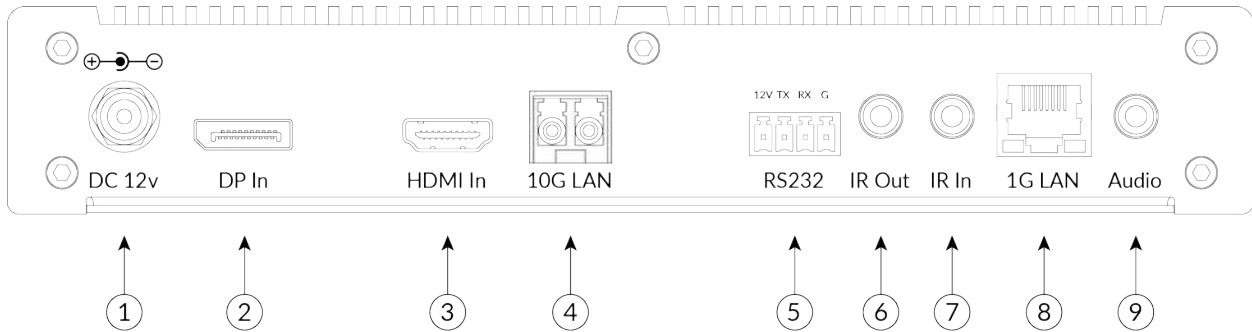
Panel Descriptions

TL-IPFO-T01 (Transmitter)

Front

TechLogix
N e t w o r x

TL-IPFO-T01
AV+ over 10G Network - Fiber Optic Encoder

RSVD   Link TX   Link RX   Video   Power   P1   RSVD

Ⓐ   Ⓑ   Ⓒ   Ⓓ   Ⓔ   Ⓕ   Ⓖ

	Name	Description
A	RSVD LED	No current function.
B	Link TX LED	Blinking – The device is transmitting Ethernet data. Off – The device is not transmitting Ethernet data.
C	Link RX LED	On – The device is processing the video signal but not receiving Ethernet data. Blinking – The device is processing the video signal and receiving Ethernet data. Off – The device is not process the video signal nor receiving Ethernet data.
D	Video LED	On – A stable video signal is detected. Off – An unstable or no video signal is detected.
E	Power LED	On – The device is powered on. Off – The device is powered off.
F	P1 Button	No current function.
G	RSVD Button	No current function.

Rear

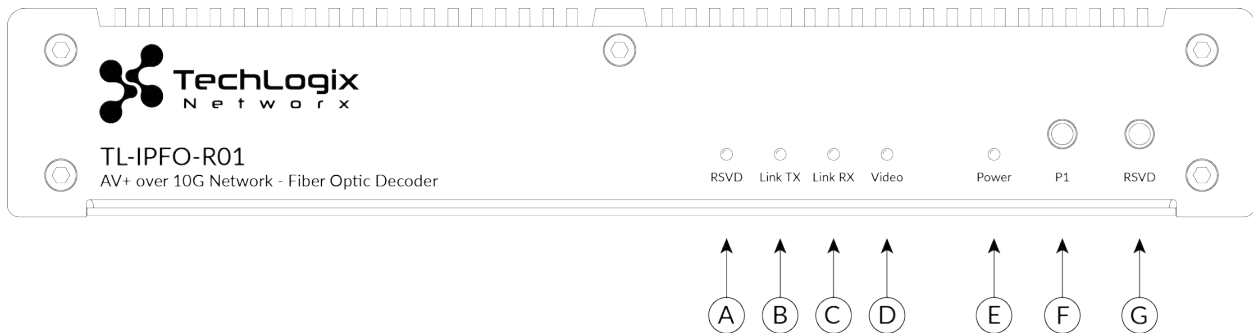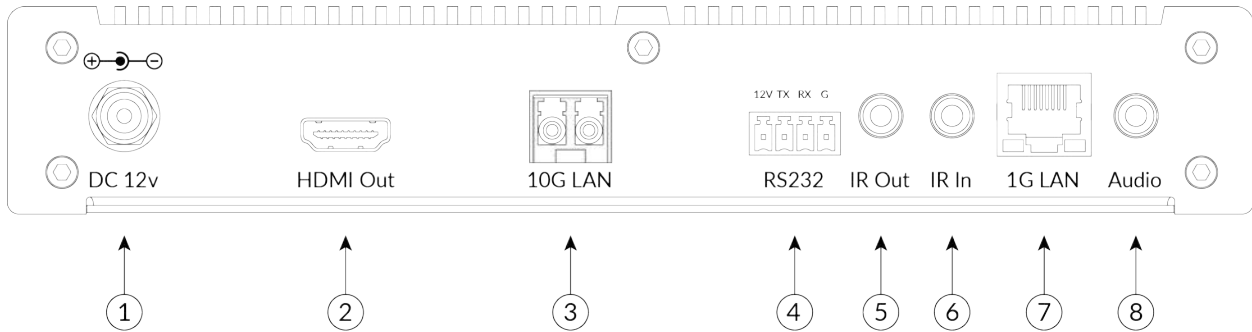|	Name	Description
1	DC 12v Power Input	Threaded locking barrel connector for included 12V 3A DC power supply.
2	DisplayPort Input	Connect this port to a DisplayPort source device.
3	HDMI Input	Connect this port to an HDMI source device.
4	10G LAN Fiber Port	Connect this 10GbE fiber port to a 10Gb Ethernet switch using a 10GbE SFP+ fiber optic transceiver. Connect local TX to remote RX; local RX to remote TX. TX: Left connector RX: Right connector
5	RS232 Port with 12V Output	Connect this port to a RS232 device such as a computer or control system for bi-directional serial communication with a RS232 device connected to another TL-IPFO series unit on the network.
6	IR Output Port	Connect this port to an IR transmitter for IR communication with an IR receiver in another TL-IPFO series unit on the network.
7	IR Input Port	Connect this port to an IR receiver for IR communication with an IR transmitter in another TL-IPFO series unit on the network.
8	1G LAN Ethernet Port	Connect this port to a switch, a router or a computer for signal routing, device management, and device upgrading via TLXpress. This port is a pass-through port to other TL-IPFO devices on the network.
9	Audio Port	Connects this port to an audio device and can be configured as either an audio input (audio replaces source audio) or an audio output (audio is de-embedded from source audio).

TL-IPFO-R01 (Receiver)

Front

	Name	Description
A	RSVD LED	No current function.
B	Link TX LED	Blinking – The device is transmitting Ethernet data. Off – The device is not transmitting Ethernet data.
C	Link RX LED	On – The device is processing the video signal but not receiving Ethernet data. Blinking – The device is processing the video signal and receiving Ethernet data. Off – The device is not process the video signal nor receiving Ethernet data.
D	Video LED	On – A stable video signal is detected. Off – An unstable or no video signal is detected.
E	Power LED	On – The device is powered on. Off – The device is powered off.
F	P1 Button	Press once to copy the connected HDMI display's EDID to all TL-IPFO-T01 transmitters in the network.
G	RSVD Button	No current function.

Rear

	Name	Description
1	DC 12v Power Input	Threaded locking barrel connector for included 12V 3A DC power supply.
2	HDMI Output	Connect this port to an HDMI display device.
3	10G LAN Fiber Port	Connect this 10GbE fiber port to a 10Gb Ethernet switch using a 10GbE SFP+ fiber optic transceiver. Connect local TX to remote RX; local RX to remote TX. TX: Left connector RX: Right connector
4	RS232 Port with 12V Output	Connect this port to a RS232 device such as a computer or control system for bi-directional serial communication with a RS232 device connected to another TL-IPFO series unit on the network.
5	IR Output Port	Connect this port to an IR transmitter for IR communication with an IR receiver in another TL-IPFO series unit on the network.
6	IR Input Port	Connect this port to an IR receiver for IR communication with an IR transmitter in another TL-IPFO series unit on the network.
7	1G LAN Ethernet Port	Connect this port to a switch, a router or a computer for signal routing, device management, and device upgrading via TLXpress. This port is a pass-through port to other TL-IPFO devices on the network.
8	Audio Port	Connects this port to an audio output device to listen to de-embedded HDMI audio.

Typical Applications

There are typically five different configurations in which TL-IPFO Series products are installed: point-to-point, point-to-many, many-to-point, many-to-many and video wall applications. Some applications even require multiple configurations in a single system, and the TL-IPFO Series is an ideal choice due to the flexible hardware and software design. The following information details various example configurations, as well as the hardware and software required.
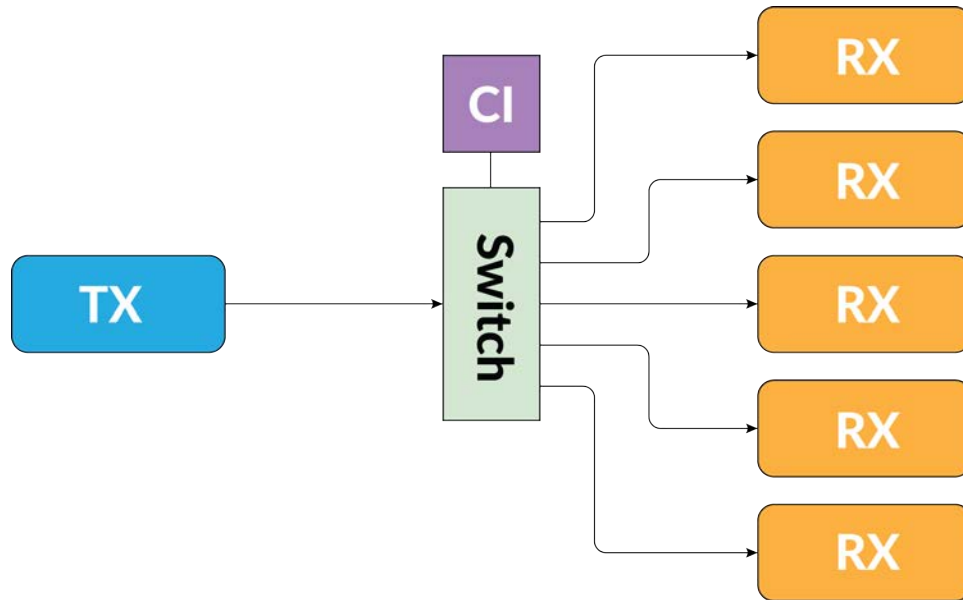
Point to Point

A single encoder connected to a single decoder.

Encoder required: **one TL-IPFO-T01**
Decoder required: **one TL-IPFO-RO1**
Network switch required: **none**
Physical control interface: **none**
Software required: **none**
Licensing required: **none**

Point to Many

A single encoder connected to multiple decoders.

Encoder required: **one TL-IPFO-T01**
Decoder required: **multiple TL-IPFO-RO1**
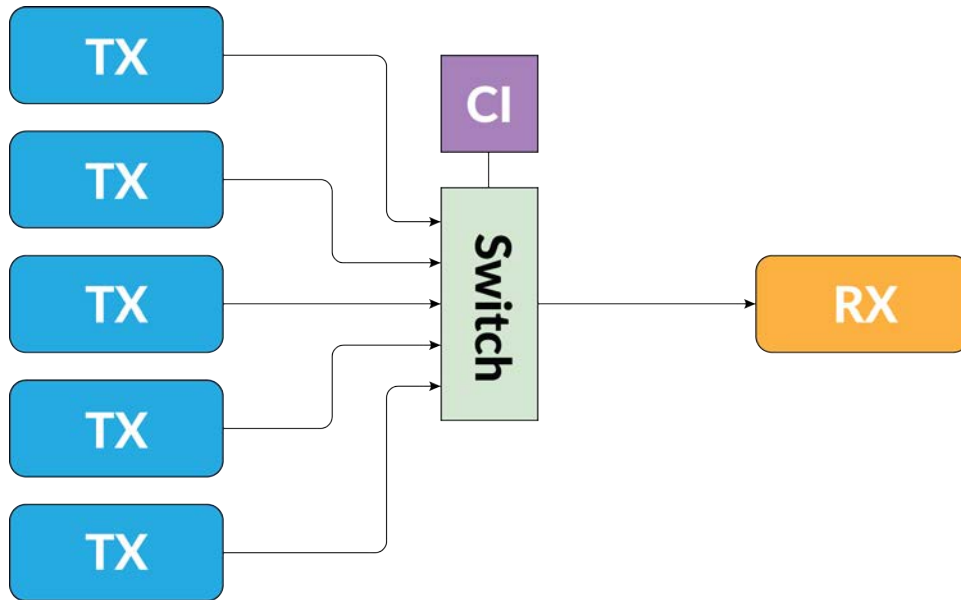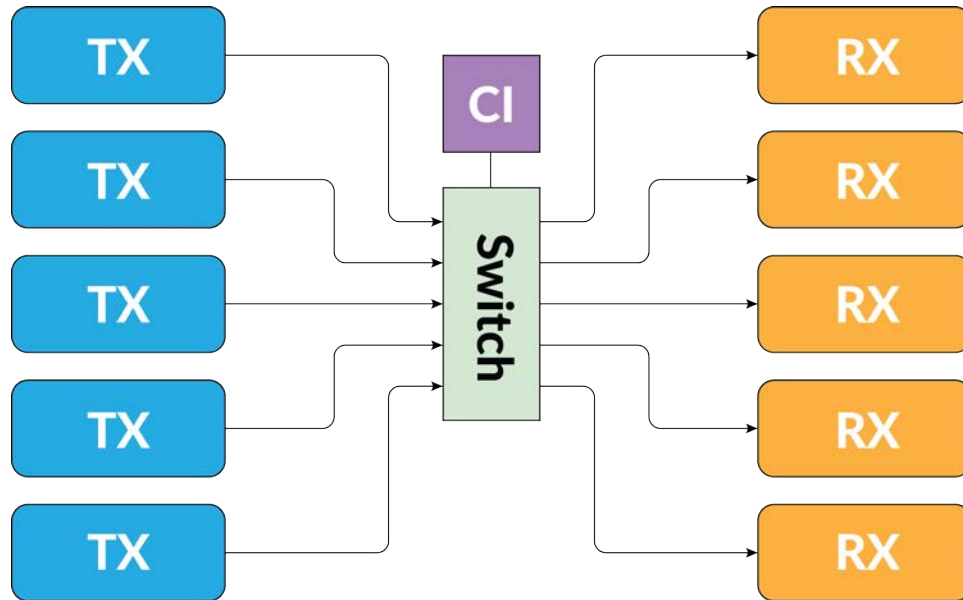Network switch required: **yes**
Physical control interface: **one TL-IPTP-CI**
Software required: **TLXpress (included with TL-IPTP-CI)**
Licensing required: **one TL-IPTP-LIC per encoder & decoder**

Many to Point

Multiple encoders connected to a single decoder.

Encoder required: **multiple TL-IPFO-T01**
Decoder required: **one TL-IPFO-RO1**
Network switch required: **yes**
Physical control interface: **one TL-IPTP-CI**
Software required: **TLXpress (included with TL-IPTP-CI)**
Licensing required: **one TL-IPTP-LIC per encoder & decoder**

Many to Many

Multiple encoders connected to multiple decoders.

Encoder required: **multiple TL-IPFO-T01**
Decoder required: **multiple TL-IPFO-RO1**
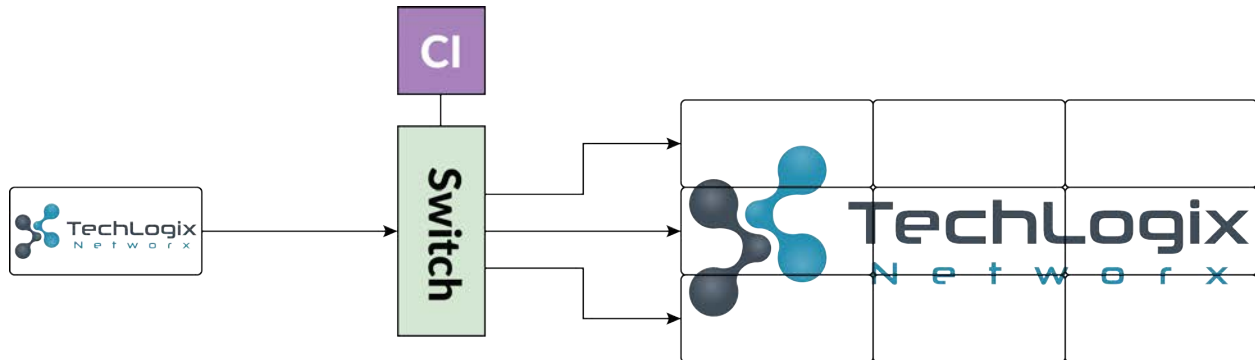Network switch required: **yes**
Physical control interface: **one TL-IPTP-CI**
Software required: **TLXpress (included with TL-IPTP-CI)**
Licensing required: **one TL-IPTP-LIC per encoder & decoder**

Video Wall

A single encoder connected to multiple decoders.

Encoder required: **one TL-IPFO-T01**
Decoder required: **multiple TL-IPFO-RO1**
Network switch required: **yes**
Physical control interface: **one TL-IPTP-CI**
Software required: **TLXpress (included with TL-IPTP-CI)**
Licensing required: **one TL-IPTP-LIC per encoder & decoder**

Network Hardware Installation