



User Manual

TL-TP100-HDC2

100m 4K/60 HDMI & Control Twisted Pair Extender Set



All Rights Reserved
Version: TL-TP100-HDC2 _180723

Preface

Read this user manual carefully before using this product. Pictures shown in this manual are for reference only; the actual product may vary.

This manual is only for operation instruction only and not for any maintenance or repair.

Trademarks

Product model and logo are trademarked. Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without prior written consent.

FCC Statement

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. It has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.



SAFETY PRECAUTIONS

To insure proper operation, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not remove the housing of the device, as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with adequate ventilation to avoid damage caused by overheating.
- Keep the device away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the device immediately.

- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- If disposing of the unit, do not burn or mix with general household waste. The device must be disposed of per local regulations for electronic recycling.

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Introduction

The TechLogix TL-TP100-HDC2 revolutionizes high-bandwidth HDMI signal distribution to transmit 18G HDMI signals, including HDR and 4K@60 4:4:4, up to 100m (330 ft.) over standard twisted pair cabling.

The system works by lightly compressing signals above 10G for twisted pair transport, and then uncompressing the signal at the destination end.

Flexible options for ARC (Audio Return Channel) allow the receiver to accept HDMI, analog, or digital optical. The transmitter can output the audio on HDMI, analog, or digital optical outputs.

Additional built-in features such as flexible power with Port-Saver™ protection, IR and RS232 signal distribution, and Ethernet pass-through make the TL-TP100-HDC2 extremely powerful and extremely flexible.

Features at a Glance

- 18G HDMI (4K@60) up to 100m
- ARC on HDMI, Analog, and Optical Inputs and Outputs
- Deep color, DTS-HD, Dolby TrueHD compatible
- HDR compatible
- Light compression (2:1 ratio) on signals over 10G
- Single twisted pair transmission
- HDMI 2.0 / HDCP 2.2
- Built-in RS232, IR & Ethernet transmission
- Ethernet ports on send & receive
- Diagnostic LEDs
- Power from either transmitter or receiver
- Includes IR accessories & mounting ears
- Compatible with TechLogix rack-mounting systems

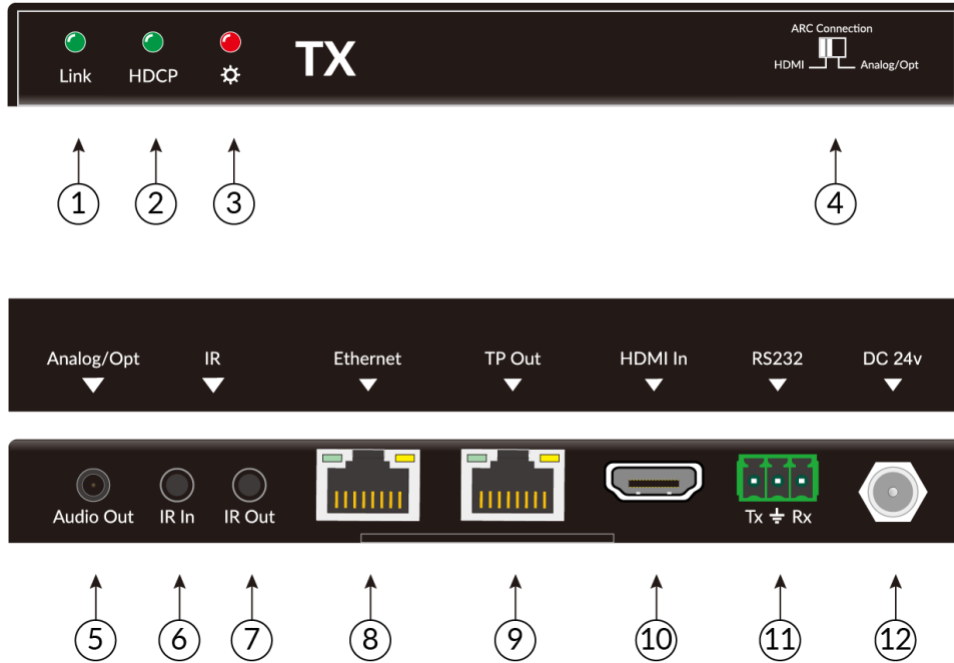
Package Contents

- [1] Transmitter
- [1] Receiver
- [2] Mounting kits
- [1] Power Supply
- [1] IR Emitter
- [1] IR Receiver

- [1] RS232 cable
- [2] Mini-Toslink Adapters
- [2] 3-Pin Terminal Blocks

Panel Descriptions

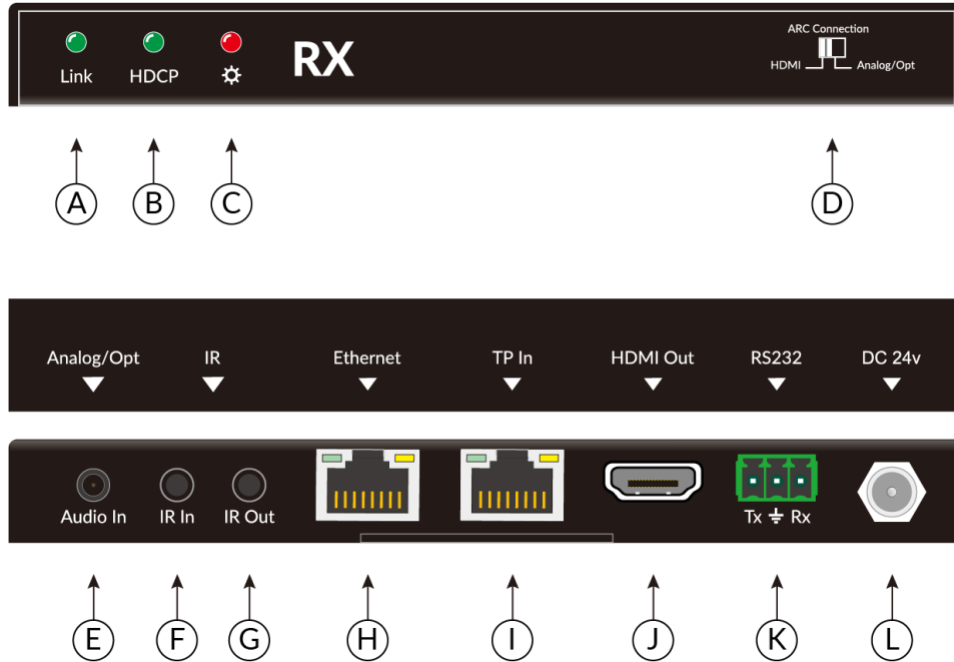
Transmitter



	Name	Description
1	Link LED	Twisted pair link status indicator <ul style="list-style-type: none"> • OFF: no link • GREEN: link successful • Blinking GREEN: link abnormal
2	HDCP LED	HDCP compliant indicator <ul style="list-style-type: none"> • OFF: no HDMI traffic (no picture) • GREEN: traffic with HDCP • Blinking GREEN: traffic without HDCP
3	Power LED	OFF: No power RED: DC power present
4	ARC Connection Switch	Select ARC output as HDMI or analog/optical
5	Audio Output	Dual function audio output port <ul style="list-style-type: none"> • Standard 3.5mm TRS for analog stereo • Optical 5.1 audio with included adapter
6	IR In	Connects to a 5V IR receiver (with carrier); signals transmitted to the remote receiver.

		<i>NOTE:</i> Use TL-IR-CC if connecting to a third party control system.
7	IR Out	Connects to a 5V IR emitter (with carrier); signals transmitted from the remote receiver
8	Ethernet	100m Ethernet interface. If a strong connection is present, the yellow LED indicators on the corresponding ports will blink and the green LED indicators will remain solid.
9	Twisted Pair Output	Connect to the TP In socket on the receiver via a twisted pair cable. Supports bi-directional PoC. Port-Saver™ protection prevents damage to Ethernet devices that may be connected during device installation.
10	HDMI Input	Connect to an HDMI source
11	RS232	RS232 control connector
12	24V DC Input	Connect with DC24V 1.25A power adaptor. (Not necessary if receiver connects with power).

Receiver



	Name	Description
A	Link LED	Twisted pair link status indicator <ul style="list-style-type: none"> • OFF: no link • GREEN: link successful • Blinking GREEN: link abnormal
B	HDCP LED	HDCP compliant indicator <ul style="list-style-type: none"> • OFF: no HDMI traffic (no picture) • GREEN: traffic with HDCP • Blinking GREEN: traffic without HDCP
C	Power LED	OFF: No power RED: DC power present
D	ARC Connection Switch	Select ARC input as HDMI or analog/optical
E	Audio Input	Dual function audio input port <ul style="list-style-type: none"> • Standard 3.5mm TRS for analog stereo • Optical 5.1 audio with included adapter
F	IR In	Connects to a 5V IR receiver (with carrier); signals transmitted to the remote receiver. <i>NOTE:</i> Use TL-IR-CC if connecting to a third party control system.
G	IR Out	Connects to a 5V IR emitter (with carrier); signals transmitted from the remote receiver

H	Ethernet	100m Ethernet interface. If a strong connection is present, the yellow LED indicators on the corresponding ports will blink and the green LED indicators will remain solid.
I	Twisted Pair Input	Connect to the TP Out socket on the transmitter via a twisted pair cable. Supports bi-directional PoC. Port-Saver™ protection prevents damage to Ethernet devices that may be connected during device installation.
J	HDMI Output	Connect to an HDMI display
K	RS232	RS232 control connector
L	24V DC Input	Connect with DC24V 1.25A power adaptor. (Not necessary if transmitter connects with power).

System Connection

Usage Precautions

System should be installed in a clean environment that has a proper temperature and humidity.

All of the power switches, plugs, sockets and power cords should be installed properly.

All devices should be connected before powering on the devices.

The twisted pair terminations for the devices should be a straight-thru conforming to the TIA/EIA T568B standard.

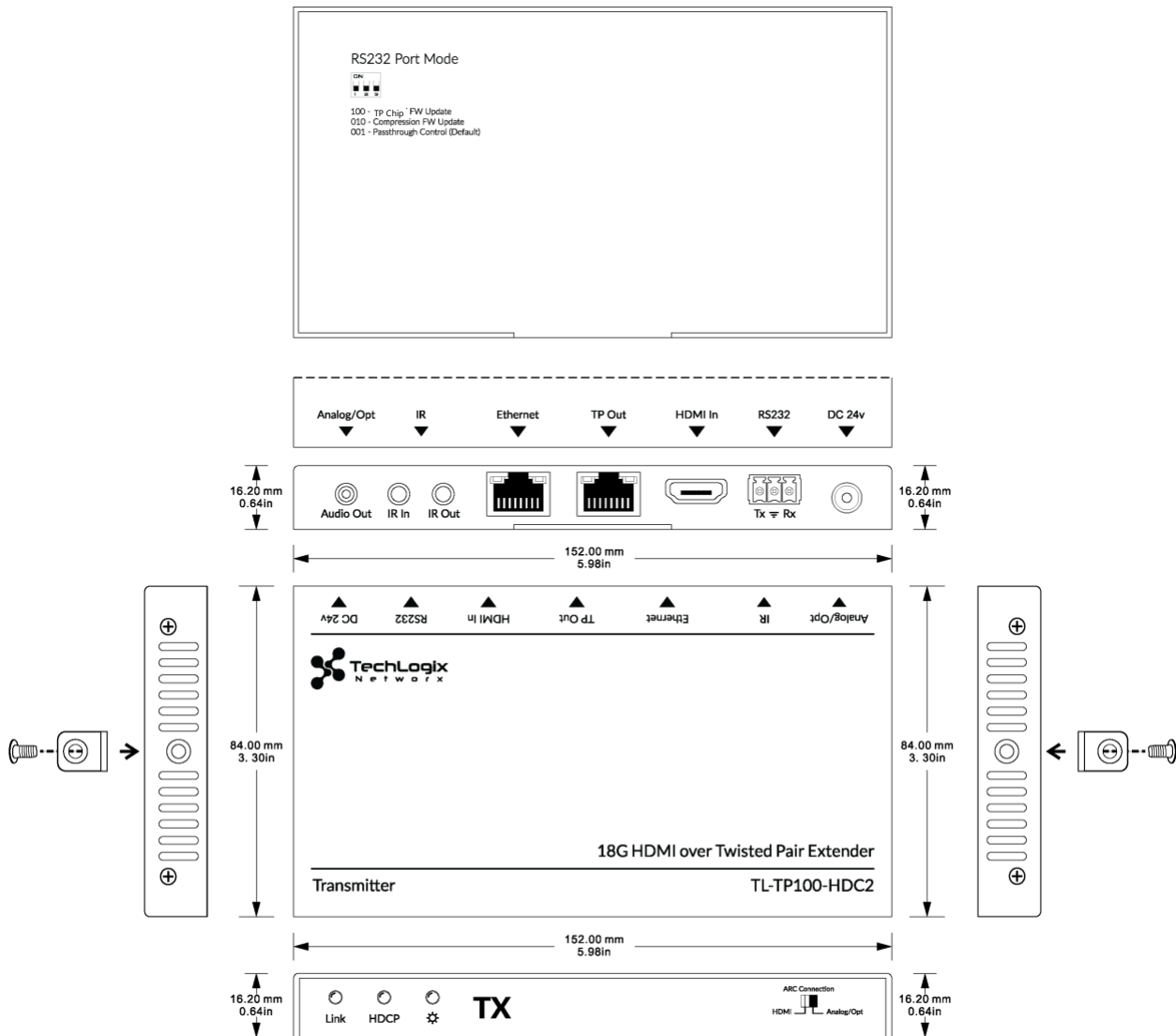
Connection Procedure

1. Connect an HDMI source (such as a set top box) to the **HDMI IN** port of the transmitter with an HDMI cable.
2. Connect **TP OUT** port of the transmitter to **TP IN** port of the receiver using a twisted pair cable.
3. Connect an HDMI display to **HDMI OUT** port of the receiver with an HDMI cable.
4. If IR control is required, perform the following:
 - a. Connect the IR emitter to the **IR OUT** port on either the transmitter or receiver.
 - b. Connect the IR receiver to the **IR IN** port on either the transmitter or receiver.
5. If RS232 control is required, connect the RS232 port of the devices to be controlled to the receiver or the transmitter.
6. If Ethernet (LAN) support is required, connect the devices to the Ethernet ports.
7. If ARC (audio return channel) from the display to the source is required:
 - a. Receiver side:
 - i. HDMI audio: Slide the ARC Connection switch to HDMI.
 - ii. Analog audio: Slide the ARC Connection switch to Analog/Opt. Connect a standard TRS audio input on the Audio In port.
 - iii. Optical audio: Slide the ARC Connection switch to Analog/Opt. Insert the included analog to optical adapter into the Audio In port. Connect a standard optical to the adapter.
 - b. Transmitter side:
 - i. HDMI audio: Slide the ARC Connection switch to HDMI.
 - ii. Analog audio: Slide the ARC Connection switch to Analog/Opt. Connect a standard TRS audio input on the Audio Out port.

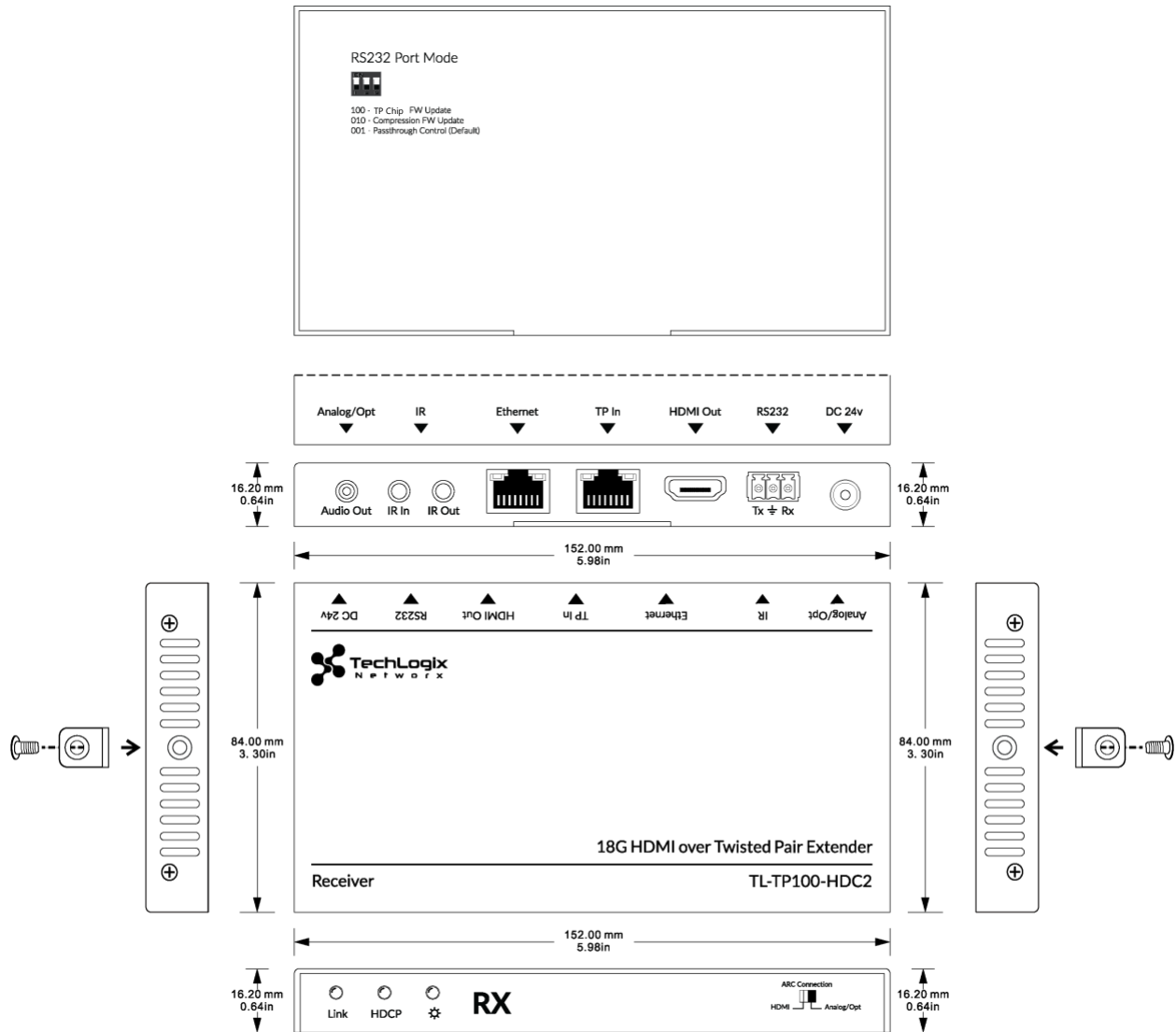
- iii. Optical audio: Slide the ARC Connection switch to Analog/Opt. Insert the included analog to optical adapter into the Audio Out port. Connect a standard optical to the adapter.
- 8. Connect the DC24V power adaptor to either the transmitter or receiver. Power will be transmitter to the remote extender via the twisted pair cable.

Panel Drawings

Transmitter



Receiver



Specifications

I/O Connections (Transmitter)	
HDMI Input	HDMI Type A Receptacle (supports ARC)
Audio Output	3.5mm TRS / Mini-TOSLINK Combo (Stereo analog / Optical Digital)
Twisted Pair	8P8C port (Shielded RJ45) with Port-Saver™ protection
IR Input	3.5mm TRS Jack
IR Output	3.5mm TS Jack
RS232	3pin phoenix socket (Tx/Gnd/Rx)
24V DC Power	5.5 mm Outside Diameter, 2.1 mm Inside Diameter Barrel (Locking)
Ethernet	8P8C port (Shielded RJ45)
I/O Connections (Receiver)	
HDMI Output	HDMI Type A Receptacle (supports ARC)
Audio Input	3.5mm TRS / Mini-TOSLINK Combo (Stereo analog / Optical Digital)
Twisted Pair	8P8C port (Shielded RJ45) with Port-Saver™ protection
IR Input	3.5mm TRS Jack
IR Output	3.5mm TS Jack
RS232	3pin phoenix socket (Tx/Gnd/Rx)
24V DC Power	5.5 mm Outside Diameter, 2.1 mm Inside Diameter Barrel (Locking)
Ethernet	8P8C port (Shielded RJ45)
Supported Video and Audio	
Maximum Distances	1080p/720p: 100m (330 ft.) 4K@30/10G: 100m (330 ft.) 4K@60/18G: 100m (330 ft.)
Maximum Video Compatibility	4K@60Hz 4:4:4 HDR supported
Video Compliance	HDMI 2.0, HDCP 2.2, and CEC (Consumer Electronics Control)
HDCP Compatibility	HDCP 2.2 Conversion – output version matches sink (display) version
Embedded Audio (HDMI)	Up to PCM 8 channel, Dolby Digital TrueHD, and DTS-HD Master Audio
Embedded Audio (Analog)	PCM 2 channel 48kHz
Embedded Audio (Digital Optical)	Up to PCM 2 channel, 7.1 Dolby Digital Plus, and 7.1 DTS-HD
Input DDC Signal	5.0 volts p-p (TTL)
Input Video Signal	0.5 to 1.0 volts p-p
Ethernet Transmission Speed	Adaptive 10M/100M (max) / full duplex or half duplex
IR Carrier Frequency Range	33-55kHz at 5 volts
Twisted Pair Signal Characteristics	
Maximum Distance	100m (330 ft.)

Cable Requirements	Solid core shielded Category 5e, Category 6 or greater with TIA/EIA-568B crimp pattern
Bandwidth	10.2 Gbps
Compression Signal Characteristics	
Compression ratio	Up to 2:1 (adaptive for signals above 10.2gbps)
Compression type	Color Space Conversion (VLC)
Chassis and Environmental	
Enclosure	Painted aluminum
Dimensions	152mm x 109mm x 16mm
Shipping Weight	0.71Kg (1.55 lbs) (Tx+Rx)
Operating Temperature (Environment)	-10° to +40° C
Operating Temperature (Chassis)	45° C
Operating Humidity (Environment)	10% ~ 90%
Storage Temperature (Environment)	-15° to +70° C
Storage Humidity (Environment)	0%~55%
Power, ESD, Regulatory	
Maximum Power Consumption	20W (max)
Power Supply	24V DC
ESD Protection	15KV
Port-Saver Protection™	Twisted Pair connections employ 802.3af PoE controllers which do not send power unless connected to a request port. Network switch ports or Ethernet ports will not be damaged by accidental cross-patching.
Regulatory	CE, FCC
Other	
Standard Warranty	3 Year
Diagnostic Indicators	Power, Link, and HDCP LEDs
Network Indicators	Link Speed and Activity
Included Items	Installation Guide, power supply, US power cord, mounting "L" brackets (4 ea), mounting screws (4 ea), IR Transmitter, IR Receiver, 3.5mm Toslink Adapters (2 ea)

Troubleshooting and Maintenance

No image on display

- Ensure that the display device has been set to the correct input.
- Ensure that the HDMI cables used for both the source/transmitter and the receiver/display are properly connected and are working. Test the HDMI cables directly from a source to display and ensure their operation.
- Ensure that the twisted pair cable has not been damaged and that it has been terminated correctly with T568B on both ends. A temporary length of twisted pair cable can be used for testing to ensure that the devices are all compatible and working properly.
- Ensure proper grounding of the power supply.
- Known issues with HDMI 1.2 source devices:
 - Older compatibility (HDMI 1.2) may result in transmission issues. Please contact Technical Support for a solution to these issues.

Color loss or poor picture quality:

- Ensure that the HDMI cables used for both the source and transmitter and the receiver and display are properly connected and are of good quality. Test the HDMI cables directly from a source to display and ensure their picture quality.
- Ensure proper grounding of the power supply.
- If the static becomes stronger or picture quality becomes worse when connecting the video connectors, this may be due to improper grounding.
- Check the grounding and make sure all the components are properly grounded to a common ground. Improper grounding may cause damage to the receiver.

After-sales Service

Product Limited Warranty: We warrant that our products will be free from defects in materials and workmanship for **three years**.

Warranty coverage may be voided when:

The warranty period has expired

The factory applied serial number has been altered or removed from the product

There is damage, deterioration or malfunction caused by:

Atypical wear and tear

Use of supplies or parts not meeting the specifications

No certificate or invoice as the proof of warranty

Damage caused by force majeure

Non-authorized service

Technical Support: When contacting TechLogix support, please have the following information available:

Product part number

Installation and sale date

Detailed failure information