User Manual

TL-INCT-01

HDMI In-line Controller
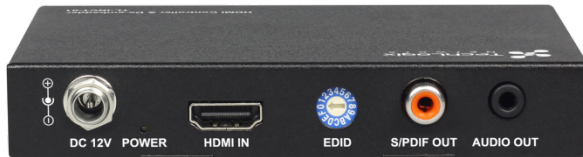
Preface

Read this user manual carefully before using this product. Pictures shown in this manual are for reference only, slight differences may be evident on the real product.

This manual is only for operation instruction only, not for any maintenance usage.

Trademarks

Product model and logo are trademarks. 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 B 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 the best experience from the product, 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 burns.

● 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 put any heavy items on the extension cable in case of damage.

● 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 proper ventilation to avoid damage caused by overheat.

● Keep the module 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 module 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.

● Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

1. Introduction

The TL-INCT-01 is a HDMI In-line Controller, with resolutions up to 4K@60Hz (chroma sub-sampling 4:4:4 8-bit only) and HDCP 2.2.

Its digital or analog audio output allows audio to de-embed from HDMI input and send to an audio distribution system, such as an AVR or Zone Amplifier. Its rotary EDID switch has 15 EDID presets to help negotiate the HDMI handshake in certain situations, such as an old HDMI display with bad DDC channel, or a DVI display with audio reinforcement.

By auto-detecting input signal status, it automatically triggers CEC commands to turn on or off a TV with CEC support, pre-loaded RS232 commands to power on or standby projector, and relay control to trigger up and down for a projection screen.

1.1 Features

- Supports video sources up to HDMI 2.0(4K@60Hz 4:4:4 8-bit) and HDCP 2.2
- HDMI audio de-embedded out with Digital Coaxial and Analog Stereo
- Rotary switch for EDID Management with 15 EDID presets
- Built in CEC controller from HDMI out
- Built in RS232 controller, to pre-load and store RS232 command of sink device
- Automatic CEC/RS232 command to Power ON/Standby display device, by detecting input signal status
- Built in RELAY control to automatically turn Projector Screen ON/OFF, by detecting input signal status
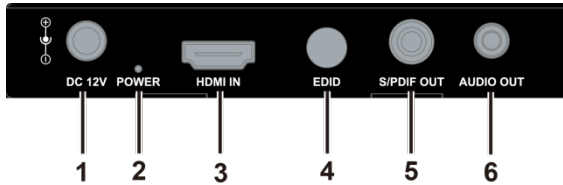- Automatic input cable equalization and signal regeneration compensation

1.2 Package List

- ✓ 1 x TL-INCT-01
- ✓ 3 x Phoenix Male Connector (3.5 mm, 3 pins)
- ✓ 1 x User manual
- ✓ 2 x Mounting ears
- ✓ 1 x Power Adapter (DC 5V 1A)

📖 Check whether all the items listed above are included in your package. If not, contact your dealer.

2. Appearance

Front Panel

| No.	Name	Description
1.	DC 12V	12V DC power input, threaded port for standard or locking connection
2.	POWER LED	ON: The unit is powered on. OFF: The unit is powered off.
3.	HDMI IN	Connects to an HDMI source
4.	EDID	Switch for EDID Management with 15 EDID presets
5.	S/PDIF OUT	HDMI audio de-embedded out with Digital Coaxial, connects to an amplifier
6.	AUDIO OUT	HDMI audio de-embedded out with Analog Stereo, connects to an amplifier

Rear Panel
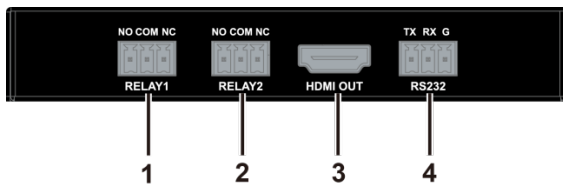
No.	Name	Description
1.	RELAY1	Turn on projection screen automatically
2.	RELAY2	Turn off projection screen automatically
3.	HDMI OUT	Connects to an HDMI display
4.	RS232	Pre-load and store RS232 command of sink device

3. EDID Management
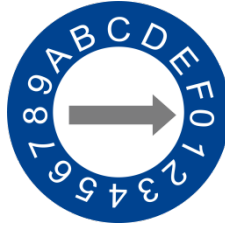
Switch for EDID Management with 16 presets as follows:

Position	Description
0(default)	Copy EDID from HDMI Out
1	3840x2160@60Hz 2CH
2	3840x2160@30Hz 2CH
3	1920x1080@60Hz 2CH
4	1280x720@60Hz 2CH
5	1920x1200@60Hz 2CH
6	1680x1050@60Hz 2CH
7	1600x1200@60Hz 2CH
8	1600x900@60Hz 2CH
9	1440x900@60Hz 2CH
A	1400x1050@60Hz 2CH
B	1360x768@60Hz 2CH
C	1280x1024@60Hz 2CH
D	1280x960@60Hz 2CH
E	1280x768@60Hz 2CH
F	1024x768@60Hz 2CH

Note: If EDID Copy failed, a fixed 1080P@60Hz Stereo EDID will be provided to the source device.

📖   Pictures shown in this manual are for reference only.

4. RS232 Control Tool

RS232 port configuration tool is a control tool running on PC for pre-loading RS232 commands for the TL-INCT-01 to control the sink device. Connect a PC to the TL-INCT-01 via an RS232 cable. Run the configuration tool to set the connection parameters correctly before sending the pre-loaded commands to the TL-INCT-01. The baud rate for the TL-INCT-01 is 57600.
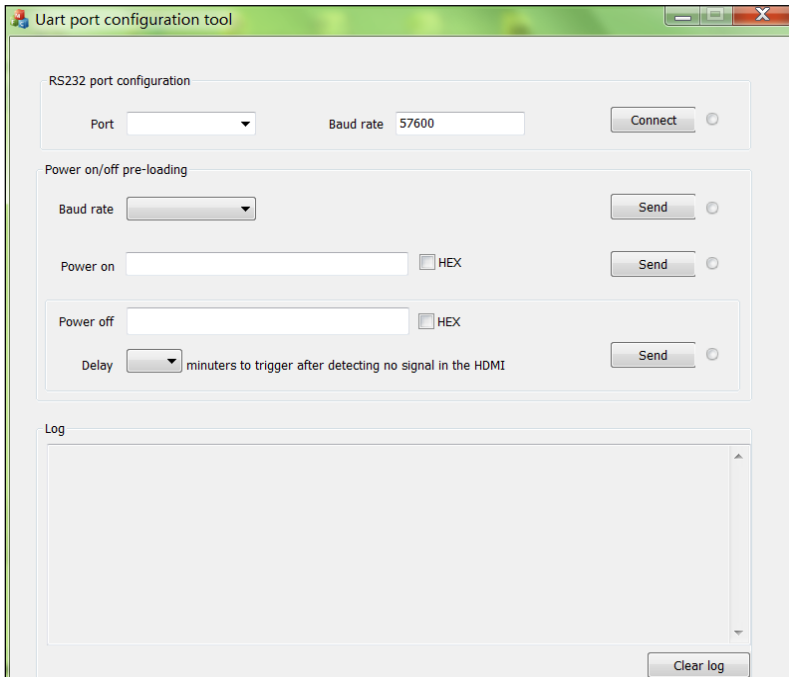
See the display model's manual for the RS232 settings and commands.

Baud rate: Choose the correct baud rate according to the sink device.

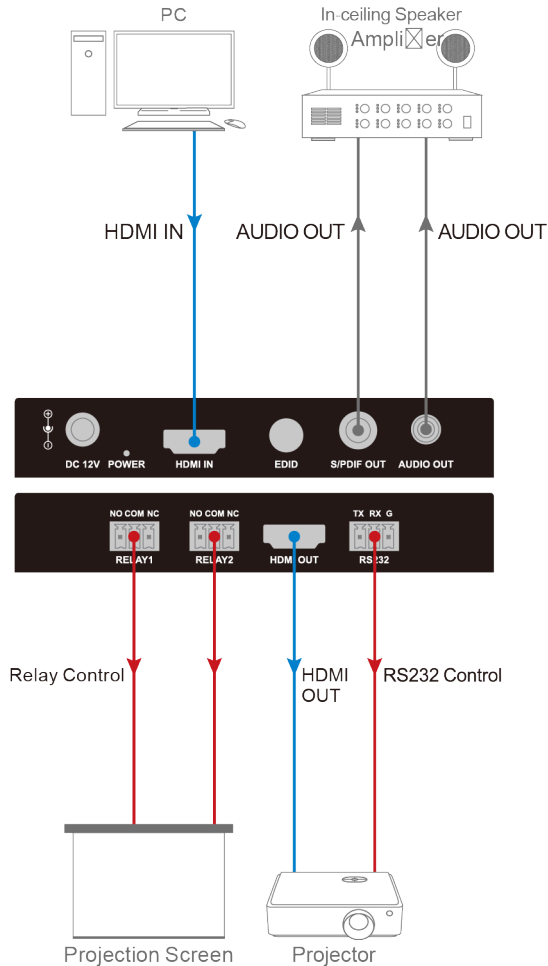**Power on:** Enter the command to power on the sink device.

Power off: Enter the command to power off the sink device.

See below picture:

5. System Connection

The figure below illustrates a typical connection that can be utilized with TL-INCT-01:

1) Using quality HDMI cables, connect an HDMI source (such as PC, Blu-ray, games console, satellite/cable TV, media server etc.) to HDMI IN of the TL-INCT-01.
2) Connect the HDMI display device (Such as projector) to the HDMI OUT of TL-INCT-01.
3) Connect audio system to the S/PDIF OUT and AUDIO OUT port of TL-INCT-01.
4) Connect RS232 to the projector for pass-through the commands to control the projector.

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5) Connect RELAY1 and RELAY2 to the projection screen for control the projection screen ON/OFF.
6) Connect the included 12v power supply to the TL-INCT-01. Power on the devices.

📖

1) System should be installed in a clean environment with proper temperature and humidity.
2) All of the power switches, plugs, sockets and power cords should be insulated.
3) All devices should be connected before power on.

# 6. Specification

Technical	
Input	1 x HDMI IN
Input Signal Type	HDMI 2.0 with HDCP 2.2
Input Resolution Support	VESA: 800x600@60Hz, 1024x768@60Hz, 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1200@60Hz; SMPTE: 4096x2160@24/25/30/50/60Hz, 3840x2160@24/25/30/50/60Hz, 1080P@24/25/30/50/60Hz, 1080I@50/60Hz, 720P@50/60Hz, 576P@50Hz, 480P@60Hz
Input Video Level	0.5-1.2 V p-p
Input DDC Signal	5V p-p
Maximum Pixel Clock	297MHz
Output	1 x HDMI OUT
Output Signal Type	HDMI 2.0 up to 4K@60Hz(4:2:0 10-bit) and HDCP 2.2.

Output Resolution Support	VESA: 800x600@60Hz, 1024x768@60Hz, 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1200@60Hz; SMPTE: 4096x2160@24/25/30/50/60Hz, 3840x2160@24/25/30/50/60Hz, 1080P@24/25/30/50/60Hz, 1080I@50/60Hz, 720P@50/60Hz, 576P@50Hz, 480P@60Hz
Video Impedance	100 Ω
General	
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	10% to 90%, non-condensing
ESD Protection	Human-body Model: ±8kV(Air-gap discharge)/ ±4kV(Contact discharge)
Surge Protection	Voltage: ±1 kV (Ten times respectively for the positive and negative voltage)
Electrical Fast Transient/Burst	Data communication cord: 1 kV Power cord : 2 kV
Power Supply	DC 12V 0.5A
Power Consumption (Maximum)	≤2 W
Device Dimension (W x H x D)	120mm x 20mm x 80mm / 4.72'' x 0.79'' x 3.15''
Product Weight	0.23kg
Certification	CE, FCC, RoHS

📖 Use quality HDMI cable to connect the devices to ensure system stability.

7. Panel Drawing
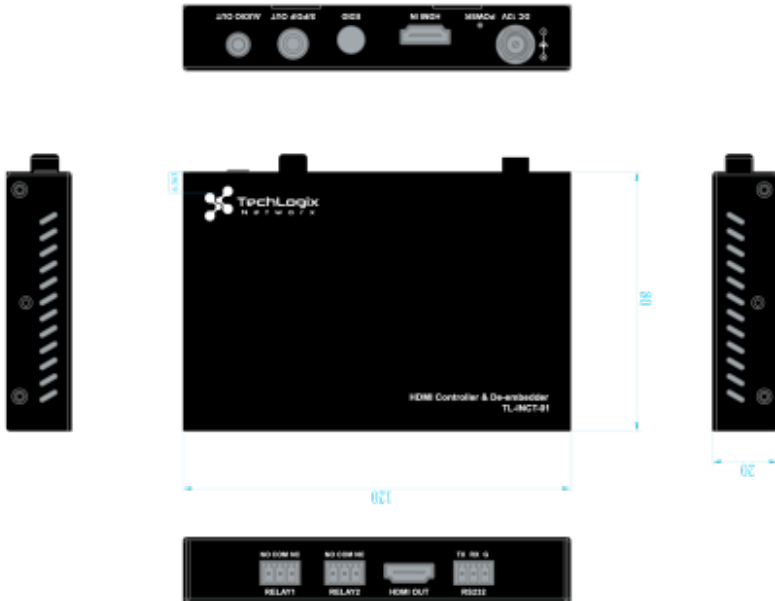
8. Troubleshooting & Maintenance

Problems	Causes	Solutions
Color loss or blurry/ double image on HDMI display	Poor quality of HDMI cable	Change for qualified HDMI cable.
Power led is off, operations don't work	No power	Power up the unit
	Poor contact of power port	Make sure power adapter is properly seated
No output on the display	Source/ Display is off	Turn on the source/ display
	Poor contact of HDMI ports	Check the HDMI ports one by one to make sure they're properly seated.

📖 If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

9. After-sales Service

If there appear some problems when running the device, please check and deal with the problems referenced in this user manual.

4) **Product Limited Warranty:** We warrant that our products will be free from defects in materials and workmanship for **three years.**   Please see warranty page posted on www.tlnetworx.com for more info.

5) **What the warranty does not cover:**
   - Warranty expiration.
   - Factory applied serial number has been altered or removed from the product.
   - Damage, deterioration or malfunction caused by:
     - Normal wear and tear
     - Use of supplies or parts not meeting our specifications
     - No certificate or invoice as the proof of warranty.
     - The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
     - Damage caused by force majeure.
     - Non-authorized service
     - Other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product

6) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

Remarks: For any questions or problems, please try to get help from your local distributor.