ELAN®

EL-4KHDBT-TX-40-IRS

EDID Mode L/R Coaxial Out Link HDBT Out Power

RS-232 HDMI In Link HDMI Out Link IR RX IR TX

EL-4KHDBT-RX-40-IRS

Standard Upgrade LINK HDBT In POWER 12V 2A

RS-232 HDMI Out HDMI LINK IR RX IR TX

EL-4KHDBT-TXRX-40-IRS

User Manual

Thank you for purchasing this product.

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Safety And Performance Notice

The transmission distances of HDMI over UTP cables are measured using TE CONNECTIVITY 1427071-6

EIA/TIA-568-B termination (T568B) of cables is recommended for optimal performance.

To minimize interference of the unshielded twisted pairs in the CAT5e/6 cable do not run the HDBaseT/Cat5e/6/6a cabling with or in close parallel proximity to mains power cables.

Do not substitute or use any other power supply other than the enclosed unit, or a ELAN approved replacement.

Do not disassemble either the Transmitter or Receiver units for any reason. Doing so will void the manufacturer's warranty.

Contents

Introduction

The ELAN line of HDBaseT products offers market leading features at an outstanding value. The EL-4KHDBT-RX-40-IRS and EL-4KHDBT-TX-40-IRS are industry leading 4K HDBaseT solutions, delivering HDMI with HDCP 2.2 support, bi-directional IR, RS-232, and PoH (PoE) up to lengths of 40m at 4K (70m at 1080p) over a single CAT cable.

Features:

• Advanced HDBaseT technology offering uncompressed video and audio with zero latency

• Extends HDMI up to a distance of 70m over a single CAT cable

• Supports 4K UHD video up to 40m (3840 x 2160 @30Hz 4:4:4, 4096 x 2160 @24Hz 4:4:4, and 4K @60Hz 4:2:0)

• Supports all industry standard video resolutions including VGA-WUXGA and 480i-4K

• Supports 3D signal display

• Supports all known HDMI audio formats including Dolby TrueHD, Dolby Atmos, Dolby Digital Plus and DTS-HD Master Audio transmission

• Bi-directional IR pass-through

• Supports bi-directional PoH (Power over HDBaseT™) to power extenders from either Transmitter or Receiver end

• HDCP 2.2 compliant
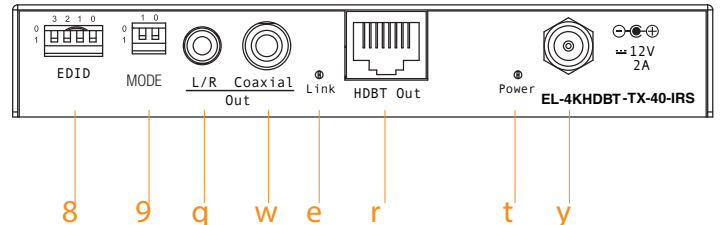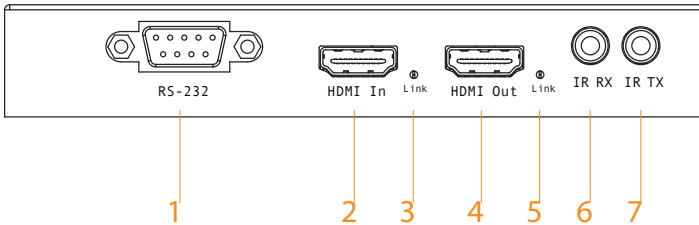
Panel Description EL-4KHDBT-RX-40-IRS
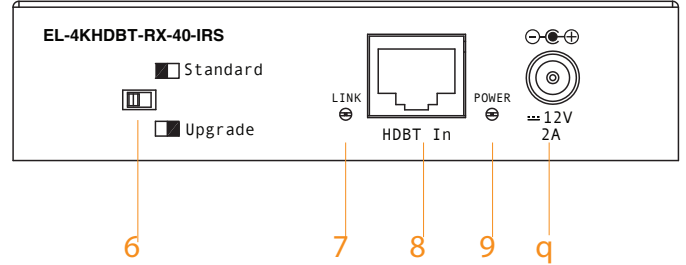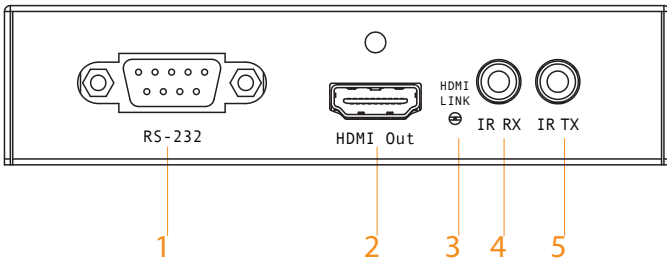
1 RS-232 / serial connector
2 HDMI output
3 HDMI link indicator
4 IR RX jack (to IR sensor)
5 IR TX jack (to IR emitter)

6 Standard / Upgrade mode switch
7 HDBaseT signal link indicator
8 HDBaseT input
9 Power status indicator
q DC 12V screw type connector

Panel Description EL-4KHDBT-TX-40-IRS

1 RS-232 / serial connector
2 HDMI input
3 HDMI link indicator
4 HDMI loop output
5 HDMI link indicator
6 IR RX jack (to IR sensor)
7 IR TX jack (to IR emitter)

8 EDID DIP switch (UP=0, DOWN=1) - see page 6 for further details
9 Mode DIP switch
q Analog audio Left/Right output (3.5mm stereo jack) - de-embedded from HDMI input. Only supports stereo PCM audio feeds
w Coaxial digital output - de-embedded from HDMI input
e HDBaseT signal link indicator
r HDBaseT output
t Power status indicator
y DC12V screw type connector

Terminating HDBaseT CAT cable

It is important that the interconnecting CAT cable between the ELAN HDBaseT products is terminated using the correct RJ45 pin configuration. The link CAT cable **MUST** be a 'straight' (pin-to-pin) CAT cable and it is advised that this is wired to the T568B wiring standard as this format is less prone to EMI (Electro-Magnetic Interference).

When installing CAT cables it is advised that you use the best possible CAT cable quality possible. HDMI distribution products will only work if used with CAT5e standard cable or above. ELAN recommends using a CAT6 cable for your installations, especially when running over longer distances, in areas of high EMI, or for 4K signal distribution.

RJ45 Wiring - T568B
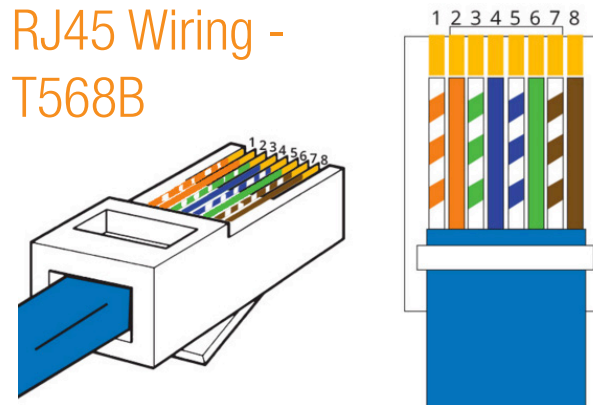
Understanding the signal status lights

The ELAN extender solutions include status LED indicators on both the Transmitter and Receiver products to show all connections are active and to help diagnose possible problems.

Understanding the status lights:

Receiver:

- The HDMI signal link light will be off when there is no connection with a display/sink
- The HDMI link light will be on when there is an active connection with a display
- The HDBaseT link light will be off when there is no CAT cable/active HDBaseT connection on the RJ45 HDBaseT input
- The HDBaseT link light will blink if there is an unstable connection between the Transmitter/Matrix and Receiver
- The HDBaseT link light will be lit when a CAT cable is connected to the HDBaseT RJ45 output on the Transmitter/Matrix and an active connection is achieved with the Receiver.

Transmitter:

- The Input HDMI signal link light will be off when there is no connection with a source device
- The Output HDMI signal link light will be off when there is no connection with a display/sink
- The Input HDMI link light will be on when there is an active connection with a source device
- The Output HDMI link light will be on when there is an active connection with a display/sink
- The HDBaseT link light will be off when there is no CAT cable/active HDBaseT connection on the RJ45 HDBaseT output
- The HDBaseT link light will blink if there is an unstable connection between the Transmitter and Receiver/Matrix
- The HDBaseT link light will be lit when a CAT cable is connected to the HDBaseT RJ45 output on the Transmitter and an active connection is achieved with the Receiver/Matrix.

EDID Control

EDID (Extended Display Identification Data) is a data structure that is used between a display and a source. This data is used by the source to find out what audio and video resolutions are supported by the display, from this information the source will discover what the best audio and video resolutions need to be outputted.

While the objective of EDID is to make connecting a digital display to a source a simple plug and play procedure, issues do arise when multiple displays or video matrix switching is introduced because of the increased number of variables.

By pre-determining the video resolution and audio format of the source and display device you can reduce the time needed for EDID hand shaking thus making switching quicker and more reliable.

Configuration of extender EDID settings can be achieved using the product dip-switches on the end of the EL-4KHDBT-TX-40-IRS. EDID dip-switch settings are shown below.

Note: You must power cycle the product after making EDID changes. For some sources it may be necessary to power cycle the source after EDID changes have been made for the source to update its video & audio output settings.

Global EDID settings

Dip-switch position '0' = Off

Dip-switch position '1' = On
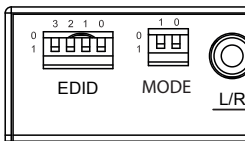
DIP ON /OFF SWITCHING POSITIONS				
3	2	1	0	EDID TYPE
OFF	OFF	OFF	ON	1080p/2.0CH
OFF	OFF	ON	OFF	1080p/5.1CH
OFF	OFF	ON	ON	1080p/7.1CH
OFF	ON	OFF	OFF	1080i/2.0CH
OFF	ON	OFF	ON	1080i/5.1CH
OFF	ON	ON	OFF	1080i/7.1CH
OFF	ON	ON	ON	4K60Hz 4:2:0/2.0CH
ON	OFF	OFF	OFF	4K60Hz 4:2:0/5.1CH
ON	OFF	OFF	ON	4K60Hz 4:2:0/7.1CH
ON	OFF	ON	OFF	4K30Hz 4:4:4/2.0CH
ON	OFF	ON	ON	4K30Hz 4:4:4/5.1CH
ON	ON	OFF	OFF	4K30Hz 4:4:4/7.1CH
ON	ON	OFF	ON	DVI 1280x1024
ON	ON	ON	OFF	DVI 1920x1080
ON	ON	ON	ON	DVI 1920x1200
OFF	OFF	OFF	OFF	Copy EDID

Infrared Distribution

The ELAN range of HDBaseT products include multiple options for control and routing of IR.

IMPORTANT: The ELAN HDMI Platinum, Matrix, & HDBaseT product lines output 5 volts to power an IR Receiver on the IR Input and include an EL-4KACC-IR-CAB, 3.5mm Mono to 3.5mm Stereo 5v to 12v IR converter cable. This cable is required when using 12v IR products from Xantech, Niles, and SpeakerCraft.
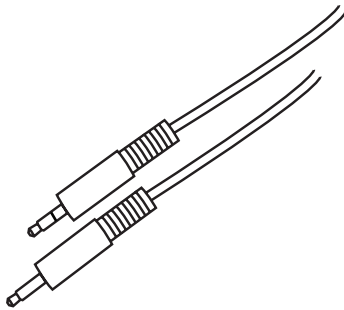
Each ELAN Matrix and HDBaseT extender kit is supplied with all necessary IR hardware required and includes:

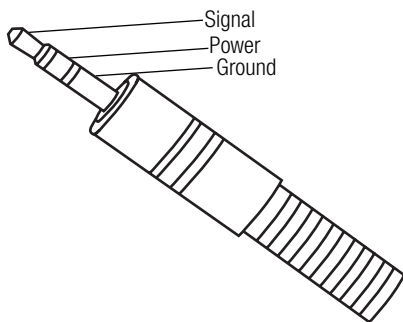### IR Control Cable - EL-4KACC-IR-CAB

ELAN IR Control cable 3.5mm Mono to 3.5mm Stereo for linking third party IR Receivers to ELAN Platinum, Matrix, and HDBaseT HDMI Series products.

Compatible with 12v IR third party products.

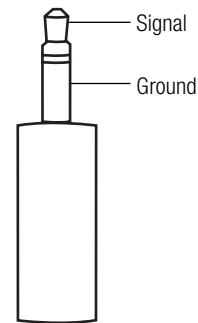**Note:** Cable is directional as indicated

Infrared 3.5mm Pin-Out

IR Emitter - Mono 3.5mm

Signal
Ground

IR Receiver - Stereo 3.5mm

Signal
Power
Ground

Application Diagram
EL-4KHDBT-TXRX-40-IRS

Cat Cable *
RS232
HDMI
Audio
IR Cable

1 SOURCE

Control Processor

Transmitter
RS232
EDID
DC Unbalance
0 Coaxial+ bypass
1Coaxial+pass
L/R
Out
Coaxial
Link
HDBT Out
Power
DC 12V
EL-4KHDBT-TX-40-IRS

HDMI In
Link
HDMI Out
Link
RX
IR
TX

Ⓐ HDMI
Ⓑ RS232
Ⓒ IR
Ⓓ POH

LOCAL DISPLAY

70m max

RX
Upgrade
Standard
Link
HDBT In
Power
DC 12V
EL-4KHDBT-RX-40-IRS

RS232
HDMI Out
HDMI Link
IR RX
IR TX

DISPLAY

Specifications

EL-4KHDBT-TX-40-IRS

- Video input: 1x HDMI Type A, female
- Video output: 1x HDBaseT RJ45 connector
- IR input: 1x 3.5mm stereo jack
- IR output: 1x 3.5mm mono jack
- Mounting kit included
- Dimensions excl connections (W x D x H):
       139mm x 114mm x 23mm
- Shipping weight (Kit): 0.5 kg
- Power: 12V/2A DC, screw type connector
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)

EL-4KHDBT-RX-40-IRS

- Video input: 1x HDBaseT RJ45 connector
- Video output: 1x HDMI Type A, female
- IR input: 1x 3.5mm stereo jack
- IR output: 1x 3.5mm mono jack
- Mounting kit included
- Dimensions excl connections (W x D x H):
       110mm x 108mm x 27mm
- Shipping weight (Kit): 0.4 kg
- Power: 12V/2A DC, screw type connector
- Operating temperature: 32°F to 104°F (0°C to 40°C)
- Storage temperature: -4°F to 140°F (-20°C to 60°C)

Package Contents

EL-4KHDBT-TXRX-40-IRS

- 1 x EL-4KHDBT-TX-40-IRS
- 1 x EL-4KHDBT-RX-40-IRS
- 1 x 12V/2A DC power supply
- 1 x 5v-to-12v IR Converter Cable (EL-4KACC-IR-CAB)
- 2 x Mounting kits
- 1 x User manual

Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

Certifications

FCC Notice

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.

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

CANADA, INDUSTRY CANADA (IC) NOTICES

This Class B digital apparatus complies with Canadian ICES-003.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CANADA, AVIS D'INDUSTRY CANADA (IC)

Cet appareil numérique de classe B est conforme aux normes canadiennes ICES-003.

Son fonctionnement est soumis aux deux conditions suivantes : (1) cet appareil ne doit pas causer d'interférence et (2) cet appareil doit accepter toute interférence, notamment les interférences qui peuvent affecter son fonctionnement.

CORRECT DISPOSAL OF THIS PRODUCT

This marking indicates that this product should not be disposed with other household wastes. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmentally safe recycling.

Notes

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