

# EL-4KHDBT-TXRX-70-E-ARC-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.

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## Introduction

Our range of HDBaseT products offer the very best in performance and flexibility. The EL-4KHDBT-RX-70-E-ARC-IRS HDBaseT Receiver and EL-4KHDBT-TX-70-E-ARC-IRS HDBaseT Transmitter are industry leading 4K HDBaseT solution delivering HDMI with HDCP 2.2 support, Bi-directional IR, RS-232 and PoH (PoE) up to lengths of 70m at 4K (100m at 1080p) over a single CAT cable. The EL-4KHDBT-RX-70-E-ARC-IRS HDBaseT Receiver and EL-4KHDBT-TX-70-E-ARC-IRS HDBaseT Transmitters also provide enhanced features including HDMI loop-out on the Transmitter, ARC via HDMI or Optical (S/PDIF) and an integrated 3-port Ethernet switch.

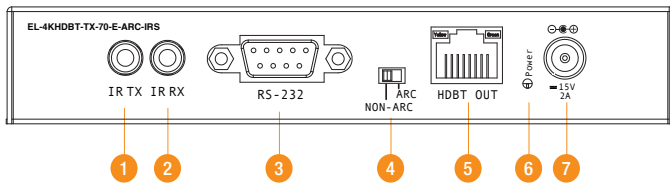
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### Features:

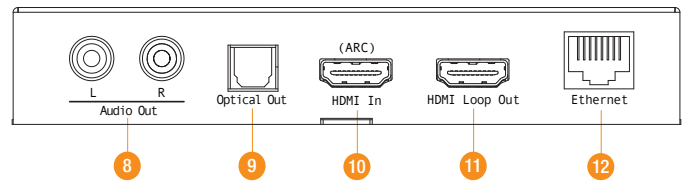
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- Advanced HDBaseT technology offering uncompressed video and audio with zero latency
- Extends 1080p HDMI up to a distance of 100m over single CAT cable
- Supports 4K UHD video up to 70m (3840 x 2160 @30Hz 4:4:4, 4096 x 2160 @24Hz 4:4:4, and 4K @60Hz 4:2:0)
- Supports all industry standard video resolutions including VGA-WUXGA and 480i-4K
- Supports 3D signal display
- Features 1x HDMI loop out for integrating local displays or cascading to multiple devices
- Supports ARC (Audio Return Channel) from display via HDMI and Optical digital inputs (ARC feature supports distance of up to 90m)
- Supports audio return to HDMI, Optical digital and analog L/R audio outputs (DAC PCM only)
- Supports all known HDMI audio formats including Dolby TrueHD, Dolby Atmos, Dolby Digital Plus and DTS-HD Master Audio transmission
- Integrated 3-port ethernet switch (LAN Serving)
- Bi-directional RS-232 pass through
- Bi-directional IR from all input and output locations
- Bi-directional PoH (Power over HDBaseT) to power extenders from either transmitter or receiver end
- HDCP 2.2 support

## Panel Description EL-4KHDBT-TX-70-E-ARC-IRS

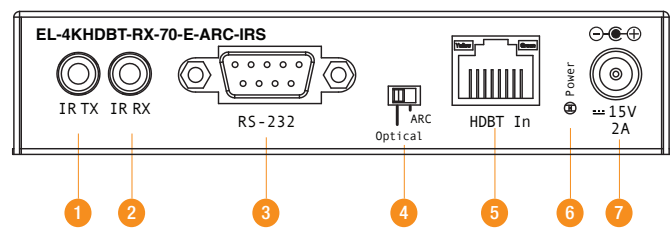


- 1 IR TX port - Connect to IR Emitter. Connection is used to control the local source device from ELAN IR Receiver connected at the EL-4KHDBT-RX-70-E-ARC-IRS.
- 2 IR RX port - Connect included 5v to 12v IR converter cable to allow the 12v IR signals, such as the IR output on ELAN system controllers or from the IR output on a Xantech, Niles, or SpeakerCraft IR connecting block.
- 3 RS-232 port - Bi-directional RS-232 with EL-4KHDBT-RX-70-E-ARC-IRS RS-232 port.
- 4 Audio output selection switch - Audio source selection for Analog L/R audio outputs (connections). Select between ARC and audio breakout of local HDMI input. When ARC feature is used, selection between Optical and HDMI audio ARC is via dip-switch on the EL-4KHDBT-RX-70-E-ARC-IRS (see below).
- 5 HDBaseT output - RJ45 connector. Connect to HDBaseT input on EL-4KHDBT-RX-70-E-ARC-IRS.
- 6 Power LED indicator

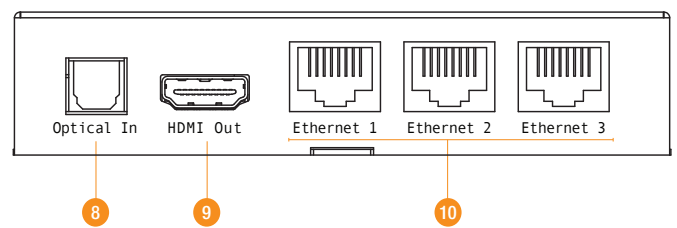


- 7 Power port - Connect ELAN 15V DC power supply only. Note - HDBaseT extender kit can be powered from either the Transmitter or Receiver by using the power over cable (POH) feature.
- 8 Analog audio 2CH L/R output - Connects to third party audio amplifier for audio breakout of either local HDMI or Audio Return Channel from EL-4KHDBT-RX-70-E-ARC-IRS. Note: Audio format must be 2ch PCM.
- 9 Optical audio output - TOSLINK audio output. Connects to local AV amplifier when using Audio Return Channel (ARC) feature.
- q HDMI input - Connect to the HDMI output of the local source device or Matrix output to be extended to the EL-4KHDBT-RX-70-E-ARC-IRS.
- w HDMI output - Loop-through of HDMI input signal. Used for connection to local display or to daisy-chain HDMI devices.
- e Ethernet ports - RJ45 connector. Connect to local network switch to extend 10/100 network to HDBaseT Receiver ethernet ports.

## Panel Description EL-4KHDBT-RX-70-E-ARC-IRS



- 1 IR TX port - Connect to ELAN 5V Emitter. Connection is used to control the local display device from control processor or IR sensor located at the source/transmitter end.
- 2 IR RX port - Connect included 5v to 12v IR converter cable to allow the IR signal received by Xantech, Niles, or SpeakerCraft, as well as other, 12v IR receivers to be received. Connection is used to control sources devices located at the end.
- 3 RS-232 port - Bi-directional RS-232 with EL-4KHDBT-TX-70-E-ARC-IRS RS-232 port.
- 4 Audio return selection switch - Switch between ARC and TOSLINK (Optical) when using the Audio Return feature.



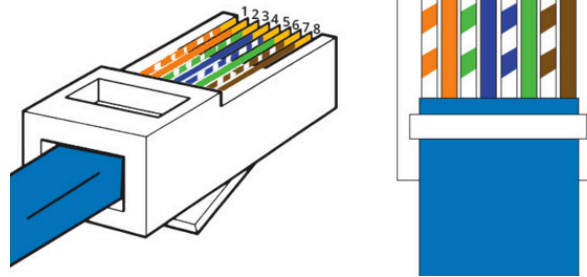
- 5 HDBaseT input - RJ45 connector. Connect to HDBaseT output on EL-4KHDBT-TX-70-E-ARC-IRS.
- 6 Power LED indicator
- 7 Power port - Connect ELAN 15V DC power supply only. Note - HDBaseT extender kit can be powered from either the Transmitter or Receiver by using the power over cable (POH) feature.
- 8 Optical audio input - TOSLINK audio input. Connects to the Optical output of the local display device for Audio Return feature.
- 9 HDMI Output - Connect to the HDMI input on local display device.
- q Ethernet ports x3 - RJ45 connectors. Connect to local network products to extend 10/100 network from HDBaseT Transmitter.

## 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 with 4K signal distribution.

### RJ45 Pin-Out T568B



## Understanding the EL-4KHDBT-TXRX-70-E-ARC-IRS HDBaseT status lights

The ELAN Matrix and HDBaseT 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:-

ELAN EL-4KHDBT-TX-70-E-ARC-IRS :

- The Yellow HDBaseT status link light will be off when the output has been turned off or there is a problem with the HDBaseT output.
- The Yellow HDBaseT status link light will blink when the output is on and working
- The Green HDBaseT link light will blink if there is an unstable connection between the ELAN HDBaseT Transmitter and HDBaseT Receiver
- The Green HDBaseT link light will be lit when a there is an active HDBaseT Receiver connected to the Transmitter
- The Green HDBaseT link light will be off when a there is no connection with a HDBaseT receiver
- The HDMI link light will be off when there is no connection with a source device
- The HDMI link light will be on when there is an active connection with asource device

ELAN EL-4KHDBT-RX-70-E-ARC-IRS :

- The HDMI link light will be off when there is no connection with a display
- 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 ELAN Transmitter and HDBaseT Receiver
- 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 ELAN HDBaseT Receiver.

## Infrared (IR) 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.

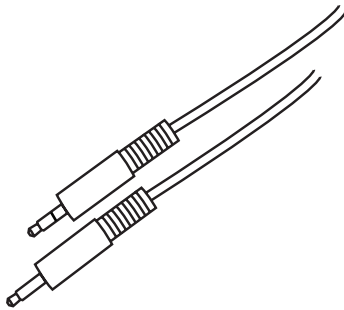
Each ELAN Matrix and HDBaseT receiver is supplied with all necessary IR hardware required and includes:

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

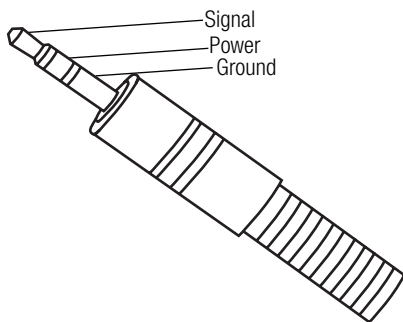
ELAN IR Control cable 3.5mm Mono to 3.5mm Stereo for linking third party IR Receivers to ELAN Platinum, Matrix, and HDBaseT HDMI Series products.

Compatible with 12v IR third party products.

**Note:** Cable is directional as indicated

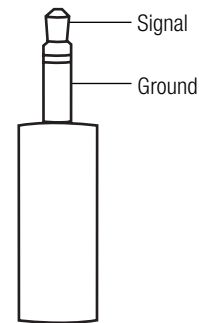


### IR Receiver - Stereo 3.5mm



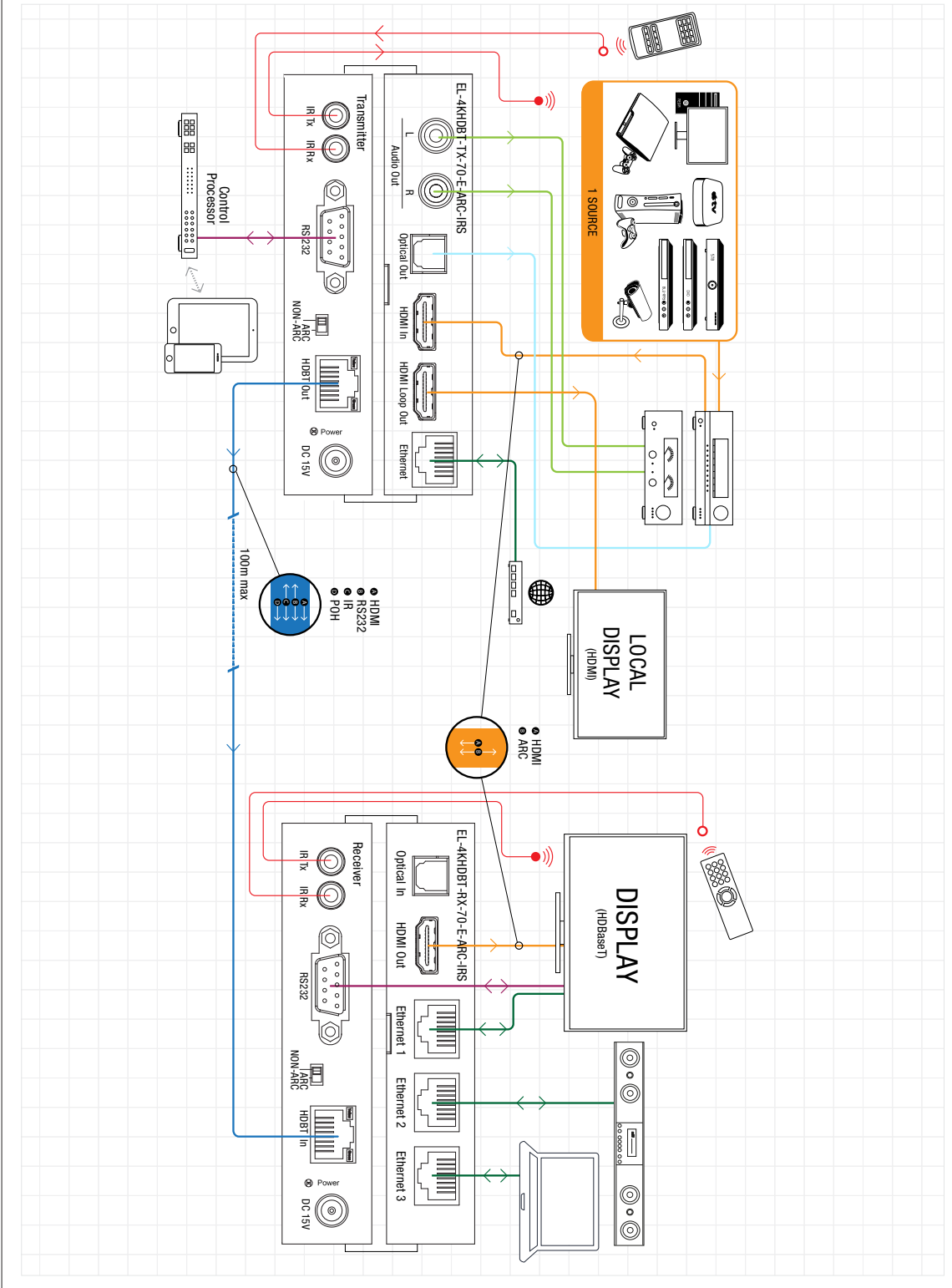
### Infrared 3.5mm Pin-Out

IR Emitter - Mono 3.5mm



Application Diagram  
EL-4KHDBT-TXRX-70-E-ARC-IRS

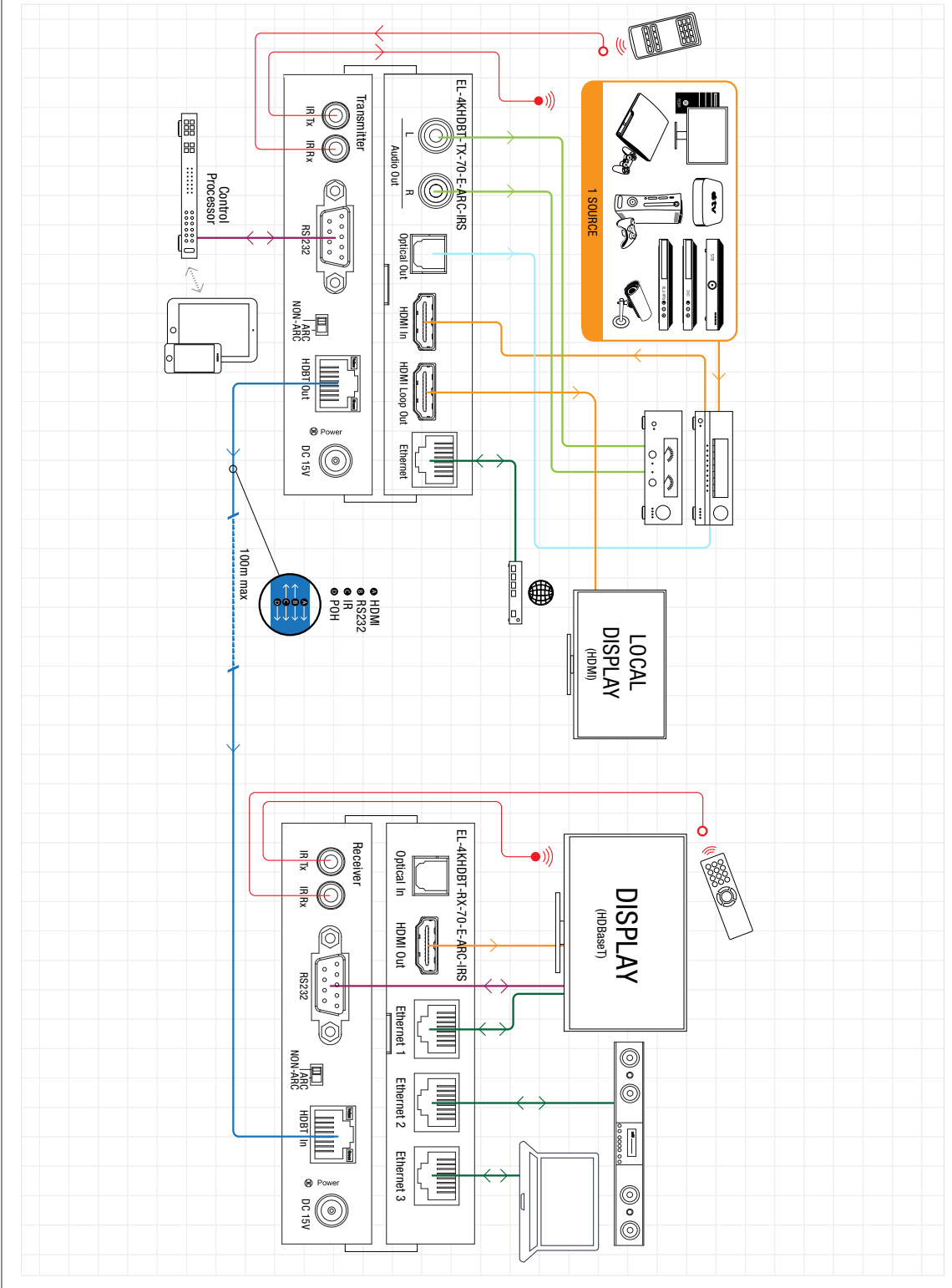
TV AND AVR SUPPORT ARC	
Transmitter	ARC
Receiver	ARC



ELAN

Application Diagram  
EL-4KHDBT-TXRX-70-E-ARC-IRS

TV Without ARC, AVR Without ARC	NON-ARC
Transmitter	NON-ARC
Receiver	Optical





## Specifications:

### EL-4KHDBT-TX-70-E-ARC-IRS

**Video Input Connectors:** 1x HDMI Type A, 19-pin, female, locking

**Video Output Connectors:** 1x HDMI Type A, 1x HDBaseT™ RJ45 connector

**Audio Output Connectors:** 2x RCA (L/R) Analog, 1x Optical (TOSLINK)

**RS-232 serial port:** 1x DB 9 connector

**Ethernet port:** 1x RJ45, female

**IR Input ports:** 1x 3.5mm stereo jack

**IR Output ports:** 1x 3.5mm mono jack

**Dimensions (W x H x D):** 143mm x 24mm x 134mm

**Shipping Weight:** 0.4Kg

**Operating Temperature:** 32°F to 104°F (0°C to 40°C)

**Storage Temperature :** -4°F to 140°F (-20°C to 60°C)

**Power Supply:** 1x 15V DC/2A

**NOTE:** Specifications are subject to change without notice.

### EL-4KHDBT-RX-70-E-ARC-IRS

**Video Input Connectors:** 1x HDBaseT™ RJ45 connector

**Video Output Connectors:** 1x HDMI Type A

**Audio Input Connector:** 1x Optical (TOSLINK)

**RS-232 serial port:** 1x DB 9 connector

**Ethernet ports:** 3x RJ45, female

**IR Input ports:** 1x 3.5mm stereo jack

**IR Output ports:** 1x 3.5mm mono jack

**Dimensions (W x H x D):** 114mm x 24mm x 134mm

**Shipping Weight:** 0.4Kg

**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:

- 1 x EL-4KHDBT-TX-70-E-ARC-IRS
- 1x EL-4KHDBT-RX-70-E-ARC-IRS
- 2 x Mounting kits
- 1 x 15V/2A power supply
- 1 x 5v-to-12v IR Converter Cable (EL-4KACC-IR-CAB)
- 1 x User manual

### EL-4KHDBT-RX-70-E-ARC-IRS (When sold individually)

- 1x EL-4KHDBT-RX-70-E-ARC-IRS
- 1 x Mounting kit
- 1 x 5v-to-12v IR Converter Cable (EL-4KACC-IR-CAB)

## 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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ELAN®



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