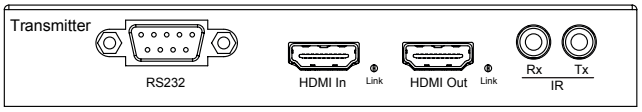
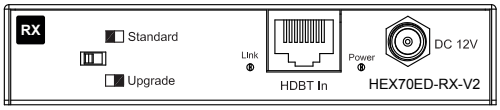
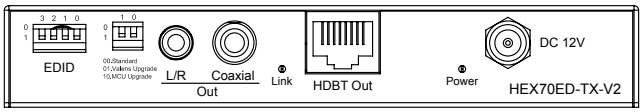
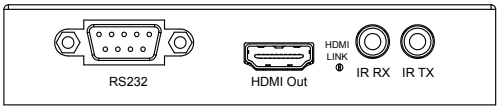








HEX70ED-KIT-V2

User Manual

BLUSTREAM

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 minimise 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 Blustream approved replacement.

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

Contents

Introduction 03

Features 03

Panel Descriptions 04

Terminating HDBaseT CAT Cables 05

Understanding TX/RX Status Lights 05

EDID Control 06

InfraRed Distribution 07

Application Diagram 08

Specifications 09

Package Contents 09

Maintenance 09

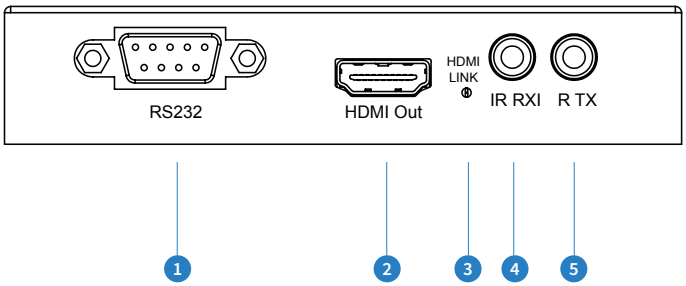
Introduction

Our 2nd generation range of HDBaseT™ products offer the very best in performance and flexibility. The HEX70ED-V2 extender set is an industry leading 4K HDBaseT™ solution delivering HDMI with HDCP2.2 support, bi-directional IR, RS-232 and PoH (PoE) up to lengths of 70m over a single CAT cable. The HEX70ED-V2 also provides enhanced features including HDMI loop out on the Transmitter, audio breakout for both stereo analogue and digital coaxial audio, all within a new thinner form factor casing.

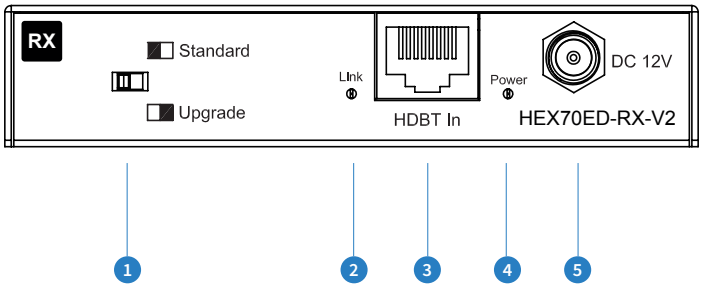
FEATURES:

- 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
- Features 1x HDMI loop output on Transmitter for integrating local displays or cascading to further signal distribution devices
- HDMI audio breakout on Transmitter unit to analogue L/R audio and Coaxial digital outputs concurrently
- Advanced EDID management
- Bi-directional RS-232 pass through
- Bi-directional IR pass-through
- Supplied with Blustream IR receiver and emitter
- Supports bi-directional PoH (Power over HDBaseT™) to power extenders from either Transmitter or Receiver end
- HDCP2.2 compliant

Panel Description HEX70ED-RX-V2

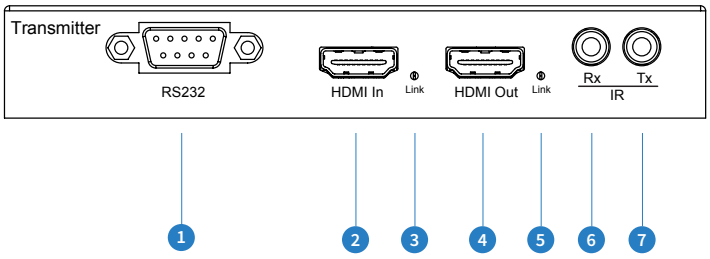


1. RS-232 / serial connector
2. HDMI output
3. HDMI link indicator
4. IR RX jack (to IR sensor)
5. IR TX jack (to IR emitter)

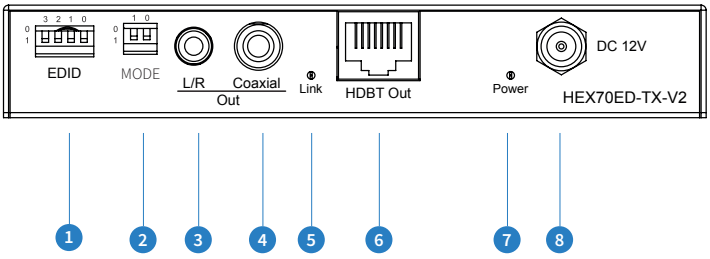


1. Standard / Upgrade mode switch
2. HDBaseT signal link indicator
3. HDBaseT input
4. Power status indicator
5. DC 12V screw type connector

Panel Description HEX70ED-TX-V2



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



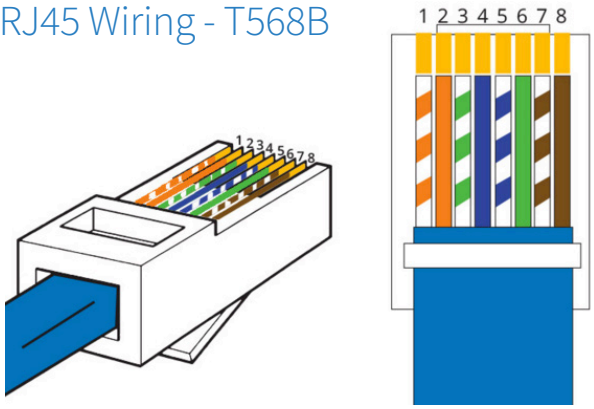
1. EDID DIP switch (UP=0, DOWN=1) - see page 6 for further details
2. Mode DIP switch
3. Analogue audio Left/Right output (3.5mm stereo jack) - de-embedded from HDMI input. Only supports stereo PCM audio feeds
4. Coaxial digital output - de-embedded from HDMI input
5. HDBaseT signal link indicator
6. HDBaseT output
7. Power status indicator
8. DC12V screw type connector

Terminating the interconnecting HDBaseT CAT cable

It is important that the interconnecting CAT cable between the Blustream 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. Blustream 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 HEX70ED-V2 signal status lights

The Blustream HEX70ED-V2 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.

Blustream Support department are on hand to assist with signal distribution issues should they arise - please email us at one of the email addresses below.

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.

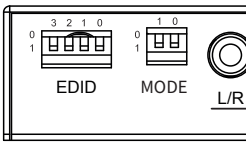
Configuration of extender EDID settings can be achieved using the product dip-switches on the end of the HEX70ED-TX-V2. EDID dip-switch settings are shown below.

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/2.0
OFF	OFF	ON	OFF	1080p/5.1
OFF	OFF	ON	ON	1080p/7.1
OFF	ON	OFF	OFF	1080i/2.0
OFF	ON	OFF	ON	1080i/5.1
OFF	ON	ON	OFF	1080i/7.1
OFF	ON	ON	ON	1080p 3D/2.0
ON	OFF	OFF	OFF	1080p 3D/5.1
ON	OFF	OFF	ON	1080p 3D/7.1
ON	OFF	ON	OFF	4K/2.0
ON	OFF	ON	ON	4K/5.1
ON	ON	OFF	OFF	4K/7.1
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 (IR) Distribution

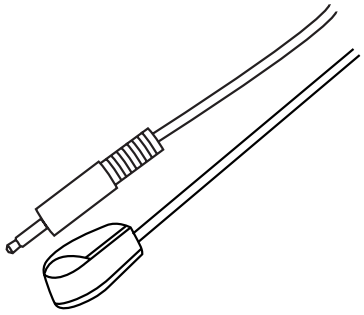
The Blustream range of HDBaseT products include multiple options for control and routing of IR.

IMPORTANT: Blustream Infrared products are all 5v and NOT compatible with alternative manufacturers Infrared solutions. When using third party 12v IR control solutions please use supplied Blustream IRCAB cable for IR conversion (sold separately).

Each Blustream Matrix and HDBaseT extender kit is supplied with all necessary IR hardware required and includes:

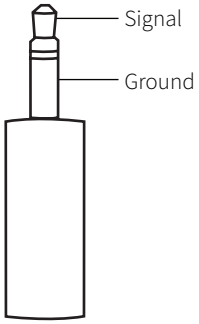
IR Emitter - IR1 & IR2 (IR2 sold separately)

Blustream 5V IR Emitter designed for discrete IR control of hardware



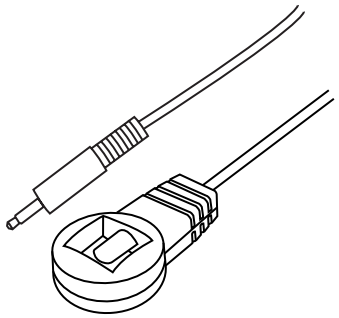
Infrared 3.5mm Pin-Out

IR Emitter - Mono 3.5mm

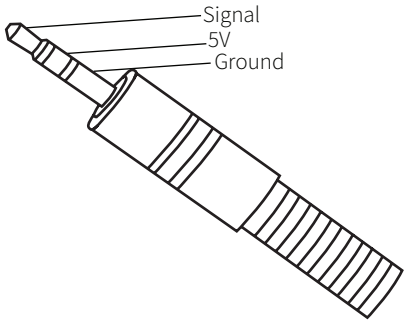


IR Receiver - IRR

Blustream 5V IR receiver to receive IR signal and distribute through Blustream products



IR Receiver - Stereo 3.5mm

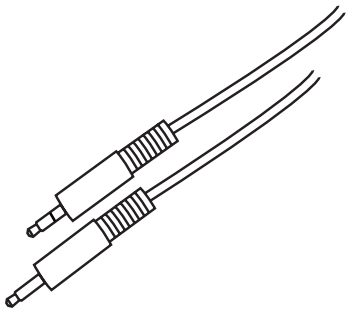


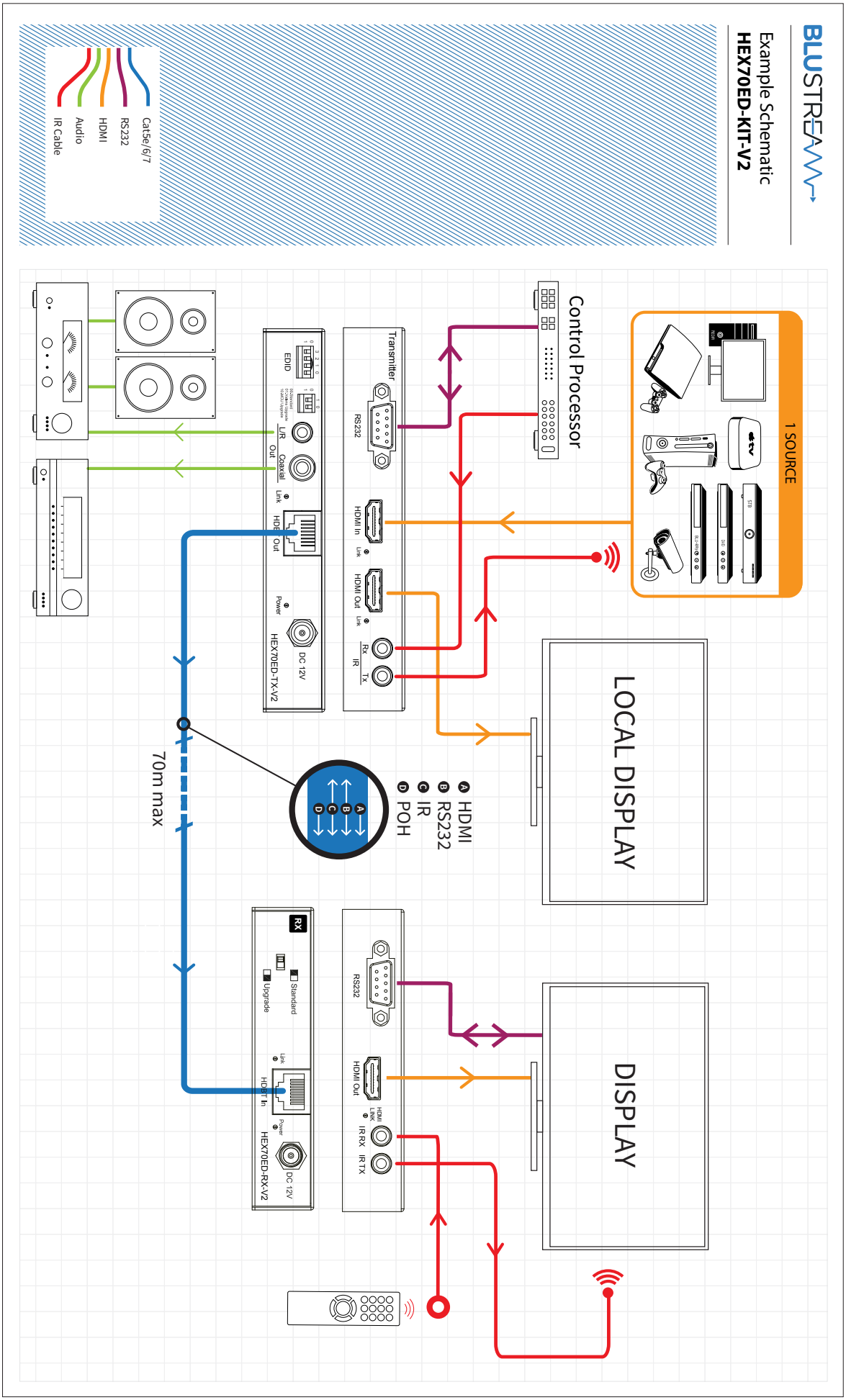
IR Control Cable - IRCAB

Blustream IR Control cable 3.5mm Mono to 3.5mm Stereo for linking third party control solutions to Blustream products.

Compatible with 12v IR third party products.

Note: Cable is directional as indicated




BLUSTREAM
Example Schematic
HEX70ED-KIT-V2
Cat5e/6/7
RS232
HDMI
Audio
IR Cable
1 SOURCE
Control Processor
Transmitter
RS232
HDMI In
HDMI Out
Rx
IR
Tx
EDID
L/R Out
Coaxial
Link
HDBT Out
Power
DC 12V
HEX70ED-TX-V2
LOCAL DISPLAY
A HDMI
B RS232
C IR
D POH
70m max
Rx
Standard
Upgrade
Link
HDBT In
Power
DC 12V
HEX70ED-RX-V2
RS232
HDMI Out
HDMI LINK
IR RX
IR TX
DISPLAY

Specifications

HEX70ED-TX V2

- Video input: 1x HDMI Type A, female
- Video output: 1x HDBaseT RJ45 connector
- Audio output:1x 3.5mm L/R analogue audio & 1x digital coaxial (RCA)
- RS-232 serial port: 1x DB9 female 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)

HEX70ED-RX-V2

- Video input: 1x HDBaseT RJ45 connector
- Video output: 1x HDMI Type A, female
- RS-232 serial port: 1x DB9 female 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): 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)

NOTE: *Specifications are subject to change without notice. Weights and dimensions are approximate.*

Package Contents

HEX70ED-KIT-V2

- 1 x HEX70ED-TX-V2 and 1 x HEX70ED-RX-V2
- 1 x 12V/2A DC power supply
- 1 x IR emitter (IRE)
- 1 x IR receiver (IRR)
- 2 x Mounting bracket sets
- 1 x User manual

HEX70ED-RX-V2 (when sold individually)

- 1 x HEX70ED-RX-V2
- 1 x Mounting bracket set

HEX70ED-TX-V2 (when sold individually)

- 1 x HEX70ED-TX-V2
- 1 x Mounting bracket set

Maintenance

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

www.blustream.co.uk
www.blustream.com.au