

Installation Guide

SY-HDBT-70S
Extender Set

with
HDMI, IR, RS232 and Power
over 70m of cat6 Cable

Slimmest HDBaseT HDMI Extender

The **SY-HDBT-70ST** and **SY-HDBT-70SR** HDBT transmitter / receiver pair broadcasts 1080p HDMI, two-way IR control, bi-directional RS232 data and power over 70m of cat6 cable with perfect quality. This maximum distance reduces to 40m for 4k HDMI signals. These extenders are suited to a wide range of applications in the AV industry, digital signage and at home.

Features

- Extends 1080p HDMI and data up to 70m with HDCP support and HDMI 1.4 compatibility
- Extends 4k HDMI and data up to 40m with HDCP support and HDMI 1.4 compatibility
- Only one 48V DC power supply required (at the Transmitter or Receiver)
- Provides transmission of IR and RS232 control signals over the same cable in both directions
- Status indicators for Link, HDMI and HDCP
- Supports all HDMI resolutions up to 4K x 2K (including: 1080p, 1080i,, 480p and 480i)
- Supports 3D and CEC

Connectors and Controls

Front



Name	Transmitter	Receiver
POWER	48V DC power supply input	
RJ45	HDBaseT and PoC over Cat6	
STATUS LED	Yellow STATUS LED indicates	
LINK LED	Green LINK LED indicates the cable link status between the transmitter and receiver units	
POWER LED	Red LED indicates that the unit is powered	
RS232	Transmit and Receive signals for RS232 control	
MODE SWITCH	Programming or Operating MODE switch	

Rear



Name	Transmitter	Receiver
IR IN	Input from IR detector (3.5mm stereo Jack)	
IR OUT	Output to IR emitter (3.5mm Jack)	
HDMI	HDMI input from HDMI source	HDMI output to HDMI display
SIGNAL LED	LED to indicate that the HDMI signal is present at the HDMI connector	

Using the HDBT HDMI Extenders

HDMI Extender

Connect a HDMI source to the HDMI IN socket on the HDBT-70ST and connect a HDMI display to the HDMI OUT socket on the HDBT-70SR. Connect a Cat6 UTP cable to the HDBT sockets of both the transmitter and receiver units. Connect the 48V Power supply to either the Transmitter or the Receiver unit.

Status LEDs

The LINK LED indicates the link status of the transmitter and receiver units, solid ON for a successful link and off when a link cannot be established.

The green STATUS LED indicates that the HDBaseT signal is being transferred between the transmitter and the receiver.

The SIGNAL LED on the transmitter indicates that HDMI data is being received from the HDMI source. For the receiver it indicates that HDMI data is being sent to the HDMI display device. The SIGNAL LED will remain OFF for any of the following conditions:

1. The HDMI source is not outputting data, the HDMI cable is either not connected or it is faulty.
2. The HDMI display is not connected or powered up, or the HDMI cable is faulty.
3. The HDMI display is not set to use its HDMI input.

IR – Bidirectional

To use the IR Extender option, point your IR remote control device at the IR detector connected to the IR IN socket of either the SY-HDBT-70SR or the SY-HDBT-70ST as required. An IR emitter must also be connected to the corresponding transmitter or receiver IR OUT socket. Locate the IR emitter close to the device you wish to control. All IR control functions are now possible from the remote location.

RS232 – Bidirectional

To use the RS232 Extender option, connect the RS232 equipment to the RS232 terminal blocks with the cables provided and ensure that any RS232 handshake modes are set to none. The MODE switch on both the extender units must be set to Oper to permit RS232 control between them. The SY-HDBT-ECO-70P Extender set supports all standard RS232 baud rates up to 115.2 K baud without setting any switches or special configuration options.

PoC

The SY-HDBT-ECO-70P Extender set have a Power over Cable (PoC) capability, allowing both the Transmitter and Receiver units to be powered using only one power supply. The set can be powered from either the Transmitter side or the Receiver side.

For best results, use only solid copper cat6 cables.

Mode Switch

The MODE switch should be set to Oper to permit transmission of RS232 signals between the two extenders. The Prog setting is only used should the SY-HDBT-70ST or the SY-HDBT-70ST require a field upgrade.

SY-HDBT-70S EXTENDERS

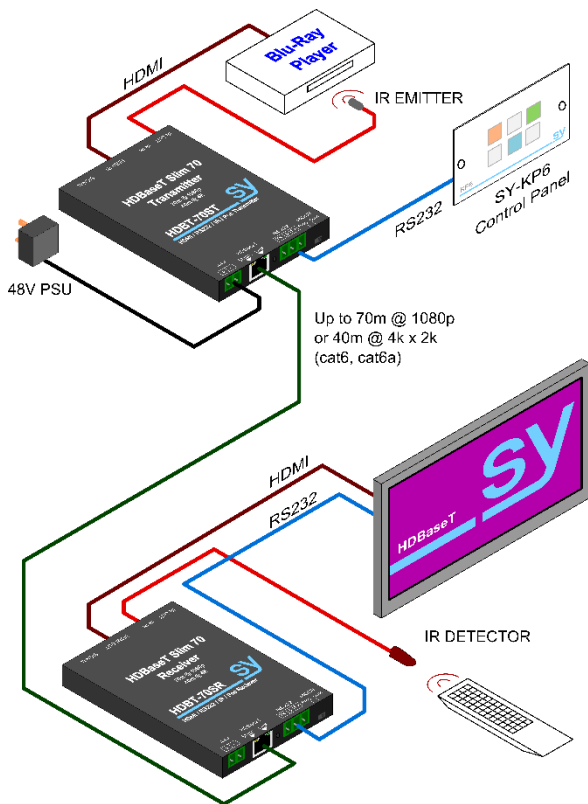


Figure 1 - Configuration Example

Specifications

General

HDMI Resolutions	480i, 480p, 720i, 720p, 1080i, 1080p, 1920 x 1200, 4K x 2K
HDMI Standard	HDMI 2.0 supported
HDMI Link Mode	HDBT, synchronous switching
Link Transmission Distance	Up to 70 metres @ 1080p or 40m @ 4K with Power over Cable (PoC)
IR Control	38kHz carrier frequency for any control protocol
RS232	Supports Tx and Rx only – any RS232 baud rate up to 115.2 Kb
Power Supply	48V DC @ 0.5A
Power Consumption	SY-HDBT-70S Set: 7.5 W max

Environmental

Operating Temperature	0 – 40 °C
Operating Humidity	5 – 90% RH (non-condensing)

Physical

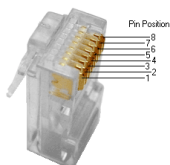
Dimensions (W x H x D)	70 x 12 x 97 mm	
Weight	SY-HDBT-70ST: 320 g	SY-HDBT-70SR: 330 g

Supported 4K Resolution Settings

Colour Depth	Chroma Subsampling	Frames / Second	Gb/s
8	4:4:4	24	7.13
8	4:4:4	25	7.43
8	4:4:4	30	8.91
8	4:2:0	50	7.43
8	4:2:0	60	8.91
10	4:4:4	24	8.91
10	4:4:4	25	9.28
10	4:2:0	50	9.28
12	4:2:2	24	7.13
12	4:2:2	25	7.43
12	4:2:2	50	8.91

RJ-45 Wiring

Both connectors must be wired identically.



RJ45 Plug Colour Code (T568B)	
Contact Side - Tab is on Back	
8	BROWN
7	WHITE / BROWN
6	GREEN
5	WHITE / BLUE
4	BLUE
3	WHITE / GREEN
2	ORANGE
1	WHITE / ORANGE

HDBaseT signals will not pass through any Ethernet device, the HDBaseT port on the SY-HDBT-70ST must be connected directly to the HDBaseT port on the SY-HDBT-70SR.

Please do make sure that the Cat6 cable uses 4 pairs of 23AWG solid copper wires. Do not use inferior copper clad cables as these exhibit higher resistances.

Troubleshooting

Problem	Possible Cause
Power LED is off	<p>Check that the correct power supply as provided with the product is being used.</p> <p>Check the PSU connections and ensure that the PSU is switched on.</p> <p>If the PSU is at the other end of the RJ-45 cable, check that the cable is correctly wired and is connected to the local unit.</p>
LINK LED is off	<p>Check that the RJ-45 cable between the transmitter and receiver is connected with a direct connection and within the specified distance.</p> <p>Check the terminating connectors are wired correctly.</p>
IN or OUT LED is off	<p>For the transmitter:</p> <p>Check that the LINK LED is on.</p> <p>Check that the HDMI source is connected to the HDBT-70ST.</p> <p>Check that the HDMI source is powered.</p> <p>For the receiver:</p> <p>Check that the LINK LED is on.</p> <p>Check that the HDMI display is connected to the HDBT-70SR.</p> <p>Check that the HDMI display is powered.</p> <p>Check that the HDMI display is set to use its HDMI input.</p>
RS232 is not being transmitted	<p>The MODE switch must be set at Oper on both the transmitter and the receiver units to allow RS232 data to pass between them.</p>

Safety Instructions

To ensure reliable operation of these products as well as protecting the safety of any person using or handling these devices while powered, please observe the following instructions.

1. Use the power supplies provided. If an alternate supply is required, check Voltage, polarity and that it has sufficient power to supply the device it is connected to.
2. Do not operate either of these products outside the specified temperature and humidity range given in the above specifications.
3. Ensure there is adequate ventilation, as these products generate heat while operating.
4. Repair of the equipment should only be carried out by qualified professionals as these products contain sensitive devices that may be damaged by any mistreatment.
5. Only use these products in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.

After Sales Service

1. Should you experience any problems while using these products, firstly refer to the Troubleshooting section in this manual before contacting SY Technical Support.
2. When calling SY Technical Support, the following information should be provided:
 - Product name and model number
 - Product serial number
 - Details of the fault and any conditions under which the fault occurs.
3. These products have a two year standard warranty, beginning from the date of purchase as stated on the sales invoice. Online registration of these products is required to activate the full three year extended warranty. For full details please refer to our Terms and Conditions.
4. SY Product warranty is automatically void under any of the following conditions:
 - The product is already outside of its warranty period
 - Damage to the product due to incorrect usage or storage
 - Damage caused by unauthorised repairs
 - Damage caused by mistreatment of the product
5. Please direct any questions or problems you may have to info@kvmsolutions.uk before contacting SY Electronics.