

## Installation Guide

# SY-HDBT-SLIM-70 EDGE Extender Set

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



## HDBaseT HDMI Extenders

# SY-HDBT-SLIM-70 EXTENDERS



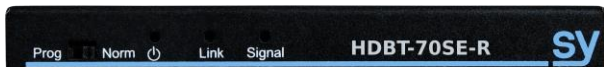
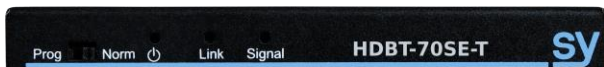
The **SY-HDBT-SLIM-70T** and **SY-HDBT-SLIM-70R** HDBT transmitter / receiver pair broadcasts 1080p HDMI, two-way IR control, bi-directional RS232 data and power over 70m of cat6 cable with perfect quality. This maximum distance reduces to 40m for 4k HDMI signals. These extenders are suited to a wide 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 2.0 compatibility
- Extends 4k HDMI and data up to 40m with HDCP support and HDMI 2.0 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
<b>MODE SWITCH</b>	Programming or Operating MODE switch	
<b>POWER LED</b>	Red LED indicates that the unit is powered	
<b>LINK LED</b>	Green LINK LED indicates the cable link status between the transmitter and receiver units	
<b>STATUS LED</b>	Yellow STATUS LED indicates	

## Rear



Name	Transmitter	Receiver
<b>POWER</b>	48V DC power supply input	
<b>IR IN</b>	Input from IR detector (3.5mm stereo Jack)	
<b>IR OUT</b>	Output to IR emitter (3.5mm Jack)	
<b>HDMI</b>	HDMI input from HDMI source	HDMI output to HDMI display
<b>RJ45</b>	HDBaseT and PoC over Cat6	
<b>RS232</b>	RTS, CTS, TxD and RxD signals for RS232 control	

## Using the HDBT HDMI Extenders

### HDMI Extender

Connect a HDMI source to the HDMI IN socket on the HDBT-70T and connect a HDMI display to the HDMI OUT socket on the HDBT-70R. 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 HDCP LED on the transmitter indicates that HDMI data is being received from the HDMI source for the transmitter or to the HDMI display device for the receiver. The HDCP LED also indicates the HDCP status of the HDMI signal, it will flash on both units whenever HDCP is not present and will remain ON whenever HDCP is present.

The HDCP 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 – Dual 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-70R or the SY-HDBT-70T 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 and set RS232 handshake modes as required. The MODE switch on both the extender units must be set to Oper to permit RS232 control between them. The SY-HDBT-70 Extender set supports all standard RS232 baud rates up to 115.2 K baud without setting any switches or special configuration options.

RS232 Connections	Handshake Modes
<b>Tx and Rx</b>	None or Xon/Xoff
<b>Tx, Rx, RTS, CTS</b>	None, Xon/Xoff or RTS/CTS

The RT and CT terminals can be used either for RTS / CTS handshaking or as a second RxD/TxD RS232 channel. This feature is only available when using the SY Slim 70 Edge transmitter and receiver as an extender pair.

## PoC

The SY-HDBT-70 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 Norm to permit transmission of RS232 signals between the two extenders. The Prog setting is only used should either the SY-HDBT-SLIM-70-T or the SY-HDBT-SLIM-70-R require a field upgrade.

# SY-HDBT SLIM-70 EXTENDERS

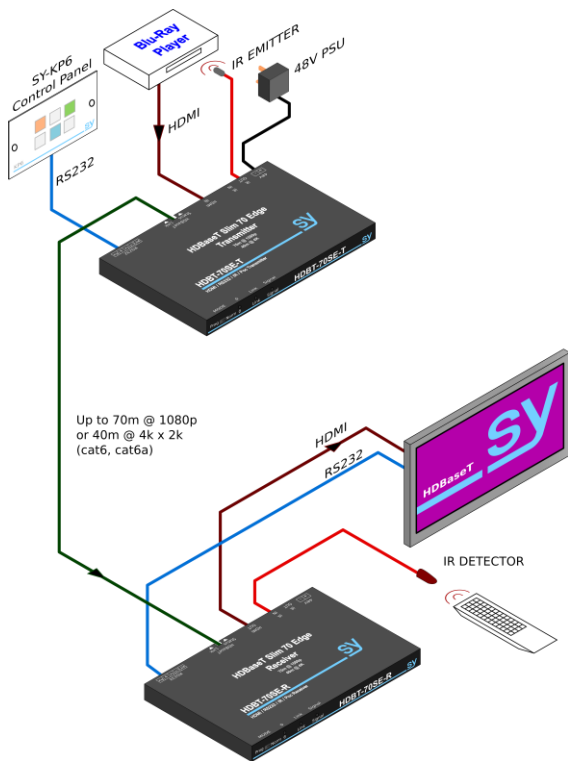


Figure 1 - Configuration Example

## Specifications

### General

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

### Environmental

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

### Physical

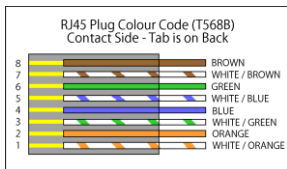
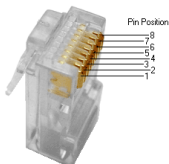
<b>Dimensions (W x H x D)</b>	109 x 12 x 70 mm	
<b>Weight</b>	SY-HDBT-70-T: 160 g	SY-HDBT-70-R: 165 g

## Supported 4K Resolution Settings

Colour Depth (bits)	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
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.



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

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.

## 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 your local dealer before contacting SY Electronics.