User Manual

HDBT-ARC100 Set

Ultra-Thin 4K HDBaseT Extender

HDMI – HDBaseT Extender Pair
with Bi-Directional IR Support, Ethernet, RS232,
Audio return Embedding from Toslink or ARC
with De-embedding to Toslink and Analogue

4K UHD

150m @ 1080p
100m @ 4K2K (60Hz 4:2:0)

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The SY-HDBT-ARC100 Extender Set consists of a transmitter and receiver pair that can broadcast 4K UHD HDMI up to 100m or 1080p up to 150m. Bi-directional IR, RS232 and Ethernet are also supported to permit the use of those control signals between the HDBT-ARC100 units. The transmitter provides outputs for both Toslink (S/PDIF) and stereo analogue for audio and the receiver has audio Toslink fibre input port.

This extender set can also use the HDMI audio return channel (ARC) from the display all the way through back to the HDBT-ARC100-T transmitter where the audio can be sent to an amplifier using either analogue stereo (L+R) or optical Toslink.

Features

- HDMI 2.0 4K2K up to 100m or 1080p up to 150m
- Max resolution: 4K2K @ 60Hz 4:2:0 - Supports 1080p 3D
- Supports CEC and ARC
- Support for HDMI 1.4 and HDCP 1.4 & 2.2
- HDBaseT port provides PoC, so only one PSU is required to power both units
- Bi-directional IR and RS232 control
- Four-port Ethernet switch – 1 port on ARC100-T and 3 ports on ACR100-R
- Status LEDs for Power, HDMI/HDCP mode, Link status and unit operating status

Panel Descriptions

Transmitter

Front

Name	Description
Service	Micro USB for Service use only
Power LED	Indicates that the unit is powered up
HDCP LED	OFF – No HDMI present ON – HDMI present with HDCP Flashing - HDMI present with no HDCP
LINK LED	OFF – No Link ON – Link successful Flashing – Failing to link successfully
ON LED	OFF – Unit is non-functional Flashing – Unit is operating normally
MODE Switch	Use 100m for any resolution up to 4Kx2K Use 150m for any resolution up to 1080p (4Kx2K not possible in this mode)
ARC Switch	Enables or Disabled the ARC (Audio Return Channel) feature

Rear

Name	Description
Ethernet	Ethernet port for LAN control, with LEDs for Link and Activity
HDBT OUT	HDBaseT output to the ACR-100-R via cat5e/cat6 cable
HDMI IN	HDMI signal input port
AUDIO L / R	Analogue audio output for stereo signals only
TOSLINK	TOSLINK input for fibre optic audio
IR IN / IR OUT	IR Input to send to the receiver and IR output from the receiver
RS232	Bi-Directional RS232 port
12V DC In	12V DC input to power the transmitter

Receiver

Front

Name	Description
Service	Micro USB for Service use only
Power LED	Indicates that the unit is powered up
HDCP LED	OFF – No HDMI present ON – HDMI present with HDCP Flashing - HDMI present with no HDCP
LINK LED	OFF – No Link ON – Link successful Flashing – Failing to link successfully
ON LED	OFF – Unit is non-functional Flashing – Unit is operating normally
MODE Switch	Use 100m for any resolution up to 4K2K Use 150m for any resolution up to 1080p (4K2K not possible in this mode)
ARC Switch	Enable or Disable the ARC (Audio Return Channel) feature

Rear

Name	Description
Ethernet	Three Ethernet ports for LAN control, with LEDs for Link and Activity
HDBT IN	HDBaseT input from the ACR-100-T via cat5e/cat6 cable
HDMI OUT	HDMI signal output port
TOSLINK	Optical Toslink (S/PDIF) audio input port
IR IN / IR OUT	IR Input to send to the receiver and IR output from the receiver
RS232	Bi-Directional RS232 port
12V DC In	12V DC input to power the transmitter

Using the HDBT-ARC100 Extender Set

Use good quality cabling throughout to obtain best results, and avoid long HDMI cables when sending 4K2K HDMI signals.

To use the extenders:

- Connect an HDMI source to the HDMI input of the SY-ARC100-T transmitter.
- Connect an HDMI sink to the HDMI output of the SY-ARC100-R receiver.
- Connect the cat5e/6/6a cable to the HDBT RJ45 connectors of the transmitter and receiver.
- Connect the 12V DC power supply to either the transmitter or receiver.
- Only one PSU is required as the corresponding HDBT-ARC100 device will be powered over the cat6 cable connected between the HDBaseT ports.

The power LED indicates that the unit is powered up and the ON LED indicates that the unit is in its operating mode. The LINK and HDCP LEDs will indicate the presence of a good data connection between the transmitter and receiver pair. The HCDP LED provides three states as below:

HDCP LED State	HDMI Signal Status	HDCP Signal Status
OFF	No HDMI signal is present	No HDCP signal is present
Flashing	The HDMI signal is present	The HDCP signal is absent
ON	The HDMI signal is present	The HDCP signal is present

Using the Additional Features

IR and RS232

If required, IR and/or RS232 control data signals can also be connected to the extender pair to allow control of any device from the remote location. The IR Eye must of a type that preserves the IR carrier signal to ensure reliable operation.

Ethernet

The SY-ARC100-Set also features a simple four-port Ethernet hub comprising of a single LAN connector on the transmitter and three LAN ports on the receiver. These ports can be used for controlling or communicating with any type of Ethernet device.

MODE switch (100m / 150m Range Selection)

The range selection switch limits the maximum range for higher UHD resolutions to 100 metres or to 150 metres for any resolution up to 1080p. Transmission of 4K UHD resolutions will not be possible when this switch is set to the 150m position.

The MODE switch should be set to the same position on both units to ensure the correct video.

ARC Mode

The HDBT-ARC100 can be used as an HDMI extender with or without the audio return channel, set the ARC switch to the same setting on both the transmitter and receiver units as follows:

Mode	ARC Switch State
HDMI Extender only	OFF
HDMI Extender with ARC	ON

The ARC switch MUST be set to the same position on both units to ensure the correct audio mode.

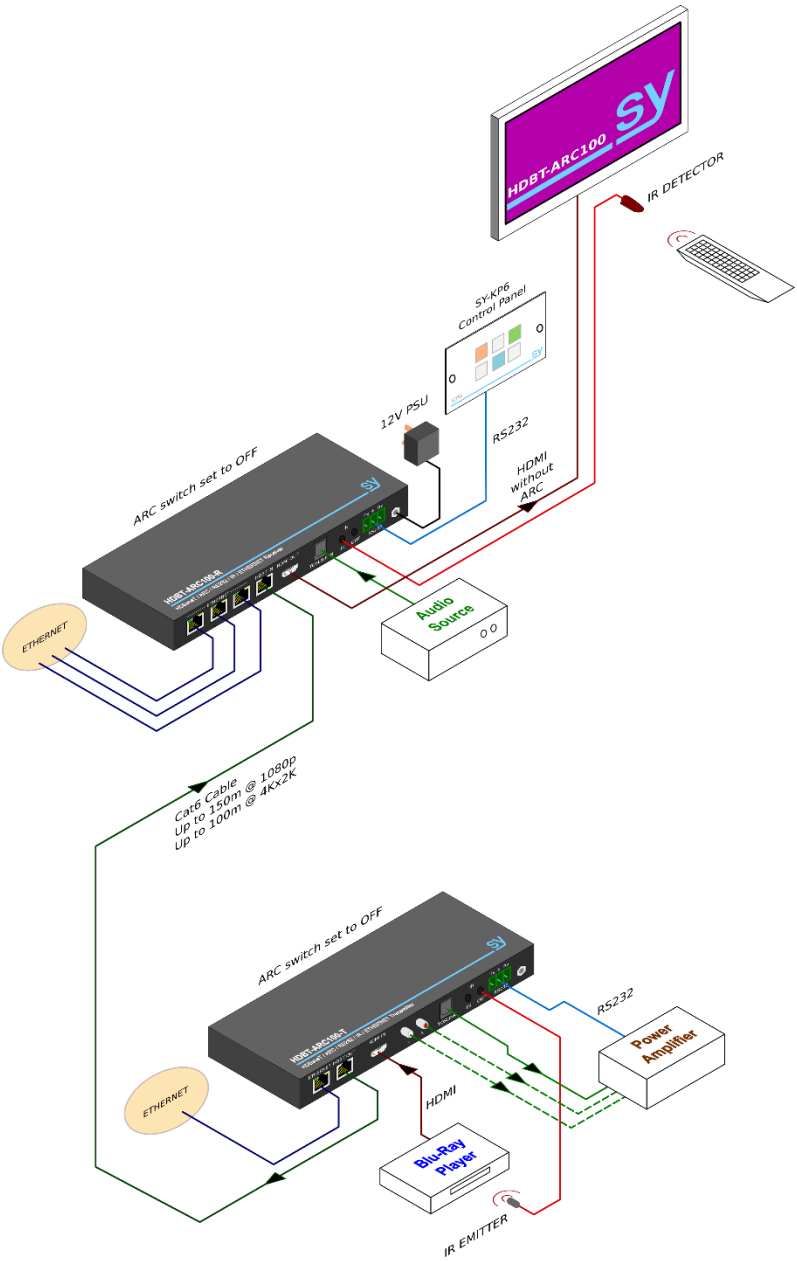


Figure 1 - HDBT-ARC100 as an HDMI Extender

ARC not used – External audio sent from Receiver back to transmitter

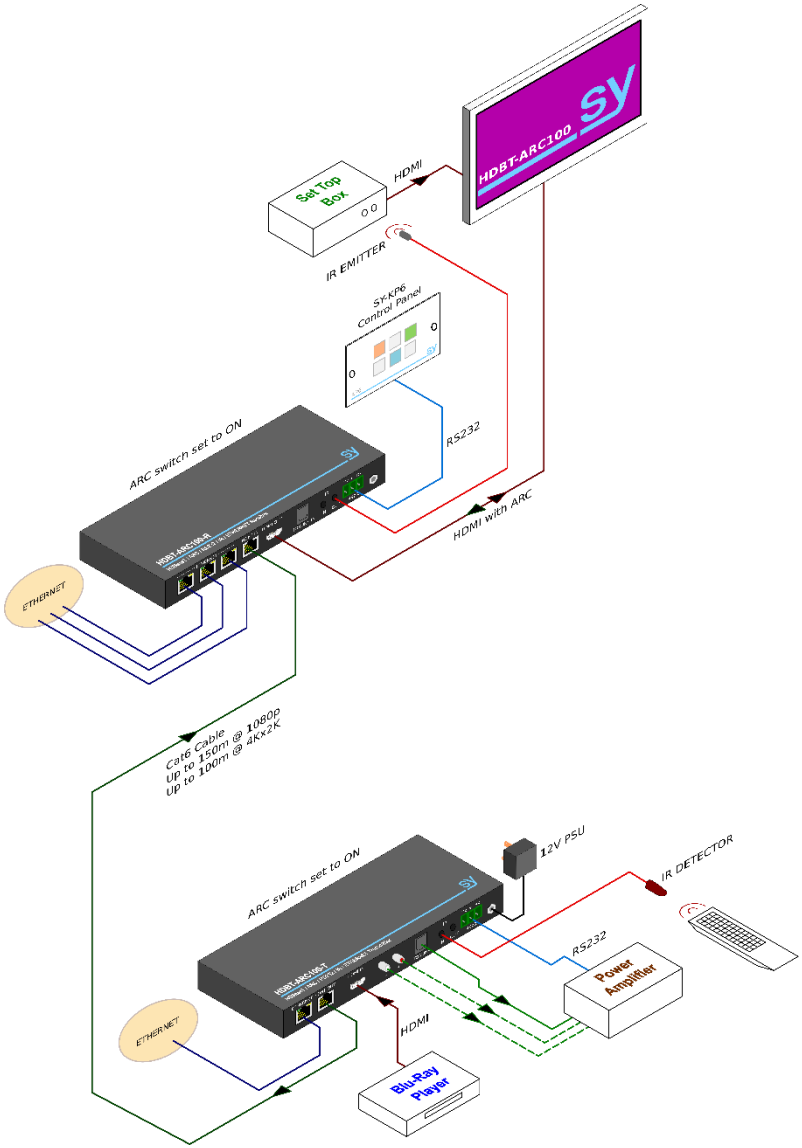


Figure 2 - HDBT-ARC100 as an Extender with ARC

Using ARC Mode – Audio from monitor/TV is sent back to the transmitter

Specification

Video Connectors	Transmitter	Receiver
HDMI	Female HDMI (Type-A)	Female HDMI (Type-A)
HDBaseT	RJ45	RJ45

Video General	
Resolution	HDMI: up to 4Kx2K@60Hz 4:4:4 (18Gbps) 480i, 480p, 720i, 720p, 1080i, 1080p, 1920 x 1200, 4K x 2K
Standard	Compliant with HDMI 2.0, HDCP 1.4 and HDCP 2.2
HDBaseT Cable	cat5e/cat6/cat6a - 100m for 4Kx2K 18Gbps or 150m for 1080p

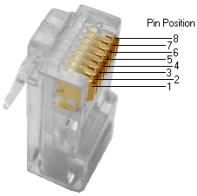
Audio Connectors	Transmitter	Receiver
Analogue	2 x Phono – L + R	None
Optical	Toslink Out	Toslink In

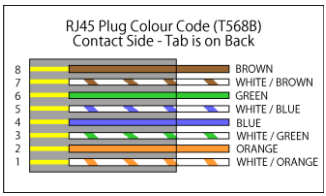
Control Ports	Transmitter	Receiver
Ethernet	Transmitter	Receiver
IR In and Out	Transmitter	
RS232	Transmitter	

General	
Temperature	0~ 45℃
Humidity	10% ~ 90%
PSU	12V DC @ 2A
Power Consumption	10W (Max)
Dimension (W*H*D)	115 x 12 x 84 mm
Weight	240 g

RJ-45 Wiring

Both connectors must be wired identically, to T568B standard.





Note:

You may use cat5e, cat6 UTP (cat6 preferred) in conjunction with the HDBaseT output; however for best performance use cat6a or cat7 (particularly in electrically noisy environments). The maximum distances & transmission performance for HDMI and HDBT may be compromised by cable quality, patch panels, poor termination, wall plates, cable kinks and electrical interferences. Generally ensure the cat cable is solid copper core of 23AWG (avoid CCA type), in one straight run (avoid/minimise patches) and avoid close proximity to any noisy electrical sources.

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 the 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.
6. Do not twist or use any excessive force when fitting any connector as this can damage the connector and/or the cable.

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.