SY-HDBT-282-S

sy

Installation Guide

SY-HDBT-282-S

HDMI to HDBaseT Splitter
with
Audio De-Embedder

SY-HDBT-282-S

The SY-HDBT-282-S takes two HDMI inputs and splits the selected input equally to all eight HDBaseT outputs as well as to both HDMI outputs. This switch splitter allows any source to be shown on any of the connected displays, these sources can include BluRay or UHD BluRay players, satellite receivers, gaming consoles, or PCs.

RS232 and IR control is also routed to all HDBaseT outputs allowing control of the switch splitter, the source device, or the display device.

The HDMI from the selected input is also de-embedded to analogue stereo, optical S/PDIF and coaxial S/PDIF

Features

- Switches between two HDMI input sources
- Splits the selected input to eight HDBaseT outputs and two HDMI outputs
- Advanced EDID management
- Supports HDMI 2.0
- Supports HDMI resolutions up to 4K60 4:2:0
- IR and RS232 control options
- IR and RS232 routed to all HDBaseT outputs

Connectors and Controls

Front Panel

Name	Description
Power Indicator	Red when powered on
HDBT indicators	Blue when connected to HDBaseT receivers
HDMI indicators	Blue when connected to HDMI sink devices
INPUT indicators	Shows the selected HDMI input
Select Button	Source select button

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Rear Panel

Name	Description
IR IN	IR inputs from IR detector
IR OUT	Output to IR emitter
Analogue Audio	De-embedded stereo analogue audio from selected input
Optical Audio	De-embedded optical S/PDIF audio from selected input
S/PDIF Audio	De-embedded coaxial S/PDIF audio from selected input
RS232	RS232 control to the switcher and to the HDBaseT receivers
HDMI IN	HDMI inputs
HDMI OUT	HDMI output from selected input
HDBT Outputs	HDBaseT outputs to HDBaseT receivers
POWER	48V DC power input

Operation of the SY-HDBT-282-S

The SELECT button on the front panel switches between the two HDMI inputs. The selected input then appears on the two HDMI outputs as well as the eight HDBaseT outputs, but the signal is only presented if there is an HDMI sink device connected to either or both the HDMI outputs or to any HDBaseT output that has an HDBaseT receiver with an HDMI sink device attached to the receiver.

Any output that has a valid sink device connected will be indicated by a blue LED on the front panel for that output.

EDID Management

EDID management allows you to set a specific EDID default to ensure a certain resolution is being sent from a HDMI source. The EDID setting can be different from each input.

The following procedure detail how to use the EDID Management function:

1. Press the SELECT button to select the input to program, HDMI 1 or HDMI 2.
2. Press and hold the SELECT button for three seconds to enter the EDID Management mode. Both the HDMI output LEDs will start to flash.
3. The first five HDBT output LEDs indicate the EDID option according to the following table, press the SELECT button repeatedly until the desired setting is displayed by the LEDs:

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HDBT1	HDBT2	HDBT3	HDBT4	HDBT5	EDID Setting
○	○	○	○	○	1080p 2ch PCM
●	○	○	○	○	1080p 6ch
○	●	○	○	○	1080p 8ch
●	●	○	○	○	1080p 3D 2ch
○	○	●	○	○	1080p 3D 6ch
●	○	●	○	○	1080p 3D 8ch
○	●	●	○	○	4K 30Hz 3D 2ch
●	●	●	○	○	4K 30Hz 3D 6ch
○	○	○	●	○	4K 30Hz 3D 8ch
●	○	○	●	○	4K 60Hz 3D 2ch
○	●	○	●	○	4K 60Hz 3D 6ch
●	●	○	●	○	4K 60Hz 3D 8ch
○	○	●	●	○	User1 EDID
●	○	●	●	○	User2 EDID
○	●	●	●	○	User3 EDID
●	○	○	○	●	Copy from HDBT out1
○	●	○	○	●	Copy from HDBT out2
●	●	○	○	●	Copy from HDBT out3
○	○	●	○	●	Copy from HDBT out4
○	●	●	○	●	Copy from HDBT out5
●	○	●	○	●	Copy from HDBT out6
●	●	●	○	●	Copy from HDBT out7
○	○	○	●	●	Copy from HDBT out8
●	○	○	●	●	Copy from HDMI out1
○	●	○	●	●	Copy from HDMI out2

4. Press and hold the SELELCT button for three seconds and all LEDs will indicate success or failure. A successful EDID update is indicated by all the LEDs being on and not flashing. A failed EDID update is indicated by all the LEDs flashing.
5. Press the SELECT button again to return to the normal operating mode.

Please note that after entering the EDID Management mode that it will timeout and return to the normal operating mode after ten seconds if the SELECT button was not pressed within that time.

RS232 Commands

The SY-HDBT-282-S can also be controlled or configured using RS232 commands. The RS232 settings for control and configuration commands are:

57600 baud, no parity, 8 data bits, and 1 stop bit.

The default address of the SY-HDBT-282-S is 00. If this address is not 00 then each RS232 command must be preceded by Azz, where zz is the address of the SY-HDBT-

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282-S you wish to control.

All commands are in ASCII, are not case-sensitive and are always terminated by a carriage-return (0x0d) character.

Control and configuration of the SY-HDBT-282-S is only possible when the RS232 bypass mode is set to its disabled state (`SET RS BP 1`).

Upon power-up, the SY-HDBT-282-S will output the following RS232 text. Note that this text will vary as it is dependent upon the installed software version.

```
============================
 Ver1.00
 Data:Jul 28 2016
 Time:17:44:20
============================
```

Help

RS232 Command: `H`

This command generates a list of all the available RS232 commands with a brief description for each command.

Status

RS232 Command: `STA`

This command outputs the current status of the SY-HDBT-282-S, the status info for the HDMI inputs, HDBaseT outputs (OUT01 to OUT08 in the status report) and the two HDMI outputs (OUT09 and OUT10 in the status report).

For each output the following information is included: The selected input, HDCP status, and whether there is a link to a Slim 70 Rx receiver unit.

RS232 Command: `GET STA`

This command outputs a shorter version of the status report that is easier for a computer program to parse as it does not produce the page formatted layout of the `STA` command.

Set System Address

RS232 Command: `SET ADDR xx`

Use this command to change the device address of the SY-HDBT-282-S where `xx` is decimal value in the range 00 to 99. This command should be used with caution as any address other than 00 will require the address value before any RS232 command. The address prefix is `Axx`, where `xx` is a decimal value in the range 01 to 99.

Get System Address

RS232 Command: `GET ADDR`

RS232 Response: `ADDR xx`

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Where xx is the actual address of the device in the range 00 to 99. The factory default value is 00.

Set RS232 Bypass Mode

RS232 Command: `SET RS BP x`

RS232 Response: `RS BP x`

Where `x` is either `0` to enable RS232 bypass mode or `1` to disable RS232 bypass mode.

Bypass Enabled

In this mode the HDBT-282-S will only respond to the `SET RS BP 1` command. All other control commands are ignored and no RS232 data is passed through to the Slim 70 Rx receiver unit.

Bypass Disabled

In this mode, the HDBT-282-S will respond to all its control commands and pass through all commands through to the Slim 70 Rx receiver unit. This is the factory default mode.

Get RS232 Bypass Mode

RS232 Command: `GET RS BP 1`

RS232 Response: `RS BP x`

Where `x` is the `0` when bypass mode is enabled or `1` when bypass mode is disabled.

Select Input for All Outputs

RS232 Command: `SET OUT 0 VS INx`

RS232 Response: `OUT 0 VS INx`

Where `x` is either `1` or `2` for the desired input number.

This command selects the desired input to show on all outputs. Note that all outputs will always show the same input source selected by this command.

Get the Selected Input Number

RS232 Command: `GET OUT 0 VS`

RS232 Response: `OUT 0 VS INx`

Where `x` is either `1` or `2` for the desired input number.

Set the Output HDCP Mode

RS232 Command: `SET OUT y HDCP z`

Where:-

`y` is in the range `0` to `10`. `0` means set all outputs together and `1` to `10` means set only

the specified output.

When z is 0, the output HDCP mode to auto, where it follows the HDCP mode of the input source device. When z it 1, the output HDCP mode is disabled.

Get HDCP the Output Mode
RS232 Command: GET OUT y HDCP

Where y is in the range 0 to 10. 0 means get the HDCP status for all outputs together (10 lines) and 1 to 10 means get the HDCP status for the specified output only (1 line).

Set External Audio Status
RS232 Command: SET OUT 0 EA x

Where x is either 0 to turn off the audio de-embedder, or 1 to enable the audio de-embedder.

All three external audio outputs, when enabled, each output the same audio signal from the selected HDMI input.

Get External Audio Status
RS232 Command: GET OUT 0 EA

RS232 Response: OUT 0 EA x

Where x is either 0 if the audio de-embedder is off, or 1 if the audio de-embedder is on. The factory default is on.

Set Input EDID Data
RS232 Command: SET IN x EDID y

RS232 Response: INx EDID y

Where x is either 1 or 2 for the desired input number, and y is in the range 0 to 14 (in decimal).

This command sets one of the 12 factory defined EDID data sets, or one of the three user data sets. Each user data set are factory set to contain a valid EDID data block, but they can be re-programmed by either the SET INx EDID CY OUTy command for USER1 EDID memory only, or the SET INx Uy DATAz RS232 command for any of the three USER memory locations.

Please note that each input may be set to different EDID settings

Value for y	EDID Setting
0	1080p 2ch (factory default)
1	1080p 6ch
2	1080p 8ch

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Value for y	EDID Setting
3	1080p 3D 2ch
4	1080p 3D 6ch
5	1080p 3D 8ch
6	4K 30Hz 3D 2ch
7	4K 30Hz 3D 6ch
8	4K 30Hz 3D 8ch
9	4K 60Hz 3D 2ch
10	4K 60Hz 3D 6ch
11	4K 60Hz 3D 8ch
12	USER1 Memory
13	USER2 Memory
14	USER3 Memory

Copy EDID Data from an Output to an Input USER1 Memory

RS232 Command: `SET IN x EDID CY OUT y`

Where `x` is one of `0`, `1` or `2` for the desired input number, and `y` is in the range `1` to `10`.

When `x` is `0`, the USER1 memory of both inputs receives the copied data from the specified output. For this command only one output can be specified as the source for the EDID data to copy.

Write EDID Data to the User Memories

RS232 Command: `SET IN x EDID Uy DATA <z>`

Where `x` is either `0` or `2` for the desired input number, and `y` is in the range `1` to `3` for the desired User memory.

When `x` is `0`, the USERy memory of both inputs receives the data specified by `z`.

For this command `<z>` must contain 256 bytes of a valid EDID data block. The data block is specified in ASCII hexadecimal notation with each byte value separated by one space character (`0x20`). Programming invalid data will produce an incorrect video format, or the HDMI source may not produce any output at all.

Get the Current EDID Memory Index Value

RS232 Command: `GET IN x EDID`

RS232 Response: `INx EDID y`

Where `x` is one of `0`, `1` or `2` for the desired input number, and `0` means get the index value for both inputs.

This command will return the current EDID index value in the range 0 to 14 (decimal) for the selected input or both inputs.

Get the EDID Data from an Output Display Device

RS232 Command: `GET OUT y EDID DATA`

Normal RS232 Response: `OUT y EDIDData <z>`

Error RS232 Response: `OUT y HPD 0`

Where y is in the range `1` to `10`. Parameter `<z>` represents 256 bytes of EDID data in ASCII hexadecimal notation with each value separated by one space character.

If no display can be detected either from the Slim 70 Rx or the HDMI outputs, the Error RS223 Response message is returned.

Get the EDID Data from an Input Memory

RS232 Command: `GET IN x EDID y DATA`

RS232 Response: `INy EDID 0 Data <z>`

Where x is either `1` or `2` and y is in the range `0` to `14`. See the above table for the meaning of values `0` to `14`.

The response parameter `<z>` represents 256 bytes of EDID data in ASCII hexadecimal notation with each value separated by one space character.

Set IR Codes

Set IR System Code

RS232 Command: `SET IR SYS xx.yy`

RS232 Response: `IR SYS xx.yy`

This command sets the common values that prefix every IR command intended for the SY-HDBT-282-S. The values for x and y are in ASCII hexadecimal notation and must match the codes of the IR controller that is to be used to control the input selections. The factory default values for x and y are `00` and `FF`.

Set IR Control Codes

RS232 Command: `SET IR OUT 0 IN x Code yy`

RS232 Response: `IR OUT 0 IN x Code yy`

Where x is either `1` or `2` for inputs 1 and 2 respectively, and y is an ASCII hexadecimal value in the range `00` to `FF` that represents the command code value to select the desired input. To ensure correct operation of the SY-HDBT-282-S, the `Code y` values for input 1 and input 2 must be different. The factory default values are `57` for input 1, and `41` for input 2.

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Get IR Codes

Get IR System Code
RS232 Command: GET IR SYS

RS232 Response: IR SYS xx yy

This command gets the common values that should prefix every IR command intended for the SY-HDBT-282-S. The values for xx and yy are in ASCII hexadecimal notation and the factory default values for x and y are 00 and FF.
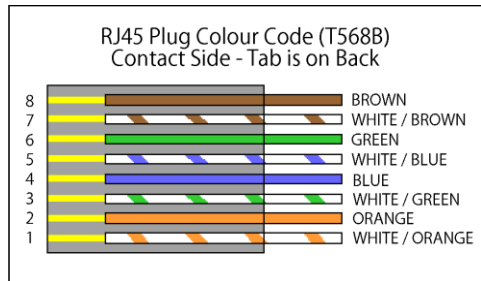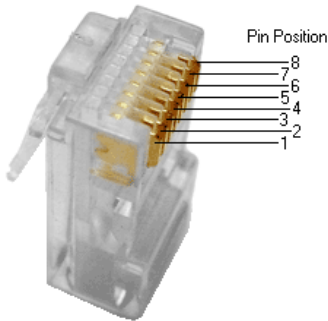
Get IR Control Codes
RS232 Command: GET IR OUT 0 IN x Code

RS232 Response: IR OUT 0 IN x Code yy

Where x is either 1 or 2 for inputs 1 and 2 respectively or 0 for both inputs. The RS232 response will be one line if a single input was requested or two lines if both inputs were requested. The value yy is the current IR control code for the input number x stated in the RS232 response.

RS45 Wiring for HDBaseT Outputs
Both connectors must be wired identically.

HDBaseT will not pass through any Ethernet device, the HDBaseT port must be connected directly to the input port of an HDBaseT receiver.

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Safety Instructions

To ensure reliable operation of these product 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. Ensure that these products operate 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.

NOTES