sy
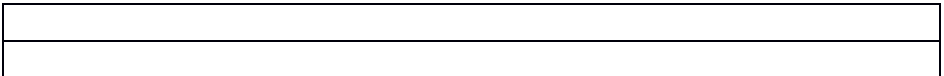
Installation Guide

4 x 4 HDMI Matrix Switcher

With

HDBaseT PoC Outputs

4 HDMI in to 4 HDBaseT + 2 mirrored HDMI out

SY-MHDBT-44P

The SY-MHDBT-44P is a HDMI matrix switcher with four HDMI inputs and four HDBaseT outputs, of which outputs one and two also have mirrored HDMI outputs. This 1U rack-mountable 4 x 4 matrix switcher provides a very powerful and tidy matrix solution, with built-in HDBaseT transmitters which can directly power up to 4 remote SY-HDBT-70P-R receivers.

Can be used in wide range of applications and environments, including Residential, AV installations, Digital Signage, school / colleges…

Features

- Four HDMI input sources
- Four HDBaseT outputs with two Mirrored HDMI output connectors on Zones 1 and 2
- Provides PoC to directly drive SY-HD-70P-R remote receivers
- HDMI 1.4a, DVI 1.1 compatible – HDCP compliant and supports 3D
- De-Embedded audio outputs – S/PDIF and stereo analogue
- RS232 to remote display locations via HDBaseT outputs
- Control from front panel, IR remote control, RS232 commands and Ethernet
- Manual EDID transfer from output port to input port
- Front panel display for confirmation of switching actions or using configuration options
- 48V DC power input

Connectors and Controls

Front

Name	Description
Service	USB Type B for firmware updates
IR Sensor	Receives IR commands from the remote controller
Power LED	Indicates unit is powered
System Monitor	Displays the results of selection commands and menu options
Input Select	Selection buttons for inputs 1 to 4 These buttons also serve as menu navigation controls
Output Select	Selection buttons for outputs 1 to 4
AV Button	HDMI input to output deliminator
All Button	Sets input selection to all outputs
EDID Button	Copies EDID information from an output to an input

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Rear

Name	Description
Master IR	Input from IR sensor that is routed to all IR outputs
IR OUT	Outputs to IR emitters to control local equipment from remote locations
HDMI Inputs 1 to 4	Input connectors for up to 4 HDMI video sources
Zones 1 to 4	Output connectors for up to 4 display zones
IR IN	IR sensor input - routed to the HDBaseT output of the same Zone Block
S/PDIF	De-embedded S/PDIF coaxial data output (RCA Connector)
Audio out	Stereo audio output connector (de-embedded)
RS232	Tx and Rx connection for controlling equipment via the HDBaseT output
HDMI Out	Mirrored HDMI output for local displays - Zone 1 and Zone 2 only
HDBaseT output	RJ45 HDBaseT connector output – Directly powers (PoC) remote SY-HD-70P-R receivers to 60m
RS232	RS232 control port for SY-MHDBT-44P matrix
TCPIP	RJ45 Ethernet Connector
Power connector	48V DC supply input
Earthing Connection	Earth (ground) bonding point

Using the SY-MHDBT-44P HDMI Matrix Switcher

Connecting the Outputs and Inputs

Connect the input HDMI sources to the matrix HDMI INPUTS - connect the HDBaseT extenders to the connectors in the OUPTUT group. Connect the power supply provided with the SY-MHDBT-44P.

To ensure safety and as a good practice, be sure to connect an earth bonding strap to the earthing point on the rear of the SY-MHDBT-44P unit to a good local earthing point.

Using the Front Panel Controls

Use the following button sequence to make a video selection: **Input** number, **AV**, then **Output** number. For example to select input 2 to output 4 press the following buttons: **2 AV 4**, where **2** is the **INPUT** selection and **4** is the selected **OUTPUT**.

To send a single input to all the outputs use the following button sequence:
Input number, then **ALL** button.

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Using IR Remote Controls

Point the IR remote control key pad at the SY-MHDBT-44P and use the key pad buttons in the same sequence as for using the front panel controls.

RS232 Control Commands

The following RS232 commands provide control of the SY-MHDBT-44P from a PC, laptop or programmable control panel. The RS232 settings are: 9600 baud, 8 bits, no parity, and 1 stop bit.

All response values given in the following table are examples only. The actual response values will reflect the changes that the transmitted RS232 command has just made.

The RS232 commands are case-sensitive and all numerical values are in decimal only.

Any punctuation marks shown in the RS232 command are part of the command and must be included when sending the command.

Action	Command	Response
Check the matrix type	`/*Type;`	
Lock the front panel buttons	`/%Lock;`	`Locked`
Unlock the front panel buttons	`/%Unlock;`	`Unlocked`
Check the software version	`/^Version;`	
Turn response messages off	`/:MessageOff;`	
Turn response messages on	`/:MessageOn;`	
Revert to the previous switch state	`Undo.`	
Enable Demo mode	`Demo.`	
Set all outputs to input x (where x is the input number)	`xAll.`	
Set each output to its corresponding input number	`All#.`	
Switch off all outputs	`All$.`	
Set a single output (x) to its corresponding input channel	`x#.`	
Switch off a single output (y)	`y$.`	
Select a video input (x) to an output (y) (Where x is the input number and y is the output number)	`xVy.`	
Select a video input (x) and its IR inputs to an output (y) (Where x is the input number and y is the output number)	`xBy.`	
Select a IR input (x) to an output (y) (Where x is the input number and y is the output number)	`xRy.`	
Check the status of the matrix switches	`Status.`	
Save the current matrix settings are preset p (p is in the range 0 to 9)	`Savep.`	
Set the matrix to the setting in preset p (p is in the range 0 to 9)	`Recallp.`	
Clear the stored setting in preset p (p is in the range 0 to 9)	`Clearp.`	

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Action	Command	Response
Turn on the SY-MHDB-44P	`PWON.`	
Turn off the SY-MHDB-44P	`PWOFF.`	
Read the EDID information from the display device connected to output x	`EDIDGx.`	
Upgrade the EDID for input x via the RS232 port	`EDIDUgradex.`	
Copy the EDID information from the display device at output x to input y	`EDIDMxBy.`	
Restore the factory default EDID data	`EDIDMInit.`	
HDCP Management	`/%y/x:z.`	
Set HDCP Management to automatic	`%0801.`	
Set HDCP Management to manual	`%0800.`	
Send data from PC to SY-HDBT-70P-R or SY-HDBT-100-R via output x at baud rate y See below for more details	`/+x/y:******.`	
Check the connection status of the inputs	`%9971.`	
Check the connection status of the outputs	`%9972.`	
Check the HDCP status of the inputs	`%9973.`	
Check the HDCP status of the outputs	`%9974.`	
Check the switching status	`%9975.`	
Check the output resolution	`%9976.`	

Notes:

1. Value place holders g, p, x, y and z should be replaced with the actual input and output numbers required for the RS232 command.
2. When selecting multiple outputs each output must be separated by a comma and may appear in any order.
3. The EDIDUpgrade command must have a binary image file containing the new EDID information within 10 seconds of the command being issued.

Sending RS232 Data from a PC to a HDBaseT Receiver

The command to send data from a PC given in the above table is used as follows:

RS232 command: `/+x/y:******.`

Value x represents the output channel to send the RS232 data to. This can be either 1 to 4 for each of the four outputs respectively, or 5 to transmit the data through all four outputs simultaneously.

Value y ranges from 1 to 7 inclusive and represents the transmission baud rate as detailed below:

Y value	baud rate
1	2400
2	4800
3	9600
4	19200
5	38400
6	57600
7	115200

In the above command ****** represents the data to be transmitted to the remote location(s). This data can be up to 48 bytes in length, full stop characters are allowed within the data values, but the last full stop must be present to indicate the end of the command.

Using the EDID Upgrade Command

The EDID upgrade command requires careful consideration because there is a ten second time out period within which the new EDID binary image must be sent to the SY-MHDBT-44P. If no data arrives within that ten second window, then the command is automatically aborted.

The binary image must be a valid EDID data block in multiples of 128 bytes.

Specifications

General

|	
HDMI Resolutions	Up to 1920 x 1200 @ 60Hz, including 1080p
HDMI Standard	HDMI 1.4a – Supports HDCP and 3D
Power Supply	100 to 240V AC, 50 / 60 Hz
Power Consumption	25 W max (Steady state - No output)
RS232	9600, 8 data bits, 1 stop bit, no parity – No handshaking

Environmental

Operating Temperature	0 - 40 °C non condensing

Physical

Dimensions (W x H x D)	483 x 44 x 235 mm (including flanges) – 19 in 1U rack mount
Weight	2.2 kg

Figure 1 – SY-MHDBT-44P Connection Diagram
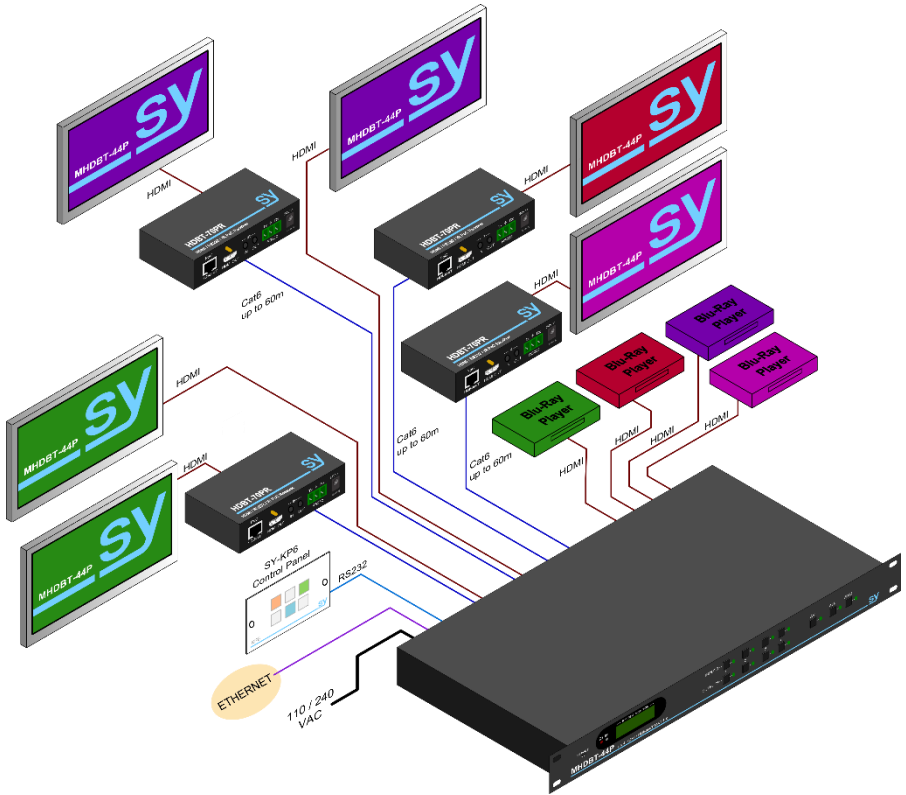
Safety Instructions

To ensure reliable operation of this 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 this product outside the specified temperature and humidity range given in the above specifications.

3. Ensure there is adequate ventilation to allow this product to operate efficiently.

4. Repair of this equipment should only be carried out by qualified professionals as this product contains sensitive devices that may be damaged by any mistreatment.

5. Only use this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with this product.

After Sales Service

1. Should you experience any problems while using this product, 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. This product has a two year standard warranty, beginning from the date of purchase as stated on the sales invoice. Online registration of this product 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.