

Installation Guide

4K HDMI 4x1 Switcher

SY-UHD-S41A

The SY-UHD-S41A is a four-input, single-output HDMI video switcher with both a manual and an auto selection mode. This switcher is useful for switching up to four HDMI sources to a single display device. The switcher can be controlled manually from the front panel or from the included IR remote controller or through the RS232 interface.

Features

- Supports all HDMI resolutions up to 4Kx2K
- Four HDMI video inputs
- One HDMI video output
- Manual switching from front panel or remote RS232 key pad
- Auto input selection should the selected input source fail to output a HDMI signal
- IR remote control for video switching
- RS232 control for video switching
- HDMI 1.4a compatible
- Supports 4Kx2K, full 3D, HDCP and CEC

Connectors and Controls

Front



Name	Description
Power LED	Unit powered
A	Indicates the audio status – Green for de-embedded HDMI or Yellow for ARC mode
M	Indicates switching mode – Green for manual-switching mode or Yellow for auto-switching mode
Input LEDs	Indicates the selected input
Select	For manual selection of the desired input, see Operating instructions for enabling Auto switching mode
SERVICE	Firmware update input

Rear



Name	Description
INPUTS	HDMI inputs from up to 4 HDMI sources
OUTPUT	HDMI output to the HDMI display device
AUDIO	Stereo audio output
RS232	RS232 control input
IR IN	Input for IR detector
EDID Switch	See EDID Management below
5V DC	5V DC Input

SY-UHD-S41A

Using the HDMI Video Switcher

Connect up to 4 HDMI video sources to the HDMI INPUT connector with a HDMI cable from the HDMI source device to the HDMI input of the SY-UHD-S41A. Connect a HDMI cable from the HDMI output of the SY-UHD-S41A to the HDMI display device. Whenever the SY-UHD-S41A is powered up, it will restart in the last state it had before being switched off.

Manual Selection Mode

To use Manual selection mode the M LED must be green. Press and hold Select button for three seconds to set the M LED to green before making manual selections. Press the SELECT button until the desired input is displayed. The numbered LEDs on the front panel confirms that the selection has been made.

Auto Selection Mode

The SY-UHD-S41A has an automatic input selection mode, but this not an auto sequence mode. The auto selection mode ensures that there will always be an image shown on the HDMI display device provided that there is at least one functioning HDMI input signal.

To enable the auto selection mode, press the SELECT button until the Auto LED lights. In this mode the SY-UHD-S41A behaves in the following manner:

1. It will automatically select to the next highest available input whenever the currently selected input source is disconnected.
2. When a new HDMI signal appears at any input, that input is automatically selected.

Manual selection mode is not possible whilst the Auto LED is lit, to return to manual switching mode you must press the SELECT button for three seconds.

Audio Mode LED

The Audio LED indicates the status of the current audio mode:

Green: Embedded HDMI audio, this is default mode or after the `ARC0` & `RS232` command.

Amber: ARC audio output is enabled, this is set after sending the `ARC1` & `RS232` command.

IR Remote Control

The SY-UHD-S41A is supplied with a remote control key pad that allows the operator to change the input selection provided that there is a direct line of sight to the switcher unit. Simply plug in the IR detector to the rear of the SY-UHD-S41A and then make your selection from the IR remote key pad. (Battery: CR2025, not supplied).

SY-UHD-S41A

EDID Management

The SY-UHD-S41A can handle EDID data by any one of three methods:

1. Copy the EDID from the output automatically to all inputs.
2. Use one of five embedded EDID tables, each of which can be upgraded separately.
3. Use one of ten custom EDID data tables, each of can be upgraded separately.

The data for any of the ten custom EDID data tables must be programmed first by using the EDIDUpgrade[x] command before it can be used as these locations are blank by default.

To set which of one these options the SY-UHD-S41A should use, simply set the EDID DIP switch to the desired setting in the following table:

Setting	EDID Mode
DDDD	Copy the output automatically to the inputs
DDDU	Embedded EDID 1 (default: 1080p 3D 2CH)
DDUD	Embedded EDID 2 (default: 1080p 3D Multichannel)
DDUU	Embedded EDID 3 (default: 1080p 2D 2CH)
DUDD	Embedded EDID 4 (default: 1080p 2D Multichannel)
DUDU	Embedded EDID 5 (default: 3840x2160 2D @ 30Hz)
DUUD	Custom EDID 1 – default state is blank
DUUU	Custom EDID 2 – default state is blank
UDDD	Custom EDID 3 – default state is blank
UDDU	Custom EDID 4 – default state is blank
UDUD	Custom EDID 5 – default state is blank
UDUU	Custom EDID 6 – default state is blank
UUDU	Custom EDID 7 – default state is blank
UUUD	Custom EDID 8 – default state is blank
UUUU	Custom EDID 9 – default state is blank
UUUU	Custom EDID 10 – default state is blank

In the above table D means the switch is in its down state and U means it is in its up state.

When upgrading the EDID data tables, the EDIDUpgrade [x] . command should only be used from a serial emulation program that can send the binary EDID image after sending the appropriate EDIDUpgrade [x] . command. Be sure that the binary image only contains valid EDID data block(s) to ensure correct interpretation of the EDID data by the HDMI source equipment.

RS232 Control Commands

The following RS232 commands provide control of the SY-UHD-S41A from a PC, laptop or programmable control panel. The RS232 settings are: 9600 baud, 8 bits, no parity, and 1 stop bit.

Action	Command	Response
Select input 1	1B1.	AV: [spc]1[spc]- >[spc]1[spc][cr][lf]
Select input 2	2B1.	AV: [spc]2[spc]- >[spc]1[spc][cr][lf]
Select input 3	3B1.	AV: [spc]3[spc]- >[spc]1[spc][cr][lf]
Select input 4	4B1.	AV: [spc]4[spc]- >[spc]1[spc][cr][lf]
Turn off the HDMI output	0B0.	Mute[spc]On[spc][cr][lf]
Turn on the HDMI output	0B2.	Mute[spc]Off[spc][cr][lf]
Get the current status info	600%	See note 1
Enable Auto Mode	601%	Auto[spc]Switch[spc][cr][lf]
Disable Auto Mode ^(note 2)	602%	Manual[spc]Switch[spc][cr][lf]
Upgrade internal EDID data	EDIDUpgrade[x].	EDID Upgrade OK!
Set the ARC mode on	ARC1&	Audio Return System
Set the ARC mode off	ARC0&	Switch Device System

Notes:

- The actual response provides the current operating status of the unit giving the switching status, switching mode and the ARC status, for example:


```
AV: [spc]4[spc]->[spc]1[cr][lf]
AV: [spc]2[spc]->[spc]2[cr][lf]
AV: [spc]1[spc]->[spc]3[cr][lf]
AV: [spc]3[spc]->[spc]4[cr][lf]
Manual[spc]Switch[cr][lf]
Switch[spc]Device[spc]System[cr][lf]
```
- Auto mode is also disabled when a manual selection command is transmitted.
- The [spc], [cr] and [lf] represent the single ASCII character value for the space, carriage return and line feed respectively.
- The EDIDUpgrade[x]. command uses values 1 to 5 for the five Embedded EDID data sets and 6-15 for the ten Custom EDID data sets.
The EDIDUpgrade[x]. command should only be used from a serial emulation program that can send the binary EDID image after sending the appropriate EDIDUpgrade[x]. command. Be sure that the binary image only contains valid EDID data block(s) to ensure correct interpretation of the EDID data by the HDMI source equipment.

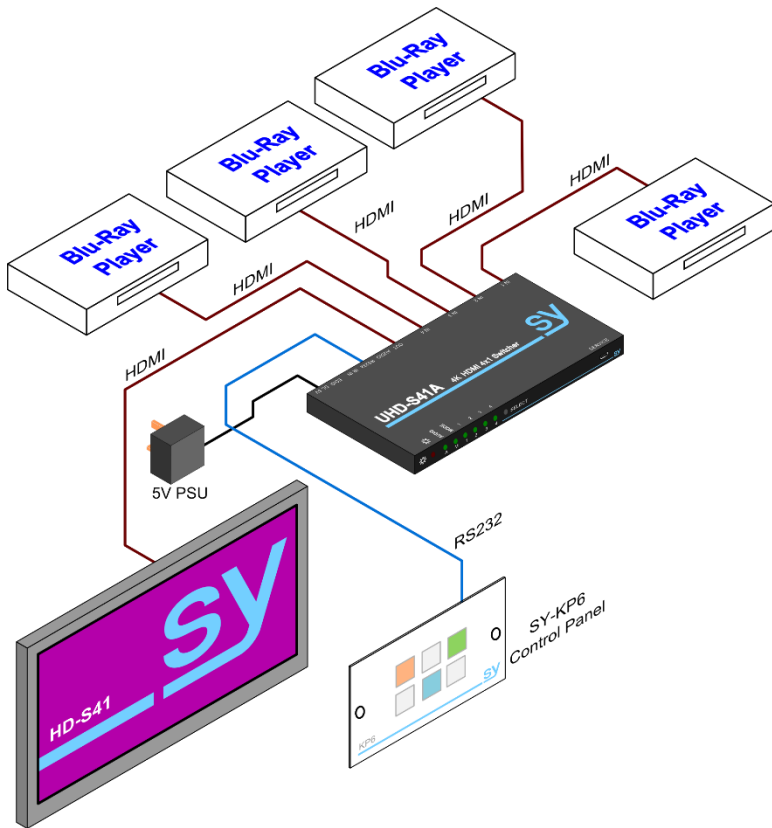


Figure 1 – SY-UHD-S41A Connection Diagram

SY-UHD-S41A

Specifications

General

HDMI Resolutions	480i, 480p, 720i, 720p, 1080i, 1080p, 1920 x 1200, 4K x 2K
HDMI Standard	HDMI 1.4a – Supports HDMI deep colour, full 3D and 4Kx2K @ 30Hz
Power Supply	5V DC
Power Consumption	5 W max
RS232	9600, 8 data bits, 1 stop bit, no parity – No handshaking

Environmental

Operating Temperature	0 - 40 °C non condensing
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Physical

Dimensions (W x H x D)	194 x 11.4 x 80 mm
Weight	160 g

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. 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.