SY-HDS41-18G

User Manual

4x1 HDMI® 2.0 Switcher
Up to 4K60 4:4:4 – 18Gbps

Supports ARC, EDID, HDCP
with front panel, RS232, and IR control

Thank you for purchasing the SY-HDS41-18G

The SY-HDS41-18G is designed with the professional AV installers in mind. The many extensive features assist in system integration, validation and maintenance.

Installation precautions

This SY-HDS41-18G has special circuitry to protect it against moderate surges and static discharges. However, to ensure reliable operation and long service life, it is important to take the necessary precautions against any spikes, surges and static discharges.

Place the units away from heat sources and allow adequate ventilation.

As much as possible, cables should be routed away from any noisy sources and avoiding long runs in close proximity to AC mains cables.

HDMI®
HIGH-DEFINITION MULTIMEDIA INTERFACE

This high-performance HDMI switcher can select a single input from any one of four input sources, each input supports all HDMI formats up to 4K60 4:4:4 (18Gbps) and all HDMI 3D TV formats. This switcher also has support for ARC, HDCP and EDID.

Features

- Up to 4 HDMI inputs to one output
- HDMI 2.0 – 4K60 4:4:4
- Supports all HDMI 3D TV formats
- HDCP 1.4 & HDCP 2.2 compliant
- EDID Management
- Supports ARC with CEC passthrough
- Audio support for LPCM, Dolby TrueHD, DTS-HD Master up to 7.1 channels
- De-embeds HDMI output audio to L/R analogue and optical TosLink
- RS232 control
- IR control

Packing List

- 1x SY-HDS41-18G
- 1x User Manual
- 1x 5V/1A PSU
- 1x RS232 cable – DE-9 to 3.5mm jack
- 1x IR Remote Controller
- 1x IR Eye – needed for IR control
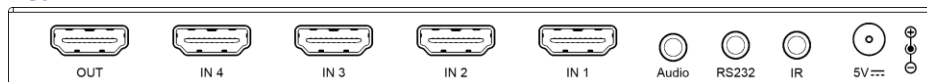- 1x 3.5mm Jack to TosLink adapter
- 2x Mounting ears

Connectors and Controls

Front

Name	Description
Auto LED	Lit when Auto input detection is enabled
In1 ~ In 4	Indicates the currently selected input
Source/Auto	Brief press to select next input Long press to toggle Auto and Manual selection modes
Bypass LED	Indicates that the switcher is using the EDID of the display device
2.0ch	The EDID audio is set to 2.0 ch LPCM
5.1ch	The EDID audio is set to 5.1 ch
7.1ch	The EDID audio is set to 7.1 ch
EDID	Press to change the EDID setting
ARC LED	Lit when ARC mode is enabled
ARC On/Off	Press to toggle the ARC mode

Rear

Name	Description
OUT	Output HDMI to the display device
IN1 ~ IN4	HDMI input connectors
Audio	3.5mm jack for analogue L/R and optical audio output
RS232	RS232 control port
IR	Input for IR Eye
5V DC	Power supply input

Using this Product

Connect the HDMI sources to the inputs.

Connect the display device to HDMI OUT.

If required, connect the IR Eye to the IR input port.

If required, connect the RS232 controller to the RS232 port.

If required, connect an audio device to the audio port, this may be either analogue or optical.

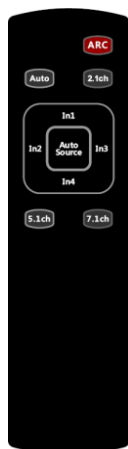Connect the 5V PSU.

Auto and Manual Switching

Press and hold the Source/Auto button to change the switching mode (Auto or Manual).

Auto mode (Auto LED lit) – When a new HDMI input signal (HDMI 5V) is detected, the switcher will automatically select that input. When the signal is removed, the switcher will go to the next highest available input. If no more inputs are available, it will remain on the last selected input.

Manual mode (Auto LED not lit) – Step through HDMI inputs by briefly pressing the Source/Auto button until the desired input is selected.

IR Control

The included IR Remote controller provides all the same functions as the front panel.

ARC	Press to toggle the ARC function, the ARC LED on front panel is lit when ARC function is enabled.
Auto 2.1ch 5.1ch 7.1ch	Use these buttons to select the different EDID audio settings. The corresponding LED on the front panel will light up.
Auto Source	Press to toggle between the Auto and Manual switching modes. The Auto LED on the front panel is lit when Auto switching function is enabled.
In1 In2 In3 In4	Press one of these buttons to manually select an input.

Optical Fibre Adapter

Included is a 3.5mm Mini TosLink to TosLink optical fibre adapter that allows for the connection of standard optical fibre cables to the Combo 3.5mm audio output jack.

RS232 Control

The factory default RS232 settings are:

Baud rate:	57600
Data bits:	8
Parity:	None
Stop Bits:	1

- Spaces in the commands are optional and are only included here for clarity.
- All commands must end with a carriage-return character.
- All responses end with a carriage-return and line-feed character sequence.

Get the Command List

This command lists all the available commands of the switcher:

Command	Response	Description
GET HELP	Command list	Output a list of commands supported by the installed firmware.

Input Switching

The following commands allow for input selection and control of the auto switching mode. The front panel input LEDs will indicate the new setting.

Command	Response	Description
SET IN n	IN n	Select input, where **n** is 1 ~ 4 for the respective input.
GET IN	IN n	Return the current input number, where **n** is 1 ~ 4.
SET AUTOSW x	AUTOSW x	Enable or disable the auto switching mode, where **x** is either ON or OFF.
GET AUTOSW	AUTOSW x	Return the auto switch status, where **x** is either ON or OFF.
SET AUTOMODE n	AUTOMODE n	Set **n** for auto switching mode direction, where 0 = switch to the next lowest, and 1 = switch to the next highest
GET AUTOMODE	AUTOMODE n	Return the direction of the auto switching mode, where **n** is 0 or 1 as stated above.

EDID Audio Settings

The following commands allow for setting the audio mode of the EDID. The front panel EDID LEDs will indicate the new setting.

Command	Response	Description
SET EDID n	EDID n	Select input **n**, where n is 1 ~ 4 as follows: 1 = Use Bypass mode (Use Display audio capability) 2 = Set 2.0 channel stereo audio 3 = Set 5.1 channel Dolby/DTS audio 4 = Set 7.1 channel HD Audio
GET EDID	EDID n	Return the current input number, where **n** is 1 ~ 4.

Audio Return Channel (ARC) Mode

The following commands allow for setting the switcher ARC mode. The front panel ARC LED shows current operational mode.

Command	Response	Description
SET ARC x	ARC x	Enable or disable the ARC mode, where **x** is either ON or OFF.
GET ARC	ARC x	Return the ARC status, where x is either ON or OFF.

Set the Output HDCP Mode

These commands set or return the status of the output HDCP:

Command	Response	Description
SET HDCP x	HDCP x	Select the output HDCP mode. where **x** is one of the following: 14 = Force HDCP 1.4 22 = Force HDCP 2.2 AUTO = Follow input CAS = Set to cascade mode
GET HDCP	HDCP x	Return the current output HDCP mode, where **x** is one of the values given above.

Get the Input Signal and Output Signal Status

These commands return the status of the input and output HDMI signals:

Command	Response	Description
GET INn	INx	Determine the input HDMI status, where **n** is 1~4, and **x** is either OK or NG (no signal).
GET OUT	OUTx	Determine the output HDMI status, where **x** is either OK or NG (no signal).

Set or Get the Output HDMI Signal

These commands return the status of the input and output HDMI signals:

Command	Response	Description
SET OUT x	OUT x	Enable or disable the output signal, where **x** is either ON or OFF.
GET TMDS	OUTx	Return the output signal status, where **x** is either ON or OFF.

Change the RS232 Baud Rate

This command allows a different RS232 baud rate to be set. Switching to a slower baud rate may be necessary with long cable runs for RS232 control.

Note: After sending this command, the controller will need to switch to the new baud rate to maintain control of the switcher.

Command	Response	Description
SET BAUD x	No response	Set the baud rate to one of the following: **x**: 9600, 19200, 38400 or 57600.

For example, the command **SET BAUD 38400** will change the baud rate of the switcher to 38400.

Specifications

General

HDMI Resolutions	All HDMI resolutions up to 4K60 4:4:4
HDMI Standard	Up to HDMI 2.0
HDCP Compliance	HDCP 1.4 & HDCP 2.2
HDMI Audio	L-PCM 2.0, 5.1 & 7.1 Dolby 5.1, DTS 5.1, Dolby True-HD, and DTS-HD
Analogue Audio	L/R only, at 0.775Vrms max. (Front Left & Front Right only when not using 2.0 audio)
HDMI Cable Length (in & out)	15m @ 1080p60, 10m @ 4K30, 5m @ 4K60 Use of Premium High-Speed HDMI cable is highly recommended
Power Supply	5V 1A
Power Consumption	2.5W max.
Remote Control Battery	CR2032 (3V button cell)

Environmental

Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Operating Humidity	10 ~ 90% RH (non-condensing)

Physical

Dimensions (WxHxD)	180 x 15 x 84 mm
Weight	365 g

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. **ONLY USE** the power supply 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 this product outside the specified temperature and humidity range given in the above specifications.

3. Ensure there is adequate ventilation as this product generates heat while operating.

4. Repair of this product 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 indoors and 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 your local dealer before contacting SY Technical Support.

2. When calling SY Technical Support, please provide the following information:
   - Full 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. For full details please refer to our Terms and Conditions.

4. The 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.