User Manual

# SY-MS42-18G

## 4x2 HDMI 2.0 18G Matrix Switcher

4K60 4:4:4 HDMI Switcher with Scalable Outputs
and Display control

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# CONTENTS

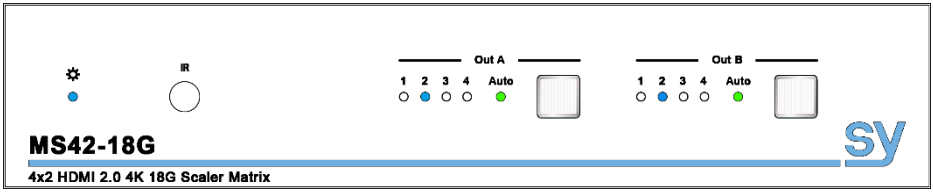
The SY-MS42-18G is an 18G HDMI video switcher with 4 HDMI inputs and 2 scaling HDMI outputs. Each input and output supports up to 4K60 444 HDMI 18G video. The outputs can be individually scaled for 1080p or HDBaseT compatibility. De-embedded audio as analogue L+R and optical TosLink is available for both outputs. The SY-MS42-18G can automatically control the display device using RS232, CEC or IR when the last input signal is lost, or when the first video input is detected. This switcher can be controlled from the front panel, RS232, IR, or LAN.

# Features

- Four 18G HDMI 2.0 video inputs supporting up to 4K60 444 resolution
- Two 18G HDMI 2.0 video outputs supporting up to 4K60 444 resolution
- Both outputs can be individually scaled for 4K → 1080p or HDBaseT mode
- Four methods of control: Front panel, RS232, IR and LAN
- Automatic RS232, CEC and IR control of the display device power state
- Analogue and TosLink de-embedded audio outputs for each HDMI output
- Supports ARC function
- Test Pattern Generator for testing output signal integrity to the display
- Built-in WebGUI for LAN control
- 12V 1A DC PSU

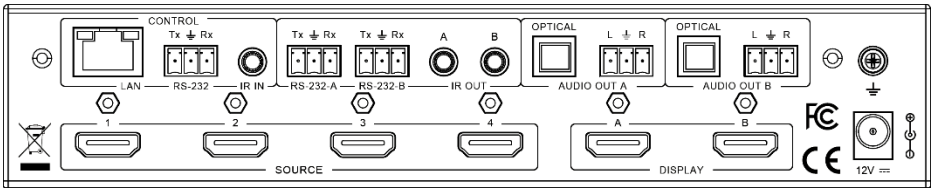
# Panel Description

## Front Panel




| Name | Description |
|---|---|
| **POWER LED** | Blue LED indicates that the unit is powered<br>Red LED indicates that the unit is in standby mode |
| **IR Sensor** | IR input for remote control of the switcher |
| **Out A /Out B** | LED and button for each output |
| **LED 1 to LED 4** | Indicates the input selected for the respective output |
| **AUTO LED** | Green when Auto Detection mode is enabled |
| **Push Button** | Press to select the desired input<br>Hold down to toggle the Auto Detection mode |

## Rear Panel



| Name | Description |
|---|---|
| **LAN RJ45** | Control port for LAN control or accessing the built-in WebGUI |
| **RS232** | 3-way pluggable connector for RS232 control of the SY-MS42-18G |
| **IR IN** | IR Eye input for IR control of the SY-MS42-18G |
| **RS232-A / RS232-B** | 3-way pluggable connectors for RS232 of the display devices |
| **IR OUT A / IR OUT B** | 3.5mm jack connectors for IR emitters |
| **Optical Audio Output A** | TosLink connector for optical audio from HDMI Output A |
| **L / R Audio Output A** | 3-way pluggable connector for stereo audio from HDMI Output A |
| **Optical Audio Output B** | TosLink connector for optical audio from HDMI Output B |
| **L / R Audio Output B** | 3-way pluggable connector for stereo audio from HDMI Output B |
| **Earthing Point** | Screw terminal for earthing the SY-MS42-18G |
| **HDMI Inputs 1 to 4** | HDMI Source inputs 1 to 4 |
| **Display Outputs A and B** | HDMI outputs for displays A and B |
| **12V DC IN** | 12V DC input for 12V 1A PSU |

# Connecting to the SY-MS42-18G

1. Connect the desired HDMI input sources.
2. Connect the desired HDMI display devices.
3. Connect any CONTROL inputs that may be required: LAN, RS232, or IR IN
4. Connect any Display control port: RS232-A, RS232-B, IR OUT A or IR OUT B
5. Connect any audio devices to either the Optical or L+R outputs
6. Connect the 12V DC PSU

# Using the SY-MS42-18G

## Power LED and Standby Mode

The Power LED provides the following indications:

| Colour | Description |
|---|---|
| **Blue** | The SY-MS42-18G is active and fully controllable |
| **Red** | The SY-MS42-18G is in standby mode, this state can be changed by using RS232 or LAN commands, or from the WebGUI interface |

## Auto LED and Button

The green AUTO LED for both outputs A and B is lit when that channel has its Auto Detection mode active. Auto Detection mode will detect any new HDMI signals and immediately switch to that input. If the currently selected input is removed then the switcher will switch to the next available input, or remain on the current input if there are no more active HDMI input signals. The change the Auto Detection mode, press and hold the button for that channel for 3 seconds until the Auto LED changes state.

## Selecting Inputs

Manual Selection of the inputs is done by briefly pressing the push button repeatedly for that channel until the desired input is selected. Manual selection is always possible, irrespective of the Auto LED state. Selected inputs that have no signal will be indicated by a flashing LED.

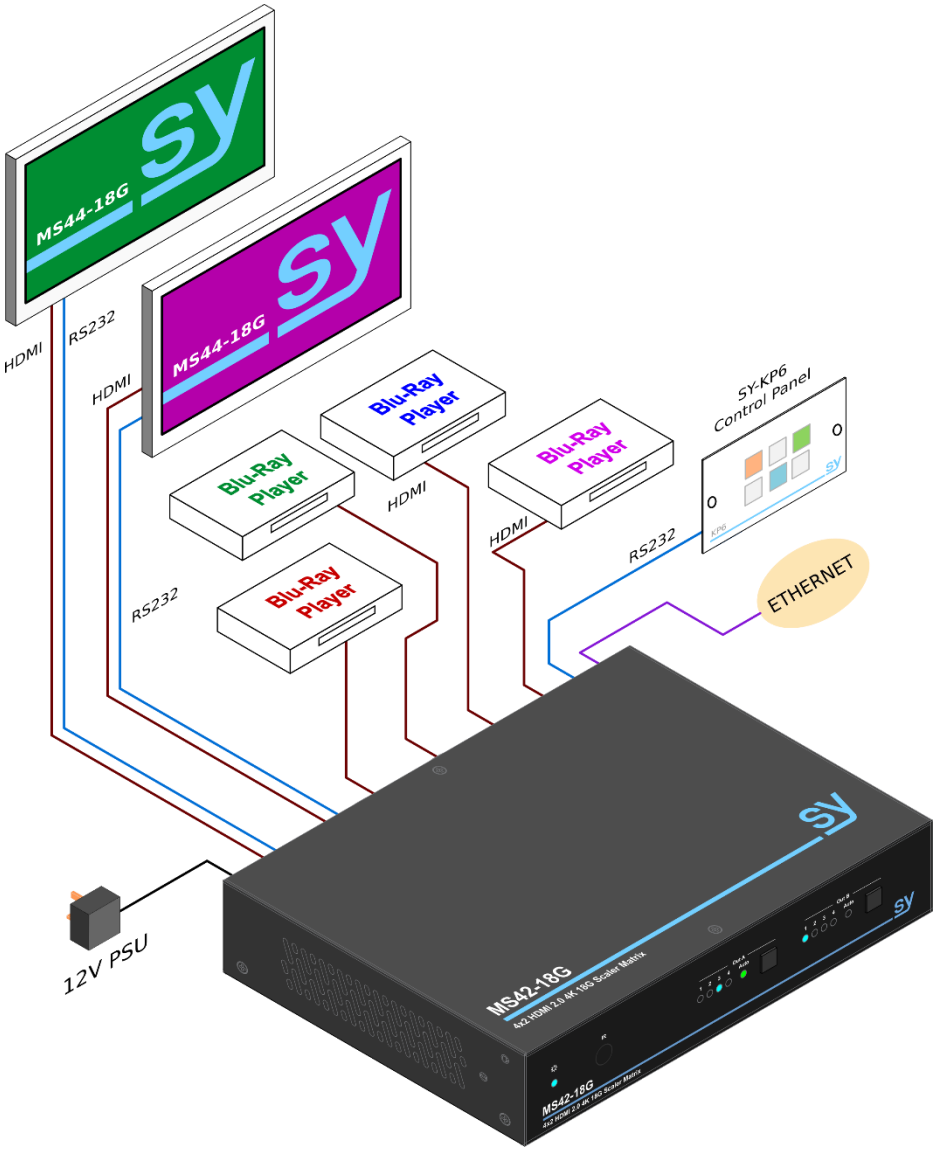



*Figure 1 - SY-MS42-18G Configuration Example*

# RS232 and LAN Control

The SY-MS42-18G can be controlled using RS232 the following settings:

| | |
|---|---|
| Baudrate: | 57600 |
| Data bits: | 8 |
| Parity: | None |
| Stop bits: | 1 |

Each of the following commands can also be sent to the IP address of the LAN port using the either of the following port settings:

| | |
|---|---|
| TCP/IP Port: | 8000 |
| Telnet Port: | 23 |

The default IP settings are:

| | |
|---|---|
| IP Address: | 192.168.1.100 |
| Subnet Mask: | 255.255.255.0 |
| IP Mode: | Static |

**Important:**

1. All messages sent to the SY-MS42-18G must be terminated with an exclamation mark (!). Any carriage return that is present after the end of the command will be ignored.
2. All spaces shown in the commands are required.
3. All response messages are terminated by a CR/LF sequence.
4. When all four inputs are requested by the same command, the response will report each input on a separate line.
5. When both outputs are requested by the same command, the response will report each output on a separate line.

# Input Control Commands

## Making Video Selections

The following command allows the direct selection of any input to either or both outputs.
The read command returns the input that is currently displayed on the either or both outputs.

| | |
|---|---|
| Set Command: | **s in x av out y!** |
| Read Command: | **r av out y!** |
| Responses: | **input x -> output y** |
| Where: | x is the input number, 1 to 4 for inputs 1 to 4<br>y is the output number, 0 to 2:<br>0 = Both outputs,<br>1 = Out A only<br>2 = Out B only. |

## Using the Preset Memories

The SY-MS44-18G has four preset memory locations that may be used to store and recall specific switcher modes and video routings.

| | |
|---|---|
| Save Command: | **s save preset z!** |
| Recall Command: | **s recall preset z!** |
| Responses: | **save preset z** |

| | |
|---|---|
| | **recall preset z** |
| Where: | z is the preset memory number from 1 to 4 |

## Auto Switch Enable/Disable

This command enables or disables the auto switch mode for either or both outputs. This mode is identical to using either of the AUTO front panel buttons.

| | | |
|---|---|---|
| Set Command: | **s hdmi y autoswitch z!** | |
| Read Command: | **r hdmi y autoswitch!** | |
| Responses: | **hdmi y autoswitch z** | |
| Where: | y is the output number, 0 to 2:<br>0 = Both outputs,<br>1 = Out A only<br>2 = Out B only | z is the enable/disable setting:<br>0 = Disable<br>1 = Enable |

The stored settings for any of the four presets can be examined using the following command.

| | |
|---|---|
| Read Command: | **r preset z!** |
| Responses: | The response to this command contains the following information:<br>Video routing<br>Audio routing<br>Input EDID settings<br>Output Scaler settings<br>Output HDCP settings |

# Output Control Commands

## Setting the Output Scaler

The output may be scaled to best match the output signal to the display device. When HDBaseT extenders are being used on an output, the HDBaseT scaling mode will ensure compatibility by limiting the maximum TMDS speed to no more than 10.2Gbps.

| | | |
|---|---|---|
| Set Command: | **s hdmi y scaler z!** | |
| Read Command: | **r hdmi y scaler!** | |
| Responses: | **hdmi output y set to bypass mode**<br>**hdmi output y set to 4K -> 1080p**<br>**hdmi output y set to HDBT mode**<br>**hdmi output y set to auto mode** | |
| Where: | y is the output number, 0 to 2:<br>0 = Both outputs,<br>1 = Out A only<br>2 = Out B only | z is the scaler setting, 1 to 4:<br>1 = Bypass (no scaling)<br>2 = 4k → 1080p<br>3 = HDBaseT Mode<br>4 = Auto |

## Video Output Enable/Disable

The HDMI output stream may be enabled or disabled as required.

| | |
|---|---|
| Set Command: | **s hdmi y stream z!** |
| Read Command: | **r hdmi y stream!** |
| Responses: | **enable hdmi output stream y**<br>**disable hdmi output stream y** |
| Where: | y is the output number, 0 to 2:<br>0 = Both outputs,<br>1 = Out A only<br>2 = Out B only.<br>z is the enable/disable setting:<br>0 = Disable (no HDMI output)<br>1 = Enable (HDMI is output) |

## Output HDCP Control

The HDCP setting of the outputs can be set using this command.

| | |
|---|---|
| Set Command: | **s hdmi y hdcp z!** |
| Read Command: | **r hdmi y hdcp!** |
| Responses: | **hdmi out y hdcp off**<br>**hdmi out y hdcp follow sink**<br>**hdmi out y hdcp follow source** |
| Where: | y is the output number, 0 to 2:<br>0 = Both outputs,<br>1 = Out A only<br>2 = Out B only.<br>z is the HDCP mode setting, 0 to 2:<br>0 = HDCP off<br>1 = Follow sink (use the HDCP setting of the display)<br>2 = Follow source (output has same HDCP setting as input) |

## Output ARC Control

The HDMI outputs can be set to decode the Audio Return Channel (ARC) from the display device.

The ARC signal is always routed back to the respective input for each or both of the outputs.

| | |
|---|---|
| Set Command: | **s hdmi y arc z!** |
| Read Command: | **r hdmi y arc!** |
| Responses: | **hdmi y arc on**<br>**hdmi y arc off** |
| Where: | y is the output number, 0 to 2:<br>0 = Both outputs,<br>1 = Out A only<br>2 = Out B only.<br>z is the ARC mode setting:<br>0 = ARC off (de-embed HDMI)<br>1 = ARC on (decode ARC) |

## Mute/Unmute the S/PDIF Outputs

The SY-MS42-18G has two S/PDIF (TosLink) outputs for outputs A and B respectively. This can be selectively muted or unmuted.

| | |
|---|---|
| Set Command: | **s spdif x mute y!** |
| Read Command: | **r spdif x mute!** |
| Responses: | **spdif x mute**<br>**spdif x unmute** |
| Where: | y is the output number, 0 to 2:<br>1 = S/PDIF output A only<br>2 = S/PDIF output B only.<br><br>y is the S/PDIF mute setting:<br>0 = Unmute<br>1 = Mute |

## Using the Test Pattern Mode

The outputs can be used as simple test pattern generators for checking the HDMI signal to the displays when there are no other source signals available.

Two commands are required to fully enable the test pattern output:

1. Select the desired test pattern
2. Enable the test pattern mode on the output/s

Only one command is needed to turn off the test pattern mode.

If you need to change the test pattern, do the following:

1. Select the new test pattern
2. Turn off the test pattern mode
3. Turn the test pattern mode back on

### *Selecting the Test Pattern*

| | |
|---|---|
| Set Command: | **s pattern mode z!** |
| Responses: | **set pattern Checkerboard**<br>**set pattern White**<br>**set pattern Red**<br>**set pattern Green**<br>**set pattern Blue**<br>**set pattern Black** |
| Where: | z is the test pattern setting:<br>1 = Select Checkerboard test pattern<br>2 = Select White test pattern<br>3 = Select Red test pattern<br>4 = Select Green test pattern<br>5 = Select Blue test pattern<br>6 = Select Black test pattern |

*Enable/Disable Test Pattern Mode*

| | |
|---|---|
| Set Command: | **s hdmi y pattern z!** |
| Read Command: | **r hdmi y pattern!** |
| Responses: | **hdmi out y test pattern on**<br>**hdmi out y test pattern off** |
| Where: | y is the output number, 0 to 2:<br>0 = Both outputs,<br>1 = Out A only<br>2 = Out B only.<br>z is the test pattern setting:<br>0 = Test Pattern off<br>1 = Test Pattern on |

# EDID Management

The following commands provide EDID management for the HDMI inputs.

## Setting the Input EDID Mode

| | |
|---|---|
| Set Command: | **s edid x from z!** |
| Read Command: | **r edid in x!** |
| Response example: | **In1: 1080p,Stereo Audio 2.0** |
| Where: | x is the output number:<br>0 = All inputs,<br>1 = Input 1 only<br>2 = Input 2 only<br>3 = Input 3 only<br>4 = input 4 only<br>z is the EDID setting, 1 to 24:<br>1 = 1080p,Stereo Audio 2.0<br>2 = 1080p,Dolby/DTS 5.1<br>3 = 1080p,HD Audio 7.1<br>4 = 1080i,Stereo Audio 2.0<br>5 = 1080i,Dolby/DTS 5.1<br>6 = 1080i,HD Audio 7.1<br>7 = 3D,Stereo Audio 2.0<br>8 = 3D,Dolby/DTS 5.1<br>9 = 3D,HD Audio 7.1<br>10 = 1280x800,Stereo Audio 2.0<br>11 = 1920x1200,Stereo Audio 2.0<br>12 = 4K2K 30Hz,444 Stereo Audio 2.0<br>13 = 4K2K 30Hz,444 Dolby/DTS 5.1<br>14 = 4K2K 30Hz,444 HD Audio 7.1<br>15 = 4K2K 60Hz,420 Stereo Audio 2.0<br>16 = 4K2K 60Hz,420 Dolby/DTS 5.1<br>17 = 4K2K 60Hz,420 HD Audio 7.1<br>18 = 4K2K 60Hz,444 Stereo Audio 2.0<br>19 = 4K2K 60Hz,444 Dolby/DTS 5.1<br>20 = 4K2K 60Hz,444 HD Audio 7.1<br>21 = USER1<br>22 = USER2<br>23 = Copy from HDMI output A<br>24 = Copy from HDMI output B |

The two User EDID locations, USER1 and USER2, can only be programmed using the **Input** tab of the built-in web interface. There are no RS232 commands to program the User EDID locations.

# System Commands

There are several commands that can be used to obtain information about the status of the SY-MS42-18G. Some of these commands output a large amount of data and are best used with a terminal emulator program.

There are also three system specific commands: **Reboot**, **Power** and **Reset**.

## Reading System Information

In most cases the response information given in the following sections is an example only, as the actual response will be different in accordance with the actual status of the SY-MS42-18G.

*List All Available Commands:*

| | |
|---|---|
| Read Command: | **help!** |
| Response: | All the available commands are output on separate lines |

*Get the Device Type:*

| | |
|---|---|
| Read Command: | **r device!** |
| Response: | **SY-MS42-18G** |

*Get the Current Status:*

| | |
|---|---|
| Read Command: | **r status!** |
| Response: | A complete report of the current status of the SY-MS42-18G will be output. |

*Get the Firmware Version:*

| | |
|---|---|
| Read Command: | **r fw version!** |
| Response: | **MCU APP : V1.10.23**<br>**WEB GUI : V1.26** |

*Get the Power Status of the SY-MS42-18G*

| | |
|---|---|
| Read Command: | **r power!** |
| Responses: | **power on**<br>**power off** |

*Get the Connection Status of the Inputs:*

Note that a response message will be automatically sent whenever an input signal state changes.

| | |
|---|---|
| Read Command: | **r link in x!** |
| Responses: | **hdmi inx: connect**<br>**hdmi inx: diconnect** |
| Where: | x is the input number 1 to 4 for inputs 1 to 4, or 0 for all inputs |

*Get the Connection Status of the Outputs:*

Note that a response message will be automatically sent whenever an output cable is connected or removed.

| | |
|---|---|
| Read Command: | **r link out y!** |
| Response: | **hdmi outy: connect**<br>**hdmi outy: diconnect** |
| Where: | y is the input number 1 to 2 for output A or B, respectively |

*Change the Power state:*

| | |
|---|---|
| Set Command: | **s power!** |
| Responses: | **power on**<br>**power off** |

*Reboot the SY-MS42-18G:*

| | |
|---|---|
| Set Command: | **s reboot!** |
| Response: | The response is identical to that when the SY-MS42-18G is powered up. |

*Reset the SY-MS42-18G to Factory Settings:*

| | |
|---|---|
| Set Command: | **s reset!** |
| Response: | The response is identical to that when the SY-MS42-18G is powered up. |

## Network Commands

The SY-MS42-18G has several network setting commands to make configuring the network settings as easy as possible.

*Get all Network Settings:*

| | |
|---|---|
| Read Command: | **r ipconfig!** |
| Response: | Returns the complete network configuration settings. See the following sections for examples of the response messages. |

*Read the MAC Address:*

| | |
|---|---|
| Read Command: | **r mac addr!** |
| Response: | Returns the six octets of the MAC address |

*Set/Get the DHCP Mode:*

| | |
|---|---|
| Set Command: | **s ip mode z!** |
| Read Command: | **r ip mode!** |
| Response: | Returns the six octets od the MAC address separated by hyphens |
| Where: | Z is the new DHCP mode:<br>0 = Static IP<br>1 = DHCP |

*Set/Get the IP Address:*

| | |
|---|---|
| Set Command: | **s ip addr xxx.xxx.xxx.xxx!** |
| Read Command: | **r ip addr!** |
| Response: | **xxx.xxx.xxx.xxx** |
| Where: | xxx represents the required four elements of the IP address. The values can be expressed one, two or three decimal values. |

*Set/Get the IP Subnet Mask:*

| | |
|---|---|
| Set Command: | **s subnet xxx.xxx.xxx.xxx!** |
| Read Command: | **r subnet!** |
| Response: | **xxx.xxx.xxx.xxx** |
| Where: | xxx represents the required four elements of the subnet mask. The values can be expressed one, two or three decimal values. |

*Set/Get the Gateway Address:*

| | |
|---|---|
| Set Command: | **s gateway xxx.xxx.xxx.xxx!** |
| Read Command: | **r gateway!** |
| Response: | **xxx.xxx.xxx.xxx** |
| Where: | xxx represents the required four elements of the IP address of the default gateway on the network. The values can be expressed one, two or three decimal values. |

*Set/Get the TCP/IP Port Address:*

| | |
|---|---|
| Set Command: | **s tcp/ip port x!** |
| Read Command: | **r tcp/ip port!** |
| Response: | **x** |
| Where: | x represents the TCP/IP port number |

*Set/Get the Telnet Port Address:*

| | |
|---|---|
| Set Command: | **s telnet port x!** |
| Read Command: | **r telnet port!** |
| Response: | **x** |
| Where: | x represents the TCP/IP port number |

*Rebooting the Network Interface:*

| | |
|---|---|
| Set Command: | **s reboot!** |
| Response: | The response is identical to that when the SY-MS42-18G is powered up. |

## Sending Display CEC Commands

The SY-MS42-18G is capable of sending CEC commands direct to the HDMI display. All CEC values in this command must be given in two character hexadecimal notation.

| | |
|---|---|
| Set Command: | **s cec cmd (PORT)(ADDRESS)(OPCODE)(ARGS)end!** |
| Response: | **PORT:HAMI OUT x**<br>**SOURCE:ss**<br>**DESTINATION:dd**<br>**OPCODE:oo**<br>**ARGS:** |
| Where: | **(PORT)** is the HDMI output port: 1 = Output A and 2 = Output B<br>**(ADDRESS)** is the CEC address field given as Source+Destination<br>**(OPCODE)** is the hexadecimal CEC command code<br>**(ARGS)** represents any additional parameters required by the CEC command code. The (ARGS) field is optional. |

## Sending Display RS232 Commands

The SY-MS42-18G is capable of sending RS232 commands direct to the HDMI display using RS232 ports A and B. For this command, the leading zeros are required.

| | |
|---|---|
| Set Command: | **s rs232 (port) (format) (baudrate) (databit) (parity) (stopbit) (cmdterminating) [cmddata]!** |
| Response example: | Format: ASCII<br>Baudrate: 9600<br>Databit: 8bit<br>Parity: none<br>Stopbit: 1bit<br>Terminator: cr<br>Data: xb 00 90 |
| Where: | **(port)** is the HDMI output port:<br>01 = RS232 A<br>02 = RS232 B<br>**(format)** is the command representation format:<br>00 = ASCII 01 = Hexadecimal |

| | |
|---|---|
| | **(buadrate)** is the transmission baudrate:<br>00 = 4800, 01 = 9600, 02 = 19200,<br>03 = 38400, 04 = 57600 05 = 115200<br>**(databit)** is the number of data bits:<br>00 = 7 bits 01 = 8 bits<br>**(parity)** is the partiy mode:<br>00 = none 01 = odd 02 = even<br>**(stopbit)** is the number of stop bits:<br>00 = 1 stop bit 01 = two stop bits<br>**(cmdterminating)** is the command termination mode:<br>00 = none 01 = CR only<br>02 = LF only 03 = CR+LF<br>**[cmddata]** the command data, without the specifed terminating values, to send. This must match with the value given in the (format) specifier and the actual command must be enclosed with the square brackets. See the examples given below. |

*Command Examples:*

Both the following examples use port settings of 9600, no parity, 8 bits and 1 stop bit.

- To set an LG display on RS232-A to HDMI 1, in ASCII with a CR command terminator:

```
s rs232 01 00 01 01 00 00 01 [xb 00 90]!
```

- To set an Iiyama display on RS232-B to HDMI 1, in Hex with no command terminator:

```
s rs232 02 01 01 01 00 00 00 [AA BB CC 02 06 00 08 dd ee ff]!
```

Note that for hexadecimal notation that case does not matter.

## Auto Power Options

When the last input signal is lost, the RS232, CEC or IR power off command will be sent to the display devices after the autopower off time has elapsed.

When the first detected HDMI signal is detect the RS232, CEC or IR power on command will be sent to the display devices after the autopower on time has elapsed.

This feature can also be enabled or disabled.

*Enable/Disable the Autopower Mode*

| | |
|---|---|
| Set Command: | **s autopower z!** |
| Read Command: | **r autopower!** |
| Responses: | **Display autopower control enable**<br>**Display autopower control disable** |
| Where: | z is the autopower mode state:<br>0 = disable autopower mode or is off<br>1 = enable autopower mode or is on |

*Setting the Autopower Mode:*

| | |
|---|---|
| Set Command: | **s autopower mode z!** |
| Read Command: | **r autopower mode!** |
| Responses: | **Display autopower control is by RS-232**<br>**Display autopower control is by CEC**<br>**Display autopower control is by IR** |
| Where: | z is the autopower mode state:<br>1 = autopower mode = RS232<br>2 = autopower mode = CEC 3 = autopower mode = IR |

*Setting the Auto-power off Time*

This command sets the number of seconds before the autopower off command is sent after the last HDMI signal is lost.

| | |
|---|---|
| Set Command: | **s autopower off time z!** |
| Read Command: | **r autopower off time!** |
| Response: | **Display autopower off timeout is z seconds** |
| Where: | z is the number of seconds to wait before sending the display off command in the range 0 to 600. |

*Setting the Auto-power on Time*

This command sets the number of seconds before the autopower on command is sent after the first HDMI signal is detected.

| | |
|---|---|
| Set Command: | **s autopower on time z!** |
| Read Command: | **r autopower on time!** |
| Response: | **Display autopower on timeout is z seconds** |
| Where: | z is the number of seconds to wait before sending the display off command in the range 0 to 600. |

# Using the Built-In Web Interface

The SY-MS42-18G has a built-in web interface to provide a means of controlling or configuring various settings within the switcher. There are seven pages available, each of which will be outlined in detail in the following sections.

The seven pages are:

1. **Status** – Displays information about the firmware and IP settings
2. **Switch** – Control the video routing and enabling the test pattern mode
3. **Input** – Displays information about the input signals and EDID settings
4. **Output** – Displays information about the output signals and scaler options
5. **Network** – Allows basic network setting management and login options
6. **System** – Serial baudrate, test pattern setting and firmware update
7. **Control** – Auto Power Control Settings and Commands

Note these seven pages are only accessible in **Admin** mode, when **User** mode is used only the **Status** and **Switch** pages are available.

The default IP settings are:

| | |
|---|---|
| IP Address: | 192.168.1.100 |
| Subnet Mask: | 255.255.255.0 |
| IP Mode: | Static |

To access the web interface, enter the IP address of the SY-MS42-18G into the address bar of any web browser. If the IP address is not known, use the RS232 commands given in the Network Commands section on page 13 to discover the IP address of the switcher. After entering the IP address the following log in screen will appear:

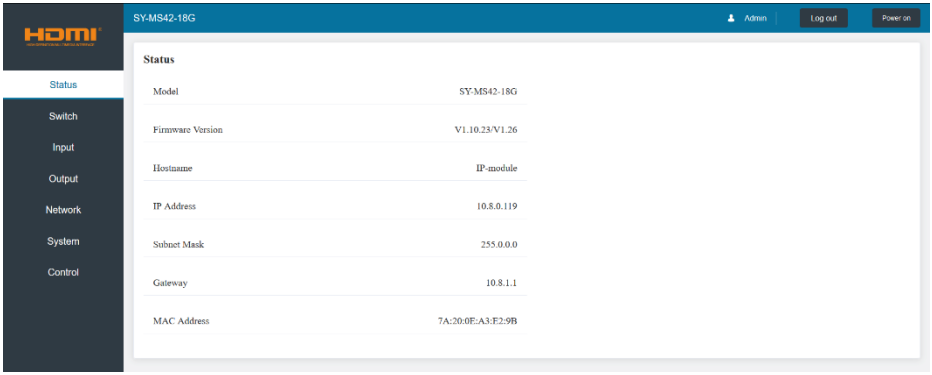

Select the Username from the list and enter the password. The default passwords are:

| | | |
|---|---|---|
| Username | **User** | **Admin** |
| Password | **user** | **admin** |

After entering the log in details, click the LOGIN button and the following Status page will appear.

## Status Page

The Status page provides basic information about the product Model name, the installed firmware versions and the network settings. This page is visible in both User and Admin modes.

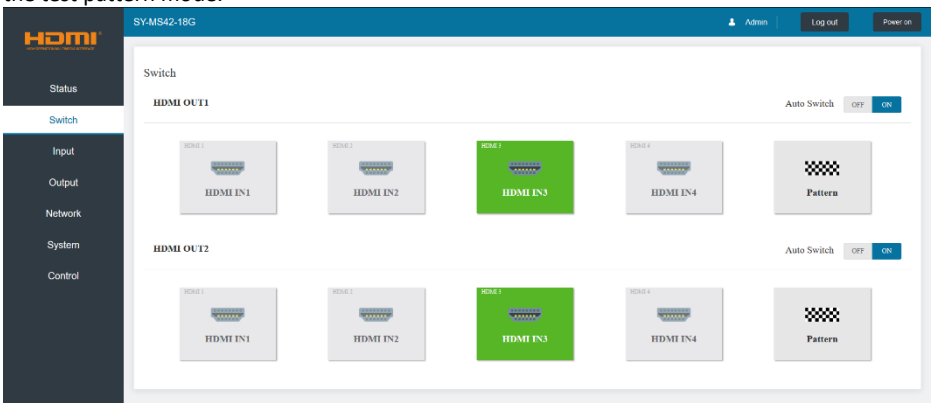



The buttons at the top right of the web interface are always available and provide the following functions:

- The **Log out** button will disconnect the current user from the session and display the log in screen.
- The **Power On** button changes the power status of the SY-MS42-18G between On and Stand-by mode.

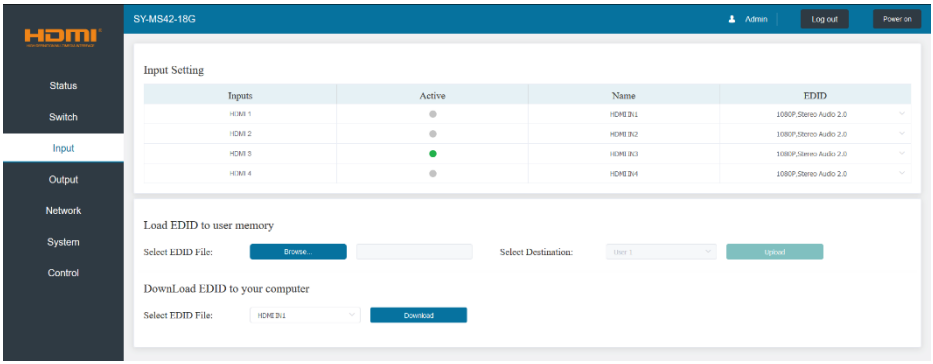
# Switch Page

The Switch page allows selection of the inputs sources, set the Auto Switch mode and to enable the test pattern mode.




# Input Page

The Input page provide information about which inputs are connected and have a signal present. The inputs can be giving more meaningful names, if desired. The EDID column provides a list of EDID options for each individual input.




The following EDID options are available in any of the EDID drop-down lists:

1080p, Stereo Audio 2.0
1080p, Dolby/DTS 5.1
1080p, HD Audio 7.1
1080i, Stereo Audio 2.0
1080i, Dolby/DTS 5.1
1080i, HD Audio 7.1
1080p 3D, Stereo Audio 2.0
1080p 3D, Dolby/DTS 5.1
1080p 3D, HD Audio 7.1
1280x800, Stereo Audio 2.0
1920x1200, Stereo Audio 2.0

4K2K 30Hz, 444 Stereo Audio 2.0
4K2K 30Hz, 444 Dolby/DTS 5.1
4K2K 30Hz, 444 HD Audio 7.1
4K2K 60Hz, 420 Stereo Audio 2.0
4K2K 60Hz, 420 Dolby/DTS 5.1
4K2K 60Hz, 420 HD Audio 7.1
4K2K 60Hz, 444 Stereo Audio 2.0
4K2K 60Hz, 444 Dolby/DTS 5.1
4K2K 60Hz, 444 HD Audio 7.1
USER1
USER2
Copy from HDMI output A
Copy from HDMI output B

Note that the **User 1** and **User 2** are global EDID memories only. Any inputs that is set to one of these memories will always use the same EDID data from **User 1** or **User 2** respectively.

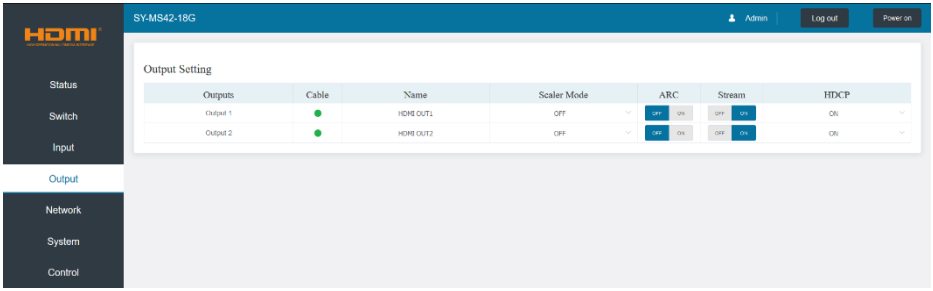
This page also provides a means of sending a binary EDID image file to either **User 1** or **User 2** EDID memories:

1. Select the binary EDID image file on your PC by click on the **Browse** button.
2. Select either **User 1** or **User 2** from the drop-down list.
3. Click the **Upload** button.

The EDID data from any input or from the **User 1** and **User 2** locations can be read and stored on your PC.

# Output Page

The Output page provides information about the signal status of the outputs. The outputs can also be assigned meaningful names, if so desired.




The scaler mode menu provides the following options:

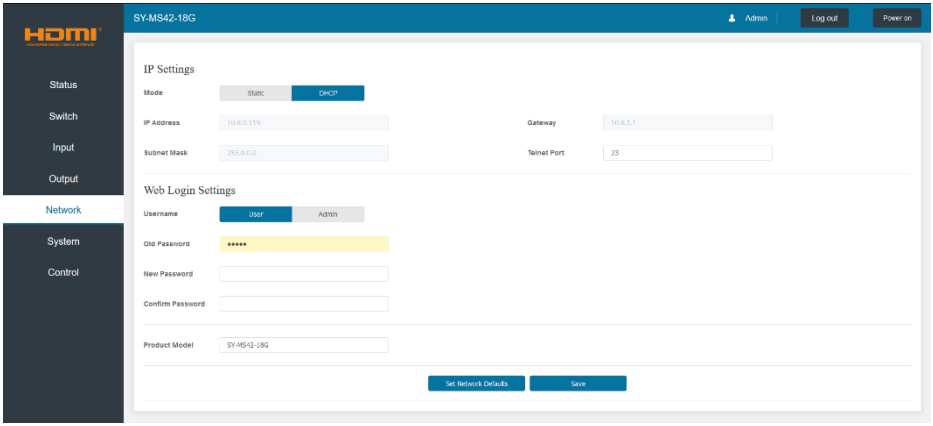
| | |
|---|---|
| **Off** | No scaling |
| **4K→ 1080p** | Downscale to 1080p, if needed |
| **HDBT Mode** | Downscale to no more than 10.2Gbps for HDBaseT compliance |
| **Auto** | Scale to match the display requirements |

The **ARC** buttons enable or disable the ARC decoding to the analogue audio outputs.
The **Stream** buttons enable or disable the output signal for the respective output.
The **HDCP** buttons enable or disable HDCP at the respective HDMI output.

# Network Page

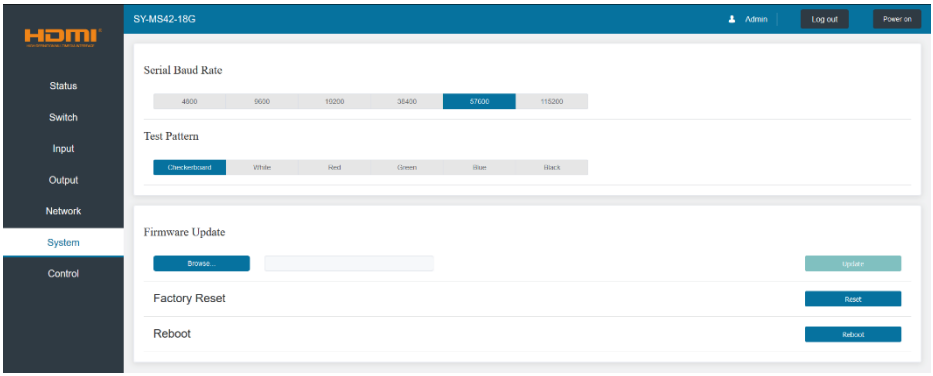
The Network page allows the configuration of the network settings. Note that the IP address boxes are only accessible when the **Mode** button is set to **Static**.
The log in passwords can be changes on this page.

Note that any changes to this page will require the new details into the web browser and/or the log in screen.




# System Page

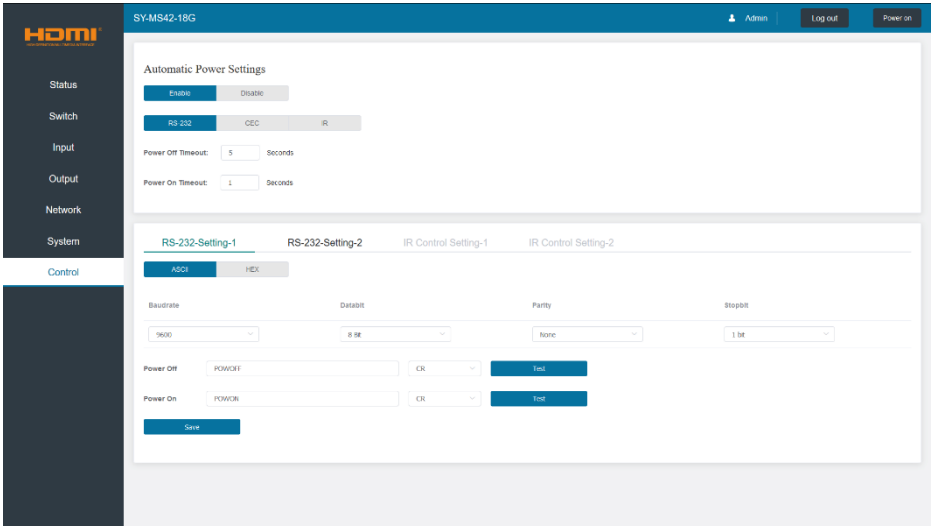
The system page allows setting of the control RS232 port baud rate and changing the test pattern output.
This page is also used to install new firmware updates, restore the factory default settings and reboot the SY-MS42-18G.



# Control Page

The Control page is used to set the RS232 or IR display device power on/off commands for the Automatic Power Switching mode. When this mode is enabled, the display power off and power on commands will be sent from RS232-A/RS232-B or IR-A/IR-B outputs after the defined Power Off Timeout and Power On Timeout values respectively.

The Control page has three modes: **RS232**, **CEC** or **IR**. Power On and Power Off commands can only be entered for the **RS232** and **IR** modes only. The **CEC** mode power on and power off commands are provided by default and cannot be changed. Only use **CEC** mode with displays that support CEC commands.



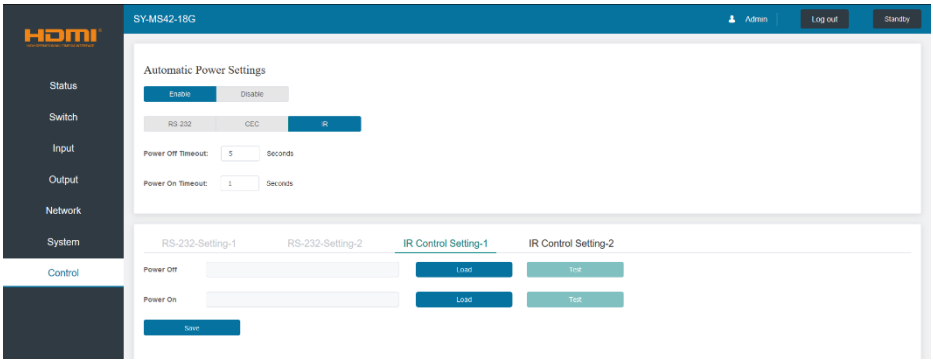

## RS232 Setting 1 and RS232 Setting 2

Select the desired tab and configure the RS232 port settings to match the display device requirements. Select either **ASCII** or **HEX** for the command format and enter the Power Off and Power On commands with the appropriate command termination mode: None, CR, LR or CRLF.

If the display device is connected to the respective RS232-A or RS232-B port, use the **Test** buttons to confirm that the command is correct. Once the command is valid, use the **Save** button to store those commands in the SY-MS42-18G.

Note that ASCII commands can use any ASCII character, but HEX command must use hexadecimal notation using hexadecimal value pairs separated by spaces.

## IR Setting 1 and IR Setting 2




This page requires that the IR commands are available in plain text files using the CCF IR code format.

1. Select the desired IR Control Setting tab.
2. Click the Load button to load the respective IR command. If the display device only support a power toggle IR command, then use the same file for both the Power On and Power Off modes.
3. Use the Test button to confirm that the command functions.
4. Click the Save button to save both IR commands to the SY-MS42-18G

# Package Contents

| Item | Qty |
|---|---|
| **SY-MS42-18G Scaler Matrix Switcher** | 1 |
| **12V 1A locking power adapter** | 1 |
| **Rack Mounting ears** | 2 |
| **Wall-mounting ears** | 2 |
| **IR Remote Control** | 1 |
| **20~60 kHz IR receiver – 1.5 metres** | 1 |
| **Wired IR emitters – 1.5 metres** | 2 |
| **3-pin pluggable terminal connectors** | 5 |
| **User Manual** | 1 |

# Specifications

## Video

| | |
|---|---|
| **HDMI Resolutions** | 4K2K 50/60Hz 4:4:4<br>4K2K 50/60Hz 4:2:0<br>4K2K 30Hz 4:4:4<br>1080p, 1080i 720p, 720i, 480p, 480i<br>All HDMI 3D TV formats<br>All PC resolutions including 1920 x 1200 |
| **HDMI Standard** | HDMI 2.0 – ARC supported |
| **Output Scaling** | 4K to 1080p<br>4K to HDBaseT (Down-scale to no more than 10.2Gbps) |
| **HDCP Compliance** | HDCP 2.2 and 1.4 |
| **HDMI Audio Formats** | All formats supported (pass through) |
| **3D Support** | Yes |
| **Colour Space** | RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0 |
| **Deep Colour** | 10 or 12 bit |
| **Colour Depths** | 8-bit, 10-bit and 12-bit for 1080p, 4K30 & 4K60 YCbCr 4:2:0<br>8-bit for 4K60 YCbCr 4:4:4 |
| **HDR Support** | HDR10, HDR10+. Dolby Vision, HLG |

## Audio

| | |
|---|---|
| **Analogue Output** | Stereo audio from three-terminal pluggable block (3.5mm) |
| **S/PDIF Audio** | TosLink optical output |
| **Format** | PCM2.0. Dolby Digital, Dolby Digital Plus, DTS |
| **Frequency Response** | 20Hz to 20kHz, ±3dB |

## General

| | |
|---|---|
| **RS232 Control** | 57600, No parity, 8 data bits, 1 stop bit<br>No handshaking |
| **RS232-A and RS232-B** | Configurable from 4800 to 115200 baud; 7 or 8 bits; none, odd or even parity and 1 or 2 stop bits. |
| **Power Supply** | 12V DC 1A (Locking connector) |
| **Power Consumption** | 4.3 W max |

## Environmental

| | |
|---|---|
| **Operating Temperature** | 0 - 40 °C |
| **Operating Humidity** | 10-90% RH, non-condensing |

## Physical

| | |
|---|---|
| **Dimensions (W x H x D)** | 218 x 43 x 140 mm |
| **Weight** | 1050 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 the Troubleshooting section in this manual and/or 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.