SY-MSU88-18G

User Manual

8x8 HDMI 2.0 Matrix Switcher
4K2K @ 60Hz YCbCr 4:4:4
With Automatic 4K → 2K Scaling per Output

Thank you for purchasing the SY-MSU88-18G

The SY-MSU88-18G is designed with the professional AV installers in mind. The many extensive features assist in system integration, validation and maintenance.

Installation precautions

The SY-MSU88-18G 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 all necessary precautions against possible spikes, surges and static discharges.

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

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

The SY-MSU88-18G is a full 18Gbps 8x8 HDMI matrix switcher with analogue audio inputs for each input as well as both analogue and digital audio extraction for each output. Each output automatically downscales 4K → 2K to ensure an image will be displayed. The matrix has four control methods: Front Panel, RS232, LAN or IR. A front panel locking feature prevents accidental operation.

Features

- HDMI 2.0 up to 4K60 4:4:4 (18Gbps)
- HDMI resolution up to 4K60 4:4:4 (18Gbps)
- Auto-scaling 4K → 2K per output
- Compliant to HDCP 1.4 and HDCP 2.2
- Supports HDR10, HLG, Dolby Vision
- EDID and HDCP Management
- Test pattern generation
- Powerful Audio routing and control
- 8 Analogue audio inputs
- 8 Analogue audio outputs
- 8 Digital coax audio outputs
- Can turn off any one of the audio streams (HDMI, Analogue, or Coax)
- Control from front panel, RS232, LAN or IR

Package Contents

- 1x SY-MSU88-18G
- 1x 12V 3A DC PSU with UK and EU adapters
- 2x 1U rack mounting brackets
- 1x IR remote control
- 1x IR Eye for IR IN
- 1x 3-way pluggable terminal connectors for RS232
- 1x Mini CD for Control Software and Manual

Connectors and Controls

Front
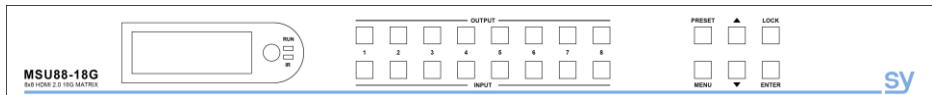
Name	Description
LCD Panel	Displays matrix status and menu options
IR Sensor	Located to the right of the LCD panel
Power LED	Lit when the SY-MSU88-18G is powered
Output Buttons	Press to select an output
Input Buttons	Press to select an input
Preset	Press to select a preset from the LCD panel
▲ (Up)	Press to go up a menu level

Name	Description
Lock	Lock or Unlock the front panel
Menu	Press to open the LCD menu, this is also the Left or ◀ button
▼ (Down)	Press to go down a menu level
Enter	Press to make menu selections, this is also the Right or ▶ button

Rear

Name	Description
Line In	8 x Analogue L/R Stereo audio inputs
Audio Output	8 x Analogue L/R Stereo audio outputs
S/PDIF Output	8 x Digital coax audio outputs
LAN	LAN control port
RS232	RS232 control port
IR IN	Input for IR-Eye to control the SY-MSU88-18G
HDMI Inputs	8 x HDMI input ports
HDMI Outputs	8 x HDMI output ports
12V DC	12V DC PSU input

Using this Product

1. Connect the HDMI sources to the input ports.
2. Connect the HDMI display devices to the output ports.
3. If required, connect the RS232, LAN Ethernet cable to control the MSU88-18G.
4. If required, connect any analogue audio inputs.
5. If required, connect to the analogue or digital coax audio outputs.
6. Connect the 12V DC PSU.
7. Power up the matrix, sources and displays.

Control Options

The SY-MSU88-18G has five control methods:

1. Front Panel buttons
2. IR Remote Control
3. RS232 control
4. Direct TCP/IP Control
5. Web Interface Control

Front Panel Control

There are four methods for making video selections from the front panel:

1. Select an output button then select an input button to make individual channel selections.
2. Select multiple outputs and then select an input to switch that input to the chosen outputs in one go.
3. Press and hold any output for three seconds, then select an input to switch that input to all outputs at once.
4. Press and hold an input button for three seconds to set all outputs to the chosen input.

After three seconds the currently selected button will flash rapidly to indicate that the long press time out has elapsed and the button may be released. The output button will stop flashing and an input button can still be selected. The action is cancelled after five seconds if no input buttons are pressed.

IR Remote Control

The IR remote control supplied with the SY-MSU88-18G provides another method for controlling the SY-MSU88-18G. The table below details the function of each button on the IR remote controller.

The M button has no function for the SY-MSU88-18G

← The arrow buttons have no function for the SY-MSU88-18G
← Menu navigation buttons
← These buttons have no function for the SY-MSU88-18G

Button	Description
⏻	Toggle the power state of the SY-MSU88-18G.
W	Toggles the front panel lock. While the panel is locked, only this button and the front panel LOCK button are operational.
Output Numbers	Buttons 1 to 8 select the desired output. Note that multiple outputs may be selected to set them each to a single input.
ALL	The ALL button in the output group selects all outputs together to allow an individual input selection to all outputs in one go. Select the desired input from the Input group.
PTP	Select any output and this button to set the outputs to display their respective inputs (Out 1 = In 1, Out 2 = In 2, Out 3 = In 3, and Out 4 = In 4).
X	Select any output and this button toggles the HDMI output video state. Either display an input video or display a black image.
Input Numbers	Buttons 1 to 8 select the desired input. The make a selection, press an output and then press an input.
ALL	The ALL button in the input group has no function.
◄	The ◄ button below the input group is the Left navigation button while the menu is active.
▲	The ▲ button below the input group is the Up navigation button while the menu is active.
▼	The ▼ button below the input group is the Down navigation button while

Button	Description
	the menu is active.
▶	The ▶ button below the input group acts as both the Right menu navigation button and the Enter button when making selections in the menu system of the SY-MSU88-18G.
F1 to F4	These buttons have no function.

Navigating the LCD Menu System

The LCD menu system is activated by pressing the MENU button. The menu display automatically times out after a few seconds of inactivity. Pressing the Menu button again will re-open the menu at same place it was at when it timed out. While in the menu, the direction navigation keys operate as follows:

Front Panel	IR Remote	Action
MENU	◀	Go back one menu level until the top level is reached.
▲	▲	Go up through the listed options on the Menu display.
▼	▼	Go down through the listed options on the Menu display.
ENTER	▶	Go to the next menu level or accept a setting as displayed.

- Any currently active menu option will have the '@' character shown after it on the LCD.
- Several menu options include an '**All**' setting, this will set all outputs to the selection made in the next menu level. The following sections detail the LCD menu structure.
- Any option that is shown with an underline on the LCD panel is fixed and cannot be changed.

The following placeholders are used in the sections that follow:

Placeholder	Value Range
w	**HDMI** or **ENC** – ENC is the external Line Input audio source
x	**1** to **8**
y	**1** to **8** or **ALL**
z	**Off** or **On**

Making Video Selections from the Menu

Menu → Output → Output y → Video → Source → Input x

Choose the desired input and press ENTER.

Setting the HDMI Output State

Menu → Output → Output y → Video → OnOff → z

Choose the desired state, **ON** or **OFF**, and press **ENTER**.

Setting the Audio Output States

Menu → Output → Output y → Audio → HDMI→ z

Menu → Output → Output y → Audio → Analog→ z

Menu → Output → Output y → Audio → SPDIF→ z

Menu → Output → Output y → Audio → ARC→ z

In each case, choose the desired state, **ON** or **OFF**, and press **ENTER**.

Setting the HDMI Input Video State

Menu → Input → Input y → Video → OnOff → z

Choose the desired state, **ON** or **OFF**, and press **ENTER**.

Setting the Audio Input Source

Menu → Input → Input y → Audio → Source → w

Choose the desired audio source, **HDMI** or **ENC**, and press **ENTER**.

Setting the Audio Input States

Menu → Input → Input y → Audio → OnOff → z

Setting the Input EDID

Menu → Input → Input y → EDID → select EDID source

The EDID sources are:

Default 1 to Default 4	the four predefined EDID settings
User 1 to User 4	the four programmable User EDID memories
Output 1 to Output 8	a display device must be connected to the chosen HDMI output
Temp	the contents of the Temp EDID memory are lost at power down

Using the Preset Scene Memories

Menu → Preset → Clear → Scene→ select preset scene to clear

Menu → Preset → Save → Scene→ select preset scene to save current config to

Menu → Preset → Call → Scene→ select preset scene to recall

Press ENTER to perform the desired action on the selected scene memory.

Config Menu

Menu → Config → Network

The Config menu option provides methods for setting up the Network configuration.
DHCP   **No** or **Yes** – default is **No**
IP address by parts
Subnet MASK by parts
Gateway address by parts
TCP/IP Port Number

RS-232 Settings Menu

Menu → Config → RS-232

The baud rate can be set to one of: 115200, 57600, 38400, 19200, 9600 or 4800.
Default RS-232 baud rate is 115200.
The following settings have fixed values and cannot be changed:
- Data bits is always 8.
- Stop bit is always 1.
- Parity mode is always no parity.

LCD Config Settings

Menu → Config → LCD

Brightness can be set to one of nine levels, 0 ~ 8, where 8 is the brightest and default setting. The time duration for the LCD to remain on before turning off can be set using the **Time** option. To set the LCD as always on, select the **Off** option.

RS232 Control

All RS232 commands are sent to the SY-MSU88-18G with the following default settings:

115200 baud, 8 bits, no parity and 1 stop bit.

The baud can be changed using the menu system on the LCD. The other available baud rates are 57600, 38400, 19200, 9600, and 4800.

All the commands use ASCII notation and must be used as given in the following tables. The spaces shown in the commands are required and the command must contain only the values given in the Description column.

- All commands must be sent in a single burst of characters, manual typing into a terminal emulation program is not accepted and the **Cmd error** message will be sent for each keypress.
- All commands end with a single carriage return character.
- All responses end with a CR/LF character sequence.
- These RS232 commands can also be transmitted over IP to TCP/IP port 5000.

For the RS232 commands, the placeholder values are as follows:

Value	Range
x	1 to 8 for outputs 1 to 8.
y	1 to 8 for inputs 1 to 8.
z	**ON** or **OFF** as required, or a numerical value as detailed for that command.
p	A preset number in the range 1 to 8.
m	1 to 4 for User EDID memory 1 to 4.
<…>	A required parameter that MUST be present. See specific command for details.

Input Selection

These commands control video selections and the HDMI output mode.

Command	Response	Description
SET OUT **x** VS IN **y**	OUT **x** VS IN **y**	Set output **x** to show input **y**. Both **x** and **y** are in the range 1 to 8 inclusive.
GET OUT **x** VS	OUT **x** VS IN **y**	Get the input number showing on output x.
SET OUT **x** STREAM **z**	OUT **x** STREAM **z**	Enable or Disable the output HDMI data stream.
GET OUT **x** STREAM	OUT **x** STREAM **z**	Return the status of the HDMI output stream.

When the HDMI output stream is set to OFF, a black image is output.

Presets

These commands allow control of the 8 preset memories for saving and recalling the video matrix set-up. The factory default is with all presets blank.

Command	Response	Description
SET PRESET **p** LOAD	PRESET **p** LOAD	Recall preset p
SET PRESET **p** SAVE	PRESET **p** SAVE	Store the current switcher matrix setting to preset p
SET PRESET **p** CLEAR	PRESET **p** CLEAR	Erase preset p

Power Mode

Use these command to control the power state of the SY-MSU88-18G.

Command	Response	Description
SET PWR **z**	PWR **z**	Set the power mode to ON or OFF. For example: SET PWR ON
GET PWR	PWR **z**	Return the current power mode.
SET POWER START **t**	PWR START **t**	Set the time in minutes for the SY-MSU88-18G to self-repower.
SET POWER SHUT **s**	PWR SHUT **s**	Set the time in minutes for the SY-MSU88-18G to self-shutdown.
GET POWER TIMES	PWR SHUT **s** START **t**	Return the shut-down and start-up delay values.

Audio Settings

The de-embedded audio outputs and the HDMI audio can be enabled or disabled independently. Note: There is no volume control for any audio channel.

Command	Response	Description
SET OUT **x** EXA EN	OUT **x** EXA EN	Enable the Line Out and S/PDIF audio outputs for channel x.
SET OUT **x** EXA DIS	OUT **x** EXA DIS	Disable the Line Out and S/PDIF audio outputs for channel x.
GET OUT x EXA	*One of the above two responses*	Return the Line Out and S/PDIF audio status for channel x.
SET OUT **x** HDA EN	OUT **x** HDA EN	Enable the HDMI audio output for channel x.
SET OUT **x** HDA DIS	OUT **x** HDA DIS	Disable the HDMI audio output for channel x.
GET OUT **x** HDA	*One of the above two responses*	Return the HDMI audio status for channel x.

EDID Settings

Command	Response	Description
SET IN **y** EDID **z**	IN **y** EDID **z**	Set Input EDID **y** to **z**, where **z** is 0~22 representing one of the values given in the table below.
GET IN **y** EDID	IN **y** EDID **z**	Return the EDID selection, **z**, for input **y**. See the table below for **z** value

Command	Response	Description
SET IN **y** EDID CY OUT **x**	IN **y** EDID CY OUT **x**	Copy EDID from output **x** to input **y**
SET OUT **x** EDID U **y**	OUT **x** EDID U **m**	Copy EDID from output **x** to USER **y** **x** is the output number 1~8 **m** is the USER memory number 1~4
SET EDID U **x** DATA **z**	EDID U **x** DATA **z**	Write EDID Data **z** to User memory **x** (1~8) **z** is 256 pairs of hexadecimal ASCII values, for example: 00 FF FF FF …
GET IN y EDID U **x** DATA	EDID U **x** DATA **z**	Read the EDID Data from input **y** (1~8) USER memory **x** (1~4) **z** is 256 pairs of hexadecimal ASCII values, for example: 00 FF FF FF …

This table gives the value **z** used by the SET IN **y** EDID **z** command in the previous table.

EDID Value **z**	EDID Setting
0	4K60 4:4:4, 2.0 ch
1	4K60 4:4:4, 5.1 ch
2	4K60 4:4:4, 7.1 ch
3	4K60 4:2:0, 2.0 ch, HDR
4	4K60 4:2:0, 5.1 ch, HDR
5	4K60 4:2:0, 7.1 ch, HDR
6	4K30 4:4:4, 2.0 ch, HDR
7	4K30 4:4:4, 5.1 ch, HDR
8	4K30 4:4:4, 7.1 ch, HDR
9	4K24 4:4:4, 2.0 ch, HDR
10	4K24 4:4:4, 5.1 ch, HDR
11	4K24 4:4:4, 7.1 ch, HDR
12	1080p60 2.0 ch
13	1080p60 5.1 ch
14	1080p60 7.1 ch
15	Copy EDID data from User 1 memory
16	Copy EDID data from User 2 memory
17	Copy EDID data from User 3 memory
18	Copy EDID data from User 4 memory
19	Copy EDID data from Output 1
20	Copy EDID data from Output 2
21	Copy EDID data from Output 3
22	Copy EDID data from Output 4

HDCP Settings

These commands control the HDCP mode of the HDMI outputs.

Command	Response	Description
SET OUT **x** HDCP CASCADE	OUT **x** HDCP CASCADE	Set HDCP on output **x** to None (HDCP off) (cascade mode)
SET OUT **x** HDCP 1.4	OUT **x** HDCP 1.4	Set HDCP on output **x** to 1.4 only
SET OUT **x** HDCP 2.2	OUT **x** HDCP 2.2	Set HDCP on output **x** to 2.2 only
SET OUT **x** HDCP FOLLOW	OUT **x** HDCP FOLLOW	Set HDCP on output **x** be the same as the input (default)
GET OUT **x** HDCP	*Any one of the above four responses*	Get the current HDCP setting for output **x**

Port Names

This command sets the name for the specified output.

Command	Response	Description
SET NAME **x w**	NAME **x w**	Set HDMI output port **x** to the name given in **w**
GET NAME **x**	NAME **x w**	Get the name for HDMI output **x**

LCD Commands

Command	Response	Description
SET LCD CONTRAST **z**	LCD CONTRAST **z**	Set the LCD contrast level, **z** is 0 to 100, default is 50
SET LCD BL_LVL **z**	LCD BL_LVL **z**	Set the LCD backlight level, **z** is 0 to 100, default is 50
SET LCD BL_TIME **z**	LCD BL_TIME **z**	Set the on time delay in seconds for the LCD backlight. Max is 250 seconds, a value of 0 means do not turn off. Default is 20 seconds.
SET LCD HOME_TIME **z**	LCD HOME_TIME **z**	Set the time delay in seconds before reverting to the default home display on the LCD. Max is 250 seconds, a value of 0 means do not turn off. Default is 10 seconds.
SET LCD CH_TIME **z**	LCD CH_TIME **z**	Set the time delay in seconds for showing channel selections. Max is 250 seconds, a value of 0 means do not turn off. Default is 5 seconds.

Test Pattern Commands

Notes:
1. The same test pattern is present on each adjacent pair of outputs: 1 & 2, 3 & 4, 5 & 6 or 7 & 8. Each of these pairs can be individually set to show that test pattern.
2. The test pattern is de-activated when an input selection is made to either of the outputs displaying the test pattern.

Command	Response	Description
SET PATTERN OUT **x**	PATTERN OUT **x**	Select the output to show the test pattern. 0 may be used for all outputs.
SET PATTERN VIC **z**	PATTERN VIC **z**	Select the output resolution for the test pattern. (z = 0 ~ 8)
SET PATTERN **z**	PATTERN **z**	Select the test pattern to display. (z = 0 ~ 11)

The SET PATTERN VIC and SET PATTERN commands require a numeric value as detailed in the following table:

Value	VIC Resolution Setting	Test Pattern Setting
0	720 x 480p 60	Black
1	1280 x 720p 60	Chequerboard
2	1080p60	Stripes
3	4K24	Red
4	4K25	Green
5	4K30	Blue
6	4K24W (4096x2160)	White
7	4K50	Ramp
8	4K60	Red Ramp
9	—	Green Ramp
10	—	Blue Ramp
11	—	Pseudo-Random Bit Stream

System Commands

Command	Response	Description
HELP	*The actual response depends on the list of available commands*	Output a list of all available commands including any firmware version numbers
GET FW VERSION	*The actual response depends on the installed version numbers*	Display all installed firmware version numbers. For example, boot code version, main firmware version, web IF version, etc.
SET FACTORY OPER	FACTORY RESET OPER	Reset all operator data to factory defaults, does not change IP settings
SET FACTORY ALL	FACTORY RESET ALL	Reset all data including IP settings to

Command	Response	Description
		factory defaults
SET REBOOT	*The actual response depends on the normal start up sequence*	Perform a system reboot

Network Settings

These commands control or report the network IP settings.

Command	Response	Description
SET DHCP ON	*Responds with the new network settings.*	Enable dynamic IP (DHCP) mode
SET DHCP OFF	*Responds with the new network settings.*	Enable static IP mode
GET DHCP		Get the current DHCP mode setting
SET IP **<ip_addr>**	IP **<ip_addr>**	Set the static IP address <ip_addr> in the format **aaa.bbb.ccc.ddd**
GET IP	IP **<id_addr>**	Return the current IP address <ip_addr> in the format **aaa.bbb.ccc.ddd**
SET MASK	MASK **<mask>**	Set the subnet mask <mask> in the format **aaa.bbb.ccc.ddd**
GET MASK	MASK **<mask>**	Return the current subnet mask <mask> in the format **aaa.bbb.ccc.ddd**
SET GW **<gateway>**	GW **<gateway>**	Set the gateway IP address in the format **aaa.bbb.ccc.ddd**
GET GW	GW **<gateway>**	Get the current gateway IP address in the format **aaa.bbb.ccc.ddd**
SET DNS **<id_addr>**	DNS **<id_addr>**	Set the DNS IP address
GET DNS	DNS **<id_addr>**	Return the current DNS IP address
SET NETBIOS **w**	NETBIOS **w**	Set the NetBIOS name to **w** (see note below)
GET NETBIOS	NETBIOS **w**	Return the current NetBIOS name
GET MAC	MAC **<mac_addr>**	Return the current MAC address of the IP interface in the format: **xx-xx-xx-xx-xx-xx**

For the NETBIOS command, **w** is a set of characters that must conform to a valid NetBIOS name (A-Z, 0-9; from 1 to 15 characters).

Account Control

Command	Response
SET REGISTER **<acc> <user> <pwd>**	REGISTER **<acc> <user>**

Register a new user **<user>** with account level **<acc>** and password **<pwd>**

Command	Response	Description
SET LOGIN **<user> <pwd>**	LOGIN **<user>**	Login a registered user with their assigned password

Direct TCP/IP Control

The SY-MSU88-18G is controllable via the IP port using the following default settings:

> Default IP: 192.168.1.168
> Default Gateway: 192.168.1.1
> Default Subnet: 255.255.255.0
> DHCP: Off (Static IP)
> TCP/IP Port: 5000 (direct commands, no login)
> Telnet Port: 23 (requires login details)

The TCP/IP control commands are identical to the above RS232 commands.

Web Interface Control

To use the built-in web interface, connect the SY-MSU88-18G to a network, and enter its current IP address into a web browser. If the current IP is not known, it can be discovered by either sending the RS232 command GET IP or by navigating the front panel menu system on the LCD. The web interface and Telnet both require login details, the default settings are:

User Name	Password
admin	admin
user	user

After logging in, the Status Panel appears. The left sidebar selects the various control and configuration pages.

Status Panel

The Status Panel displays the following information for each of the inputs and outputs:

- Connection status
  - A tick mark indicates the presence of an HDMI source or a display device
- Signal Resolution
  - Input shows the actual input signal resolution
  - Output shows the maximum EDID resolution of the display

- HDMI colour mode
- Audio mode   - NPCM indicates that there is no audio present
- Input HDCP mode
- Output display manufacturer code from the display EDID data.

Any changes to the HDMI connection states are automatically updated on this page.

Input Panel

This image shows the factory default names.

Input Channel Name

Each input can be given a name to identify what is connected to that input in the installation. These names will also be displayed on the Matrix page.

Names cannot have spaces, either use the underscore character or leave the spaces out when setting the names of the inputs.

Video buttons

Each HDMI input can be turned on or off.

Audio buttons

The HDMI or analogue input audio stream can be turned on or off as specified by the Audio Source setting.

Audio Source options

Select the audio source for the respective input as either HDMI or analogue (ENC).

Copy EDID From options

Select the desired EDID from the dropdown list for each input.

The Copy EDID from drop down list follows the same order as for the EDID settings:

Copy EDID From List	EDID Setting
Default 1	4096x2160p 60Hz 4:4:4, HDR, HLG, 2.0 ch
Default 2	4096x2160p 60Hz 4:2:0, HDR, HLG, 2.0 ch
Default 3	4096x2160p 30Hz 4:4:4, HDR, HLG, 2.0 ch
Default 4	1920x1080p 120Hz 4:4:4, HLG, 2.0 ch
User 1	Copy EDID data from User 1 memory
User 2	Copy EDID data from User 2 memory
User 3	Copy EDID data from User 3 memory
User 4	Copy EDID data from User 4 memory
HDMI Out1	Copy EDID data from Output 1
HDMI Out 2	Copy EDID data from Output 2
HDMI Out 3	Copy EDID data from Output 3
HDMI Out 4	Copy EDID data from Output 4
HDMI Out5	Copy EDID data from Output 5
HDMI Out 6	Copy EDID data from Output 6
HDMI Out 7	Copy EDID data from Output 7
HDMI Out 8	Copy EDID data from Output 8
Temp	Temporary EDID memory, programmable using RS232 only. Contents are lost at power down.

Any EDID memory that has invalid EDID information will be displayed as Invalid in the list. Any such memory SHOULD NOT be used until it contains valid EDID data.

All Row

The All row applies the changes to all inputs at the same time.

Lower EDID Section

This section is for advanced EDID management. Any built-in EDID or an external EDID file can be copied to any of the four programmable User EDID memories that can then be selected in the upper section for each input.

Output Panel

This image shows the factory default names.

Output Channel Name

Each output can be given a name to identify when the display for that output is in the installation. These names will also be displayed on the Matrix page.

Names cannot have spaces, either use the underscore character or leave the spaces out when setting the names of the outputs.

Video button

Each output can be turned on or off.

HDCP setting

The output HDCP mode can be set to one of the following:

- Follow Input (default setting)
- HDCP 1.4
- HDCP 2.2
- Off

Scaling modes

There are three scaling modes:

Auto (default setting)	The scaling is set according to the display device EDID.
4K->2K	Any 4K input is scaled down to 2K. For example, 4K60 will become 1080p60.
Bypass	No scaling is applied.

Test Pattern settings

The test pattern resolution and type is the same for each pair of outputs, but can be different to other output pairs.

Each output can have the test pattern enabled or disabled separately using the selection buttons.

Audio-HDMI, Audio-Analog, Audio-Spdif buttons

The HDMI, de-embedded analogue and S/PDIF audio outputs can be individually enabled or disabled for each output.

ARC buttons

Each output can be set to receive the Audio Return Channel (ARC) from a display device connected to that output.

CEC buttons

The CEC section has buttons to switch the power state of the CEC enabled display device for each output.

All Row

The All will set the same options for all outputs at once.

Matrix

This image shows the factory default names. The number to the left of the output names is always automatically added to indicate the actual output number.

Input Selection buttons

Click on the desired grey input button to make a selection to the respective output. The **All** row sets all the outputs to the same HDMI input.

Preset
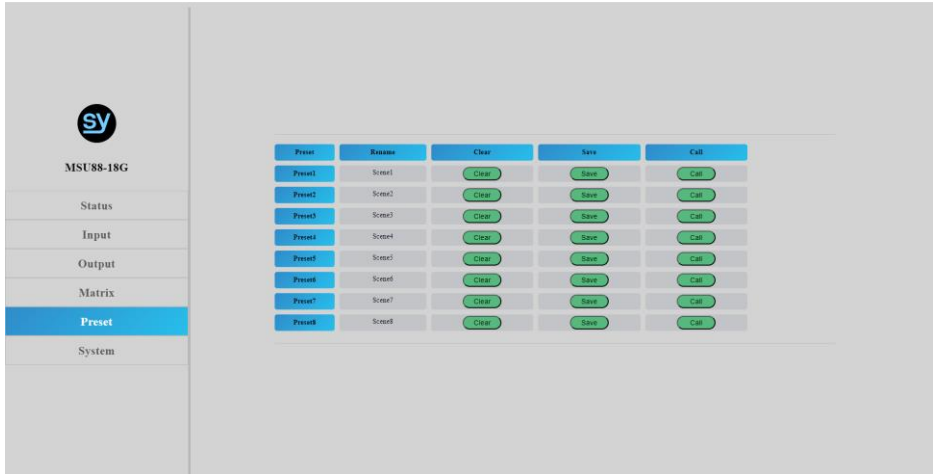
Name
This column allows the user to assign names to each of the presets.

Clear button
Click on the Clear button to erase the respective preset.
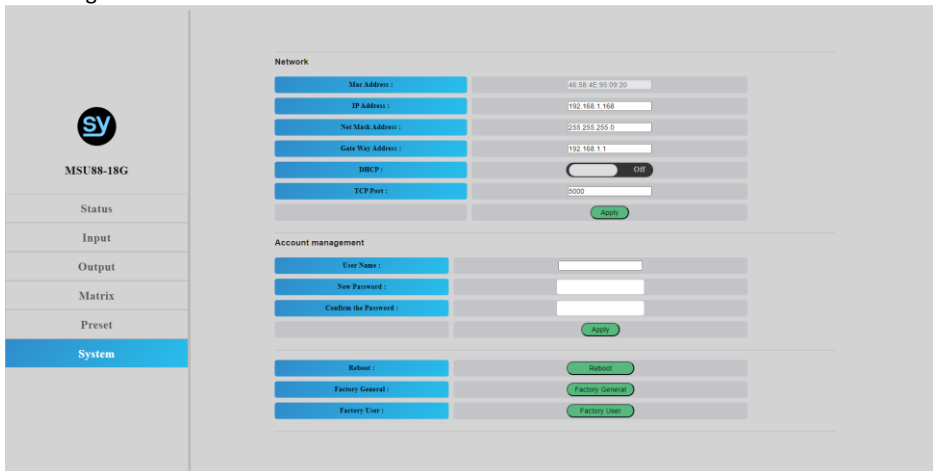
Save button
Click on the Save button to save the current matrix configuration to the respective preset.

Call button
Click on the Call button to set the matrix to the previously saved configuration of the respective preset.

System
This image shows the default network values for the SY-MSU88-18G:

Network

MAC Address:	The individual MAC of the SY-MSU88-18G
IP Address:	The current IP address, this can only be edited when DHCP is set to 'Off'.
Net Mask Address:	The current IP network mask, this can only be edited when DHCP is set to 'Off'.
Gate Way Address:	The current IP address of the default gateway, this can only be edited when DHCP is set to 'Off'.
DHCP:	Set to Off to configure a static IP address or On to use a DHCP server.
TCP Port:	Enter a TCP port number.
Apply button	Click to accept any changes made to the network settings.

Account Management

This section allows the configuration of User Names and their respective passwords.

User Name:	Enter the user name to configure.
New Password:	Enter the password for the user.
Confirm the Password:	Enter the password for the user.
Apply button	Click to accept any changes made to the account management settings.

Reboot

Click the **Reboot** button to reboot the SY-MSU88-18G device.

Factory General

Click the **Factory General** button to reset the SY-MSU88-18G to full factory defaults.

Factory User

Click the **Factory User** button to reset any user configurable settings to full factory defaults.

Specifications

General

Inputs	8x HDMI, 8x L/R Analogue audio line level inputs
Outputs	8x HDMI, 8x L/R Analogue audio, 4x Digital Coax Audio
Control	Front panel, RS232, LAN, Web GUI, IR
HDMI Resolutions	All HDMI resolutions up to 4K60 4:4:4 (18Gbps) 4K60 4:4:4, 4K60 4:2:0, 4K30 4:4:4, 4K24 4:4:4, 1080p60, …
HDMI Standard	HDMI 1.4 and HDMI 2.0
HDCP Compliance	1.4 and 2.2
HDR10, HLG and Dolby Vision	Supported for 4K60 4:2:0, 4K30 4:4:4, 4K24 4:4:4 resolutions only. Not supported in 4K60 4:4:4 and 1080p60.
Audio Formats (HDMI & S/PDIF Out)	2.0 ch, 5.1 ch and 7.1 ch LPCM 2.0, Dolby True HD, DTS-HD Master, LPCM 7.1.
Audio Sample Rates	All audio sample rates up to 192kHz
Analogue Audio Input	L/R Line level (0.7Vrms)
Analogue Audio Output	L/R Line level (0.7Vrms)
Default IP Settings	IP: 192.168.1.168 Mask: 255.255.255.0 Gateway: 192.168.1.1
Default baud rate:	115200 - Can be set to 57600, 19200 or 9600 Always 8 bits, no parity, and one stop bit
PSU	DC 12V 3A
Power Consumption (max.)	28 W

Environmental

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

Physical

Dimensions (WxHxD)	438 x 44 x 220 mm (19 in x 1U x 8.75 in)
Weight	2.8 kg (approx. 6.2 lb)

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.