User Manual

SMFS-81-18G

4K 18G Multi-Format
8x1+1 Seamless Scaler Switch

(Inputs: 6x HDMI 2.0, 1x DisplayPort, 1x VGA)
(Outputs: Mirrored 1x HDMI, 1x HDBaseT)
(Built-in Test Pattern generator)

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The SMFS-81-18G is a seamless multi-format scaling switcher with 6 HDMI inputs, 1 DisplayPort input and 1 VGA input. It provides two mirrored outputs – HDMI for local display and HDBaseT output for a remote HDBaseT receiver and display. Each input can be individually set to use its own embedded audio or any one of the 8 external analogue audio inputs. Built-in multi resolution Test Pattern generator is also a great feature. This multi-format switcher is suitable for a wide variety of applications, for example, classrooms, lecture halls, meeting rooms, etc.

Features

- All resolutions up to 4K60 4:4:4 18G supported on all HDMI inputs
- Powerful output Scaler – Resolution up to 4K60 4:4:4
- EDID options of 6 built-in settings, or auto (EDID bypass) mode
- HDBaseT output with mirrored HDMI output
- 8x video inputs – 6x HDMI, 1x DisplayPort, 1x VGA
- 8x audio analogue inputs
- 1x microphone input
- Balanced stereo audio output
- Stereo speaker output – 2x 20W max.
- Built-in Test Pattern generator
- Bypass RS232 and IR IN/OUT for HDBaseT port
- Control – Front panel, RS232, IR, LAN

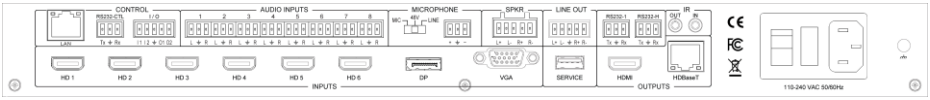
Connectors and Controls

Front

Name	Description
LCD	Displays the current input selection and audio mode. Also displays the menu options.
Power LED	Lit when the SMFS81-18G is powered
IR Sensor	IR port for the IR remote controller(Reserved)
Input selection buttons	Press to select the desired input
MIC button	Turn on or off the microphone input. Turn on, the MIC button LED light on, turn off MIC button LED light off. Long press this button to enter microphone volume pre-scale controlling with volume knob
VIDEO button	Turn on or off the video input. When turn on, the VIDEO button LED light on.
AUDIO button	Turn on or off audio input, include external L+R input and HDMI embedded audio input, not include Microphone audio input When turn on, the AUDIO button LED light on.
MUTE LED	When Speaker output muted, the MUTE LED light on.
MENU button	Opens the menu options on the LCD

Name	Description
↔ button	Cycles through the available options for the current menu section
ENTER button	Press to set the current selection
VOLUME control	Sets the volume level for the speaker output or set microphone pre-scale volume. The Line out volume is not affected by this control.

Rear



Name	Description
LAN RJ45	WebGUI or LAN port for controlling the SMFS81-18G
RS232-CTL	RS232 port for controlling the SMFS81-18G
I/O Control	Two Digital Inputs and Two Digital Outputs – RS232 controlled
Analogue audio inputs	Eight stereo analogue audio inputs assignable to any input
Microphone mode switch	Set the operating mode of the Microphone input connector • Mic level (dynamic mics), • 48V (condenser mics) or • Line level (amplified mics)
Microphone input connector	Balanced input for the microphone audio source
Speaker output connector	Balanced stereo speaker outputs for 8W speakers
LINE OUT connector	Balanced stereo line level audio output
RS232-1	RS232 port for sending commands to a local display device
RS232-H	RS232 port dedicated to the HDBaseT output
IR OUT	IR output from HDBaseT port
IR IN	IR input from HDBaseT port
HDMI inputs 1 to 6	HDMI inputs for input buttons 1 to 6
DisplayPort input	DisplayPort input for input button 7
VGA input	VGA input for input button 8
SERVICE USB port	For service personnel only
HDMI Output	HDMI output for the local display
HDBaseT Output	HDBaseT output for the remote display
Power input with switch	Mains voltage input connector with power switch

Installation and Ventilation

The SY-SMFS81-18G generates heat, the unit must be installed to allow that heat to escape. There must be an air gap of at least 1U above the unit and the side ventilation slot must never be obstructed.

Using the SY-SMFS81-18G

Connect the desired video sources to their respective input connectors and connect the desired output display devices. Connect any optional inputs and outputs such as audio, speakers, RS232 LAN or IR. Power up the switcher by connecting the IEC main input connector and switching on

at the power switch on the rear of the switcher.
Please note that the SY-SMFS81-18G does not support HDMI signals that use the 4:2:0 colour space.

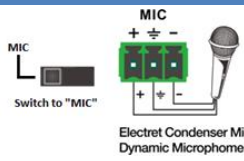
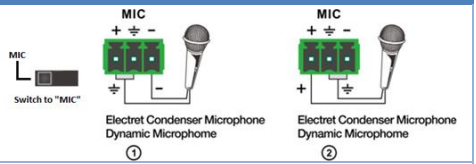
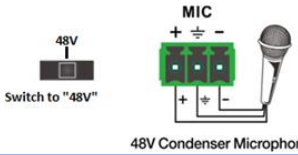
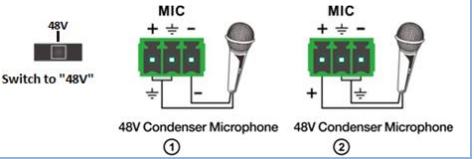
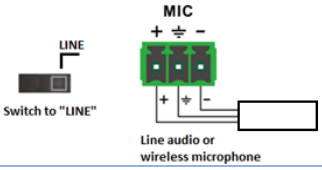
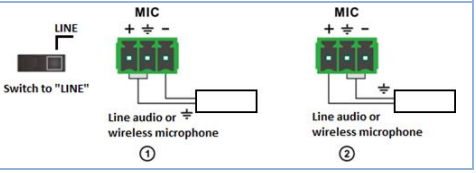
Making Video Selections

Video selection are made from the front panel by pressing the respective input button. The button for that input will light up and the LCD will also show the selected input number and type along with the current audio input selection assigned to that input.

Connecting to the MIC / 48V / Line Input

Care must be taken when setting the MIC / 48V / Line mode switch as setting this switch to 48V may cause damage to equipment that is not intended to accept 48V.

The following table details the correct balance and unbalanced wiring for each mode:

Mode	Balanced	Unbalanced
MIC		
48V		
LINE		

Front Panel Menu Options

The menu is only shown on the LCD panel after pressing the MENU button. The menu options will revert to the normal display mode after 5 seconds of no buttons being pressed.
Each press of the **MENU** button will select the next top level menu item. The end of the menu is indicated by **The End** being shown on the LCD panel.

Press the **SELECT** button to change between the submenu options. When the desired option is displayed, press the **ENTER** button to enable that option.

The menu structure of the SMFS81-18G is as follows:

Resolution

3840x2160@60, 3840x2160@50, 3840x2160@30, 1920x1200@60, 1920x1080@60, 1920x1080@50, 1600x1200@60, 1360x768@60, 1280x720@60, 1280x720@50, 1024x768@60, Auto

Set Input EDID

3840x2160@60, 3840x2160@30, 1920x1080@60, 1280x720@60, 1920x1200@60, Manual, Auto

Set Audio Source

HDMI Inputs 1 to 6 and DisplayPort:
Embedded, L/R 1, L/R 2, L/R 3, L/R 4, L/R 5, L/R 6, L/R 7, L/R 8

VGA Input: L/R 1, L/R 2, L/R 3, L/R 4, L/R 5, L/R 6, L/R 7, L/R 8

HDCP

Output HDCP Setting:
Off, Auto, 1.4, 2.2

Key

Front Panel Locking:
Unlock, Lock

Test Pattern

Output Test Pattern Setting:
Off, On

The End – There are no more menu options.

The **Resolution** menu sets the video output resolution for the HDMI and HDBaseT outputs. However, when using the 4K60 or 4K50 options, the HDBaseT output will be set to 4K60/50 YPbPr 4:2:0 while the HDMI output will be 4K60/50 RGB 4:4:4.

The **Set Input EDID** menu sets the input EDID for the currently selected video input. To set for another input, select that input first.

EDID Options

Each of the input EDID settings can be selected either from the LCD menu screen or by using RS232 commands. The following EDID options are available for each input:

- 4K60 – 3840x2160p @ 60Hz
- 4K30 – 3840x2160p @ 30Hz
- 1080p – 1920x1080p @ 60Hz
- 720p – 1280 x 720p @ 60Hz
- 1920x1200 @ 60Hz
- Auto – EDID Bypass Mode – Uses the display EDID

Connecting to the IR Ports

The IR IN and IR OUT ports on the rear of the SY-SMFS81-18G are for use with the HDBaseT receiver. The following table details the wiring details for the IR input and output ports:

3.5mm Jack Terminal	IR Eye (Receiver)	IR Bud (Emitter)
Tip	IR Signal	IR Signal
Ring	5V	5V
Sleeve	Ground	No Connection

RS232 Commands

The ASCII commands given in this section use the following port settings:

Baud Rate: 57600
Data Bits: 8
Parity: None
Stop Bits: 1

Notes:

1. All commands in this section are always terminated with the ASCII carriage-return character, 0x0d. This is represented by the ↵ symbol in each command.
2. All responses are always terminated with the ASCII carriage-return and line-feed sequence (0x0d 0x0a).
3. All spaces shown in the commands are required.
4. All commands must be sent using uppercase letters only. Lowercase letters in the command reference that follows are used as value placement indicators, the required value or identifier text is given in the **Details** panel for each command.

Video Commands

Video Selections

The following command is used to make video selections:

Command	Details
SET INx VIDEO ALL↵	Select Input **x** to Output (mirrored outputs) Where: **x** is in the range **1** to **8** for inputs 1 to 8

The following command return the input associated with the output:

Examples:

Command	Response
SET IN5 VIDEO ALL↵	IN5 VIDEO ALL↵

Video Output Blanking

The following command enables or disables the video output:

Command	Details
SET OUT BLANK w↵	Set the Output blanking mode Where: **w** is either **ON** or **OFF**.
GET OUT BLANK↵	Return the Output blanking status

Examples:

Command	Response
GET OUT BLANK↵	OUT BLANK OFF↵
SET OUT BLANK ON↵	OUT BLANK ON↵

Video Output Freeze

The following commands sets the freeze or unfreeze status of the video output:

Command	Details
SET OUT FREEZE w↵	Set the Output Freeze mode Where: **w** is either **ON** or **OFF**.

Examples:

Command	Response
GET OUT FREEZE↵	OUT FREEZE OFF↵
SET OUT FREEZE ON↵	OUT FREEZE ON↵

Video Output HDCP Configuration

The following command configures the HDCP mode for the video outputs.

Command	Details
SET OUT HDCP w↵	Set the output HDCP mode **w** Where: **w** is either **AUTO** or **H14** or **H22** or **OFF**
GET OUT HDCP↵	Return Output HDPC setting

Examples:

Command	Response
GET OUT HDCP↵	OUT HDCP AUTO↵
SET OUT HDCP H14↵	OUT HDCP 1.4↵

Video Output Signal Format

The following command configures the output video format for the specified output.

Command	Details
SET OUT OUT-SIGNAL w↵	Set Output to the desired resolution. Where: **w** is one of the following: **1024x768p60** **1280x720p50** **1280x720p60** **1360x768p60** **1600x1200p60** **1920x1080p50** **1920x1080p60** **1920x1200p60** **3840x2160p30** **3840x2160p50** **3840x2160p60** **AUTO**
GET OUT OUT-SIGNAL↵	Return the output video format.

Examples:

Command	Response
GET OUT OUT-SIGNAL ↵	OUT OUT-SIGNAL UHD-HDMI@3840x2160p60↵
SET OUT OUT-SIGNAL AUTO↵	OUT OUT-SIGNAL UHD-HDMI@AUTO↵

Test Pattern Mode

The SMFS81-18G can output a colour bar test pattern using the current output resolution settings. Please note that the output Test Pattern is set to the currently selected resolution and refresh rate.

Command	Details
SET OUT TSP w↵	Set the test pattern state as the output signal. Where: **w** is either **ON** or **OFF** for the desired state.
GET OUT TSP↵	Get the test pattern state Where:

Examples:

Command	Response
GET OUT TSP↵	OUT TSP OFF↵
SET OUT TSP ON↵	OUT TSP ON↵
SET OUT TSP OFF↵	OUT TSP OFF ↵

Input Video Format

This GET command returns the detected video input format for the specified video input.

Command	Details
GET INx IN-SIGNAL↵	Return the video format for Input **x** Where: **x** is in the range **1** to **8** for inputs 1 to 8

Examples:

Command	Response
GET IN1 IN-SIGNAL↵	IN1 IN-SIGNAL UHD-HDMI@4K2Kp60↵

Audio Commands

Audio Routing

The following command is used to set the audio routing options:

Command	Details
SET INx AUDIOIN w↵	Select Input **x** to audio input mode **w** Where: **x** is in the range 1 to 8 for inputs 1 to 8 **w** is one of the following options: **EMDEBBED** Not valid for VGA input (Only HDMI inputs) **L/R1** **L/R2** **L/R3** **L/R4** **L/R5** **L/R6** **L/R7** **L/R8**
GET INx AUDIOIN↵	Return the audio input mode for Input **x**

Examples:

Command	Response
SET IN4 AUDIOIN L/R1↵	IN4 AUDIOIN L/R1↵
SET IN1 AUDIOIN EMBEDDED↵	IN1 AUDIOIN EMBEDDED↵
GET IN5 AUDIOIN↵	IN5 AUDIOIN EMBEDDED↵

Audio Input Mute

The following sets the mute mode for each the audio input types. Note that some audio input types are only available on certain products.

Command	Details
SET w MUTE ON↵	Mute audio input **w** Where: **w** is one of the following options: **LINE** **SPEAKER** **MIC**
SET w MUTE OFF↵	Unmute audio input **w** Where: **w** is one of the following options: **LINE** **SPEAKER** **MIC**
GET w MUTE↵	Return the mute status for audio input **w** Where: **w** is one of the following options: **LINE** **SPEAKER** **MIC**

Examples:

Command	Response
SET LINE MUTE OFF↵	LINE MUTE OFF↵
SET MIC MUTE ON↵	MIC MUTE ON↵
GET LINE MUTE↵	LINE MUTE OFF↵

Volume Setting

Below command sets the absolute volume for the microphone input or the SPEAKER output:

Command	Details
SET w VOLUME z↵	Set the absolute volume for audio port **w** Where: **w** is one of the following options: **SPEAKER** **MIC** **z** is the volume level in the range **0** to **50** as a percentage value of the volume level.
GET w VOLUME↵	Get the absolute volume for audio port **w** Where: **w** is one of the following options: **SPEAKER** **MIC**

Examples:

Command	Response
SET SPEAKER VOLUME 25↵	SPEAKER VOLUME 25↵
SET MIC VOLUME 40↵	MIC VOLUME 40↵
GET SPEAKER VOLUME↵	SPEAKER VOLUME 25↵

I/O Configuration RS232 Commands

The SY-SMFS-81-18G has two digital input ports and two digital output ports. The GET command is used to return the level state for the input and output ports, while the SET command is used to set the output state of the digital output ports.

Command	Details
SET Ox LEVEL w↵	Set the digital state for the specified digital output port Where: **x** is either **1** or **2** for digital output 1 or 2 **w** is either **HIGH** or **LOW** for the desired state.
GET Ox LEVEL↵	Get the digital state for the specified digital output port Where: **x** is either **1** or **2** for digital output 1 or 2
GET Ix LEVEL↵	Get the digital state for the specified digital input port Where: **x** is either **1** or **2** for digital output 1 or 2

Examples:

Command	Response
GET O2 LEVEL↵	O2 LEVEL HIGH↵
SET O1 LEVEL LOW↵	O1 LEVEL LOW↵
GET I1 LEVEL↵	I1 LEVEL LOW↵

Interfacing to the Digital I/O Ports

The SMFS81-18G has two digital input ports and two digital output ports that are fully controllable using RS232 commands or the PC control software.

Using the Digital Inputs

The two input ports will each accept a positive logic level up to 24V. Never apply a negative voltage to the digital inputs.

Using the Digital Outputs

The two output ports only provide an output voltage of about 3.5V and are not suitable for directly driving relay coils or other inductive loads without using suitable back EMF circuitry protection. These outputs can tolerate 12V and can sink up to 100mA each.

System Commands

There are several system related commands that can be used to determine which product is connected to the RS232 communication link and getting the current IP configuration for the SY switcher device connected to a network.

Get Device Size

The following command returns the number of inputs and outputs supported by the switcher.

Command	Details
GET SYS SIZE↵	Get the number of video inputs and outputs supported by the device.

Examples:

Command	Response
GET SYS SIZE↵	SYS SIZE 8 2↵

Device IP Settings

The following command sets the device IP parameters. Note that when setting to DHCP mode, the IP address, Subnet mask and gateway addresses are not required. For STATIC IP mode, the IP address, subnet mask and default gateway must always be specified in the command.

Command	Details
SET SYS IP DHCP↵	Set the IP mode to DHCP. The device will get the required IP settings from the network server.
SET SYS IP STATIC,aa,ss,gg	Set the IP mode to STATIC. The device IP settings are provided in the command. Where: **aa** is the new device IP address given as four decimal octets **ss** is the new subnet mask given as four decimal octets **gg** is the IP address of the default gateway given as four decimal octets
GET SYS IP↵	Return the IP mode setting of the device.

Examples:

For these examples the MAC address is D8:B0:4C:B9:47:DF. This will be different for each device, but is always returned without the colons. All of the other IP addresses are the factory default values, except where specified by the example command.

Command	GET SYS IP↵
Response	SYS IP D8B04CB947DF DHCP,192.168.0.119,255.255.255.0,192.168.0.1↵

Command	SET SYS IP DHCP↵
Response	SYS IP DHCP↵

Command	SET SYS IP STATIC 192.168.0.222,255.255.255.0,192.168.0.1↵
Response	SYS IP STATIC,192.168.0.222,255.255.255.0,192.168.0.1↵

Get Firmware Version

This command will return the installed firmware versions.

Command	Details
GET SYS VERSION↵	Return the firmware version of the output port

Examples:

The response is just an example, the actual response will always show the installed firmware version.

Command	Response
GET SYS VERSION↵	SYS VERSION 2019/01/01-12:00:00↵

System Reset

The System Reset command will restore all settings, except IP settings, to their factory default values. The SYSTEM RESET command will take immediate effect, so use with extreme caution.

Command	Details
SET SYS RESET ALL↵	Reset the system to its factory defaults. See the above notes on usage.

Example:

This example shows a valid system reset response.

Command	Response
SET SYS RESET ALL↵	SYS RESET ALL↵

WebGUI Control

The SY-SMFS-81-18G also has a built-in WebGUI interface that permits control of the most common aspects of the seamless switcher (Figure 1) and configure the IP settings.

The default IP settings are as follows:

DCHP Mode:	Off (Static IP)
IP Address:	192.168.0.247
Subnet Mask:	255.255.255.0
Default Gateway	192.168.0.1
Default User:	admin
Default Password:	admin

A factory reset will not restore the above values. Any IP settings entered into the switcher will remain intact even after a factory reset command.

After entering the User and Password the following screen will appear:

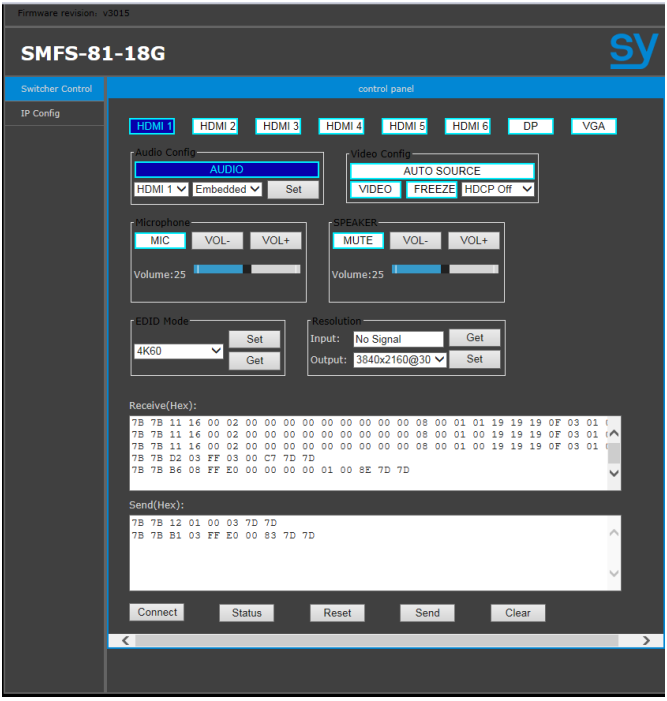


Figure 1 - Switcher Control Screen

Switcher control

Input selection:

The eight numbered buttons allow selection of the video inputs.

Audio Config:

- Permit the selection of the audio input source for each of the video inputs. Use each of the drop-down boxes to selected the input and its respective audio source and then click on the **set** button to make that change to the SY-SMFS81-18G.
- Permit turn on or off audio input (include external L+R input and HDMI embedded audio input, not including Microphone audio input) by press the **AUDIO** button.
  Turn on: Blue
  Turn off: Grey

Video Config:

- Permit turn on or off the Auto Detect the input source function by press the **AUTO SOURCE** button. When turn on, shows blue, turn off, shows grey.
- Permit turn on or off the input video by press the **VIDEO** button. When turn on, shows blue, turn off, shows grey.
- Permit freeze or unfreeze the output video by press the **FREEZE** button. When freeze, shows blue, unfreeze, shows grey.

- Permit configure the output video HDCP by using the drop-down box to set the output video HDCP.

Microphone:

- Permit turn on or off the microphone input by press the **MIC** button. When turn on, shows blue, turn off, shows grey.
- Permit adjust the microphone input presale by press the **VOL-** and **VOL+** button.
- Permit adjust the microphone input presale by drag the bar.

Speaker:

- Permit mute or unmute the Speaker output by press the **MUTE** button. When mute, shows blue, unmute, shows grey.
- Permit adjust the speaker output volume by press the **VOL-** and **VOL+** button.

EDID Mode:

Permit get or set the EDID mode. Use the drop-down box to select the EDID mode, then press **Set** to set the EDID mode, press **Get** to get the current EDID mode.

Resolution:

Permit get the input source resolution and set the output resolution.
Press **Get** button to get the current input source resolution;
Use the drop-down box to select the output resolution, and press **Set** button to set the output resolution.

Receive(Hex):

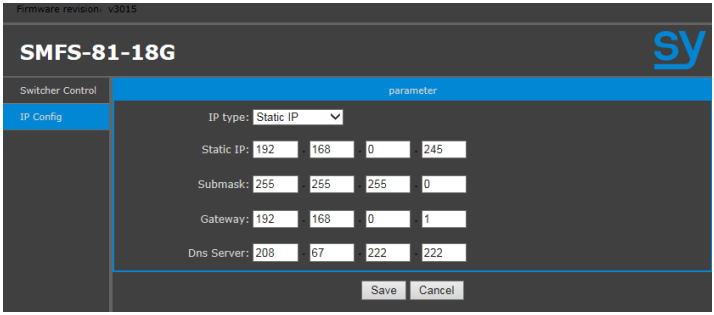
Displays the commands received from the SY-SMFS81-18G.

Send(Hex):

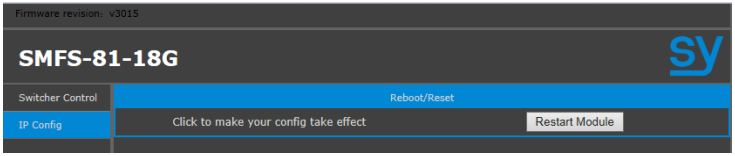
Displays the commands sent to the SY-SMFS81-18G.

IP Config:

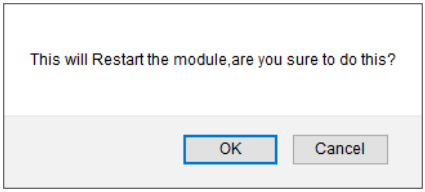
Selecting the IP Config side option will display the following screen:



Enter any required settings and click the Save button and the next screen will be displayed:



Click the Restart Module button to reboot the SY-SMFS81-18G and apply the new IP settings. The next confirmation window will appear:



Click the **OK** and wait for up to 10 seconds to allow the switcher to connect to a network server.

Enter the new IP address in the web browser to access the WebGUI at that address. If the IP address is unknown, then the MAC address may be used to determine the new IP address. All SY-SMFS81-18G units will have a MAC address beginning with D0:B0:4C.

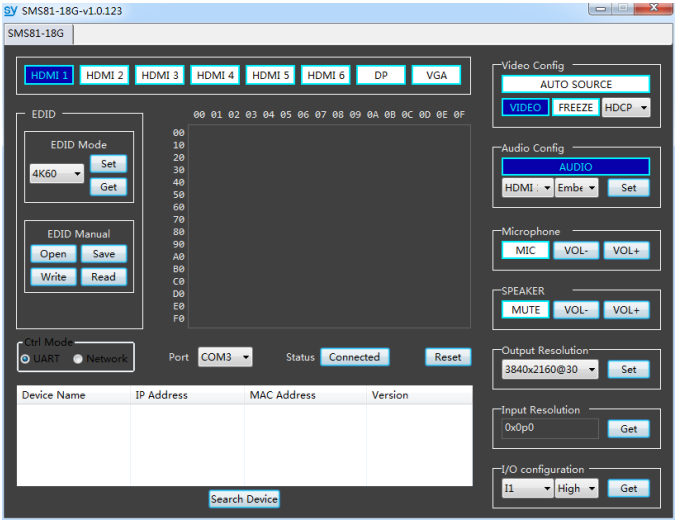
Bottom button row:

The five buttons at the bottom of the main page of the WebGUI (Figure 1) provide the following functions:

- **Connect** – Refresh the IP connection to the switcher.
- **Status** – Read the current status of the switcher.
- **Reset** – Send the Factory Reset command to the switcher.
- **Send** – Enter a command, in hexadecimal notation, in the lower window and click Send to transmit that command to the switcher.
- **Clear** – remove the contents of both the Receive and Send windows.

PC Tool

The SY-SMFS-81-18G also has a PC tool that permits control all of the functions via RS232 or IP.



Input selection:

The top eight numbered buttons allow selection of the video inputs. Press to switch. Current input button shows blue.

Video Config:

- Permit turn on or off the Auto Detect the input source function by press the **AUTO SOURCE** button. When turn on, shows blue, turn off, shows grey.
- Permit turn on or off the input video by press the **VIDEO** button. When turn on, shows blue, turn off, shows grey.
- Permit freeze or unfreeze the output video by press the **FREEZE** button. When freeze, shows blue, unfreeze, shows grey.
- Permit configure the output video HDCP by using the drop-down box to set the output video HDCP.

Audio Config:

- Permit the selection of the audio input source for each of the video inputs. Use each of the drop-down boxes to selected the input and its respective audio source and then click on the **set** button to make that change to the SY-SMFS81-18G.
- Permit turn on or off audio input (include external L+R input and HDMI embedded audio input, not including Microphone audio input) by press the **AUDIO** button.
- Turn on: Blue
- Turn off: Grey

Microphone:

- Permit turn on or off the microphone input by press the **MIC** button. When turn on, shows blue, turn off, shows grey.
- Permit adjust the microphone input presale by press the **VOL-** and **VOL+** button.
- Permit adjust the microphone input presale by drag the bar.

Speaker:

- Permit mute or unmute the Speaker output by press the **MUTE** button. When mute, shows blue, unmute, shows grey.
- Permit adjust the speaker output volume by press the **VOL-** and **VOL+** button.

Output Resolution:

Use the drop-down box to select the output resolution, and press **Set** button to set the output resolution.

Input Resolution:

Permit get the input source resolution.
Press **Get** button to get the current input source resolution;

I/O Configuration:

Reading the Input Level:

Use the drop-down box to select the input port, I1 or I2, and press the **Get** button to read the logic level at that input.

Setting the Output Logic Level:

Use the drop-down box to select the output port, O1 or O2, then select High or Low, and press **Set** button to set the output port to the chosen level.

EDID Mode:

Permit get or set the EDID mode. Use the drop-down box to select the EDID mode, then press **Set** to set the EDID mode, press **Get** to get the current EDID mode.
Permit to open exit EDID data by press **Open**.
Permit to save the EDID data by press **Save**.
Permit to Read the Output EDID by press **Read**.
Permit to Write the EDID data to all the inputs by press **Write**.

Specifications

Video and Audio

Input Video Formats Supported	All HDMI resolutions to 4096x2160p 60Hz 4:4:4 Examples: 4096 x 2160p 24/25/30/50/60Hz (HDMI Only) 3840 x 2160p 24/25/30/50/60Hz (HDMI Only) 1920 x 1200 60/65/75Hz 1920 x 1080p 24/25/30/50/60Hz 1920 x 1080i 50/60Hz 1680 x 1050 60/75Hz 1600 x 1200 60/65/70/75Hz 1600 x 1024 60/75Hz 1600 x 900 60/75Hz 1440 x 900 60/75Hz 1400 x 1050 60/75Hz 1366 x 768 60Hz 1360 x 768 60Hz 1280 x 1024 60/72/75/85Hz 1280 x 960 60/75/85Hz 1280 x 800 60/75Hz 1280 x 768p 50/60/75Hz 1280 x 720p 25/30/50/60/75Hz 1024 x 768p 60/70/75/85Hz 800 x 600p 60/72/75/85Hz 720 x 576p 60Hz 640 x 480p 60/65/85Hz
Output Scaled Video	3840 x 2160 25/30/50/60Hz 1920 x 1200 60Hz 1920 x 1080 50/60Hz 1600 x 1200 60Hz 1360 x 768 60Hz 1280 x 720 50/60Hz 1024 x 768 60Hz Auto
Audio Format Supported	LPCM
Microphone	Mic: Dynamic Microphone 20-20KLHz 48V: Condenser Microphone 20-20KLHz Line: Line or wireless Microphone 1Vrms 20-20KLHz
Audio inputs	10K impedance. BW 20Hz 20KHz. 1V rms
Line Out	Balanced stereo output. BW 20Hz – 20KHz. Max. 1V rms
Audio Amplifier	2x 20W output

General

Input Video Signals	6 x HDMI 2.0 (up to 18Gbps) 1 x DisplayPort (1.2) 1 x VGA (VESA resolutions)
Max input/output Bandwidth	18Gbps (HDMI)
HDCP Compliance	HDCP 1.4, HDCP 2.2
IR In / Out (HDBT Bypass)	Wide band carrier 30-60 KHz
RS232-CTL	57600 baud, 8 data bits, 1 stop bit, no parity

Digital I/O Ports

Output Voltage Level	100mA, 12V Max. Weak pull up to 3.3V. Not voltage clamped
Input Voltage Level	Logic level input levels. Can tolerate 24V max.

Power Supply

Power Consumption	60W max. (45W nominal)
Supply Voltage	110~240VAC

Environmental and Physical

Operating Temperature Range	0 to +40°C (+32 to +104 °F)
Operating Humidity Range	10 to 50 % RH (non-condensing)
Dimensions	L430 x W220 x H44 mm / L16.9”xW8.7”xH1.65”
Mass (Main Unit)	4kg

Package Contents

Item	Qty
SY-SMFS81-18G unit	1
SY-SMFS81-18G User Manual	1
Rack mounting brackets	2 (already fitted)
3 pin female captive screw connector	9
4 pin female captive screw connector	1
5 pin female captive screw connector	1
AC Power cord (IEC 60320 C13)	1

Safety Instructions

To ensure reliable operation of this product as well as protecting the safety of any person using or handling this device while powered, please observe the following instructions.

1. This product is powered directly from a mains outlet. **DO NOT** open this product as doing so will increase the risk of electrical shock.
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. **Do not** obstruct any ventilation holes.
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 this product in a dry environment. Do not allow any liquids or harmful chemicals to come into contact with these products.
6. Due to the weight and physical size of some of these matrix switchers, correct Manual Handling and Lifting procedures should be observed at all times while handling these products in order to minimise the risk of injury.

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.

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