SY-MS51U-18G
&
SY-HDBT-U3-R-18G

User Manual

**5x1 Seamless Switcher with
Multiview Modes & USB-C Charging (60W)**
4K60 4:4:4 (18Gbps)
2 USB-C inputs, 3 HDMI inputs
KVM control for up to 3 local PCs and 1 Remote PC

Thank you for purchasing the SY-MS51U-18G

The SY-MS51U-18G and its receiver are designed with professional AV installers in mind. The many extensive features assist in system integration, validation and maintenance.

Installation precautions

The SY-MS51U-18G has special circuitry to protect it against moderate surges and static discharges. However, to ensure reliable operation and long service life, it is important to take the necessary precautions against any spikes, surges and static discharges.

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

Shielded cable and in particular cat6, cat6a or cat7 is highly recommended. As much as possible cables should be routed away from any noisy sources and avoiding long runs in close proximity to AC mains cables.

The SY-MS51U-18G is a 5 input seamless switcher with Multi-view and KVM capabilities. The switcher provides 2 USB-C inputs and 3 HDMI inputs. The HDMI and HDBaseT outputs of the switcher are mirrored, both showing the same image. The SY-MS51U-18G is designed to work with the SY-HDBT-U3-R-18G receiver included in the box. The receiver can select between the computer connected to it or the HDBaseT output of the switcher.

KVM control is only supported by both USB-C and the HDMI 3 inputs. HDMI 4 and HDMI 5 are for additional video sources only.

Each USB-C port can provide up to 60W of charging power to a USB-C device. The USB-C ports also support Ethernet Access over USB-C allowing USB-C source devices to access the internet via the LAN port of the SY-MS51U-18G switcher.

The supplied receiver has USB ports for KVM control of a PC connected to it as well any one of the possible three PCs connected to the main switcher unit. The receiver can select between the switcher output and its locally connected HDMI source.

A Dante® port is available on the switcher that allows for digital audio input and output when connected to a Dante® audio device.

Features
- Supports full 4K60 4:4:4 (18G)
- 5 input seamless switcher with mirrored HDMI and HDBaseT outputs
- Multi-view modes: dual, triple, quad, and PIP
- Programmable PIP mode
- KVM capability at the switcher and at the receiver
- Two USB-C inputs with KVM support
- Three HDMI inputs, one with USB port for KVM support
- Mirrored HDMI and HDBaseT outputs
- Supports audio input and output via a Dante® enabled sound system
- Balanced analogue stereo audio input and output
- Supports **60W + 60W** charging power per USB-C ports

Packing List
- SY-MS51U-18G – Main unit
- SY-HDBT-U3-R-18G – Receiver
- User Manual
- 24V 8A Power Supply
- UK 13A to IEC cable
- EU to IEC cable
- IR remote control
- IR Emitter and IR Receiver
- 3 off 5-way pluggable connectors
- 3 off 3-way pluggable connectors
- 2 mounting brackets for the main units
- 2 mounting brackets for the receiver unit

Connectors and Controls

SY-MS51U-18G

Front
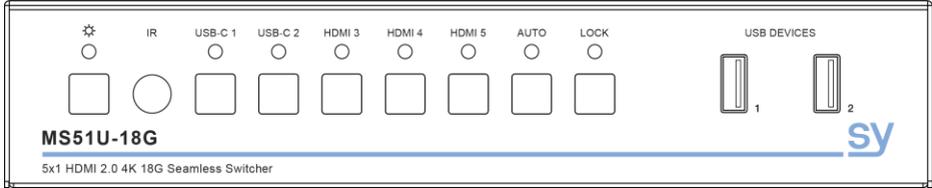
Name	Description
Power LED	Lit when the MS51U-18G is in standby mode
Power Button	Press and hold to put the SY-MS51U-18G into standby Briefly press to bring the SY-MS51U-18G out of standby
Input LEDs	Indicates which inputs are selected to the output. When in Multi-view mode, any input being displayed will have its LED lit. If there is no signal at a selected input, its LED will flash.
Input Buttons	Press to select the input to full screen view.
AUTO LED	Auto input selection is enabled when this LED is lit.
AUTO Button	A brief press toggles the AUTO input detection mode.
LOCK LED	When lit, the front buttons, except the LOCK button, are locked and cannot be used.
LOCK Button	Press and hold to change the front panel Lock status.
USB Devices 1 & 2	USB 3.0 device ports (for Inputs 1 to 3).

Rear
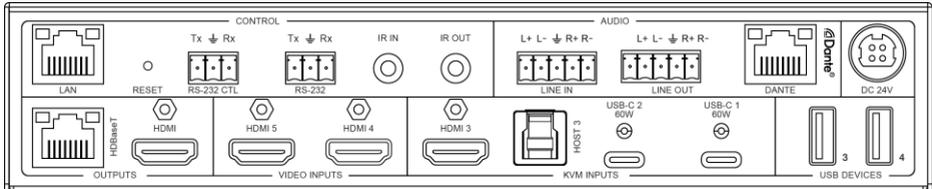
Name	Description
LAN	RJ45 for LAN connection
RESET	Hidden button to reset the switcher, hold down for 5 seconds to force a reset
RS-232-CTL	RS232 port for controlling the MS51U-18G
RS-232	Pass-through to the HDBaseT port
IR IN	Input from IR Eye for the SY-HDBT-U3-R-18G receiver IR OUT
IR OUT	IR output from the SY-HDBT-U3-R-18G receiver IR IN
LINE IN	Balanced stereo analogue audio input
LINE OUT	Balanced stereo analogue audio output
DANTE	RJ45 for audio transfer from a Dante® System
DC 24V	24V DC input from PSU
HDBaseT	Output to the SY-HDBT-U3-R-18G receiver
HDMI	Output to local display device
HDMI 5 ~ HDMI 3	HDMI inputs
HOST 3	USB Type-B connection to the PC connected to HDMI 3
USB-C 2 & USB-C 1	USB-C inputs (video, data, and 60W charging per port)

USB Devices 1 & 2	USB device ports for Inputs 1 to 3

SY-HDBT-U3-R-18G

Front
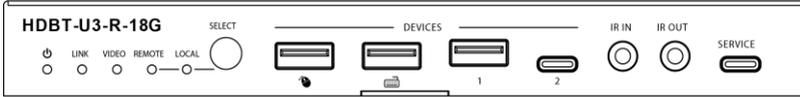
Name	Description
Power LED	Lit when the receiver is powered
Link LED	Lit when the receiver is linked to the SY-MS51U-18G switcher
Video LED	Lit when video signal is being output from the SY-MS51U-18G switcher Off indicates there is no video present Flashing indicates no HDCP present Steady indicates that HDCP is present
Remote LED	Lit when the HDBaseT input is selected
Local LED	Lit when the HDMI input is selected
Select Button	Press to toggle between the HDBaseT and HDMI inputs, KVM control
Devices	USB Type-A sockets for mouse, keyboard and a USB-3 device and a USB-C device
IR IN	Input from IR Eye
IR OUT	IR Output from the SY-MS51U-18G switcher
Devices	USB Type-A sockets for local Keyboard and mouse, or other devices
Service	For use by Service personnel only

Rear
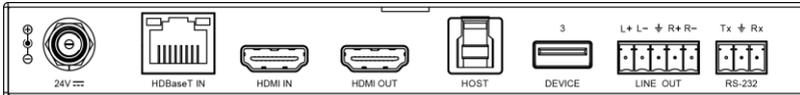
Name	Description
24V DC	24V DC input from optional PSU
HDBaseT In	HDBaseT Input from the SY-MS51U-18G switcher – supports PoC
HDMI In	HDMI Input from local PC
HDMI Out	HDMI output to local display device
HOST	USB Type-B to the local PC
USB 3	Type-A USB socket for USB-3 devices
Line Out	Balanced stereo audio output
RS-232	RS-232 port (HDBT Pass-through)

Using this Product

MS51U-18G inputs 1 and 2 are for USB-C devices and support the following features:
- Keyboard Video and Mouse (KVM) mode
- All video resolutions up to 4K60 4:4:4, 8 bit colour depth
- Access to USB devices connected to the switcher
- Ethernet over USB-C
- 2x 60W charging power USB-C ports

HDMI Input 3 on the main unit is associated with the USB-B HOST 3 connector for KVM mode.
HDMI inputs 4 & 5 are for HDMI video sources only.
The USB 3 and USB 4 ports are fully USB 3.0 compatible.

Both the HDMI and HDBaseT outputs show the same image (mirrored). The HDBaseT output should be connected to the SY-HDBT-U3-18G receiver.

If a local HDMI source or PC is required at the receiver, connect it to the HDMI input of the SY-HDBT-U3-18G receiver.

NOTE: When switching between PCs at the receiver, please allow some time for the selected PC to detect the USB changes.

Additional Options

Dante®
The SY-MS51U-18G has a Dante® digital audio port that can connect to any Dante® audio device. This port can both send and receive Dante audio data.

Ethernet over USB-C
Both the USB-C ports support Ethernet over USB-C allowing USB-C devices to access the internet.

Keyboard and Mouse Function
The Keyboard and mouse function to a PC is only supported for the PC showing in multiview window 1. The remaining Multi-view windows do not support this feature. Only the USB-C 1, USB-C 2 and HDMI 3 inputs fully support keyboard and mouse to the PC they are connected to. When switching between LOCAL and REMOTE at the receiver, allow a little time for the selected PC to detect the changes to the USB keyboard and mouse devices connected to the receiver.

Multiview Red Border
When in Multi-view mode, one of the windows will have a red border. This indicates the window that will become Full-screen when the **Ctrl Ctrl Q** or **Ctrl Ctrl Spacebar** keyboard hotkey commands are used.

Panel Lock Button
Press and hold the LOCK button until its LED changes state. The front panel buttons are locked while the LOCK LED is lit. Pressing any locked button causes all the green LEDs to flash.

Power Button
Press and hold the POWER button place the switcher into standby mode when the POWER LED is lit. Briefly press the POWER button to set the switcher to normal operating mode.

USB Support over the Cat6 Cable
USB support over the Cat6 cable is limited to USB 2.0 maximum. USB 3.0 is only supported locally on the device to the PC associated with that device.

Charging USB-C Devices
The SY-MS51-U3-18G also supports up to 60W charging from both the USB-C input ports. This allows for charging of USB-C devices from either or both USB-C-1 / USB-C-2.

Front Panel LEDs
When operating, the power LED is off and one or more of the input LEDs will be lit.
In standby mode, the power LED is lit and all the input LEDs will be off.

Audio Wiring
When connecting the balanced analogue audio output of the switcher or the receiver to an unbalanced audio input, care should be taken to ensure proper wiring. Connect the wires as shown in these diagrams, note that the output L– and R– connections should have no

connections made to them. This does not apply when connecting to a balanced audio input as all five connections must be used.

Wiring to an Unbalanced Input

RIGHT
GROUND
LEFT

Wiring to a Balanced Input

RIGHT-
RIGHT+
GROUND
LEFT-
LEFT+
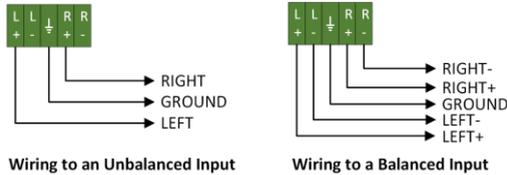
When connecting the balanced analogue audio input of the switcher to an unbalanced audio source, care should be taken to ensure proper wiring, as per below.

Wiring from an Unbalanced Output

LEFT+
GROUND
RIGHT+

Wiring from a Balanced Output

LEFT+
LEFT-
GROUND
RIGHT+
RIGHT-

Note that the "LEFT-" and "RIGHT-" inputs are both linked to the ground connection when wiring from an unbalanced audio output. For a balanced audio input, wire all five connections from the balanced audio output as shown.

Factory Defaults

The following table lists all the factory default settings:

Parameter	Value
Baud Rate	57600
Date Bits	8
Parity	None
Stop Bits	1
Fan speed	Auto
Output Resolution	Auto
Output Volume	50%
Audio EQ Settings	Flat
Static IP Address	192.168.0.100
IP Subnet mask	255.255.255.0
IP Gateway	192.168.0.1
IP Mode	DHCP
IP Control Port	8000
Telnet Port	23
Admin Password	admin
User Password	user
Display Auto Power Feature	On
Display Auto Power Timer	5 seconds
Display Auto Power Control	CEC and RS232

The Display Auto Power options set when the MS51U-18G sends CEC and/or RS-232 commands when it enters or exits its standby state, this also occurs when the switcher boots up. These options are configured using the WebGUI.

Keyboard and Mouse Hotkeys

These keyboard and mouse hotkey commands are only accepted by the SY-HDBT-U3-R-18G receiver of the SY-MS51U-18G switcher. To use the hotkeys, simply press the key values in sequence, as shown in bold.

Several commands are also assigned to keyboard & mouse hotkey sequences. For the keyboard hotkeys, note that **Ctrl Ctrl** may also be replaced by **Scroll-Lock Scroll-Lock**. In each case the **Ctrl** or the **Scroll-Lock** key is double tapped and the Scroll-Lock LED will flash several times as it waits for the command keys. The hotkey command must be fully entered during this time else it will be ignored.

Only the PC selected in Window 1 accepts the keyboard and mouse input. The controllable ports are **USB-C-1**, **USB-C-2** and **HDMI 3**. Note: **HDMI 4** and **HDMI 5** do not support KVM control.

Toggle the Hotkey Mode

This command should be entered to enable or disable the keyboard and mouse hotkey actions.

Press:	Action
Ctrl Ctrl H 1 2 3 4 Enter	Toggle hotkey mode

The factory default password of **1234** can be changed using an RS232 command.

Selecting Multiview Modes

These keyboard function keys are used to select one of the five display Multi-view modes.

Press:	To Select Input:
Ctrl Ctrl F1	Single Screen Mode
Ctrl Ctrl F2	Dual (Picture-By-Picture)
Ctrl Ctrl F3	Triple
Ctrl Ctrl F4	Quad
Ctrl Ctrl F5	PIP (Picture-In-Picture)
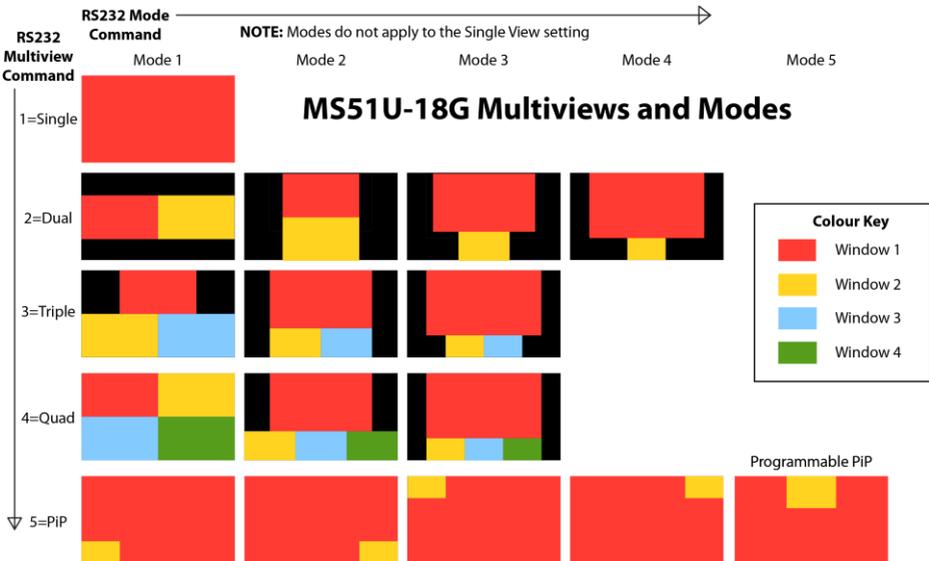
Selecting Inputs – Single View

These commands select each of the inputs to Full-screen mode.

Press:	To Select Input
Ctrl Ctrl 1	USB-C 1
Ctrl Ctrl 2	USB-C 2
Ctrl Ctrl 3	HDMI 3
Ctrl Ctrl 4	HDMI 4
Ctrl Ctrl 5	HDMI 5
Ctrl Ctrl 6 or Ctrl Ctrl L	Receiver Local HDMI

Selecting Inputs – Multi-View

The following command selects any input to a specified window number only when in Multi-view mode.

Press Hotkey Command:	To Select Input to a Window	Usage
Ctrl Ctrl W x S y	Select input y to window x	Where **x** is the Multi-view window in the range 1 to the maximum window number, and **y** is the input number in the range 1 ~ 5.

For this command the windows are numbered as referenced by the colour key in the following example diagrams.

Next / Previous Selection

This command selects the Multi-view windows depending on the display mode.

Press:	Action in Multi-view Mode	Action in Single Screen
Ctrl Ctrl Page Up	Select Next Window	Select Next Input
Ctrl Ctrl Page Down	Select Previous Window	Select Previous Input

The selected window is indicated by a red border.

Display Toggle

These commands toggle between the current Multi-view setting and selecting the window with the red border to Full-screen mode.

Press:	Action
Ctrl Ctrl Q or Ctrl Ctrl Spacebar	Toggle view modes

Presets

The MS51U-18G has five programmable presets that will store the current configuration of the switcher, including any multiview settings that are active when the preset is stored.

Storing Presets

The current view selections can be saved to any one of the 5 presets.

Press:	Action	Usage
Ctrl Ctrl S p	Save view to a preset	Where **p** is the preset number (1-5)

Recalling Presets

This hotkey combination recalls one of the 5 presets.

Press:	Action	Usage
Ctrl Ctrl C p	Recall a preset	Where **p** is the preset number (1-5)

Audio Selection

The audio from the receiver may be selected from any one of the five SY-MS51U-18G inputs.

Press:	Audio source selection / function
Ctrl Ctrl A 1	USB-C 1
Ctrl Ctrl A 2	USB-C 2
Ctrl Ctrl A 3	HDMI 3
Ctrl Ctrl A 4	HDMI 4
Ctrl Ctrl A 5	HDMI 5
Ctrl Ctrl A 0	Input showing in Window 1
Ctrl Ctrl A D	Audio Mute
Ctrl Ctrl A E	Audio Unmute
Ctrl Ctrl A M	Toggle line out audio mute

Mouse Hotkeys

The buttons of a three-button mouse can also be used to do video selections:

First Button	Second Button	Action
Double click **Middle**	Single click **Right**	Select Next Input or Window (Same action as **Ctrl Ctrl Page-Up**)
Double click **Middle**	Single click **Left**	Select Previous Input or Window (Same action as **Ctrl Ctrl Page-Down**)
Triple click **Middle**	—	Toggle view modes (Same action as **Ctrl Ctrl Q**)

RS232 and IP Commands for the SY-MS51U-18G Only

The factory default values for sending commands to the SY-MS51U-18G switcher are:

Baud Rate:	57600
Data Bits:	8
Parity:	None
Stop Bits:	1
TCP/IP port:	8000
Telnet port:	23

Note that any of the above values may be different after sending RS232 commands to configure the serial port, TCP/IP parameters, or by changing the settings from the Web GUI.

All commands must end in a carriage-return.

All commands must be sent as a continuous burst of characters; hand-typing the RS232 commands into a terminal emulation program does not work. This is not applicable to sending control commands by IP as they are always sent as complete data packets.

The commands given in the following sections can also be sent to the LAN port using the IP address of the SY-MS51U-18G switcher to the TCP/IP port 8000 or the Telnet port 23.

When the SY-MS51JU-18G starts up, it will output text similar to the following from the RS232 CTL port. The actual values will be different.

```
Power On
System Initializing...
Search for IP,Please wait ...!
IP Mode: DHCP
```

```
IP: 10.9.0.23
Subnet Mask: 255.255.255.0
Gateway: 10.9.0.1
TCP/IP port: 8000
Telnet port: 23
MAC: 6F:FD:FB:00:89:F4
(Static: 192.168.0.100, 255.255.255.0, 192.168.0.1)
Initialization Finished!
TX 1.00.13  Web 1.00.12  Scaler 20240812-20  FPGA 1.00.04
Rx no link
Auto Switch: On
```

Help

The Help command outputs a list of all available commands for the installed firmware version. Note that there are two help commands.

Command	Response	Description
Help **?**	List of available commands	Outputs a list of all command supported by the installed firmware.

Get Firmware Versions

This command returns the current installed firmware versions for the switcher and the receiver, if it is connected.

Command	Response	Description
r fw version	See below.	Return the installed firmware versions.

The firmware response will be similar to one of the following replies. Note that the actual values will match with the installed firmware versions.

With No Receiver Present

The **RX no link** text at the end of the response indicates that the receiver could not be detected.

```
TX 1.00.07  Web 1.00.06  Scaler 20231128-19  FPGA 1.00.03  RX no link
```

With Receiver Present

The RX version number text at the end indicates that the receiver was detected.

```
TX 1.00.07  Web 1.00.06  Scaler 20231128-19  FPGA 1.00.03  RX 1.00.09
```

IP/Network Commands

Command	Response	Description
s ip mode x	IP mode: Static IP mode: DHCP	Set the network mode, where **x** is: 0: Static IP 1: DHCP mode
r ip mode	IP mode: Static IP mode: DHCP	Return the IP mode

Get MAC Address

Command	Response	Description
r mac addr	MAC:XX:XX:XX:XX:XX:XX	Return the Ethernet MAC address of the switcher

IP Configuration

These commands set or return the IP address of the switcher.

Command	Response	Description
s ip addr xxx.xxx.xxx.xxx	IP addr: xxx.xxx.xxx.xxx	Set the IP address
r ip addr	IP addr: xxx.xxx.xxx.xxx	Return the IP address
s subnet xxx.xxx.xxx.xxx	Subnet Mask: xxx.xxx.xxx.xxx	Set the network subnet mask
r subnet	Subnet Mask: xxx.xxx.xxx.xxx	Return the network subnet mask
s gateway xxx.xxx.xxx.xxx	Gateway: xxx.xxx.xxx.xxx	Set the default gateway address
r gateway	Gateway: xxx.xxx.xxx.xxx	Return the default gateway address
s tcp/ip port x	TCP/IP port: x	Set the TCP/IP port (default = 8000)
r tcp/ip port	TCP/IP port: x	Return the TCP/IP port
s telnet port x	Telnet port: x	Set the Telnet port (default = 23)
r telnet port	Telnet port: x	Return the Telnet port

The allowable value range for the **TCP/IP** and **Telnet** ports is 1 ~ 65535.

Network Reboot

This command reboots the network modules.

Command	Response	Description
s net reboot		Reboot the network modules.

Password Control

These commands are for changing the various passwords of the switcher.

Command	Response	Description
s hotkey-pass xxxx	Hotkey-pass: xxxx	Set the hotkey password, where **xxxx** is a four digit number.
r hotkey-pass	Hotkey-pass: xxxx	Return the current hotkey password, where **xxxx** is a four digit number.
s admin password x	admin password: x	Set the admin login password, where **x** is a character string up to 16 characters max.
r admin password	admin password: x	Return the admin login password, where **x** is a character string up to 16 characters max.
s user password x	user password: x	Set the user login password, where **x** is a character string up to 16 characters max.
r user password	user password: x	Return the user login password, where **x** is a character string up to 16 characters max.

Status

The Status command returns the current status of the switcher. Listed in the status report is the connection state or the inputs and outputs, signal resolution, colour space, colour depth, HDCP mode and EDID setting for each of the inputs and outputs.

Command	Response	Description
r status	See below.	Return the status information for the switcher.

The status output will be similar to the following; the details will vary depending on the connections and settings made to the MF51U-18G switcher:

```
================================================================
Status Info
TX 1.00.07  Web 1.00.06  Scaler 20231128-19  FPGA 1.00.03  RX 1.00.09

Input      Cable        Resolution     ColorSpace    ColorDepth    HDCP    EDID
USB-C 1    Connected    1920x1080p60   RGB           8bit          Off     Auto
USB-C 2    Connected    1920x1080p60   RGB           8bit          Off     Auto
HDMI 3     Connected    1920x1080p60   RGB           8bit          Off     Auto
HDMI 4     Connected    1920x1080p60   RGB           8bit          Off     Auto
HDMI 5     Connected    1920x1080p60   YUV 4:4:4     8bit          Off     Auto

Output     Cable        Resolution     ColorSpace    ColorDepth    HDCP    AVMute    Source
HDMI OUT   Connected    1920x1080p60   RGB           8bit          1.4     Off       5
HDBT OUT   Connected    1920x1080p60   RGB           8bit          2.2     Off       5

Power   Key    Beep    IR    UsbcAccessNetwork    FanSpeed    Temp(C)    Baud
On      On     Off     On    On                   Auto        47         115200

TCP/IP    Telnet    MAC
8000      23        6C:DF:FB:00:98:F4

DHCP     IP                 Gateway            SubnetMask
Off      192.168.000.145    192.168.000.001    255.255.255.000

Dante: V1.00.08 192.168.0.200
================================================================
```

Power Control

These commands control or retrieve the power state of the switcher.

Command	Response	Description
s power on	Power on Followed by start-up text	Turn the switcher on.
s power off	Power off	Set the switcher to standby mode.
r power	Power on Power off	Return the current power state.

System Commands

These 2 system commands are used to reboot or reset the switcher back to the factory defaults.

Command	Response	Description
s reboot	Same as the start-up text	Reboot the switcher.
s reset	power on Followed by start-up text	Restore the switcher to its factory defaults.

Front Panel Control

These commands set or read the front panel lock status.

Command	Response	Description
s front button 0	Front button: Unlocked	Unlock the front panel.
s front button 1	Front button: Locked	Lock the front panel.
r front button	One of the above responses	Return the front panel lock state.

Key Beep Control

These command sets or reads the key beep status. The key beep, when enabled, will sound when any control command is accepted.

Command	Response	Description
s beep 0	Beep: off	Turn the key beep off.
s beep 1	Beep: on	Turn the key beep on.
r front button	One of the above responses	Return the key beep state.

Front Panel IR Sensor

These commands enable or disable the front panel IR sensor for the IR remote controller.

Command	Response	Description
s ir 0	IR: off	Disable the front panel IR sensor
s ir 1	IR: on	Enable the front panel IR sensor
r ir	One of the above responses	Return the front IR sensor state

Fan Speed Control

These commands set or get the fan speed. Use the Auto setting to give the quietest fan operation as the fan will only run when necessary, at a suitable speed, until the switcher cools.

Command	Responses	Description
s fan speed x	Fan Speed: Auto Fan Speed: 25% Fan Speed: 50% Fan Speed: 75% Fan Speed: 100%	Set the fan speed where **x** is: 0 = Auto 1 = 25% 2 = 50% 3 = 75% 4 = 100%
r fan speed	One of the above responses	Return the fan speed mode.

Reading the Internal Temperature of the Switcher

The MS51U-18G has a built-in temperature sensor, used to control the fan speed when it is in Auto mode. The value of the sensor, in °C, can be read at any time. The reported temperature has a resolution of ±1°C.

Command	Response	Description
r temp	nnC	Return the temperature of the MS51U-18G where **nn** in the response is the temperature value in °C, with a resolution of ±1°C.

Input Selection

The input selection command to use depends on the output display mode. The Multi-view mode requires the window specifier, which is not needed when in single view mode.

Command	Responses	Description
s input source x	Input Source: USB-C 1 Input Source: USB-C 2 Input Source: HDMI 3 Input Source: HDMI 4 Input Source: HDMI 5	Select the desired input to single screen mode where **x** is 1 ~ 5.
r input source	One of the above responses	Return the current input selection when in single screen mode. Error **E00** is returned when in Multi-view mode.
s window x in y	Window 1 in USB-C 1 Window 2 in USB-C 2 Window 3 in HDMI 3 Window 4 in HDMI 4 Window 1 in HDMI 5	Select the desired input **y** to the specified window **x**. Where **x** is in the range 1 to the maximum visible window number when in multiview mode, and **y** is the input number 1 ~ 5.
r window x in	One of the above responses or one of the below error messages	Return the current input selection for the specified window when in Multiview mode.

If the window does not exist for the current view mode, the response will be one of the following

messages:

> Single mode Indicates a maximum of one window!
> PBP mode has a maximum of two Windows!
> Triple mode has up to three Windows!
> Quad mode has up to four Windows!
> PIP mode has a maximum of two Windows!

Auto Switch

Main Switcher Auto Switch

The auto switch function will switch to any input that has an HDMI signal present. The auto switch setting can also be changed by pressing the Auto button on the front panel or from the WebGUI.

Command	Response	Description
s auto switch x	Auto Switch: On Auto Switch: Off	Set or clear the auto switch function. **x** = 0 Turn the auto switch function off. **x** = 1 Turn the auto switch function on.
r auto switch	Auto Switch: On Auto Switch: Off	Return the auto switch setting

Receiver Auto Switch

This command sets or clears the auto switch function.

Command	Response	Description
s rx auto switch x	RX Auto Switch: On RX Auto Switch: Off	Set or clear the receiver's auto switch function. **x** = 0 Turn the auto switch function off. **x** = 1 Turn the auto switch function on.
r rx auto switch	RX Auto Switch: On RX Auto Switch: Off	Return the auto switch setting of the receiver

This command sets how the auto switch mode of the receiver is triggered.

Command	Response	Description
s rx auto switch mode x	RX Auto Switch Mode: Tmds RX Auto Switch: 5V	Set Receiver Auto Switch function to TMDS or 5V detection. **x** = 0 Set the auto switch mode to TMDS signal detection. **x** = 1 Set the auto switch mode to 5V detection.
r rx auto switch mode	RX Auto Switch Mode: Tmds RX Auto Switch: 5V	Return the auto switch mode setting of the receiver

Set the Receiver Input Source

This command will set the input source for the receiver as either the HDBaseT input from the main switcher or the local HDMI input.

Command	Response	Description
s rx input x	RX Input: HDMI RX Input: HDBT	Set the input source for the SY-HDBT-U3-R-18G receiver. **x** = 1 Switch to the HDBaseT input. **x** = 2 Switch to the HDMI input.
r rx input	One of the above	Return the receiver source selection setting.

Fallback Input

The fallback input is the one chosen when the current input is lost. Auto mode will select the next highest available input.

Command	Response	Description
s fallback input x	One of the following: Fallback Input: Auto Fallback Input: USB-C 1 Fallback Input: USB-C 2 Fallback Input: HDMI 3 Fallback Input: HDMI 4 Fallback Input: HDMI 5	Set the fallback input source for the switcher. **x** = 0 Auto. **x** = 1 USB-C 1. **x** = 2 USB-C 2. **x** = 3 HDMI 3. **x** = 4 HDMI 4. **x** = 5 HDMI 5.
r fallback input	One of the above messages.	Return the receiver source selection setting.

Audio / Video Muting

This command can mute both the audio and video output of both the HDMI and HDBaseT outputs at the same time.

Command	Response	Description
s output avmute x	Output AV Mute: On Output AV Mute: Off	Mute the HDMI and HDBaseT outputs of the switcher. **x** = 0 AV mute off. **x** = 1 AV mute on.
r fallback input	Output AV Mute: On Output AV Mute: Off	Return the receiver source selection setting.

Input EDID Selection

The default EDID setting is Auto for all inputs, allowing the switcher to EDID from the connected display to request the best resolution from the source device to ensure an image will be displayed. The SY-MS51U-18G also has a number of built-in EDID settings that are selected using the following RS223 commands.

Command	Responses	Description

s input x edid y	See below	Select the desired input to single screen mode where **x** is input 0 ~ 5:
		    0 = apply EDID to all inputs
		    1 = apply EDID to USB-C 1 only
		    2 = apply EDID to USB-C 2 only
		    3 = apply EDID to HDMI 3 only
		    4 = apply EDID to HDMI 4 only
		    5 = apply EDID to HDMI 5 only
		
		y is the EDID setting 1~16:
		    1 = Auto (use HDMI, HDBaseT, or both)
		    2 = Copy from HDMI output
		    3 = Copy from HDBaseT output
		    4 = 4K60 4:4:4 – 2 ch stereo
		    5 = 4K30 4:4:4 – 2 ch stereo
		    6 = 1080p60 – 2 ch stereo
		    7 = 720p60 – 2 ch stereo
		    8 = 1920x1200 – 2 ch stereo

Command	Responses	Description
		9 = 1680x1050 – 2 ch stereo
		10 = 1600x1200 – 2 ch stereo
		11 = 1440x900 – 2 ch stereo
		12 = 1360x768 – 2 ch stereo
		13 = 1280x1024 – 2 ch stereo
		14 = 1024x768 – 2 ch stereo
		15 = User defined 1
		16 = User defined 2
r input x edid	See below	Return the current EDID setting for the specified input:
		0 = read EDID setting for all inputs
		1 = read EDID setting for USB-C 1 only
		2 = read EDID setting for USB-C 2 only
		3 = read EDID setting for HDMI 3 only
		4 = read EDID setting for HDMI 4 only
		5 = read EDID setting for HDMI 5 only
r input x EdidData		Read the EDID data from the specified input

The response to the first two commands will be of the form:

```
Input <Input> EDID: <Mode>
```

The **r input x EdidData** responds with a similar message except that `<Mode>` contains the 256 EDID data values enclosed inside angle brackets:

```
Input <Input> EDID: <EdidData>
```

In each case:

`<Input>` is one of **USB-C 1**, **USB-C 2**, **HDMI 3**, **HDMI 4**, or **HDMI 5**.

`<Mode>` is one of the responses in following table, using **HDMI 3** as an example:

Command	Responses
s input 3 edid 1	Input HDMI 3 EDID: Auto
s input 3 edid 2	Input HDMI 3 EDID: Copy HDMI OUT
s input 3 edid 3	Input HDMI 3 EDID: Copy HDBT OUT
s input 3 edid 4	Input HDMI 3 EDID: 4K60 4:4:4, Stereo Audio 2.0
s input 3 edid 5	Input HDMI 3 EDID: 4K30 4:4:4, Stereo Audio 2.0
s input 3 edid 6	Input HDMI 3 EDID: 1080p60, Stereo Audio 2.0
s input 3 edid 7	Input HDMI 3 EDID: 720p60, Stereo Audio 2.0
s input 3 edid 8	Input HDMI 3 EDID: 1920x1200, Stereo Audio 2.0
s input 3 edid 9	Input HDMI 3 EDID: 1680x1050, Stereo Audio 2.0
s input 3 edid 10	Input HDMI 3 EDID: 1600x1200, Stereo Audio 2.0
s input 3 edid 11	Input HDMI 3 EDID: 1440x900, Stereo Audio 2.0
s input 3 edid 12	Input HDMI 3 EDID: 1360x768, Stereo Audio 2.0
s input 3 edid 13	Input HDMI 3 EDID: 1280x1024, Stereo Audio 2.0
s input 3 edid 14	Input HDMI 3 EDID: 1024x768, Stereo Audio 2.0
s input 3 edid 15	Input HDMI 3 EDID: User Defined 1
s input 3 edid 16	Input HDMI 3 EDID: User Defined 2

Output Resolution

The default output resolution is **Auto** and thus uses the resolution that is best suited to the preferred resolution of the display device. This command also allows for setting a specific output resolution from the list of available output resolutions.

Command	Responses	Description
s output res x	See the following table	Select the desired input to single screen mode where **x** is 1 ~ 15 as listed in the following table.
r output res	See the following table	Return the current output resolution setting.

The left-hand column is the value for **x** in the above **s output res x** command and the right-hand column gives the RS232 response text.

x-value for the set command	Response text
1	Out Resolution: Auto
2	Out Resolution: 3840x2160p60
3	Out Resolution: 3840x2160p50
4	Out Resolution: 4096x2160p60
5	Out Resolution: 4096x2160p50
6	Out Resolution: 3840x2160p30
7	Out Resolution: 3840x2160p25
8	Out Resolution: 1920x1200p60RB
9	Out Resolution: 1920x1080p60
10	Out Resolution: 1920x1080p50
11	Out Resolution: 1360x768p60
12	Out Resolution: 1280x800p60
13	Out Resolution: 1280x720p60
14	Out Resolution: 1280x720p50
15	Out Resolution: 1024x768p60

Output HDCP

Each output can be set to different HDCP modes.

Command	Responses	Description
s output x hdcp y	See the following table	Select the desired output HDCP mode. Where **x** is: **0** = Both the HDMI and HDBaseT outputs **1** = HDMI output only **2** = HDBaseT output only
r output res	See the following table	Return the current output HDCP setting.

The left-hand column is the **y** value for the set command and the last column gives the response text examples.

y value for set command	Description	Response(s)
1	Set HDCP mode to auto Using the display HDCP setting	Out HDMI HDCP: Auto Out HDMI HDBT: Auto
2	Set HDCP mode to HDCP 1.4	Out HDMI HDCP: HDCP 1.4 Out HDBT HDCP: HDCP 1.4
3	Set HDCP mode to HDCP 2.2	Out HDMI HDCP: HDCP 2.2 Out HDBT HDCP: HDCP 2.2

Output Freeze

This command affects both the HDMI and HDBT outputs of the MS51U-18G simultaneously. Selecting a different input automatically cancels the output freeze mode.

Command	Responses	Description
s output freeze x	Output Freeze: Off Output Freeze: On	Set the image freeze status for both outputs. Where **x** is: **0** = Turn freeze mode off **1** = Turn freeze mode on
r output freeze	One of the above responses	Return the current freeze mode.

Output IT Content Mode

This option allows the HDMI display to use its own video quality processing algorithms, instead of the Intel Graphics Driver. When playing movies in full screen mode, the IT Content ensures the best video quality. This command is used to enable or disable the IT Content.

Command	Responses	Description
s output itc x	Output ITC: Video mode Output ITC: PC mode	Set the ITC mode for both outputs. Where **x** is: **1** = Set ITC to use Video Mode **2** = Set ITC to use PC Mode
r output itc	One of the above responses	Return the current ITC mode.

Multi-view Modes

The SY-MS51U-18G has 5 Multi-view settings that can be set using either by these RS232 commands, or from the built-in WebGUI, or keyboard hotkey commands. (see page 12)

Command	Responses	Description
s multiview x	Multiview: Single Multiview: PBP Multiview: Triple Multiview: Quad Multiview: PIP	Select the desired input to single screen mode where **x** is 1 ~ 5: **1** = Single view **2** = Dual (PBP) view **3** = Triple view **4** = Quad view **5** = Picture-in-Picture (PIP) view
r multiview	One of the above responses	Return the current Multi-view mode

Each Multi-view mode has several configuration options as per below. See the diagram on page 12 for the different layout modes in each multiview setting.

Dual (PBP) Options

The layout of the dual (Picture-By-Picture) Multi-view layout mode and the aspect ratios are set using the following commands.

Command	Responses	Description
s PBP mode x	PBP Mode: Mode 2	Set the desired dual screen layout mode, where **x** is **1** to **4**. (See page 12 for the layout options.)
r PBP mode	One of the above responses	Return the current dual screen layout mode.
s PBP aspect x	PBP Aspect: 16:9 PBP Aspect: Full screen	Set the desired dual screen aspect mode, where **x** is **1** = Full screen, or **2** = 16:9.
r PBP aspect	One of the above responses1	Return the current dual screen aspect mode.

Triple Screen Options

The layout of the triple screen Multi-view layout mode and the aspect ratios are set using the following commands.

Command	Responses	Description
s triple mode x	Triple Mode: Mode 2	Set the desired triple screen layout mode, where **x** is in the range **1** to **3**. (See page 12 for the layout options.)
r triple mode	One of the above responses	Return the current triple screen layout mode.
s triple aspect x	Triple Aspect: 16:9 Triple Aspect: Full screen	Set the desired triple screen aspect mode, where **x** is **1** = Full screen, or **2** = 16:9.
r triple aspect	One of the above responses1	Return the current triple screen aspect mode.

Quad Screen Options

The layout of the quad screen Multi-view layout mode and the aspect ratios are set using the following commands.

Command	Responses	Description
s quad mode x	Quad Mode: Mode 2	Set the desired quad screen layout mode, where **x** is in the range **1** to **3**. (See page 12 for the layout options.)
r quad mode	One of the above responses	Return the current quad screen layout mode.
s quad aspect x	Quad Aspect: 16:9 Quad Aspect: Full screen	Set the desired quad screen aspect mode, where **x** is **1** = Full screen, or **2** = 16:9.
r quad aspect	One of the above responses1	Return the current quad screen aspect mode.

PIP Options

The PIP Multi-view mode can have the PIP located at any one of the four corners of the display.

Command	Responses	Description
s PIP position x	PIP Mode: Mode 2	Set the desired PIP position mode, where **x** is from **1** to **5** inclusive. **1** = Bottom Left **2** = Bottom Right **3** = Top Left **4** = Top Right **5** = User PIP (must be programmed first)
r PIP position	One of the above responses	Return the current position of the PIP window.
s PIP size x	PIP Aspect: 16:9 PIP Aspect: Full screen	Set the desired PIP Multi-view screen aspect mode, where **x** is: **1** = Small, or **2** = Large
r PIP size	One of the above responses	Return the current PIP size.

Setting and Using the Programmable PIP Window

The SY-MS51U-18G also has a programmable PIP window that it defined by using percentage values for both the horizontal and vertical dimensions.

Command	Responses	Description
s PIP Hstart Vstart Hsize Vsize	**PIP Hstart Vstart Hsize Vsize**	Set the parameters for the User PIP window.

Each value must be in the range 1 to 100, representing a percentage of the screen area.
For this command all the following six rules must valid for the command to be accepted:

$$1 \leq Hstart \leq 100 \qquad 1 \leq Hsize \leq 100 \qquad (Hstart + Hsize) \leq 101$$

| | 1 ≤ Vstart ≤ 100 | 1 ≤ Vsize ≤ 100 | (Vstart + Vsize) ≤ 101 |

A command with any invalid values will return the **E00** error message.

Use the command **s PIP position 5** to display the User PIP on the display.

RS232 Commands for the Receiver Only

The commands in the following sections are for the HDBT-U3-R-18G receiver only. The default baud rate settings for the receiver are as follows:

Baud Rate:	115200
Data Bits:	8
Parity:	None
Stop Bits:	1

Use the RS232 page of the built-in Web interface, or the **s rx serial setting** command, to change to Remote RS-232 settings.

Help

The Help command outputs a list of all available commands for the installed firmware version. Note that there are two help commands.

Command	Response	Description
Help	List of available commands	Outputs a list of all command supported by the installed
?	for the Rx	firmware.

System Commands

These two system commands are used to either reboot or reset the switcher back to the factory defaults.

Command	Response	Description
s reboot	Same as the start-up text	Reboot the switcher.
s reset	power on Followed by start-up text	Restore the switcher to its factory defaults.

Get Firmware Versions

This command returns the installed firmware versions for the switcher and the receiver, if connected.

Command	Response	Description
r fw version	V1.00.09	Return the installed firmware versions.

The firmware response will be always match with the firmware version installed in the receiver. Note that the response will match with the installed firmware versions.

Get Receiver Serial Settings

This command returns the RS232 settings for the receiver.

Command	Response	Description
r rx serial setting	RS-232: 115200-n81	Return the serial setting of the receiver.

The above example response gives baud rate of 115200, no parity, 8 data bits, and 1 stop bit.

Set/Get Receiver Input

These commands set or return the input selection of the receiver.

Command	Response	Description
s rx input x	RX Input: HDMI RX Input: HDBT	Set the input to either HDMI or HDBaseT. Where **x** is one of the following: **1**: HDMI, or **2**: HDBaseT
r rx input	RX Input: HDMI RX Input: HDBT	Return the input selection of the receiver.

Get the HDMI/Host 5V Status

These commands return the 5V status of the HDMI and Host USB connections.

Command	Response	Description
r rx hdmi5v	RX HDMI: 0 RX HDMI: 1	Get the HDMI 5V status.
r rx host5v	RX Host 5v: 0 RX Host 5v: 1	Get the USB Host 5V status.

Receiver Auto Switch Mode

These commands set or return the auto switch mode of the receiver. The auto switch mode allows the receiver to automatically switch to the input with an active signal.

Command	Response	Description
s rx auto switch x	RX auto switch: on RX auto switch: off	Set the receiver auto switch mode. Where **x** is one of the following: **0**: Set Auto switch off **1**: Set Auto switch on
r rx auto switch mode	RX auto switch: on RX auto switch: off	Get the receiver auto switch mode status.

Receiver USB Power Control

These commands control or return the status of the USB 5V power to each or all of the USB ports on the receiver. Note that there may be one or three response messages.

Command	Response	Description
s rx usb x power y	RX UsbPower 2: Follow	Enable or disable the 5V power to the USB ports on the receiver. Where **x** is one of the following: **0**: All USB ports **1**: USB port 1 **2**: USB port 2 **3**: USB port 3 Where y is one of the following: **0**: Power off **1**: Power on **2**: Follow
r rx usb x power	RX UsbPower 2: Follow	Return the 5V power state for the USB ports on the receiver. Where **x** is one of the following: **0**: All USB ports **1**: USB port 1 **2**: USB port 2 **3**: USB port 3

Receiver Audio Mute

These commands get or set the audio mute state for the HDMI and/or the Analogue audio outputs of the receiver.

Command	Response	Description
s rx audio x mute y	See below	Set the receiver audio mute state. Where **x** is one of the following: **0**: Both audio outputs (HDMI & Analogue) **1**: HDMI audio only **2**: Analogue Audio only Where **y** is one of the following: **0**: Unmute the audio **1**: Mute the audio
r rx audio x mute	See below	Get the receiver auto switch mode status.

Depending on the command sent, there may be one or two response messages from the following:

RX HDMI Audio Mute: Off   RX Analogue Audio Mute: Off

RX HDMI Audio Mute: On   RX Analogue Audio Mute: On

Receiver HDMI EDID Setting

This command sets or gets the EDID for the HDMI input of the receiver.

Command	Response	Description
s rx edid x	See table below for the value of **x**	Set the EDID for the HDMI input of the receiver. See the table below for the permissible values for **x**
r rx edid	See table below for the command response	Return the current EDID setting for the HDMI input of the receiver.

This table lists the permissible values for **x** in the above set command and the responses for both the set and get commands.

Value for x	EDID Setting	Command Response
1	Auto (Copy from HDMI OUT)	RX HDMI Input EDID: Auto
2	4K2K60 4:4:4, Stereo Audio 2.0	RX HDMI Input EDID: 4K2K60_444, Stereo Audio 2.0
3	4K2K30 4:4:4, Stereo Audio 2.0	RX HDMI Input EDID: 4K2K30_444, Stereo Audio 2.0
4	1080p, Stereo Audio 2.0	RX HDMI Input EDID: 1080P, Stereo Audio 2.0
5	720p, Stereo Audio 2.0	RX HDMI Input EDID: 720p, Stereo Audio 2.0
6	1920x1200, Stereo Audio 2.0	RX HDMI Input EDID: 1920x1200, Stereo Audio 2.0
7	1600x1050, Stereo Audio 2.0	RX HDMI Input EDID: 1600x1050, Stereo Audio 2.0
8	1600x1200, Stereo Audio 2.0	RX HDMI Input EDID: 4K2K30_444, Stereo Audio 2.0
9	1440x900, Stereo Audio 2.0	RX HDMI Input EDID: 4K2K30_444, Stereo Audio 2.0
10	1360x786, Stereo Audio 2.0	RX HDMI Input EDID: 4K2K30_444, Stereo Audio 2.0
11	1280x1024, Stereo Audio 2.0	RX HDMI Input EDID: 4K2K30_444, Stereo Audio 2.0
12	1024x768, Stereo Audio 2.0	RX HDMI Input EDID: 4K2K30_444, Stereo Audio 2.0
13	User Defined 1	RX HDMI Input EDID: User Defined 1
14	User Defined 2	RX HDMI Input EDID: User Defined 2

To use either of the two User Defined EDID settings, they must first be programmed using the EDID page of the Web Interface.

Receiver Output HDCP Setting

These commands sets or gets the HDCP mode for the HDMI output of the receiver.

Command	Response	Description
s rx output hdcp x	Output HDMI HDCP: Reserved Output HDMI HDCP: Auto Output HDMI HDCP: HDCP 1.4 Output HDMI HDCP: HDCP 2.2	Set the receiver output HDCP mode. Where **x** is one of the following: **0**: Reserved (off) **1**: Auto (Use HDCP of the display) **2**: HDCP 1.4 **3**: HDCP 2.2
r rx output hdcp	Output HDMI HDCP: Reserved Output HDMI HDCP: Auto Output HDMI HDCP: HDCP 1.4 Output HDMI HDCP: HDCP 2.2	Return the current HDMI output HDCP setting of the receiver.

Web Interface

Login

The SY-MS51U-18G has two login levels: User and Admin. The default passwords are:

Access Level	Default Password
Admin	admin
User	user

The User access can only see the **Control** tab, whereas Admin can view all the tabs except the **User Control** tab.
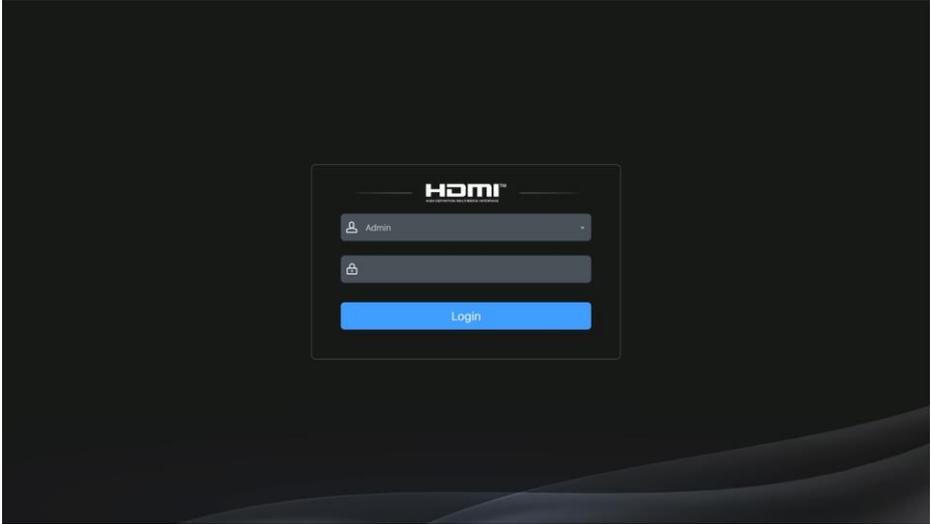
Select either User or Admin from the top box, then enter the current password for that operator. Click the Login button to open the Information or Control page. The entered password is always hidden.

Once the login is successful, the **Information** page will appear (see the next section).

At the top of the WebGUI pages are the main volume control icons, the current access level, the power **Standby** button, and the **Logout** button.

The audio level buttons control the Master Output volume.

The **Standby** button toggles the power state of the SY-MS51U-18G.

The **Logout** button returns the operator back to the Login screen.

In the following sections, whenever a setting is made, be sure to click the **Save** button as soon as possible as the web page may automatically refresh to showing the current settings.

User Control Screen
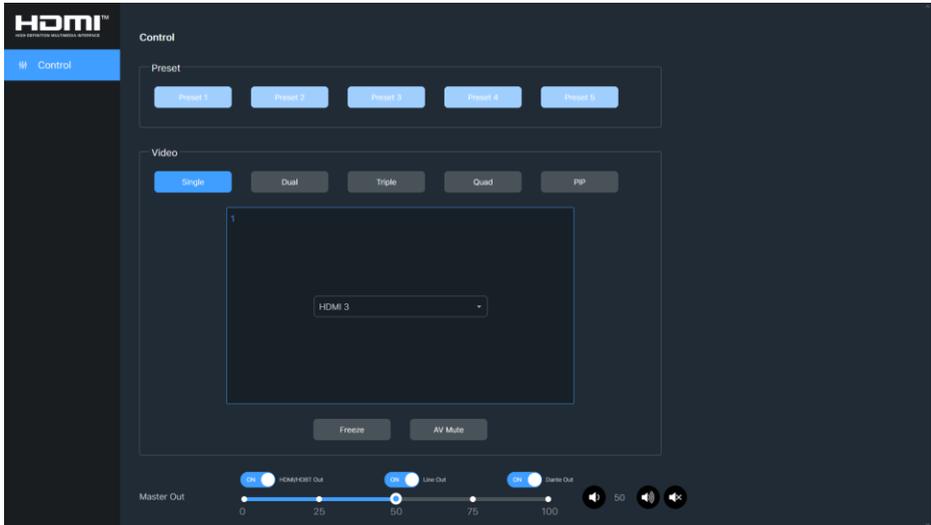
The Control screen, as viewed by the User level access rights, gives limited control of the SY-MS51U-18G.

Preset
Any of the 5 presets, if already programmed, may be selected. Presets can only recalled, storing of presets is not possible in the User level access. Presets can only be programmed either by RS-232 commands or when logged in as an administrator.

Multiscreen Setting
The HDMI output multiscreen layout can be selected from the buttons at the top of the Video section.
In **Single** Mode – the input is selectable from the drop-down menu in the large panel.
In **Dual** Mode – the inputs are selectable from the drop-down menus in the large panel.
In **Triple** Mode – the inputs are selectable from the drop-down menus in the large panel.
In **Quad** Mode – the inputs are selectable from the drop-down menus in the large panel.
In **PIP** Mode – the inputs are selectable from the drop-down menus in the large panel.
The **Freeze** button will toggle the freeze state of the video output.
The **AV Mute** button mutes both the video and audio output.

Output Controls
The three toggle buttons, below the Video panel, enable or disable the following outputs:
HDMI & HDBaseT, Line out Audio and the Dante audio output.

Volume Control
The Master Out slider controls the master volume level. Move the circle control to the desired setting or use the volume down, volume up buttons to have finer control. The Mute button mutes the master audio output.

Information Page
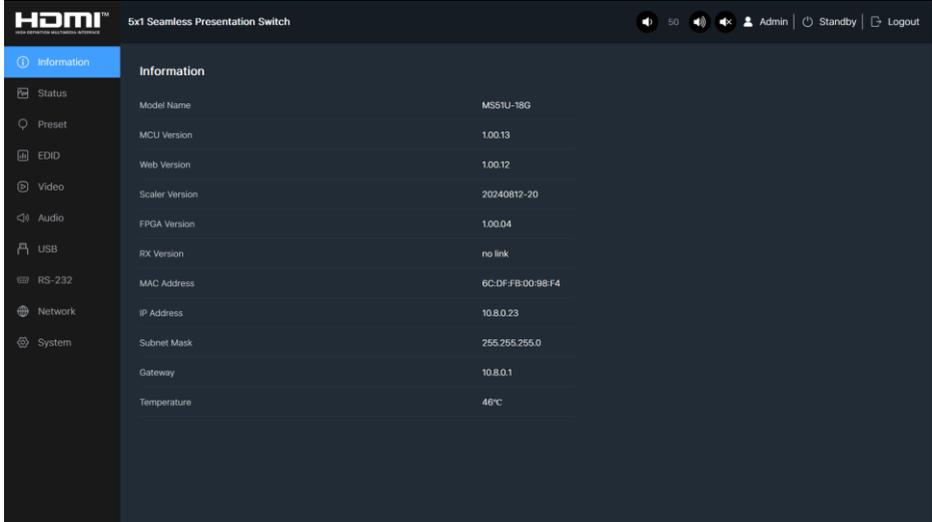
The Information page provides details of the installed firmware versions and the current network details. The temperature indication has a resolution of ±1°C.

Status Page

This page provides information relating to the connected inputs and outputs. The Input HDCP indicates the received HDCP at that input. The Output HDCP indicates the maximum HDCP capability of the display device at that output, it does not indicate which HDCP mode is being output.

Preset Page
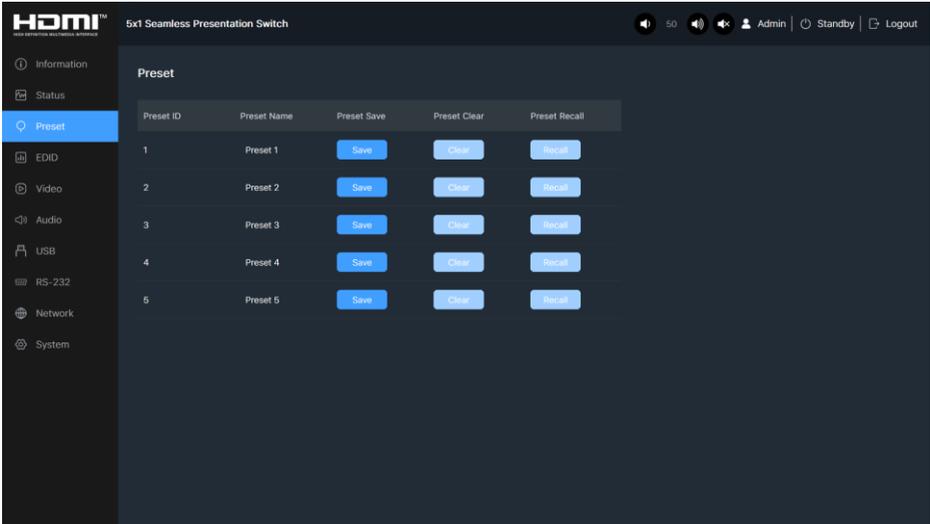
The Preset page allows for management of each of the five presets. A display configuration may be saved to a preset for later recall. Each preset may also be given a more meaningful name by simply entering the name in the respective box under **Preset Name**.

EDID Page
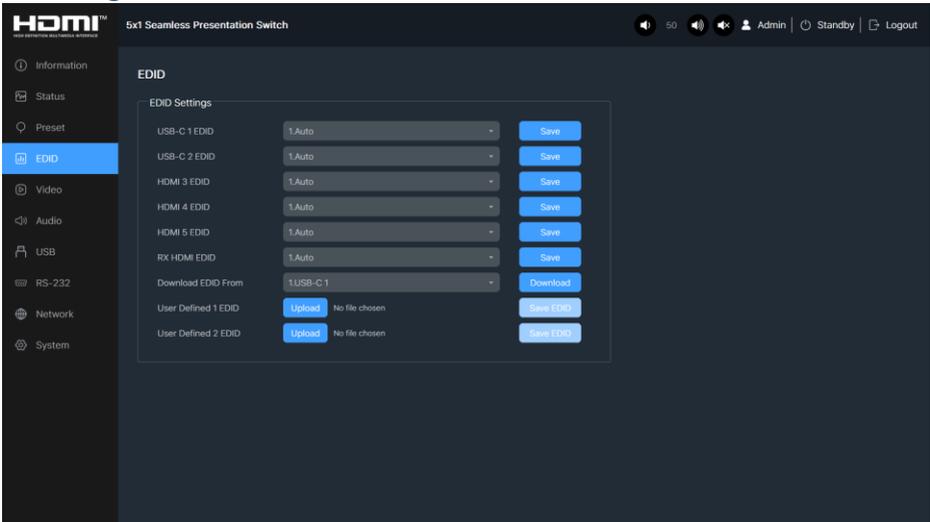
Use the drop-down lists to select the desired input EDID setting for each of the five inputs, or the receiver HDMI input. To use the setting, click the respective **Save** button.

The EDID contents from any of the inputs can be downloaded and saved to a file on the PC.
To use either of the two User defined EDID settings, a file must be uploaded from the PC.

Video Page
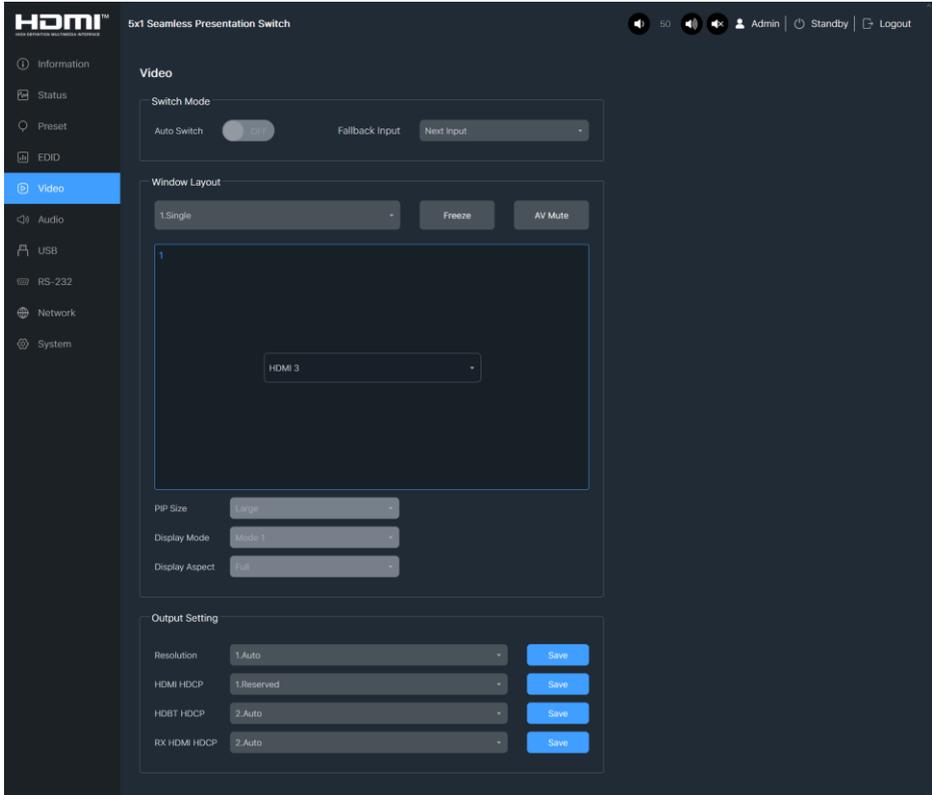
Switch Mode

The **Auto Switch** toggle button enables of disables the auto switch setting of the MS51U-18G. When it is enabled, the switcher will select any input where the input signal has just been detected.

The **Fallback Input** selects what the switcher does when the current input signal is no longer present. The options are: Next Input, USB-C 1, USB-C 2, HDMI 3, HDMI 4, or HDMI 5.

Window Layout

Use the drop down list to select the desired window layout from **Single**, **Dual**, **Triple**, **Quad** or **PIP** (Picture-In-Picture). The main box changes to show how the layout windows look on the display. The small number in the top left corner of each of the boxes is the window number.

The **Freeze** button will toggle the freeze state of the video output.

The **AV Mute** button mutes both the video and audio output.

To select the inputs for each of the output windows, use the drop-down lists to choose which input to display in which window.

The **PIP Size** option is only available when the PIP layout is selected. The options are **Large**, or **Small**.

The **Display Mode** list selects different window layouts for each of the multiview modes. The

number of modes is dependent on the selected multiview mode.

The **Display Aspect** list selects whether the multiview images are displayed as stretched or with the 16:9 aspect ratio.

Output Setting

The **Resolution** list allows for the option of one of the 15 defined resolution, or to select Auto to allow the MS51U-18G to choose the resolution best suited to the display device.

The **HDMI HDCP** list allows the selection of the HDCP mode for the HDMI OUT for the MS51U-18G switcher.

The **HDBT HDCP** list allows the selection of the HDCP mode for the HDBaseT OUT for the MS51U-18G switcher.

The RX **HDMI HDCP** list allows the selection of the HDCP mode for the HDMI OUT for the HDBT-U3-18G receiver.

For the HDCP options: **Reserved** means no HDCP is output, and **Auto** will select the HDCP mode preferred by the connected display device.

Audio Page

The Audio page gives all the controls for setting up the audio functions and features. Due to the large number of controls, scroll the page in order to see the remaining controls.

Source Select

Main In: The options are Window 1, USB-C 1, USB-C 2, HDMI 3, HDMI 4, or HDMI 5. When set to Window 1, the audio is taken from the input source that is routed to Window 1. When a specific source is selected, then the audio is taken directly from that input, if audio is present.

HDMI/HDBT Out: Select the audio source to use for the HDMI and HDBaseT outputs. The options are Main In (see above), Line In, or Dante In.

Line Out: Select the audio source to use for the Line Out. The options are Main In (see above), Line In, or Dante In.

Dante Out: Select the audio source to use for the Dante Out. The options are Main In (see above), Line In, or Dante In.

Input Setting

The volume controls in this section set the input level for each of the audio input sources.

Output Setting

The three button at the top of this section enable or disable the audio output channels.

Master Out: The volume controls set the volume for the master audio output.

HDMI/HDBT Out: The volume controls set the volume for the HDMI and HDBT audio outputs.

Line Out: The volume controls set the volume for the audio Line output.

Dante Out: The volume controls set the volume for the Dante audio output.

In each of the above sections is a drop-down list to select either Full Stereo, Left only, Right only, or Left and Right together as mono.

The Delay slider can add a slight delay to the audio output of up to 50ms.

Graphic EQ (GEQ) Setting

The Graphic Equaliser (GEQ) setting can be used on any audio output, but only when the Equaliser option is not set to Flat. There are five Custom options that may be used to set different EQ settings on the sliders. These custom options can be selected to change the EQ setting at any time after they have been programmed.

The Clear button will erase the current Custom GEQ memory.

RX Audio Mute Setting

The two slider buttons mute the receiver HDMI output or the receiver Line Out respectively.

USB Page
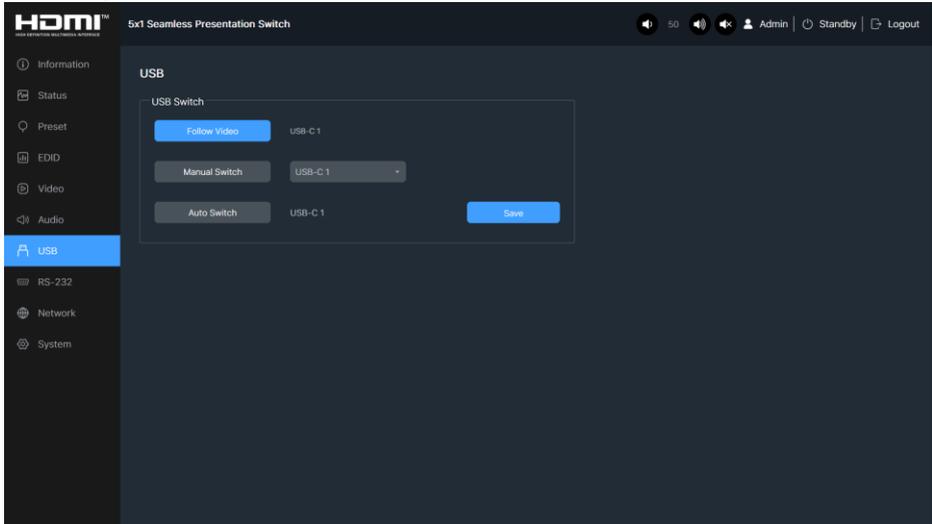
The **USB** page controls the routing of the rear panel USB sockets. The **Follow Video** option will switch between the USB-C 1, USB-C 2, and HDMI 3 inputs when those inputs are selected.

The **Manual Switch** option locks the USB to the selected input, regardless of the video selection.

The **Auto Switch** option will cause the USB routing to switch to the last connected USB connection.

Once a selection has been made, click the **Save** button to make it active.

RS-232 Page

The RS232 page is for setting up RS232 commands that the MS51U-18G will transmit to turn on or turn off the display devices connected to main switcher or to the receiver. The Local RS-232 settings are for the SY-MS51U-18G unit. The Remote RS-232 settings are for the receiver unit.

RS-232 Commands (Display Auto Power)

The lower section of this tab is where the RS-232 Power On and Power Off commands are entered for both the MS51U-18G display and the receiver display. If these commands must be entered in hexadecimal notation, then set the HEX button to ON first and then enter the command in hex notation.

Note that the baud rate settings must be set in the upper section so that they match the requirements of the display devices.

Click the appropriate **Save** button to save those settings in the MS51U-18G.

The RS-232 commands are only transmitted from the RS-232 ports on both the MS51U-18G and the receiver. The RS-232 CTL port is only for controlling the MS51U-18G.

Network Page

The Network page allows for the configuration of the IP settings for the MS51U-18G.
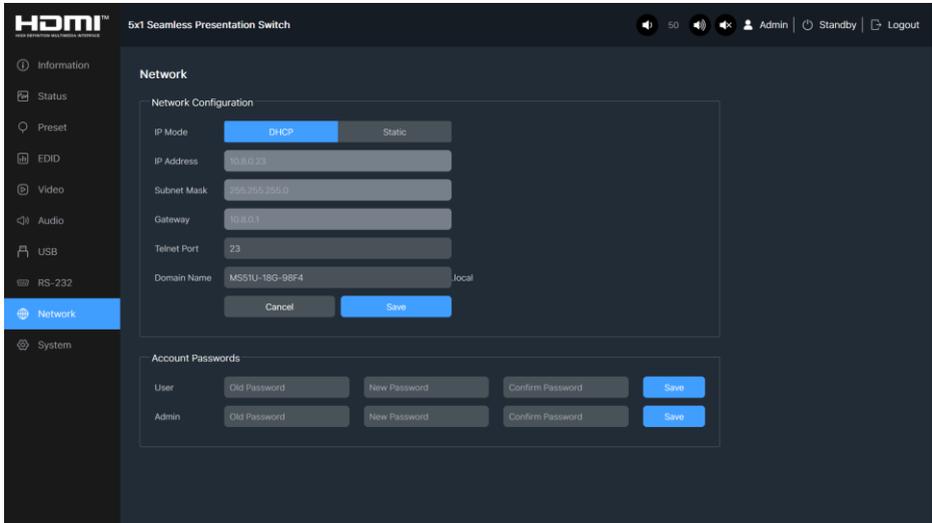
Select either **DHCP**, or **Static** for the IP mode.

Use **Static** to enter the fixed IP values. Once all settings are done, click the Save button to save them to the MS51U-18G.

Changes to the User and Admin passwords may be entered in the respective boxes.

Please note the following:

1. The **Old Password** box must contain the current password for the respective account.
2. The **Confirm Password** box must be identical to the **New Password** box to make the update valid.
3. Click the respective **Save** button to program the new password.

System Page

The System page allows for the configuration of several system settings.
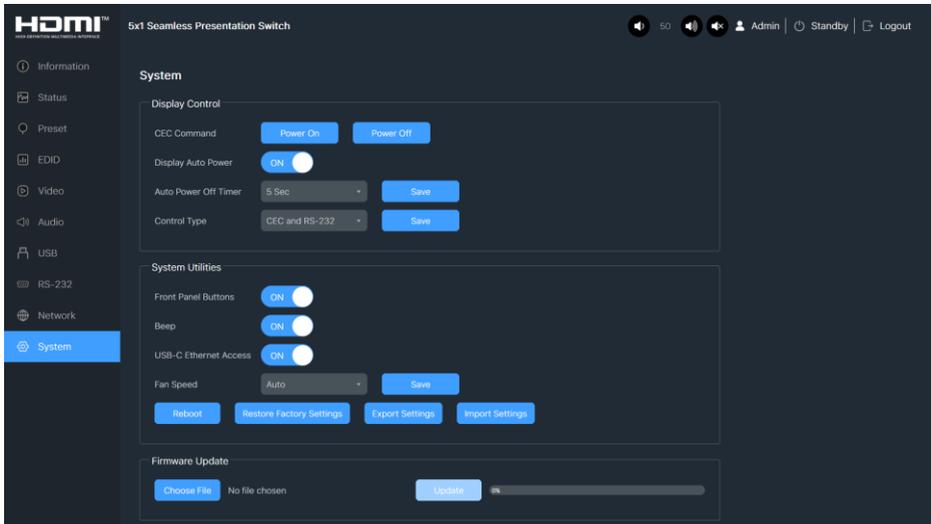
Display Control

The CEC Command buttons will, when clicked, immediately send the CEC Power On or Power Off command to the display device connected to the HDMI output of the MS51U-18G.

The **Display Auto Power** option enables the Auto Power Off Timer and the Control Type options.

The **Auto Power Off Timer** sets the time delay before sending the CEC/RS232 Power Off commands.

The delay may be set to 5 seconds, 10 seconds, 30 seconds, 1 minute, 5 minutes, or 10 minutes.

The **Control Type** can be either CEC, RS-232, or both CEC and RS-232. To use the RS-232 option, the respective power on and power off commands must be set in the RS-232 page.

For the **Auto Power Off** and **Control Type** options, click the respective **Save** button to complete the changes.

System Utilities

Use the three sliding toggle buttons to enable or disable the **Front Panel Buttons**, the **Beep**, or **USB-C Ethernet Access**.

The **Fan Speed** option sets the desired fan speed of the MS51U-18G. The available options are: **Auto**, **25%**, **50%**, **75%**, or **100%**. Use **Auto** for the quietest mode, as the fan will only start when the MS51U-18G begins getting warm and will stop when the switcher cools. Click the **Save** button to complete the changes.

The **Reboot** button will reboot the MS51U-18G.

The **Restore Factory Settings** button will erase any changes made and reset the MS51U-18G back to its factory defaults.

The **Export Settings** button allows the current setting to be saved to a json file named *system_config.json*.

The **Import Settings** button allows the reading of a previously saved system configuration json file to set the MS51U-18G to the settings contained in that file.

Firmware Update

Use this section to install any firmware updates. There may be several update files and they must all be installed to ensure the MS51U-18G is properly updated. Use **Choose File** to select the update file to install and then click **Update** to start the update process. Wait for the update progress to fully complete before doing the next file.

Specifications

General

Input Resolutions (HDMI & USB-C)	VESA and SMPTE 480p to 2160p All HDMI resolutions up to 3840x2160p @ 60Hz 4:4:4 (18Gbps) 640x480p@60 800x600p60 1280x768p60 1280x1024p60 1360x768p60 1440x900p60 1440x1050p60 1600x1200p60 720x480i59.94 720x480p59.94 720x576i50 720x576p50 1280x720p 50/59.94/60 1920x1080i 59.94/60 1920x1080p 23.98/24/25/29.97/30/50/60 3840x2160p 23.98/24/25/29.97/30/50/59.94/60 4096x2160p 23.98/24/25/29.97/30/50/59.94/60
USB-C Video	DisplayPort 1.4 up to 4K60 4:4:4
USB-C Charging	60W per USB-C port
HDMI Standard	HDMI 1.4 and HDMI 2.0b
HDCP Compliance	HDCP 1.4 and HDCP 2.2
HDBT Specification	HDBaseT 3.0 (VS300R)
Output Resolutions	1024x768p60 1280x720p50/60 1280x800p60 1360x768p06 1920x1200p60 1920x1080p50/60 3840x2160p24/30/50/60 4096x2160p50/60
HDCP Output Version	HDCP 1.4, 2.2 or passthrough
End-To-End Latency Time	1 frame latency
Embedded Audio Format	LPCM 2.0 channels
Analogue Audio Input	Balanced stereo, 5-way pluggable terminal block 20Hz – 20kHz, 2.0V rms max.
Analogue Audio Output	Balanced stereo, 5-way pluggable terminal block, 2.0V rms max.
Digital Audio Input	HDMI/USB-C: PCM 2ch, up to 24 bits @ 32-192kHz Dante® : PCM 2ch, up to 24 bits @ 44.1-96kHz
Digital Audio Output	HDMI/HDBT: PCM 2ch, up to 24 bits @ 32-192kHz Dante® : PCM 2ch, up to 24 bits @ 44.1-96kHz
HDMI & HDBaseT Output	HDMI 2.0b up to 4K60 4:4:4/HDCP 2.2 HDBT 3.0 up to 4K60 4:4:4/HDCP 2.2
HDBaseT Transmission Distance (maximum)	4K60 4:4:4 – 40m (CAT6a) 4K30 4:4:4/1080p60 – 70m (CAT6a)
HDBaseT Bandwidth	16 Gbps max. (4K uncompressed)
Control Method	Buttons, RS232, WebGUI, TCP/IP, or IR
RS232-CTL port	Factory default: 57600, 8 bits, no parity, 1 stop bit Also provides the following settings: Baud Rate: 57600, 56000, 38400, 19200, 9600, 4800, 2400 Data Bits: 7 or 8 Parity: None, Odd, or Even Stop Bits: 1 or 2
RS232 port	Pass through to the receiver. Any baud rate up to 115200 bps.
USB Specification	USB 3.0/USB 2.0
USB Data Rate	Local USB 3.0 devices up to 5Gbps Local USB 2.0 devices up to 480Mbps USB over HDBT up to 350Mbps
USB Mode	USB 3.0/2.0 Hub and USB 2.0 passthrough

IR	Max. Signal Level: 12V p-p Bandwidth: 20kHz ~ 60kHz Mode: Pass through
Control Connectors	1x Built-in IR sensor 1x 3-pin pluggable terminal block for RS232 Control 1x 3-pin pluggable terminal block for RS232 to remote receiver 1x LAN port 1x HDBaseT connector with PoC
Power Supply	24V DC @ 8.0A
Power Consumption	150 W max.

Environmental

Operating Temperature	0 to +45°C (+32 to +113°F)
Storage Temperature	-20 to +70°C (-4 to +140°F)
Operating Humidity	10 to 90% RH (non-condensing)
Storage Humidity	10 to 90% RH (non-condensing)

Physical

Item	Main Switcher	PSU	Receiver
Dimensions (WxHxD)	220 x 43 x 180	176 x 25 x 78	184 x 21.5 x 105
Weight	1.5 kg	705 g	530 g

Safety Instructions

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

1. **ONLY USE** the power supply provided. If an alternate supply is required, check the voltage, polarity and that it has sufficient power to supply the device it is connected to.

2. **DO NOT** operate this product outside the specified temperature and humidity range given in the above specifications.

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

4. Repair of this product should only be carried out by qualified professionals as this product contains sensitive devices that may be damaged by any mistreatment.

5. Only use this product indoors and in a dry environment. **DO NOT** allow any liquids or harmful chemicals to come into contact with this product.

After Sales Service

1. Should you experience any problems while using this product, firstly refer to your local dealer before contacting SY Technical Support.

2. When calling SY Technical Support, please provide the following information:
   - Full Product Name and Model Number
   - Product Serial Number
   - Details of the fault and any conditions under which the fault occurs.

3. This product has a two year standard warranty beginning from the date of purchase as stated on the sales invoice. For full details please refer to our Terms and Conditions.

4. The SY Product warranty is automatically void under any of the following conditions:
   - The product is already outside of its warranty period
   - Damage to the product due to incorrect usage or storage
   - Damage caused by unauthorised repairs
   - Damage caused by mistreatment of the product

5. Please direct any questions or problems you may have to your local dealer before contacting SY Electronics.

NOTES