SD-WP31V

3x1 Wallplate Transmitter Switcher with HDMI and VGA

SEADA

Showing the World

User Manual

VER 1.0

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shook, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1. Product Introduction....3
    1.1 Features....3
    1.2 Package List....4
2. Specification....5
3. Panel Description....6
    3.1 Front Panel....6
    3.2 Rear Panel....7
    3.3 Side Panel....8
4. System Connection....9
5. Button Control....10
    5.1 Source Switching....10
    5.2 Display Control....10
6. RS232 Control....11
    6.1 RS232 Connection....11
    6.2 RS232 Control Software....12
    6.3 RS232 Command....13
        6.3.1 Device Control....13
        6.3.2 Source Switching....13
        6.3.3 Output Resolution....13
        6.3.4 VGA Audio Control....14
        6.3.5 Baud Rate Setting....14
        6.3.6 EDID Management....14
        6.3.7 CEC Control....15
        6.3.8 Button User-defined....16
7. Panel Drawing....17

1. Product Introduction

Thanks for choosing the 3x1 Wallplate Transmitter Switcher, which is designed to switch and extend HDMI or VGA input signal to far-end display device, and the transmission distance is up to 131ft/40m at 4K and 229ft/70m at 1080P video by using a single CATx cable.

The switcher features two HDMI and one VGA inputs, it can be selected by the **SOURCE AUTO** button on the front panel. The switcher supports CEC. The **DISPLAY ON/OFF** button on front panel is used to control the far-end display device, and it can be programmed by RS232 command to ensure the compatibility with various display devices. Moreover, 24V-48V PoC allows the switcher can be powered from the compatible HDBaseT receiver.

1.1 Features

- ✧ Supports HDMI signal up to 4K@60Hz 4:2:0, VGA signal up to 1920x1200@60 Hz.
- ✧ HDMI 1.4 standard and HDCP 2.2 compliant. Ensures display of content-protected media and interoperability with other HDCP compliant devices.
- ✧ Provides an external auxiliary audio input for VGA video.
- ✧ Supports VGA video resolution up-scaling, the VGA input video can be automatically upgraded to the default 1080P output.
- ✧ Active input automatic detective.
- ✧ Extending HDMI signal 4K@60Hz up to 131ft/40m and 1080P@60Hz up to 229ft/70m.
- ✧ Supports RS232 pass-through with HDBaseT connection and local control.
- ✧ Supports IR pass-through to extend IR signal to control display device.
- ✧ The **DISPLAY ON/OFF** button can be programmed by RS232 command.
- ✧ The HDBT port supports 24V-48V PoC input and compatible with 48V PoH, the switcher can be powered from the compatible HDBaseT receiver by the CATx cable, and it also supports 24V PoC output.
- ✧ Firmware upgrade by Micro-USB port.

1.2 Package List

① 1x SD-WP31V
② 1x 2-pin Terminal Block
③ 2x 3-pin Terminal Blocks
④ 1x Power Adapter (24V 1.25A)
⑤ 1x User Manual

Note: *Please contact your distributor immediately if any damage or defect in the components is found.*

2. Specification

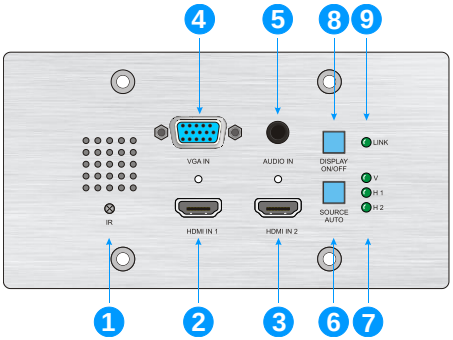
Input	
Input	(2) HDMI, (1) VGA, (1) Audio
Input Connector	(2) Female type A HDMI, (1) Female VGA (15-pin), (1) 3.5mm mini jack
HDMI Input Resolution	Up to 4K/UHD@60Hz 4:2:0
VGA Input Resolution	Up to 1920x1200@60 Hz
Audio Input Impedance	>10KΩ
Frequency Response	20Hz~20KHz
SNR	>85db@20Hz~20KHz
Output	
Output	(1) HDBT OUT
Output Connector	(1) RJ45
HDBT Output Resolution	Up to 4K/UHD@60Hz 4:2:0
Control	
Control Ports	(1) IR, (1) FIRMWARE, (1) RS232, (1) IR IN
Control Connector	(1) Built-in IR sensor, (1) Micro-USB, (2) 3-pin terminal block
General	
Bandwidth	10.2Gbps
Transmission Mode	HDBaseT
HDMI Version	1.4
HDCP Version	1.4 and 2.2
Transmission Distance	4K@60Hz≤40M, 1080P@60Hz≤70M
External Power Supply	Input:100V~240V AC; Output: 24VDC 1.25A
Power Consumption	5W max. (SD-WP31V only – add extra for HDBaseT receiver)
Operation Temperature	-10 ~ +40℃
Storage Temperature	-15 ~ +55℃
Relative Humidity	10% ~ 90%
Dimension (W*H*D)	SD-WP31V-EU: 151mm x 80mm x 39mm SD-WP31V-UK: 146mm x 86mm x 39mm
Net Weight	245g

Note: *The SD-WP31V also can be powered from the HDBaseT receiver which supports 48V PoH. The CAT6A cable is recommended when the SEADA HDBaseT receiver is chosen to be used with the SD-WP31V wallplate transmitter switcher.*

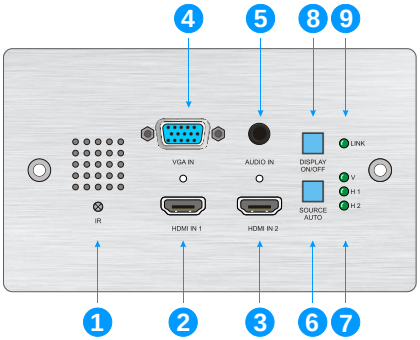
3. Panel Description

3.1 Front Panel

SD-WP31V-EU



SD-WP31V-UK



① **IR:** Built-in IR sensor to receive IR signal from IR remote to control display.

② **HDMI IN 1:** Type-A HDMI port to connect HDMI source.

③ **HDMI IN 2:** Type-A HDMI port to connect HDMI source.

④ **VGA IN:** Female 15-pin VGA port to connect VGA source.

⑤ **Audio IN:** 3.5mm mini jack to connect an audio source for VGA.

⑥ **SOURCE AUTO:**

- ✓ Press the backlit button to select the next input source.
- ✓ Press and hold the button at least 3 seconds to enable auto switching mode. For more details, please refer to the ***5.1 Source Switching*** on the page 8.

⑦ **Input LED:**

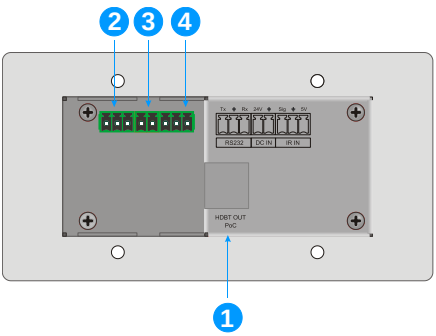
- ✧ **V:** The LED illuminates green to indicate the VGA input is selected.
- ✧ **H 1:** The LED illuminates green to indicate the HDMI 1 input is selected.
- ✧ **H 2:** The LED illuminates green to indicate the HDMI 2 input is selected.

⑧ **DISPLAY ON/OFF:** Turn the display ON or OFF via CEC or RS232 (Programming required). For more details, please refer to the ***5.2 Display Control*** on the page 8.

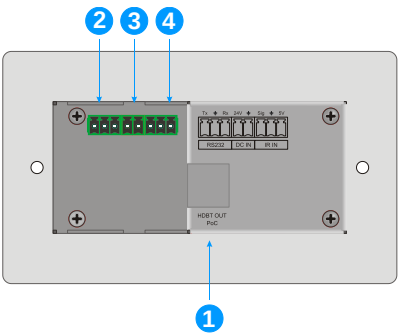
⑨ **LINK LED:** The LED illuminates green to indicate a valid data link with the HDBaseT receiver.

3.2 Rear Panel

SD-WP31V-EU



SD-WP31V-UK



① **HDBT (POC):** RJ45 HDBaseT output port to connect to the HDBT IN port of the receiver by a CATx cable. It supports 24V-48V PoC to enable the switcher can be powered from a compatible receiver.

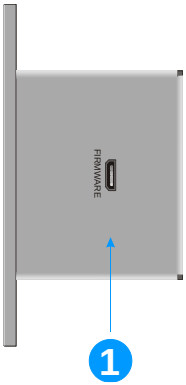
② **RS232:** Either 3-pin terminal block to connect a control device (such as PC) to send the RS232 command to control this unit, or to connect a third party device which needs to be controlled by RS232 pass-through. For more details, please refer to the ***6. RS232 Control*** on the page 9.

③ **DC IN:** Power port to connect 24V DC power adapter.

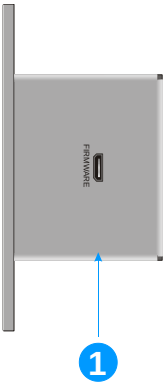
④ **IR IN:** 3-pin terminal block to connect an IR receiver.

3.3 Side Panel

SD-WP31V-EU



SD-WP31V-UK



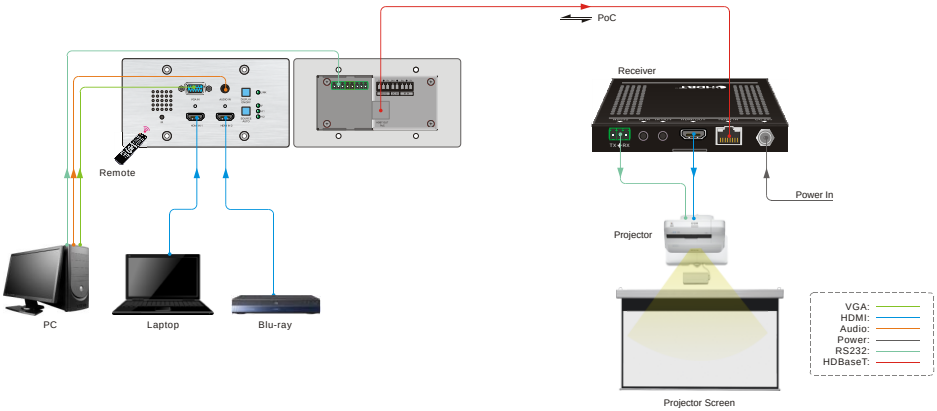
① **FIRMWARE:** Micro-USB port for firmware upgrade.

4. System Connection

Usage Precautions:

- Make sure all components and accessories included before installation.
- System should be installed in a clean environment with proper temperature and humidity.
- All of the power switches, plugs, sockets, and power cords should be insulated and safe.
- All devices should be connected before power on.

The following diagram illustrates typical input and output connection that can be utilized with the switcher:



Note: *We recommend CATx cabling with alien crosstalk prevention technology to ensure the performance of HDBaseT link.*

5. Button Control

5.1 Source Switching

1) Press the **SOURCE AUTO** button to switch to next source device, and then the corresponding input LED will turn green.

2) Press and hold the **SOURCE AUTO** button at least 3 seconds to enable auto switching mode, and it abides by the following principles:

- **New Input**

Once detecting a new input signal, the switcher will automatically switch to this new signal, and the far-end display device will receive command to be switched on. If source input is not detected, the far-end display device will automatically turn off within two minutes.

- **Source Removed**

When an active source is removed, the switcher will switch to the first available active input starting at HDMI IN 1.

- **Reboot**

The switcher can save the last configuration before losing power. If the last switching mode is auto switching, the switcher will automatically enter auto switching mode once rebooted, then detect all inputs and memorize their connection status for future rebooting using. If the last selected input source is still available, the switcher will switch to this input. If not, it will switch to the first available active input source starting at **HDMI IN 1**.

- **Exit auto switching mode**

Press and hold the **SOURCE (AUTO)** button for 3 seconds again to exit the auto mode, and the input source will not be changed.

5.2 Display Control

1) Press the **DISPLAY ON/OFF** button to turn on/off the display.

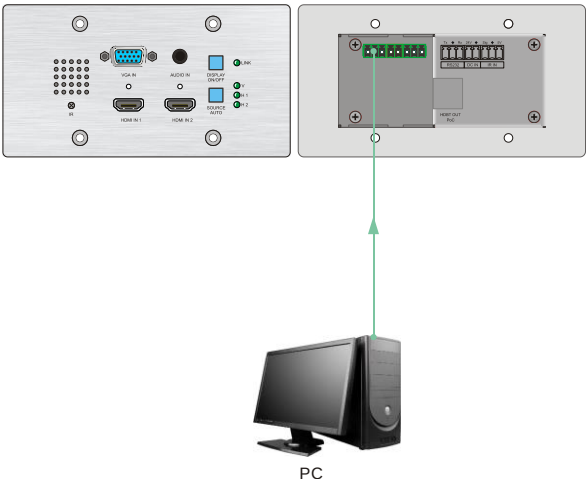
2) If the incompatible display device needs to be used with this switcher, the **DISPLAY ON/OFF** button can be programed by RS232 command. For more details, please refer to the ***6.3.8 Button User-defined*** on the page 14.

6. RS232 Control

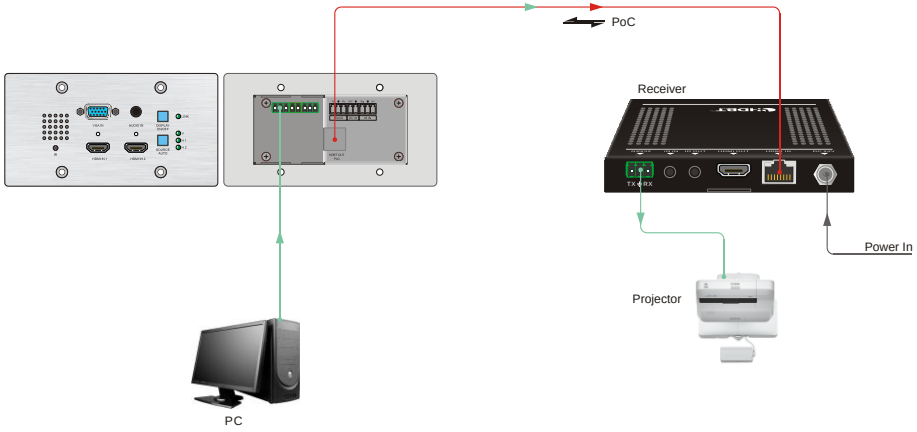
6.1 RS232 Connection

According the RS232 control mode, there are two types of RS232 connection can be selected.

① When only control the local switcher, connect a control device (e.g. PC) to the RS232 port of the switcher, the connection diagram shown as below:



② When control the far-end third party device from local control device (e.g. PC), connect the PC to the RS232 port of the switcher, and then connect the third party device (e.g. projector) to the RS232 port of receiver. The connection diagram shown as below:



6.2 RS232 Control Software

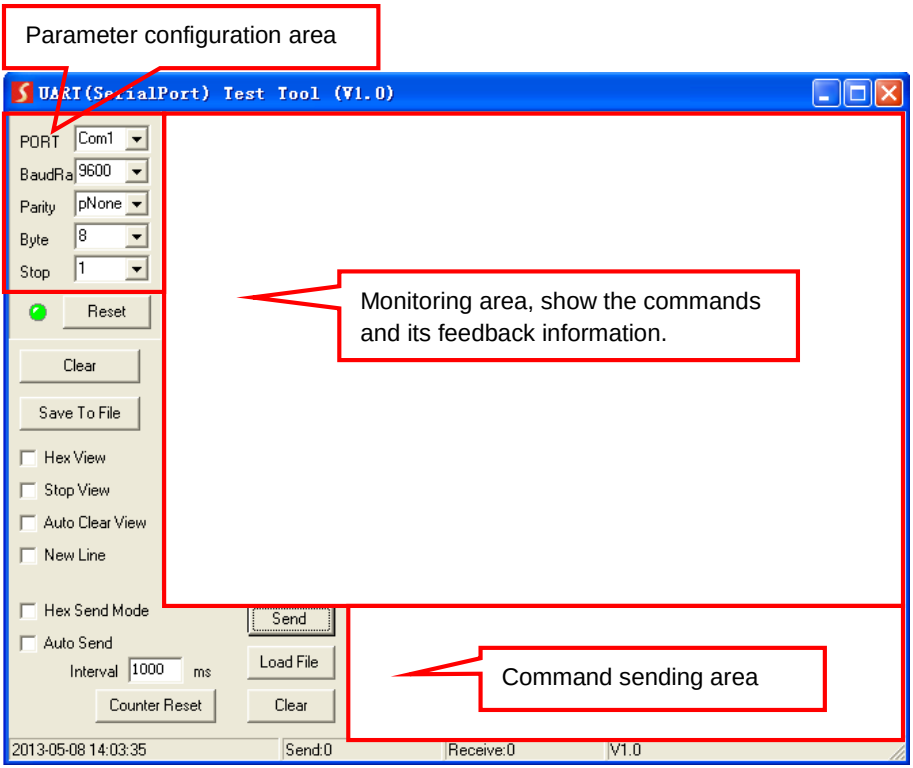
- **Installation:** Copy the control software file to the control PC**.**
- **Uninstallation:** Delete all the control software files in corresponding file path.

Basic Settings:

Connect SD-WP31V with all input devices and output devices needed, then to connect it with a computer which is installed with RS232 control software. Double-click the software icon to run this software.

Here take the software **CommWatch.exe** as example. The icon is showed as below:

The interface of the control software is showed as below:



Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, and then you are able to send command in command sending area.

6.3 RS232 Command

Communication protocol: RS232 Communication Protocol
Baud rate: 9600 **Data bit: 8** **Stop bit: 1** **Parity bit: none**

6.3.1 Device Control

Command	Function	Feedback Example
50617%	Restore factory default.	FACTORY RESET
50698%	Software upgrade.	SOFTWARE UPDATE
50699%	Get firmware version.	VERSION Vx.x.x
50740%	Disable **DISPLAY ON/OFF** button.	DISABLE DISPLAY ON/OFF KEY
50741%	Enable **DISPLAY ON/OFF** button.	ENABLE DISPLEY ON/OFF KEY

6.3.2 Source Switching

Command	Function	Feedback Example
50701%	Switch to HDMI 1.	SWITCH TO HDMI1
50702%	Switch to HDMI 2.	SWITCH TO HDMI2
50704%	Switch to VGA.	SWITCH TO VGA
50710%	Enable auto switching mode.	AUTO SWITCHING
50711%	Enable manual switching mode.	MANUAL SWITCHING
50712%	Get the Source Switching mode.	AUTO SWITCHING
		MANUAL SWITCHING

6.3.3 Output Resolution

The switcher also supports VGA scaling output to the HDBaseT port, which can be set using one of the following commands. Always be sure that the display device is able to display the chosen resolution to ensure that an image can be displayed.

Command	Output Resolution	Feedback Example
50714%	Auto adjust VGA Input.	Enable VGA AUTO ADJUST
50715%	1024x768@60Hz.	RESOLUTION: 1024x768 60Hz
50716%	1280x720 @50Hz.	RESOLUTION: 1280x720 50Hz
50717%	1280x720 @60Hz.	RESOLUTION: 1280x720 60Hz
50718%	1360x768 @60Hz.	RESOLUTION: 1360x768 60Hz
50719%	1600x1200 @60Hz.	RESOLUTION: 1600x1200 60Hz
50720%	1920x1080 @50Hz.	RESOLUTION: 1920x1080 50Hz
50721%	1920x1080 @60Hz.	RESOLUTION: 1920x1080 60Hz

Command	Output Resolution	Feedback Example
50722%	1920x1200 @60Hz.	RESOLUTION: 1920x1200 60Hz
50723%	3840x2160@30Hz.	RESOLUTION: 3840x2160 30Hz

6.3.4 VGA Audio Control

Command	Function	Feedback Example
50726%	Mute VGA Audio Input.	VGA MUTEON
50727%	Unmute VGA Audio Input.	VGA MUTEOFF
50728%	Get VGA audio mute status.	VGA MUTEON
		VGA MUTEOFF

6.3.5 Baud Rate Setting

The switcher also provide the following baud rate options for the RS232 control port.

Command	Baud Rate	Feedback Example
50742%	2400.	SET BAUDRATE 2400
50743%	4800.	SET BAUDRATE 4800
50744%	9600.	SET BAUDRATE 9600
50745%	19200.	SET BAUDRATE 19200
50746%	38400.	SET BAUDRATE 38400
50747%	57600.	SET BAUDRATE 57600
50748%	115200.	SET BAUDRATE 115200

6.3.6 EDID Management

The input resolution (EDID setting) can be set using RS232 commands to one of the options given in the following table.

Command	EDID	Feedback Example
50768%	1920x1200@60Hz PCM 2CH.	EDID:1920x1200@60, 2CH
50769%	1360x768@60Hz PCM 2CH.	EDID:1360x768@60
50770%	1080P 2D PCM 2CH.	EDID:1080P, 2D 2CH
50771%	4K@30Hz 2D PCM 2CH.	EDID:4K30, 2D 2CH
50772%	1280x720@60Hz DVI.	EDID:1280x720@60, DVI
50773%	1920x1080@60Hz DVI.	EDID:1920x1080@60, DVI
50774%	1280x720@60Hz PCM 2CH.	EDID:1280x720@60
50775%	1280x800@60Hz PCM 2CH.	EDID:1280x800@60
50776%	Get the TV EDID.	GET TV EDID
50777%	Select default EDID.	EDID:INITIAL
50781%	Enable EDID user-defined mode.	EDID: USER USB UPGRADE

Command	EDID	Feedback Example
	Uploading the user-defined EDID file by Micro-USB port within 10 seconds.	
50782%	Invoke the user-defined EDID.	EDID: USER
50783%	EDID bypass.	EDID: BYPASS
50784%	Get the current EDID.	EDID:1920x1200@60, 2CH
		EDID:1360x768@60
		EDID:1080P, 2D 2CH
		EDID:4K30, 2D 2CH
		EDID:1280x720@60, DVI
		EDID:1920x1080@60, DVI
		EDID:1280x720@60
		EDID:1280x800@60
		EDID:INITIAL
		EDID: USER
		EDID: BYPASS

6.3.7 CEC Control

The switcher also supports sending of a few common CEC commands using RS232 command code. Specific CEC command can also be sent from the switcher. The RS232 commands are as given in the following table. Please note that only CEC enabled devices that have the specified logical address will respond to CEC commands.

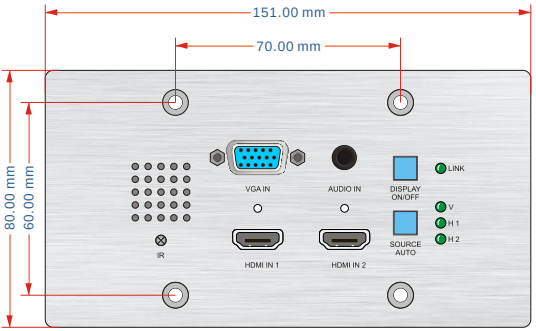
Command	Function	Feedback Example
50733%	Display on.	CEC DISPLAY ON
50734%	Display off.	CEC DISPLAY OFF
CEC <xx:xx:xx....>	Send CEC command “xx:xx:xx…” to control display device.	CEC <xx:xx:xx…>

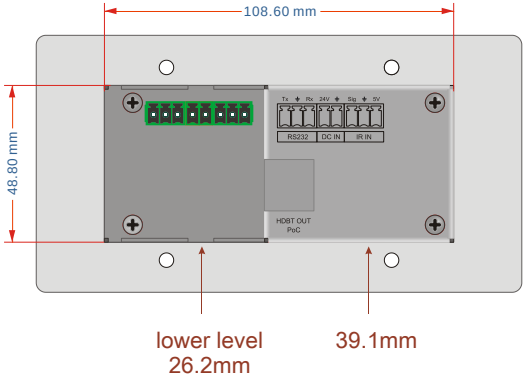
6.3.8 Button User-defined

Press the **DISPLAY ON/OFF** button can turn on/off the display. If the incompatible display device needs to be used, the **DISPLAY ON/OFF** button can be defined to send control characters by following the below command format.

Command Format	**Function**	**Command Example**
/+kb: xxxx	k=0, Set the **DISPLAY ON** k=1, Set the **DISPLAY OFF** xxxx: ASCII characters b=0, Baud rate is 2400 b=1, Baud rate is 4800 b=2, Baud rate is 9600 b=3, Baud rate is 19200 b=4, Baud rate is 38400 b=5, Baud rate is 57600 b=6, Baud rate is 115200	/+02:abc123 Set the **DISPLAY ON** to send the ASCII characters **abc123**.
/-kb:xx xx xx xx	k=0, Set the **DISPLAY ON** k=1, Set the **DISPLAY OFF** xx xx xx xx: HEX characters b=0, Baud rate is 2400 b=1, Baud rate is 4800 b=2, Baud rate is 9600 b=3, Baud rate is 19200 b=4, Baud rate is 38400 b=5, Baud rate is 57600 b=6, Baud rate is 115200	/-12:30 31 32 33 Set the **DISPLAY OFF** to send the HEX characters **30 31 32 33**.
/x0:xxx	Set the booking shutdown time to **xxx**.	SET TIME TO xxx MINUTES TO TURN OFF THE DISPLAY IF NO SOURCE DETECTED

7. Panel Drawing





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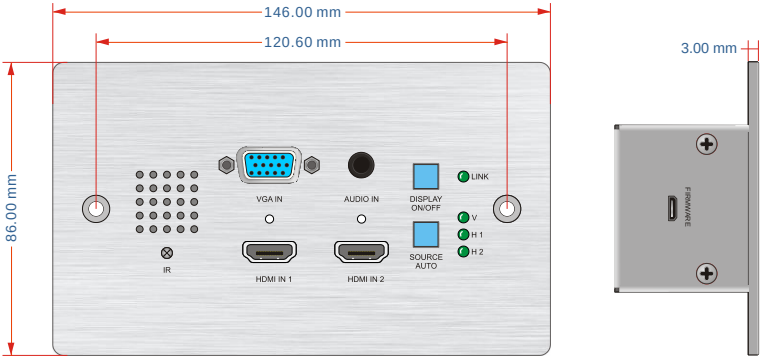
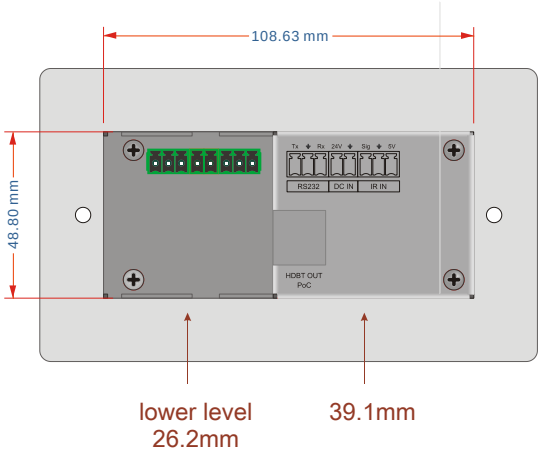

146.00 mm
120.60 mm
86.00 mm
3.00 mm
VGA IN
AUDIO IN
DISPLAY ON/OFF
LINK
V
H 1
H 2
SOURCE AUTO
IR
HDMI IN 1
HDMI IN 2
FIRMWARE


108.63 mm
48.80 mm
Tx
Rx
24V
Sig
5V
RS232
DC IN
IR IN
HDBT OUT
PoC
lower level
26.2mm
39.1mm

SD-WP31V-UK