KanexPro®

WP-2X1HDUSBC

Double Gang 4K HDMI 2.0 & USB-C Wall plate Extender & Switcher over HDBaseT™ w/ IR & PoH

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Version: WP-2X1HDUSBC_2019V1.0

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated till October, 2018. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

SAFETY PRECAUTIONS

To ensure the best performance from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the products' specifications may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, please treat them as normal electrical wastes.

Table of Content

Introduction

The KanexPro WP-2XHDUSBC is a US Decora style double-gang, 3x1 Wall plate transmitter and switcher designed to switch two HDMI®2.0 inputs and one USB-C input to a remote display or a projector up to 131ft.(40m) at 4K/60 and 230ft.(70m) at 1080p/60 video and audio over single cat5e/6/7 cable. The outputs are via HDBaseT port. It supports full 18 Gbps bandwidth with true 4K video resolutions up to 4/60Hz, HDCP 2.2 compliant and will extend 4K up to 40m delivering color sampling rate of 4:4:4.

Control & PoH (Power over HDBaseT)

The wall plate transmitter can be easily controlled by selecting the "Source /Auto" button on the front panel. By holding the button for 3 seconds, it will go under auto switching mode and will auto-detect HDMI or USB-C inputs when connected. It also supports CEC, which can turn the DISPLAY ON/OFF right from the button on front panel for the far-end display device, and it can be programmed by IR learning or RS232 command to ensure the compatibility with various display devices. Moreover, 12V-48V PoH allows the switcher can be powered from the compatible HDBaseT receiver and regulate the power needed without adding another cumbersome power supply.

Applications:

Ideal for use with court rooms, classrooms, conference rooms or showrooms where audio-visual devices can be extended from a remotely located HDMI/ USB-C source devices. The dual-gang HDMI wall plate can be used anywhere to enhance signal integrity over CAT5e/6 cabling with powerful ON/OFF display feature.

1.1 Features

- US Decora Style, Double-Gang HDMI® 2.0 & USB-c wall plate over HDBaseT™
- Supports HDMI signal up to 4K@60Hz 4:4:4,
- USB-C video signal up to 4K@30Hz 4:4:4.
- EDID & HDCP 2.2 compliant
- Active input automatic detective.
- Extend 4K/60 w/ 4:4:4 up to 40 meters (130ft.)
- Extend 1080p/60 w/ 4:4:4 up to 70 meters (230 ft.)
- Supports the latest HDMI 2.0 Specs with 18 Gbps bandwidth
- Digital Audio Support up to 7.1 channels of HD audio
- Supports RS232 pass-through with HDBaseT connection and local control.
- Supports IR pass-through to extend IR signal to control display device.
- Display On/Off button can be programmed by IR learning feature or via RS232 command
- HDBaseT port supports 12V-48V PoH input, the switcher can be powered from the compatible HDBaseT receiver by the CATx cable
- Provides external 12V DC power supply for other devices
- Firmware upgrade by Micro-USB port
- Bi-directional IR & RS-232C
- Simple point-to point transmission over CAT5e/6
- Active LED status indicators

1.2 Package List

- 1x Wall plate Transmitter Extender
- 3x 2-pin Terminal Block
- 1x 3-pin Terminal Block
- 1x Power Adapter (24V 1.25A)
- 1x User Manual

Note: Please contact KanexPro at support@kanexpro.com or your distributor immediately if any damage or defect in the components is found.

2. Specification

| Input	
Input	(2) HDMI, (1) USB-C (Slimport)
Input Connector	(2) Type-A female HDMI, (1) USB-C
HDMI Input Resolution	Up to 4K@60Hz 4:4:4
Slimport Input Resolution	Up to 4K@30Hz 4:4:4
Output	
Output	(1) HDBT OUT
Output Connector	(1) RJ45
HDBT Output Resolution	Up to 4K@60Hz 4:4:4
Control	
Control Ports	(1) IR, (1) FIRMWARE, (1) RS232, (1) IR IN
Control Connector	(1) Built-in IR sensor, (1) Micro-USB, (1) 3-pin terminal block, (1) 2-pin terminal block
General	
Bandwidth	18Gbps
Transmission Mode	HDBaseT
HDMI Version	2.0
HDCP Version	2.2
Transmission Distance	4K@60Hz ≤ 40M, 1080P@60Hz ≤ 70M
External Power Supply	Input:100V~240V AC; Output: 24VDC 1.25A
Power Consumption	22W (Max)
Operation Temperature	-10℃ ~ +55℃
Storage Temperature	-25℃ ~ +70℃
Relative Humidity	10% ~ 90%
Dimension (W*H*D)	3.5" x 4.0" x 1.7"
Net Weight	0.62 lbs. (285g)

3. Panel Description

3.1 Front Panel
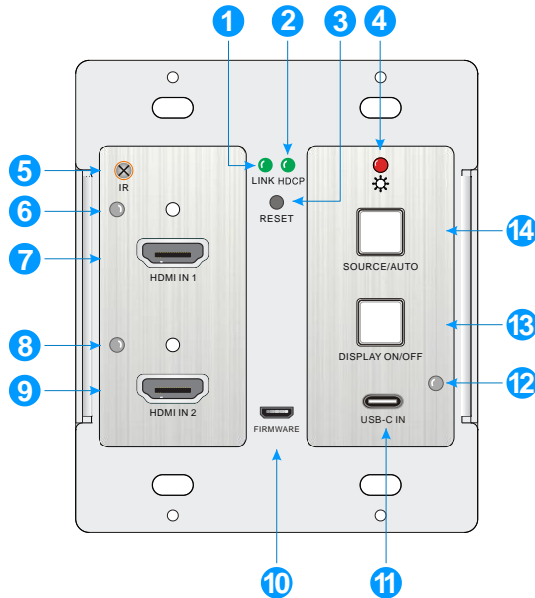
① **LINK LED:** The LED illuminates green when the transmitter is successfully connected to the receiver by a CATx cable.

② **HDCP LED:**

- The LED illuminates green when the HDMI signal is transmitted with HDCP.
- The LED blinks green when the HDMI signal is transmitted without HDCP.
- The LED turns off when there is no HDMI signal input.

③ **RESET:** Press the recessed button to reboot this unit.

④ **POWER LED:** The LED illuminates red when power is applied.

⑤ **IR:** Built-in IR sensor for IR learning feature or IR pass-through control.

⑥ **HDMI IN 1 LED:** The LED illuminates orange when the **HDMI IN 1** port is connected to a source device, and it will turn green once the device is selected as input source.

⑦ **HDMI IN 1:** Type-A HDMI port to connect HDMI source.

⑧ **HDMI IN 2 LED:** The LED illuminates orange when the **HDMI IN 2** port is connected to a source device, and it will turn green once the device is selected as input source.

⑨ **HDMI IN 2:** Type-A HDMI port to connect HDMI source.

⑩ **FIRMWARE:** Micro-USB port for firmware upgrade.

⑪ **USB-C:** Type-C USB to connect the MacBook or other device with USB-C output.

⑫ **USB-C LED:** The LED illuminates orange when the **USB-C** port is connected to a source device, and it will turn green once the device is selected as input source.

⑬ **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 7.

⑭ **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 7.

3.2 Rear Panel
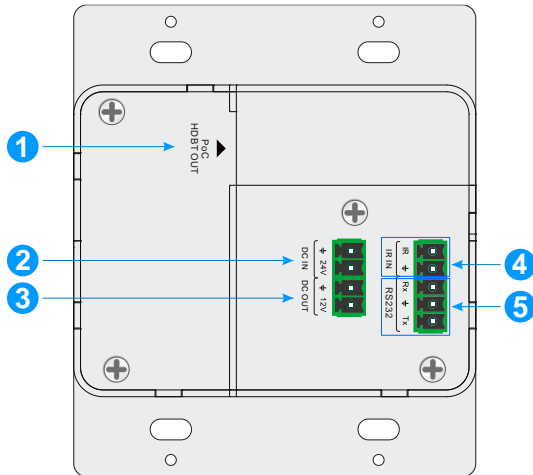
① **HDBT OUT (POC):** RJ45 HDBaseT output port to connect to the HDBT IN port of the receiver by a CATx cable. It supports 12V-48V PoC to enable the switcher can be powered from a compatible receiver.

② **DC IN:** Power port to connect 24V DC power adapter.

③ **DC OUT:** 2-pin terminal block to connect a compatible device which needs to be powered.

④ **IR IN:** 2-pin terminal block to connect IR control center for broader solution.

⑤ **RS232:** 3-pin terminal block to connect a control device (e.g. PC) to send the RS232 command to control this unit, or to control the far-end third party device. For more details, please refer to the *6. RS232 Control* on the page 8.

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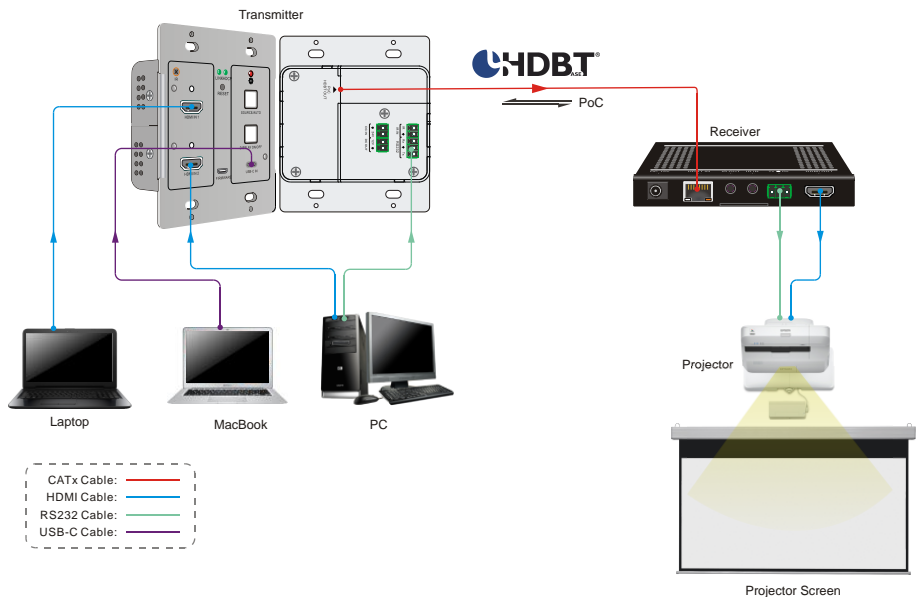
Note: *We recommend CATx cabling with crosstalk prevention technology to ensure the performance of HDBaseT link.*

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:

    ● *The switcher will switch to the first available active input starting at HDMI IN 1> HDMI IN 2 > USB-C.*

    ● *New input: Once a new input signal detected, the switcher will automatically switch to this new signal.*

    ● *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. Otherwise, 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 which supports CEC.

2) The **DISPLAY ON/OFF** button also can be programed by IR learning feature or RS232 command. For more details, please refer to the ***7 Button User-defined*** on the page 15.

6. RS232 Control

6.1 RS232 Connection

According the RS232 control mode, there are three types of RS232 connection for different application.

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

Transmitter Switcher
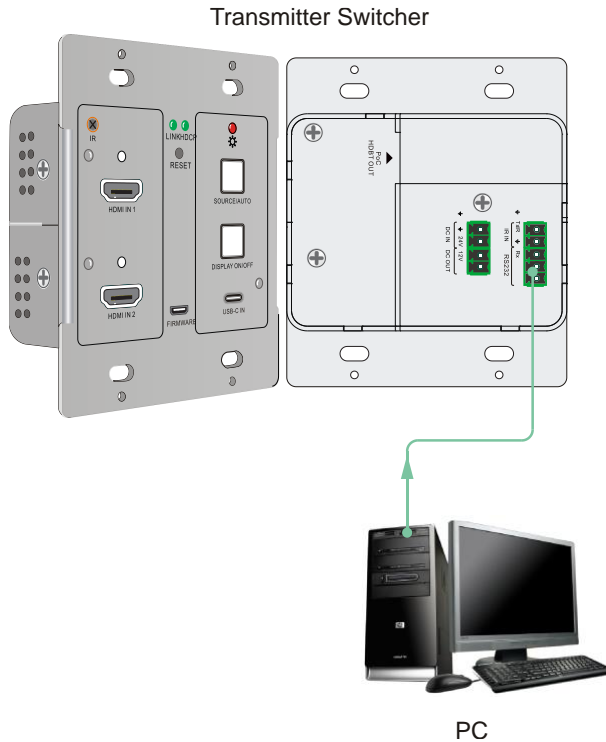
PC

② To control the switcher from remote, please connect a control device (e.g. PC) to the RS232 port of the remote receiver, the connection diagram shown as below:

Transmitter Switcher

RS232

PoC

Receiver

PC

CATx Cable:

RS232 Cable:
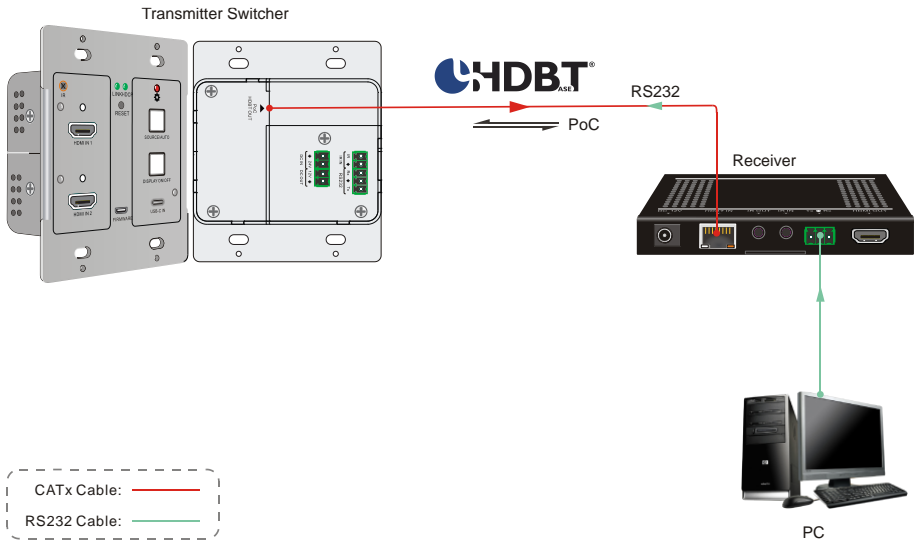
③ To control the far-end third party device, please connect the control device (e.g. PC) to the RS232 port of the switcher, and then please connect the third party device (e.g. projector) to the RS232 port of remote receiver. The connection diagram shown as below:
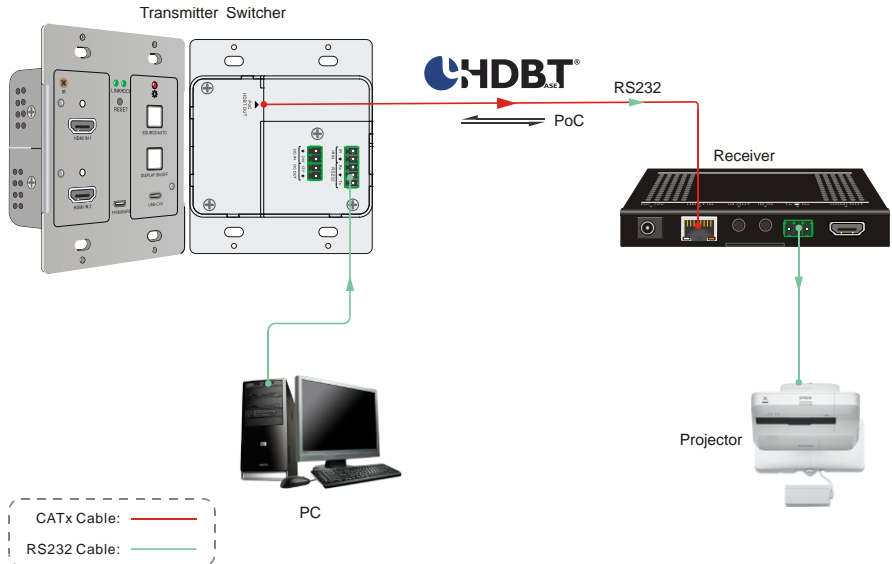
6.2 RS232 Control Software

After set all needed input and output devices according to the RS232 connection diagram, please install the RS232 control software into the control PC to send RS232 command.
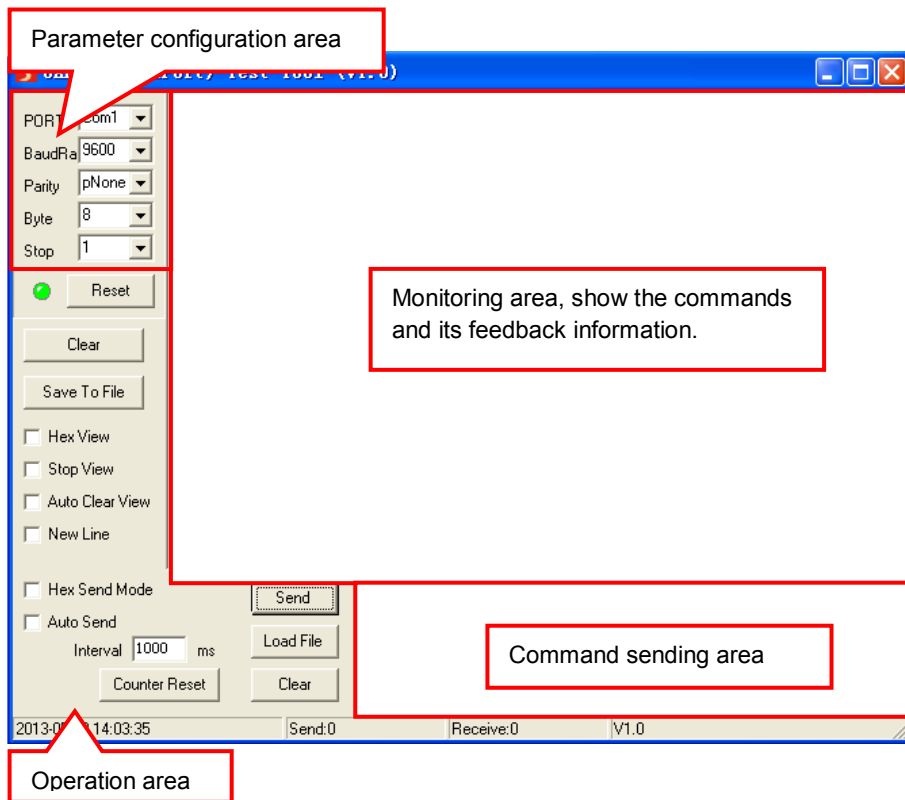
● **Installation:** Copy the control software file to the control PC.

● **Uninstallation:** Delete all the control software files in corresponding file path.

Here take the software **CommWatch.exe** as an example.

First, please double-click the following icon:

CommWatch.exe

Then, the interface of the control software is showed as below:

Parameter configuration area

PORT com1
BaudRa 9600
Parity pNone
Byte 8
Stop 1

Reset

Clear

Save To File

☐ Hex View
☐ Stop View
☐ Auto Clear View
☐ New Line

☐ Hex Send Mode
☐ Auto Send
    Interval 1000 ms
    Counter Reset

Monitoring area, show the commands and its feedback information.

Send

Load File

Clear

Command sending area

2013-0 14:03:35   Send:0   Receive:0   V1.0

Operation area

Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, then the RS232 commands can be sent in the Command Sending Area.

Baud rate: 9600.

Data bit: 8.

Stop bit: 1.

Parity bit: none.

6.3 RS232 Command

Beside the button control on the front panel, the switcher can be controlled by sending the below commands.

Note:

- *Command ending: "<CR><LF>".*
- *Error feedback: "COMMAND ERROR" or "OUT OF RANGE".*
- *In the commands, "["and "]" are symbols for easy reading and do not need to be typed in actual operation.*
- *Type the command carefully, it is case-sensitive.*

6.3.1 Device Control

Command	Function	Feedback Example
#GET_FIRMWARE_VERSION	Get firmware version.	@V1.0.0
#FACTORY_RESET	Restore factory default.	@FACTORY_RESET
#REBOOT	System reboot.	@REBOOT
#HELP	Get all command list.	

#HELP xxxx	Get the details of command "xxxx". "xxxx" represents any command.	#HELP SET_AV
		@SELECT VIDEO AND AUDIO INPUT PORT
		#SET_AV PARAM1
		PARAM=H,C
		H1 - HDMI1
		H2 - HDMI2
		C - TYPE-C

6.3.2 Source Switching

Command	Function	Feedback Example
#SET_AV H1	Switch to HDMI 1.	@AV H1
#SET_AV H2	Switch to HDMI 2.	@AV H2
#SET_AV C	Switch to USB-C.	@AV C
#GET_AV	Get the current input source.	@AV H1
		@AV H2
		@AV C
#SET_AUTO_SWITCH 1	Enable auto switching mode.	@AUTO_SWITCH 1
#SET_AUTO_SWITCH 0	Enable manual switching mode.	@AUTO_SWITCH 0
#GET_AUTO_SWITCH	Get the source switching mode.	@AUTO_SWITCH 1
		@AUTO_SWITCH 0

6.3.3 Display Control

Command	Function	Feedback Example
#SET_DISPLAY 0	Power off display (Use CEC PORT and RS232 for the display).	@DISPLAY 0
#SET_DISPLAY 1	Power off display (Use CEC PORT and RS232 for the display).	@DISPLAY 1

6.3.4 HDCP Mode

Command	Function	Feedback Example
#SET_OUTPUT_HDCP 1	Set the HDCP mode to ACTIVE for output port.	@OUTPUT_HDCP 1
#SET_OUTPUT_HDCP 2	Set the HDCP mode to ON for output port.	@OUTPUT_HDCP 2
#SET_OUTPUT_HDCP 3	Set the HDCP mode to OFF for output port.	@OUTPUT_HDCP 3
#GET_OUTPUT_HDCP	Get the HDCP mode of output port.	@OUTPUT_HDCP 1
		@OUTPUT_HDCP 2
		@OUTPUT_HDCP 3

6.3.5 EDID Management

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

Command	Function	Feedback Example
#SET_EDID_MODE 0	EDID bypass.	@EDID_MODE 0
#SET_EDID_MODE 1	1920x1080@60 4:4:4 Stereo Audio	@EDID_MODE 1
#SET_EDID_MODE 2	1920x1080@60 4:4:4 Lossless Audio	@EDID_MODE 2
#SET_EDID_MODE 3	3840x2160@30 4:4:4 HDR Stereo Audio	@EDID_MODE 3
#SET_EDID_MODE 4	3840*2160@30 4:4:4 HDR Lossless Audio	@EDID_MODE 4
#SET_EDID_MODE 5	3840x2160@60 4:4:4 Stereo	@EDID_MODE 5
#SET_EDID_MODE 6	3840*2160@60 4:4:4 Lossless Audio	@EDID_MODE 6
#SET_EDID_MODE 7	1920x1080@60 DVI	@EDID_MODE 7
#SET_EDID_MODE 8	3840x2160@60 DVI	@EDID_MODE 8
#SET_EDID_MODE 9	Select the user-defined EDID. If the user-defined EDID has not been uploaded, send this command will set EDID to "3840x2160@30 4:4:4 HDR Stereo Audio".	@EDID_MODE 9
#UPLOAD_USER_EDID	Upload the user-defined EDID.	@USER_EDID READY PLEASE SEND EDID DATA IN 10S OK/ERROR
#GET_EDID_MODE	Get the current EDID.	@EDID_MODE 0 @EDID_MODE 1 @EDID_MODE 2 @EDID_MODE 3 @EDID_MODE 4 @EDID_MODE 5 @EDID_MODE 6 @EDID_MODE 7 @EDID_MODE 8 @EDID_MODE 9

7. 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 programed by IR learning feature or RS232 command.

- **IR learning feature:**

Please according the below IR learning steps to define the **DISPLAY ON/OFF** button.

1) Press and hold the **DISPLAY ON/OFF** button for five seconds until the **SOURCE AUTO** button LED flash to enable the IR learning mode.

2) Press the **DISPLAY ON/OFF** button to choose the ON or OFF IR command be set:
    - ✓ Button LED lighting indicates that **DISPLAY ON** mode is selected.
    - ✓ Button LED flashing indicates that **DISPLAY OFF** mode is selected.

3) Point the IR remote at the IR sensor and press the respective button on the IR remote.

4) The **SOURCE AUTO** and **DISPLAY ON/OFF** button LEDs will keep lit for 3 second to indicate that IR command has been learnt, and then these two button LEDs will go out to exit the IR learning mode.
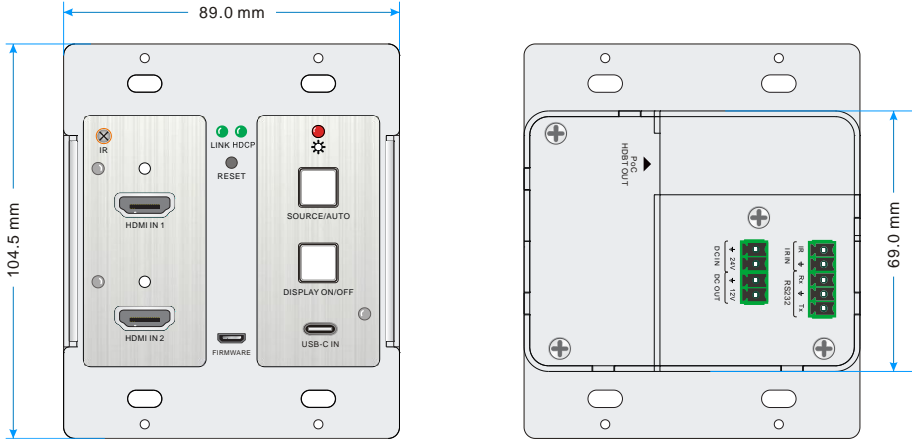
Note: The IR learning function will self-terminate after 30 seconds due to inactivity

● **Programed by RS232 command:**

The **DISPLAY ON/OFF** button also can be defined to send control characters by following the below command format.

Command	Function	Feedback Example
#SET_ON_[PARAM1] _ [PARAM2]: xxxx	Automatically send the command "xxxx" to the third-party device while the **DISPLAY ON** key has been pressed. ● [PARAM1] = "00~06": Represents the baud rate of the third-party device. | [PARAM1]	Baud Rate | |---|---| | 00 | 115200 | | 01 | 57600 | | 02 | 38400 | | 03 | 19200 | | 04 | 9600 | | 05 | 4800 | | 06 | 2400 | ● [PARAM2] = "00~99": Represents the delay time of command sending.	#SET_ON_05_30:1234567 @BAUDRATE: 4800 @DELAY TIME: 30 s @DISPLAY ON TO SEND:1234567 (After pressing the **DISPLAY ON** button for 30 seconds, send the command "1234567" to the third-party device.)
#SET_OF_[PARAM1] _ [PARAM2]: xxxx	Automatically send the command "xxxx" to the third-party device while the **DISPLAY OFF** key has been pressed. ● [PARAM1] = "00~06": Represents the baud rate of the third-party device. | [PARAM1]	Baud Rate | |---|---| | 00 | 115200 | | 01 | 57600 | | 02 | 38400 | | 03 | 19200 | | 04 | 9600 | | 05 | 4800 | | 06 | 2400 | ● [PARAM2] = "00~99": Represents the delay time of command sending.	#SET_OF_05_30:ABCDEFG @BAUDRATE: 4800 @DELAY TIME: 30 s @DISPLAY OFF TO SEND:ABCDEFG (After pressing the **DISPLAY OFF** button for 30 seconds, send the command "ABCDEFG" to the third-party device.)

8. Panel Drawing

9. Troubleshooting & Maintenance

Problems	Potential Causes	Solutions
Color losing or no video signal output on the HDMI display.	The cables may be not connected correctly or maybe is broken.	Check the cables are properly connected and in working condition.
No HDMI signal output in the device while local HDMI input is in normal working status.		
Output image with white noise.		
POWER indicator doesn't work or no respond to any operation.	Loose or failed power cord connection.	Double check the power cord connection.

Note: If your problem still remaining after following the above troubleshooting steps, please contact your local dealer or distributor for further assistance.

10. Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) Warranty

The limited warranty period of the product is fixed three years.

2) Scope

These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusion

- Warranty expiration.
- Factory applied serial number has been altered or removed from the product.
- Damage, deterioration or malfunction caused by:
  - ✓ Normal wear and tear.
  - ✓ Use of supplies or parts not meeting our specifications.
  - ✓ No certificate or invoice as the proof of warranty.
  - ✓ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
  - ✓ Damage caused by force majeure.
  - ✓ Servicing not authorized by distributor.
  - ✓ Any other causes which does not relate to a product defect.
- Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation

Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.