# TPHD2-WP1

## HDMI/VGA Wall Plate Switcher & HDBaseT Lite Transmitter

## 2-gang, Decora-style

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**Version: 79066_2020V1.0**

# TPHD2-WP1

79066 User Manual

## Preface

Read this user manual carefully before using the product. Pictures shown in this manual are for reference only. Different product model specifications may vary.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated October, 2018. In order to continue improving the product, we reserve the right to make function or parameter 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 (electrical shock or burn hazard)
- 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 product's power cable
- 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 sufficient ventilation to avoid damage caused by overheating
- 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

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# TPHD2-WP1

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## 1. Product Introduction

The TPHD2 WP1 is a Decora style HDBaseT Lite transmitter that installs in a double gang wall box to provide a convenient interface for both HDMI and VGA sources. A VGA HD scaler is utilized to improve the performance of older laptops when used with higher resolution displays. HDMI 1.4 with 4k & 3D signals including HDCP are supported. Switching between HDMI and VGA is provided using both automatic and manual switching. The HDBaseT output supports 200’ video transmission and can be powered from a matching receiver. Bi-directional RS232 communication is also provided by HDBaseT transmission.

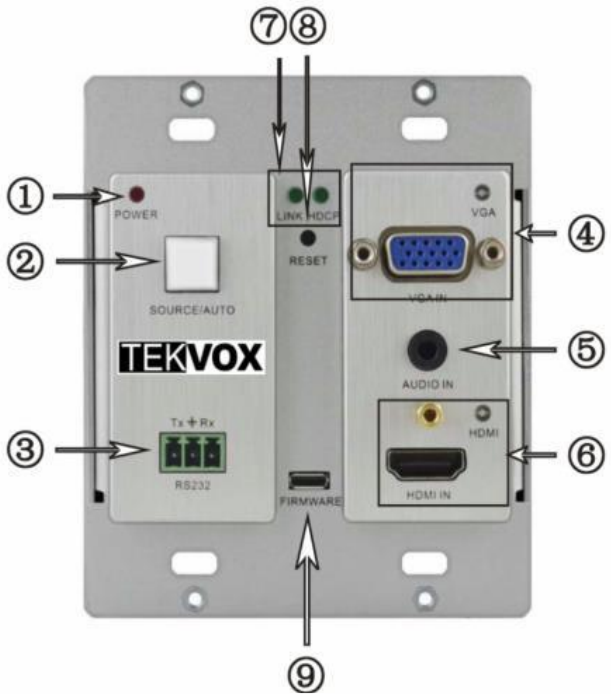
### 1.1 Features

A long with the ability to provide HDMI and VGA source connections, the TPHD2 WP1 is designed to support the TEKVOX TekTouchPad with power and RS232 on its back side for easy integration. Special RS232 commands are utilized to improve communication between the TekTouchPad and TekMonitor.

- 4K HDMI 1.4, with VGA output resolutions up to 1920x1200
- VGA auto-scaler to support older laptops
- Automatic and manual input switching modes
- Decora-style for easy installation into wall or floor boxes
- Supports transmission distances of up to 200 ft (60m) over single CAT cable
- Remotely powered by receiver via PoH (Power over HDBaseT)
- Includes rear RS232 and power connections for interfacing with a TekTouchPad
- Supports firmware upgrades via USB connection
- Fully HDCP-compliant

## 1.2 Panel Descriptions

### 1.2.1 Front Panel Description




| No. | Name | Description |
|---|---|---|
| 1 | Power Indicator | Lights up red when power is on |
| 2 | Source/Auto Button | **When light is OFF:**<br>Press to toggle between HDMI & VGA sources. The indicator of the selected source will light up green.<br>Press and hold for 3+ seconds to enter Auto-Switching Mode<br>**When light is ON:**<br>Device is in Auto-Switching Mode<br>Press and hold for 3+ seconds to enter Manual-Switching Mode |
| 3 | RS232 Port | Serial port 3-pin pluggable terminal block. Used to setup and control the TPHD2-WP1 or send bi-directional RS232 data to remote device. |
| 4 | VGA In | Connect a VGA source device. The indicator lights up yellow when there is a VGA signal present, and lights up green when the input is selected. Light turns off when there is no VGA input signal present. |
| 5 | Audio In | Used to embed audio with the VGA source |
| 6 | HDMI In | Connect an HDMI source device. The indicator lights up yellow when there is an HDMI signal present, and lights up green when the input is selected. Light turns off when there is no HDMI input signal present. |

| No. | Name | Description |
|---|---|---|
| 7 | LINK & HDCP Indicators | LINK: Lights up green when HDBaseT is properly connected<br>HDCP: Lights up green when the source signal contains HDCP information, blinks when HDCP is not present, and turns off when there is no source signal |
| 8 | Reset | Press to reboot the TPHD2-WP1 |
| 9 | Firmware | USB port used for updating firmware. To update firmware, plug in flash drive with “MERGE.bin” update file, then send command 40698% |

### 1.2.2 Side Panel Description

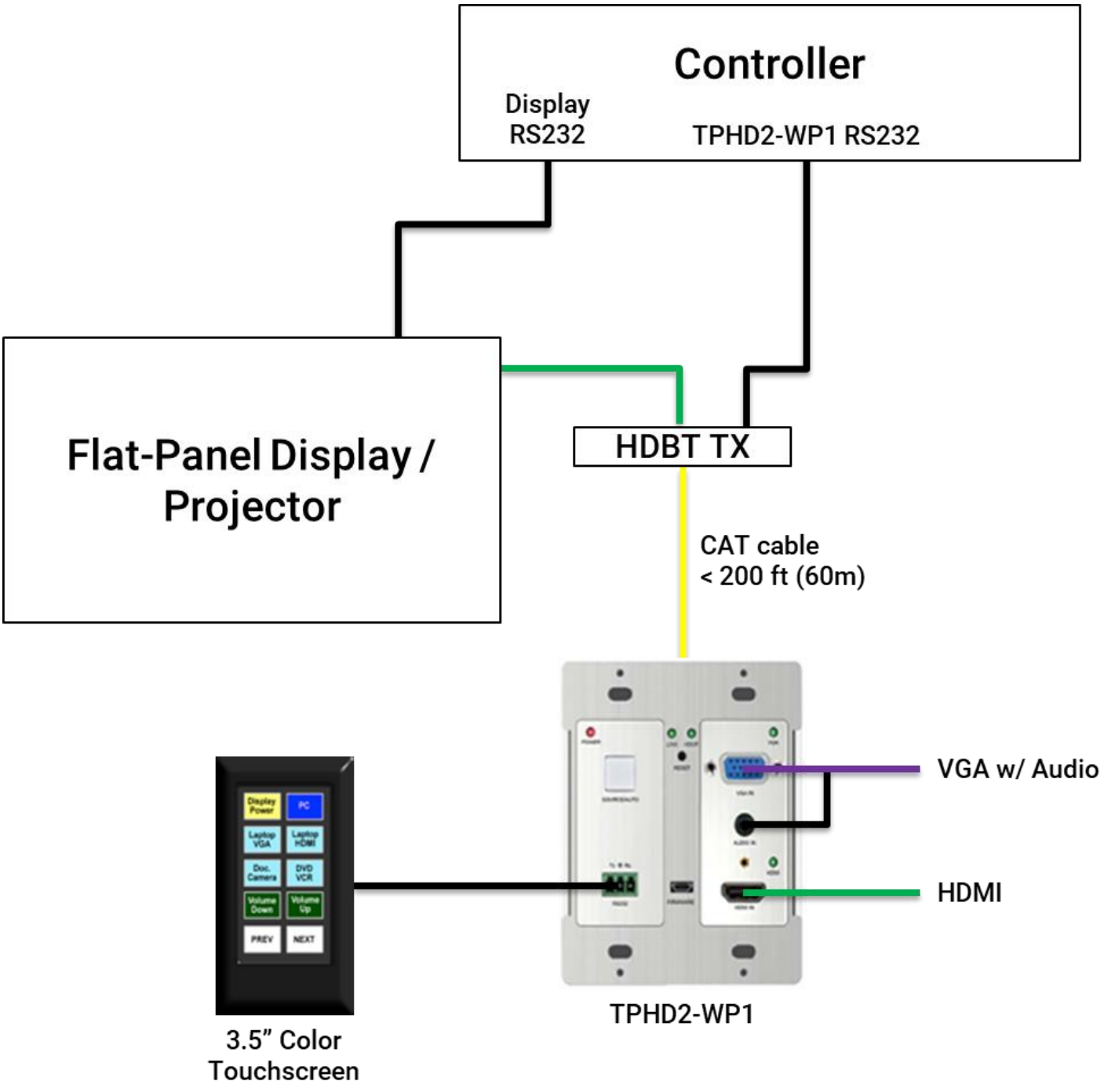
| No. | Name | Description |
|---|---|---|
| 1 | HDBaseT Output | Connect to HDBaseT receiver via CAT cable to deliver audio/visual signals with support for PoH (Power over HDBaseT) from receiver.<br>**Note:** The TPHD2-WP1 supports unidirectional PoH, and cannot be used to power far-end receiver. |

### 1.2.3 Rear Panel Description

| No. | Name | Description |
|---|---|---|
| 1 | Power In | Connect to DC 12V power adapter if not being powered by receiver |
| 2 | Power Out | Supplies DC 12V power for TekTouchPad (if used) |
| 3 | RS232 | Bi-directional RS232 port for connection to TekTouchPad. This port can be used to control the TPHD2-WP1, or to control a remote device connected to the receiver. |

## 2. Application

By using the TPHD2-WP1 wall plate with a TekTouchPad and networked controller, a simple controlled audiovisual system can be implemented. The RS232 and power connections on the rear of the wall plate make it easy to connect to a TekTouchPad. When using a controller such as a TEK 3, the TekTouchPad is programmed only to communicate with the TEK 3 and not the display. The TEK 3 will have the drivers to communicate with the display. This makes it easy to install several systems or change out the display in the future.



# 3. Operation

## 3.1 Front Panel Buttons

From the front panel, the TPHD2-WP1 is controlled by pressing the Source/Auto button or through the RS232 port. Both automatic and manual switching between HDMI & VGA are supported. By default, the TPHD2-WP1 is set to auto-switching, and the button is illuminated. To set the unit to manual switching, press and hold the Source/Auto button for 3 seconds or more or send the RS232 command “40771%”. Once the button light is off, the unit can be toggled between HDMI and VGA by pressing the button. To set the unit back to auto mode press and hold the button for 3 seconds or more or send the RS232 command “40770%”.

- **Automatic Switching Mode**

  In this mode the Source/Auto button is lit up green, and the TPHD2-WP1 switches to the last connected source automatically. If two sources are connected and one is disconnected, the unit will switch to the original source. Otherwise the unit will not switch.
- **Manual Switching Mode**

  In this mode the Source/Auto light is off, and the user must press the button or send an RS232 command to switch between sources. Pressing Source/Auto toggles between HDMI and VGA, and the indicator of the currently selected source will light up green. To switch between HDMI and VGA using RS232 commands send “40701%” for HDMI and “40704%” for VGA.

## 3.2 RS232 Control

### 3.2.1 Wall Plate Control

TPHD2-WP1 can operate in one of two control modes for RS232 control. These two modes allow the RS232 connection at the wall plate to control a far-end device, or for the far end device at the receiver to control the TPHD2-WP1.

- **Passthrough Control Mode**

  In Passthrough Control Mode, RS232 data can be sent to control a far end device. Use this mode to allow a TekTouchPad to control a controller or display.

  Bi-directional RS232 data can be sent between the wall plate and a compatible HDBaseT receiver to support control of a controller, or to send commands directly to a display. Supported baud rates are: 2400, 4800, 9600, 19200, 38400, 57600 or 115200.
- **Far-End Control Mode**

  In far-end control mode, a control system can control the TPHD2-WP1.

### 3.2.2 Wall Plate Operation

An RS232 utility program or dedicated controller is necessary to send commands to the wall plate. The commands cannot be sent using a terminal program as one character at a time, and must be sent as a group of characters.

### 3.2.3 RS232 Commands

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

**Note:**

- Commands with a gray background are for VGA sources ONLY
- EDID commands are for HDMI sources ONLY

#### *3.2.3.1 Switch Commands*

| Command | Function | Feedback Example |
|---|---|---|
| 40701% | Switch to HDMI Input | Switch to HDMI |
| 40704% | Switch to VGA input | Switch to VGA |
| 40705% | Invert the horizontal polarity | Hpolarity:0/1 |
| 40706% | Invert the vertical polarity | Vpolarity:0/1 |
| 40707% | Check the present resolution & polarity | 1920x1080<br>Hpolarity:1<br>Vpolarity:0 |
| 40600% | VGA Audio Mute | LINE Mute |
| 40601% | VGA Audio Unmute | LINE Unmute |
| 40602% | VGA Audio Up | LINE Volume:xx |
| 40603% | VGA Audio Down | LINE Volume:xx |
| 40901% | Enable OSD | OSD On |
| 40902% | Disable OSD | OSD Off |
| 40770% | Enable auto-switching | Auto Switching |
| 40771% | Disable auto-switching | Manual Switching |

#### *3.2.3.2 Resolution Commands*

| Command | Function | Feedback Example |
|---|---|---|
| 40619% | Change the resolution to 1360x768 (HD) | Resolution: 1360x768 |
| 40626% | Change the resolution to 1024x768 (XGA) | Resolution: 1024x768 |
| 40627% | Change the resolution to 1280x720 (720P) | Resolution: 1280x720 |

| Command | Function | Feedback Example |
|---|---|---|
| 40628% | Change the resolution to 1280x800 (WXGA) | Resolution: 1280x800 |
| 40629% | Change the resolution to 1920x1080 (1080P) | Resolution: 1920x1080 |
| 40620% | Change the resolution to 1920x1200 (WUXGA) | Resolution: 1920x1200 |
| 46021% | Change the resolution to 1600x1200 (UXGA) | Resolution: 1600x1200 |

***3.2.3.3 Setup Commands***

| Command | Function | Feedback Example |
|---|---|---|
| 402**xx**% | Set the brightness to **xx**. **xx** ranges from 00 ~ 99 | Brightness: **xx** |
| 403**xx**% | Set the contrast to **xx**. **xx** ranges from 00 ~ 99 | Contrast: **xx** |
| 404**xx**% | Set the saturation to **xx**. **xx** ranges from 00 ~ 99 | Saturation: **xx** |
| 405**xx**% | Set the sharpness to **xx**. **xx** ranges from 00 ~ 99 | Sharpness: **xx** |
| 40606% | Auto-adjust the VGA input | VGA Input Auto |
| 40607% | Adjust the color temperature | Color Temperature: **xx** (**xx** can be medium, warm, user, or cool) |
| 40608% | Set the aspect ratio | Aspect Ratio **xx** (**xx** can be 16:9, 4:3, or auto) |
| 40614% | Set the picture mode | Picture Mode: **xx** (**xx** can be dynamic, standard, mild, or user) |
| 40699% | Check the system version | Version V**x.x.x** |
| 40779% | Passthrough Control Mode 1 | RS232 Mode 1: RS232 Control Scaler & Remote |
| 40780% | Far-end Control Mode 2 | RS232 Mode 2: RS232 & Remote Control Scaler |
| 40790% | Set the HDCP status of HDMI output to Active | HDCP Active |
| 40791% | Set the HDCP status of HDMI output to On | HDCP On |
| 40792% | Set the HDCP status of HDMI Output to Off | HDCP Off |
| 40698% | Software update | |
| 40617% | Reset to factory default | |

***3.2.3.4 Inquiry Commands***

| Command | Function | Feedback Example |
|---|---|---|
| 40632% | Check the output resolution | Resolution: **xx** |

| Command | Function | Feedback Example |
|---|---|---|
| 40633% | Check the picture mode | Picture Mode: **xx** |
| 40793% | Check HDCP Status | HDCP Off/On/Active |
| 40635% | Check the image aspect ratio | Aspect Ratio: **xx** |
| 40636% | Check the brightness | Brightness: **xx** |
| 40637% | Check the contrast | Contrast: **xx** |
| 40638% | Check the saturation | Saturation: **xx** |
| 40639% | Check sharpness | Sharpness: **xx** |
| 40640% | Check the color temperature | Color Temperature: **xx** |

#### *3.2.3.5 Adjustment Commands*

| Command | Function | Feedback Example |
|---|---|---|
| 40678% | Enable screen output adjusting | Enter Output Position Adjust |
| 40679% | Disable screen output adjusting | Exit Output Position Adjust |
| 40670% | Move image to the left | Output Position Adjust X **xx** |
| 40671% | Move image to the right | Output Position Adjust X **xx** |
| 40672% | Move the image up | Output Position Adjust Y **xx** |
| 40673% | Move the image down | Output Position Adjust Y **xx** |
| 40674% | Increase image width | Output Width Adjust **xx** |
| 40675% | Decrease image width | Output Width Adjust **xx** |
| 40676% | Decrease image height | Output Height Adjust **xx** |
| 40677% | Increase image height | Output Height Adjust **xx** |

#### *3.2.3.6 EDID Commands*

| Command | Function | Feedback Example |
|---|---|---|
| 40772% | EDID pass-through | EDID: bypass mode |
| 40773% | Set EDID data to 1080P PCM 2.0ch | EDID:1080P&PCM 2ch |
| 40774% | Set EDID data to 1080P Dolby 5.1 | EDID:1080P&5.1ch |
| 40775% | Set EDID data to 1080P3D Dolby 5.1 | EDID:1080P3d&5.1ch |
| 40776% | Set EDID data to 1080i PCM 2.0ch | EDID:1080i&PCM 2ch |

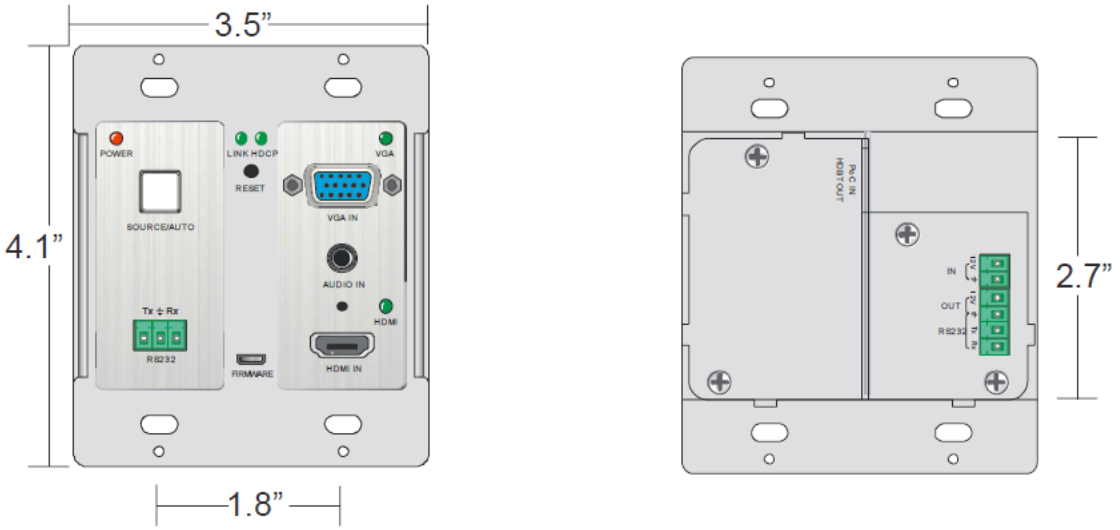
| Command | Function | Feedback Example |
|---|---|---|
| 40777% | Set EDID data to 4K*2K PCM 2.0ch | EDID:4K&PCM 2ch |
| 40778% | Check EDID data | EDID:1080P&PCM 2ch<br>EDID:1080P&5.1ch<br>EDID:1080P3d&5.1ch<br>EDID:4K&PCM 2ch |
| 40799% | Program EDID file, send EDID data within 10s | Waiting for EDID within 10 secs! |
| 40903% | Enable Feedback | Feedback On |
| 40904% | Disable Feedback | Feedback Off |

## 4. Device Specifications

| | |
|---|---|
| **Model** | TPHD2-WP1 (79066) |
| **Input** | 1 HDMI (19-pin HDMI, female)<br>1 VGA (15-pin VGA, female)<br>1 AUDIO (3.5mm mini jack)<br>1 RS232, Front (3-pin Phoenix)<br>1 RS232 and Power In/Out, Rear (6-pin Phoenix) |
| **Output** | HDBaseT Lite (RJ45) |
| **Transmission Mode** | HDBaseTLite with PoC |
| **Transmission Distance** | 1080P ≤ 196 feet (60m)<br>4Kx2K ≤ 130 feet (40m) |
| **VGA Resolution** | 800x600, 1024x768, 1280x800, 1280x1024, 1440x900,1600x1200, 1920x1080, 1920x1200 |
| **HDMI Resolution** | 4Kx2K, 1080p 3D, 1080P(HD)/1080i/720P/576P/576i/480P/480i |
| **HDMI Standard** | HDMI1.4 and HDCP |
| **Bandwidth** | 10.2Gbps |
| **Baud Rate** | 9600 bps |
| **Power Supply** | DC 12V, 2A |
| **Power Consumption** | 9.6W (max) |
| **Temperature** | 14 ~ 104°F (-10 ~ 40°C) |
| **Humidity** | 10% ~ 90% |
| **Style** | Decora type for 2-Gang wall or floor boxes |
| **Product Dimensions** | 4.1” (104mm) x 3.5” (89mm) x 1.7” (43mm) |
| **Product Weight** | 0.64 lbs. (290g) |

Specifications are subject to change without notice.

## 5. Product Dimensions



## 6. Troubleshooting & Maintenance

| Problems | Causes | Solutions |
|---|---|---|
| Loss of video or noise on the screen | CAT cable or RJ45 connector issues. | Check connections and cable. Best to use CAT 6 shielded. Distance may be too long. |
| Power indicator doesn't work or respond to any operation | Loose or failed power cord connection | Ensure the power cord connection is good. |
| Cannot control the device via RS232 port | Wrong RS232 communication parameters | Make sure the RS232 communication parameters are set correct. |
| Cannot control the display via RS232 | Improper setting of RS232 mode | Check that the unit is set to Passthrough Control Mode. |
| Cannot control unit via front panel or RS232 while unit is powered on | Unit may not be working. | Check with dealer. |

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.