User Manual

TPHD405PT-WPB

Dual Input Wall Plate HDBaseT Transmitter

Version: TPHD405PT-WPB_2014V1.0

PTN www.PTN-electronics.com

SAFETY PRECAUTIONS

To insure the best 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.

NOTICE: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

This manual is for operation instruction only, not for any maintenance usage. The functions described in this version are updated till June 2014. Any changes of functions and parameters since then will be informed separately. Please refer to the dealers for the latest details.

All product function is valid till 2014-06-12.

Update History

Version	Date	Update Content
1.0	2014.06.12	First version.

Contents

1. Introduction

1.1 Introduction to TPHD405PT-WPB

TPHD405PT-WPB is a Decora style transmitter that installs in a double-gang wall box to provide a convenient interface for HDMI / VGA input sources. It has 1 HDMI IN, 1 VGA IN and 1 HDBT OUT with PoC. It supports VGA with full HD scaler, and HDMI 1.4 with 4k& 3D, input signals support auto-switching and manual-switching. The HDBaseT output supports 60m UHD video transmission with PoC, enables bi-directional RS232 communication between TPHD405PT-WPB and remote device.

With its PoC solution, TPHD405PT WPB can be energized by far-end PoC receiver.

1.2 Features

- Selectable HDMI/ VGA with audio input
- Support VGA output resolution up to1080P
- High bandwidth: 10.2Gbps
- In-built scaler function, automatically scales HDMI/ VGA signals to match the native resolution of the display
- Transmit HDMI signals up to 4K
- Compliant with HDMI 1.4, support 3D
- HDCP compliance, equipped with HDCP auto-tracking solution
- Provides auto-switching capability
- Support multiple control methods including front panel buttons, and RS232, support bi-directional RS232 pass-through control.
- Supports firmware upgrading via USB.
- Energize WP8 with a DC 12V power output
- Powered by local power pack or PoC connection up to 60m
- Aluminium design for elegant and better cooling

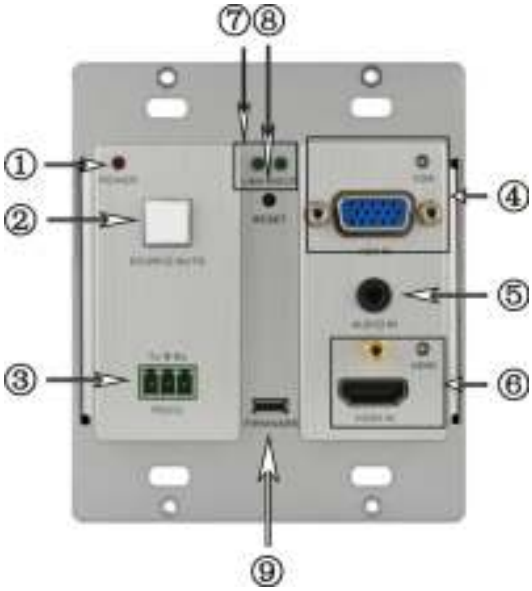
1.3 Package Contents

- 1 x TPHD405PT-WPB
- 4 x Screws
- 4 x Captive connectors (2 2-pin connectors, 2 3-pin connectors)
- 1 x User Manual

Notes：Please confirm if the product and the accessories are all included, if not, please contact with the dealers.

2. Panel Description

2.1 Front Panel



No.	Name	Description
①	Power indicator	Illuminates red when power on
②	SOURCE/ AUTO	✓ Used as video source selection button (with backlight off): Press to select one source, press again to select next source, switching circularly between HDMI and VGA. The indicator of the selected input source will illuminate green. ✓ Used as switching mode selection button (with backlight on): Press and hold for 3 seconds or more to enter in Auto-switching mode, the indicator illuminates green when in auto-switching mode. Press and hold for 3 seconds or more again to enter in Manual-switching mode.
③	RS232	Serial port, 3-pin captive screw connector, connects with the control terminal to control the TPHD405PT WPB, supports bi-directional RS232 control.
④	VGA IN	Connect with VGA source device. The indicator: ✓ illuminate yellow when there is VGA signal input

		✓ illuminate green when the signal source is chosen as input source ✓ turn off when there is no VGA input signal
⑤	AUDIO IN	Connect with the audio output socket of VGA source device, deliver synchronous audio source with VGA signal source when choosing VGA as source signal.
⑥	HDMI IN	Connect with HDMI source device. The indicator will illuminate yellow when there is VGA signal input and illuminate green when the signal source is chosen as input source.
⑦	LINK &HDCP	✓ LINK: Twisted Pair Link status indicator, illuminate green when successfully connected. ✓ HDCP: source signal indicator, illuminate green when the source signals are inputted normally; turn off when not.
⑧	RESET	Press the button to reset TPHD405PT-WPB.
⑨	FIRMWARE	USB port, used for firmware update Plug a flash disk or other storage device with update file (MERGE.bin), and send command **50698%** to update firmware.

Note: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

2.2 Rear Panel

No.	Name	Description
①	HDBT OUT	RJ45 port, connect with receiver via a CAT5e/6 cable to deliver Audio/ Video signals, support PoC. Note: TPHD405PT-WPB can be energized by far-end receiver while
②	DC 12V	Power out port, 2-pin captive connector, connect with WP8 to energize it with a 12V power output
③	RS232	Serial port, 3p captive screw connector, connects with a far-end receiver, supports bi-directional RS232 control.
④	DC 24V	Power in port, 2-pin captive connector, connect with DC 24V power adapter

Note: Pictures shown in this manual are for reference only, different model and specifications are subject to real product.

3. System Connection

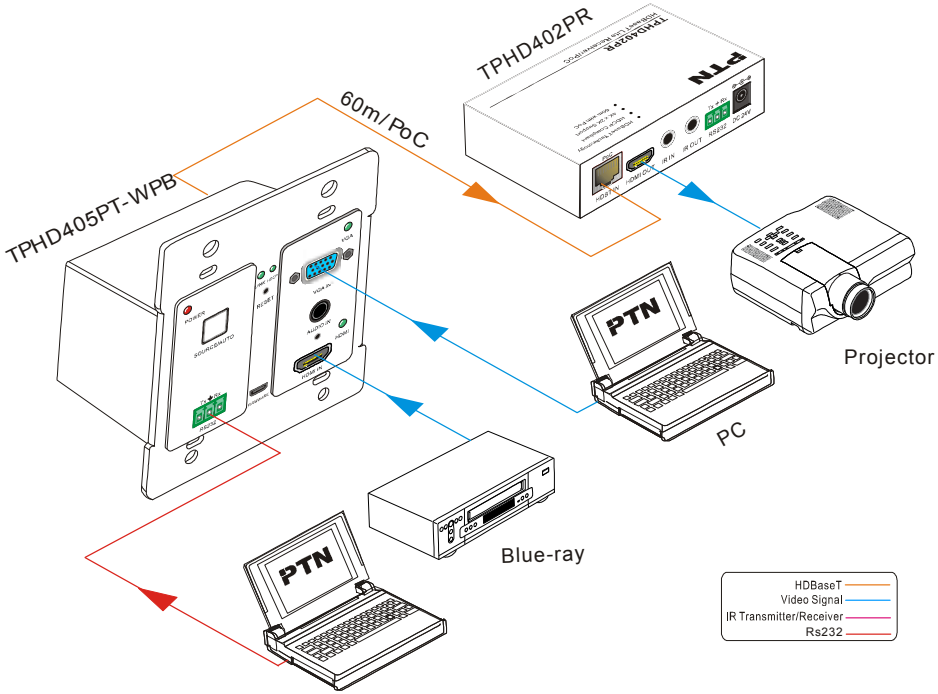
3.1 Usage Precautions

1) System should be installed in a clean environment and has a prop temperature and humidity.

2) All of the power switches, plugs, sockets and power cords should be insulated and safe.

3) All devices should be connected before power on.

3.2 System Diagram



3.3 Connection Procedure

Step1. Connect HDMI source device (e.g. Blue-ray DVD) to HDMI input ports of TPHD405PT-WPB with HDMI cable. Connect a VGA source device (e.g. PC) to the VGA input port of TPHD405PT-WPB with VGA cable.

Step2. Connect a TPHD402PR to the HDBT port on the rear panel with twisted pair.

Step3. Connect a HDMI display to the HDMI OUT port of TPHD402PR.

Step4. Connect a control terminal to the RS232 port on the front panel of TPHD402PR.

Step5. Connect control device (e.g. PC) to RS232 port of TPHD405PT-WPB or TPHD402PR (bi-directional RS232 control, either is available).

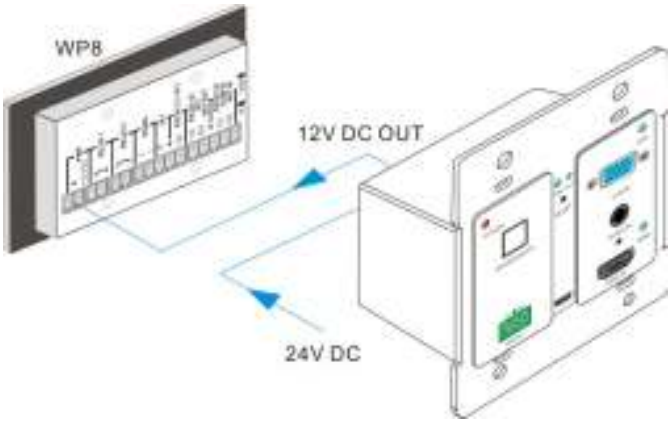
Step6. Connect DC24V power adaptor to the power port of TPHD402PR, TPHD405PT-WPB is able to get power from TPHD402PR with PoC solution.

Note: TPHD405PT-WPB supports unidirectional PoC, i.e, TPHD405PT-WPB can get power from far-end PoC devices with PoC function while it can't energize far-end PoC devices when the power supply is connected to TPHD405PT-WPB.

3.4 Energizing WP8

TPHD405PT-WPB has a 12V power output port on the rear panel. Connect the 12V

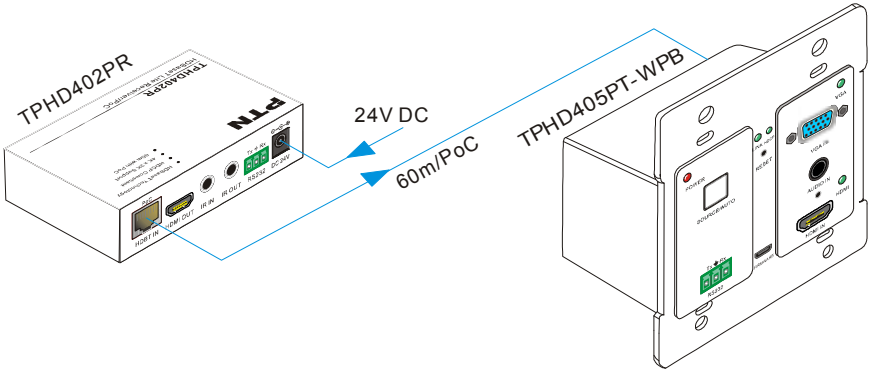
power output port of TPHD405PT-WPB to the power port of WP8 (refer to the following figure), TPHD405PT-WPB is capable of energizing WP8.



3.5 PoC Solution

TPHD405PT-WPB has a HDBT OUTPUT port on the rear panel, which can extend HDMI/ VGA signals up to 60m. Meanwhile it also supports PoC, which allows several terminals share the same power supply and eliminates the need for extra power supply at the remote nodes.

Connect a DC 24V power adapter to the power port of TPHD402PR, TPHD405PT-WPB can be energized synchronously with PoC solution, see the picture below:



3.6 Application

TPHD405PT-WPB has a good application in various occasions, such as computer realm, monitoring, conference room, big screen displaying, television education, command & control center and smart home etc.

4. Operations

4.1 Operations of front panel buttons

TPHD405PT-WPB has a channel switching button on the front panel, through which users can switch input source signals.

It supports both manual switching and auto switching. (Default: Auto switching) Press and hold the switching button for 3 seconds or send command "**50785%** " and "**50786%"**. to switch between the two modes.

Switching modes:

- Auto switching mode

  In this mode, the indicator will illuminates green, and TPHD405PT-WPB will recognize the last connected source device as input source automatically. Disconnect the present source device, it will deliver the other source signal (if there is input signal on the other source).
- Manual switching mode

  In this mode, the indicator will remain off. Press the switching button to select input source, it will switch circularly between HDMI and VGA. Or switch it by sending RS232 commands.

The indicator of the selected input source will illuminate green.

4.2 RS232 Control

As RS232 can be transmitted bi-directionally between TPHD405PT-WPB and TPHD402PR, so it is able to control a third party RS232 device from local or control TPHD405PT-WPB from remote. When to control a third party RS232 device, the baud rate of this device should be 2400, 4800, 9600, 19200, 38400, 57600 or 115200.

4.2.1 Installation/uninstallation of RS232 Control Software

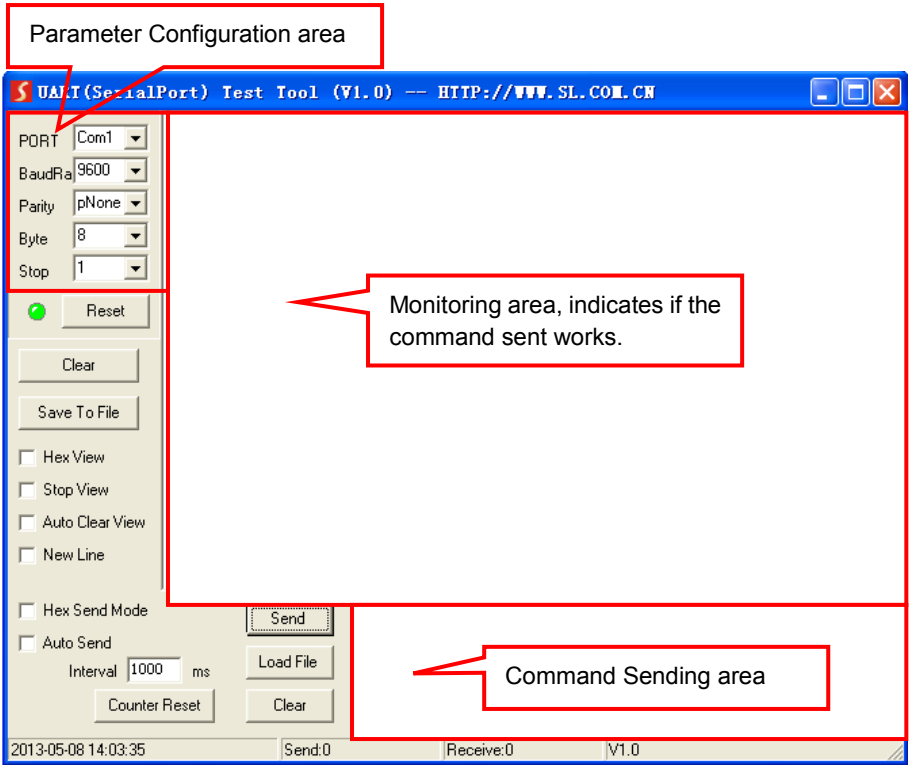
- **Installation** Copy the control software file to the computer connected with TPHD405PT-WPB.
- **Uninstallation** Delete all the control software files in corresponding file path.

4.2.2 Basic Settings

First, connect TPHD405PT-WPB 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 we 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.

4.2.3 RS232 Communication Commands

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

Command	Function	Feedback Example
Switch Commands		
50701%	Switch to HDMI input	Switch to HDMI
50704%	Switch to VGA input	Switch to VGA
50785%	Enable auto-switching	Auto Switching
50786%	Disable auto-switching	Manual Switching
Resolution Commands		
50619%	Change the resolution to 1360X768 HD	Resolution: 1360x768
50626%	Change the resolution to 1024X768 XGA	Resolution: 1024x768
50627%	Change the resolution to 1280X720 720P	Resolution: 1280x720
50628%	Change the resolution to 1280X800 WXGA	Resolution: 1280x800
50629%	Change the resolution to 1920X1080 1080P	Resolution: 1920x1080
50620%	Change the resolution to1920X1200 WUXGA	Resolution: 1920x1200
50621%	Change the resolution to1600X1200 UXGA	Resolution: 1600x1200
Setup Commands		
502xx%	Set the brightness to xx. XX ranges from 0 to 100	Brightness: xx
503xx%	Set the contrast to xx. XX ranges from 0 to 100	Contrast: xx
504xx%	Set the saturation to xx. XX ranges	Saturation: xx

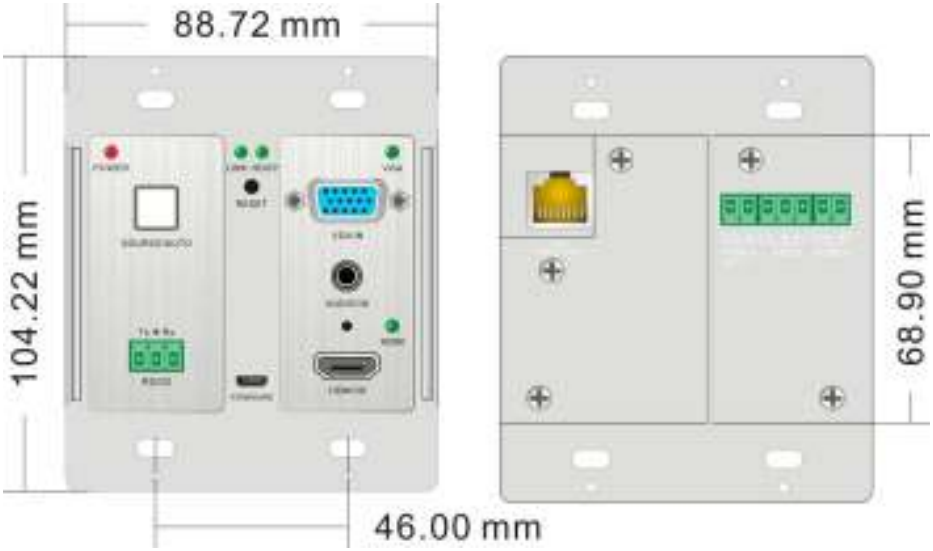
	from 0 to 100	
505xx%	Set the sharpness to xx. XX ranges from 0 to 100	Sharpness: xx
50607%	Adjust the color temperature	Color Temperature: xx
50608%	Set the aspect ratio	Aspect Ratio: xx
50614%	Set the picture mode	Picture Mode: xx
50615%	Set SM audio mode	Sound Mode: xx
50699%	Check the system version	Version Vx.x.x
50698%	Software update	
50617%	Reset to factory defaults	Factory Reset
Inquire Commands		
50632%	Check the output resolution	Resolution: xx
50633%	Check the image mode	Picture Mode: xx
50634%	Check the audio mode	Sound Mode: xx
50635%	Check the image aspect ratio	Aspect Ratio: xx
50636%	Check the brightness	Brightness: xx
50637%	Check the contrast	Contrast: xx
50638%	Check the saturation	Saturation: xx
50639%	Check sharpness	Sharpness: xx
50640%	Check the color temperature	Color Temperature: xx
Adjustment Commands		
50678%	Enable screen output adjusting	Enter Output Position Adjust
50679%	Disable screen output adjusting	Exit Output Position Adjust
50670%	Move the image to right	Output Position Adjust X xx
50671%	Move the image to left	Output Position Adjust X xx
50672%	Move the image up	Output Position Adjust Y XX
50673%	Move the image down	Output Position Adjust Y xx
50674%	Stretch left from left side (increase	Output Width Adjust xx

	image width)	
50675%	Pull right from left side (decrease image width)	Output Width Adjust xx
50676%	Stretch upwards from buttom side (decrease image height)	Output Height Adjust xx
50677%	Stretch downwards from buttom side (increase image height)	Output Height Adjust xx

5. Specification

Input	1 HDMI（HDMI female）,1 VGA（VGA female）,1 AUDIO（3.5mm mini jack）,1 RS232（3P captive screw connector）,
Ouput	1 HDBaseT（RJ45）
Transmission Mode	HDBaseT
Resolution	Up to 1080P for VGA; 800x600~1920x1200,3D&4Kx2K for HDMI
Gain	0dB ～ 10dB@100MHz
transmission Distance	60m with PoC
Differential Phasic Erro	±10°@135MHz-100M
Bandwidth	10.2Gbps
Return Lost	<-30dB@5KHz
HDMI Standard	Support HDMI1.4 & HDCP
Min~Max level	0.3V~1.45Vp-p;75Ω
Power Supply	24V DC;9.6W
Temperature	－20 ～ ＋60℃
Humidity	10%-90%
Chassis Dimension	Decora style two gang

6. Panel Drawing



7. Troubleshooting & Maintenance

Problems	Causes	Solutions
Color losing or no video signal output in HDMI display	The connecting cables may not be connected correctly or it may be broken	Check whether the cables are connected correctly and in working condition.
No HDMI signal output in the device while local HDMI input is in normal working state		
Output image with snowflake		
POWER indicator doesn't work or no respond to any operation	Loose or failed power cord connection	Ensure the power cord connection is good
Cannot control the device by control device (e.g. a PC) through RS232 port	Wrong RS232 communication parameters	Make sure the RS232 communication parameters are correct.
Static becomes stronger when connecting the video connectors	bad grounding	Check the grounding and make sure it is connected well.
Cannot be controlled through RS232 port or front panel buttons	The unit may have already been broken	Send it to authorized dealer for repairing.

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

8. After-sales Service

If there appear some problems when running TPHD405PT-WPB, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.

1) **Product Limited Warranty:** PTN warrants that its products will be free from defects in materials and workmanship for **six months,** which starts from the first day you buy this product (The purchase invoice shall prevail).
   Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.
2) **What the warranty does not cover:**
   - 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 PTN
     - Any other causes which does not relate to a product defect
   - Delivery, installation or labor charges for installation or setup of the product
3) **Technical Support:** Email to our after-sales department or make a call, please inform us the following information about your cases.
   - Product version and name.
   - Detailed failure situations.
   - The formation of the cases.

Remarks: For any questions or problems, please try to get help from your local distributor, or email PTN at: support@PTN-electronics.com.

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