

User Manual

TPHD403P

PTN HDBaseT Pro PoC Extender



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Version: TPHD403P2014V1.0



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NOTICE: Please read this user manual carefully before using this product.

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

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All product function is valid till 2014-02-22.

Update History

Version	Date	Update Content
1.0	2014.02.22	First version.

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1. Introduction

1.1 Introduction to TPHD403P

TPHD403P is an HDMI/IR/RS232 twisted pair extender including one transmitter (TPHD403PT) and one receiver (TPHD403PR). It is a professional 1x1 extender, with a single CAT5e cable, the input HDMI signal can be long-distance transmitted, and the control signal (IR & RS232) is able to work in a bi-directional way, and POC are supported by TPHD403P. With its Ethernet ports, TPHD403P also supports internet access to work in a LAN.

1.2 Features

- HDBaseT technology.
- High Bandwidth: 10.2Gps.
- Support CEC.
- Support 3D.
- Support PoC
- HDMI/IR/RS232 signal transmitted over single CAT5e/CAT6 twist pair.
- Max transmission distance is up to 90 meters for 1080P signals.
- Max transmission distance is up to 35 meters for 4K×2K signals.
- Support Ethernet expanding.
- HDTV Compatible, use HDMI 1.4 and HDCP compliant.
- Support 1080P, 1080i, 720P, 576P, 576i, 480P, and 480i.
- High quality output video signal with 24bit/36bit deep color.
- Bi-directional RS232 control.
- Bi-directional IR control.
- LED indicators show work status.
- Wall/table-mountable aluminium enclosure, PT case design.

Note: Please use a CAT5e cable with low impedance (Shielded twisted pair will be better and should be well grounded) for good transmission effect.

1.3 Package Contents

- 1 x TPHD403PT
- 1 x TPHD403PR
- 4 x Mounting ears (Separated from TPHD403PT and TPHD403PR)
- 1 x Power adapter (DC 24V, 3A)
- 2 x IR Emitter (MYS-003B Φ3.5mm plug, not included, buy it separately)
- 2 x IR receiver (TSMP1138 Φ3.5mm plug, not included, buy it separately)
- 2 x RS232 cable
- 8 x Screws (3*6mm)
- 1 x User manual

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

2. Introduction of Product Appearance

2.1 Product Appearance of TPHD403PT



Figure 1 Interfaces of TPHD403PT

No.	Name	Description
①	RS232	Serial port, 3p captive screw connector, connect with the control terminal to control the controlled terminal, supports bi-directional RS232 control between the transmitter (TPHD403PT) and the receiver (TPHD403PR).
②	In Link On Power	✓ In: When connected with device which supports HDCP and works normally, this LED will keep on. If the device does not support HDCP, the LED will blink. ✓ Link: Twisted Pair Link status indicator. It will keep on when connection is successful. ✓ On: Used to show the working status, blinks when in normal working state, turns off when stop working. ✓ Power: Turns red and keep on when power on.
③	IR IN&OUT	✓ IN: Connect with IR receiver, the IR signal received from this port can only send out in TPHD403PR. ✓ OUT: Connect with IR Emitter, and the sending IR signal is received from TPHD403PR.
④	24V DC	Connect with a DC 24V power adapter. (Not necessary if TPHD403PR connects with power adapter)
⑤	HDBT OUT	To connect with the HDBaseT port of TPHD403PR by using a single CAT5e cable (90m length in max).
⑥	HDMI IN	HDMI input port, connect with an HDMI source device.
⑦	ETHERNET	Ethernet ports, when need to work in a local area network, one of these 4 ports (both the Ethernet ports of TPHD403PT and TPHD403PR) should be used for internet access, and the others can be connected with computers. If they are well connected, the yellow LED indicators on the corresponding ports will keep blink and the green ones will keep on when

working.

2.2 Product Appearance of TPHD403PR



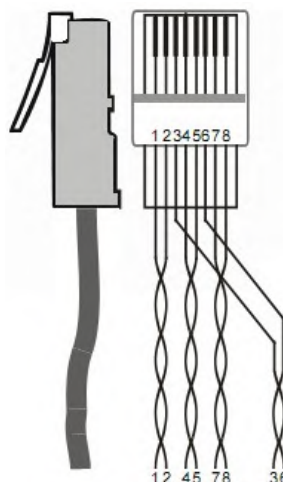
Figure 2 Interfaces of TPHD403PR

No.	Name	Description
①	RS232	Serial port, 3p captive screw connector, connects with the control terminal to control the controlled terminal, supports bi-directional RS232 control between the transmitter (TPHD403PT) and the receiver (TPHD403PR).
②	Out Link On Power	✓ Out: When connected with device which supports HDCP and works normally, this LED will keep on. If the device does not support HDCP, the LED will blink. ✓ Link: Twisted Pair Link status indicator. It will keep on when connection is successful. ✓ On: Used to show the working status, blinks when in normal working state, turns off when stop working. ✓ Power: Turns red and keep on when power on.
③	IR IN&OUT	✓ IN: Connect with IR receiver, the IR signal received from this port can only send out in TPHD403PT. ✓ OUT: Connect with IR Emitter, and the sending IR signal is received from TPHD403PT.
④	24V DC	Connect with a DC 24V power adapter. (Not necessary if TPHD403PT connects with power adapter)
⑤	HDBT IN	To connect with the HDBaseT port of TPHD403PT by using a single CAT5e cable (90m length in max).
⑥	HDMI OUT	HDMI output port, connect with an HDMI displaying device.
⑦	ETHERNET	Ethernet ports, when need to work in a local area network, one of these 4 ports (both the Ethernet ports of TPHD403PT and TPHD403PR) should be used for internet access, and the others can be connected with computers. If they are well connected, the yellow LED indicators on the corresponding ports will keep blink and the green ones will keep on when working.

2.3 Twisted Pair Cable Connection

The twisted pair used in TPHD403P MUST be a straight-through cable. The connectors can be T568A or T568B, but both sides must be the same.

TIA/EIA T568A		TIA/EIA T568B	
Pin	Cable color	Pin	Cable color
1	green white	1	orange white
2	green	2	orange
3	orange white	3	green white
4	blue	4	blue
5	blue white	5	blue white
6	orange	6	green
7	brown white	7	brown white
8	brown	8	brown
1st Ground	4--5	1st Ground	4--5
2nd Ground	3--6	2nd Ground	1--2
3rd Group	1--2	3rd Group	3--6
4th Group	7--8	4th Group	7--8



3. System Connection

3.1 Usage Precautions

Please cut off the power of the HDMI source device and the output displaying device before accessing with TPHD403P, as it may damage to TPHD403P. Ensure that all connections (including the power cord) are done before turning on the power to work with TPHD403P.

3.2 System Diagram

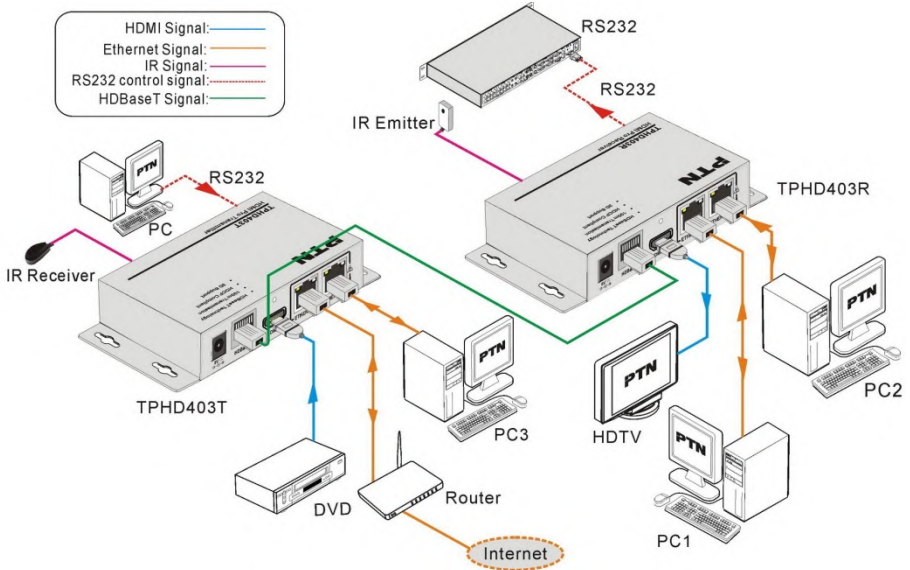


Figure 3 System Diagram

3.3 Connection Procedure

- Step1.** Connect HDMI source (such as DVD player) to HDMI IN port of the transmitter TPHD403PT with HDMI cable.
- Step2.** Connect HDBaseT port of TPHD403PT and HDBaseT port of TPHD403PR, with single CAT5e cable.
- Step3.** Connect HDMI displayer (such as HDTV) to HDMI OUT port of TPHD403PR with HDMI cable.
- Step4.** Both TPHD403PT and TPHD403PR have IR IN and OUT. When one model use for IR signal receiver, the IR signal must be sent out by the other model.
For example: When “IR IN” of TPHD403PT connects with an IR receiver, the IR Emitter must be connected to “IR OUT” of TPHD403PR.
- Step5.** To set as a LAN, one of the four ETHERNET ports of TPHD403PT and TPHD403PR should be used for Internet access, and the others can be connected with computers.
- Step6.** Connect the RS232 port of the computer and the RS232 port of TPHD403PT or TPHD403PR (any one is able to work as the RS232 signal can be transmitted bi-directionally) by using a RS232 cable.
- Step7.** Connect with DC24V power adaptor(s) (Any end of TPHD403PT and TPHD403PR is connected with power adapter is enough with its POC function).

3.4 System Applications

As its good performance in control and transmission, TPHD403P can be widely used in computer realm, monitoring, large screen displaying, conference system, education and bank securities institutions etc.

4. Specification

Model	TPHD403PT	TPHD403PR
Spec		
Input		
Input Signal	1 HDMI,1 IR in, 1 RS232	1 IR in, 1 HDBaseT, 1 RS232
Input Connector	1 HDMI female 1 3.5mm mini jack for IR in 1 3P captive connector	1 3.5mm mini jack for IR in 1 RJ-45 1 3P captive connector
Video Signal	HDMI1.4	HDMI1.4
Audio	Digital audio, transmit through HDMI audio	Digital audio, transmit through HDMI audio
Output		
Output	1 HDBaseT, 1 IR out, 1 RS232	1 HDMI, 1 IR out, 1 RS232
Output Connector	1 RJ-45 1 3.5mm mini jack for IR out 1 3P captive connector	1 HDMI female 1 3.5mm mini jack for IR out 1 3P captive connector
Video signal	HDMI1.4	HDMI1.4
Transmission Mode	HDBaseT	
Ethernet Port		
Connector	2 RJ45	2 RJ45
Ethernet Transmission Speed	Adaptive 10M/100M (max), full duplex or half duplex.	
General		
Resolution Range	800x600 ~ 1920x1200 、3D、4K×2K	
Transmission Distance	Max distance 90m	
Differential Phase Error	±10° @ 135MHz_100M	
SNR	>70dB@ 100MHz-100M	
Gain	0dB ~ 10dB@100MHz	
Bandwidth	10.2Gbps	
Return Lost	<-30dB@5KHz	

THD	<0.005%@1KHz
HDMI Standard	Support HDMI1.4 and HDCP
Min. ~Max. Level	<0.3V ~ 1.45Vp-p
Impedance	75Ω
Temperature	-20 ~ +70℃
Humidity	10% ~ 90%
Power Consumption	10W
Power Supply	Input: 100VAC~240VAC, 50/60Hz; Output: 24VDC 1.25A
Dimension (W*H*D)	118.8x38x 77.2 mm
Net Weight	0.8Kg

5. Panel Drawing

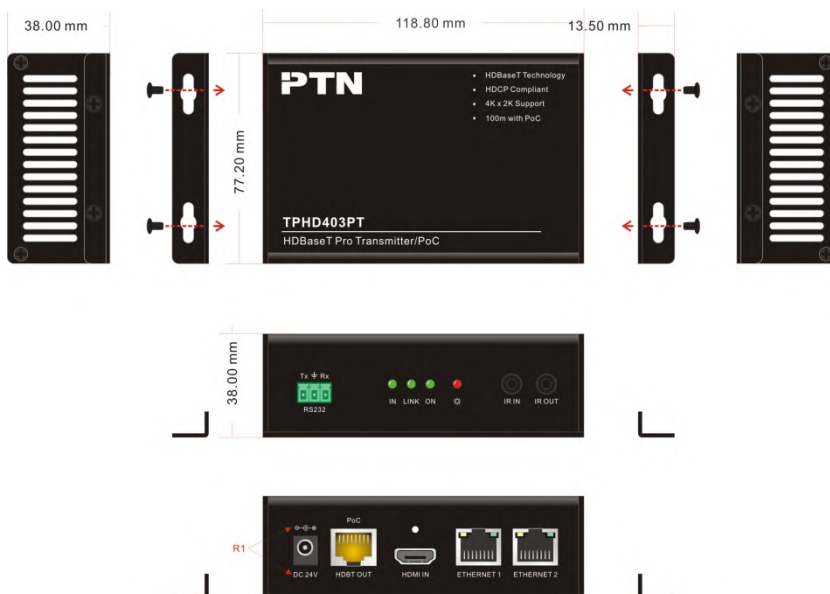


Figure 4 Panel Drawing of TPHD403PT

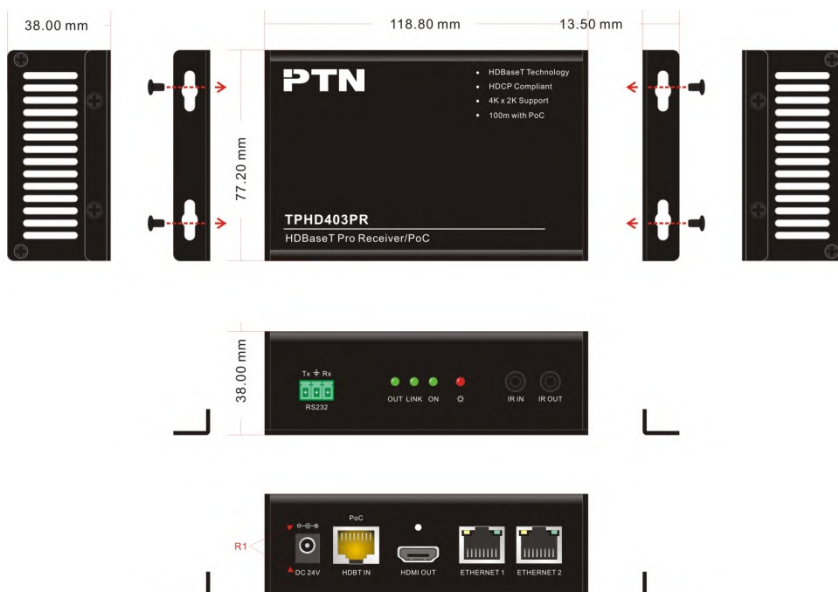


Figure 5 Panel Drawing of TPHD403PR

6. Troubleshooting & Maintenance

- 1) When there is a color losing or no video signal output, maybe the cables have already broken or haven't been connected well.
- 2) When user cannot control the extender by computer through its COM port, please check the COM port number in the software, and make sure the COM port is in good condition and the communication protocol is correct.
- 3) When switching , there is no output image:
 - Check if there is any signal at the input.
 - Check if there is any signal at the output.

We can check these by using an oscilloscope or a multimeter. If there is no signal input/output, maybe the input/output cables broken or the connectors loosen, please change for another cable.

 - Check if the output port number is the same with the controlled one.
 - If it is still the same after the above checking, maybe there is something wrong in the extender. Please send it to the dealer for repairing.
- 4) If the static becomes stronger when connecting the video connectors, it probably due to bad grounding, please check the grounding and make sure it connected well, otherwise it would damage the extender.
- 5) If the extender cannot be controlled through the RS232 port or by the IR remote, the unit may have already been broken. Please send it to the dealer for repairing.

7. Safety Operation Guide

In order to guarantee the reliable operation of the equipments and safety of the staff, please abide by the following proceeding in installation, using and maintenance:

- 1) The system must be earthed properly. Do not use two blades plugs and ensure the alternating power supply ranged from 100v to 240v and from 50Hz to 60Hz.
- 2) Do not put the device in a place of too hot or too cold.
- 3) As the power generating heat when running, the working environment should be maintained fine ventilation, in case of damage caused by overheat.
- 4) Cut off the general power switch in humid weather or left unused for long time.
- 5) Before following operation, ensure that the alternating current wire is pull out of the power supply:
 - Take off or reship any components of the equipment.
 - Take off or rejoin any pin or other link of the equipment.
- 6) As to non-professional or without permission, please DO NOT try to open the casing of the equipment, DO NOT repair it on your own, in case of accident or increasing the damage of the equipment.
- 7) DO NOT splash any chemistry substance or liquid in the equipment or around.

8. After-sales Service

- 1) If there appear some problems when running TPHD403P, please check and deal with the problems reference to this user manual. Any transport costs are borne by the users during the warranty.
- 2) You can email to our after-sales department or make a call, please tell us the following information about your cases.
 - Product version and name.
 - Detailed failure situations.
 - The formation of the cases.
- 3) We offer products for all three-year warranty, which starts from the first day you buy this product (The purchase invoice shall prevail).
- 4) Any problem is same with one of the following cases listed, we will not offer warranty service but offer for charge.
 - Beyond the warranty.
 - Damage due to incorrectly usage, keeping or repairing.
 - Damage due to device assembly operations by the maintenance company non-assigned.
 - 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.

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



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