



User Manual

48Gbps 1x8 HDMI Splitter

Model PT-SP-HD18-48G

Designed in Germany

Version V1.0

Preface

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

This manual is for operation instructions only, not for any maintenance usage.

In the constant effort to improve our product, we reserve the right to make changes in functions or parameters without prior notice or obligation.

Trademarks

Product model and logo are trademarks. Any other trademarks mentioned in this manual are acknowledged as the properties of the trademark owner. No part of this publication may be copied or reproduced without the prior written consent.

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 B 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 manufacturer would void the user's authority to operate the equipment.



REACH | 1907/2006/EU

ROHS | 2011/65/EU

PureLink hereby declares that this product PureTools PT-SP-HD18-48G complies with Directives 1907/2006/EU und 2011/65/EU.

EMC / LVD (Electro Magnetic Compatibility / Low Voltage Directive)

PureLink GmbH hereby declares that this product PureTools PT-SP-HD18-48G complies with Directives 2014/30/EU and 2014/35/EU. The full text of the EU Declaration of Conformity is available at the following Internet address:

http://www.purelink.de/ce/4251364741573_CE.pdf



SAFETY PRECAUTIONS

To ensure 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.
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1. Product Introduction

1.1 Introduction

This 48Gbps 1x8 splitter is an advanced solution for splitting single HDMI signal to 8 HDMI outputs synchronously, with video resolution up to 8K@60 4:2:0 12bit. It supports data rates up to 48Gbps. It includes several features for ease of integration, including EDID management, cable equalization. What's more, it can de-embed the audio signal from HDMI source to transmit to 5.1/2.0CH sound system.

This multi-functional product can work well with xbox or PS5 to achieve 4K@120Hz on your TVs or relative monitors.

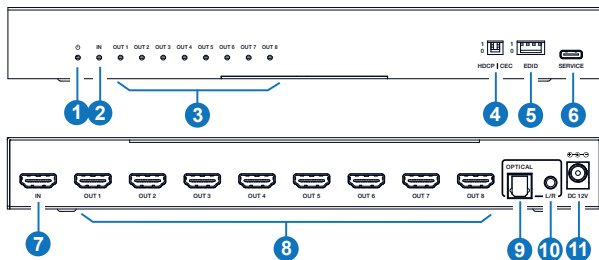
1.2 Features

- HDCP 2.3 compliant
- Supports 48Gbps FRL and 18Gbps TMDS video bandwidth
- Supports video resolution up to 8K@60Hz 4:2:0 12bit, 4K@120Hz 4:4:4 12bit, as specified in HDMI 2.1
- VRR, ALLM, QMS, QFT, SBTM are supported
- Supports HDR, HDR10, HDR10+, Dolby Vision, HLG pass-through
- Supports HDMI audio formats: LPCM 7.1CH, Dolby TrueHD, Atmos, DTS-HD Master Audio
- Supports auto downscaling and converting on each output port
- Advanced EDID management

1.3 Package List

- 1 × 48Gbps 1x8 HDMI Splitter
- 1 × 12V/2.5A Multinational Locking Power Supply with EU Conversion Plug
- 2 × Mounting Ear
- 4 × Machine Screw (KM3*6)
- 1 × User Manual

2. Panel Description



| No. | Name | Function Description |
|-----|-----------------|---|
| 1 | Power LED | The power LED lights in red when the device is powered on. |
| 2 | IN LED | When the HDMI IN port connects an active source device, the green LED will be on. |
| 3 | OUT LED (1-8) | When the HDMI OUT 1/2/3/4/5/6/7/8 port connects a display device and outputs signal, the corresponding green LED will be on. |
| 4 | HDCP DIP switch | Use this DIP switch to set HDCP. 1 - Pass-through mode: The output HDCP follows the source. 0 - Managed mode: If the source has HDCP, the output will be set to HDCP 1.4; if the source has no HDCP, the output will be set to no HDCP. |

| No. | Name | Function Description |
|-----|-----------------|---|
| 4 | CEC DIP switch | Use this DIP switch to enable or disable CEC. 1 - CEC disable: Prevent CEC communication between source and sink devices. 0 - CEC enable: Allow CEC communication between source and sink devices. |
| 5 | EDID DIP switch | Use the DIP switch to set EDID. [DIP]=1111: Copy OUT1 port sink EDID [DIP]=1110: FRL12G_8K_HDR, 2.0CH [DIP]=1101: FRL12G_8K_HDR, 5.1CH [DIP]=1100: FRL12G_8K_HDR, 7.1CH [DIP]=1011: FRL10G_8K_HDR, 2.0CH [DIP]=1010: FRL10G_8K_HDR, 5.1CH [DIP]=1001: FRL10G_8K_HDR, 7.1CH [DIP]=1000: 4K120(420)_HDR, 2.0CH [DIP]=0111: 4K120(420)_HDR, 5.1CH [DIP]=0110: 4K120(420)_HDR, 7.1CH [DIP]=0101: 4K60(444)_HDR, 2.0CH [DIP]=0100: 4K60(444)_HDR, 5.1CH [DIP]=0011: 4K60(444)_HDR, 7.1CH [DIP]=0010: 1080P120(444)_HDR, 2.0CH [DIP]=0001: 1080P60(444), 2.0CH [DIP]=0000: Custom EDID Upload |
| 6 | SERVICE | Firmware update port. |
| 7 | IN port | HDMI signal input port, connecting to HDMI source device such as DVD or PS5 with an HDMI cable. |
| 8 | OUT port (1~8) | HDMI signal output port, connecting to HDMI display device such as TV or Monitor with an HDMI cable. |
| 9 | OPTICAL | Optical fiber audio output port, connecting to an audio output device such as an amplifier. |
| 10 | L/R | Analog audio output port, connecting to an audio output device such as a speaker. |
| 11 | DC 12V | DC 12V/2.5A power input port. |

3. Specification

| Technical | |
|------------------|--|
| HDMI Compliance | HDMI 2.1 |
| HDCP Compliance | HDCP 2.3 / 1.4 |
| Video Bandwidth | 48Gbps |
| Video Resolution | Up to 8K@60Hz 4:2:0 12bit, 4K@120Hz 4:4:4 12bit, 8K@30Hz 4:4:4 12bit |
| Color Depth | 8/10/12-bit |
| Color Space | RGB, YCbCr_4:4:4, YCbCr_4:2:2, YCbCr_4:2:0 |
| HDR | HDR, HDR10, HDR10+, Dolby Vision, HLG |
| Audio Format | HDMI input/output: LPCM, Dolby Digital/Plus/EX, Dolby True HD, Dolby Atmos, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD Audio de-embedding output: Optical: LPCM/Dolby/DTS 5.1CH Analog: LPCM 2CH |
| ESD Protection | IEC 61000-4-2: ±8kV (air-gap discharge) & ±4kV (contact discharge) |
| Connection | |
| Input | 1 × IN [HDMI type A, 19-pin female] |
| Output | 8 × OUT [HDMI type A, 19-pin female] 1 × OPTICAL [S/PDIF] 1 × L/R [3.5mm stereo mini-jack] |
| Control | 1 × SERVICE [USB type C, update port] |

| Mechanical | | | | |
|---|----------------------------------|---------|----------|----------|
| Housing | Metal Enclosure | | | |
| Color | Black | | | |
| Dimensions | 250mm [W] × 104mm [D] × 30mm [H] | | | |
| Weight | 743g | | | |
| Power Supply | DC 12V/2.5A | | | |
| Power Consumption | 9.84W (Max) | | | |
| Operation Temperature | 32 ~ 104°F / 0 ~ 40°C | | | |
| Storage Temperature | -4 ~ 140°F / -20 ~ 60°C | | | |
| Relative Humidity | 20 ~ 90% RH (no condensation) | | | |
| Recommended HDMI Cable | | | | |
| Video Resolution | 8K | 4K60 | 4K24 | 1080P |
| HDMI Cable Length (HDMI IN / OUT) | 3m/10ft (Ultra HDMI 2.1) | 8m/26ft | 12m/39ft | 15m/49ft |
| The use of "Premium High Speed HDMI" cable is highly recommended. | | | | |

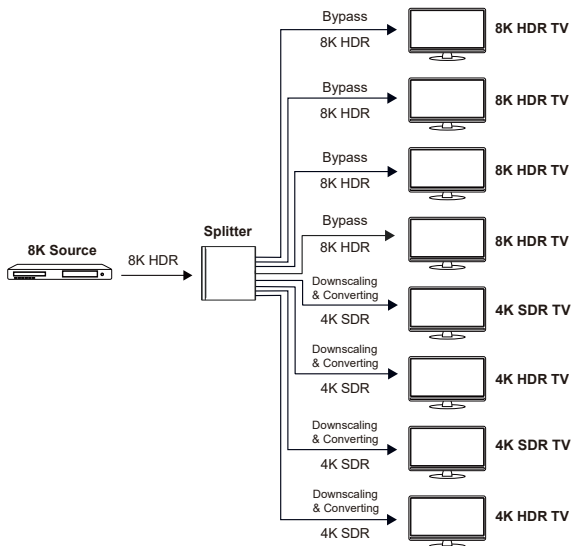
* All the input/output resolutions in the following list have been fully tested in lab conditions. Other resolutions may also function without issues.

| No. | Resolution | No. | Resolution |
|-----|----------------|-----|----------------|
| 1 | 640x480p60Hz | 2 | 800x600p60Hz |
| 3 | 1024x768p60Hz | 4 | 1280x1024p60Hz |
| 5 | 1360x768p60Hz | 6 | 1440x900p60Hz |
| 7 | 1440x1050p60Hz | 8 | 1600x1200p60Hz |

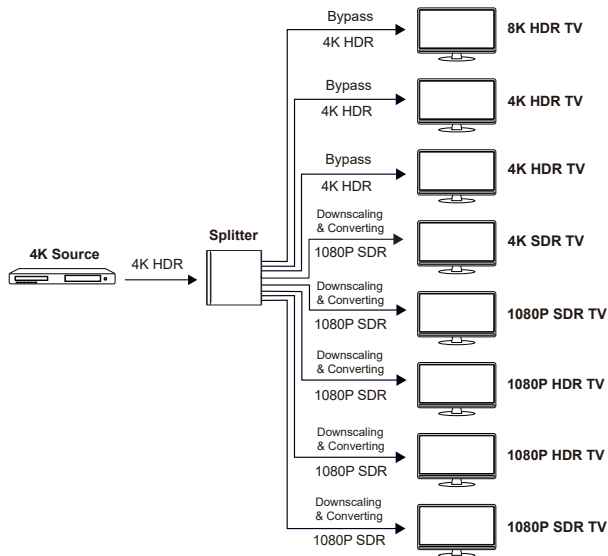
| No. | Resolution | No. | Resolution |
|-----|-----------------------------|-----|-----------------------------|
| 9 | 720x480i59.94Hz (480i59) | 10 | 720x480p59.94Hz (480p59) |
| 11 | 720x576i50Hz (576i50) | 12 | 720x576p50Hz (576p50) |
| 13 | 1280x720p50Hz (720p50) | 14 | 1280x720p59.94Hz (720p59) |
| 15 | 1280x720p60Hz (720p60) | 16 | 1920x1080i50Hz (1080i50) |
| 17 | 1920x1080i59.94Hz (1080i59) | 18 | 1920x1080i60Hz (1080i60) |
| 19 | 1920x1080p23.98Hz (1080p23) | 20 | 1920x1080p24Hz (1080p24) |
| 21 | 1920x1080p25Hz (1080p25) | 22 | 1920x1080p29.97Hz (1080p29) |
| 23 | 1920x1080p30Hz (1080p30) | 24 | 1920x1080p50Hz (1080p50) |
| 25 | 1920x1080p59.94Hz (1080p59) | 26 | 1920x1080p60Hz (1080p60) |
| 27 | 3840x2160p23.98Hz (2160p23) | 28 | 3840x2160p24Hz (2160p24) |
| 29 | 3840x2160p25Hz (2160p25) | 30 | 3840x2160p29.97Hz (2160p29) |
| 31 | 3840x2160p30Hz (2160p30) | 32 | 3840x2160p50Hz (2160p50) |
| 33 | 3840x2160p59.94Hz (2160p59) | 34 | 3840x2160p60Hz (2160p60) |
| 35 | 3840x2160p100Hz (2160p100) | 36 | 3840x2160p120Hz (2160p120) |
| 37 | 4096x2160p23.98Hz | 38 | 4096x2160p24Hz |
| 39 | 4096x2160p25Hz | 40 | 4096x2160p29.97Hz |
| 41 | 4096x2160p30Hz | 42 | 4096x2160p50Hz |
| 43 | 4096x2160p59.94Hz | 44 | 4096x2160p60Hz |
| 45 | 4096x2160p100Hz | 46 | 4096x2160p120Hz |
| 47 | 5120x2160p50Hz | 48 | 5120x2160p60Hz |
| 49 | 7680x4320p23.98Hz | 50 | 7680x4320p24Hz |
| 51 | 7680x4320p25Hz | 52 | 7680x4320p29.97Hz |
| 53 | 7680x4320p30Hz | 54 | 7680x4320p50Hz |
| 55 | 7680x4320p60Hz | | |

4. Auto Downscaling & Auto Converting

This 48Gbps 1x8 HDMI Splitter supports auto downscaling and auto converting on all outputs. Before downscaling it will compare all the EDID of the connected display devices and select the minimum resolution to downscale and output. For example:



In the example above, 4K is lower than the resolution of input source, so it will downscale and output according to the the minimum resolution of 4K SDR.



In the example above, 1080P is lower than the resolution of input source, so it will downscale and output according to the the minimum resolution of 1080P SDR.

Note: If the source resolution is downscaled and converted to 1080P DVI according to the EDID of display devices, it will be output without sound on TV.

Downscaling will not work in the following conditions:

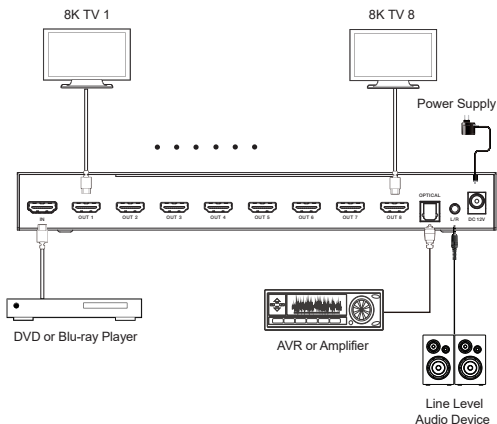
1. The input source is 8K DSC format.
2. The resolution of input source is not supported by the splitter.

5. System Diagram

Usage Precaution

- 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 diagrams illustrate typical input and output connections that can be utilized with this device:



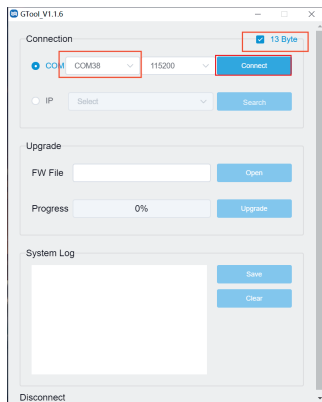
The terms HDMI and HDMI High-Definition Multimedia interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries.

6. Firmware Upgrade

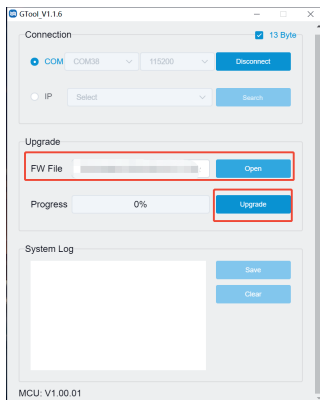
Please follow the steps as below to upgrade firmware by the Service port on the front panel:

1. Prepare the PC tool (.exe) and the latest upgrade file (.bin) on PC. Rename the upgrade file as "MCU_MAIN_PT-SP-HD18-48G_Vxx.xx.xx.bin".
2. Connect the Service port on the splitter to the PC with USB cable.
3. Connect the power supply to the splitter and power on.

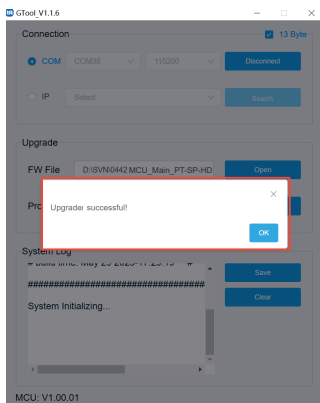
4. Click the channel on PC, check "13 Byte", and then click "Connect".



5. Click "Open" to select the upgrade file MCU_Main_PT-SP-HD18-48G_Vxx.xx.xx.bin, then click "Upgrade".



6. When the upgrade is completed, it will pop up "Upgrade successful!". If the firmware updating is fail, the name of upgrade file (.bin) should be confirmed, and then follow the above steps to update again.



7. Remove the USB cable after firmware upgrade.

7. After-Sales Service

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

1) Product Limited Warranty: This product will be free from defects in materials and workmanship for three years (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 (servicing available for a fee):

- 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.
 - Delivery, installation or labor charges for installation or setup of the product.

3) Technical Support: For any questions or problems, contact your distributor or reseller and tell them the respective product name and version, the detailed failure situation as well as the formation of the cases.

Asking for Assistance

Technical Support:

Phone: +49 5971 800299 - 0

Fax: +49 5971 800299 – 99

Technical Support Hours:

8:30 AM to 5:00 PM Monday thru Thursday

8:30 AM to 4:00 PM Friday

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