



## User Manual

HDMI Switcher 4x1 4K (60Hz 4:2:0) with Auto-Switching

Model PT-SW-HD41S

Designed in Germany

## 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 manufacture would void the user's authority to operate the equipment.



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**REACH | 1907/2006/EU**

**ROHS | 2011/65/EU**

PureLink hereby declares that this product **PureTools PT-SW-HD41S** 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-SW-HD41S** 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/4251364706992\\_CE.pdf](http://www.purelink.de/ce/4251364706992_CE.pdf)



## 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.
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## Contents

1. Introduction.....	1
1.1 Introduction to PT-SW-HD41S .....	1
1.2 Feature .....	1
1.3 Package Content.....	2
2. Panel Description.....	3
2.1 Front Panel.....	3
2.2 Rear Panel .....	4
3. System Connection.....	5
3.1 Usage Precaution.....	5
3.2 System Diagram.....	5
3.3 Connection Procedure .....	6
3.4 ARC Solution.....	7
3.5 Application.....	7
4. System Control.....	8
4.1 Button Control.....	8
4.2 IR Control.....	9
4.3 RS232 Control .....	10
4.3.1 RS232 Control Software .....	10
4.3.2 RS232 Command .....	12
4.4 EDID Management.....	13
5. Firmware Upgrade.....	15
6. Specification.....	16
7. Panel Drawing .....	17
8. Troubleshooting & Maintenance.....	18
9. After-Sales Service.....	19

## 1. Introduction

### 1.1 Introduction to PT-SW-HD41S

The PT-SW-HD41S is a HDMI switcher accommodates 4 HDMI inputs.

Select any of the inputs by front panel button or IR Remote, the corresponding indicator on the front panel will illuminate to show real-time I/O connection status. Compliance with HDMI 1.4& HDCP1.4, PT-SW-HD41S can transmit non-depressed 4K (at max) signal.

PT-SW-HD41S boasts comprehensive audio capacities including PCM, Dolby Digital, DTS, and DTS-HD. Besides, it provides an ARC audio output socket to transfer ARC audio to ARC speakers like Yamaha.

Moreover, PT-SW-HD41S supports convenient online firmware update through USB port.

### 1.2 Feature

- 4 HDMI inputs.
- Support Hot-plug.
- Compliant with HDMI 1.4, capable to transmit 4K signal.
- High bandwidth: 10.2Gbps.
- HDCP1.4 compliant, support auto-detecting for input HDCP compliant status.
- Support EDID management, including 5 embedded EDID data, 10 (max) user-definable EDID data, and EDID data automatically captured and copied.
- Intuitive indicators for power, switch mode, I/O connection status and audio output signal.
- Convenient online firmware update.

## 1.3 Package Content

- 1 x PT-SW-HD41S
- 2 x Mounting Ears with 4 Screws
- 4 x Plastic Cushions
- 1 x IR Remote
- 1 x IR Receiver
- 1 x Power Adapter (DC 5V 1A)
- 1 x User Manual

**Note:** Confirm if the product and the accessories are all included, if not, please contact with your dealers.

## 2. Panel Description

### 2.1 Front Panel

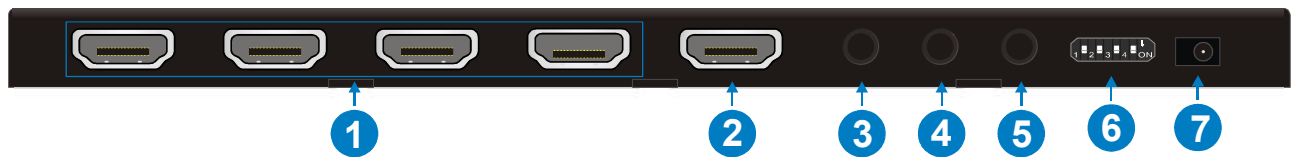


No.	Name	Description
①	Power	Illuminate red once powered on
②	AUDIO	Bi-colored LED indicator for audio source <ul style="list-style-type: none"><li>● Illuminate green when the audio is de-embedded from HDMI signal</li><li>● Illuminate yellow when the audio is ARC</li></ul>
③	Mode	Bi-colored indicator for present switch mode <ul style="list-style-type: none"><li>● Illuminate yellow when in auto-switch mode</li><li>● Illuminate green in manual switch mode.</li></ul>
④	Input	Indicate the present input source, 4 in total, the indicator of the present input source illuminate green
⑤	SOURCE/ AUTO	<ul style="list-style-type: none"><li>● Used as video source selection button, press to switch among the 4 inputs source circularly</li><li>● Used as switch mode selection button, press and hold for <b>3 seconds or more</b> to switch between auto-switch mode and manual switch mode.</li></ul>
⑥	FIRMWARE	USB port, used for firmware update & powering

**Note:** Output HDCP compliant status depends on input signal. When the input signal is with HDCP, then output signal is with HDCP and vice versa.



## 2.2 Rear Panel



No.	Name	Description
①	IN	<ul style="list-style-type: none"><li>HDMI input ports. 4 in total, connect with HDMI or DVI source device such as DVD/ Blue-ray, supports input signals up to 4k&amp; 1080p 3D</li><li>ARC audio output ports, connect with ARC speakers</li></ul>
②	OUT	HDMI output port, connect to HDMI display
③	AUDIO	Audio output port, connect with speaker to repeat HDMI audio signal or output ARC audio
④	RS232	Serial control port, connect with control device (e.g. a PC) to control PT-SW-HD41S.
⑤	IR IN	Connect with IR receiver to collect infrade signal
⑥	EDID	4-pin EDID DIP switchers to set EDID data, "1" stands for "On", "0" stands for "Off". Dial the switchers to change EDID data referring to the explanations in 4.4 EDID Management.
⑦	DC 5V	Power port, plug a DC 5V power adapter into this port

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

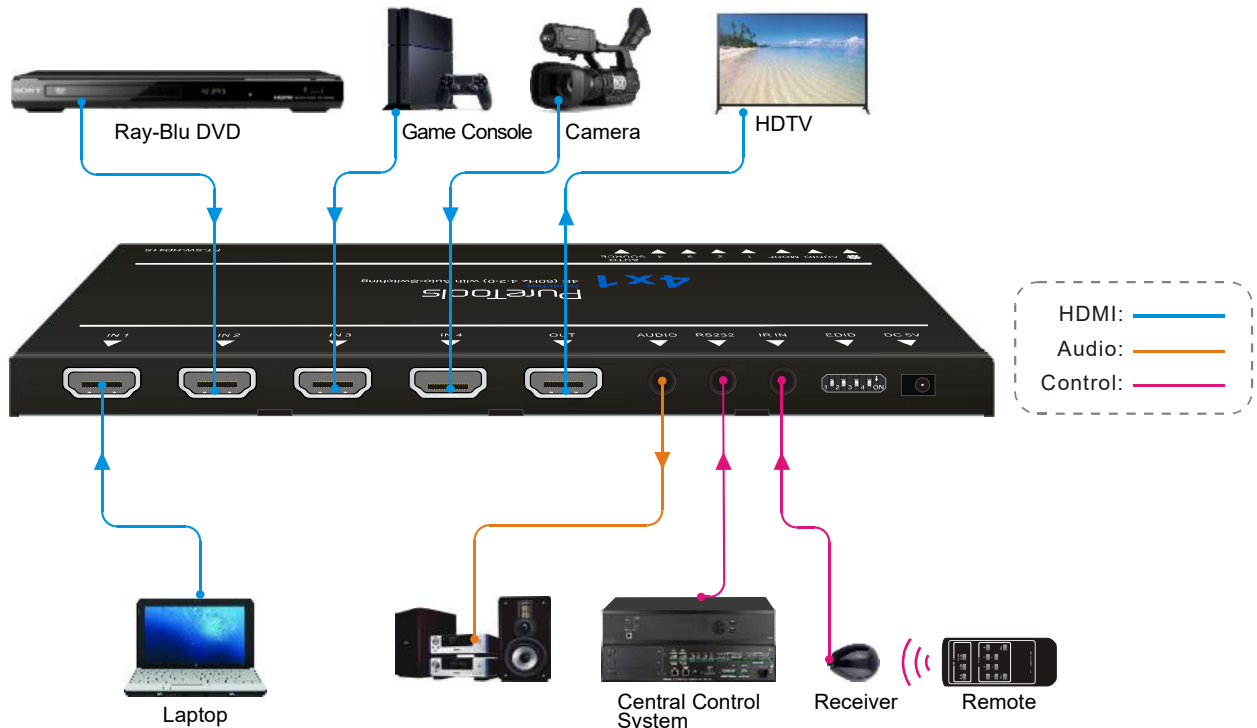
## 3. System Connection

### 3.1 Usage Precaution

- System should be installed in a clean environment, preferably at ambient temperature or within given working temperature range (see page 16 for limits).
- All of the power switches, plugs, sockets and power cords should be insulated.
- All devices should be connected before power on.

### 3.2 System Diagram

The following diagram illustrates typical input and output connections that can be utilized with PT-SW-HD41S:



### 3.3 Connection Procedure

**Step1.** Connect HDMI/ DVI source device(s) (e.g. Blue-ray DVD) to the **HDMI INPUT** ports of PT-SW-HD41S with HDMI cable.

**Step2.** Connect HDMI displays to **HDMI OUTPUT** ports of PT-SW-HD41S with HDMI cable.

**Step3.** Connect an amplifier to the audio output.

**Step4.** Connect an IR Receiver to the IR IN to enable IR control.

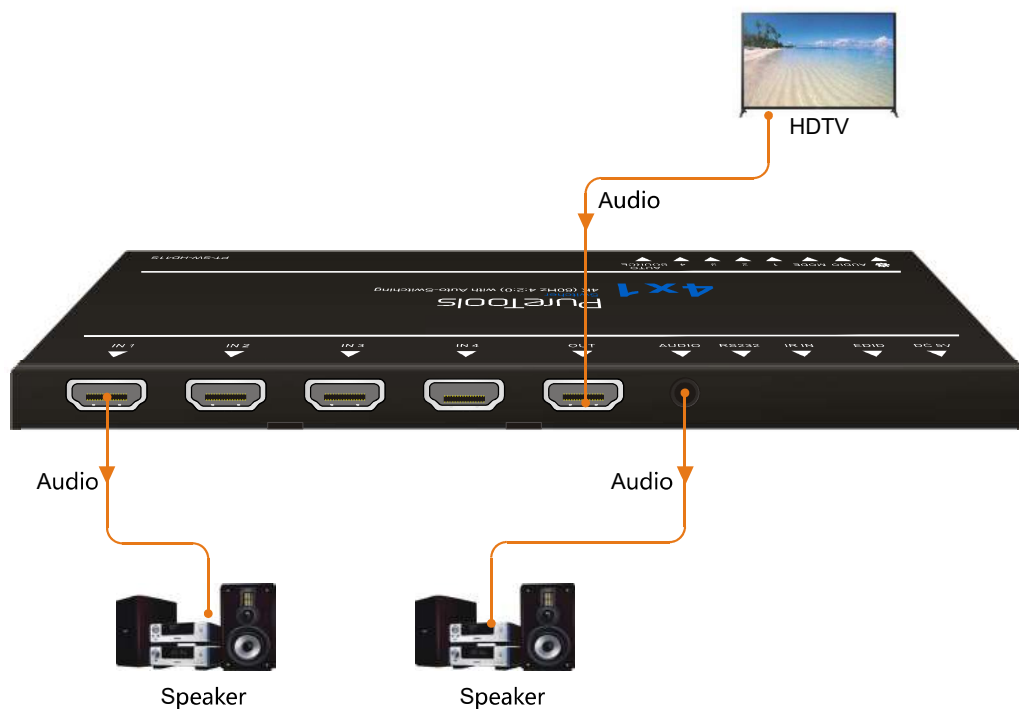
**Step5.** Connect the control device (e.g. a PC) to the RS232 port to enable RS232 control.

**Step6.** Plug a DC 5V power adapter to the power port of PT-SW-HD41S.

**Note:** All the ports support hot-plug.

### 3.4 ARC Solution

The ARC (Audio Return Channel) enables a display, via a single HDMI cable, to either send or receive audio via HDMI, upstream or downstream, depending on system set-up and user preferences, increasing user flexibility. Connect the devices abiding by the following figure:



**Note:** All utilized devices including the HDMI cable should support Audio Return Channel functionality when connected to Audio Return Channel-enabled devices.

### 3.5 Application

PT-SW-HD41S has a good application in various occasions, such as computer realm, monitoring, conference room, big screen displaying, television education, command & control center and smart house etc.

## 4. System Control

### 4.1 Button Control

**SOURCE/AUTO** button on the front panel can be used to change input source and switch mode.

- Switch input source: Press the button to switch circularly among input 1~4, the corresponding indicator illuminate green synchronously for easy recognition.
- Change switch mode: Input signal supports auto-switch and manual switch. Press and hold **SOURCE/AUTO** button for **3 seconds or more** to switch between the two modes. (Default: Manual switch.)

In auto-switch mode, source selection abides by the following principles:

- **New input principle**

Once detecting a new input signal, PT-SW-HD41S switch to this new signal automatically.

- **Power rebooting principle**

Once rebooted, PT-SW-HD41S will automatically select input 1 as input source even though there is no connection in input 1.

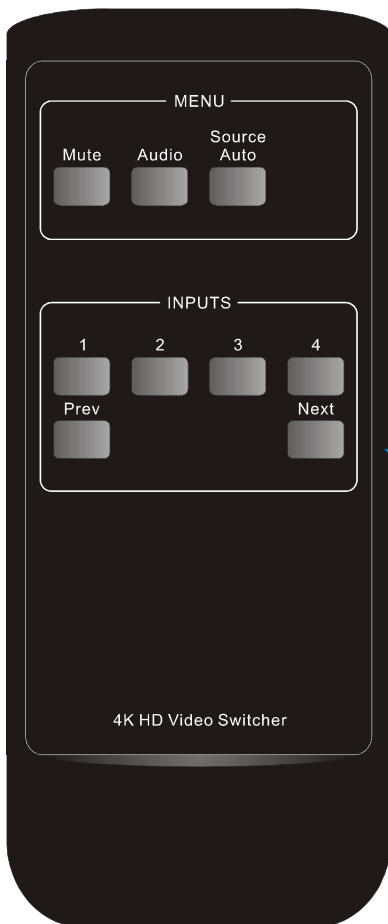
- **Signal removing principle**

Once removed the current display signal, PT-SW-HD41S will detect all input signals with priority from INPUT 1 to INPUT 4. It will transfer the first available source to the output device.

In manual-switch mode, once rebooting, PT-SW-HD41S will output the source signal before rebooting.

## 4.2 IR Control

Connect an IR receiver to the IR IN port, users can control the device via the included IR remote. Here is a brief introduction to the IR remote:



### MENU:

Mute: press to switch on/off Audio& Video output

Audio: switch between HDMI signal and ARC audio

Source/Auto: share the same function with SOURCE/AUTO button on the front panel

### INPUTS:

1~4: press to switch input source, correspond to input 1~4 separately

Prev/ Next: switch to the previous/ next input source abiding by the order 1~4

## 4.3 RS232 Control

PT-SW-HD41S provides with 1 3.5mm RS232 port for serial port control. Connect PT-SW-HD41S to the control device (e.g. a PC) with RS232 cable and set the parameters in the right manner, the control device is capable to control PT-SW-HD41S via designed software.

### 4.3.1 RS232 Control Software

**Installation:** Copy the control software file to the computer connected with PT-SW-HD41S.

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

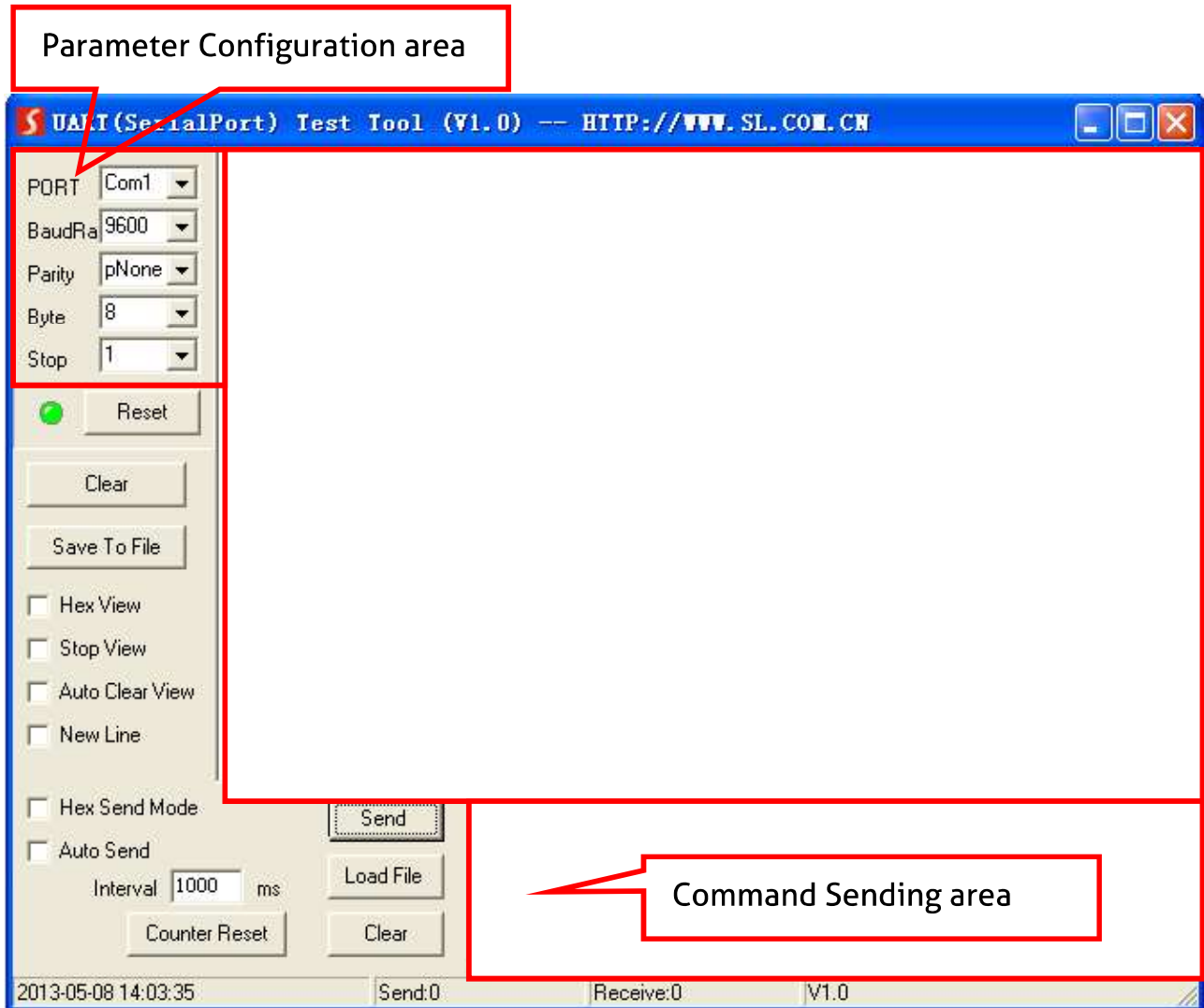
**Basic Setting:**

Firstly, connect PT-SW-HD41S with an input device and an output device. Then, 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, only then will you be able to send command in Command Sending Area.



























