



## User Manual

Seamless Presentation Matrix 4x2 (3 HDMI, DP), HDMI & HDBT matrix outputs

### Model PT-PMS-42

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-PMS-42** 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-PMS-42** 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/4251364718216\\_CE.pdf](http://www.purelink.de/ce/4251364718216_CE.pdf)



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## 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 protrusion.
  - Do not remove the housing of the device as opening or removing the housing may expose you to dangerous voltage or other hazards.
  - Install the device in a place with sufficient 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

Thanks for choosing the professional 4x2 HDMI 2.0 presentation switcher with an HDBaseT receiver. The switcher is designed to switch HDMI or DP video signal to HDMI and HDBaseT output. It provides three HDMI inputs, one DP input, one HDMI output and one HDBaseT output. The HDBaseT output supports PoC and can connect compatible HDBaseT receiver up to a maximum of 70 meters (230 feet).

The switcher supports input video resolution up to 4Kx2K@60Hz 4:4:4. With multiple built-in EDID settings, including an EDID pass-through option, the highest quality digital video signal will be routed directly to the display.

The switcher supports stereo and multichannel audio on the HDMI or DP input. In addition to the audio embedded in the HDMI and HDBT output stream, which may be muted, the audio is simultaneously de-embedded to an analog audio output.

The switcher features multiple methods of control. When set to Auto, the switcher will automatically switch to the newest source device added to the switcher; when the active source is removed, the switcher will switch to the first detected input. The switcher can be manually controlled by front panel buttons, IR, RS232, and GUI.

### 1.1 Features

- The transmission distance between the switcher and the HDBaseT receiver can range up to 70m for 1080p and 40m for 4K video.
- Supports automatic switching.
- HDMI and DP video resolution up to 4Kx2K@60Hz 4:4:4.
- Supports HDMI 2.0, HDCP 2.2 compliant.
- Supports DP 1.2 and Multi-Stream Transport (MST).
- The MIC and LINE input can be mixed to audio outputs.
- 3-type microphone input, supports condenser microphone, dynamic microphone and wireless microphone.
- Smart EDID management: Four built-in preset EDIDs for various applications and customized setting allowed.

- Supports 12V PoC.
- Controllable by front panel buttons, IR remote, RS232 and GUI.
- Supports firmware upgrade.

## 1.2 Package List

HDMI 2.0 Presentation Switcher	<ul style="list-style-type: none"><li>• 1x PT-PMS-42 4x2 4K Presentation Switcher</li><li>• 2x Mounting Ears with 4 Screws</li><li>• 4x Plastic Cushions</li><li>• 1x IR Receiver</li><li>• 1x IR Emitter</li><li>• 1x IR Remote</li><li>• 2x 3-pin Terminal Blocks</li><li>• 1x 5-pin Terminal Block</li><li>• 1x Power Adaptor (24V DC 2.71A)</li></ul>
HDBaseT Receiver	<ul style="list-style-type: none"><li>• 1x PT-HDBT-200-RX HDBaseT Receiver</li><li>• 2x Mounting Ears with 2 Screws</li><li>• 4x Plastic Cushions</li><li>• 1x 3-pin Terminal Block</li></ul>
	<ul style="list-style-type: none"><li>• 1x User Manual</li></ul>

**Note:** Please contact your distributor immediately if any damage or defect in the components is found.

## 2. Specification

### 2.1 4x2 4K Presentation Switcher

Video	
Video Input	(1) HDMI/MHL, (3) HDMI, (1) DP
Video Input Connector	(3) Type-A female HDMI, (1) DisplayPort
HDMI Input Resolution	Up to 4Kx2K@60Hz 4:4:4 8bit
MHL Input Resolution	Up to 1080P@60Hz
DP Input Resolution	Up to 4Kx2K@60Hz 4:4:4 8bit
Video Output	(1) HDMI, (1) HDBT
Video Output Connector	(1) Type-A female HDMI, (1) RJ45
HDMI Output Resolution	Up to 4Kx2K@60Hz 4:4:4 8bit
HDBT Output Resolution	Up to 4Kx2K@60Hz 4:2:0 8bit
HDMI Version	2.0
HDCP Version	2.2
MHL Version	2.2
DP Version	1.2
HDR	Supported
CEC	Supported
HPD	Supported
Audio Input	
Input	(1) MIC, (1) LINE
Input Connector	(2) 3-pin terminal blocks
HDMI Input Audio Format	PCM 7.1 audio, Dolby Atmos®, Dolby® TrueHD, Dolby Digital® Plus, DTS:X™, and DTS-HD® Master Audio™ pass-through
DP Input Audio Format	8 channels LPCM, up to 24bit 192KHz, AC3, DTS
LINE/MIC Input Audio Format	PCM
Audio Input Impedance	>10KΩ



Audio Output	
Output	(1) L/R balanced analog audio
Output Connector	(1) 5-pin terminal block
Output Analog Audio Format	PCM
HDMI Output Audio Format	<b>Bypass Mode:</b> PCM 7.1 audio, Dolby Atmos®, Dolby® TrueHD, Dolby Digital® Plus, DTS: X™, and DTS-HD® Master Audio™ pass-through. <b>Mix Mode:</b> PCM 7.1 audio.
DP Output Audio Format	<b>Bypass Mode:</b> 8 channels LPCM, up to 24bit 192KHz, AC3, DTS. <b>Mix Mode:</b> 8 channels LPCM, up to 24bit 192KHz, AC3, DTS.
Max Output Level	<0.1% (-80 dB), 20Hz – 20KHz bandwidth, 1KHz sine at 0 dBFS level (or max level)
THD+N	<0.1% (-80 dB), 20Hz – 20KHz bandwidth, 1KHz sine at 0 dBFS level (or max level)
SNR	>80dB
Crosstalk Isolation	>75dB, 10KHz sine at 0dBFS level (or max level before clipping)
L-R Level Deviation	<0.5dB, 1KHz sine at 0dBFS level (or max level before clipping)
Frequency Response Deviation	<±0.5 dB, 20Hz ~ 20KHz
Output Load Capability	1KΩ and higher (supports 10x paralleled 10KΩ loads)
Control	
Control Port	(1) IR IN, (1) IR OUT, (1) IR EYE, (1) FIRWARE, (1) RS232, (1) TCP/IP
Control Connector	(3) 3.5mm mini jacks, (1) Type-A USB, (1) 3-pin terminal block, (1) RJ45

General	
Transmission Distance	1080P≤70m, 4Kx2K≤40m
Bandwidth	18Gbps
Operation Temperature	-10℃ ~ +55℃
Storage Temperature	-25℃ ~ +70℃
Relative Humidity	10%-90%
External Power Supply	Input: AC 100~240V, 50/60Hz, Output: 24V DC 2.71A
Power Consumption	27W (Max)
Dimension (W*H*D)	220mm x 44mm x 172.5mm
Net Weight	735g

## 2.2 HDBaseT Receiver

Video Input	(1) HDBT
Video Input Connector	(1) RJ45
Video Output	(1) HDMI
Video Output Connector	(1) Type-A female HDMI
Control Port	(1) IR IN, (1) IR OUT, (1) RS232
Control Connector	(2) 3.5mm mini jacks, (1) 3-pin terminal block
General	
Transmission Distance	1080P≤70m, 4Kx2K≤40m
Resolution	Up to 4Kx2K@60Hz 4:4:4 8bit
Bandwidth	18Gbps
HDMI Version	2.0
HDCP Version	2.2
Power Consumption	14W (max)
Operation Temperature	-10℃ ~ +55℃
Storage Temperature	-25℃ ~ +70℃
Relative Humidity	10%-90%
External Power Supply	Input: 100VAC~240VAC, 50/60Hz, Output: 12V DC 2A
Dimension (W*H*D)	115mm x 16 mm x 84mm
Net Weight	153g

## 3. Panel Description

### 3.1 Switcher Front Panel

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- ① **IR:** Built-in IR sensor to receive IR signal from IR remote.
- ② **Power LED:** The LED lights up green when the device is in standby, or lights up red when the device is power on.
- ③ **INPUT:**
  - Press the 1~4 button to select input source respectively, and its corresponding LED lights up green.
  - Press the **AUTO** button to enable automatic switching mode, and its LED lights up green. Press again to exit.
- ④ **OUTPUT:** Press the button to select output channel.
- ⑤ **Volume Knob and LED:**
  - Press the knob in to toggle among **MIC**, **HDMI OUT** and **HDBT OUT** audio control, and the corresponding LED will light up green.
  - Rotate the knob to increase or decrease the volume of the selected audio.
  - Press and hold the knob at least three seconds to mute the selected audio. Rotate the knob to unmute.

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## 3.2 Switcher Rear Panel

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### ① INPUT:

- Three type-A female HDMI input ports to connect HDMI video source.
- One DisplayPort input port to connect DisplayPort video source.

### ② AUDIO INPUTS:

- **LINE:** 3-pin terminal block to connect wireless microphone or line audio input source.
- **MIC:** 3-pin terminal block to connect condenser or dynamic microphone input.

### ③ OUTPUTS:

- **1-HDMI:** Type-A female HDMI output port to connect video display.
- **2-HDBT:** Supports PoC, RJ45 connector to connect the HDBaseT receiver by CATx cable.

### ④ CONTROL:

- **IR IN:** 3.5mm mini jack to connect an IR receiver for IR pass-through control.
- **IR OUT:** 3.5mm mini jack to connect an IR emitter for IR pass-through control.
- **IR EYE:** 3.5mm mini jack to connect IR receiver to control the switcher by the included IR remote.
- **FIRMWARE:** Type-A USB port for firmware upgrade.

- **RS232:** 3-pin terminal block to connect control device (e.g. PC) to control the switcher by sending RS232 commands. It also supports RS232 pass-through control.
  - **TCP/IP:** RJ45 connector to connect control device (e.g. PC) to control the switcher by GUI.
- ⑤ **DC 24V:** DC barrel port for power adapter connection.

### 3.3 Receiver Front and Rear Panel

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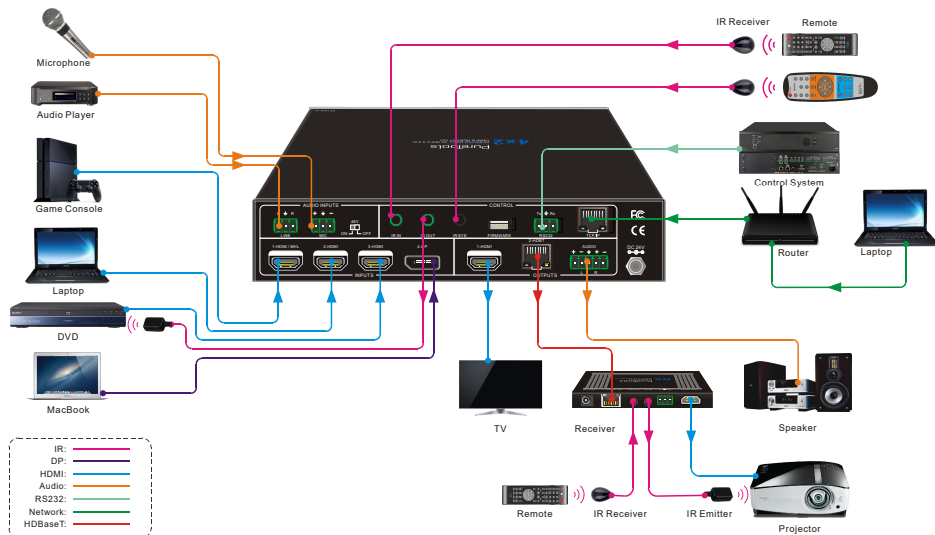
- ① **MODE Switch:**
- **CTRL:** RS232 pass-through control mode.
  - **UPDATE A:** Update Valens IC program, connect a PC to the RS232 port, and then double-click the update file (.bat).
  - **UPDATE B:** Update compression IC program, the upgrade method is the same as the above UPDATE A.
- ② **Power LED:** The LED lights up red when the device is powered on.
- ③ **HDMI OUT:** Type-A female HDMI output port to connect video display.
- ④ **RS232:** 3-pin terminal block for RS232 pass-through control.
- ⑤ **IR IN:** 3.5mm mini jack to connect an IR receiver for IR pass-through control.
- ⑥ **IR OUT:** 3.5mm mini jack to connect an IR emitter for IR pass-through control.
- ⑦ **HDBT IN:** RJ45 connect to connect the switcher by CATx cable.
- ⑧ **DC 12V:** DC barrel port for power adapter connection.

## 4. System Connection

### 4.1 Usage Precaution

- Make sure all components and accessories are 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.

### 4.2 System Diagram



## 5. Button Control

### 5.1 Manual Switching

When the switcher is in manual switching mode, the Auto Mode LED will be dark. To change the input source, directly press the **1-HDMI**, **2-HDMI**, **3-HDMI** or **4-DP** button, and the corresponding LED lights up green immediately. To change the output source, press **1-HDMI** or **2-HDBT** button, and its LED lights up green immediately.

### 5.2 Automatic Switching

Press **1-HDMI** or **2-HDBT** output button, and then press **AUTO** button to enable automatic switching. The Auto mode LED will light up.

When in Auto mode, the switcher will switch according to the following rules:

- *New input: Upon detecting a new input, the switcher will automatically select the new input.*
- *Reboot: Once power is restored to the switcher, it will automatically reconnect the input before powered off.*
- *Source removed: When an active source is removed, the switcher will switch to the first available active input starting at HDMI input 1.*
- *Press the INPUT button (**1-HDMI**, **2-HDMI**, **3-HDMI** or **4-DP**) can forcibly change the input source. If the corresponding source device is active, it will be switched as input source. If not, the switcher will switch to the first available active input starting at HDMI input 1.*

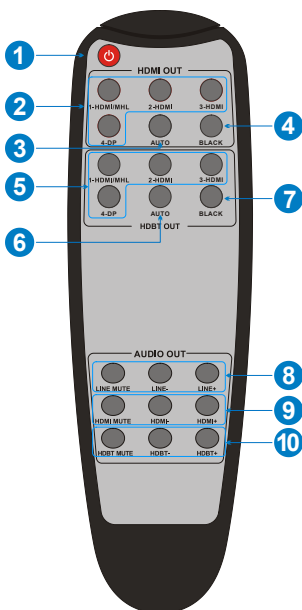
## 5.3 Sound Volume Control

Press Volume Knob to choose MIC, HDMI OUT or HDBT OUT audio needs to be adjusted, the corresponding LED will turn green and keep on.

- *Adjusting the Volume Knob in clockwise direction to increase sound volume.*
- *Adjusting the Volume Knob in anti-clockwise direction to decrease sound volume.*
- *Press and hold the Volume Knob at least three seconds to mute the selected audio. Rotate the knob to unmute.*

## 6. IR Remote Control

Connect the **IR EYE** port to an IR receiver, the switcher can be controlled by the below IR remote.



- ① Enter or exit standby mode.
- ② Select input source for HDMI output.
- ③ Enable/disable automatic switching mode for HDMI output.
- ④ HDMI output black screen.
- ⑤ Select input source for HDBT output.
- ⑥ Enable/disable automatic switching mode for HDBT output.
- ⑦ HDBT output black screen.
- ⑧ LINE audio control: Mute, Volume Down and Volume Up.
- ⑨ HDMI output audio control: Mute, Volume Down and Volume Up.
- ⑩ HDBT output audio control: Mute, Volume Down and Volume Up.



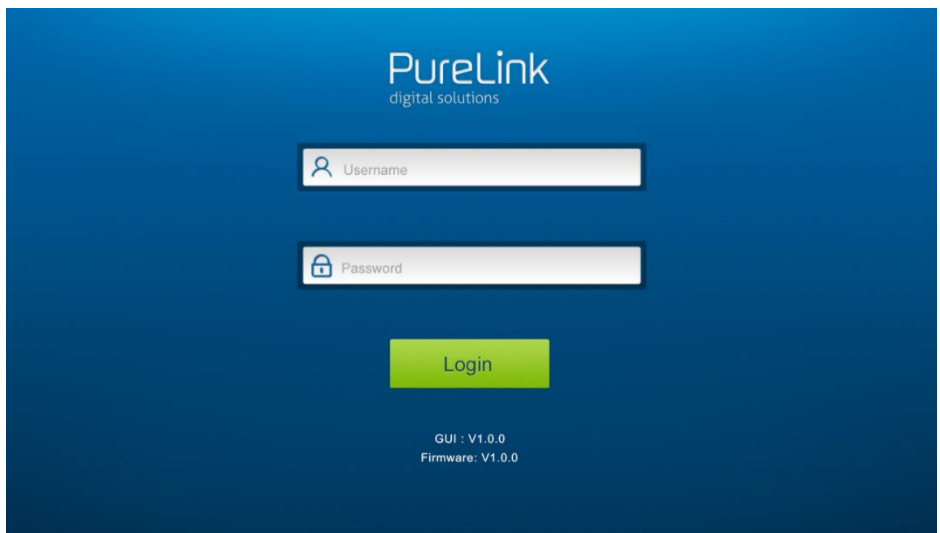
## 7. GUI Control

The switcher also be controlled via TCP/IP. The default IP settings are:

IP Address: 192.168.0.178

Subnet Mask: 255.255.250.0

Type **192.168.0.178** in the internet browser, it will enter the below log-in webpage:

The image shows a login page for 'PureLink digital solutions'. The background is a dark blue gradient. At the top center, the 'PureLink' logo is displayed in white, with 'digital solutions' in a smaller font below it. Below the logo, there are two input fields. The first field is labeled 'Username' and has a user icon on the left. The second field is labeled 'Password' and has a lock icon on the left. Below these fields is a green 'Login' button. At the bottom center, the text 'GUI : V1.0.0' and 'Firmware: V1.0.0' is displayed in a small white font.

**Username:** admin

**Password:** admin

## 7.1 Video Switching

Type the user name and password, and then click **Login** to enter the section for video switching.



- **HDMI OUTPUT:** Switch the selected input source to HDMI output.
- **HDBT OUTPUT:** Switch the selected input source to HDBT output.
- **Preset:** Save the current routing status to preset 1~4.

## 7.2 Audio Control

### 1) Input audio control



- **Line Volume:** Mute, Volume Up or Volume Down.
- **MIC Volume:** Mute, Volume Up or Volume Down.
- **Gain Level:** Adjust the gain level for input audio source.

## 2) Output audio control



- **Mix:** Audio mixing output.
  - ✓ **Step1:** Select **HDMI De-embedded** or **HDBT De-embedded** audio source for HDBT Output and Audio Output (5-pin) respectively. Note that the HDMI output can not be mixed with other audio, and it only output **HDMI De-embedded** audio.
  - ✓ **Step2:** Select **LINE** or **MIC**, or both of them to mix with the HDMI de-embedded audio or HDBT de-embedded audio. If select **MIC** or **LINE** for the HDBT Output, the Audio Output will automatically select the same audio.
- **Volume:** Volume control bar for output audio. Mute, Volume Up or Volume Down.
- **Bypass:** Enable or disable Bypass mode. The default is OFF, the audio output format is PCM. When in Bypass mode, the output audio format is the same as the input audio and the output volume cannot be adjusted by the volume control bar.

## 7.3 EDID Management

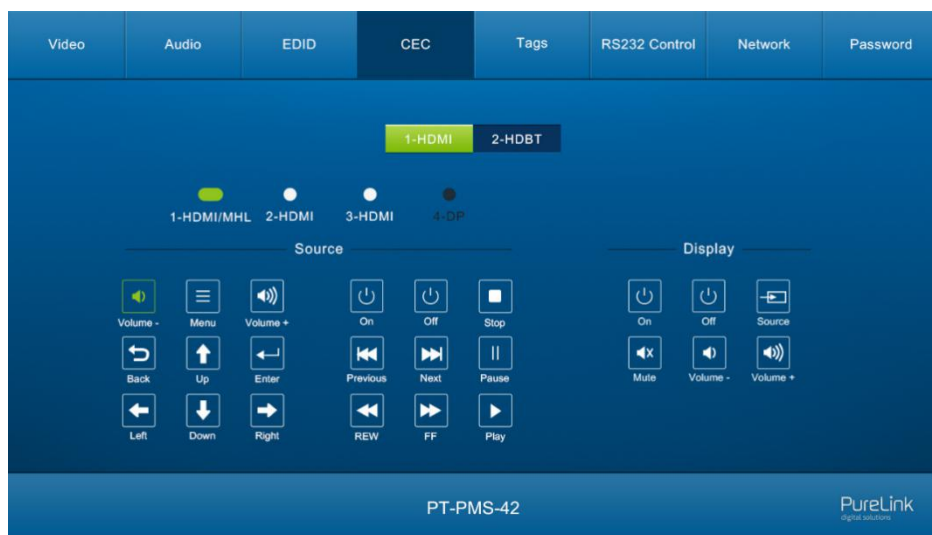
The screenshot displays the EDID Management interface for the PT-PMS-42 device. The interface is organized into a top navigation bar with tabs for Video, Audio, EDID (currently selected), CEC, Tags, RS232 Control, Network, and Password. Below this, there are sub-tabs for different input sources: 1-HDMI/MHL (selected), 2-HDMI, 3-HDMI, and 4-DP. The main content area features several settings for the selected input source. On the left, there are four radio button options for video and audio formats: 720p 2D PCM (selected), 1080p 2D PCM, 4K@60Hz 4:2:0 Dolby/DTS 5.1ch, and 4K@60Hz 4:4:4 HDR 7.1ch. On the right, there are two radio button options for bypassing the output: HDMI Output Bypass and HDBT Output Bypass. Below these, there is a 'User-defined' section with a file input field showing '.bin' and an 'Apply' button. At the bottom center, there is a 'Confirm' button. The footer of the interface displays 'PT-PMS-42' and the 'PureLink digital solutions' logo.

- Select the compatible built-in EDID for 1-HDMI/MHL, 2-HDMI, 3-HDMI, or 4-DP input source.
- Upload user-defined EDID.

## 7.4 CEC Control

If the input sources and display are supports CEC, they can be controlled by the below control buttons to replace IR remote.

### 1) 1-HDMI Output Channel



- **Source Control:** Select the input source which needs to be control, and then press source control button.
- **Display Control:** Press control button.

## 2) 2-HDBT Output Channel



- **Source Control:** Select the input source which needs to be control, and then press source control button.
- **Display Control:** Press control button.

## 7.5 Tags Setting

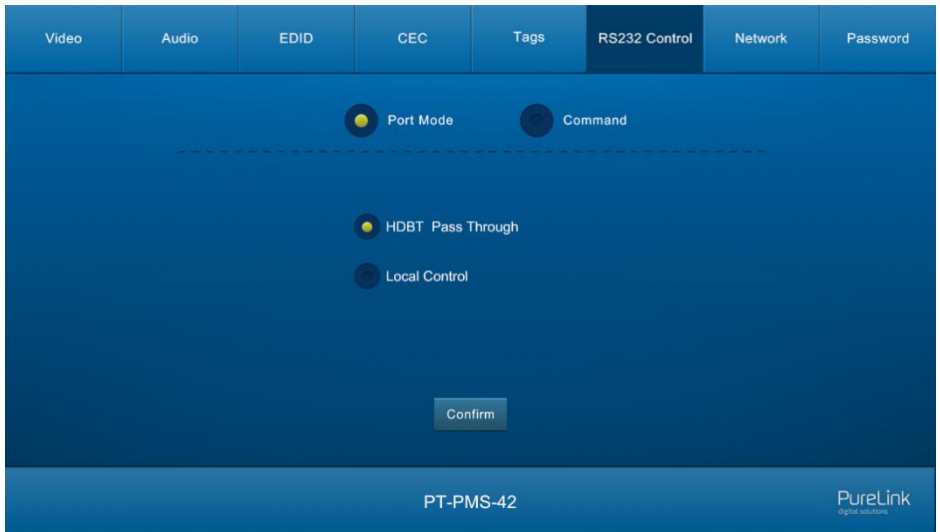
The screenshot displays the 'Tags Setting' interface for the PT-PMS-42 device. The interface features a top navigation bar with the following tabs: Video, Audio, EDID, CEC, Tags (currently selected), RS232 Control, Network, and Password. The main content area is divided into two primary sections: 'INPUTS' and 'Preset'. The 'INPUTS' section contains four input fields for labeling input sources: '1-HDMI/MHL', '2-HDMI', '3-HDMI', and '4-DP'. The 'Preset' section contains four input fields for labeling presets: 'Preset 1', 'Preset 2', 'Preset 3', and 'Preset 4'. A 'Confirm' button is positioned at the bottom center of the main area. The footer of the interface displays 'PT-PMS-42' on the left and the 'PureLink digital solutions' logo on the right.

- **INPUTS:** Modify the label of input sources.
- **Preset:** Modify the label of presets.



## 7.6 RS232 Control

### 1) Port Mode



- **HDBT Pass Through:** Enable RS232 pass-through mode. The RS232 port of the switcher can be used to transfer commands to control other third-party devices.
- **Local Control:** Disable RS232 pass-through mode. The RS232 port of the switcher is used to connect control device (such as PC) to control the switcher.

## 2) Command

- Select **Local** or **HDBT** control mode.
  - ✓ **Local:** Send RS232 commands to control the local third-party which is connected to the RS232 port of the PT-PMS-42 switcher.
  - ✓ **HDBT:** Send RS232 commands to control the far-end third-party (such as projector) which is connected to the RS232 port of HDBaseT receiver.
- Select **HEX** or **ASCII** format.
- **Baud Rate:** Supports 2400, 4800, 9600, 19200, 38400, 57600 or 115200.
- **Command Ending:** NULL, CR, LF or CR+LF can be chosen.
- **Command:** Type command in this box to control the third-party device.

## 7.7 Network Setting

Video	Audio	EDID	CEC	Tags	RS232 Control	Network	Password
<p>MAC Address: 44-33-4C-C9-35-12</p> <p>DHCP <input checked="" type="checkbox"/> Static IP <input type="checkbox"/></p> <p>IP Address: 192.168.0.178</p> <p>Subnet Mask: 255.255.255.0</p> <p>Gateway: 192.168.0.1</p> <p>Confirm</p> <p>PT-PMS-42</p> <p>PureLink digital solutions</p>							

- Static IP or Dynamic Host Configuration Protocol (DHCP)
- Modify the static IP Address, Subnet Mask, and Gateway.

## 7.8 Password Setting

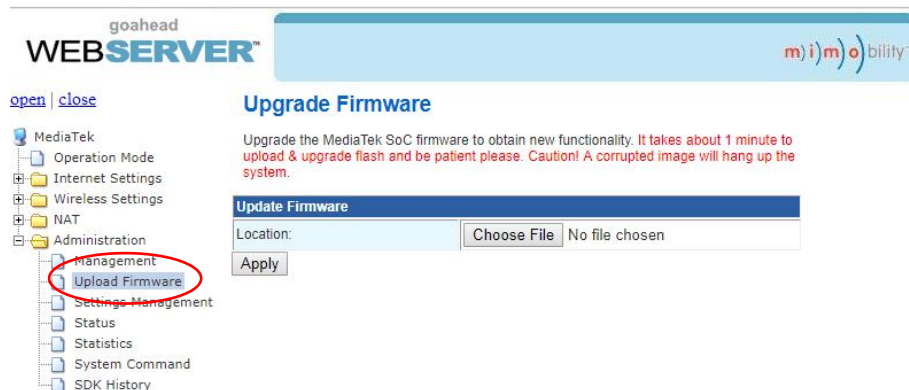
The screenshot displays the PT-PMS-42 web interface. At the top, a navigation bar includes tabs for Video, Audio, EDID, CEC, Tags, RS232 Control, Network, and Password. The Password tab is active. The main area is dark blue. Under the 'Credentials' heading, there is a 'Password:' label, a text input field with 'admin', and a 'Confirm' button. Below this, the 'Front Panel Lock' section features a toggle switch currently set to 'ON' and an 'OFF' label. The bottom of the screen shows 'PT-PMS-42' and the 'PureLink digital solutions' logo.

- Modify the login password.
- Lock or unlock the front panel buttons.

## 7.9 GUI Update

Please visit at <http://192.168.0.178:100> for GUI online upgrade.

Type the username and password (the same as the GUI log-in setting, modified password will be available only after rebooting) to login the configuration interface. After that, click **Administration** in the source menu to get to **Upload Firmware** as shown below:



Select the update file and click **Apply** button, it will start upgrading then.

## 8. RS232 Control

Connect the RS232 port to control device (such as PC) with RS232 cable. The switcher can be controlled by sending RS232 commands.

### 8.1 RS232 Control Software

Here take the software **docklight** as an example.

- **Installation**

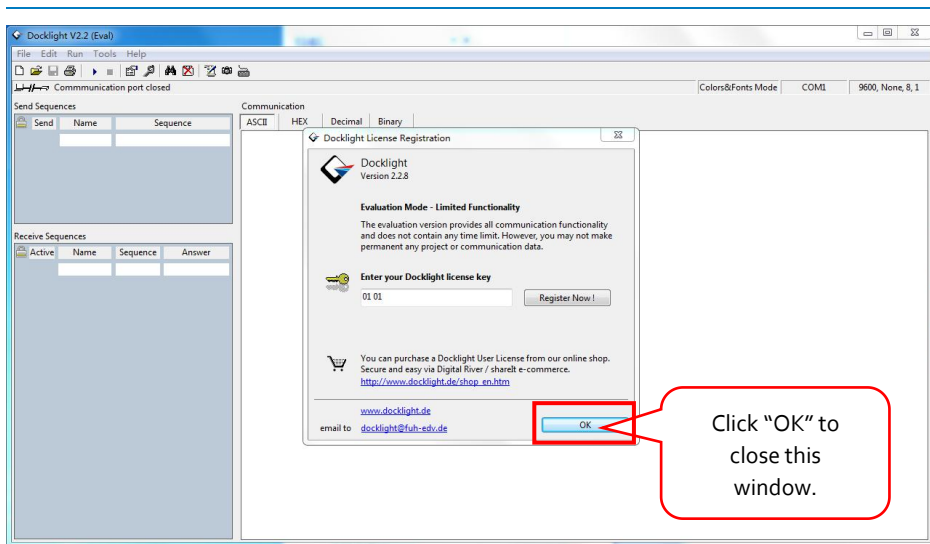
Please download the latest Software Version from the link below:

<https://docklight.de/download/Docklight.zip>

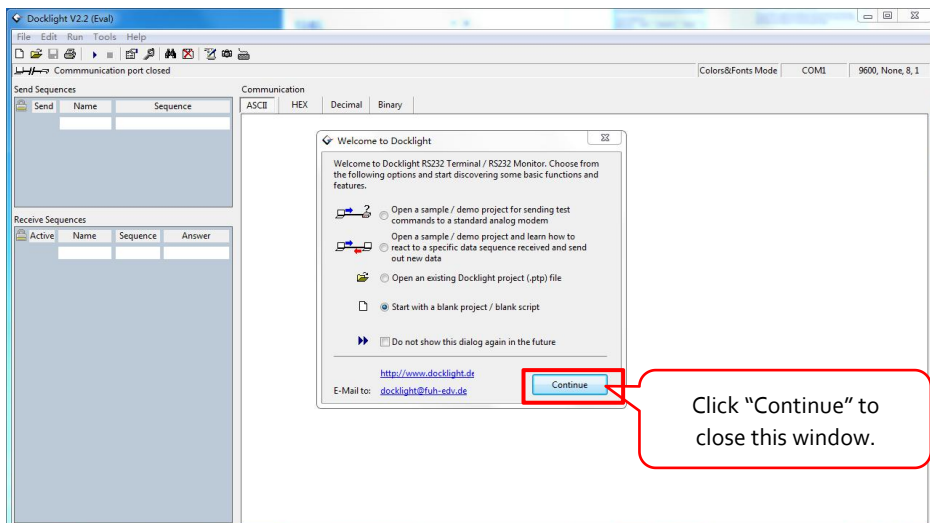
Then follow the installation wizard for installation on Windows 7 and 10.

After the installation, Docklight can be run for the first time and should look like the below screen shot:

Registration is not necessary unless you wish to save settings on exit, so unless you wish to register click on "OK" to close the window.

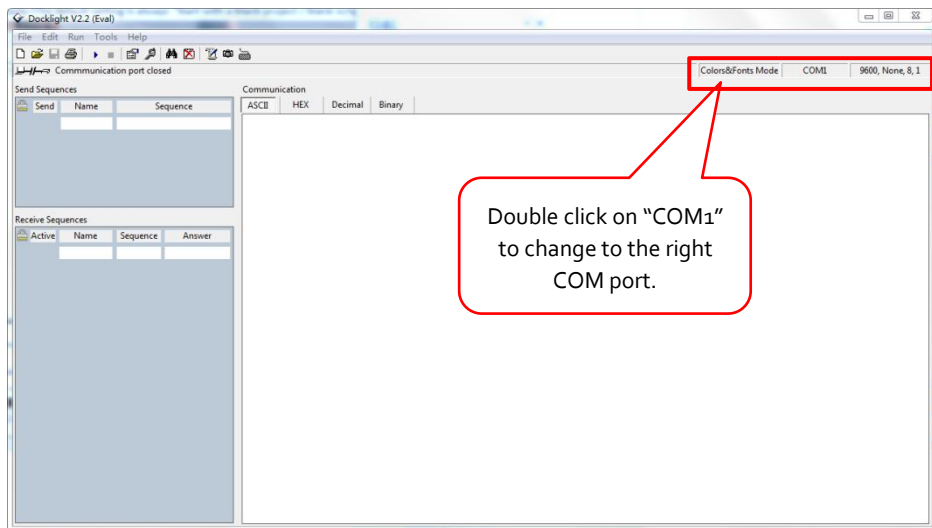


The next pop-up window can also be closed with "Continue". An empty project is enough to send and receive commands easily (The default setting is always "Start with a blank project / blank script")



Now you are in the main view, where commands are sent and feedback is received.

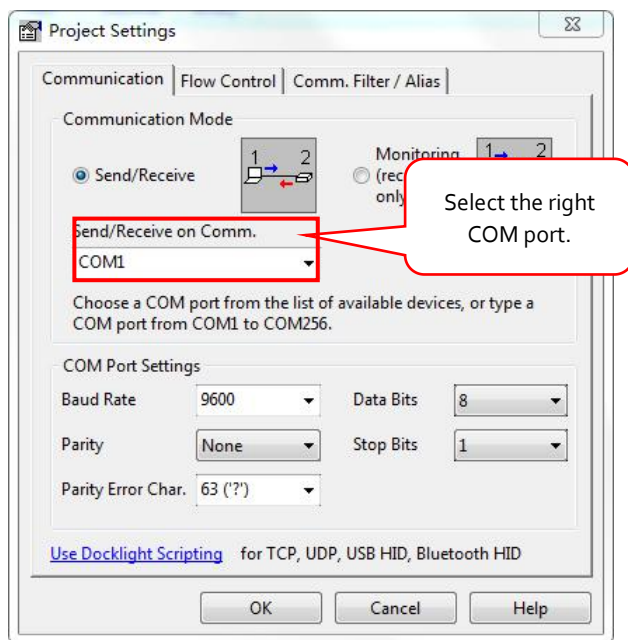
The next step is to select the correct COM port of the PC. To do this, double-click on "COM1" in the corresponding setup window.



In the following window, select the drop-down menu labeled "Send / Receive on Comm Channel", select the appropriate COM port and then click on "OK" at the bottom right corner.

All other settings can be left at default for most applications, but refer to device RS232 settings to be sure.

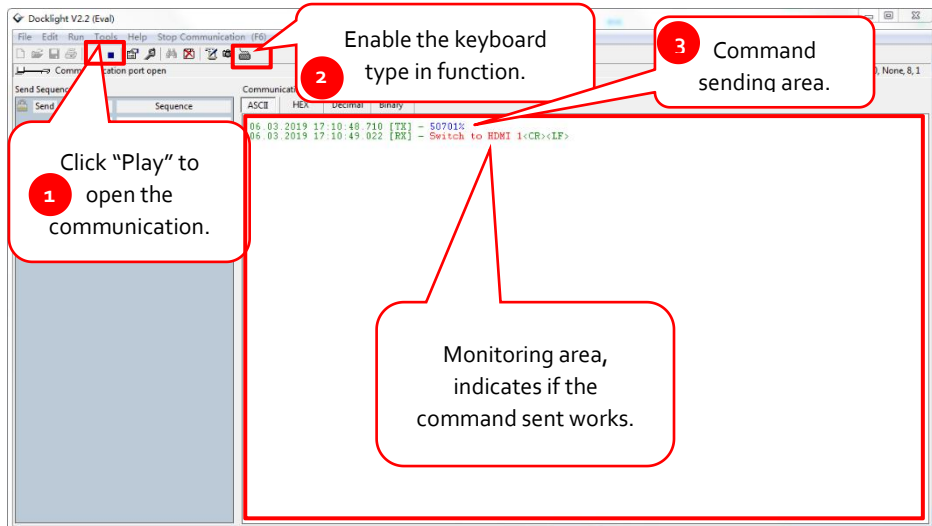




In order to be able to send commands, open communication with the device by clicking on "Play". (1)

Then the keyboard function must be activated, so that commands can be written in the "communication window". (2)

Finally enter the command, for example "50701%". This is then confirmed by pressing "Enter" to send. Any response from the connected device will appear in red. (3)



## 8.2 RS232 Communication Command

Communication protocol: RS232 Communication Protocol

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

### 8.2.1 Device Control

Command	Description	Feedback Example
<b>PowerON.</b>	Power on system.	Power ON!
<b>PowerOFF.</b>	System standby.	Power OFF!
<b>/*Name.</b>	Report system name.	4x2 Matrix Switcher
<b>/*Type.</b>	Report system model.	PT-PMS-42
<b>/*Version.</b>	Report firmware version.	V1.0.0
<b>STA.</b>	Report system status.	... ..
<b>Lock.</b>	Lock front panel buttons.	Front Panel Locked!
<b>Unlock.</b>	Unlock front panel buttons.	Front Panel UnLock!
<b>GetGuiIP.</b>	Report GUI IP.	GUI_IP:192.168.0.178
<b>SetGuiIP:</b> [xxx.xxx.xxx.xxx].	Set GUI IP to [xxx.xxx.xxx.xxx].	
<b>SetNoSigTime:[xxx].</b>	Set the automatic power-off time to xxx. Set the "xxx" as "0" to disable this function.	No Signal Auto StandBy Time Is 0S!
<b>Rs232HDBTBypassON.</b>	Enable RS232 pass-through mode. <b>Note: This function can only be disabled by Telnet or GUI.</b>	Rs232 HDBT Bypass ON!
<b>Rs232HDBTBypassOFF.</b>	Disable RS232 pass-through mode. <b>Note: The command must be send by Telnet port or GUI RS232 tab.</b>	Rs232 HDBT Bypass OFF!
<b>RemoteCtrMcuON.</b>	Allows the switcher to be controlled by the far-end control device which is connected to the RS232 port of HDBaseT receiver.	Remote Control MCU ON!
<b>RemoteCtrMcuOFF.</b>	The switcher cannot be controlled by the far-end control device	Remote Control MCU OFF!
<b>RST.</b>	Factory reset.	Factory Default!

### 8.2.2 Source Switching

Command	Description	Feedback Example
HDMI[x].	Switch input [x] to HDMI output. x=1~4.	Example: HDMI4. Feedback: HDMI Out Switch To o4!
HDBT[x].	Switch input [x] to HDBT output. x=1~4.	Example: HDBT4. Feedback: HDBT Out Switch To o4!
[x]ALL.	Switch input [x] to HDMI and HDBT outputs. x=1~4.	Example: 1ALL. Feedback: HDMI Out Switch To o1! HDBT Out Switch To o1!
HDBTA.	Automatically switch input source to HDBT output.	HDBT Out Switch Auto Mode!
HDBTM.	Manually switch input source to HDBT output.	HDBT Out Switch Manual Mode!
HDMIA.	Automatically switch input source to HDMI output.	HDMI Out Switch Auto Mode!
HDMIM.	Manually switch input source to HDMI output.	HDMI Out Switch Manual Mode!
HDBTBlackON.	Enable HDBT output black screen.	HDBT Out Black ON!
HDBTBlackOFF.	Disable HDBT output black screen.	HDBT Out Black OFF!
HDMIBlackON.	Enable HDMI output black screen.	HDMI Out Black ON!
HDBTBlackOFF.	Disable HDMI output black screen.	HDMI Out Black OFF!

### 8.2.3 Audio Control

Command	Description	Feedback Example
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Command	Description	Feedback Example
[x]Gain:[y].	Set the audio gain of input [x] to [y]. x=1~4, y=0~10.	Example: 1Gain:5. Feedback: Input 1 Gain Level 5!
HDMIABON.	Enable HDMI output audio bypass mode.	HDMI Audio Bypass ON!
HDMIABOFF.	Disable HDMI output audio bypass mode.	HDMI Audio Bypass OFF!
HDBTABON.	Enable HDBT output audio bypass mode.	HDBT Audio Bypass ON!
HDBTABOFF.	Disable HDBT output audio bypass mode.	HDBT Audio Bypass OFF!
MicVolume:xx.	Set the MIC volume to xx.	Volume of MIC 80!
MicVolume+.	Increase MIC volume.	Volume of MIC 81!
MicVolume-.	Decrease MIC volume.	Volume of MIC 79!
MicMute.	Mute MIC audio.	Volume of MIC Mute!
MicUnMute.	Unmute MIC audio.	Volume of MIC UnMute!
LineVolume:xx.	Set the line volume to xx.	Volume of Line 50!
LineVolume+.	Increase line volume.	Volume of Line 51!
LineVolume-.	Decrease line volume.	Volume of Line 49!
LineMute.	Mute line audio.	Volume of Line Mute!
LineUnMute.	Unmute line audio.	Volume of Line Unmute!
HDMIOutVolume:xx.	Set the HDMI output volume to xx.	Volume of HDMI Out 70!
HDMIOutVolume+.	Increase HDMI output volume.	Volume of HDMI Out 71!
HDMIOutVolume-.	Decrease HDMI output volume.	Volume of HDMI Out 69!

Command	Description	Feedback Example
<b>HDMIOutVolumeMute.</b>	Mute HDMI output audio.	Volume of HDMI Out Mute!
<b>HDMIOutVolumeUnMute</b> .	Unmute HDMI output audio.	Volume of HDMI Out Unmute!
<b>HDBTOutVolume:xx.</b>	Set the HDBT output volume to xx.	Volume of HDBT Out 60!
<b>HDBTOutVolume+.</b>	Increase HDBT output volume.	Volume of HDBT Out 61!
<b>HDBTOutVolume-.</b>	Decrease HDBT output volume.	Volume of HDBT Out 59!
<b>HDBTOutVolumeMute.</b>	Mute HDBT output audio.	Volume of HDBT Out Mute!
<b>HDBTOutVolumeUnMute</b> .	Unmute HDBT output audio.	Volume of HDBT Out Unmute!

#### 8.2.4 Preset Setting

Command	Description	Feedback Example
<b>PresetSave[x].</b>	Store the current switching status to preset [x]. x=1~ 4.	Example: PresetSave1. Feedback: Preset1 Save Success!
<b>PresetRecall[x].</b>	Recall the preset [x]. x=1~ 4.	Example: PresetRecall1. Feedback: Preset1 Recall Success! HDMI Out Switch To 04! HDBT Out Switch To 01!

## 8.2.5 EDID Management

Command	Description	Feedback Example														
EDIDSTA[xx].	Get the EDID status of input [xx]. xx=00 ~ 05. <table><tr><td>xx</td><td>Input</td></tr><tr><td>00</td><td>All inputs</td></tr><tr><td>01</td><td>1-HDMI/MHL</td></tr><tr><td>02</td><td>2-HDMI</td></tr><tr><td>03</td><td>3-HDMI</td></tr><tr><td>04</td><td>4-DP 1</td></tr><tr><td>05</td><td>4-DP 2</td></tr></table> <p><b>Note:</b> The 4-DP input port supports MST (Multi-Stream Transport). It will automatically output dual path signals when connect to one source device.</p>	xx	Input	00	All inputs	01	1-HDMI/MHL	02	2-HDMI	03	3-HDMI	04	4-DP 1	05	4-DP 2	Example: EDIDSTA02.  Feedback: Input 2 EDID From 02 Internal EDID!  Explanation: The input 3 is invoking the EDID 2.
	xx	Input														
00	All inputs															
01	1-HDMI/MHL															
02	2-HDMI															
03	3-HDMI															
04	4-DP 1															
05	4-DP 2															
		Example: EDIDSTA03  Feedback: Input 3 EDID From User Define EDID!  Explanation: The input 3 is invoking the user-defined EDID.														
EDIDUpgrade[x].	Upgrade the EDID data of the input port [x]. x=0: All inputs. x=1~4: 1~4 input. x=U: User-defined EDID.  When the command applied, system prompts to upload the EDID file (.bin). Operation will be cancelled in 10 seconds.  Please disconnect HDBT connection before sending command to ensure the data can be received successfully.	Please send the EDID file  ...  EDID Upgrade OK!														

Command	Description	Feedback Example												
EDID/[x]/[y].	<p>The input [x] invoke built-in EDID [y].</p> <p>x=0: All inputs.</p> <p>x=1~4: 1~4 input.</p> <table><tr><th>y</th><th>EDID</th></tr><tr><td>1</td><td>720p 2D PCM</td></tr><tr><td>2</td><td>1080p 2D PCM</td></tr><tr><td>3</td><td>4K@60Hz 4:2:0 Dolby/DTS 5.1 CH</td></tr><tr><td>4</td><td>4K@60Hz 4:4:4 HDR 7.1CH</td></tr><tr><td>5</td><td>User-defined EDID</td></tr></table>	y	EDID	1	720p 2D PCM	2	1080p 2D PCM	3	4K@60Hz 4:2:0 Dolby/DTS 5.1 CH	4	4K@60Hz 4:4:4 HDR 7.1CH	5	User-defined EDID	EDID/3/3
y	EDID													
1	720p 2D PCM													
2	1080p 2D PCM													
3	4K@60Hz 4:2:0 Dolby/DTS 5.1 CH													
4	4K@60Hz 4:4:4 HDR 7.1CH													
5	User-defined EDID													
EDIDGHDMI.	Get the EDID data from HDMI output.													
EDIDGHDBT.	Get the EDID data from HDBT output.													
EDIDM[x]B[y].	<p>Set the EDID data of output [x] to input [y].</p> <p>x=1~2, y=1~4.</p>	<p>Example: EDIDM1B1.</p> <p>Feedback:</p> <p>Input 1 EDID Upgrade OK By 01</p> <p>EXT EDID!</p>												

### 8.2.6 CEC Control

If the input sources and displays are supports CEC, they can be controlled by sending CEC commands to replace IR remote.

**Step 1:** According to the below command to enable CEC control.

Command	Description	Feedback Example
CEC_ON.	Enable CEC	CEC ON!
CEC_OFF.	Disable CEC	CEC OFF!

**Step 2:** According to the below command format to send specific command to control input source or display device.



CECI[I/O][port][command].

- The "[I]" represents the input port. The "[O]" represents the output port.
- The "[port]" represents the port number. The input ports are 01~04, and the output ports are 01~02.
- The "[port]" is "FF" for sending command to all input or output ports.
- The "[command]" represents the specific command from the table below.

✓ Control the input source:

Command	Description	Example and Feedback
CECI[port]00.	Confirm operation (Enter).	CECI0100.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]01.	UP.	CECI0101.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]02.	DOWN.	CECI0102.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]03.	LEFT.	CECI0103.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]04.	RIGHT.	CECI0104.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]0A.	Enter main menu.	CECI010A.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]0D.	Exit menu.	CECI010D.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]41.	Volume up.	CECI0141.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]42.	Volume down.	CECI0142.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]43.	Mute	CECI0143.
		CEC_IN_01_SEND_SUCCESS!
CECI[port]44.	Play.	CECI0144.
		CEC_IN_01_SEND_SUCCESS!

Command	Description	Example and Feedback
CECI[port]45.	Stop.	CECI0145. CEC_IN_01_SEND_SUCCESS!
CECI[port]46.	Pause.	CECI0146. CEC_IN_01_SEND_SUCCESS!
CECI[port]48.	Rewind.	CECI0148. CEC_IN_01_SEND_SUCCESS!
CECI[port]49.	Fast forward.	CECI0149. CEC_IN_01_SEND_SUCCESS!
CECI[port]4B.	Forward.	CECI014B. CEC_IN_01_SEND_SUCCESS!
CECI[port]4C.	Backward.	CECI014C. CEC_IN_01_SEND_SUCCESS!
CECI[port]6C.	Power off.	CECI016C. CEC_IN_01_SEND_SUCCESS!
CECI[port]6D.	Power on.	CECI016D. CEC_IN_01_SEND_SUCCESS!

✓ Control the output display:

Command	Description	Example and Feedback
CECO[port]41.	Volume up.	CECO0141. CEC_OUT_01_SEND_SUCCESS!
CECO[port]42.	Volume down.	CECO0142. CEC_OUT_01_SEND_SUCCESS!
CECO[port]43.	Mute	CECO0143. CEC_OUT_01_SEND_SUCCESS!
CECO[port]6C.	Power off.	CECO016C. CEC_OUT_01_SEND_SUCCESS!
CECO[port]6D.	Power on.	CECO016D. CEC_OUT_01_SEND_SUCCESS!

The switcher supports RS232 pass-through control, the third-party device can be controlled by RS232 command, and the command format as shown below:

/+ [X]/[Y]:xxx.	<ul style="list-style-type: none"><li>● xxx: ASCII characters.</li><li>● Y: Represents the RS232 port.<ul style="list-style-type: none"><li>✓ Y=1: The RS232 port of PT-PMS-42 switcher.</li><li>✓ Y=2: The RS232 port of HDBaseT receiver.</li></ul></li><li>● X: Represents the baud rate of third-party device.<ul style="list-style-type: none"><li>✓ X=1, 2400</li><li>✓ X=2, 4800</li><li>✓ X=3, 9600</li><li>✓ X=4, 19200</li><li>✓ X=5, 38400</li><li>✓ X=6, 57600</li><li>✓ X=7, 115200</li></ul></li></ul>	/+3/2:123456.
		Send the command "123456" to the third-party device. The baud rate is 9600.
CMDON/+ [X]:xxx.	Power on the third-party device.	CMDON/+3:455665.

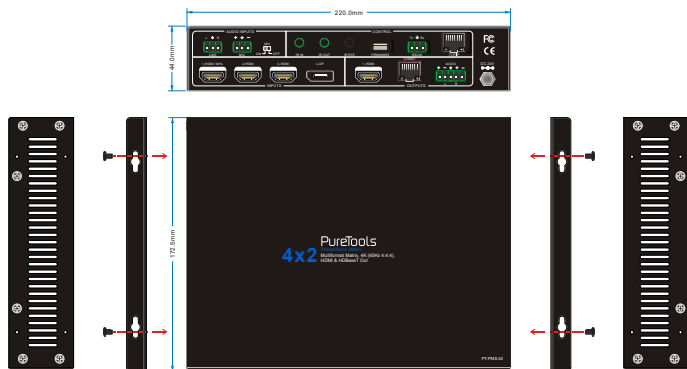
**Note:** When sending HEX command in this box, the "/+ [X]/[Y]:" and the end mark "." must be converted to hexadecimal characters. For example, send the HEX command "**F0 01 01 02 0A**" to the third-party whose baud rate is 9600. The "/+3/2:" and the point "." is converted to "2F 2B 33 2F 32 3A" and "2E", thus the complete HEX command is "2F 2B 33 2F 32 3A **F0 01 01 02 0A** 2E".

## 9. Firmware Upgrade

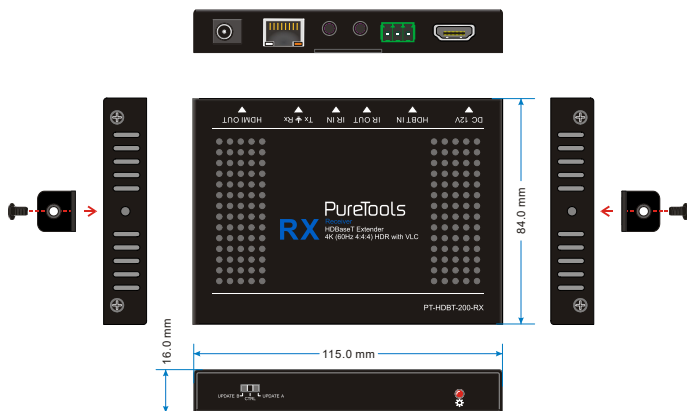
Please follow the steps as below to upgrade firmware by the **FIRMWARE** port on the rear panel:

- 1) Prepare the latest upgrade file (.bin) and rename it as "USERAPP.bin" on PC.
- 2) Power off the switcher, and connect the **FIRMWARE** port of switcher to the PC with USB cable.
- 3) Power on the switcher, and then the PC will automatically detect a U-disk named of "BOOTDISK".
- 4) Double-click the U-disk, a file named of "READY.TXT" would be showed.
- 5) Directly copy the latest upgrade file (.bin) to the "BOOTDISK" U-disk.
- 6) Reopen the U-disk to check the filename "READY.TXT" whether automatically becomes "SUCCESS.TXT", if yes, the firmware was updated successfully, otherwise, the firmware updating is fail, the name of upgrade file (.bin) should be confirm again, and then follow the above steps to update again.
- 7) Remove the USB cable after firmware upgrade.
- 8) After firmware upgrade, the switcher should be restored to factory default by sending command.

## 10. Panel Drawing



4x2 4K Presentation Switcher



HDBaseT Receiver

## 11. Troubleshooting & Maintenance

Problems	Potential Causes	Solutions
Output image with snowflake.	Bad quality of the connecting cable.	Try another high-quality cable.
	Fail or loose connection.	Make sure the connection is good.
No output image when switching.	No signal at the input / output end.	Check with oscilloscope or multimeter if there is any signal at the input/ output end.
	Fail or loose connection.	Make sure the connection is good.
	The switcher is broken.	Send it to authorized dealer for repairing.
<b>POWER</b> indicator doesn't work or no respond to any operation.	Fail connection of power cord.	Make sure the power cord connection is good.
EDID management does not work normally.	The HDMI cable is broken at the output end.	Change for another HDMI cable which is in good working condition.
Static becomes stronger when connecting the video connectors.	Bad grounding.	Check the grounding and make sure it is connected well.
Cannot control the device by control device (e.g. a PC) through RS232 port.	Wrong RS232 communication parameters.	Type in correct RS232 communication parameters.
	Broken RS232 port.	Send it to authorized dealer for checking.
Cannot control the device by front panel buttons while can control it through RS232 port	The front panel buttons are locked.	Send command <b>/!Unlock;</b> to unlock the front panel buttons.

**Note:** If your problem still persists after following the above troubleshooting steps, please find further assistance.

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## 12. 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 period.

- 1) **Product Limited Warranty:** The product will be free from defects in materials and workmanship for **two 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 shown 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

### Write to:

PureLink GmbH

Von-Liebig-Straße 10

D - 48432 Rheine

[www.purelink.de](http://www.purelink.de)

[info@purelink.de](mailto:info@purelink.de)

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