User Manual
875800 Pathfinder $^{4.0}$ MF

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

SURGE PROTECTION DEVICE RECOMMENDED

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Important Safety Instructions

1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
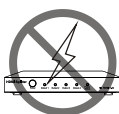
6. Clean this apparatus only with dry cloth.

2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.

7. Unplug this apparatus during lightning storms or when unused for long periods of time.

3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.

8. Protect the power cord from being walked on or pinched particularly at plugs.

4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Only use attachments / accessories specified by the manufacturer.

5. Do not place sources of naked flames, such as lighted candles, on the unit.

10. Refer all servicing to qualified service personnel.

Table of Contents

Introduction

Pathfinder 4.0 MF is a 100m 4K Daisy-chain Presenter with HDBaseT in and HDBaseT out, and utilizes HDBaseT technology as daisy-chain medium to cascade multiple A/V sources, displays or any devices with HDBaseT connection together in a chain to set up an A/V distribution system. The system is cascadable up to 64 devices.

Pathfinder 4.0 supports three video inputs including HDMI, Display Port and VGA plus 3.5mm audio in, with HDBaseT input and HDBaseT output for cascading. A local HDMI out with audio de-embedder is provided in the rear side to connect local monitor or zone displays. It has a 2-Port Ethernet Switch built-in, so that Ethernet could pass through over HDBaseT for LAN control, or to feed LAN access to sources or displays. RS232 port is used to pass through RS232 commands or control display device. USB charger is also provided to charge mobile devices. It offers Select button and Contact Closure to switch sources, and rotary switch for EDID management.

Pathfinder 4.0 offers a future-ready Ultra HD A/V switching and distribution solution, and cutting-edge HDMI 2.0 and HDCP 2.2 compatibility. With user-friendly WEB GUI and Telnet API to configure advanced functionality including CEC controller, RS232 controller and Daisy-chain Grouping, it is perfectly suitable for collaboration or presentation in conference and education application.

Pathfinder also offers a power socket for 230V/10A to work with a laptop. Special regional power sockets are available.

Features

- HDMI, DisplayPort and VGA plus stereo switching inputs, local HDMI bypass out with audio de-embedder
- HDBaseT input and output to cascade multiple A/V sources and displays
- Cascadable up to 64 devices
- HDMI 2.0 and input supports HDCP 2.2
- Supports 4K@60Hz 4:2:0 8-bit up to 70m over Cat5e/Cat6, or up to 100m over Cat6a/Cat7
- Built in CEC controller and RS232 controller for smart control
- Automatic CEC and RS232 command to Power ON/Standby Display, by detecting input signal status
- Daisy-chain Grouping mode offered to match flexible application
- LAN control with user-friendly WEB GUI and Telnet API
- Select Button and Contact Closure for source switching
- Built in 2-Port Ethernet Switch for LAN control or LAN access
- Built in USB Charger up to 5V/1.5A to charge mobile devices
- Independent rotary switch for EDID management
- Advanced signal re-clocking and cable equalization for multiple daisy-chains
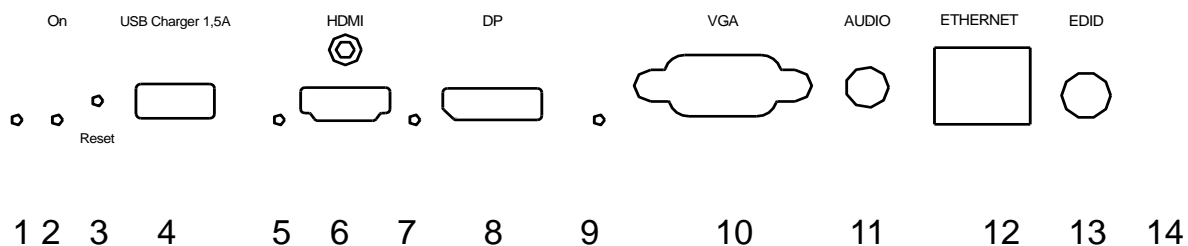
Specifications

Video	
Input	1 x HDMI IN, 1 x DisplayPort IN, 1 x VGA IN, 1 x HDBaseT IN
Input Signal Type	HDMI: HDMI 2.0 w/HDCP 2.2, DP: DP 1.2 w/HDCP2.2
Input Resolution Support	HDMI: 4096 x 2160@24/25/30/50/60Hz, 3840 x 2160@24/25/30/50/60Hz, 1080p@24/25/30/50/60Hz, 1080i@50/60Hz, 720p@50/60Hz, 1920 x 1200@60Hz, 1680 x 1050@60Hz, 1600 x1200@60Hz, 1600 x 900@60Hz, 1440 x 900@60Hz, 1400 x 1050@60Hz, 1366 x 768@60Hz, 1360 x 768@60Hz, 1280 x 1024@60H, 1280 x 960@60Hz, 1280 x 800@60Hz, 1280 x 768@60Hz, 1024 x 768@60Hz, 800 x 600@60Hz DisplayPort: 800x600@60 Hz, 1024x768@60Hz , 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1440 x900@60Hz, 1600 x900@60Hz, 1600 x1200@60Hz, 1680 x1050@60Hz, 1920 x1080@60Hz, 1920 x1200@60Hz, 1280x720P@50Hz, 1280x720P@60Hz, 1920x1080P@50Hz, 3840x2160@50Hz, 3840x2160@60Hz, 4096x2160@50Hz, 4096x2160@60Hz. VGA: 800x600@60 Hz, 1024x768@60Hz , 1280x768@60Hz, 1280x800@60Hz,

	1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1440 x900@60Hz, 1600 x900@60Hz, 1600 x1200@60Hz, 1680 x1050@60Hz, 1920 x1080@60Hz, 1920 x1200@60Hz, 1280x720P@50Hz, 1280x720P@60Hz, 1920x1080P@50Hz,
Output	1 x HDMI OUT, 1x HDBaseT OUT
Output Signal Type	HDMI 2.0 with 4k, HDBaseT
Output Resolution Support	HDMI: 4096 x 2160@24/25/30/50/60Hz, 3840 x 2160@24/25/30/50/60Hz, 1080p@24/25/30/50/60Hz, 1080i@50/60Hz, 720p@50/60Hz, 1920 x 1200@60Hz, 1680 x 1050@60Hz, 1600 x 1200@60Hz, 1600 x 900@60Hz, 1440 x 900@60Hz, 1400 x 1050@60Hz, 1366 x 768@60Hz, 1360 x 768@60Hz, 1280 x 1024@60H, 1280 x 960@60Hz, 1280 x 800@60Hz, 1280 x 768@60Hz, 1024 x 768@60Hz, 800 x 600@60Hz DisplayPort: 800x600@60 Hz, 1024x768@60Hz , 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1440 x900@60Hz, 1600 x900@60Hz, 1600 x1200@60Hz, 1680 x1050@60Hz, 1920 x1080@60Hz, 1920 x1200@60Hz, 1280x720P@50Hz, 1280x720P@60Hz, 1920x1080P@50Hz, 1920x1080P@60Hz, 3840x2160@50Hz, 3840x2160@60Hz, 4096x2160@50Hz, 4096x2160@60Hz. VGA: 800x600@60 Hz, 1024x768@60Hz , 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz,

|	1440 x900@60Hz, 1600 x900@60Hz, 1600 x1200@60Hz, 1680 x1050@60Hz, 1920 x1080@60Hz, 1920 x1200@60Hz, 1280x720P@50Hz, 1280x720P@60Hz, 1920x1080P@50Hz **Note:** HDBaseT out: HDMI 2.0 with 4k@60Hz (Chroma sub-sampling 4:2:0 8-bit only)
Video Impedance	100 Ω
Input Video Level	0.5-1.2 V p-p
Input DDC Level	5 volts p-p (TTL)
Maximum Pixel Clock	300MHz
Audio	
Input	1 x Audio in for VGA, DP/HDMI/HDBT embedding audio
Input Connector Type	3.5mm jack
Output	HDMI audio de-embedded, Stereo
Control	
Control Method	Select Button, Contact Closure, Telnet, Web GUI
General	
Operating Temperature	0°C to 45°C (32°F to 113°F)
Storage Temperature	-20°C to 70°C (-4°F to 158°F)
Humidity	10% to 90%, non-condensing
ESD Protection	Human-body Model: ±8kV(Air-gap discharge)/ ±4kV(Contact discharge)
Power Supply	DC 12V 3A
Power Consumption	20.52W (Maximum)
Device Dimension (W x H x D)	223mm x 27mm x 124.2mm / 8.78" x 1.06" x 4.89"
Product Weight	0.8kg
Certification	CE, FCC

Panel Layout

Front Panel

No.	Name	Description
1	Locate LED	Located a device in the chain, LED flashes 2 times when click "LocateME" on WEB
2	Power LED	Indicate power status
3	RESET	Press and hold this button for at least five seconds to reset the Pathfinder
4	USB CHARGER	Charge USB device
5	HDMI IN LED	This LED is on if HDMI IN is selected as input
6	HDMI IN	Connects to HDMI source device
7	DP IN LED	This LED is on if DP IN is selected as input
8	DP IN	Connects to DisplayPort source device
9	VGA IN LED	This LED is on if VGA IN is selected as input
10	VGA IN	Connects to VGA source device
11	AUDIO IN	VGA analog stereo audio input
12	ETHERNET	Connects to a LAN device such as Laptop for LAN access or WEB control
13	EDID	Rotary switch is provided to offer EDID management.
14	Config	Hidden config button

Rear Panel
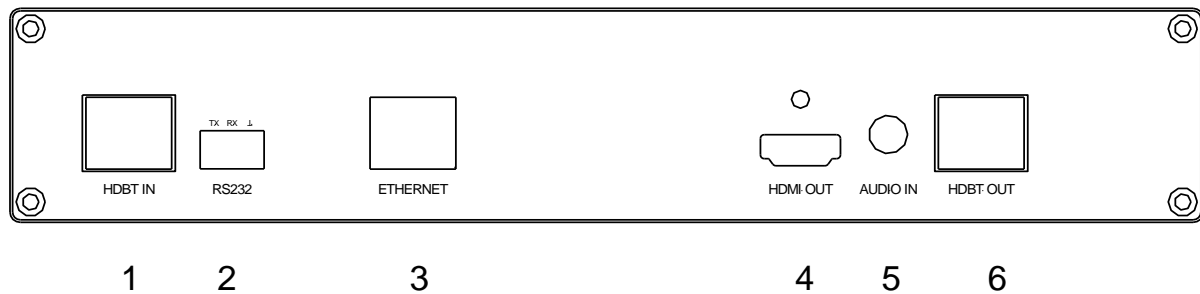
No.	Name	Description
1	HDBT IN	Connects to HDBT output port of any HDBT device or the other PathFinder 4.0.
2	RS232	Connects to a controllable device such as projector as RS232 pass-through
3	Ethernet	Connects to a LAN device such as IP-based touch panel for LAN control
4	HDMI OUT	Connects to a HDMI display device
5	AUDIO OUT	Connects to audio system such as an amplifier
6	HDBT OUT	Connects to HDBT input port of any HDBT device or the other Pathfinder.

Quick Start

Pathfinder 4.0 MF could be used flexibly as either transmitter or receiver to support a couple of different installations and applications, because of a local HDMI Out port built in.

Application 1: Chain-type Connection
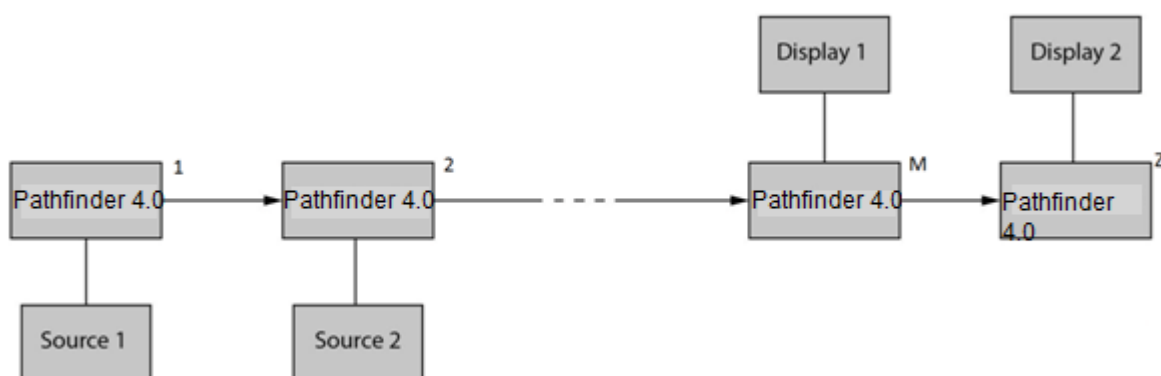
In Application 1, Device 1 and Device 2 are used as transmitter to connect source, while Device M and Device Z are dedicated receivers to connect multiple displays.

Application 2: Chain-type Connection with Local Monitor
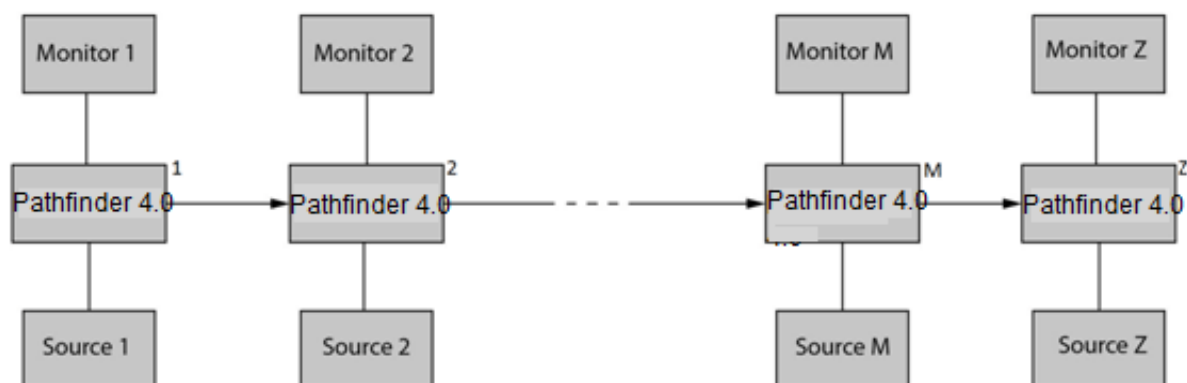
In Application 2, each Pathfinder in the chain has its local HDMI Out connected with local monitor, so as to show forward or local source once it's selected in the chain. Please note only backward devices could display forward sources, while forward devices can not have their local monitor to show backward sources.

Application 3: Ring-type Connection
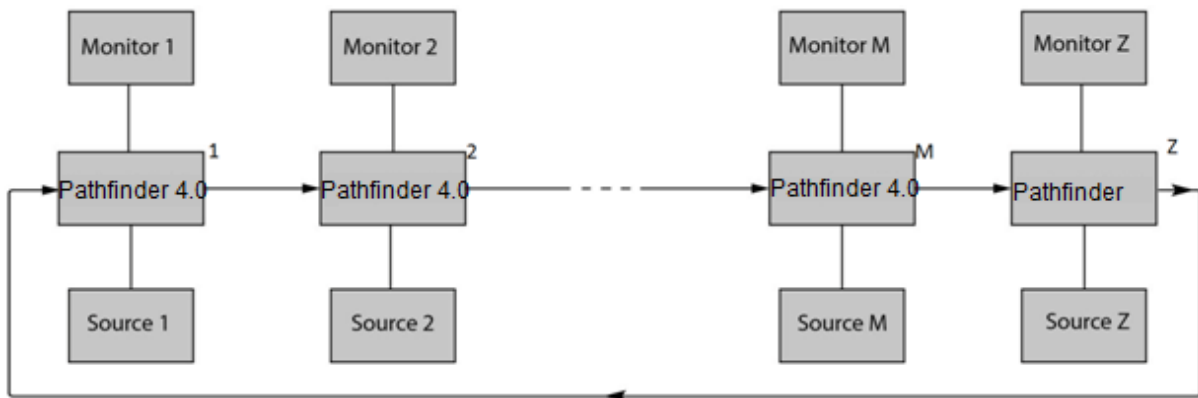
In Application 3, the last Device Z has its HDBT OUT connecting to HDBT IN of the first Device 1. As a result, each source selected could be displayed by any monitor in the chain, and fix the issue in chain-type connection that backward sources can not be displayed in forward monitors.

Application 4: Grouping Mode
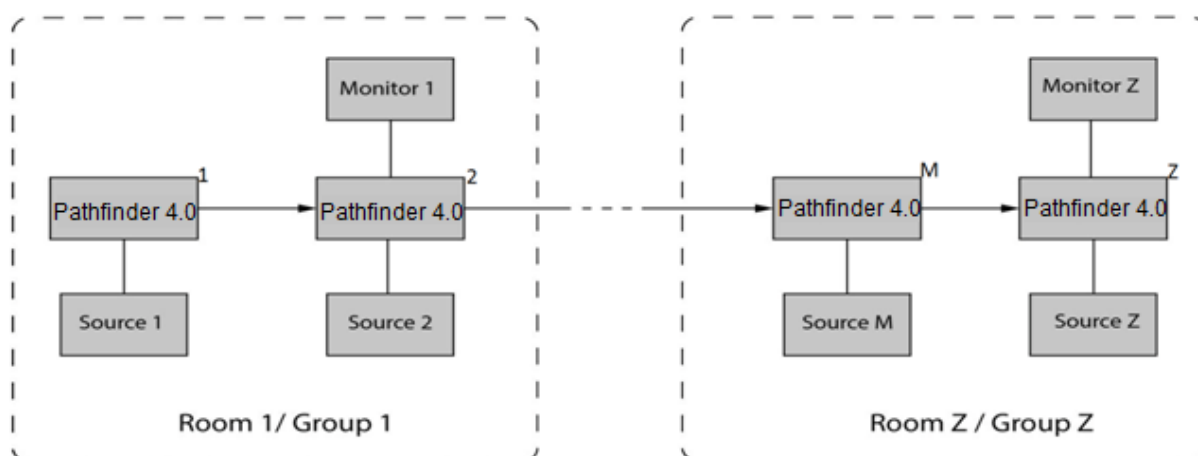
In Application 4, Device 1 and Device 2 work in Group 1, while Device M and Device Z work in separate Group Z. Devices in different groups can not select or display sources from other groups. Grouping mode is simply activated by Telnet API or clicking the Daisy-chain Grouping option on the WEB GUI of device, then the video will stop to be outputted to backward devices.

For example, set Device 2 in grouping mode to make Device 1 and Device 2 work as Group 1, then Device 3 and all backward devices are in the other group; set Device 2 and Device 4 in grouping mode to make Device 1 and Device 2 in a group, Device 3 and Device 4 work in a group, Device 5 and backward devices in the other group (More details please check Page 16.) Both Chain-type and Ring-type connection could support grouping mode.

Before set up, please take care of below steps:

1. Connect a PC to each device by Ethernet port, log in their WEB GUI to set static IP address and alias name for every device. (Please check Page 13 to learn how to log in WEB GUI.)

2. Connect all devices by HDBaseT ports through Cat cable, make a Chain-type connection firstly and feed LAN access to Ethernet port of any device. **Do not make Ring-type connection directly with LAN access, otherwise there will be LAN conflicts and LAN control disabled.**

3. Log in WEB GUI of the first device in the chain, input total quantity of devices cascaded within Daisy-chain Sequence and then click Start Sequence.

(More details please check Page 16 Daisy-Chain Sequence).

4. Connect the HDBT OUT of the last device to the HDBT IN of the first device, log in WEB GUI of the first device to click Start Sequence again, then Ring-type connection is set up correctly.

Any Pathfinder reset, removed, replaced or newly added in the chain, please follow above instruction to configure them again.

Connections and Installation

1. Connect the HDBT OUT port of Pathfinder 1 to the HDBT IN port of Pathfinder 2, connect the HDBT OUT port of Pathfinder 2 to the HDBT IN port of Pathfinder 3, and follow to daisy-chain multiple Pathfinder through HDBT ports by Cat cable.
2. Using quality HDMI/DP/VGA cables to connect different sources (such as Laptop, PC, Blu-ray, satellite/cable TV, etc.) to HDMI IN/DP IN/VGA IN port of Pathfinder.
3. Using quality HDMI cables to connect the HDMI display device (such as Projector, Monitor or TV) to the HDMI OUT of Pathfinder.
4. Connect a controller such as IP-based touch panel to an Ethernet port of Pathfinder, or Contact Closure-based keypad to the Select/KEY/LED ports to control. Circuit diagram of Contact Closure ports including SELECT, KEY and LED (2,5 - 3,3V – 5 - 8 mA) without any resistors as shown:
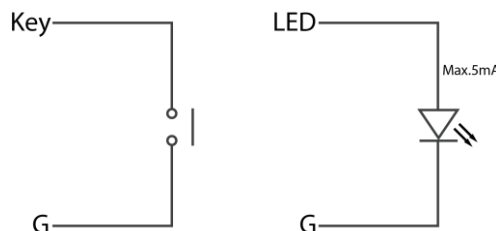
5. Power on all devices. Use the Select Button, Contact Closure, WEB GUI or Telnet API command to operate the Pathfinder.

**Note:** Quality CAT cables are highly recommended, such as Cat6, AWG 24/1 or better, S/FTP cable.

Web Control

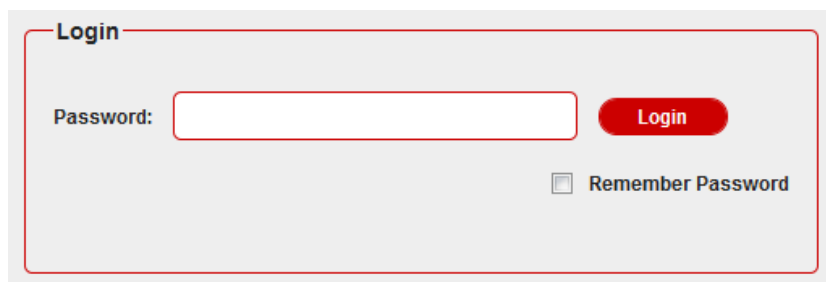PathFinder 4.0 offers a Web GUI for product configuration.

Access the WEB GUI

Step 1. Connect PathFinder 4.0 to a computer using a Cat cable. The default IP address of the PathFinder 4.0 is 192.168.1.121, make sure the computer's IP address is 192.168.1.X (such as 192.168.1.100).
Step 2. Type the IP address into a web browser (as seen below).
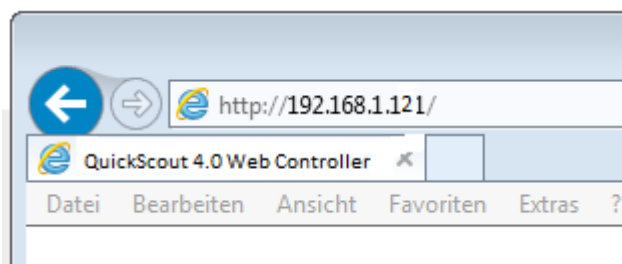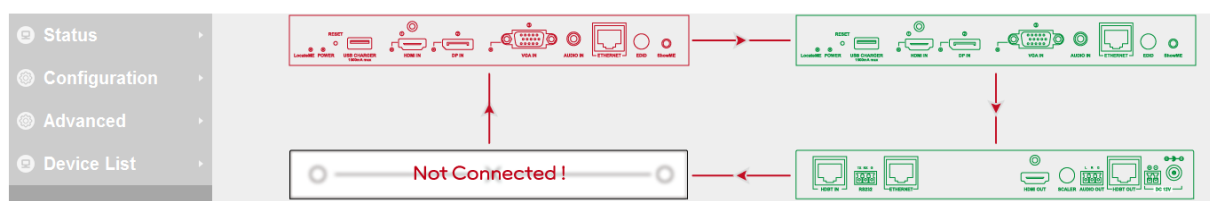

A login screen will appear:

The default password is admin.

WEB GUI Introduction

The WEB GUI contains three sub-menu: Status, Configuration and Advanced.

Status

This sub-menu displays the current status of PathFinder 4.0.

Device in red represents PathFinder 4.0 working in Select mode.

Device in green represents PathFinder 4.0 connecting in the chain but not working in Select mode.

Device in black represents not connecting in the chain.

Click the device icon, it displays the alias name, IP address, sequence, Grouping and input source of the PathFinder 4.0.

Alias Name: Pathfinder   IP Address:192.168.2.121
Sequence:1   Grouping:OFF   Select:VGA

Note:
- Mode False represents the PathFinder not working in group mode.
- Mode True represents PathFinder 4.0 working in group mode.

Configuration

There are three sub-menus: Device, Video and Control.
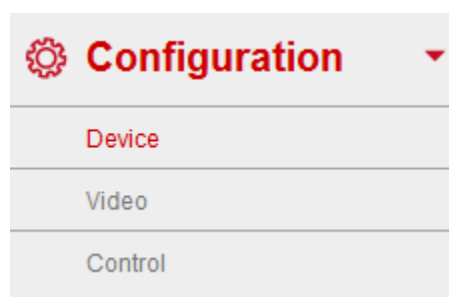
Device

This sub-menu is used to perform the following tasks:
- Locate ME
- Alias Name
- Daisy-chain Sequence
- Daisy-chain Grouping
- Network

Locate Me

LocateME
ON

click **LocateME** on, the LocateME LED of PathFinder 4.0 will be blinking, by that user can locate which PathFinder 4.0's WEB GUI is logging.

Alias Name

Alias Name	
Alias Name: [ ]	Apply
Note: The Alias name must be 1~20 characters in length (letters , numbers , space , '_' or '-').	

User can modify PathFinder 4.0 name in case of installation issues when multiple PathFinder 4.0 cascaded.
click **Apply** button to save modifications.
Note: The Alias name must be 1~20 characters in length, it could be letters, numbers, space, underscore "_"or dash"-".

Daisy-chain Sequence

Daisy-chain Sequence	
Daisy-chain Quantity: [4 ⬆⬇]	Start Sequence
Note: Input the quantity of all DaisyNET units connected, then click Start Sequence button.	

User can set the daisy-chain quantity in this column.
When multiple PathFinder 4.0 cascaded, it's recommended to input total quantity of devices cascaded in the chain by logging in the WEB GUI of the first device and then click **Start Sequence** button.
When any PathFinder 4.0 is removed or added in cascaded connection, please log in the first device's WEB GUI in the chain to reconfigure. By that each PathFinder could find out its sequence in the daisy-chain automatically, and it's particularly necessary for Ring-type Connection.

Note: If the Daisy-chain Quantity inputted is more than devices cascaded in the chain, additional devices would be showed in black in Status page.
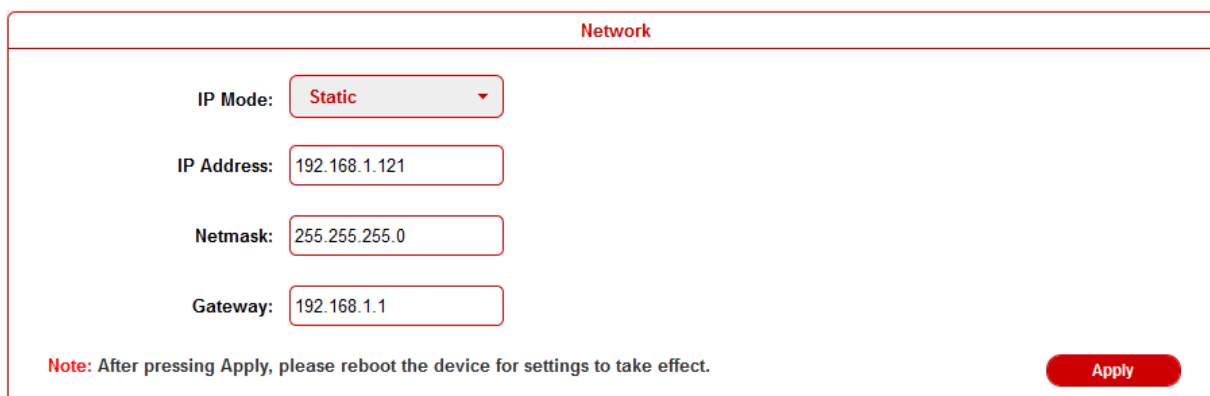
Daisy-chain Grouping

User can set PathFinder 4.0 working in grouping mode in this column. PathFinder offers Daisy-Chain Grouping mode to meet grouping conference, in case multiple conference groups could be set up and worked independently in cascaded connection. By that each group could only have their local sources to be selected or displayed, and can't be shared to other groups.
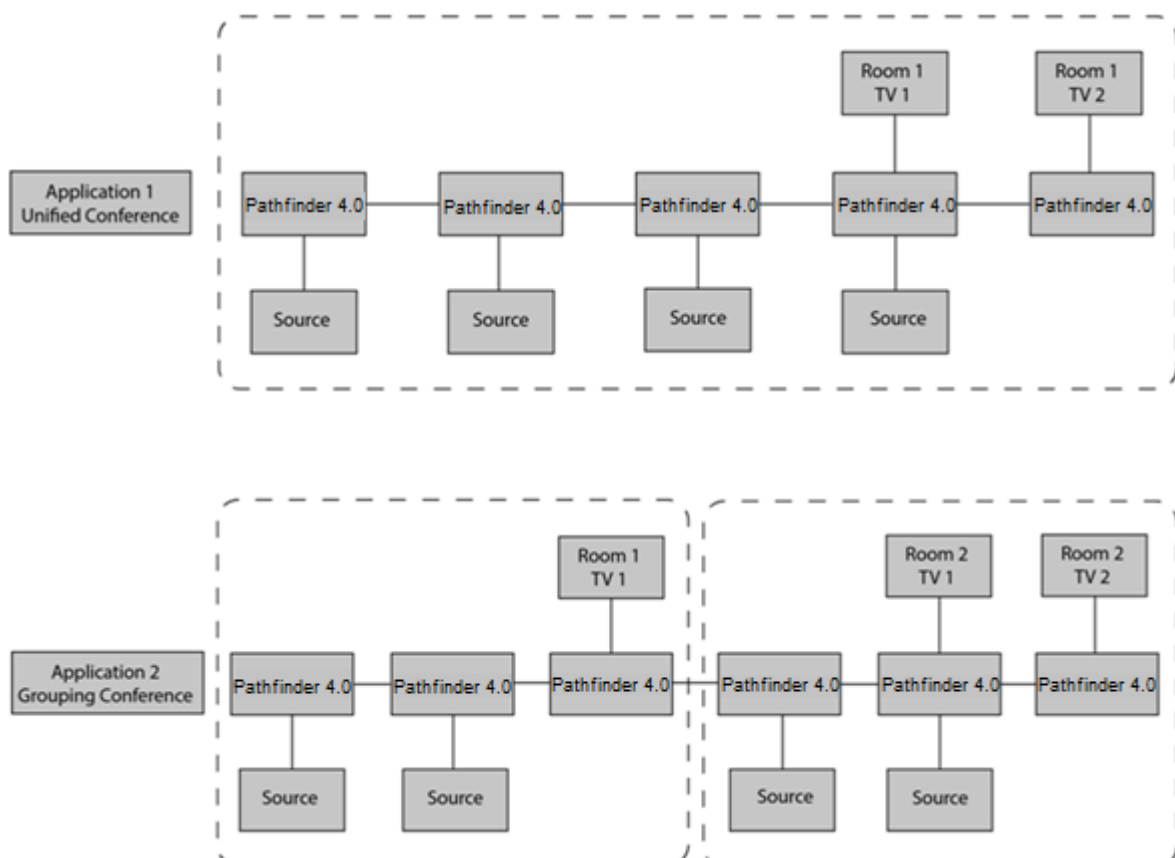
Daisy-Chain Grouping is simply activated by Telnet API or clicking the option on the WEB GUI of device, then the video will stop to be outputted to backward devices. After applying, backward devices can not select or display forward sources, neither been selected or displayed by forward devices.

A cascaded chain could support multiple groups. It's set up in WEB GUI one by one; Telnet API is also provided to set all or each device independently to work in grouping mode, and cancel it.
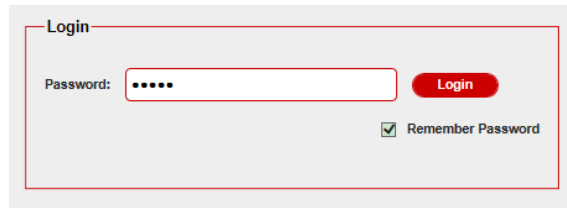
Network

The PathFinder 4.0 can be controlled over LAN. There are two IP Mode to choose: Static and DHCP.

When users choose Static and modify the IP address then click **Apply,** this window pops:
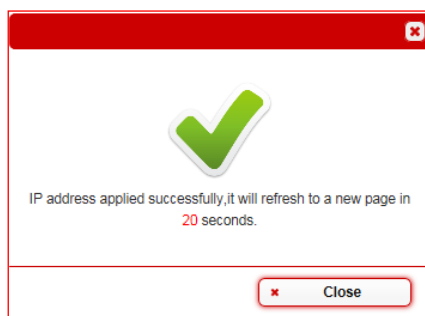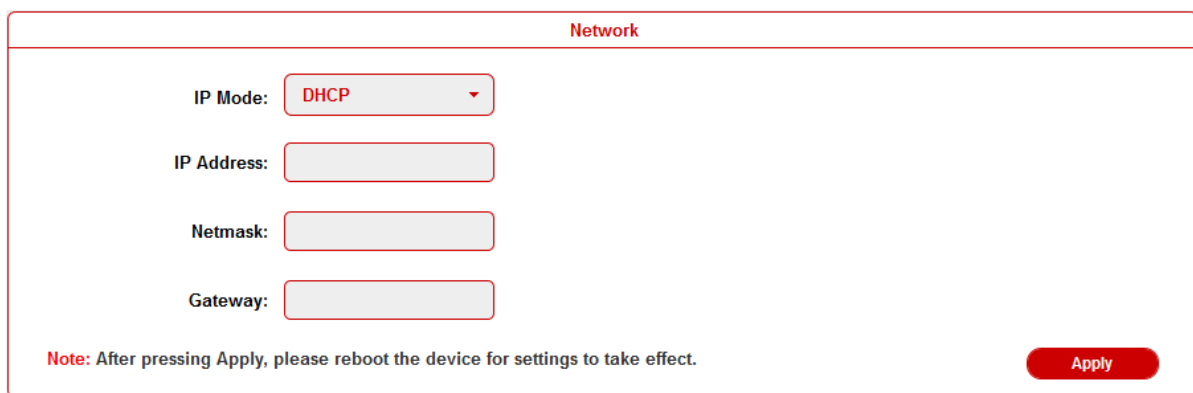

Then, it will back to the login Page:

Users should login again.

When users choose **DHCP** and click **Apply:**

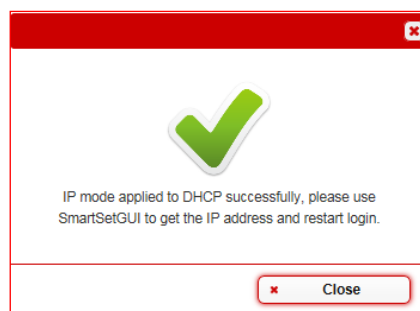**Note**: Please ensure the device connected the router successful. Otherwise the device will not get IP.

This window pops:

By default, the IP address to access the PathFinder is Static. User must onfigure the IP address of each device firstly and then start the installation, in case of IP conflicts when multiple devices connected directly.

Video

This sub-menu is used to perform the following tasks:
*   Auto Switch
*   HDCP
*   EDID

Auto Switch

Users can enable or disable the Auto Switch function in this column.
If Auto Switch function is on, that means:
*   Upon detecting a new input, the device will automatically select the new input.
*   When an active source is removed or signal output is disabled, it will switch to an active input by checking their priority, HDMI has a higher priority over DP, and DP has a higher priority over VGA
*   Once power is restored, it will automatically switch to the source selected before power restored.

HDCP

Users can set the HDCP ON or OFF for both HDMI and DisplayPort inputs by WEB GUI or Telnet API, which requests specified source to output encrypted or un-encrypted video.
FOLLOW means the source to output encrypted video.
OFF means the source to output un-encrypted video.
Note: This function is only applied to specified source which could output encrypted or un-encrypted video depending on the display.

EDID

EDID		
EDID Preset:	HDMI/DP/HDBT: 3840x2160@30Hz 2CH VGA: 1920x1200@60Hz... ▾	
EDID Write:	Open Dialog	
EDID Read:	Open Dialog	
	Note: EDID configuration by WEB or API control is only effective once after setting DIP switch on position 9	

To set the EDID by WEB GUI, adjust the EDID switch to Position 9 firstly.

For example, if user wants to write the HDMI OUT EDID of Pathfinder 1 to HDMI IN of PathFinder 2, log in Pathfinder 1's WEB GUI, click **Open Dialog** button of **EDID Read**, save the Bin file, and then log in PathFinder 2's WEB GUI, click **Open Dialog** button of **EDID Write**, import the Bin file.

Note: For EDID write, HDMI/DP/HDBT supports 256 bytes only, VGA supports 128 bytes.

Control

This sub-menu is used to perform the following tasks:
- CEC Controller
- RS232 Controller
- RS232 Pass-through

CEC Controller

CEC Controller	
CEC Auto-control:	ON
Delay Time(min):	2 ▲▼
CEC Manual Control:	Display Off Display On

PathFinder 4.0 has a is built in CEC controller, and is able to turn on/off display by sending CEC commands to display via HDMI output port automatically.

Note: This function is only effective for CEC supported and enabled displays.

CEC Auto control: Enable/disable CEC Auto-control
Delay Timing: Set the delay time of turn off display after receiving CEC command. The range is 0~30 minutes.
CEC Manual Control: Turn on/off display by CEC command manually.

RS232 Controller

PathFinder 4.0 is built in RS232 controller, and able to save RS232 Wakeup and Standby Commands of display and turn on/standby the display through connected RS232 port by auto-detecting source status.
RS232 Wakeup Command: Input the RS232 Wakeup Command of connected display, and click **Save** button.
Note: The command length is up to 64 characters.
RS232 Standby Command: Input the RS232 Standby Command of connected display, and click **Save** button.
Note: The command length is up to 64 characters.
Baud Rate: Set the Baud Rate of connected display.
Parity Bits: Set the Parity Bits of connected display.

Data Bits: Set the Data Bits of connected display.
Stop Bits: Set the Stop Bits of connected display.
Hex String: Check this option represents the command is Hexadecimal format.
End Flag: Choose the end flag of command. The command could be end with none, "\r", "\n" or "\r\n".
RS232 Auto Control: Enable/disable RS232 Auto-control.
Delay Time (min): Set the delay time of display off after receiving RS232 command. The range is 0~30 minutes.
RS232 Manual Control: Turn on/off display manually by RS232 command.

RS232 Pass-through

RS232 Pass-through	
Baud Rate:	9600 ▼
Parity Bits:	NONE ▼
Data Bits:	8 ▼
Stop Bits:	1 ▼
Hex String:	☐
End Flag:	◉ NONE ◯ \r ◯ \n ◯ \r\n
Command:	[ ] Send

RS232 pass through is used to send RS232 command manually by Web to selected device out. Telnet API is also provided for this function.

Advanced

This sub-menu is used to perform the following tasks:
• Welcome Menu
• Password
• System
• Firmware

Welcome Menu

Webcome Menu - Custom Web UI LOGO

File: [   ] **Browse**

Note: You must upload an image in PNG format with a resolution of 234x80 pixels. **Upload**

User can change the WEB GUI logo if they need. click **Browse** button to browse the Logo file, and then click **Upload** button.
Note: You must upload an image in PNG format with a resolution of 234x80 pixels.

Password

Change Password

New Password: [   ] **Apply**

Note: Password must be 4 to 16 characters in length, alphanumeric only.

Input a new login password, click **Apply** button to save the change.
Note: Password must be 4 to 16 characters in length, alphanumeric only.

System

This sub-menu is used to perform the following tasks:
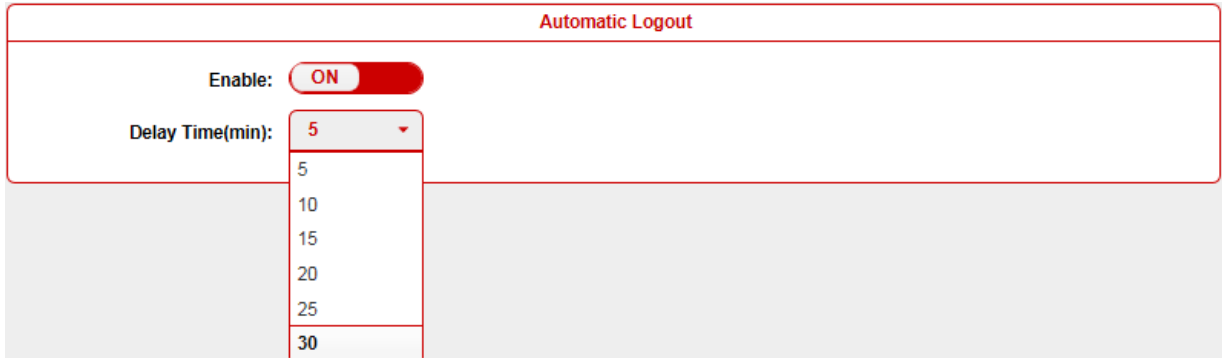- System
- Automatic Logout

System

System

Factory Default   **Reboot**

Factory Default: click this button to reset the PathFinder 4.0 to factory default settings.
Reboot: click this button to reboot the PathFinder 4.0.

Automatic Logout

Enable: Enable/Disable the automatic logout.
Delay Time(min): Select 5 means after 5 minutes it will back to login page.

Firmware

Update ARM
Step 1. click **Update** button.

Step 2. Browse for the update file.

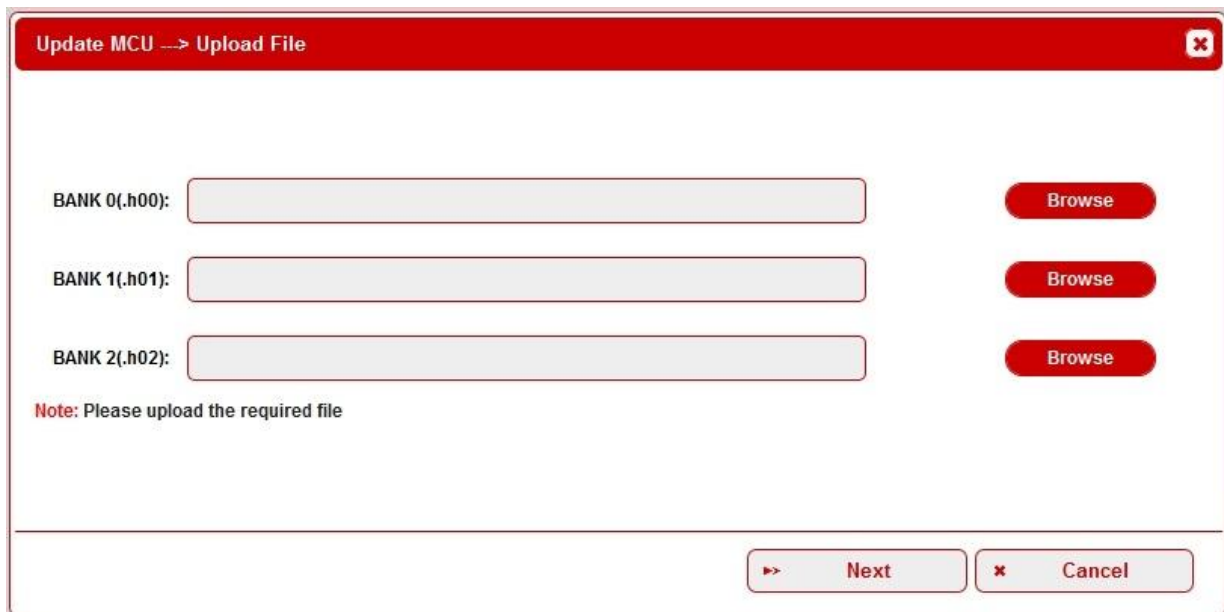**Step 3.** Upload File OK, click **Next** button.

Step 4. Complete. Close this window.
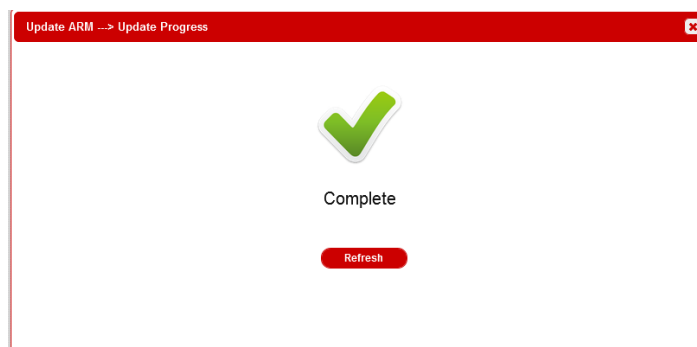
Note: every time complete the upgrade, please cleaning the browser to avoid anomalies.
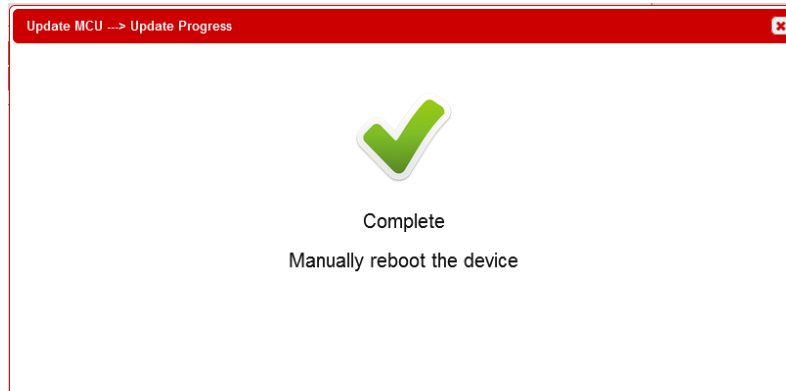
Update MCU
Step 1. click **Update** button.

Step 2. Browse for the update file

Step 3. Upload File OK, click **Next** button.

Step 4. It takes about one minute to update. Please restart the device.

Device List Window
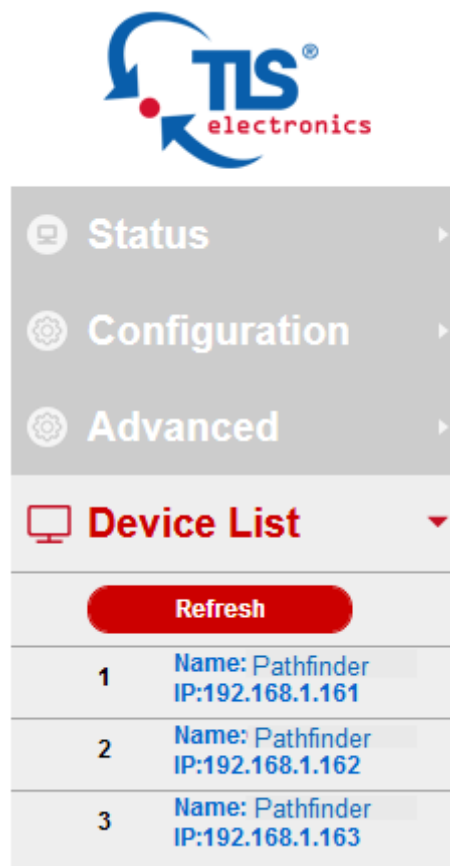
This window displays the name and IP address of current devices.
Click the device, it will bring user to the WEB GUI of this device.
Click the Refresh to refresh the device list and WEB UI.

EDID Management

EDID (Extend Display Identification Data) is data generated from each display in the system to communicate the capabilities of the device. The PathFinder 4.0 features an EDID copy mode that can be used when the EDID does not meet the installation requirements. The EDID mode has several options available to encourage device communication. Please set it to appropriate position based on the preferred timing of connected display.
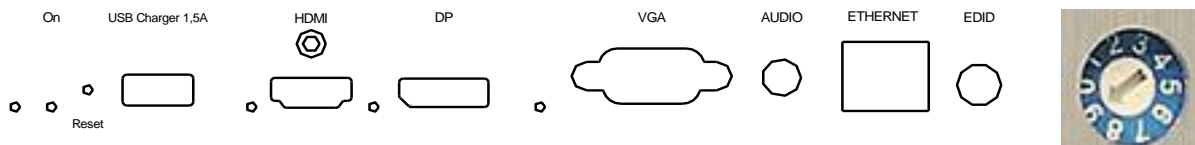
EDID

DIP Switch	EDID Description
0	HDMI/DP: 3840 x 2160@30Hz 2CH VGA: 1920 x 1200@60Hz 2CH
1	1920 x 1200@60Hz 2CH
2	1920 x 1080@60Hz 2CH (Default)
3	1680 x 1050@60Hz 2CH
4	1600 x 900@60Hz 2CH
5	1440 x 900@60Hz 2CH
6	1360 x 768@60Hz 2CH
7	1280 x 768@60Hz 2CH
8	1024 x 768@60Hz 2CH
9	EDID by Web or API control

Package Contents

- 1 x Pathfinder 4.0
- 2 x Phoenix Male Connector (3 Pin 3.5mm)

Maintenance

Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

Warranty Policy

TLS electronics products are warranted against defects in material and workmanship for two years from the date of shipment. During the warranty period, TLS electronics will, at its option, repair or replace products that prove to be defective. Repairs are warranted for the remainder of the original warranty or a 90 day extended warranty, whichever is longer.
For equipment under warranty, the owner is responsible for freight to TLS electronics and all related customs, taxes, tariffs, insurance, etc. TLS electronics is responsible for the freight charges only for return of the equipment from the factory to the owner. TLS electronics will return the equipment by the same method (i.e., Air, Express, Surface) as the equipment was sent to TLS electronics.

All equipment returned for warranty repair must have a valid RMA number issued prior to return and be marked clearly on the return packaging. TLS electronics strongly recommends all equipment be returned in its original packaging.
TLS electronics obligations under this warranty are limited to repair or replacement of failed parts, and the return shipment to the buyer of the repaired or replaced parts.

Limitations of Warranty

The warranty does not apply to any part of a product that has been installed, altered, repaired, or misused in any way that, in the opinion of TLS electronics, would affect the reliability or detracts from the performance of any part of the

product, or is damaged as the result of use in a way or with equipment that had not been previously approved by TLS electronics.

The warranty does not apply to any product or parts thereof where the serial number or the serial number of any of its parts has been altered, defaced, or removed.
The warranty does not cover damage or loss incurred in transportation of the product.

The warranty does not cover replacement or repair necessitated by loss or damage from any cause beyond the control of TLS electronics, such as lightning or other natural and weather related events or wartime environments.
The warranty does not cover any labor involved in the removal and or reinstallation of warranted equipment or parts on site, or any labor required to diagnose the necessity for repair or replacement.
The warranty excludes any responsibility by TLS electronics for incidental or consequential damages arising from the use of the equipment or products, or forany inability to use them either separate from or in combination with any other equipment or products.
A fixed charge established for each product will be imposed for all equipment returned for warranty repair where TLS electronics cannot identify the cause of the reported failure.

Exclusive Remedies

TLS electronics's warranty, as stated is in lieu of all other warranties, expressed, implied, or statutory, including those of merchantability and fitness for a particular purpose. The buyer shall pass on to any purchaser, lessee, or other user of TLS electronics's products, the aforementioned warranty, and shall indemnify and hold harmless TLS electronics from any claims or liability of such purchaser, lessee, or user based upon allegations that the buyer, its agents, or employees have made additional warranties or representations as to product preference or use.

The remedies provided herein are the buyer's sole and exclusive remedies. TLS electronics shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

RMA Policy

When returning product to TLS electronics for any reason, the customer should fill out the official RMA form to obtain a RMA number. Without the permission or approval, TLS electronics will be no responsible for any return.This can be initiated by emailing or calling your related sales.
All requests are processed within 48 hours.

Standard Replacement

For customers that agree to return defective product to TLS electronics first, a Standard Replacement option is available.
An RMA number must first be issued by sales. This RMA number will need to be referenced on the outside of the return shipment.

Upon receipt of the defective product, TLS electronics will, at its discretion, either repair or replace the product and ship it out in the most expeditious manner possible. Subject to availability, the replacement product will be shipped on the business day following receipt of the defective product.

In the event the product returned to TLS electronics has been discontinued (i.e. the product is no longer being manufactured by TLS electronics but is still under warranty), TLS electronics will, at its discretion, either repair or replace with recertified product.

Once you have obtained an RMA number

After obtaining an RMA number from TLS electronics, you must send the product - freight prepaid - to TLS electronics. The TLS electronics RMA number must be prominently displayed on the outside of your package. If you send your product to TLS electronics without the RMA number prominently displayed on the outside of the package, it will be returned to you unopened.

Please use a shipping company that can demonstrate proof of delivery. TLS electronics does not accept responsibility for any lost shipments unless proof of delivery to TLS electronics is provided.

Please note:

Product shipped to TLS electronics must be properly packaged to prevent loss or damage in transit.

Shipping your RMA to TLS electronics using regular mailing envelopes is not acceptable, as they do not protect the product from damage during shipping.

TLS electronics will not repair or replace a module that is shipped in such a way that the product is not properly protected.

TLS electronics will not accept any product that has been damaged as a result of accident, abuse, misuse, natural or personal disaster, or any unauthorized disassemble, repair or modification.

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