

**708E Series  
8 Port PoE Long Reach  
Switch / Extender**

**User Manual**

Version 1.00

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# 1 Introduction

The 708EPI-DC and 708EP-AC Long Reach Switches / Extenders feature 8 pairs of Long Reach Ethernet solutions with the companion the Ethernet Extender 101EPI remote devices connecting to each port of the 708E Series. Each solution pair carries Ethernet traffic and power over Ethernet cable up to 800 meters.

The 708EPI-DC is designed as an industrial grade, compact device working in harsh environments, while the 708EP-AC is 19" rack mounted with built-in power supply. Without the needs of redundant long-distance power cabling, each 101EPI receives power from any port of the 708E Series and offers 802.3at Power-over-Ethernet for the remote devices such as IP cameras.

With the intelligence of built-in LFPT (Link Fault Pass Through) function in the 708EPI-DC and the 708EP-AC, the network administrator is enabled to monitor the link status easily, or turn on and off an IP camera remotely from the control center for eliminating the maintenance time and cost.

## 1.1 Features

- Ethernet over UTP cable up to 800 meters.
- Eliminate long distance power cabling.
- 6KV surge protection.
- Web management.
- LFPT (Link Fault Pass Through) per each port.
- Industrial design for operation in harsh environments (708EPI-DC).
- Built-in power supply (708EP-AC).

## 1.2 Specifications

<p><b>Hardware Interfaces</b></p> <ul style="list-style-type: none"><li>■ RJ45 Uplink port</li><li>■ LINE port x 8 : Passive PoE PSE</li><li>■ Power Input: 2-pin Terminal Block (708EPI-DC) AC Power Socket (708EP-AC)</li></ul> <p><b>Standard Compliances</b></p> <ul style="list-style-type: none"><li>■ IEEE 802.3af/IEEE 802.3at</li><li>■ IEEE 802.3/802.3u/802.3x/802.3ab compliant</li></ul> <p><b>Management</b></p> <ul style="list-style-type: none"><li>■ Web-based Management</li><li>■ TFTP firmware upgrade</li><li>■ PoE Status Monitoring</li><li>■ Support Link Fault Pass Through (LFPT)</li></ul> <p><b>Mechanical</b></p> <p>708EPI-DC</p> <ul style="list-style-type: none"><li>■ Dimensions (W x H x D): 40 x 155 x 105 mm</li><li>■ Weight: 0.53 kg</li><li>■ DIN-rail and Wall Mounting</li><li>■ IP40</li></ul> <p>708EP-AC</p> <ul style="list-style-type: none"><li>■ Dimensions (W x H x D): 404 x 44.5 x 177 mm</li><li>■ Weight: 2.34 kg</li><li>■ Rack Mounting</li></ul>	<p><b>Power</b></p> <p>708EPI-DC</p> <ul style="list-style-type: none"><li>■ Power Input: 55~57VDC</li><li>■ System power consumption 10W</li><li>■ PoE power budget:200W</li></ul> <p>708EP-AC</p> <ul style="list-style-type: none"><li>■ Power Input: 100~240VAC 60/50Hz</li><li>■ System power consumption 10W</li><li>■ PoE power budget:188W</li></ul> <p><b>LED Indicators</b></p> <ul style="list-style-type: none"><li>■ Power, System, Port Status, PoE</li></ul> <p><b>Environment &amp; Regulatory Compliance</b></p> <ul style="list-style-type: none"><li>■ 708EPI-DC Operating Temperature: -40 to +75°C</li><li>■ 708EP-AC Operating Temperature: 0 to +45°C</li><li>■ Storage Temperature: -40 to +85°C</li><li>■ Humidity: 5 to 95% RH (non-condensing)</li><li>■ EMC: FCC Part 15 subpart B, EN55032 Class A , CISPR 32, UKCA, EN300386, EN55035, CISPR35</li><li>■ Electrical Safety: EN 62368-1</li><li>■ EN50121-4 Compliant (708EPI-DC)</li><li>■ RoHS (Pb free) and REACH compliant</li><li>■ MTBF: &gt; 25 years (708EPI-DC) &gt;22 years (708EP-AC)</li></ul>
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### Data and Power Range

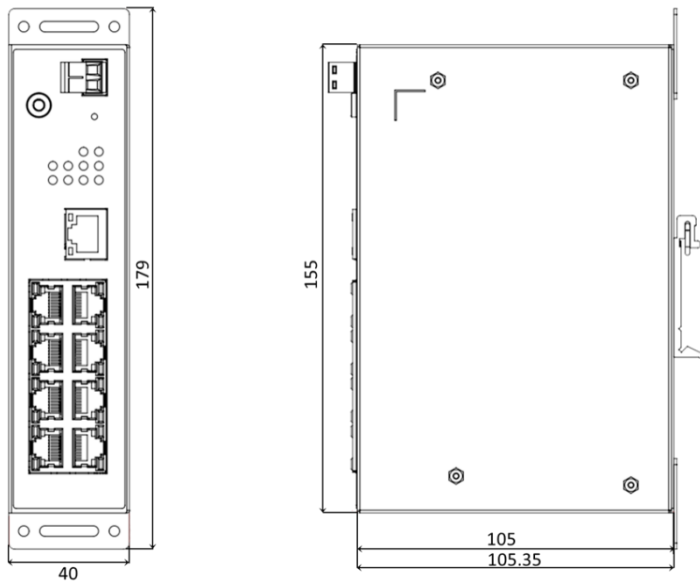
Cat 6 UTP 4 Pairs, 708EPI-DC @75°C PoE Power Budget 200W			Cat 6 UTP 2 Pairs, 708EPI-DC @75°C PoE Power Budget 200W		
Distance	Link Speed	101EPI PoE output (watt)	Distance	Link Speed	101EPI PoE output (watt)
100 meters	100Mbps	30.0	100 meters	100Mbps	28.0
200 meters	100Mbps	28.0	200 meters	100Mbps	25.0
300 meters	100Mbps	26.5	300 meters	100Mbps	21.5
400 meters	100Mbps	25.0	400 meters	100Mbps	15.5
500 meters	100Mbps	23.5	500 meters	100Mbps	12.0
600 meters	10Mbps	21.5	600 meters	10Mbps	10.0
700 meters	10Mbps	18.0	700 meters	10Mbps	8.0
800 meters	10Mbps	15.5	800 meters	10Mbps	6.5
900 meters	N/A	N/A	900 meters	N/A	N/A

Cat 6 UTP 4 Pairs, 708EP-AC @25°C PoE Power Budget 188W			Cat 6 UTP 2 Pairs, 708EP-AC @25°C PoE Power Budget 188W		
Distance	Link Speed	101EPI PoE output (watt)	Distance	Link Speed	101EPI PoE output (watt)
100 meters	100Mbps	29.0	100 meters	100Mbps	27.5
200 meters	100Mbps	27.5	200 meters	100Mbps	24.0
300 meters	100Mbps	25.5	300 meters	100Mbps	19.5
400 meters	100Mbps	24.0	400 meters	100Mbps	14.0
500 meters	100Mbps	22.0	500 meters	100Mbps	11.0
600 meters	10Mbps	19.5	600 meters	10Mbps	8.5
700 meters	10Mbps	16.5	700 meters	10Mbps	7.0
800 meters	10Mbps	14.0	800 meters	10Mbps	6.0
900 meters	N/A	N/A	900 meters	N/A	N/A

## Dimensions

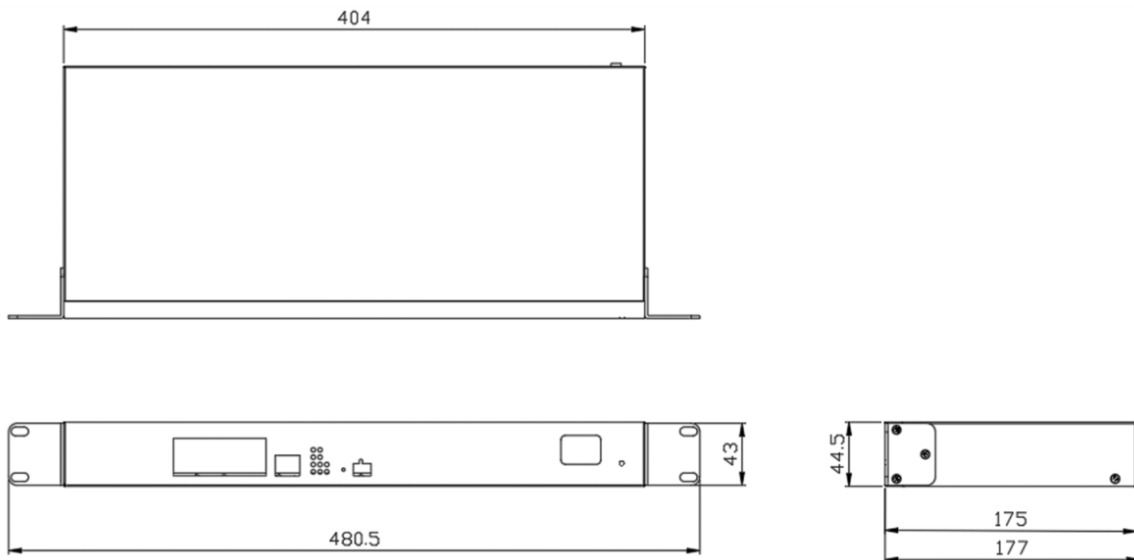
### 708EPI-DC

Unit: mm



### 708EP-AC

Unit: mm



## Ordering Information

Model Name	Description
708EPI-DC	8-Port PoE Long Reach Switch/Extender, DC power input
708EP-AC	8 Port PoE Long Reach Switch/Extender, AC power input

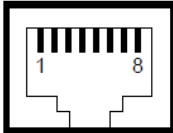
**NOTE:** Features and specifications are subject to change without prior notice.

## 2 Hardware Description

### 2.1 Line Port Pin Assignment

The LINE interfaces of the 708E Series are standard 8-pin RJ45 connectors. The following tables display the pinouts.

8-pin RJ45



MDI Port Pinouts		MDI-X Port Pinouts	
Pin	Description	Pin	Description
1	TX+	1	RX+
2	TX-	2	RX-
3	RX+	3	TX+
4	Not used	4	Not used
5	Not used	5	Not used
6	RX-	6	TX-
7	Not used	7	Not used
8	Not used	8	Not used

The PoE pinouts of the LINE interfaces are as below when 8 wires are connected.

PoE Pinouts			
Pin	Description	Pin	Description
1	V+	5	V+
2	V+	6	V-
3	V-	7	V-
4	V+	8	V-

The PoE pinouts of the LINE interfaces are as below when 4 wires are connected.

PoE Pinouts			
Pin	Description	Pin	Description
1	V+	5	Not used
2	V+	6	V-
3	V-	7	Not used
4	Not used	8	Not used

## 2.2 DIN-rail Mounting

The DIN-rail mounting is only for the 708EPI-DC.

### ■ Mounting Step

STEP 1: Hook the unit over the DIN-rail.

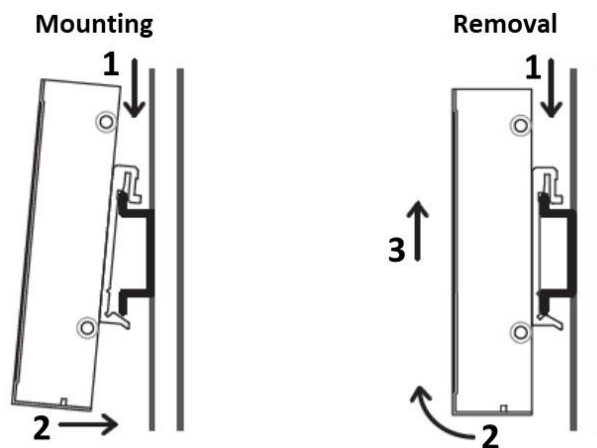
STEP 2: Push the bottom of the unit towards the DIN-rail until it snaps into place.

### ■ Removal Step

STEP 1: Push the unit down to free the bottom of the DIN-rail.

STEP 2: Rotate the bottom of the unit away from the DIN-rail.

STEP 3: Unhook top of unit from DIN-rail.

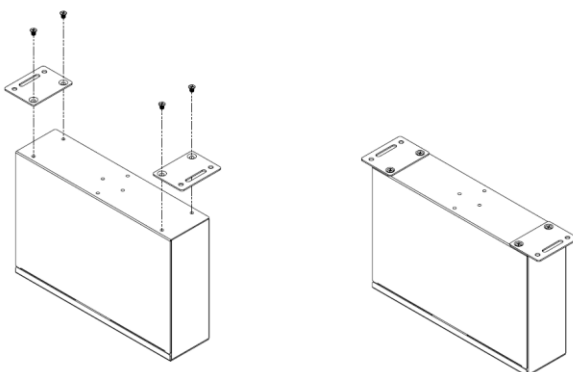


## 2.3 Wall Mounting

The wall mounting is only for the 708EPI-DC.

STEP 1: At the bottom side of the device, use two screws to install each bracket.

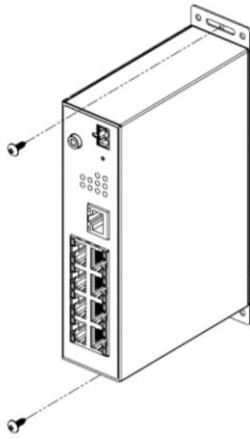
NOTE: Each screw type is flat head M3 x 4 mm.



STEP 2: Use the screws to attach the bracket of the device for wall mounting.

NOTE: These screws are not included in the package. The head of each screw is less than 7 mm in diameter, the shaft is less than 3 mm in diameter, and the length is less than 10 mm in diameter.



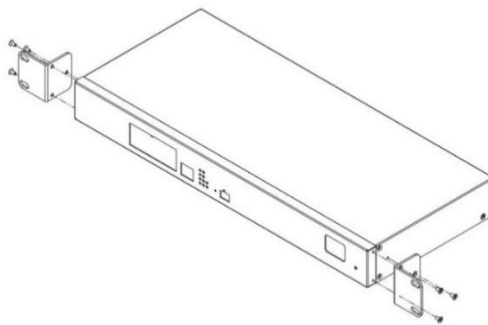


## 2.4 Rack Mounting

The rack mounting is only for the 708EP-AC.

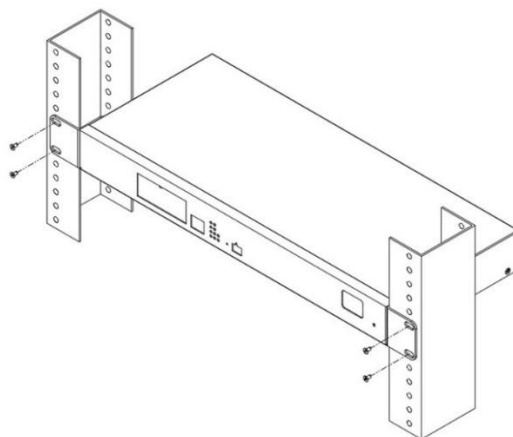
STEP 1: Align two brackets with the holes on the sides of the Switch and fasten the mounting kits by using screws.

NOTE: The type of screw is flat head M3 x 5mm.



STEP 2: After attaching two brackets, line up the rack-mounting positions of the holes in the brackets with the appropriate holes on the rack and then fasten the Switch on the rack by using screws

NOTE: The rack mounting screws are not included in the package.



## 3 LED Definition

### 3.1 LED Indicators

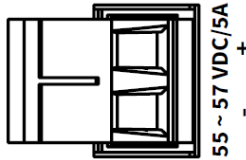
The function of each LED indicator on the front panel is described in the following table.

LED	Color	State	Description
PWR	Green	On	Device Power On.
		Off	Device Power Off.
SYS	Green	On	System is working.
		Off	System is off.
		Blinking	Device Error.
PoE1~8	Green	On	Powered Device Connected.
		Off	Powered Device Disconnected.
UPLINK	Green	On	1000Mbps UPLINK LINK UP.
		Off	1000Mbps UPLINK LINK DOWN.
		Blinking	1000Mbps Data Transmitting.
	Yellow	On	100/10Mbps UPLINK LINK UP.
		Off	100/10Mbps UPLINK LINK DOWN.
		Blinking	100/10Mbps Data Transmitting.
LINE 1~8	Green	On	100Mbps LINE LINK UP.
		Off	LINE LINK DOWN.
		Blinking	100Mbps Data Transmitting.
	Yellow	On	10Mbps LINE LINK UP.
		Off	LINE LINK DOWN.
		Blinking	10Mbps Data Transmitting.

## 4 Power Connection

### For 708EPI-DC

- The power input interface is the 2-pin terminal block (+, -) on the front panel and is provided the power input voltage 55 ~ 57 VDC/5A from the power supply.
- Insert the positive and negative wires into V+ and V- contact on the terminal block and tighten the wire-clamp screws to prevent the wires from being loosened.



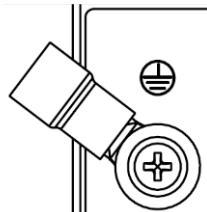
### For 708EP-AC

Use the included power cord to connect the power socket on the front panel to a power outlet.



## 5 Ground Connecting

To prevent the effects of noise from electromagnetic interference (EMI), run the ground connection from the ground screw to the grounding surface before connecting the devices.



## 6 Web Management

The web configuration is a HTML-based management interface for quick and easy to set up.

### 6.1 Access the Web Configurator

After properly connecting the hardware as previously explained. Launch your web browser and enter <http://192.168.1.1> as URL. The default IP address, username, and password are as follows.

- Default IP Address: **192.168.1.1**
- Default Username: **root**
- Default Password: **2wsx#EDC**

Please fill in the default username **root** and the default password **2wsx#EDC**, and then click [Login](#). For the system security, changing the default password is strongly suggested after configuration. You can go to the **User** setting to reset.



**PROSCEND**

### 8-Port PoE Switch Extender

root

.....

Login

#### NOTE:

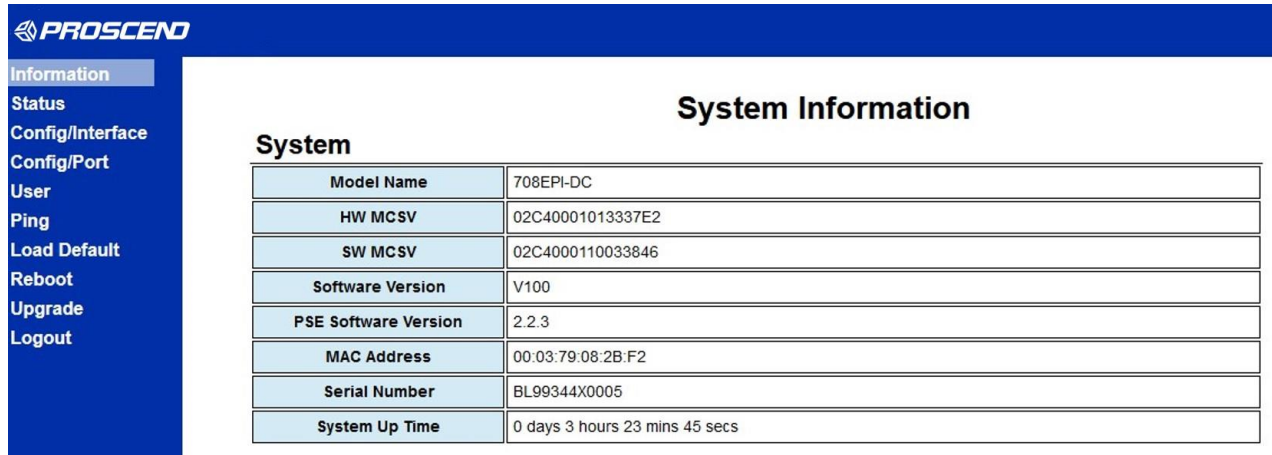
- The device only supports one web session.
- The timeout of web session is 15 minutes.

## 6.2 Web Interface

### 6.2.1 Information

The system information is shown as below.

- (1) System shows Model Name, Hardware MCSV, Software MCSV, Software Version, PSE Software Version, MAC Address, Serial Number and System Up Time.



The screenshot displays the Proscend web interface. On the left is a blue navigation menu with the following items: Information (highlighted), Status, Config/Interface, Config/Port, User, Ping, Load Default, Reboot, Upgrade, and Logout. The main content area is titled "System Information" and contains a table with the following data:

System	
Model Name	708EPI-DC
HW MCSV	02C40001013337E2
SW MCSV	02C4000110033846
Software Version	V100
PSE Software Version	2.2.3
MAC Address	00:03:79:08:2B:F2
Serial Number	BL99344X0005
System Up Time	0 days 3 hours 23 mins 45 secs

## 6.2.2 Status of Interface Status

This section includes Interface Status Switch, Port Status and PSE Port Status.

(1) The setting of Refresh Interval allows you to set up how long the information status is updated.

The screenshot shows the 'Interface Status' page in the PROSCEND web interface. A dropdown menu for 'Refresh Interval' is open, displaying options: None, 5 seconds, 10 seconds, 30 seconds, 60 seconds, 2 minutes, 5 minutes, and 10 minutes. The background table lists interface parameters:

Parameter	Value
IP Address	2.168.1.1
IP Netmask	255.255.0
Gateway Address	2.168.1.254
DNS Primary	8.8.8
DNS Secondary	

(2) The Switch Port Status includes Broadcast/ Multicast / Unicast status and Link Status information by each port. Users can view the statistics of the port Receive packets and Transmit Packets through this page.

### Switch Port Status

Port	Receive Packets			Transmit Packets			Link Status
	Broadcast	Multicast	Unicast	Broadcast	Multicast	Unicast	
1	0	0	0	0	0	0	Down
2	0	0	0	0	0	0	Down
3	0	0	0	0	0	0	Down
4	0	0	0	0	0	0	Down
5	0	0	0	0	0	0	Down
6	0	0	0	0	0	0	Down
7	0	0	0	0	0	0	Down
8	224	1088	1508	0	0	999	100M/Full
Uplink	0	0	0	0	0	0	Down

- (3) The PSE Port Status includes Detect / Voltage / Current /Power information by each port and Temperature of PSE chipset.

### PSE Port Status (Temperature=48°C)

Port	Detect Class	Voltage	Current	Power
1	Class-1	53.4V	304mA	16.1W
2				
3				
4				
5				
6				
7				
8				

According to IEEE 802.3af-2003 standard, a PSE may optionally classify a PD for power management purposes, prior to applying full operating power. The following table lists the different classes according to power at PSE output and PD input.

Class	Usage	Classification current (mA)	Power range at PD (W)	Max power from PSE (W)	Class description
0	Default	0–5	0.44–12.94	15.4	Classification unimplemented
1	Optional	8–13	0.44–3.84	4	Very Low power
2	Optional	16–21	3.84–6.49	7	Low power
3	Optional	25–31	6.49–12.95	15.4	Mid power
4	Valid for Type 2 (802.3at) devices, not allowed for 802.3af devices	35–45	12.95–25.50	30	High power

## 6.2.3 Config / Interface of Device Setting

This section includes LAN and SNMP Setting of Device.

- (1) LAN Setting can set up DHCP Client Mode, IP Address, IP Netmask, Gateway Address, DNS Primary, and DNS Secondary.

### Device Setting

#### IP Setting

DHCP Client Mode	Disable
IP Address	192.168.1.1
IP Netmask	255.255.255.0
Gateway Address	192.168.1.254
DNS Primary	8.8.8.8
DNS Secondary	

Device can obtain IP/ Netmask / Gateway/ DNS from DHCP server if you are enabled “DHCP Client Mode”.

### Device Setting

#### IP Setting

DHCP Client Mode	Disable
IP Address	192.168.1.1
IP Netmask	255.255.255.0
Gateway Address	192.168.1.254
DNS Primary	8.8.8.8
DNS Secondary	

The related information will show on 'Status' page as follows.

### Interface Status

Refresh Interval: 5 seconds

Clear Switch Counters

#### Interface Status

IP Address	192.168.68.106
IP Netmask	255.255.252.0
Gateway Address	192.168.68.1
DNS Primary Address	192.168.10.1
DNS Secondary Address	192.168.68.1



- (2) The SNMP Trap Setting for TRAP target configure which allows the user to configure. If you configure the Trap Mode is enabled and the setting is successful, the SNMP TRAP function will take effect. In the event of link up or link down, the switch will automatically send the TRAP packet to destination address.

**NOTE: The SNMP Trap is supported SNMP-V1 only.**

NOTE: The SNMP Trap supports.

## SNMP Trap Setting

<b>Trap Mode</b>	Enable ▾
<b>Host IP Address</b>	192.168.1.254
<b>Trap Community</b>	public

Apply Cancel

### 6.2.4 Config/Port

This section includes Line / LFPT and LAN Speed Setting.

Port	Line	LFPT	Auto/10M
1	Enable ▾	Disable ▾	Auto ▾
2	Enable ▾	Disable ▾	Auto ▾
3	Enable ▾	Disable ▾	Auto ▾
4	Enable ▾	Disable ▾	Auto ▾
5	Enable ▾	Disable ▾	Auto ▾
6	Enable ▾	Disable ▾	Auto ▾
7	Enable ▾	Disable ▾	Auto ▾
8	Enable ▾	Disable ▾	Auto ▾

Apply Cancel

- (1) Line Port: It allows you to select Line port Enable or Disable by each port.  
If you are disabled the Line port it unable to provide power to PD and establish connectivity.

The total maximum power budget depends on the device you use.

708EPI-DC: PoE power budget is 200W.

708EP-AC: PoE power budget is 188W.

The detailed power available budget is shown as the following table.

<b>Cat 6 UTP 4 Pairs, 708EPI-DC @75°C</b> <b>PoE Power Budget 200W</b>			<b>Cat 6 UTP 2 Pairs, 708EPI-DC @75°C</b> <b>PoE Power Budget 200W</b>		
<b>Distance</b>	<b>Link Speed</b>	<b>101EPI PoE output (watt)</b>	<b>Distance</b>	<b>Link Speed</b>	<b>101EPI PoE output (watt)</b>
<b>100 meters</b>	100Mbps	30.0	<b>100 meters</b>	100Mbps	28.0
<b>200 meters</b>	100Mbps	28.0	<b>200 meters</b>	100Mbps	25.0
<b>300 meters</b>	100Mbps	26.5	<b>300 meters</b>	100Mbps	21.5
<b>400 meters</b>	100Mbps	25.0	<b>400 meters</b>	100Mbps	15.5
<b>500 meters</b>	100Mbps	23.5	<b>500 meters</b>	100Mbps	12.0
<b>600 meters</b>	10Mbps	21.5	<b>600 meters</b>	10Mbps	10.0
<b>700 meters</b>	10Mbps	18.0	<b>700 meters</b>	10Mbps	8.0
<b>800 meters</b>	10Mbps	15.5	<b>800 meters</b>	10Mbps	6.5
<b>900 meters</b>	N/A	N/A	<b>900 meters</b>	N/A	N/A

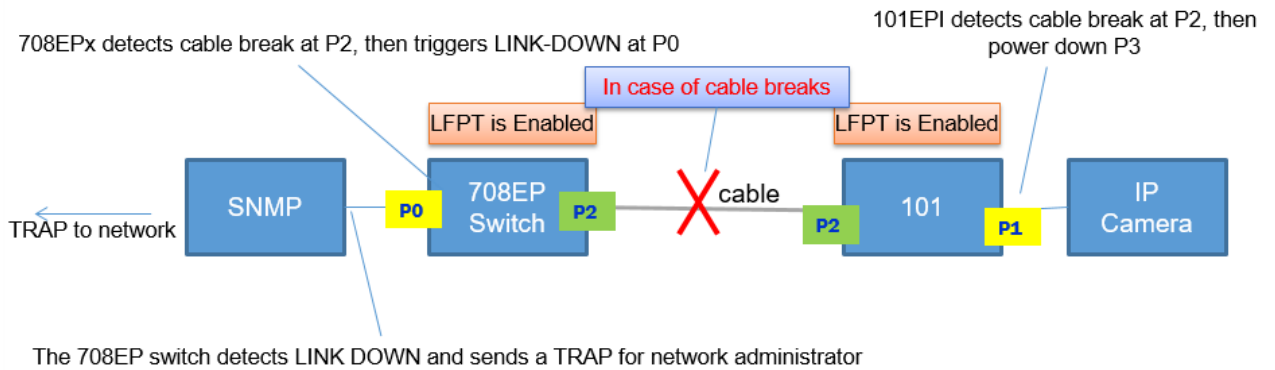
<b>Cat 6 UTP 4 Pairs, 708EP-AC @25°C</b> <b>PoE Power Budget 188W</b>			<b>Cat 6 UTP 2 Pairs, 708EP-AC @25°C</b> <b>PoE Power Budget 188W</b>		
<b>Distance</b>	<b>Link Speed</b>	<b>101EPI PoE output (watt)</b>	<b>Distance</b>	<b>Link Speed</b>	<b>101EPI PoE output (watt)</b>
<b>100 meters</b>	100Mbps	29.0	<b>100 meters</b>	100Mbps	27.5
<b>200 meters</b>	100Mbps	27.5	<b>200 meters</b>	100Mbps	24.0
<b>300 meters</b>	100Mbps	25.5	<b>300 meters</b>	100Mbps	19.5
<b>400 meters</b>	100Mbps	24.0	<b>400 meters</b>	100Mbps	14.0
<b>500 meters</b>	100Mbps	22.0	<b>500 meters</b>	100Mbps	11.0
<b>600 meters</b>	10Mbps	19.5	<b>600 meters</b>	10Mbps	8.5
<b>700 meters</b>	10Mbps	16.5	<b>700 meters</b>	10Mbps	7.0
<b>800 meters</b>	10Mbps	14.0	<b>800 meters</b>	10Mbps	6.0
<b>900 meters</b>	N/A	N/A	<b>900 meters</b>	N/A	N/A

## (2) Link Fault Pass Through (LFPT)

LFPT must be used with Long Reach Switch / Extenders arranged in pairs, and both devices must support LFPT. If only one device is used, the LFPT function will not work properly. It allows you to select LFPT Enable or Disable and has been further enhanced for monitoring and maintenance purposes.

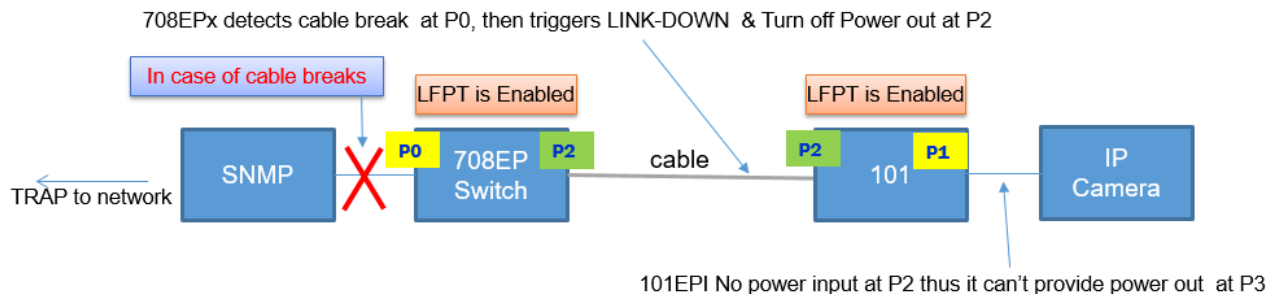
Link Fault Pass Through on the 708E Series can be enabled/disabled via WEB configuration and the 101EPI can be enabled/disabled via DIP switch on the device individually, and has been further enhanced for monitoring and maintenance purposes.

### Example-1:



In case of cable breaks between 708EPx and 101EPI, the 708EPx detects cable break at P2 then trigger LINK DOWN at P0 (uplink port) and it will send a trap alert to the network administrator and 101EP turn off the PoE out.

### Example-2:



In case of cable breaks, the 708EPx detects cable break at P0 (uplink) then trigger LINK DOWN and turn off power out at P2 (Line) and it will send a trap alert to the network administrator and the 101EP can't offer Power out to PD (Powered Device).

(3) Auto/10M: It allows you to select LAN Speed 100Mbps or 10Mbps.

### Port Setting

Port	Line	LFPT	Auto/10M
1	Enable	Disable	10M
2	Disable	Disable	Auto 10M
3	Enable	Disable	Auto
4	Enable	Disable	Auto
5	Enable	Disable	Auto
6	Enable	Disable	Auto
7	Enable	Disable	Auto
8	Enable	Disable	Auto

## 6.2.5 User

This section allows you to set up and change your username and password for different level users. The users setting is shown in the interface as below.

Information

Status

Config/Interface

Config/Port

**User**

Ping

Load Default

Reboot

Upgrade

Logout

### Users

#### Users Setting

Index	Username	Password	Retype Password	Level
1	root	•	•	Administrator
2				Normal
3				Guest

Apply Cancel

Item	Description
<b>User name</b>	Enter user name
<b>Password</b>	Enter Password
<b>Level</b>	Administrator: user can setup and read anything Normal: user can setup and read anything, but Admin session Guest: user only can read status

NOTE: Username and password can accept a maximum length of 31 characters.

## 6.2.6 Ping

The Ping Setting is shown in the interface as below.

Information

Status

Config/Interface

Config/Port

User

**Ping**

Load Default

Reboot

Upgrade

Logout

### Ping Setting

<b>Host</b>	192.168.1.10
<b>Length</b>	100 (0..1472)
<b>Count</b>	3 (1..10)

```
PING 192.168.1.10 (192.168.1.10) : 100 data bytes
100 bytes from 192.168.1.10: seq=0 time=2 ms
100 bytes from 192.168.1.10: seq=1 time=1 ms
100 bytes from 192.168.1.10: seq=2 time=2 ms
rtt min/avg/max = 1/1/2 ms
3 packets transmitted, 3 received, 0% packet loss
```

Start Stop

## 6.2.7 Load Default

Reload the device default configuration.

After clicking **Load Default** item, it will be shown the interface as below to make sure if you are ready to load or not.

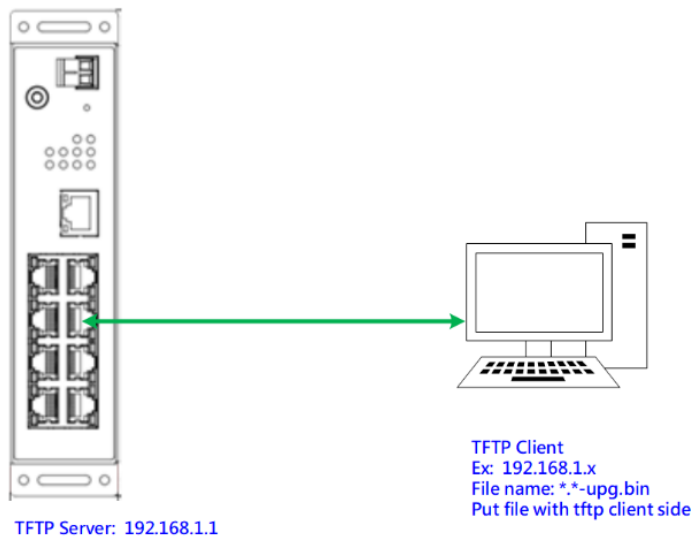


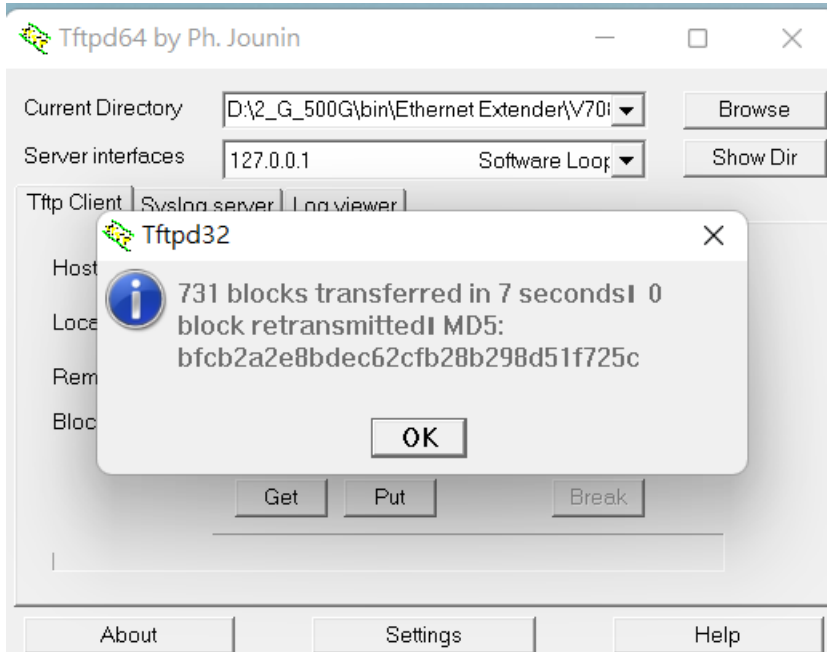
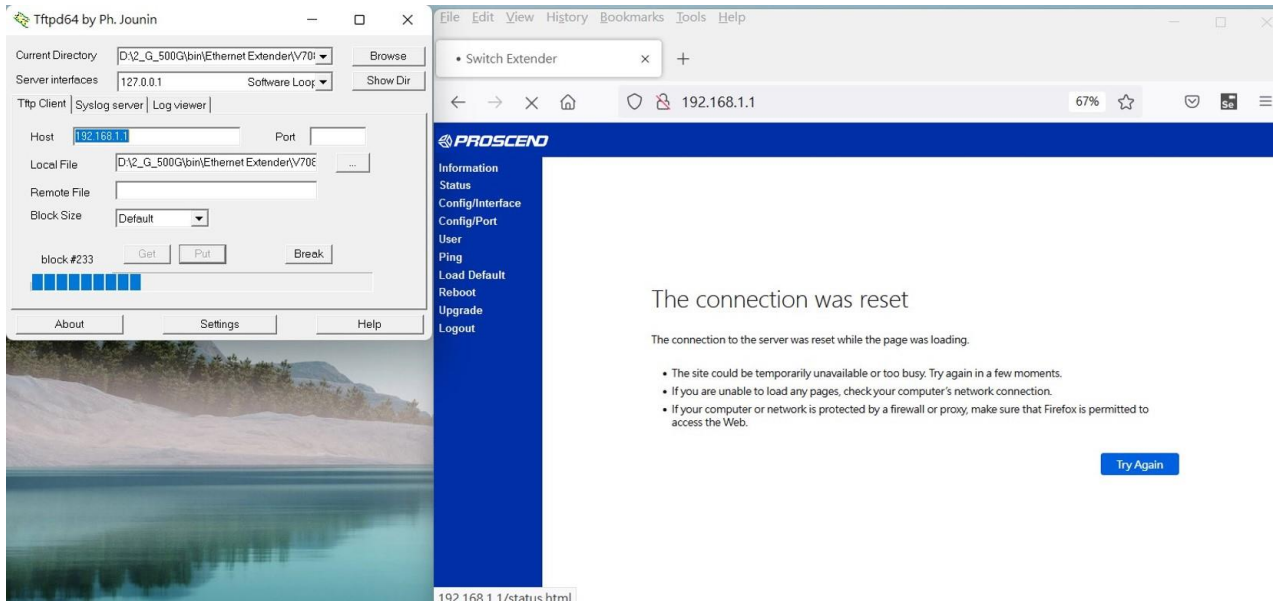
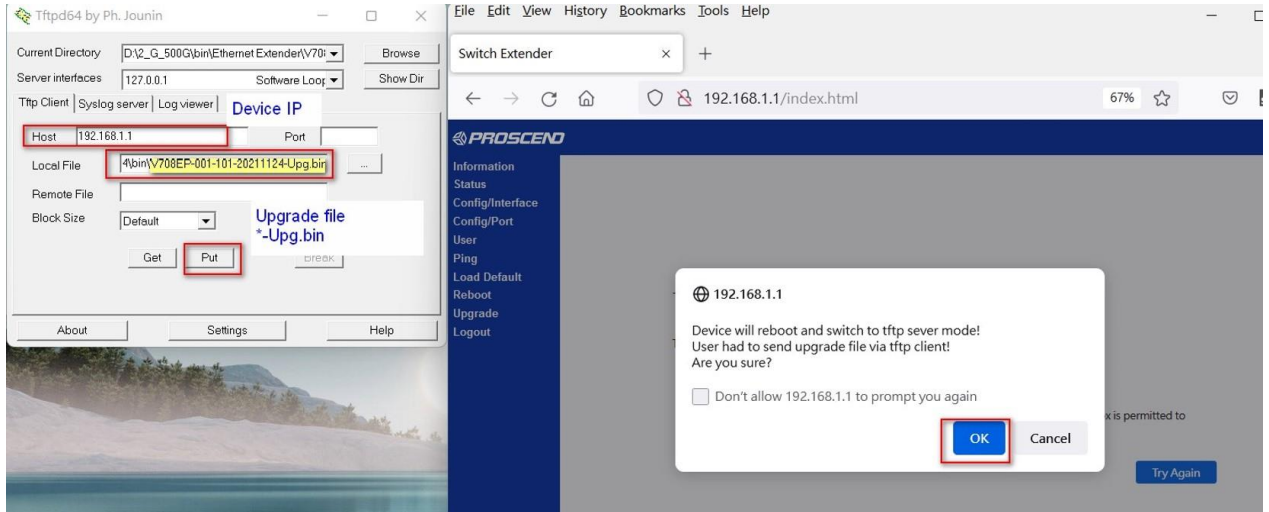
## 6.2.8 Upgrade

The Device provides a TFTP server for User upgrade software via TFTP client. This can be done through Ethernet. You can update the new firmware via TFTP upgrade tools.

For upgrade the firmware, you must have the new firmware file named `*.*-upg.bin` which will be supported by the supplier but you must have your own TFTP server.

TFTP FW Upgrade Topology





## 6.2.9 Reboot

Reboot the device.

After clicking **Reboot** item, it will be shown the interface as below to make sure if you are ready to reboot or not.



## 6.2.10 Logout

Logout the device.

After clicking **Logout** item, it will be shown the interface as below to make sure if you are ready to Logout or not.



## 7 Precautions and Safety Warnings



### Precautions and Safety Warnings

- Disconnect all power from devices before attempting installation.
- This device is intended for installation only in restricted access locations as defined where both these conditions apply:
  - Access is through the use of a lock or tool and key, or other means of security, and is controlled by the authority responsible for the location.
  - Access can only be gained by service persons or by users who have been instructed about the reasons for the restrictions applied to the location and about any precautions that shall be taken.
- All electric installations must be carried out in accordance with local and national regulations.
- Do not work on the system, connect or disconnect cables during periods of lightning activity.
- The equipment must be connected to earth.
- Shield of RJ45 cables has to be connected to the same earth potential as the equipment.
- Please remove the ground connection lastly if you need to remove the device after installation.
- If the LINE interface is used for the connection between two buildings, all necessary protective measures must be ensured externally.
- This equipment relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 3.5A is used.



### Hot parts!

- Burned fingers when handling the parts.
- Wait one-half hour after switching off before handling parts.