

## Industrial 4-port Gigabit 802.3bt PoE++ Injector Hub



### Compact and Robust Industrial 802.3bt PoE++ Network Solution

PLANET IPOE-470 4-port industrial IEEE 802.3bt PoE++ injector hub series features four **10/100/1000BASE-T 95-watt 802.3bt type-4 PoE++ injector ports**. With a total PoE budget of 240 watts, it delivers 802.3bt PoE++ power over Ethernet UTP cables which allow data and power to transmit simultaneously to a remote 802.3bt/at powered device (PD).



The IPOE-470 series provides a quick, safe and cost-effective 802.3bt PoE++ network solution for small businesses and enterprises. It is designed to perfectly upgrade an existing network infrastructure to 802.3bt PoE++ network system without replacing the existing Ethernet switches and also enables centralization of the power supply.

The IPOE-470 series includes two models: IPOE-470 and IPOE-470-12V.

| Model        | DC Redundant Power Input | PoE Standard       | PoE Budget                     |
|--------------|--------------------------|--------------------|--------------------------------|
| IPOE-470     | 48~54V DC                | IEEE 802.3bt PoE++ | 240 watts                      |
| IPOE-470-12V | 12~54V DC                |                    | 60 watts@12V                   |
|              |                          |                    | 120 watts@24V<br>240 watts@54V |

### 802.3bt PoE++ Meets Ultra Power Demands of Powered Devices

As the IPOE-470 series adopts the IEEE 802.3bt PoE++ standard and PoH technology, it is capable to source up to **95 watts** of power by using all the four pairs of standard Cat5e/6 Ethernet cabling to deliver power and full-speed data to each remote PoE compliant PD. It possesses the triple amount of the power

### Physical Ports

- **Four 10/100/1000BASE-T** Gigabit RJ45 interfaces
  - 4-port **data input**
- **Four 10/100/1000BASE-T** Gigabit RJ45 interfaces
  - 4-port **data + power output**

### Power over Ethernet

- Complies with 802.3bt Power over Ethernet Plus Plus type 4 PSE
- Backward compatible with IEEE 802.3at Power over Ethernet Plus end-span/mid-span PSE
- Up to 4 IEEE 802.3at/IEEE 802.3bt PoE devices powered
- Up to 240-watt PoE budget
- Supports PoE output power up to 95 watts for each PoE port
- All PoE ports support 802.3at end-span/mid-span PoE 36-watt injector function
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Forwards both Ethernet data and PoE power to remote device over a 100-meter (328ft.) distance
- 3 real-time PoE power usage indicators

### Industrial Case and Installation

- IP30 metal case
- DIN-rail and wall-mount designs
- 1 terminal block for master and slave power input with reverse polarity protection
  - IPOE-470 supports 48~54V DC redundant power
  - IPOE-470-12V supports 12~54V DC redundant power
- Supports 6KV DC Ethernet ESD protection
- -40 to 75 degrees C operating temperature
- Plug and Play installation

capability when compared to the conventional 802.3at PoE+ and is an ideal solution to satisfy the growing demand for higher power consuming network PDs, such as:

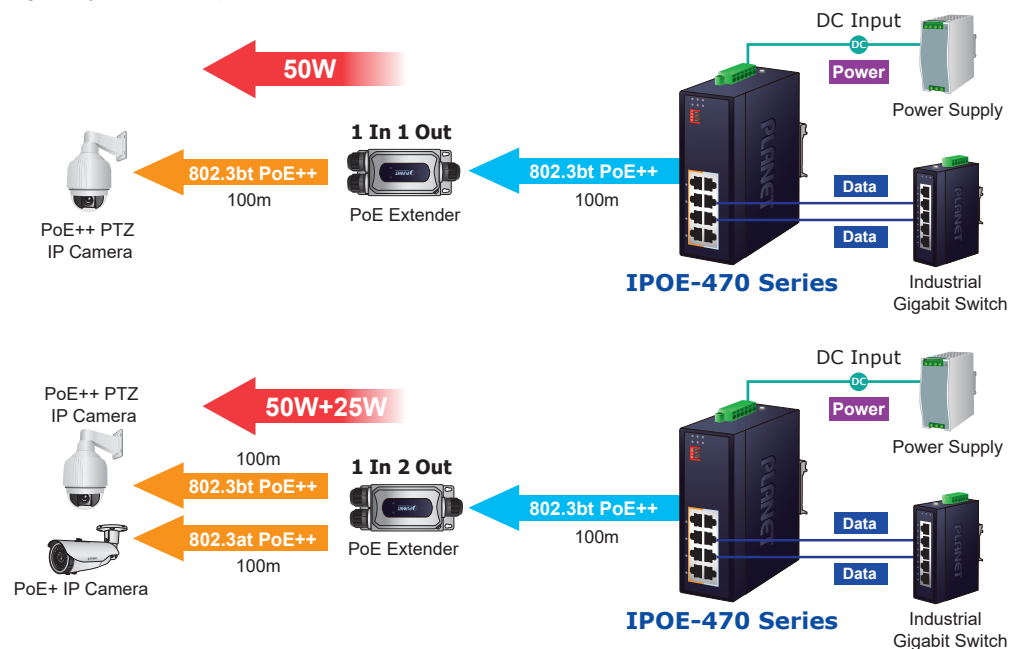
- PoE PTZ speed dome cameras
- Network devices
- Thin clients
- AIO (all-in-one) touch PCs, point of sale (POS) and information kiosks
- Remote digital signage displays
- PoE lightings



**Quick and Easy 802.3bt/at PoE Network Deployment**

The IPOE-470 series is installed between a regular Ethernet Switch and the PDs. Four ports are network (Ethernet) ports for data input while the other four ports are PoE++ ports for data and power output. Both power and data are transferred simultaneously over the UTP cables to various 802.3bt/at PDs without affecting the existing network performance and functions.

With data and Power over Ethernet from one unit, the IPOE-470 series can reduce power cable deployment and eliminate the need for dedicated electrical outlets on the wall, ceiling or any unreachable place.



*Intelligent LED Indicator for Power Input and Real-time PoE Usage*

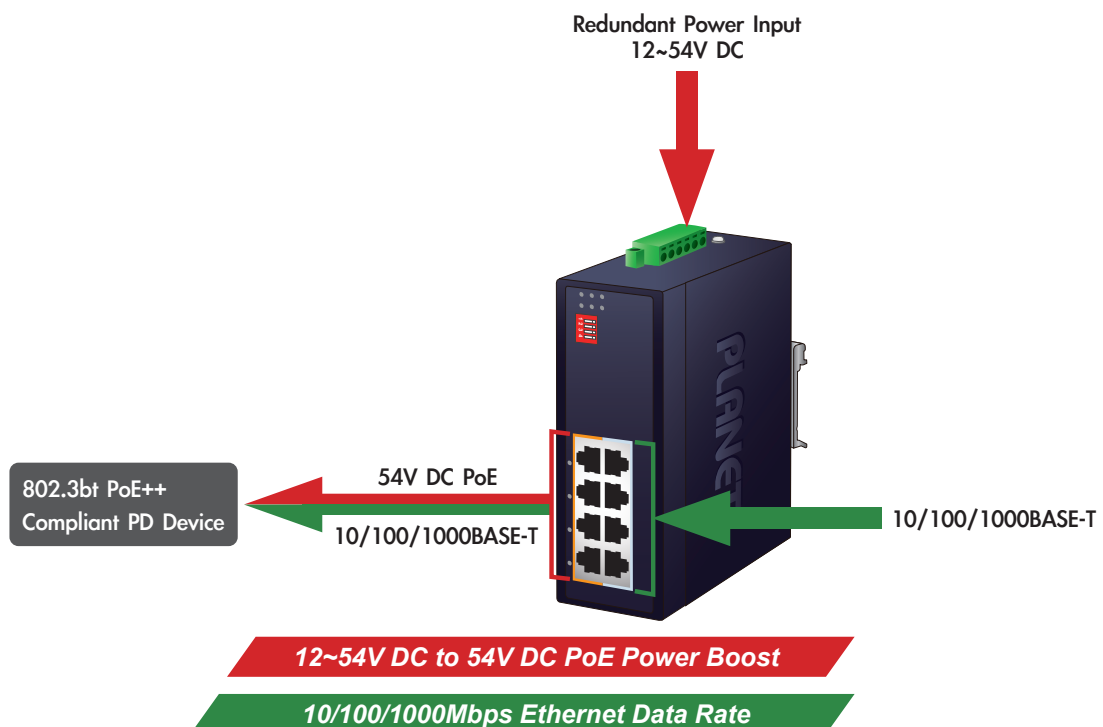
The IPOE-470 series helps users to monitor the current status of power input and PoE power usage easily and efficiently via its advanced LED indication. The “**Power Input**” allows user to know the status of dual DC power input. The “**PoE Usage**” displayed on the panel of the IPOE-470 series has three amber LED indicators of different power usages indicating **80W**, **160W** and **240W**. Via the power usage LED, the IPOE-470 series enables the administrator to monitor the status of the power usage of the connected PDs in real time.



**PoE Power Usage Display**

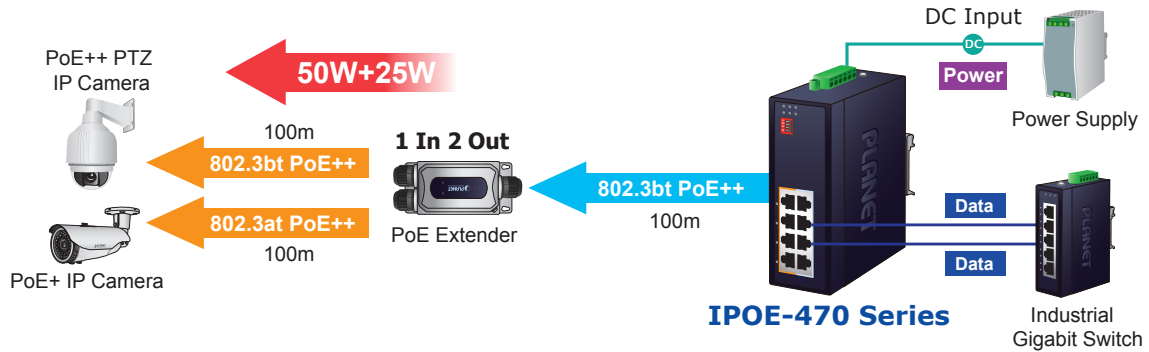
*Convenient and Reliable Power System*

To facilitate the 802.3bt PoE++ usage with commonly-used **48~54V DC** power input for transportation and industrial-level applications, the **IPOE-470-12V** adopts the 12~54V DC to 54V **power boost** technology to solve power source issue but does not require special power supplies. Its wide-ranging voltages design is suitable for worldwide operability with high availability applications requiring dual or backup power inputs.



**Ultra Power Budget for PoE Extension**

With up to 95-watt PoE output capability, the IPOE-470 series can extend much longer distances by using PLANET PoE Extender for powering up the PoE PD which can be installed over more than 100 meters away.



**Stable Operating Performance under Difficult Environments**

Today, the PoE demand expands from commercial applications to many critical networks in the harsh environment. The IPOE-470 series provides a high level of immunity against electromagnetic interference and heavy electrical surges typical of environments found on plant floors or in curb-side traffic control cabinets. The IPOE-470 series can be easily installed by way of Plug and Play and operates stably under temperature range from **-40 to 75 degrees C** which enables the users to conveniently apply the device in almost any location of the network. The IPOE-470 series is also equipped with a compact IP30 standard metal case that allows either DIN-rail or wall mounting for space-limited environments.



**DIN-rail Mounting**



**Wall Mounting**



**Side Wall Mounting  
(Space saving)**

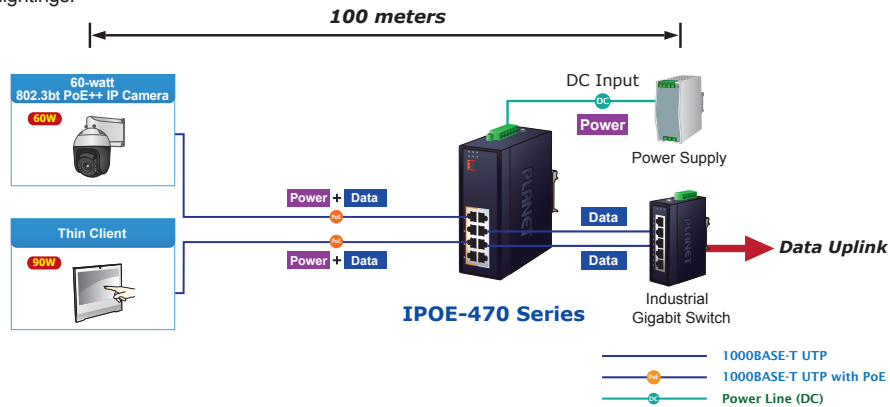
**Robust Protection**

The IPOE-470 series provides contact discharge of  $\pm 6\text{KV}$  DC and air discharge of  $\pm 8\text{KV}$  DC for Ethernet ESD protection. It also supports  $\pm 6\text{KV}$  surge immunity to improve product stability and protects users' networks from devastating ESD attacks, making sure the flow of operation does not fluctuate.

## Applications

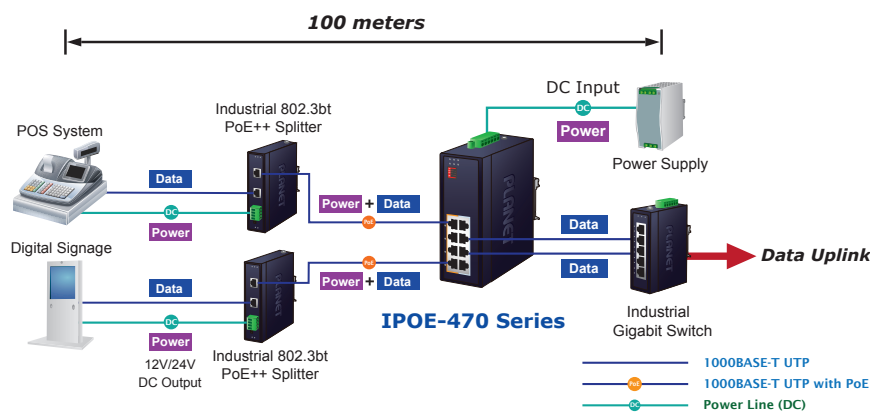
### IEEE 802.3bt PoE++ Injector and 802.3bt PoE++ Compliant Devices Installation

Having the capability of IEEE 802.3bt Power over Ethernet standard, the IPOE-470 series can directly connect and inject power via RJ45 Ethernet cable to any IEEE 802.3bt end-nodes like PoE PTZ speed dome cameras, thin clients, all-in-one touch PCs, point of sale (POS), information kiosks, remote digital signage displays and PoE lightings.



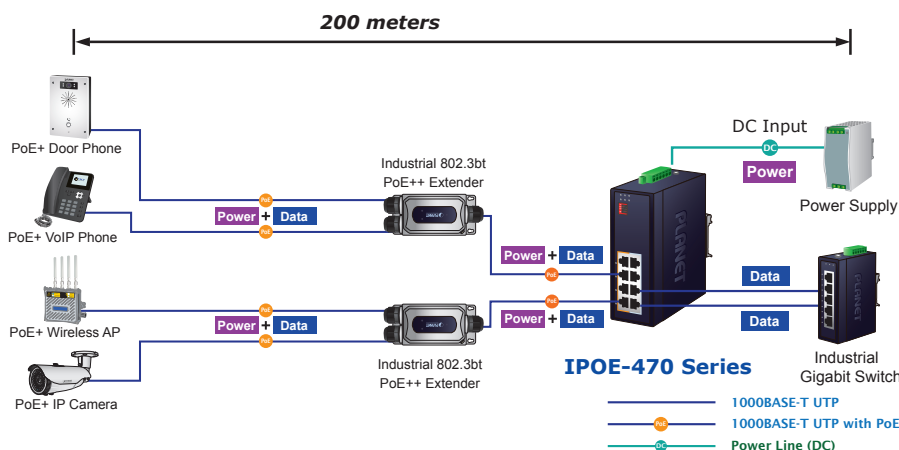
### IEEE 802.3bt PoE++ Injector and 802.3bt PoE++ Splitter Installation

For a place which is hard to find the power inlet, the IPOE-470 series and IPOE-173S can operate as a pair to provide the easiest way to power your Ethernet devices which need high power input, such as PTZ (pan, tilt, zoom) IP cameras, color touch-screen voice over IP (VoIP) telephones, and multi-channel wireless LAN access points installed on the top of the building or in enterprise office or home, as well as thin clients, all-in-one touch PCs, point of sale (POS), information kiosks and remote digital signage displays.



### IEEE 802.3bt PoE++ Injector and 802.3at PoE+ Network Extension Installation

Is 100-meter cable long enough for a wide range of IP surveillance deployments? The answer is certainly not. To achieve the benefits of IP surveillance and also the long-distance IP camera distribution, the IPOE-470 series and PLANET IPOE-E302 PoE Extender can be a quick and cost-effective option. In the simplest application, the PoE Extender enables a PoE IP camera to be installed up to 200 meters away from the IPOE-470 series. The IPOE-470 series delivers PoE power over the first 100 meters to the PoE Extender over UTP cables, and then the PoE Extender forwards the Ethernet data and remaining PoE power to the remote PoE IP cameras.





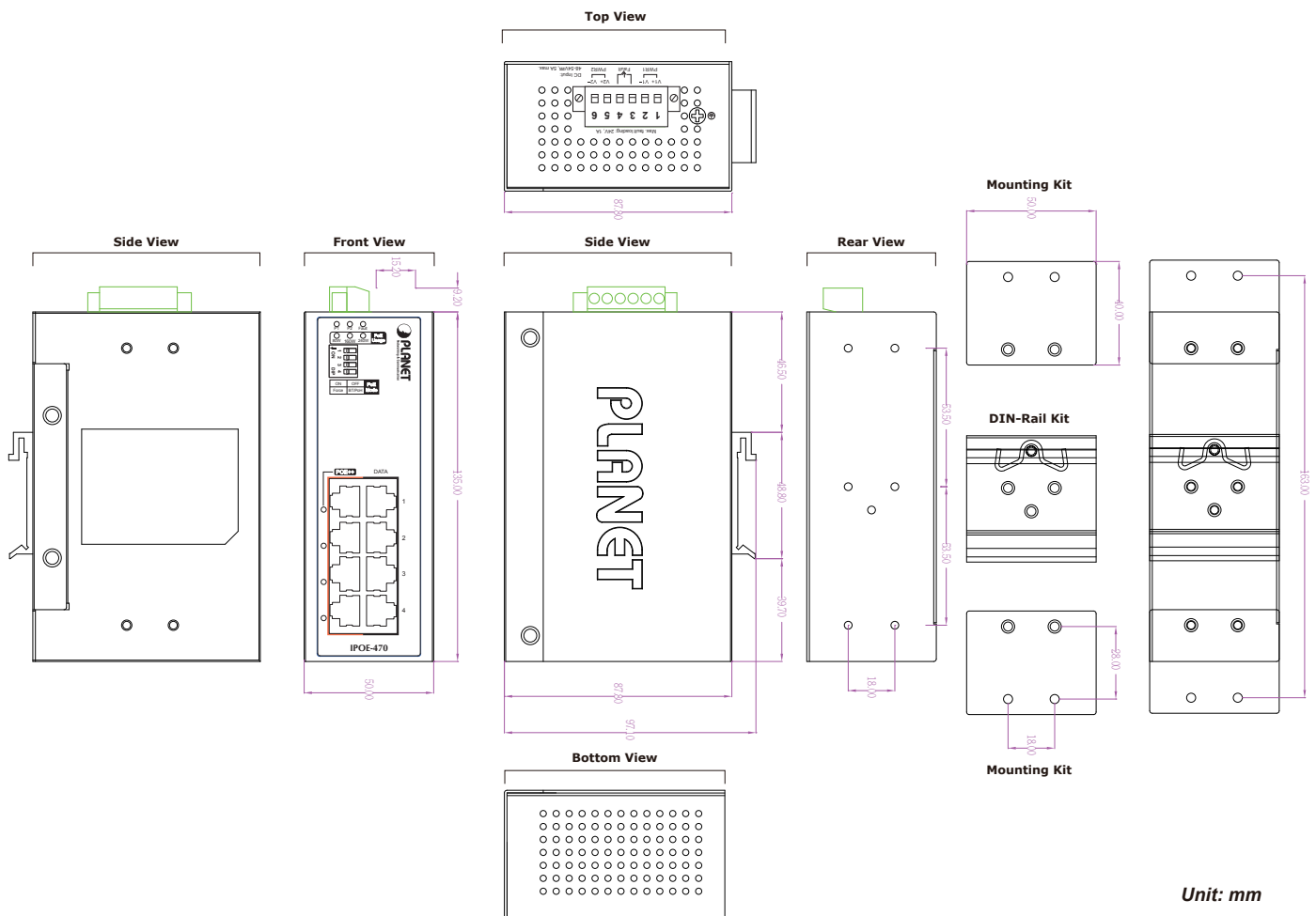
## Specifications

| Model  | IPOE-470   | IPOE-470-12V  |
|--|--|---|
| <b>Hardware Specifications</b>               |  |   |
| Data Rate                                    | 4-pair 10/100/1000BASE-T RJ45<br><ul style="list-style-type: none"> <li>■ Data input port 1 to Port 4</li> <li>■ Data + PoE output port 1 to Port 4</li> </ul>       |   |
| Connector                                    | Removable 6-pin terminal block<br>Pins 1 and 2 for Power 1<br>Pins 5 and 6 for Power 2<br>Pins 4 and 4 for fault alarm   |   |
| Data Rate                                    | 10/100/1000Mbps  |   |
| Power Requirements                           | <b>48~54V DC</b> , redundant power with reverse polarity protection  | <b>12~54V DC</b> , redundant power with reverse polarity protection   |
| Power Consumption<br>(Ethernet Full Loading) | <b>System ON without loading</b><br>48V DC: 1.92 watts/6.6BTU<br>54V DC: 2.16 watts/7.4BTU   | Full loading<br>48V DC: 241 watts/822.3BTU<br>54V DC: 244 watts/832.6BTU  |
|  | <b>System ON without loading</b><br>12V DC: 2.52 watts/8.6BTU<br>24V DC: 3.6 watts/12.3BTU<br>48V DC: 3.36 watts/11.5BTU<br>54V DC: 3.24 watts/11.1BTU               | Full loading<br>12V DC: 72 watts/245.7BTU<br>24V DC: 131 watts/447BTU<br>48V DC: 249 watts/849.6BTU<br>54V DC: 251 watts/856.5BTU |
| DIP Switch                                   | Per PoE port<br><ul style="list-style-type: none"> <li>■ Off: BT/PoH – 802.3bt PoE++/PoH + Legacy 95W PoE output</li> <li>■ ON: Force - 60w PoE output</li> </ul>    |   |
| Dimensions                                   | 50 x 87.8 x 135 mm (W x D x H)   |   |
| Weight                                       | 537g   | 679g  |
| Enclosure                                    | IP30 metal case  |   |
| Installation                                 | DIN-rail kit and wall-mount kit  |   |
| LED Indicator                                | System:<br>Power 1 (Green)<br>Power 2 (Green)<br>Fault (Red)<br>PoE Usage:<br>80W/160W/240W (Amber)<br>802.3bt PoE++ Port:<br>PoE-in-use x 1 (Amber)                 |   |
| ESD Protection                               | 6KV  |   |
| Surge Protection                             | 6KV  |   |
| Network Cable                                | Twisted-pair cable up to 100 meters (328ft)<br>10BASE-T: 4-pair UTP Cat. 3, 4, 5, 5e, 6<br>100BASE-TX: 4-pair UTP Cat. 5, 5e, 6<br>1000BASE-T: 4-pair UTP Cat. 5e, 6 |   |
| <b>Power over Ethernet</b>                   |  |   |
| PoE Standard                                 | IEEE 802.3bt PoE++, 4-pair type 4 PSE<br>Backward compatible with IEEE 802.3at PoE+ PSE  |   |
| PoE Power Supply Type                        | 802.3bt PoE++/PoH/Force End-span + Mid-span<br>802.3at PoE+ End-span/Mid-span  |   |
| Power Pin Assignment                         | Pair 1 End-span: 1/2(-), 3/6(+)<br>Pair 2 Mid-span: 4/5(+), 7/8(-)<br>802.3bt/PoH: 1/2(-), 3/6(+), 4/5(+), 7/8(-)  |   |
| PoE Power Output                             | Max. 90 watts to 802.3bt PoE++ PD<br>Max. 95 watts to PoH PD<br>Max. 60 watts to force-powered PD<br>Max. 36 watts to 802.3at PoE+ PD                                |   |
| PoE Power Budget (max.)                      | 120W@48V DC input<br>240W@52V-54V DC input   | 60W@12V-23V DC input<br>120W@24V-47V DC input<br>240W@48-54V DC input   |
| Number of devices that can be powered        | 4  |   |
| <b>Standards Conformance</b>                 |  |   |
| Regulatory Compliance                        | FCC Part 15 Class A, CE  |   |
| Stability Testing                            | IEC 60068-2-32 (free fall)   |   |
|  | IEC 60068-2-27 (shock)   |   |
|  | IEC 60068-2-6 (vibration)  |   |

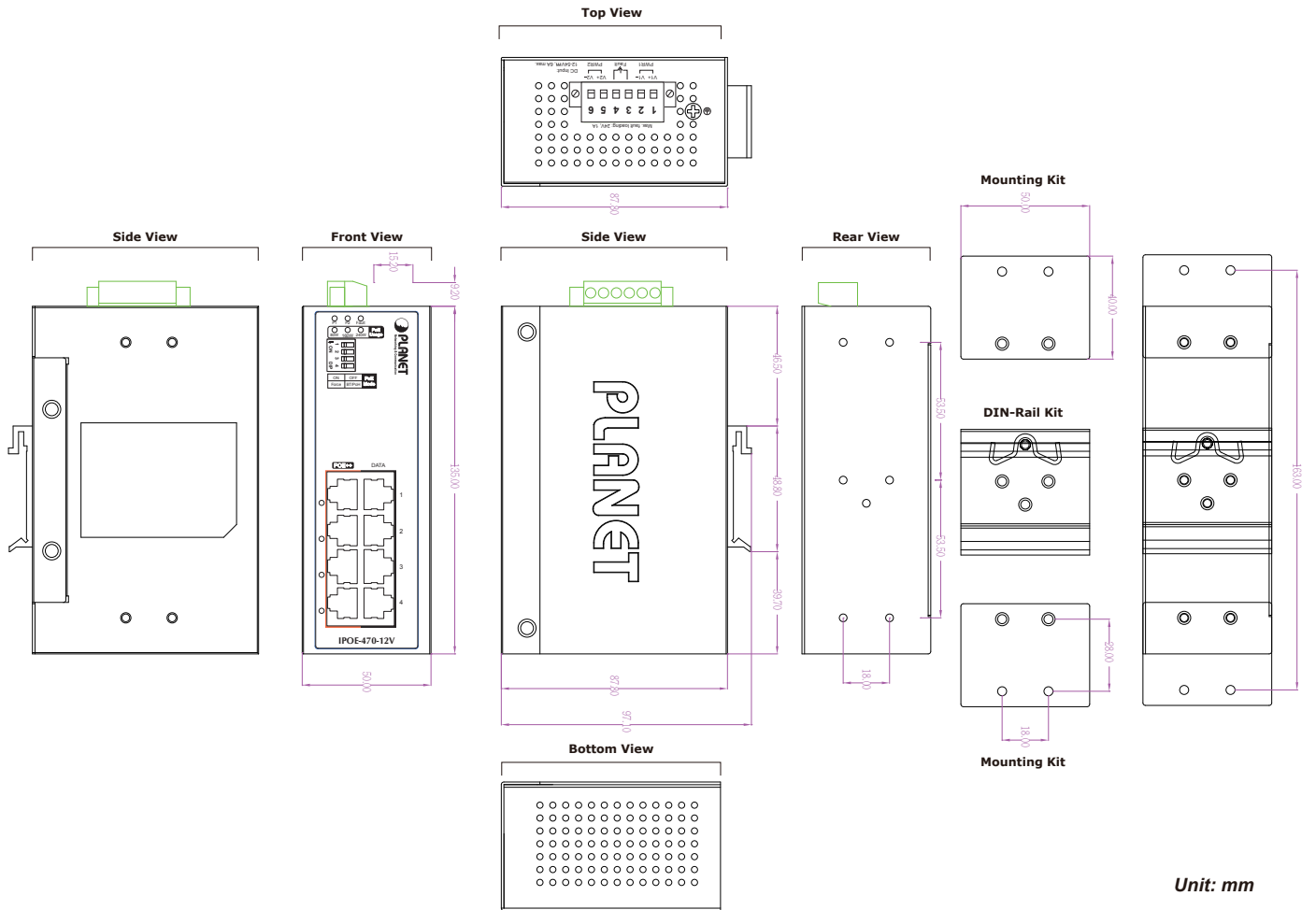
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| Standards Compliance | IEEE 802.3 Ethernet                        |
|                      | IEEE 802.3u Fast Ethernet                  |
|                      | IEEE 802.3ab Gigabit Ethernet              |
|                      | IEEE 802.3at Power over Ethernet Plus      |
|                      | IEEE 802.3bt Power over Ethernet Plus Plus |
| <b>Environment</b>   |  |
| Temperature          | Operating: -40~75 degrees C                |
|                      | Storage: -40~75 degrees C                  |
| Humidity             | Operating: 5~90% (non-condensing)          |
|                      | Storage: 5~90% (non-condensing)            |

## Dimensions

IPOE-470



IPOE-470-12V



## Ordering Information

|              |   |
|--------------|---|
| IPOE-470     | Industrial 4-port 10/100/1000T 802.3bt PoE++ Injector Hub (-40~75 degrees C)                |
| IPOE-470-12V | Industrial 4-port 10/100/1000T 802.3bt PoE++ Injector Hub w/ 12V Booster (-40~75 degrees C) |



## Related Products

|                  |  |
|------------------|--|
| IPOE-270         | Industrial 2-port Multi-gigabit 802.3bt PoE++ Injector Hub (-40~75 degrees C)                                      |
| IPOE-270-12V     | Industrial 4-port Multi-gigabit 802.3bt PoE++ Injector Hub w/ 12V Booster (-40~75 degrees C)                       |
| IPOE-171-95W     | Industrial Single-Port 10/100/1000Mbps 802.3bt PoE++ Injector (95 Watts, -40~75 degrees C, 12~48V DC)              |
| IPOE-171-60W     | Industrial Single-Port 10/100/1000Mbps 802.3bt PoE++ Injector (60 Watts, -40~75 degrees C)                         |
| IGS-6325-8UP2S2X | Industrial L3 8-Port 10/100/1000T 802.3bt PoE + 2-Port 100/1000X SFP + 2-Port 10G SFP+ Managed Ethernet Switch     |
| IGS-6325-8UP2S   | Industrial L3 8-Port 10/100/1000T 802.3bt PoE + 2-Port 100/1000X SFP + Managed Ethernet Switch                     |
| IGS-5225-4UP1T2S | Industrial L2+ 4-Port 10/100/1000T 802.3bt PoE + 1-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch         |
| IGUP-1205AT      | Industrial 2-Port 100/1000X SFP to 1-Port 10/100/1000T 802.3bt PoE++ Media Converter                               |
| IGUP-2205AT      | Industrial 2-Port 100/1000X SFP to 2-Port 10/100/1000T 802.3bt PoE++ Media Converter                               |
| IGUP-805AT       | Industrial 1-Port 100/1000X SFP to 1-Port 10/100/1000T 802.3bt PoE++ Media Converter                               |
| IGS-5225-8P2T2S  | L2+ Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T+ 2-Port 100/1000X SFP Managed Ethernet Switch |
| IGS-4215-8P2T2S  | Industrial 8-Port 10/100/1000T 802.3at PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Managed Switch             |
| IPOE-260 Series  | Industrial 2-port 10/100/1000T 802.3at PoE+ Injector Hub   |
| IPOE-E174        | Industrial 1-Port Ultra PoE to 4-Port 802.3af/at Gigabit PoE Extender  |
| IPOE-E302        | Industrial 1-Port 802.3bt PoE++ to 2-Port 802.3at Gigabit PoE Extender   |
| IPOE-162S        | Industrial IEEE 802.3at Gigabit High Power over Ethernet Splitter  |
| IPOE-173S        | Industrial Single-Port 10/100/1000Mbps 802.3bt PoE++ Splitter  |
| UPOE-800G        | 8-Port Gigabit 802.3bt PoE++ Managed Injector Hub (400 watts)  |
| UPOE-1600G       | 16-Port Gigabit 802.3bt PoE++ Managed Injector Hub (600 watts)   |
| UPOE-2400G       | 24-Port Gigabit 802.3bt PoE++ Managed Injector Hub (800 watts)   |