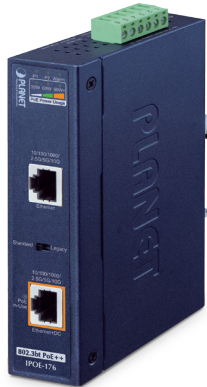
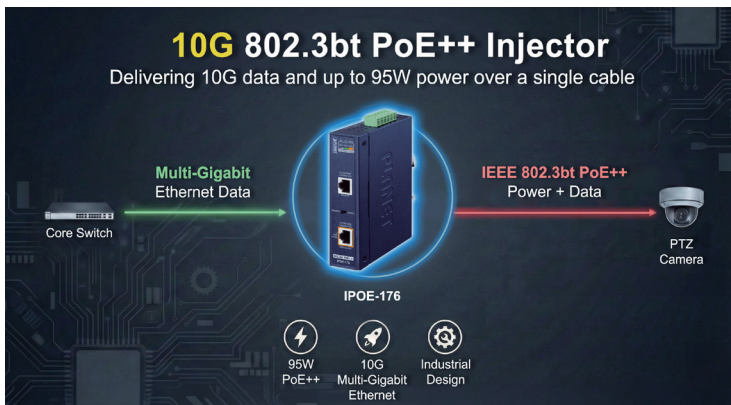


# Industrial Single-Port 10Gbps 802.3bt PoE++ Injector



## Advanced Industrial 10Gbps and 802.3bt PoE++ Network Solution

PLANET IPOE-176 is an industrial-grade, single-port 10Gbps 802.3bt PoE++ injector designed to deliver both ultra-high data throughput and up to 95W of power over Ethernet. It is also equipped with **two 10/100/1000/2.5G/5G/10GBASE-T RJ45 copper interfaces** (one for data input and one for PoE data and power output) to handle extremely large amounts of data transmission, making it ideal for **next-generation high-bandwidth and high-power network applications**.



## 95W Power Delivery over 4-Pair Ethernet Cabling

The IPOE-176, adopting the **IEEE 802.3bt standard**, instead of delivering power over 2-pair twisted UTP – be it end-span or mid-span – provides the capability to source up to **95 watts of power by using all four pairs of standard Cat. 5e / Cat. 6 Ethernet cabling**. This 4-pair PoE++ design enables more advanced applications, such as **Wi-Fi 7 wireless access points, outdoor and industrial wireless devices, high-power IP cameras, edge computing equipment, and digital signage systems**, where both power and bandwidth are critical.

## Interface

- 2 Multi-Gigabit Speed RJ45 interfaces
  - 1-port Data + Power output
  - 1-port Data input
- 1 terminal block for dual DC power input
  - Power range: 48–54V DC, supports redundant power input
- 1 PoE mode DIP switch
  - Supports Standard / Legacy / Force PoE modes

## Power over Ethernet

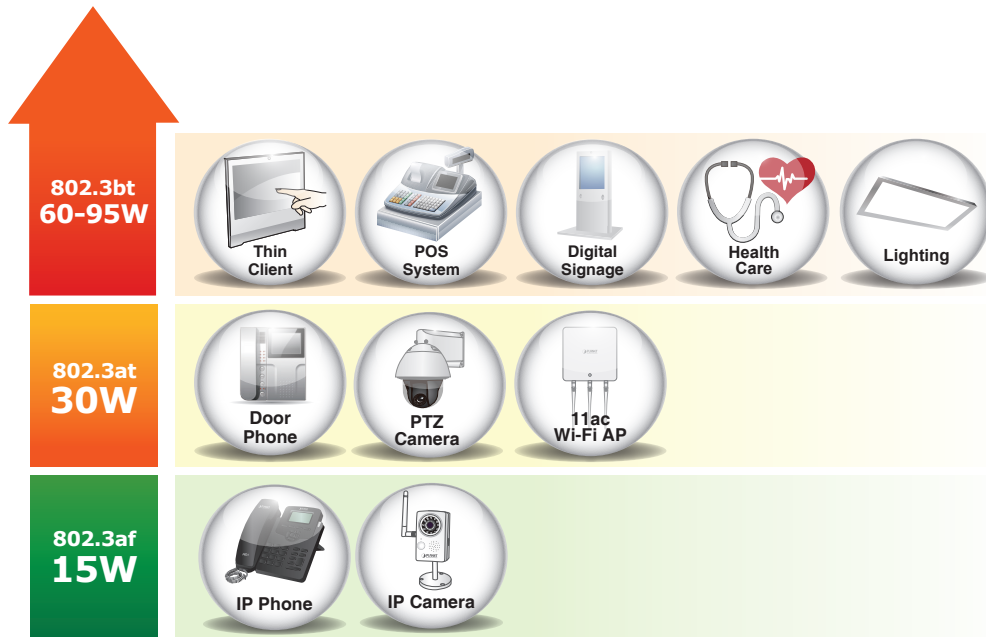
- Complies with IEEE 802.3af / 802.3at / 802.3bt PoE end-span and mid-span PSE
- Supports PoE++ power output up to 95 watts for the PoE port
- Auto-detection of IEEE 802.3af/at/bt powered devices to prevent damage from incorrect installation
- Real-time monitoring of total PoE power usage via LED indicators
- Supports remote power feeding up to 100 meters

## Hardware

- IP30 slim-type metal enclosure suitable for industrial environments
- LED indicators for Power, PoE-in-Use, Legacy Mode, and PoE Power Usage
- Fanless design for silent and reliable operation

## Industrial Case and Installation

- Supports DIN-rail and wall-mount installation
- Provides 6KV DC Ethernet ESD protection
- Designed for wide operating temperature range: -40 to 75°C



*Intelligent MCU-Controlled FAULT Alarm for Reliable Monitoring*

Designed for industrial environments, the IPOE-176 not only delivers **high-speed 10Gbps Ethernet data with 95W PoE++ power**, but also integrates an **MCU-controlled intelligent FAULT alarm mechanism**. By actively monitoring power input and PoE operating status, the FAULT LED indicator and relay alarm output can accurately reflect real fault conditions, reducing false alarms and providing clear and reliable status indication for industrial monitoring systems.

*Intelligent LED Indicator for PoE Mode and Real-time PoE Usage*

The IPOE-176 features an intuitive LED indication design for monitoring PoE operating status and real-time power usage. When operating in **Legacy Mode**, the Legacy LED lights up to indicate support for non-standard powered devices, and **Force Mode** can be used when the connected PD cannot be powered on under Legacy mode. In addition, the front-panel **three amber PoE Power Usage LEDs** indicate the current PoE load condition based on output power, representing **30W, 60W, and 90W** levels through steady or blinking illumination, allowing users to quickly check the PoE power status of the connected device.

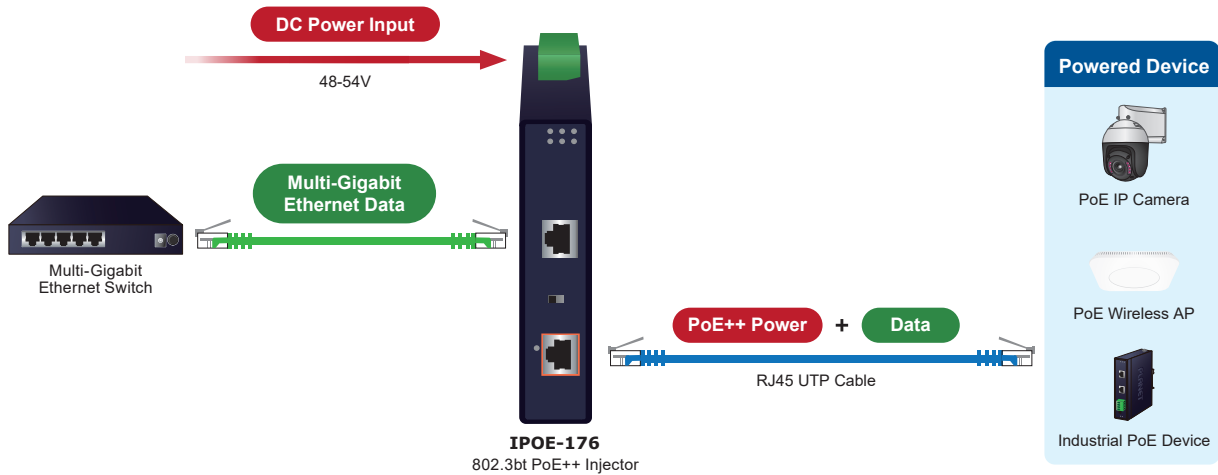


*All-in-One and Industrial Compact Design*

The IPOE-176 is designed for **easy installation with true plug-and-play operation**, requiring no software configuration. Featuring an **industrial slim-type metal housing**, the IPOE-176 integrates **dual 48-54V DC power inputs via terminal block**, LED indicators for Power, PoE-in-Use, Legacy Mode, and PoE Usage, and **two 10Gbps RJ45 ports** for data input and PoE output. With its compact all-in-one design, the IPOE-176 is ready to deliver **high-speed 10Gbps Ethernet connectivity and 802.3bt PoE++ power simultaneously**, making it ideal for industrial and mission-critical network deployments.

*Quick and Easy Cabling Installation for PoE Network Deployment*

Backward compatible with **IEEE 802.3af/at/bt PoE standards**, the IPOE-176 allows users to flexibly deploy both standard and high-powered devices, delivering **data and power over a single Ethernet cable for distances of up to 100 meters**. By eliminating the need for additional AC power outlets at the device installation site, the IPOE-176 simplifies network deployment for **industrial wireless access points, IP surveillance systems, and edge devices**, reduces cabling complexity, and significantly shortens installation time in harsh or hard-to-reach environments.



## Applications

*Powering Next-Generation Wi-Fi 7 Networks*

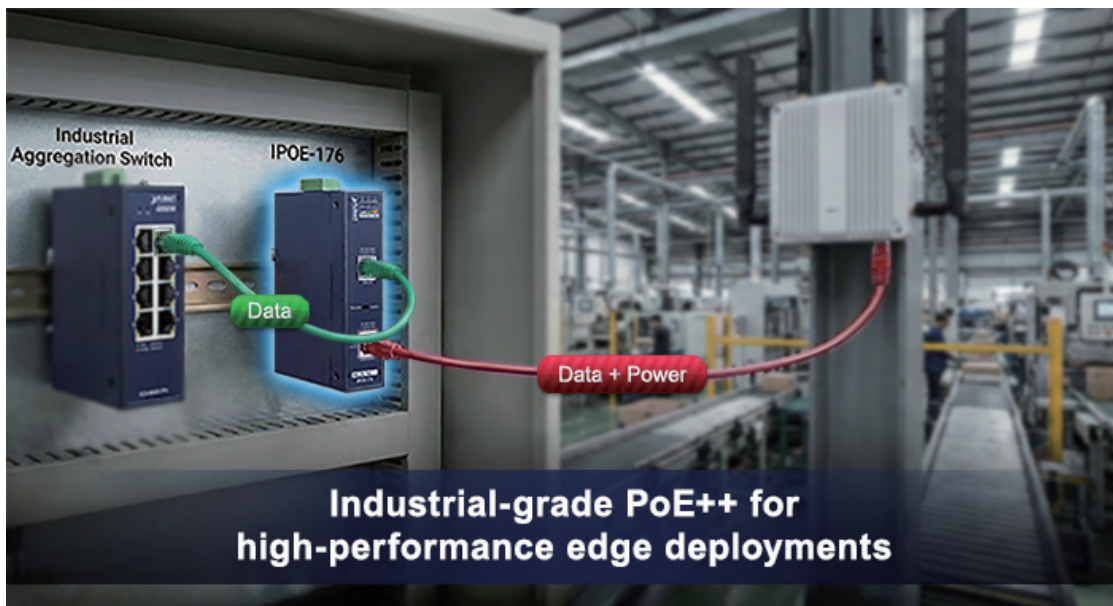
Combines **10Gbps Ethernet performance with up to 95W PoE++ power**, enabling Wi-Fi 7 and high-end wireless access points to unleash full throughput, support high user density, and deliver a truly future-ready wireless experience.

*Supporting Industrial and Outdoor Deployments*

Ideal for industrial wireless systems, edge computing devices, and outdoor network installations that demand high power, **high bandwidth, and long-term reliability**, especially in environments where stable operation is critical and AC power is difficult to deploy.

*Enabling High-Power PoE for Video and Edge Applications*

Perfect for **PTZ cameras, high-resolution IP surveillance, and intelligent edge devices**, delivering reliable PoE power and high-speed data transmission for smooth video streaming, real-time monitoring, and data-intensive applications.



**Industrial-grade PoE++ for high-performance edge deployments**

## Specifications

Product		IPOE-176
<b>Hardware Specifications</b>		
Interface	Input Port	1 × RJ45 10/100/1000/2.5G/5G/10GBASE-T Data In
	Output Port	1 × RJ45 10/100/1000/2.5G/5G/10GBASE-T PoE (Data + Power) Out
	PoE Mode Control	DIP switch for Standard / Legacy / Force modes
Data Rate	10/100/1000Mbps	
Network Cable	Twisted-pair cable up to 100 meters (328ft) 10BASE-T: 4-pair UTP Cat. 3, 4, 5, 5e, 6, 6A 100BASE-TX: 4-pair UTP Cat. 5, 5e, 6, 6A 1G/2.5G: 4-pair UTP Cat 5e/Cat 6/Cat 6A/ Cat 7 5G: 4-pair UTP Cat 6/Cat 6A/Cat 7 10G:4-pair UTP Cat 6A/Cat 7	
LED Indicators	<b>System:</b> <ul style="list-style-type: none"> <li>• Power 1 (Green)</li> <li>• Power 2 (Green)</li> <li>• Alarm (Red)</li> </ul> <b>PoE Port:</b> <ul style="list-style-type: none"> <li>• PoE-in-Use × 1 (Amber)</li> </ul> <b>PoE Usage:</b> <ul style="list-style-type: none"> <li>• PoE Usage × 3 (Amber, 30W / 60W / 90W)</li> </ul>	
Data Rate	10G/5G/2.5G/1G/100/10Mbps	
Dimensions (W x D x H)	32 × 87 × 135 mm	
Weight	454g	
Unit Output Voltage	DC 48–54V	
Power Requirements	DC 48-54V, 2.5A max	
Power Consumption	Max. 1.62 watts/ 5.5 BTU (Power on without any connection) Max. 98 watts/ 334.2 BTU (54V DC input, full PoE load)	
No. of Devices that can be powered	1	
<b>Power over Ethernet</b>		
PoE Standard	IEEE 802.3af/at/bt PSE	
PoE Power Output Budget	95W (IEEE 802.3bt Type 4)	
PoE Power Output	DC 54V input: Max. 95W @1m cable Max. 71W @100m cable DC 48V input: Max. 94W @1m cable Max. 67W @100m cable Actual available power may vary depending on cable length and DC input voltage.	
PoE Power Supply Type	End-span + Mid-span	
Power Pin Assignment	Pair 1 End-span: 1/2 (-), 3/6 (+) Pair 2 Mid-span: 4/5 (+), 7/8 (-)	
PoE Mode	Standard mode Legacy and Force modes	
<b>Standards Conformance</b>		
Standards Compliance	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet IEEE 802.3bz 2.5G/5GBASE-T IEEE 802.3an 10GBASE-T IEEE 802.3af Power over Ethernet IEEE 802.3at Power over Ethernet Plus IEEE 802.3bt 4-pair Power over Ethernet (Type 4)	
Regulatory Compliance	FCC Part 15 Class A, CE	
<b>Environment</b>		
Operating Temperature	-40 ~ 75 degrees C	
Storage Temperature	-40 ~ 85 degrees C	
Operating Humidity	5 ~ 90%, relative humidity, non-condensing	
Storage Humidity	5 ~ 90%, relative humidity, non-condensing	

## Ordering Information

IPOE-176	Industrial Single-Port 10Gbps 802.3bt PoE++ Injector
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## Related PoE Products

IPOE-171-95W	Industrial Single-Port Multi-Gigabit 802.3bt PoE++ Injector (95 watts, -40~75 degrees C, 12~54V DC)
IPOE-171-60W	Industrial Single-Port Multi-Gigabit 802.3bt PoE++ Injector (60 Watts, -40~75 degrees C, 48~54VDC)
POE-176-95	Single-Port 10Gbps 95-watt 802.3bt PoE++ Injector
POE-171A-95	Single-Port Multi-Gigabit 802.3bt PoE++ Injector (95 Watts)
POE-175-95	One-Port 10/100/1000Mbps 802.3bt PoE++ Injector
POE-171A-60	Industrial Single-Port Multi-Gigabit 802.3bt PoE++ Injector (60 Watts, -40~75 degrees C, 48~56VDC)
IPOE-162	Industrial IEEE 802.3at Gigabit High Power over Ethernet Injector (Mid-span)
IPOE-E174	1-Port Ultra PoE to 4-Port 802.3af/at Gigabit PoE Extender
IPOE-176S	Industrial Single-Port 10Gbps 802.3bt PoE++ Splitter
IPOE-173S	Industrial Single-Port 10/100/1000Mbps 802.3bt PoE++ Splitter
IPOE-E302	Industrial IP67 1-Port 802.3bt PoE++ to 2-Port 802.3at/bt PoE++ Extender