Product Specifications

Single-Port 10Gbps 95-watt 802.3bt PoE++ Injector

POE-176-95

Version 1.0

Change History:

Revision:	Date:	Author:	Change List
Version 1.0	2021/8/23	Marc Liao	Initial Release

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Reviewed By:		**Approved By:**	Kent Kang

1. PRODUCT DESCRIPTION

Advanced Multi-Gigabit and 802.3bt PoE++ Network Solution

PLANET POE-176-95 is a Single-Port, 802.3bt Power over Ethernet Injector with a maximum of up to 95 watts of power output over Ethernet cables. It is also equipped with two **10M/100M/1G/2.5G/5G/10GBASE-T RJ45 copper interfaces** to handle extremely large amounts of data transmission.

The POE-176-95 adopting the IEEE 802.3bt standard, instead of delivering power over 2-pair twisted UTP – be it end-span (Pins 1, 2, 3 and 6) or mid-span (Pins 4, 5, 7 and 8), provides the capability to source up to 95 watts of power by using all the four pairs of standard Cat. 5e/6 Ethernet cabling. In the new 4-pair system, it can offer more PoE applications, such as:

- **PoE lighting**
- **PoE PTZ speed dome camera**
- **Any network device that needs higher PoE power to work normally**
- **Thin-client**
- **AIO (All-in-One) touch PC**
- **Remote digital signage display**

The POE-176-95 delivers the Ethernet digital data with DC power over the twisted-pair cables as a 95-watt Power over Ethernet Injector, and the connected ultra Power over Ethernet splitter, the POE-173S, will separate the digital data and the power into three optional outputs (12V/19V/24V DC) with distance up to 100 meters.

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

The POE-176-95, when switched to the **Force** mode, provides power to those PD devices which do not fully follow the IEEE 802.3af/at/bt standard. The Force LED will turn on when the Force mode is enabled, it can power on the PD with a maximum of 60 watts.

Moreover, the POE-176-95 helps users to monitor the current status of PoE power usage easily and efficiently via its advanced LED indication. “PoE Power Usage” displayed on the front panel of the POE-176-95 has three LED indicators of different power usages. Via the power usage LED, the POE-176-95 enables the administrator to monitor the status of the power usage of the connected PDs in real time.

95 Watts of Power over 4-pair UTP

In the new 4-pair system with IEEE 802.3bt standard, instead of delivering power over 2-pair twisted UTP – be it end-span (Pins 1, 2, 3 and 6) or mid-span (Pins 4, 5, 7 and 8), the POE-176-95 provides the capability to source up to 95 watts of power by using all the four pairs of standard Cat. 5e/Cat. 6 Ethernet cabling.

PoE Standard	IEEE 802.3af (802.3at Type 1)	IEEE 802.3at (802.3at Type 2)	IEEE 802.3bt (802.3bt Type 3)	IEEE 802.3bt (802.3bt Type 4)	PoH (Power over HD-BASE-T)
Maximum Power delivered by PSE	15.4 watts	30 watts	60 watts	**95 watts**	**95 watts**
Power Available at PD	12.95 watts	25.5 watts	51 watts	**71 watts**	**72 watts**
Voltage Range	48V	50~57V	52~57V	**52~57V**	**52~57V**
Twisted-pair Used	2-pair		4-pair	**4-pair**	**4-pair**
Supported Modes	End-span or Mid-span		End-span + Mid-span	**End-span + Mid-span**	**End-span + Mid-span**
Supported Cabling	Cat. 3/5/5e/6		Cat. 5e/6	**Cat. 5e/6**	**Cat. 5e/6**

All-in-One and Compact Size Design

It is easy to install the PoE injector by way of **Plug and Play** and comes with simple troubleshooting, making it easy for business and home users to own it. Besides, the POE-176-95 comes in compact housing, and provides one 52~56V DC input power jacket, one power LED, PoE-in-use LED and Force LED. Two RJ45 ports -- Ethernet port and Ethernet + DC port – are on the side panel. Simply plug in the Ethernet cables and DC power cord, and the POE-176-95 is ready to provide high-speed network communication and the 802.3bt PoE injector functions simultaneously with no need of software configuration.

Quick and Easy Cabling Installation for PoE Network Deployment

Backward compatible with both 802.3af/at PoE standards, the POE-176-95 allows users to flexibly deploy standard and high powered devices to transfer data and power simultaneously through one Ethernet cable for up to 100 meters. The POE-176-95 frees the security IP camera and wireless AP deployment from restrictions of power outlet locations and the additional AC wiring. It thus reduces cables and eliminates the need for electrical outlets on the wall, ceiling or any unreachable place, and most of all, it reduces installation time.

2. PRODUCT FEATURES

- **Interface**
  - 2 RJ45 interfaces
    - 1-port **Data + Power** output
    - 1-port **Data input**
  - 1 DC 52~56V input power socket
  - 1 PoE mode (802.3bt/Force) DIP switch

- **Power over Ethernet**
  - Complies with IEEE 802.3af/at/bt PoE end-span/mid-span PSE
  - Supports PoE power up to 60/95 watts for PoE port
  - Auto-detection of PoE IEEE 802.3af/at/bt equipment and devices from being damaged by incorrect installation
  - Monitor the status of the total PoE usage in real time
  - Remote power feeding up to 100m
  - Auto-detection of DC input voltage

- **Hardware**
  - All-in-one compact size design
  - LED indicators for power, PoE-in-Use, Force mode and PoE usage
  - Wall-mount design
  - Metal case
  - Supports 6KV DC Ethernet ESD protection

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

MCU	NUVOTON M031SD2AE	x 1
PoE Controller	PD69200R	x 1
PoE PSE	PD69204T4	x 1

3.2 FUNCTION SPECIFICATIONS

Product		**POE-176-95**
Hardware Specifications		
Interface	**Input Port**	1 x RJ45 STP Data In
	Output Port	1 x RJ45 STP PoE (Data + Power) Out
	DC Socket	1 x 52~56V DC input socket
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		System: Power x 1 (**Green**) PoE Port: PoE-in-Use x 1 (**Amber**) Force Mode: Force x 1 (**Amber**) PoE Usage: PoE Usage x 3 (**Amber**)
Data Rate		10M/100M/1G/2.5G/5G/10Gbps
Dimensions (W x D x H)		94 x 70.3 x 26.2mm
Weight		195g
Unit Output Voltage		DC 52~56V
Power Requirements		DC 52-56V, 2.5A max
Power Consumption		103 watts max.
No. of Devices that can be powered		1
Power over Ethernet		
PoE Standard		IEEE 802.3af/at/bt PSE
PoE Power Output Budget		DC 54V/30-watt PoE via 2-pair DC 54V/60-watt PoE via 4-pair 54V/95-watt PoE via 4-pair
PoE Power Output		Max. 86.8W for 1 m cable Max. 72W for 100 m cable
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	**802.3bt**: To provide power to the PD devices that follow the IEEE 802.3af/at/bt standard. **Force**: When the Force mode is enabled, it will provide PD with max. 60W.
Standards Conformance	
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/5G/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
Environment	
Operating Temperature	0 ~ 50 degrees C
Storage Temperature	-10 ~ 70 degrees C
Operating Humidity	5 ~ 90%, relative humidity, non-condensing
Storage Humidity	5 ~ 90%, relative humidity, non-condensing

3.3 PHYSICAL SPECIFICATIONS:

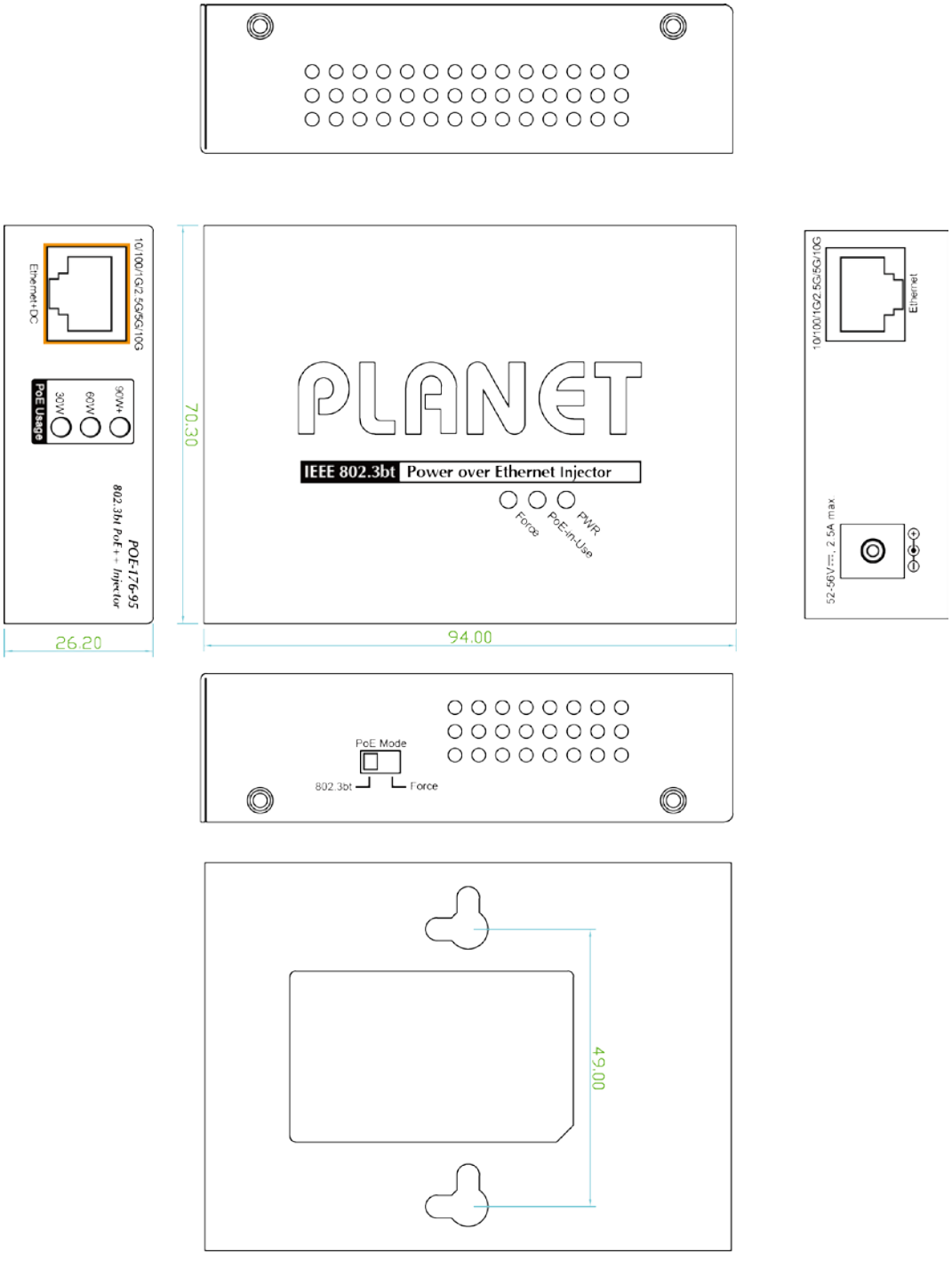
Dimensions:

94 x 70.3 x 26.2mm (W x D x H)

Weight:

195g

■ Product Outlook



Unit: mm

■ LED Definition

The LED definition of the POE-176-95 is shown below:

LED	Color	Function
PWR	**Green**	Lights to indicate the 802.3bt PoE++ injector has power.
PoE-in-Use	**Amber**	Lights to indicate the device is providing PoE power.
Force	**Amber**	Lights to indicate the device is working in Force mode.
PoE Usage	**Amber**	PoE Usage LED can monitor the DC input voltage or the status of the power usage.

Monitoring of power usage of POE-176-95:

LED	Description
30W	1. Off to indicate the PoE usage is less than 14W. 2. Blinks to indicate that the PoE usage is around 15W to 29W. 3. Lights to indicate the PoE usage is more than 30W.
60W	1. Blinks to indicate that the PoE usage is around 45W to 59W. 2. Lights to indicate the PoE usage is more than 60W.
90W+	1. Blinks to indicate that the PoE usage is around 75W to 89W. 2. Lights to indicate the PoE usage is maximum.

PoE Mode:

PoE Mode	Description
802.3bt	Lights to indicate the device is working in IEEE 802.3af/at/bt PoE mode.
Force	Lights to indicate the device is working as 4-pair 60-watt force PoE PSE.

1. After adjusting the DIP switch, the PoE port will stop and then work again.
2. Before connecting the Ethernet+DC port to network device, please make sure that it accepts PoE input to prevent damage.

3.4 ENVIRONMENTAL SPECIFICATIONS

Operating:

Temperature: 0°C ~ 50 degrees C

Relative Humidity: 5% ~ 90% (non-condensing)

Storage:

Temperature: -10°C ~ 70 degrees C

Relative Humidity: 5% ~ 90% (non-condensing)

3.5 ELECTRICAL SPECIFICATION

LOADING / INPUT	System on without any devices attached	Data + PoE Full Loading
DC 52V	2.08 watts/7.09BTU	102 watts/348BTU
DC 54V	2.16 watts/7.36BTU	103 watts/351BTU
DC 56V	2.24 watts/7.64BTU	102 watts/348BTU

3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

3.7 RELIABILITY

MTBF > 50,000 hrs @ 25 degrees C

3.8 BASIC PACKAGING

- POE-176-95 x 1
- User's Manual x 1
- Power Adapter x 1
- AC Power Cord x 1

3.9 PACKING INFORMATION

Box Dimensions	255 (W) x 214 (D) x 65 mm (H)
Weight (gross weight)	TBD g
Carton Dimensions	540 (W) x 360 (D) x 459 mm (H)
Carton Weight	TBD kg
Quantity	20pcs in one carton