

## Product Specifications

### Industrial Single-Port 10/100/1000Mbps 802.3bt PoE Injector

### IPOE-171-60W

Version 2.0

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#### Change History:

Revision	Date	Author	Change List
Version 1.0	2018/05/15	Keithy Lin	Initial release
Version 2.0	2019/03/27	Keithy Lin	1. Remove Ultra PoE and modify the description of Legacy mode. 2. Power Requirements change to DC 52-56V.

<b>Author</b>	Keithy Lin	<b>Editor:</b>	Mark Kao
<b>Reviewed by:</b>	Jonas Yang	<b>Approved by:</b>	Kent Kang

## 1. PRODUCT DESCRIPTION



### Advanced Industrial 802.3bt Network Solution

PLANET IPOE-171-60W is a **Single-Port, Industrial 802.3bt Power over Ethernet Injector** with a maximum of up to **60 watts** of power output over Ethernet cables.



It is designed specifically to meet the demand for growing higher power required network equipment such as:

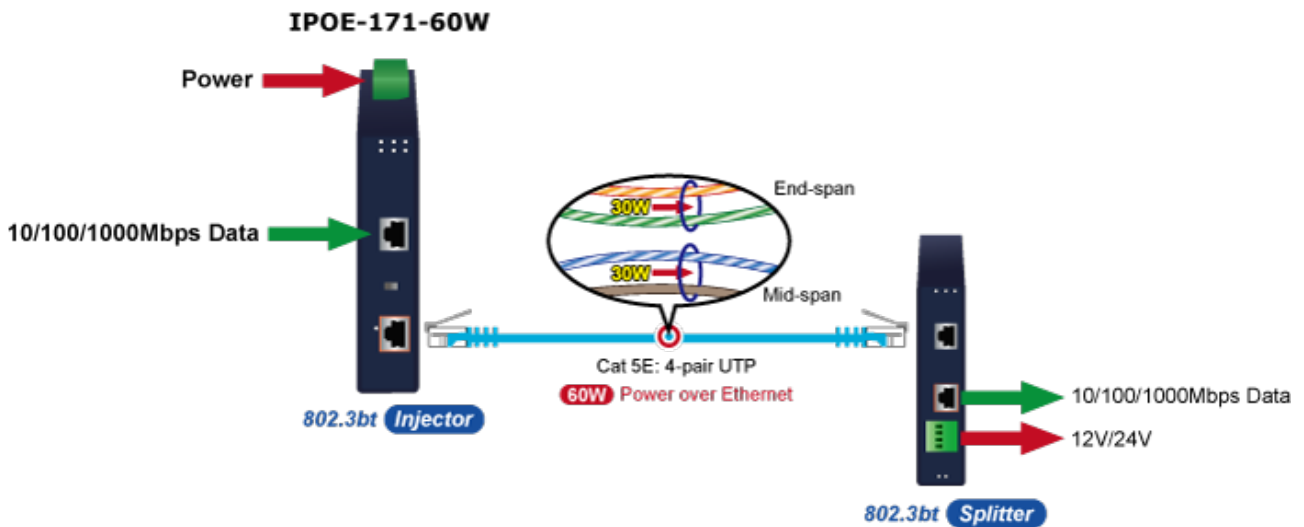
- ▶ **Lighting**
- ▶ All-in-one touch PC
- ▶ Remote digital signage display
- ▶ Other network devices that need higher power to work normally



The IPOE-171-60W delivers the Ethernet digital data with DC power over the twisted-pair cables as a 60-watt Power over Ethernet Injector, and the connected ultra Power over Ethernet splitter, the IPOE-171S, will separate the digital data and the power into three optional outputs (12V/24V DC) with distance up to 100 meters.

### 60 watts of Power over 4-pair UTP

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), IPOE-171-60W provides the capability to source up to 60 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 Type3)
<b>Maximum Power delivered by PSE</b>	15.4 watts	30 watts	<b>60 watts</b>
<b>Power Available at PD</b>	12.95 watts	25.5 watts	<b>51 watts</b>
<b>Voltage Range</b>	48V	50~57V	<b>50~57V</b>
<b>Twisted-pair Used</b>	2-pair		<b>4-pair</b>
<b>Supported Modes</b>	End-span or Mid-span		<b>End-span + Mid-span</b>
<b>Supported Cabling</b>	Cat. 3/5/5e/6		<b>Cat. 5e/6</b>

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

The IPOE-171-60W helps users to monitor the current status of power input and PoE power usage easily and efficiently via its advanced LED indication. “Power Input” allows user to know the status of power input. “PoE Power Usage” displayed on the panel of the IPOE-171-60W has three LED indicators of different power usages. Via the power usage LED, the IPOE-171-60W enables the administrator to monitor the status of the power usage of the connected PDs in real time.

**Power Input and PoE Power Usage Display**



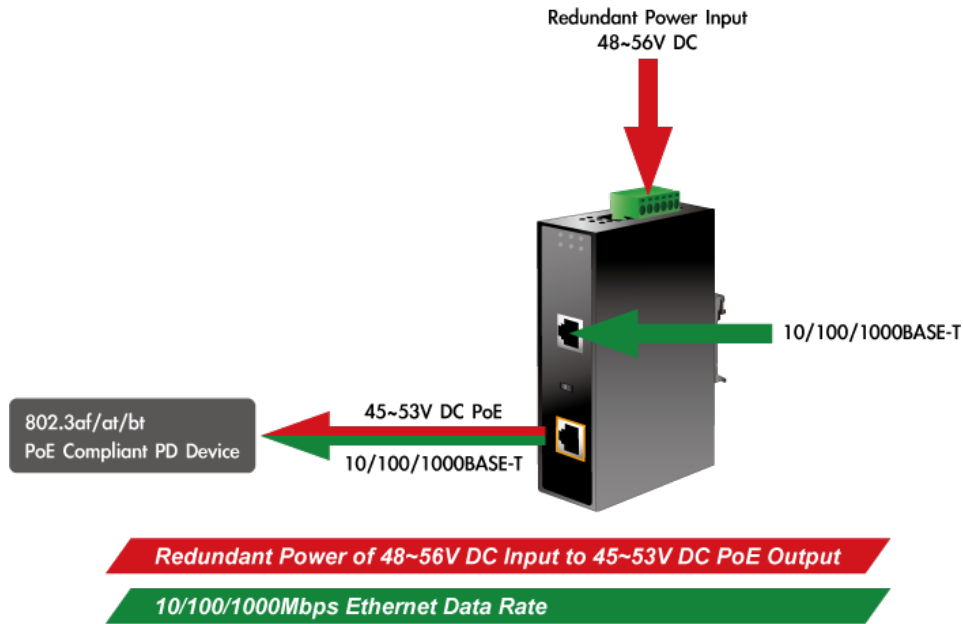
### High Compatibility and Compact Size Design

It is easy to install the PoE injector by way of **Plug and Play** and comes with simple troubleshooting, making it easy for industrial users to own it. Besides, the IPOE-171-60W comes in compact housing, and provides two DC redundant power inputs, two power LEDs, fault LED and PoE-in-use LED. Two RJ45 ports -- Ethernet port and Ethernet + DC port – are on the front panel.

Moreover, the IPOE-171-60W, when switched to the legacy mode, provides power to those PD devices which do not fully follow the IEEE 802.3af/at/bt standard. It is helpful to enhance the compatibility of IPOE-171-60W with other PDs.

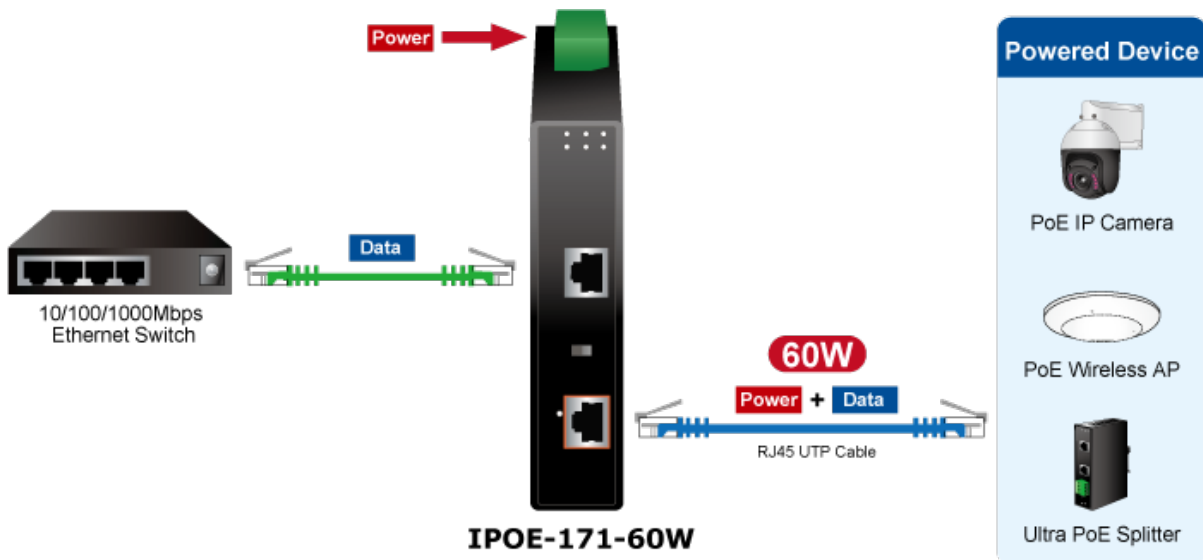
Simply plug in the Ethernet cables and DC power wire, and the IPOE-171-60W is ready to provide high-speed network communication and the 802.3bt PoE injector functions simultaneously with no need of software

configuration.



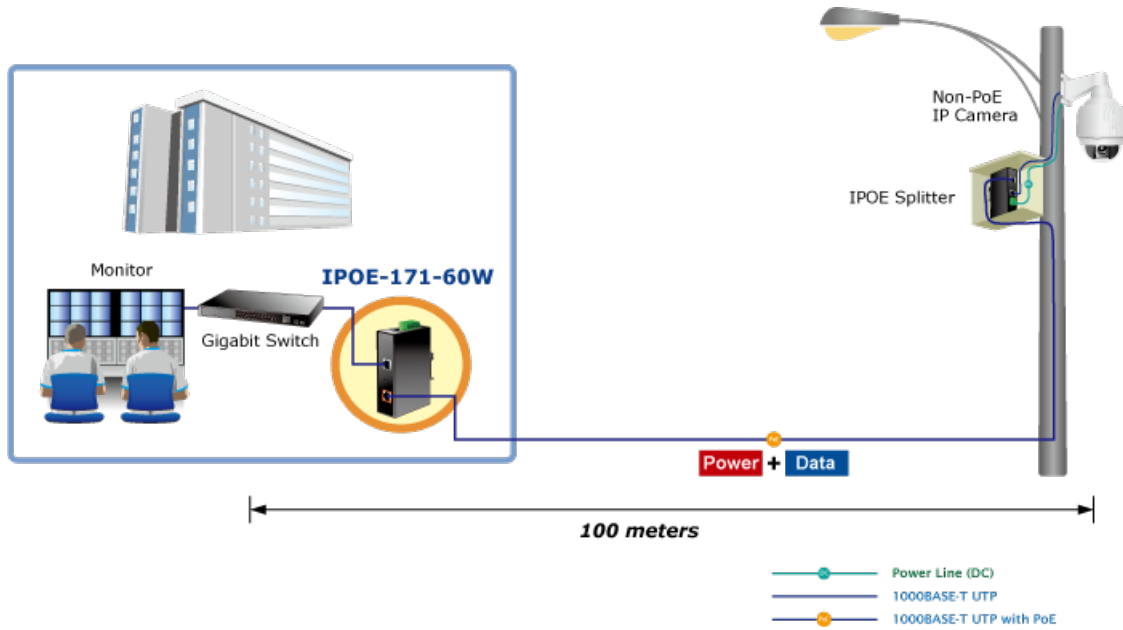
### Quick and Easy Cabling Installation for PoE Network Deployment

Backward compatible with both 802.3af/at PoE standards, the IPOE-171-60W 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 IPOE-171-60W 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.



### Stable Operating Performance under Difficult Environments

Today, the PoE demand expands from commercial applications to many critical networks in the harsh environment. The IPOE-171 series will be one of the ideal solutions that provide 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-171 series can operate 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-171 series is also equipped with a compact IP30 standard metal case that allows either DIN-rail or wall mounting for efficient use of cabinet space.



## 2. PRODUCT FEATURES

### ➤ **Interface**

- 2 RJ45 interfaces
  - 1-port **Data + Power** output
  - 1-port **Data input**
- 1 terminal block for master and slave power input. (Power Range: 52 ~ 56V DC redundant power)
- 1 PoE mode (standard/legacy) DIP switch

### ➤ **Power over Ethernet**

- Complies with IEEE 802.3at/bt PoE end-span/mid-span PSE
- Supports PoE power up to 60 watts for PoE port
- Auto-detection of PoE IEEE 802.3at/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**

- IP30 slim-type metal case
- LED indicators for Power LED , PoE-in-Use LED and PoE Usage LED

### ➤ **Industrial Case and Installation**

- Solid wall mount or DIN-rail mount installation
- Supports 6KV DC Ethernet ESD protection
- -40 to 75 degrees C operating temperature

### 3. PRODUCT SPECIFICATIONS

#### 3.1 MAIN COMPONENTS

<b>PoE Controller</b>	Microsemi PD69200C	x 1
<b>PoE PSE</b>	Microsemi PD69204T4ILQ-TR-LE	x 1
<b>MCU</b>	NUVOTON W78LE54	x 1

#### 3.2 FUNCTION SPECIFICATIONS

<b>Product</b>		<b>IPOE-171-60W</b>
<b>Hardware Specifications</b>		
<b>Interface</b>	<b>Input Port</b>	1 x RJ45 STP Data In
	<b>Output Port</b>	1 x RJ45 STP PoE (Data + Power) Out
	<b>Input power terminal block</b>	1
<b>Network Cable</b>		Twisted-pair cable up to 100 meters (328ft) 10BASE-T: 4-pair UTP Cat. 3, 4, 5, 5e, 6 100BASE-TX: 4-pair UTP Cat. 5, 5e, 6 1000BASE-T: 4-pair UTP Cat. 5e, 6
<b>LED Indicators</b>		System: Power 1 ( <b>Green</b> ), Power 2 ( <b>Green</b> ), Fault ( <b>Red</b> ) PoE Port: PoE-in-Use x 1 ( <b>Amber</b> ) PoE Usage: PoE Usage x 3 ( <b>Amber</b> )
<b>Data Rate</b>		10/100/1000Mbps
<b>Dimensions (W x D x H)</b>		135 x 87.8 x 32 mm
<b>Weight</b>		430g
<b>Power Requirements</b>		DC 52~56V, 2A max.
<b>Unit Output Voltage</b>		DC 50~53V
<b>Power Consumption</b>		75 watts max.
<b>No. of devices that can be powered</b>		1
<b>Installation</b>		DIN-rail kit or wall-mount ear
<b>Alarm</b>		Provides one relay output for power failure Alarm Relay current carry ability: 1A @ DC 24V
<b>Enclosure</b>		IP30 slim-type metal case
<b>Power over Ethernet</b>		
<b>PoE Standard</b>		IEEE 802.3at/bt PSE
<b>PoE Power Output Budget</b>		DC 50~53V / 60-watt PoE via 4-pair
<b>PoE Power Output</b>		Max. 60W @ 1m cable



	Max. 51W@100m cable
<b>PoE Power Supply Type</b>	End-span + Mid-span
<b>Power Pin Assignment</b>	Pair 1 End-span: 1/2 (-), 3/6 (+) Pair 2 Mid-span: 4/5 (+), 7/8 (-)
<b>PoE mode</b>	<b>Standard:</b> To provide power to the PD device that follows the IEEE 802.3af/at/bt standard. <b>Legacy:</b> To provide power to the PD device that does not fully follow the IEEE 802.3af/at/bt standard. Besides, the Legacy mode supports PoH and Ultra PoE.
<b>Standards Conformance</b>	
<b>Standards Compliance</b>	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet IEEE 802.3bt 4-pair Power over Ethernet Type 3 IEEE 802.3at Power over Ethernet Plus IEEE 802.3af Power over Ethernet
<b>Regulatory Compliance</b>	FCC Part 15 Class A, CE
<b>Environment</b>	
<b>Operating Temperature</b>	-40 ~ 75 degrees C
<b>Storage Temperature</b>	-40 ~ 85 degrees C
<b>Operating Humidity</b>	5 ~ 90%, relative humidity, non-condensing
<b>Storage Humidity</b>	5 ~ 90%, relative humidity, non-condensing
<b>Standard Accessories</b>	
<b>Package Contents</b>	<ul style="list-style-type: none"> <li>● IPOE-171-60W</li> <li>● User's manual</li> <li>● Wall-mount kit</li> <li>● Dust cap</li> </ul>

### 3.3 PHYSICAL SPECIFICATIONS:

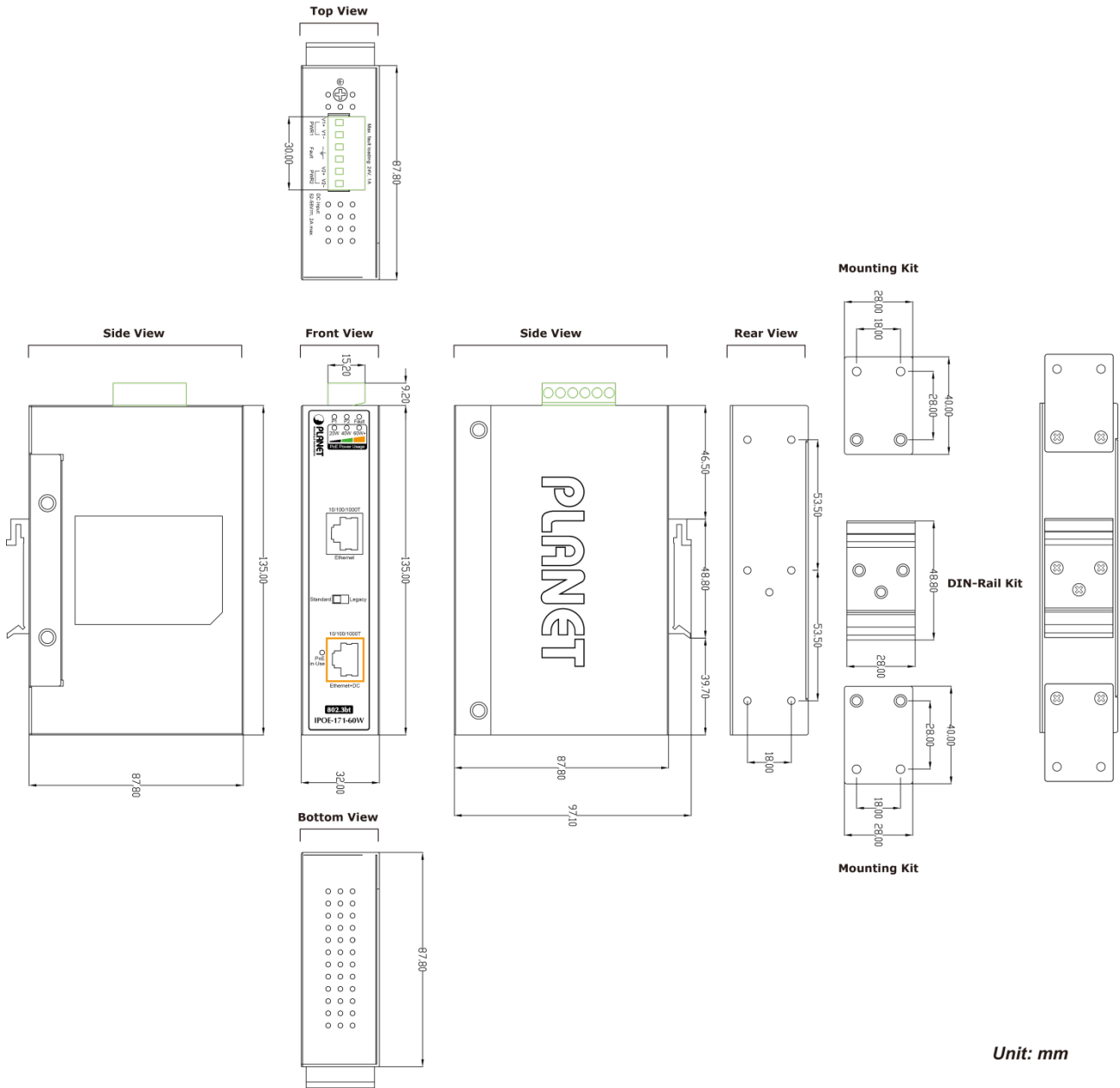
■ **Dimensions (W x D x H)**

135 x 87.8 x 32 mm

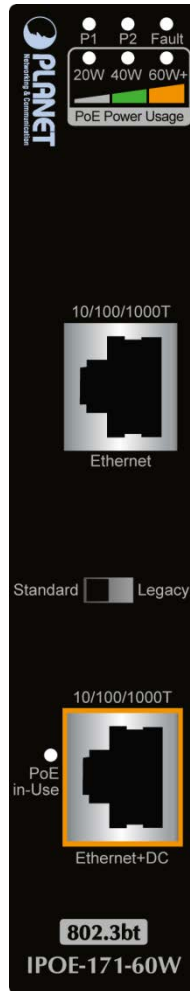
■ **Weight**

430g

■ **Diagram**



■ **Front Panel**



■ **LED Indicators**

LED	Color	Function
P1	Green	Lights to indicate power 1 has power.
P2	Green	Lights to indicate power 2 has power.
FAULT	Red	Lights to indicate either power 1 or power 2 has no power.
PoE-in-Use	Amber	Lights to indicate the device is providing PoE power.
PoE Usage	Amber	<ul style="list-style-type: none"> <li>● <b>Monitor DC input voltage:</b> When user powers on IPOE-171-60W, the injector will detect the DC input voltage and then PoE Usage LED will flash three times. 20W: Flashing three times means the DC input voltage is 48~50.9V. 40W: Flashing three times means the DC input voltage is 51~52.9V. 60W+: Flashing three times means the DC input voltage is 53~56V.</li> <li>● <b>Monitor power usage:</b></li> </ul>

		<p><b>20W:</b></p> <ol style="list-style-type: none"> <li>Off to indicate the PoE usage is less than 9W.</li> <li>Blinks to indicate that the PoE usage is around 10W to 19W.</li> <li>Lights to indicate the PoE usage is around 20W to 29W.</li> </ol> <p><b>40W:</b></p> <ol style="list-style-type: none"> <li>Blinks to indicate that the PoE usage is around 30W to 39W.</li> <li>Lights to indicate the PoE usage is around 40W to 49W.</li> </ol> <p><b>60W+:</b></p> <ol style="list-style-type: none"> <li>Blinks to indicate that the PoE usage is around 50W to 59W.</li> <li>Lights to indicate the PoE usage is at the maximum.</li> </ol>
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■ **PoE Mode**

PoE Mode	Description
Standard (Default)	The standard mode is chosen to provide power to the PD devices that follow the IEEE 802.3af/at/bt standard.
Legacy	The legacy mode supports PoH and Ultra PoE. It is chosen to provide power to the PD devices that do not fully follow the IEEE 802.3af/at/bt standard.

### 3.4 ENVIRONMENTAL SPECIFICATIONS

■ **Operating:**

**Temperature:** -40 ~75 degrees C

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

■ **Storage:**

**Temperature:** -40 ~85 degrees C

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

### 3.5 ELECTRICAL SPECIFICATIONS

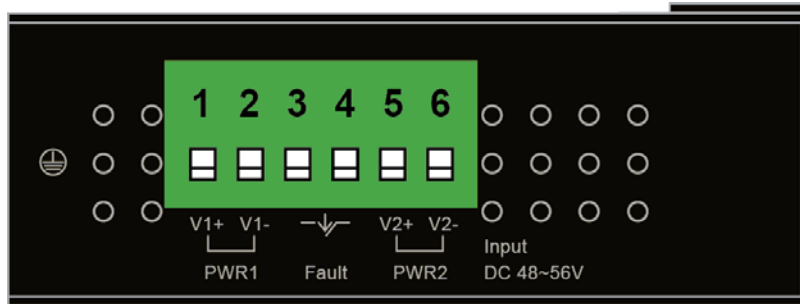
**Power over Ethernet Capability**

■ **Power Requirement:** 52~56V DC, 2A max.

■ **Power Consumption:**

	56V DC Input
<b>System On</b> (without PoE output)	1.68 Watts / 5.73 BTU
<b>60W PoE Output</b> (with 100 meters UTP cable)	72 Watts / 245.67 BTU

## Power Input PIN Definition



1	2	3	4	5	6
Power 1		Fault		Power 2	
+	-			+	-

### 3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

### 3.7 RELIABILITY

MTBF > 50,000Hrs @ 25 degrees C

### 3.8 BASIC PACKAGING

- IPOE-171-60W x 1
- User's manual x 1
- Wall-mount kit x 1
- Dust cap x 2

### 3.9 PACKING INFORMATION

<b>Box Dimensions (W x D x H):</b>	205 x 144 x 46 mm
<b>Weight:</b>	550g
<b>Carton Dimensions (W x D x H):</b>	435 x 325 x 280 mm
<b>Carton Weight:</b>	11.5kg
<b>Quantity:</b>	20pcs in one carton