SPECIFICATION FOR APPROVAL

CUSTOMER　　　:

PRODUCT NAME　: Single-Channel Active PoE Extender (Waterproof Model)

PRODUCT MODEL: TSD-EX101P/TSD-EX101GP

BRAND　　　　: TST（OEM/ODM）

DATE　　　　　: 2024 / 06 / 26

DRAWING			CUSTOMER APPROVE
DESIGNED	CHECKED	APPROVED	
VANNE	YOUTRONG	Mark	
DATE	2024 / 06 / 26		Please return the visa after confirmation, thank you!

Shenzhen Tstone Technology Co. ,Ltd
Mobile: 13640991523
http: www.tstpoe.com
Add：Room 903, Building B-14C, First Industrial Zone, Baihua Community, Guangming Street, Guangming District, Shenzhen, China

PRODUCT: Single-Channel Active PoE Extender (Waterproof Model)

MODEL：TSD-EX101P/TSD-EX101GP

What Is PoE

PoE (Power over Ethernet) refers to the technology that can transmit data signals for some IP-based terminals (such as IP phones, wireless LAN access point APs, IP cameras, etc.) without any changes to the existing Ethernet Cat.5 cabling infrastructure, and can also provide DC power supply for such devices.

A complete PoE system consists of two parts: Power Sourcing Equipment (PSE) and Powered Device (PD). The PSE device is the device that powers the Ethernet client device and is also the manager of the entire PoE (Power-over-Ethernet) process. The PD device is the PSE load that receives the power supply, that is, the client device of the PoE system. Based on the IEEE 802.3af/at standard, the two establish information about the connection status, device type, power consumption level and other aspects of the PD of the power receiving device, and use this as the basis for PSE to supply power to the PD through Ethernet.

The Principle of PoE

The standard Category 5 cable has four twisted pairs, but only two pairs are used in l0M BASE-T and 100M BASE-T. IEEE80 2.3af/at allows two uses: (1) When the idle pin is used for power supply, pins 4 and 5 are connected as the positive pole, and pins 7 and 8 are connected as the negative pole. (2) Pin 1 and pin 2 are connected as the positive pole, and pin 3 and 6 are connected as the negative pole.

The Advantages of PoE

1. Save labor and material costs. Compared with the traditional wiring method of weak current engineering, PoE only needs to install a network cable to make the IP equipment work normally. In many cases, PoE is more advantageous in the places where it is difficult to deploy AC power. As the number of network devices in the system increases, the use of PoE eliminates the need for local power supply for the equipment, which will greatly reduce deployment costs and simplify their manageability.

2. Easy to install and manage. Customers can autonomously and securely mix PoE devices and legacy devices within the system, and can coexist with existing Ethernet cables. PoE devices are compatible with the management system of existing network devices and can share the management platform with existing network devices.

3. Good security. The Power Sourcing Equipment（PSE）in a PoE system will only supply power to the Powered Device （PD） that needs to be powered. Only when the Device that needs to be powered is connected and the protocol is successfully identified, the power supply equipment will have a voltage output and supply power to the powered device, thus eliminating the risk of leakage and short circuit on the line.

Product Introduction

The TSD-EX101GP extender is compatible with the IEEE802.3af/at PoE standard protocol, featuring an adaptive transmission rate of 10/100/1000M. It takes in a PoE signal and outputs a single PoE signal with a maximum power of 30W, extending the PoE signal transmission distance by up to 100 meters.

The TSD-EX101GP extender has excellent waterproof capabilities and can be installed outdoors to provide long-distance power supply and network data transmission for terminal devices such as IP cameras, wireless APs, and bridges, avoiding the need for additional power line installations and saving users' costs.

The TSD-EX101P series includes two products：

TSD-EX101P: 10/100M adaptive transmission rate;

TSD-EX101GP: 10/100/1000M adaptive transmission rate.

Product Description

Input and output configuration of TSD-EX101GP:

RJ45 port 1: Input 48V 0.5A PoE signal

RJ45 port 2: Output 48V 0.5A PoE signal

Dimensions: 99.5*25.5*23 mm (L*W*H), Product weight: 60g, Color and material: White plastic shell. The TSD-EX101GP comes with two sets of waterproof four-piece kits. The total length with the waterproof four-piece kits: 157 mm.

The TSD-EX101GP accepts a 48V standard PoE signal as input and outputs a 48V PoE signal. It can extend the transmission distance by 100 meters and is adaptive to transmission rates of 10/100/1000M. The output power supply pins are RJ12+ and RJ36-. The product features overheat protection, overvoltage protection, over-current protection, and short circuit protection, among other functions.

The TSD-EX101GP complies with the international standard protocol of IEEE802.3af/at PoE, and its EMC parameters meet the requirements of IEC 61000-4-2/3/4/5/6 standards. It has obtained certifications such as CE, FCC, and RoHS. The TSD-EX101GP has excellent waterproof performance and can operate in various outdoor environments such as rainy and humid conditions. With a maximum extension distance of 100 meters, it effectively solves the problem of long-distance transmission for users.

Product Features

● Input: PoE 48V 0.5A

● Output: PoE 48V 0.5A

● IEEE 802.3af/at PoE international standard protocol

● Complies with IEC 61000-4-2/3/4/5/6 standards for EMC

● CE, FCC, RoHS certifications

● Supply pin positions: RJ12+, RJ36-

- Maximum output power of a single port: 30W

- 10/100/1000M adaptive transmission rate

- Overheat protection, short circuit protection, overvoltage protection, overload protection

- Gigabit high-power network filter

- Original electronic components from international brands, high precision and high performance

- High-power high-conduction low-impedance transistor, excellent reliability and temperature tolerance

- Eco-friendly high-temperature PCB material, eco-friendly lead-free process

- Pure copper pin connectors to ensure stable contact

- Equipped with a waterproof set*2

Specifications

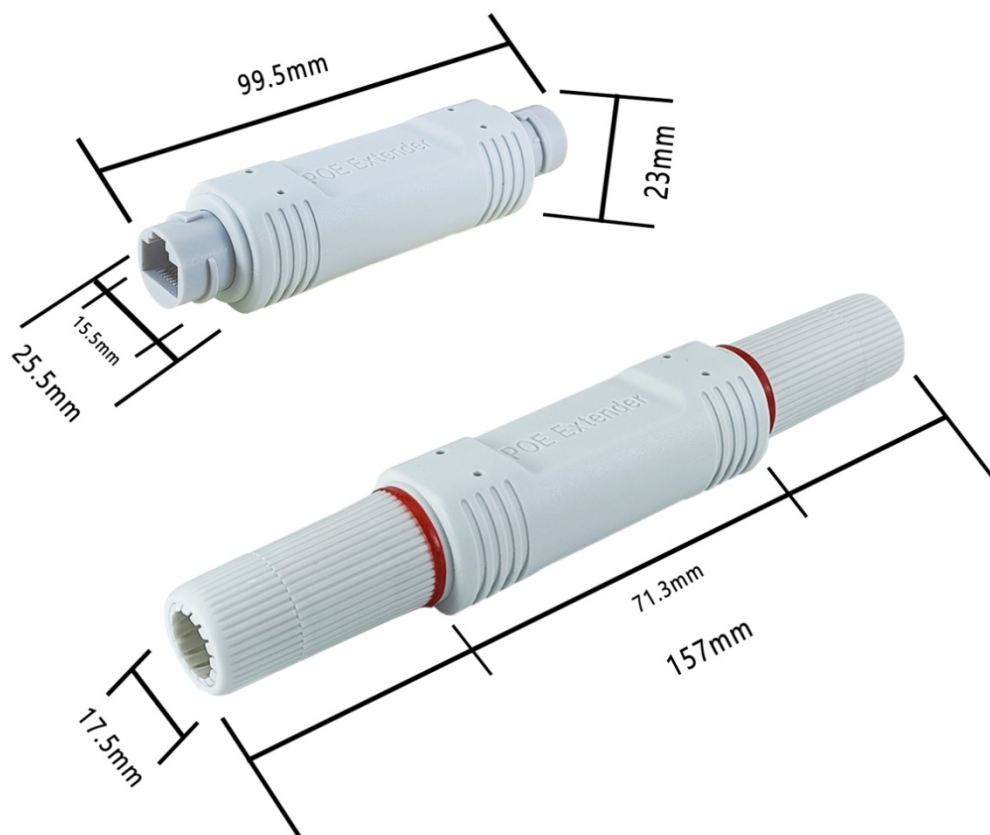| Product parameter table		
Product Name	Single-Channel Active PoE Extender (Waterproof Model)	
Product Model	TSD-EX101P	TSD-EX101GP
PoE Standard	IEEE.802.3af/at	
Input Voltage	PoE 48V 0.5A	
Output	PoE 48V 0.5A	
Conversion Efficiency	≧90%	
PoE Pin	PoE: RJ12+，RJ36-	
Conversion Mode	/	
Data Rate	10/100M adaptive transmission rate	10/100/1000M adaptive transmission rate
Transmission Distance	100 meters(Category 5e Cable (Cat5e))	
Surge Protection	4KV	
Circuit Protection	Overheat protection, overvoltage protection Over-current protection, short circuit protection	
LED Indicator	Green LED: Data, Yellow LED: Power	

Interface	RJ45 network port 1: 48V 0.5A PoE IN
	RJ45 network port 2: 48V 0.5A PoE OUT
Function	/
Material	Hard plastic casing
Color	White
Accessories	waterproof four-piece set, operation manual
EMC	IEC 61000-4-2/3/4/5/6
Temperature	-20 ~ 60℃ For Operating
	-30 ~ 80℃ For Storage
Humidity	RH95% MAX (Non-condensation)
Weight	N.W：60g
Dimension	157 * 25.5 * 23 mm (with waterproof four-piece set (L * W * H))
Package	Transparent blister packaging box (150*85*30mm L*W*H)

Product Applications

The TSD-EX101GP extender can simultaneously maintain power and data synchronization transmission and extend the transmission distance of Ethernet signals. It is mainly applied in scenarios such as security monitoring, outdoor communication, and intelligent buildings. The use of TSD-EX101GP extender can reduce the wiring workload, complexity and cost for users, effectively solve the signal attenuation and distance limitation problems in PoE transmission, and meet the requirements for long-distance equipment power supply and networking.
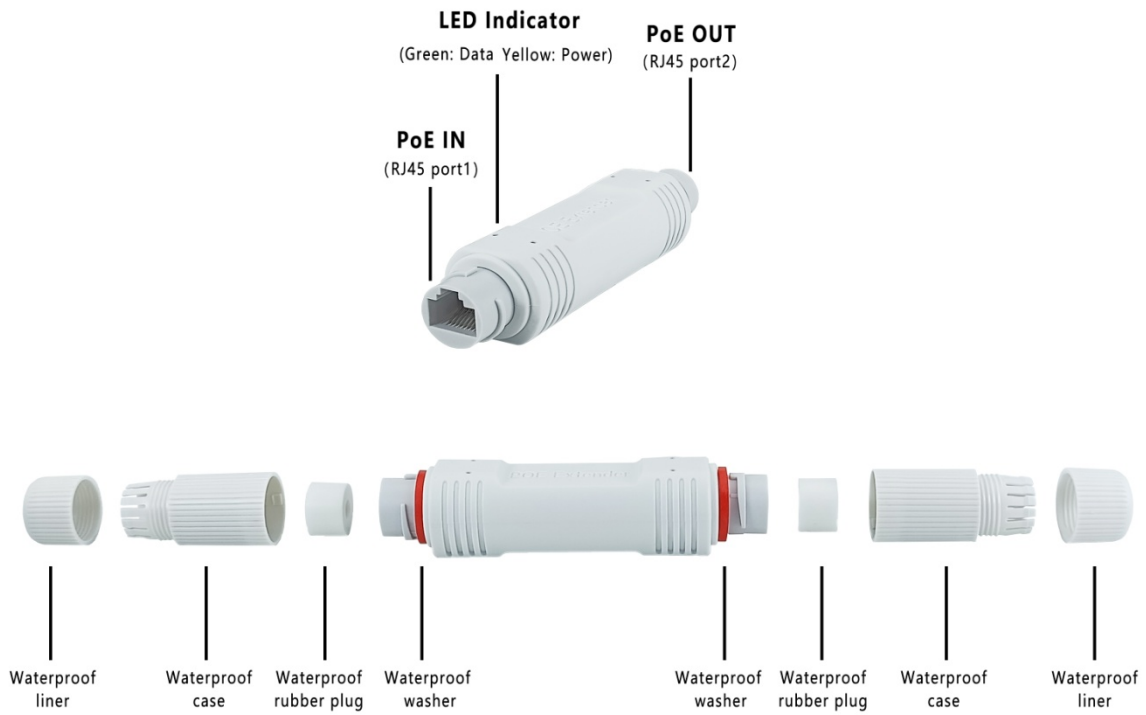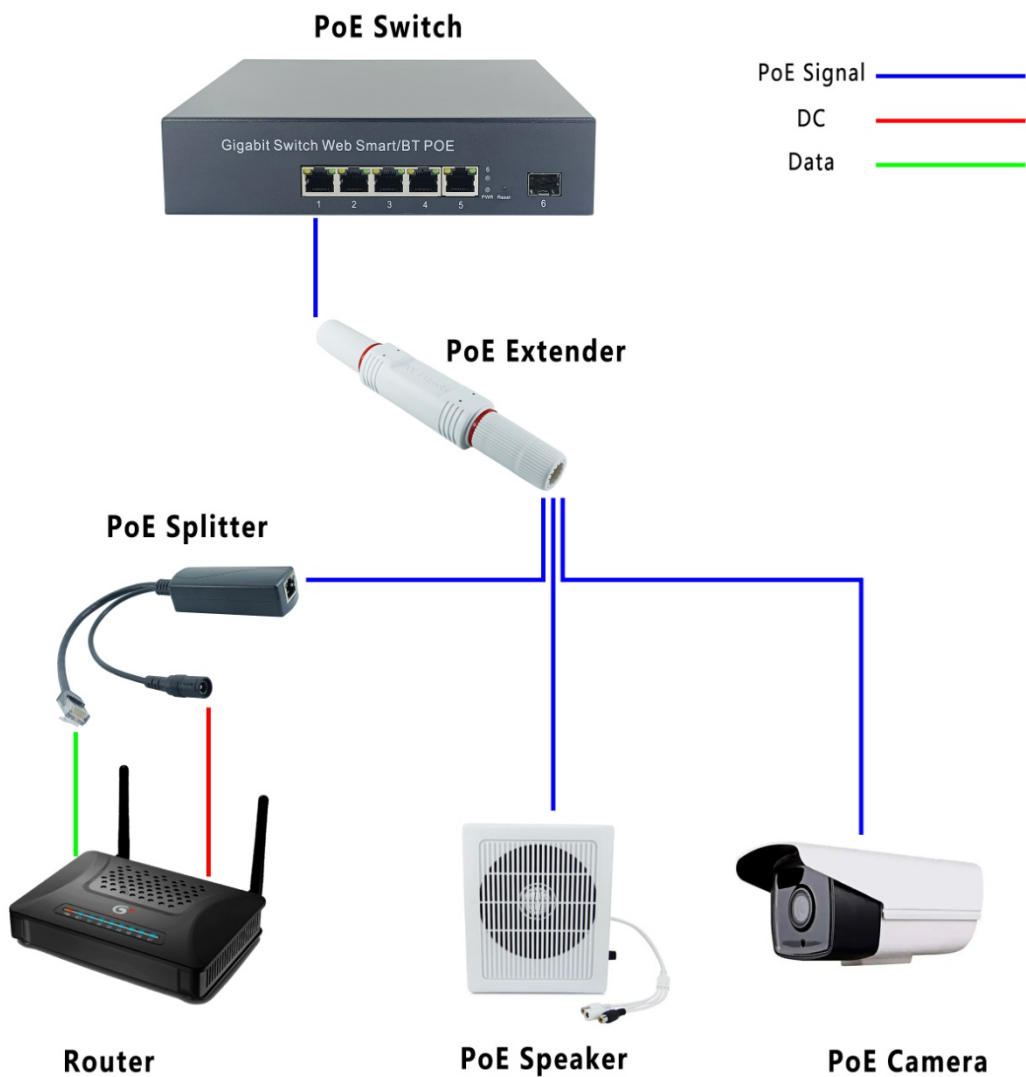
Dimensions

Interface Definition

LED Indicator
(Green: Data Yellow: Power)

PoE OUT
(RJ45 port2)

PoE IN
(RJ45 port1)

| Waterproof liner | Waterproof case | Waterproof rubber plug | Waterproof washer | | Waterproof washer | Waterproof rubber plug | Waterproof case | Waterproof liner |

Topology Diagram for Product Installation and Application
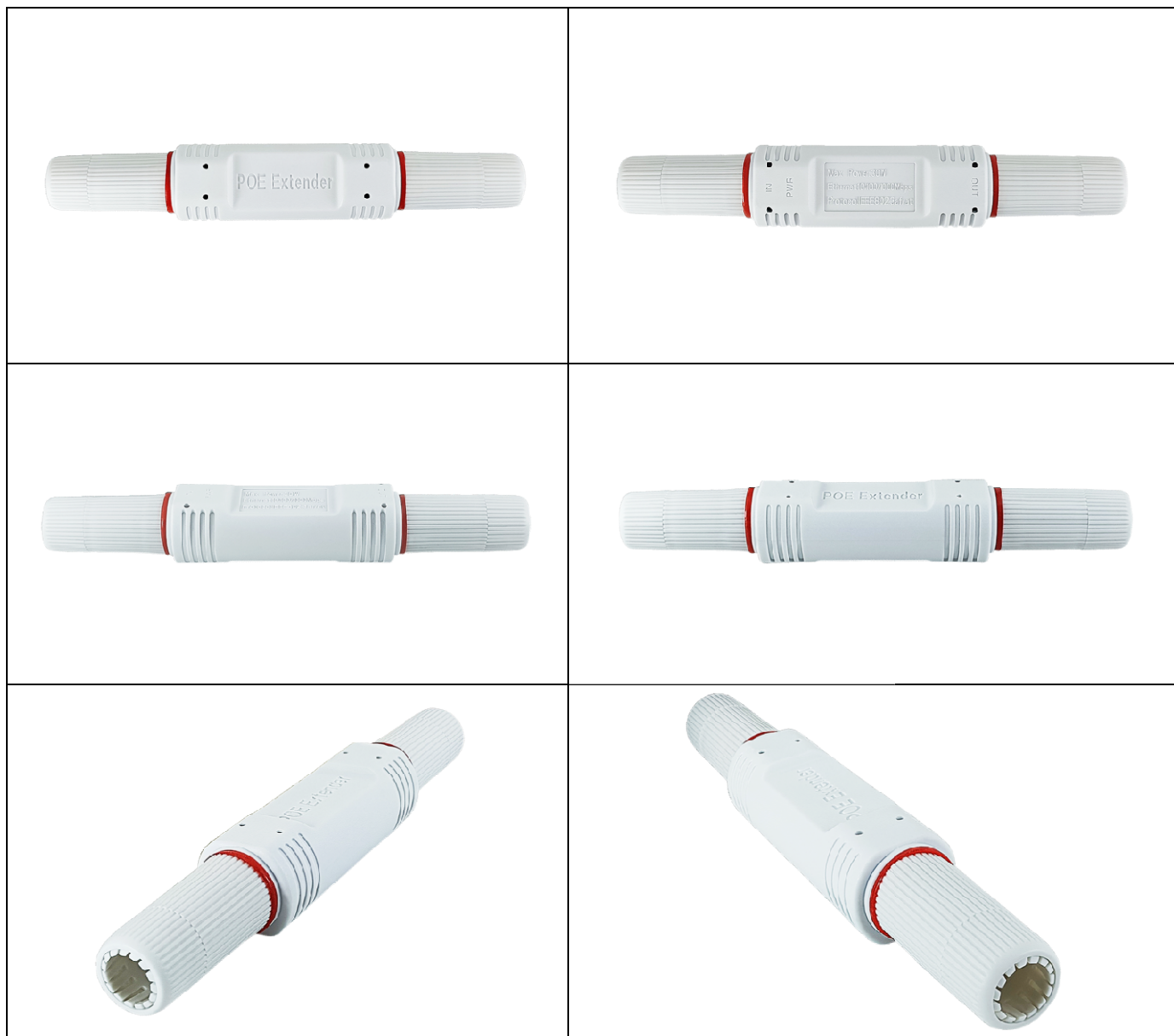
Application Scenarios

Outdoor Bridge

IP Camera

Router

Product Detail
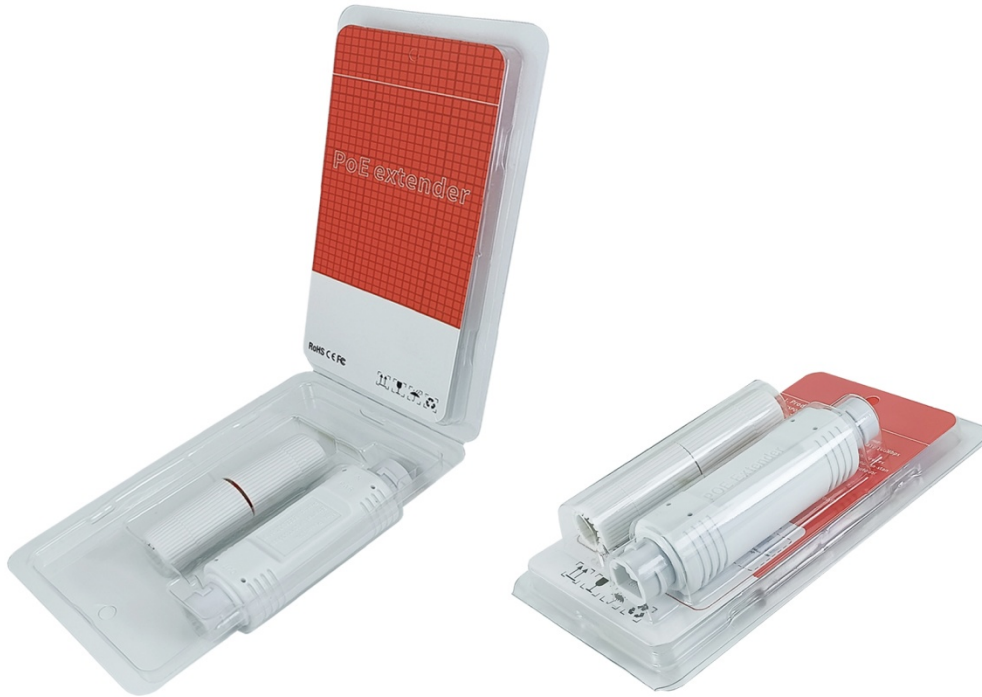
Product Package

Package Size: 15*8.5*3 cm (L*W*H)
MPQ: 1 PCS
N.W: 60 G
G.W: 75 G

Packing List	
Item	**Number**
TSD-EX101GP	1
Waterproof four-piece set	2
Operation manual	1