



深圳市拓视盾科技有限公司

Shenzhen Tstone Technology Co., Ltd

## SPECIFICATION FOR APPROVAL

CUSTOMER : \_\_\_\_\_

PRODUCT NAME : Commercial Display 30W Ultra-Thin Isolated PoE PD Module

PRODUCT MODEL : \_\_\_\_\_ TSD-V205

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

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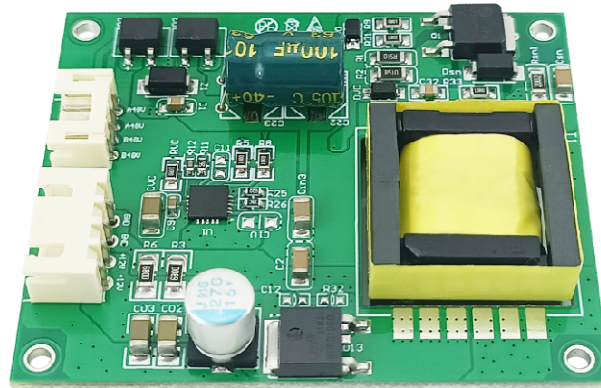
http: [www.tstpoe.com](http://www.tstpoe.com)

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## PRODUCT: Commercial Display 30W Ultra-Thin Isolated PoE PD Module

MODEL: TSD-V205



### 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 10M BASE-T and 100M BASE-T. IEEE802.3af/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) Pins 1 and 2 are connected as the positive pole, and pins 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

TSD-V205 supports the IEEE802.3af/at PoE international standard protocol, with a maximum output power of 30W. The module can convert the 38-56V DC signal within the PoE signal into a stable output of 12V 2.5A DC.

TSD-V205 can be applied to devices such as all-in-one machines, commercial displays, electronic class signs, and advertising players. It effectively simplifies the cabling deployment of user terminal equipment, while enabling centralized and unified management of multiple powered devices, thereby improving operation and maintenance efficiency.



## Product Description

Interface Configuration of TSD-V205 Module:

Input Interface: 4-pin PH2.0mm socket for DC 38-56V input signal.

Output Interface: 4-pin PH2.54mm socket for DC 12V 2.5A output signal.

Overall Dimensions:  $57 \times 48 \times 11.6$  mm. PCB Design: square structure, double-layer single-sided design, with glossy green solder mask. PCB Thickness: 1.7 mm. Module Maximum Height: 11.6 mm. Screw Hole Diameter:  $\Phi = 2.1$  mm  $\times$  4. Hole Center Distance:  $L = 51.4$  mm,  $W = 42.3$  mm. Module Design: Transformer: Sunk-type ultra-thin transformer. Interface: Horizontal layout. Overall Design: Ultra-slim profile. Net Weight: 21 g.

TSD-V205 equipped with an isolation transformer, providing electrical isolation. Additionally, it offers surge protection (4KV), lightning strike protection, short-circuit protection, overload protection, and high-temperature protection to ensure circuit safety. The module supports wide DC 38-56V input voltage and delivers a stable DC 12V 2.5A output, with a maximum output power of 30W.

TSD-V205 complies with the IEEE802.3af/at PoE international standard protocol. EMC parameters meet IEC 61000-4-2/3/4/5/6 standards. The product has obtained authoritative certifications such as CE, FC, and RoHS. With its high precision, excellent performance, and reliable safety and quality, TSD-V205 has received widespread acclaim from domestic and international users.

## Product Features

- Input: Wide-range PoE DC 38-56V
- Output: 12V DC, Max 2.5A
- Compliance: IEEE 802.3af/at PoE International Standard
- Certifications: CE, FC, RoHS
- EMC Standards: Meets IEC 61000-4-2/3/4/5/6 Requirements
- Port Compatibility: RJ12 + RJ36- / RJ45 + RJ78- Fully Compatible
- Surge Protection: 4KV lightning surge resistance
- Design Features: ultra-slim compact design, double-layer PCB with single-sided layout
- High-temperature-resistant, flame-retardant horizontal connectors



- High-frequency, low-resistance electrolytic capacitors (reduces high-frequency loss)
- Solid-state SMD capacitors (long lifespan, stable performance)
- Pure copper thickened wire cores, sunk-type ultra-thin isolation transformer
- Overheat protection, overvoltage protection, overload protection, short-circuit protection
- High-precision branded electronic components
- High-power, low-impedance transistors for superior conductivity
- Pure copper pin connectors (excellent electrical & thermal conductivity)
- Conversion efficiency  $\geq 85\%$
- High-temperature-resistant, eco-friendly PCB material
- Lead-free manufacturing process

## Specifications

Product parameter table	
Product Name	Commercial Display 30W Ultra-Thin Isolated PoE PD Module
Product Model	TSD-V205
PoE Standard	IEEE802.3af/at
Input Voltage	PoE: DC38-56V
Output	12V DC MAX2.5A
Conversion Efficiency	$\geq 85\%$
PoE Pin	RJ12+ RJ36- / RJ45+ RJ78- Fully compatible
Conversion Mode	Isolated type
Data Rate	/
Transmission Distance	100 meters(Category 5e Cable (Cat5e) )
Surge Protection	4KV
Circuit Protection	Short-circuit Protection, over-current Protection Overvoltage Protection, overheating Protection
LED Indicator	/
Interface	Input Port (4-Pin PH2.0mm Socket): DC 38-56V IN Output Port (4-Pin PH2.54mm Socket): DC 12V OUT

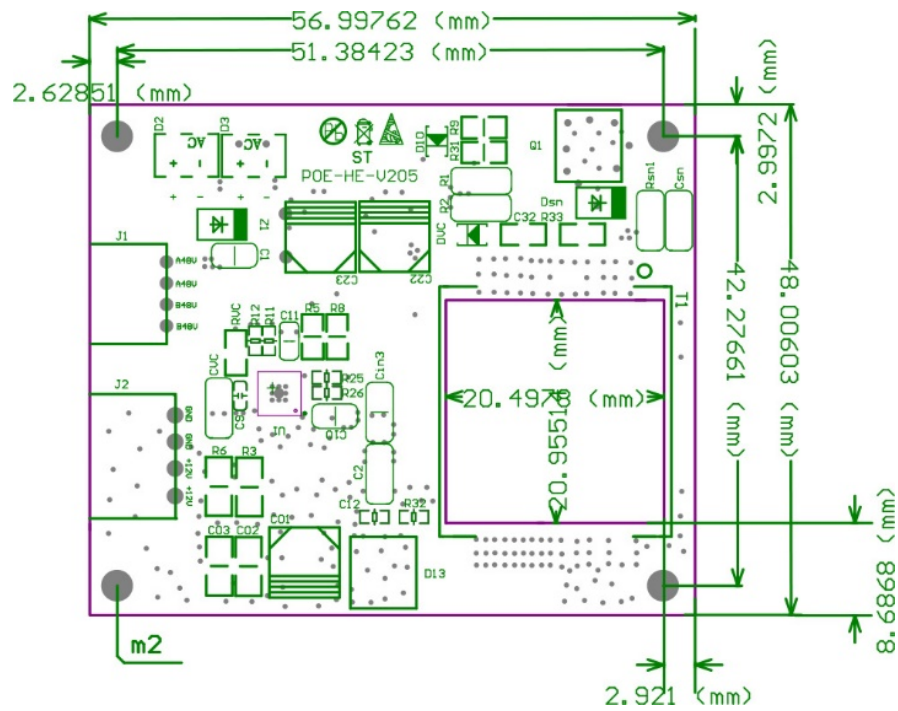


Function	/
Material	FR-4
Color	bright green oil
Accessories	/
EMC	IEC 61000-4-2/3/4/5/6
Temperature	-20~60°C For Operating -30~80°C For Storage
Humidity	RH95% MAX (Non-condensation)
Weight	N.W: 21g
Dimension	57*48*11.6mm
Package	Anti-static pearl cotton

## Product Applications

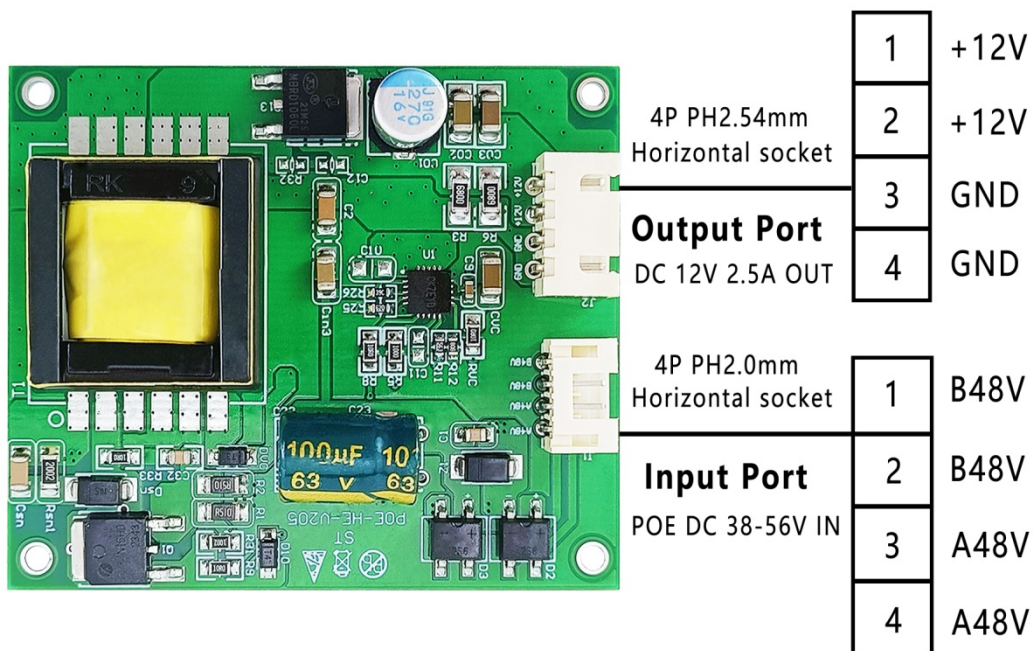
The TSD-V205 module features an ultra-slim design with a maximum thickness of 12mm, significantly improving internal space utilization while enhancing functional integration. Its compact and lightweight structure offers flexible and easy installation, making it compatible with various terminal devices such as POS machines, all-in-one computers, and commercial displays. The module delivers DC power to connected devices via Ethernet cables, streamlining wiring processes and reducing installation complexity and overall costs. Since its launch, the TSD-V205 has earned consistent praise from both end-users and manufacturers for its outstanding performance.

## Dimensions



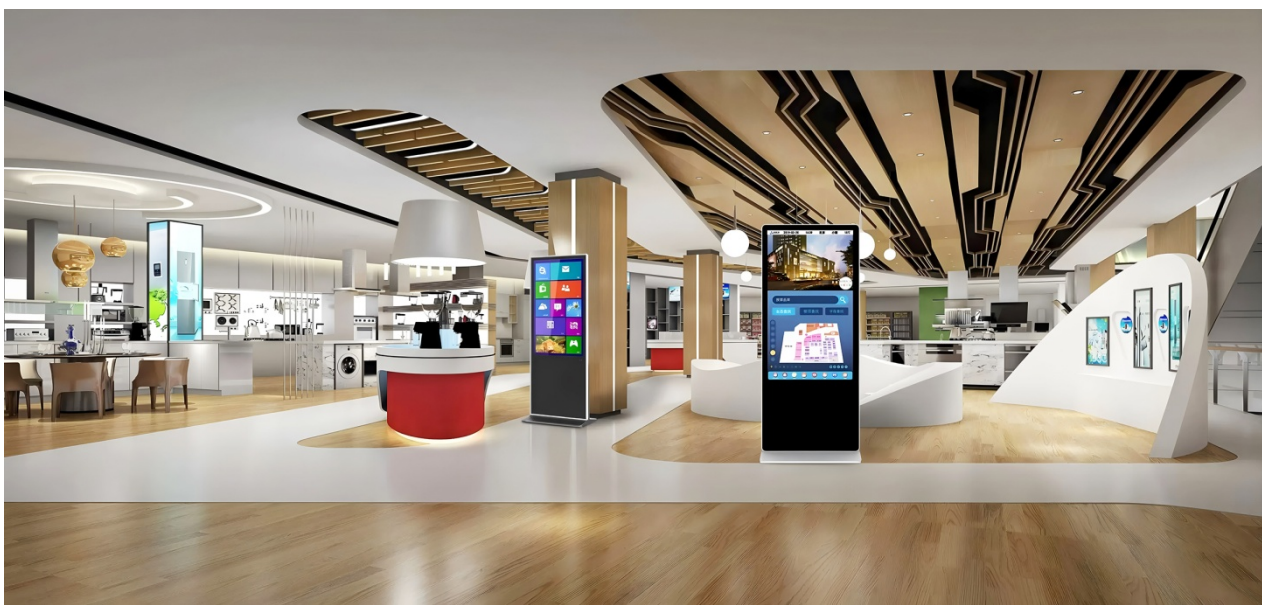


## Interface Definition





## Application Scenarios



Floor-Standing Advertising Display

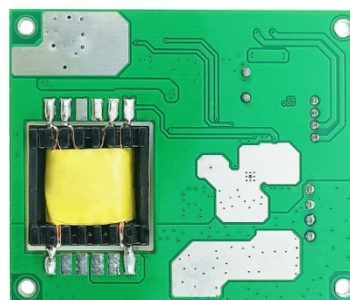
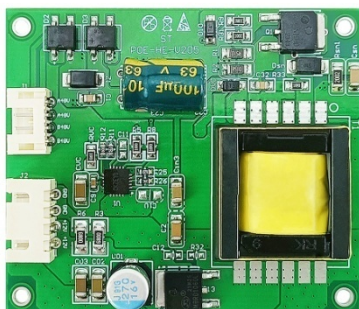


Access Control All-in-One Machine



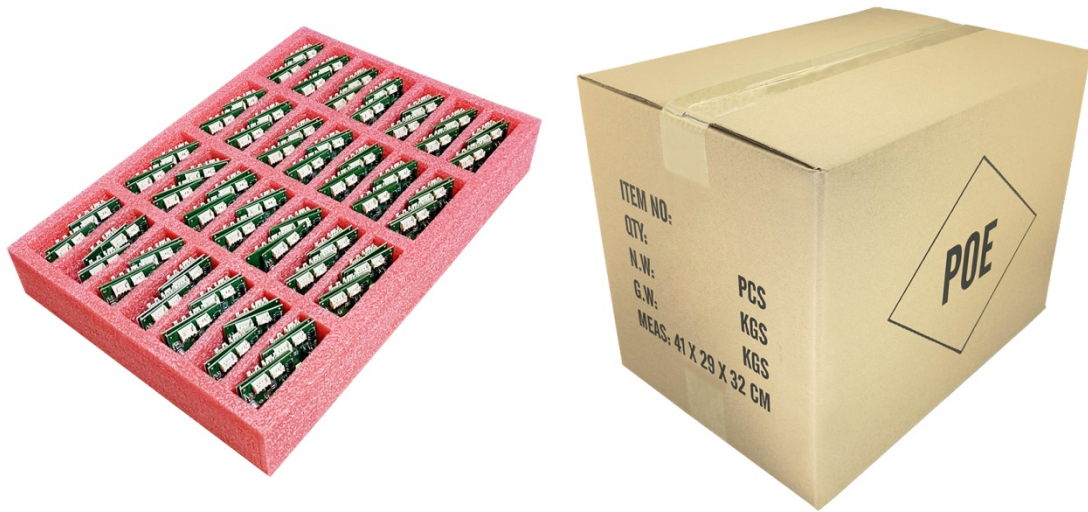
Synchronized Electric Clock

## Product Detail





## Product Package



Package Size: 41\*29\*32 cm (L\*W\*H)

MPQ: 560 PCS

N.W: 11.8 kg

G.W: 12.7 kg