Loading...

RS232 / RS485 / CAN / DALI2 , Power / Relays / SCR, ESP32-S3, Industrial Controller

Industrial ESP32-S3 Control Board With 8-Channel Digital Input & Output, Built-in Xtensa 32-bit LX7 Dual-core Processor, Up To 240MHz, With Multiple Isolation Protection Circuits

SKU	32108
Part No.	ESP32-S3-POE-ETH-8DI-8DO
Brand	Waveshare

$42.99

1 ADD TO CART

Price	Quantity
$42.99	1
$41.99	2
$41.49	3
$41.29	4+

Share:

Contact

Industrial ESP32-S3 Control Board With 8-Channel Digital Input & Output, Built-In Xtensa 32-Bit LX7 Dual-Core Processor, Up To 240MHz, With Multiple Isolation Protection Circuits

Industrial 8-Ch ESP32-S3 Digital Input & Output Controller

Supports WiFi / Bluetooth / RS485 / CAN / Ethernet Port, etc.

Built-In Protection Circuits Such As Power Isolation And Optocoupler Isolation,
Safe & Stable & Reliable

Contact

Features

- Based on ESP32-S3 microcontroller with Xtensa 32-bit LX7 dual-core processor, capable of running at 240 MHz
- Integrated 2.4GHz Wi-Fi and Bluetooth LE dual-mode wireless communication, with excellent RF performance
- The outputs adopt Darlington transistors with optocoupler isolation, delivering higher drive capability with a sink current of up to 500 mA, and feature built-in flyback diode protection
- Supports passive and active digital input, with bi-directional optocoupler isolation. The digital output supports digital input linkage control
- Onboard isolated RS485 interface, for connecting to various RS485 Modbus industrial modules or sensors
- Onboard isolated CAN interface, for connecting to various CAN devices
- Onboard pin header, allowing access to other devices
- Onboard USB Type-C port for power supply, firmware downloading and debugging
- Onboard power supply screw terminal, supports 7~36V wide voltage input, suitable for industrial applications
- Onboard RTC chip, supports scheduled tasks
- Onboard W5500 Ethernet chip for extending 10/100Mbps network port through SPI interface
- Built-in PoE module for PoE capability (compliant with IEEE 802.3af standard)
- Onboard optocoupler isolation to prevent interference from external circuit
- Onboard digital isolation to prevent interference from external signal
- Onboard unibody power supply isolation, providing stable isolated voltage, no extra power supply required for the isolated terminal
- Onboard TF card slot for external TF card storage of images and files
- Built-in buzzer, RGB LED, power supply, RS485 and CAN TX/RX indicators for monitoring the operating status of the devices
- Rail-mounted protective case, easy to install, safe to use

Specifications

VERSION	ESP32-S3-POE-ETH-8DI-8DO	
MICROCONTROLLER	ESP32-S3 (Default module: ESP32-S3-WROOM-1U-N16R8, customizable for other modules)	
WIRELESS COMMUNICATION	2.4GHz WiFi (802.11 b/g/n), Bluetooth 5 (LE)	
USB PORT	Connector	USB Type-C
	Power supply	5V
	Functions	Power supply, USB communication, firmware downloading, etc.
ISOLATED RS485 INTERFACE	Connector	Screw terminal
	Direction control	Automatically controlled via main controller hardware flow settings
	Protection	TVS diode, surge protection & ESD protection
	Resistor	Onboard reserved 120R matching resistor, NC by default, enabled via jumper

Contact

ISOLATED CAN INTERFACE	Connector	Screw terminal
	Direction control	Hardware automatic control
	Protection	TVS diode, surge protection & ESD protection
	Resistor	Onboard reserved 120R matching resistor, NC by default, enabled via jumper
ETHERNET INTERFACE	PoE Ethernet port, supports IEEE 802.3af standard	
DIGITAL OUTPUT	Output channel	8 channels
	Input voltage	5V~40V
	Output type	Open-drain output, with load capacity of 500mA per channel (MAX)
	Isolation type	Optocoupler isolation
DIGITAL INPUT	Input channel	8 channels
	Input voltage	5V~36V
	Input type	Passive input / active input (NPN or PNP type)
	Isolation	Bi-directional optocoupler isolation
LED INDICATORS	RGB	RGB colorful LED, supports programmable control of display color
	PWR	Red power indicator, lights up when there is USB connection and voltage is detected
	TXD	Green TX indicator, lights up when the RS485/CAN port sends data
	RXD	Blue RX indicator, lights up when the device port sends data back
POWER SUPPLY SCREW TERMINAL	Voltage range	7~36V
APPEARANCE	Enclosure	Rail-mount protective case
	Dimensions	175 × 90 × 40 (mm)

Based On ESP32-S3, Designed For AIoT Market

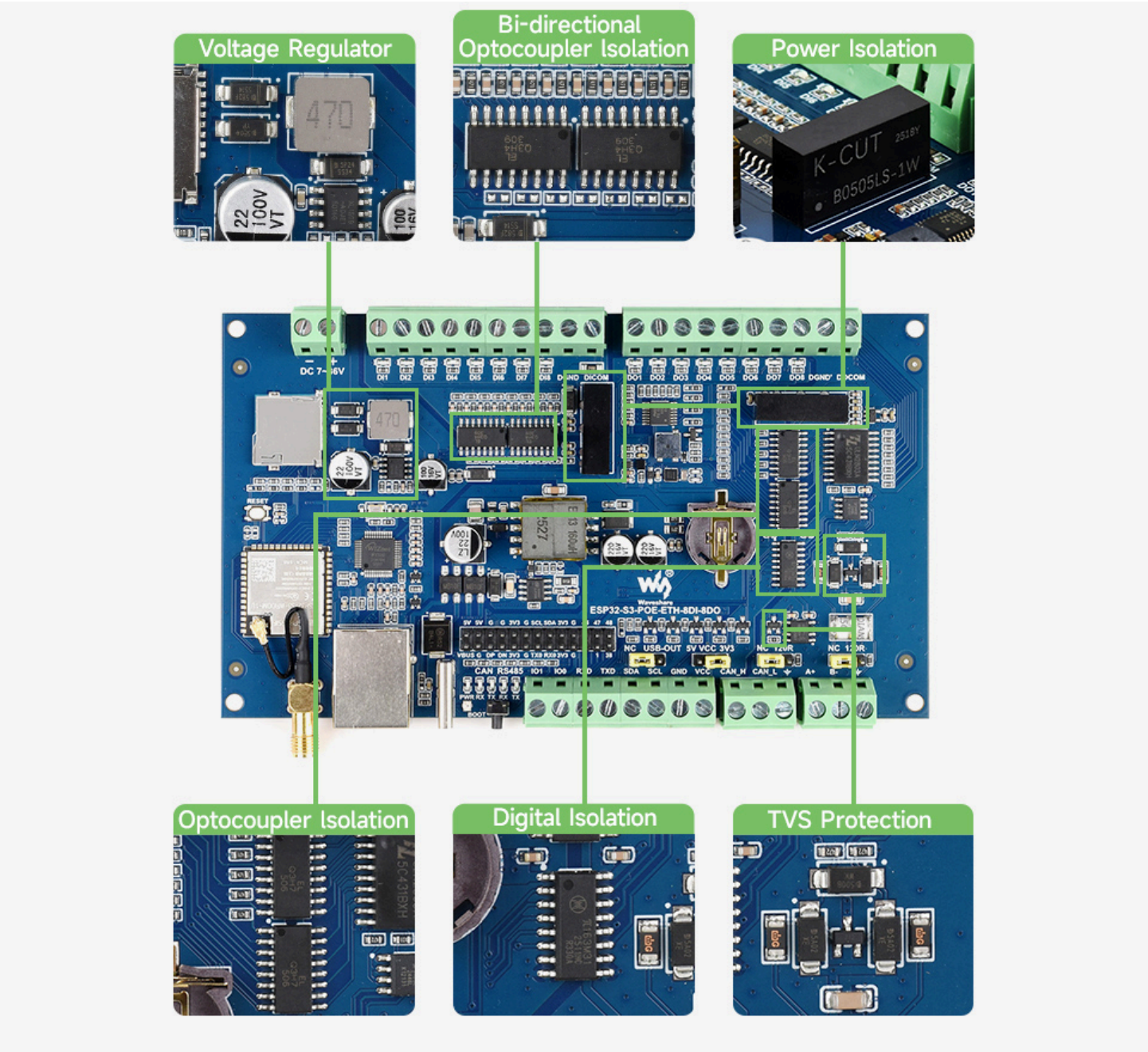
Equipped With Xtensa 32-Bit LX7 Dual-Core Processor, Capable Of Running At 240 MHz, With Powerful AI Computing Performance And Security Encryption Mechanism, Integrated 2.4GHz Wi-Fi And Bluetooth LE Dual-Mode Wireless Communication

Contact

Onboard Multiple Isolation Protection Circuits

Multiple Protections, More Safe And Reliable

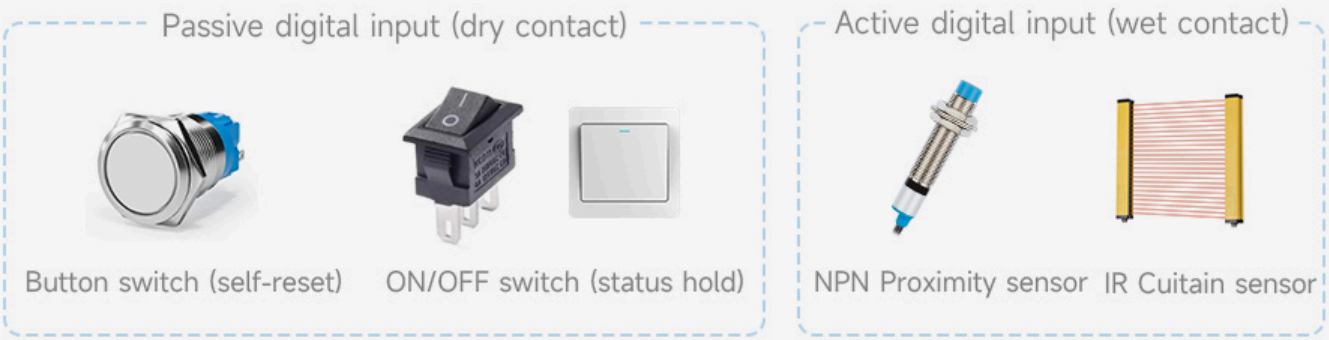
Contact

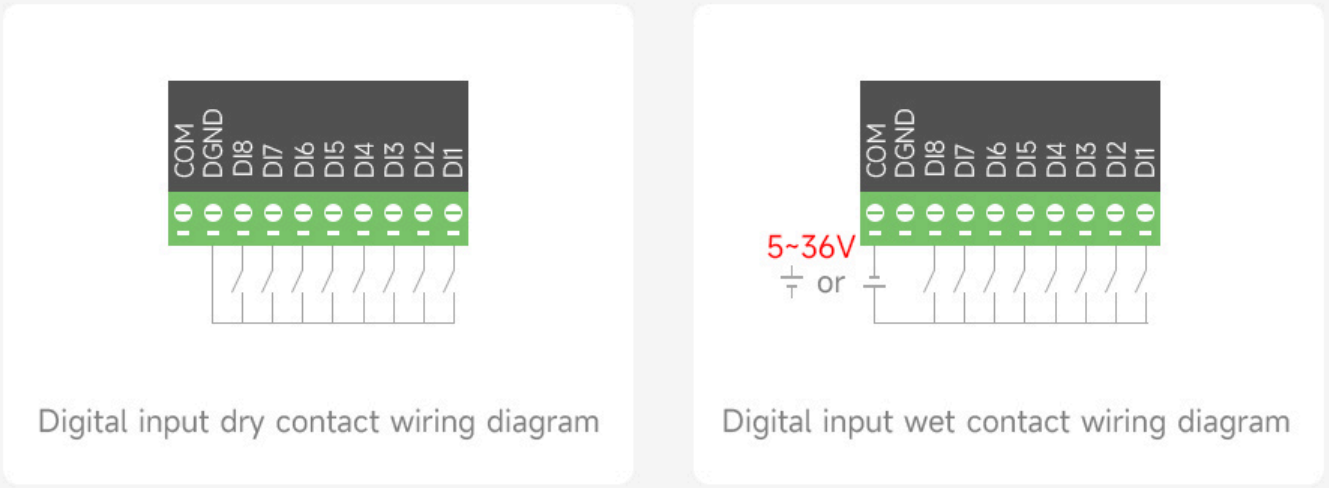


Fully Isolated Digital Input

Fully Isolated Digital Input/Output, With Bi-Directional Optocoupler Isolation,
Supports Passive And Active Inputs (PNP Or NPN Type)

Contact

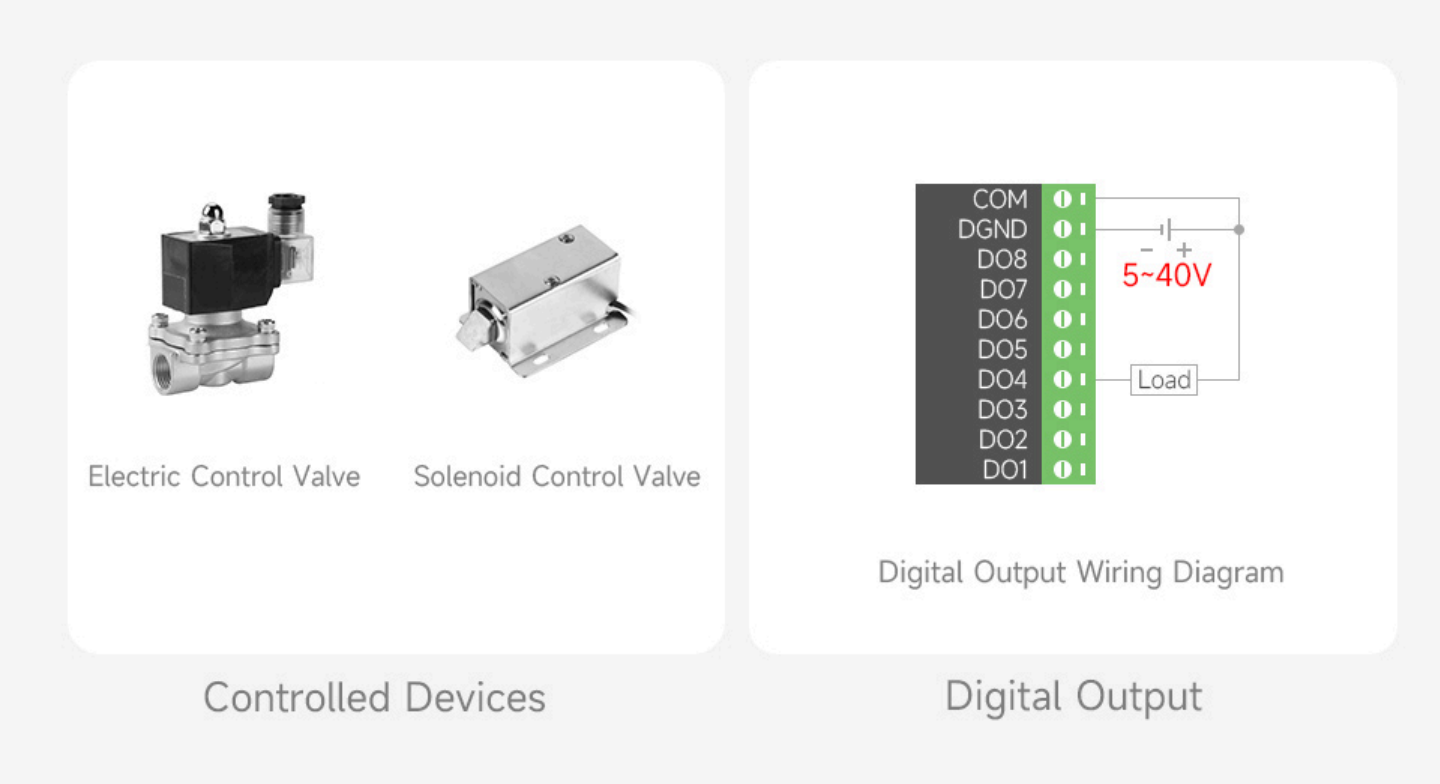




Fully Isolated Digital Output

Contact

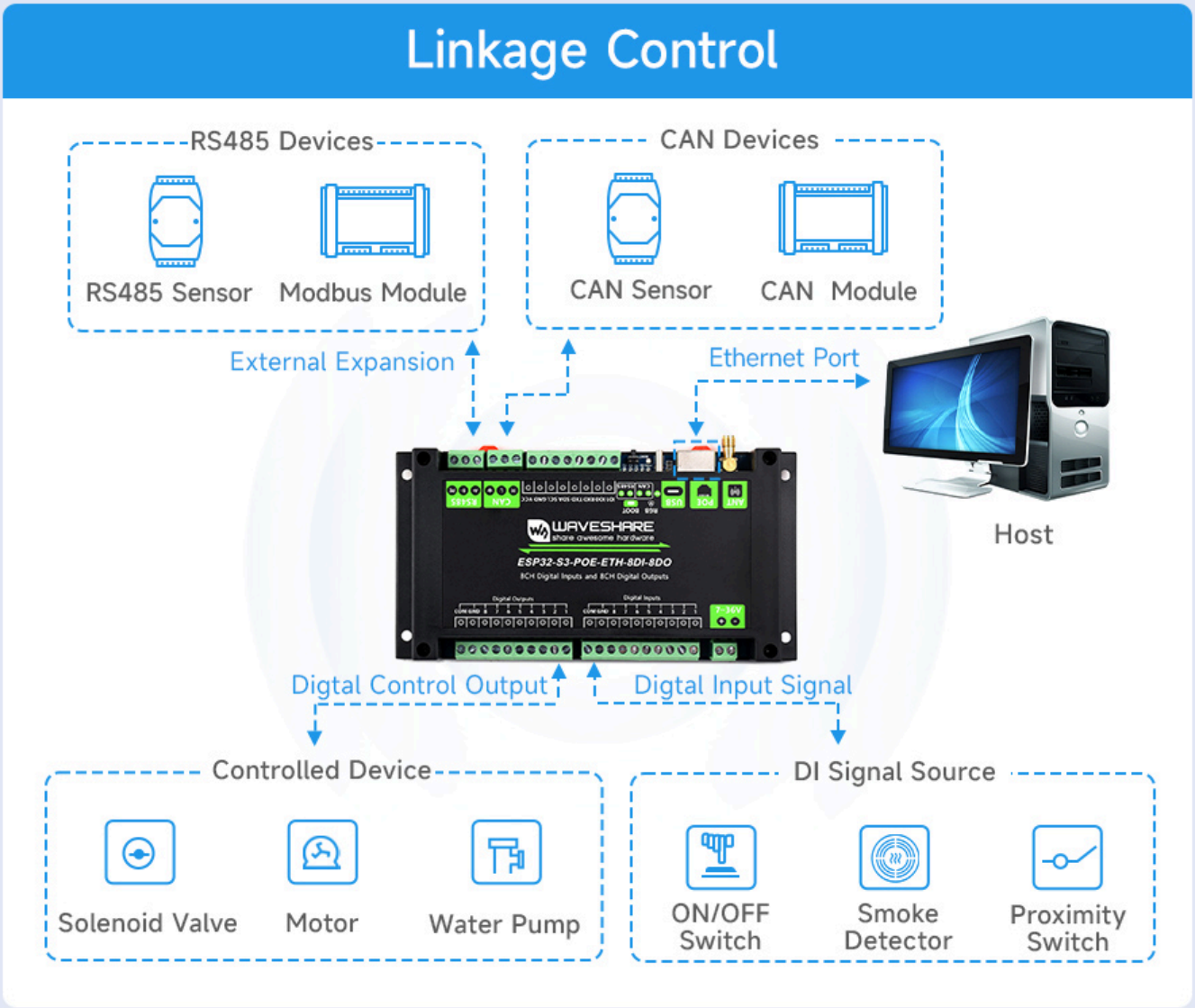
Adopts Darlington Transistor Open-Collector Output, Single-Channel Sink Current Up To 500 MA, Capable Of Directly Driving Relays



Application Scenarios

Supports RS485, Bluetooth, or Wi-Fi Networking for Remote Control

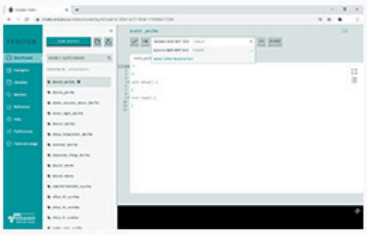
Contact



Supports Arduino IDE

Comprehensive SDK, Dev Resources, And Tutorials To Help You Easily Get Started

Contact



Arduino IDE

Arduino IDE is an open source electronic prototyping platform, convenient and flexible, easy to get started.

Built-In PoE Module

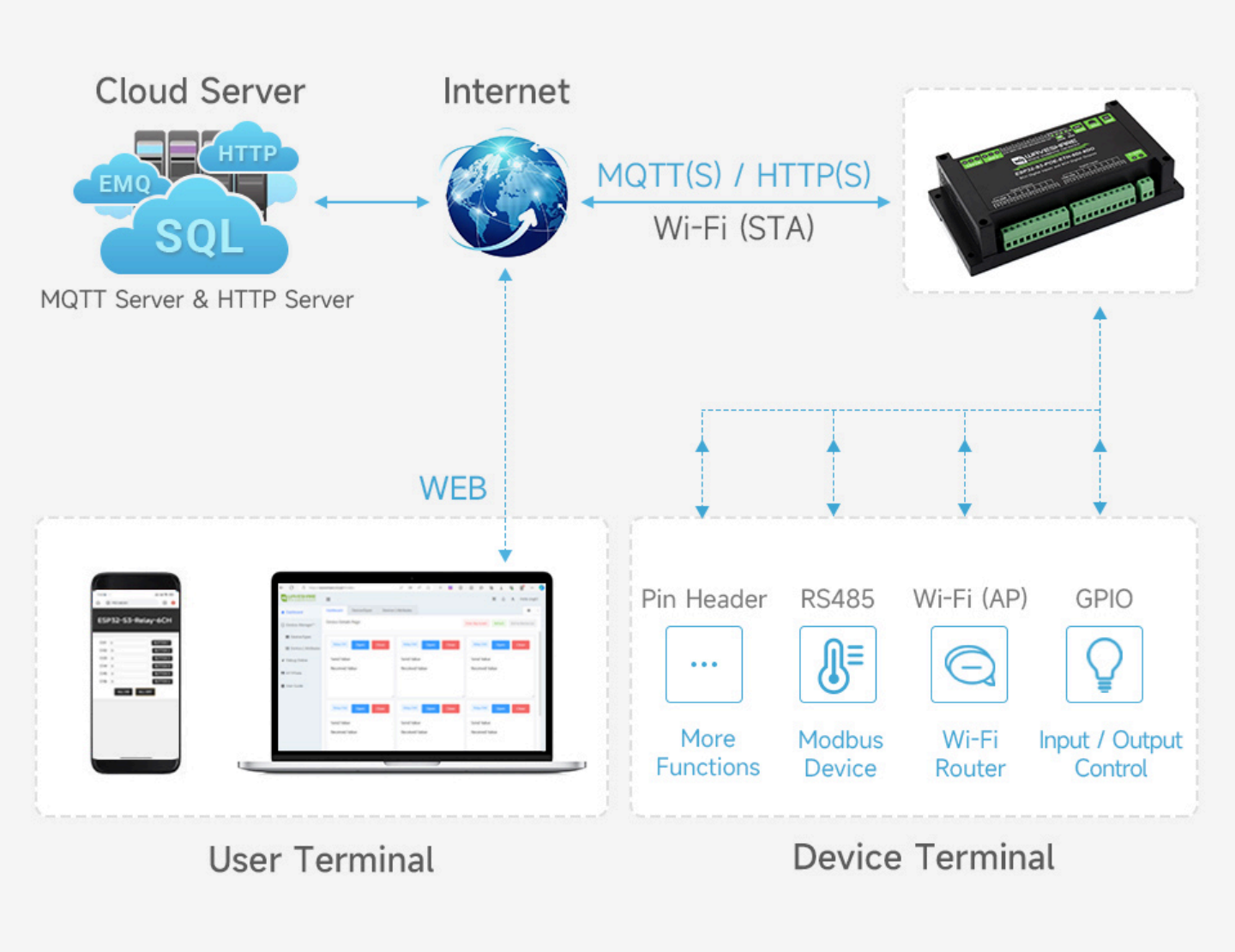
Providing Both Network Connection And Power Supply In One Cable

* the switch shown in the picture is NOT included.

Application Examples

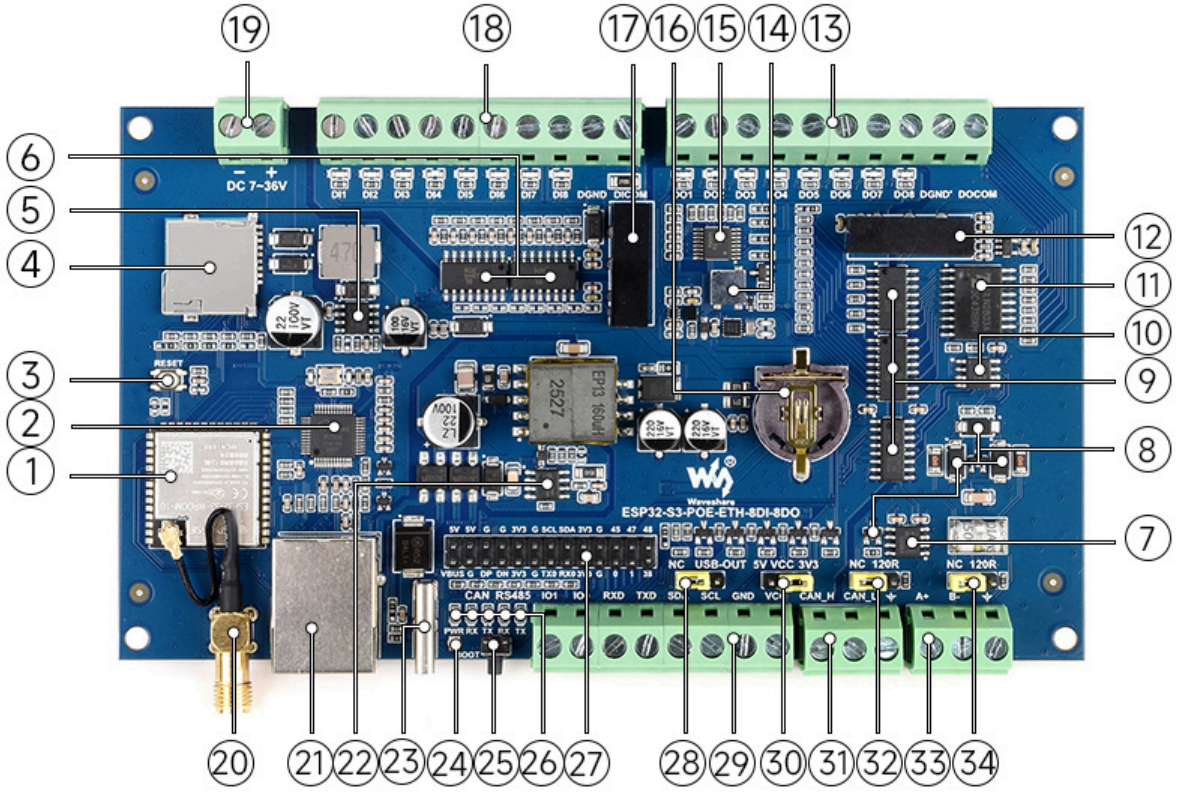
Provides Multiple Networking Demos With Waveshare.Cloud, Using The Lightweight MQTT Protocol To Achieve Data Visualization Service

Contact



What's On Board

Contact



1. **ESP32-S3-WROOM-1U-N16R8**
   Adopts ESP32-S3 series chip with Xtensa 32-bit LX7 dual-core processor, built in 16MB Flash and 8MB PSRAM
2. **W5500**
   Extends 10/100 Mbps Ethernet via SPI Interface
3. **RESET Button**
4. **TF Card Slot**
   Supports external TF card for storing images and files
5. **Power Module**
6. **Bi-directional Optocoupler Isolation**
7. **CAN Transceiver Chip**
8. **Onboard TVS (Transient Voltage Suppressor)**
   Effectively suppresses surge voltages and transient spikes in the circuit
9. **Optocoupler & Digital Isolation**
   Prevents interference from external signal
10. **RS485 Transceiver Chip**
11. **Darlington Transistor**
    sink current up to 500mA, with built-in flyback diode protection
12. **Power Isolation**
    Provides stable isolated voltage, no extra power supply required for the isolated terminal
13. **Digital Output Screw Terminals**
14. **Buzzer**
15. **TCA9554PWR**
    I/O expander for controlling digital outputs
16. **RTC Battery Holder**
17. **Power Isolation**
    Provides stable isolated voltage, no extra power supply required for the isolated terminal
18. **Digital Input Screw Terminals**
19. **Power Supply Screw Terminal**
    Supports DC 7~36V wide voltage input
20. **External Antenna Connector**
    SMA female connector, for WiFi and Bluetooth wireless communication
21. **Ethernet Port**
22. **PoE Module**
    for PoE capability, supports IEEE 802.3af standard
23. **USB Type-C Port**
    for module power supply, firmware downloading and USB communication
24. **WS2812 RGB LED**
25. **BOOT Button**
26. **LED Indicators**
    PWR: power indicator
    RXD: RS485 / CAN RX indicator
    TXD: RS485 / CAN TX indicator
27. **Pin Header**
    for connecting other devices
28. **USB Type-C Power Output Header**
    Provides external power supply via USB Type-C port
29. **Multi-Function Terminal**
30. **Voltage Level Selection for Multi-Function Terminal**
    for switching the communication logic level and output voltage of the multi-function terminal
31. **CAN Terminal**
    for connecting to external CAN devices
32. **CAN Matching Resistor**
    Onboard reserved 120R matching resistor, enabled via jumper
33. **RS485 Terminal**
    for connecting to external RS485 devices
34. **RS485 Matching Resistor**
    Onboard reserved 120R matching resistor, enabled via jumper

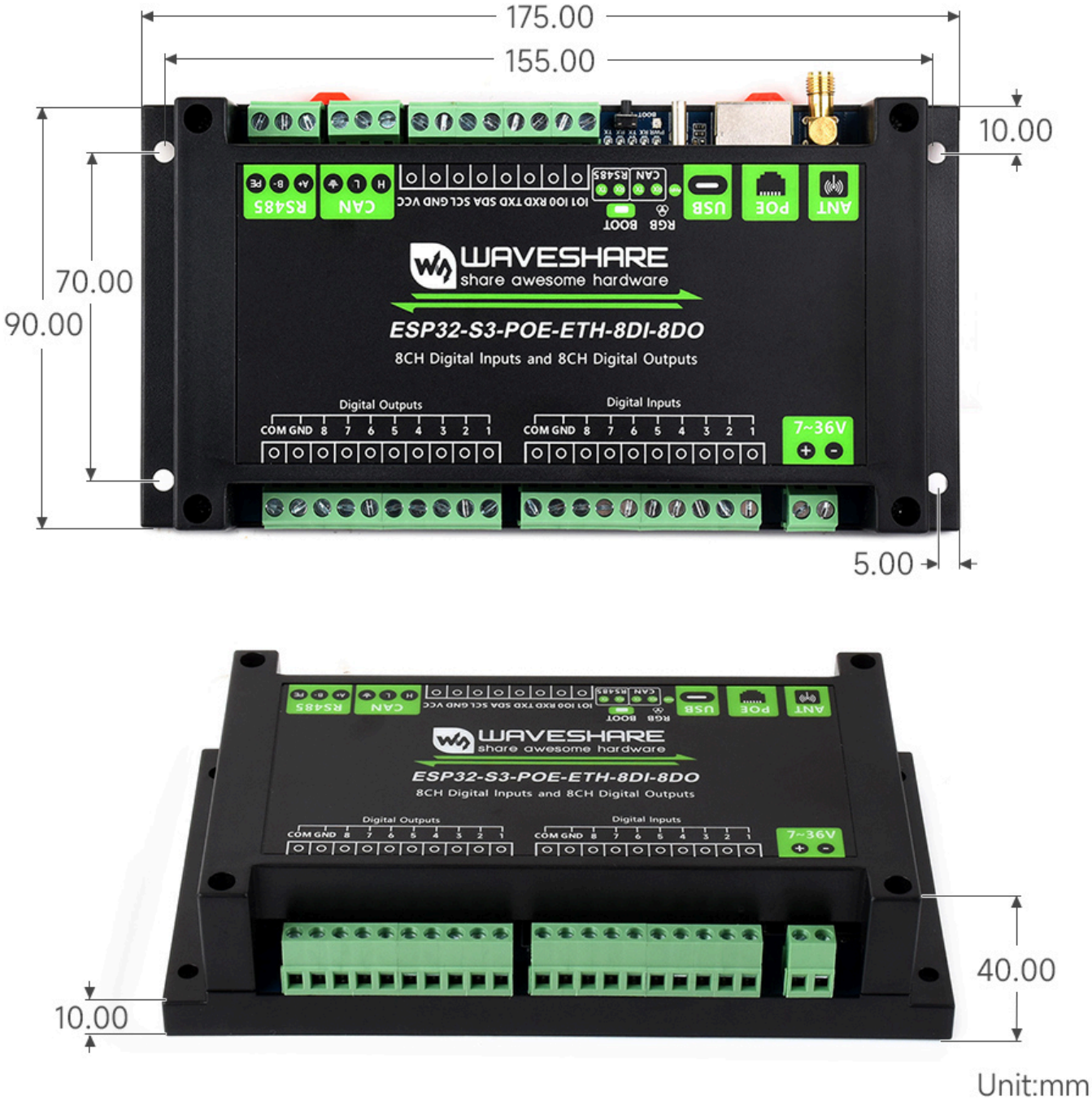
Enclosure Design

Protection Enclosure With 35mm Rail-Mount Support, Easy To Install, Safe To Use

Contact

Outline Dimensions

Contact



Support Batch Customization

Support Software And Hardware Customization

Including Hardware Interface, LOGO, Label, Case And Web Page, Etc.

Contact

Resources & Services

Wiki: www.waveshare.com/wiki/ESP32-S3-POE-ETH-8DI-8DO

Selection Guide

MODEL	DI	DO	RELAY	RS485	CAN	NETWORK PORT	POE	RTC	BUZZER	TF	ANTENNA	PIN HEADER
 ESP32-S3-Relay-6CH	-	-	6	√	-	-	-	-	√	-	√	40PIN header, compatible with Raspberry Pi Pico interface, 2.54mm pitch

Contact

 ESP32-S3-ETH-8DI-8RO	8	-	8	√	-	√	-	√	√	√	√	28PIN header, 2.54mm pitch
 ESP32-S3-POE-ETH-8DI-8RO	8	-	8	√	-	√	√	√	√	√	√	28PIN header, 2.54mm pitch
 ESP32-S3-ETH-8DI-8RO-C	8	-	8	-	√	√	-	√	√	√	√	28PIN header, 2.54mm pitch
 ESP32-S3-POE-ETH-8DI-8RO-C	8	-	8	-	√	√	√	√	√	√	√	28PIN header, 2.54mm pitch
 ESP32-S3-POE-ETH-8DI-8DO	8	8	-	√	√	√	√	√	√	√	√	8PIN screw terminal, 5.0mm pitch
 ESP32-S3-Relay-1CH	-	-	1	√	-	-	-	√	-	-	√	20PIN header, 2.54mm pitch
 ESP32-S3-RS485-CAN	-	-	-	√	√	-	-	√	-	-	√	20PIN header, 2.54mm pitch

Contact