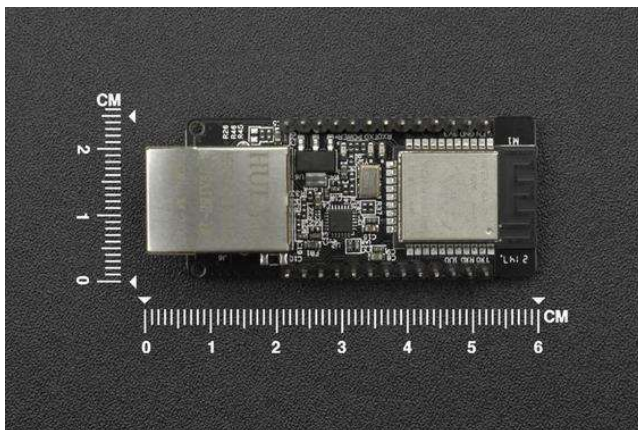
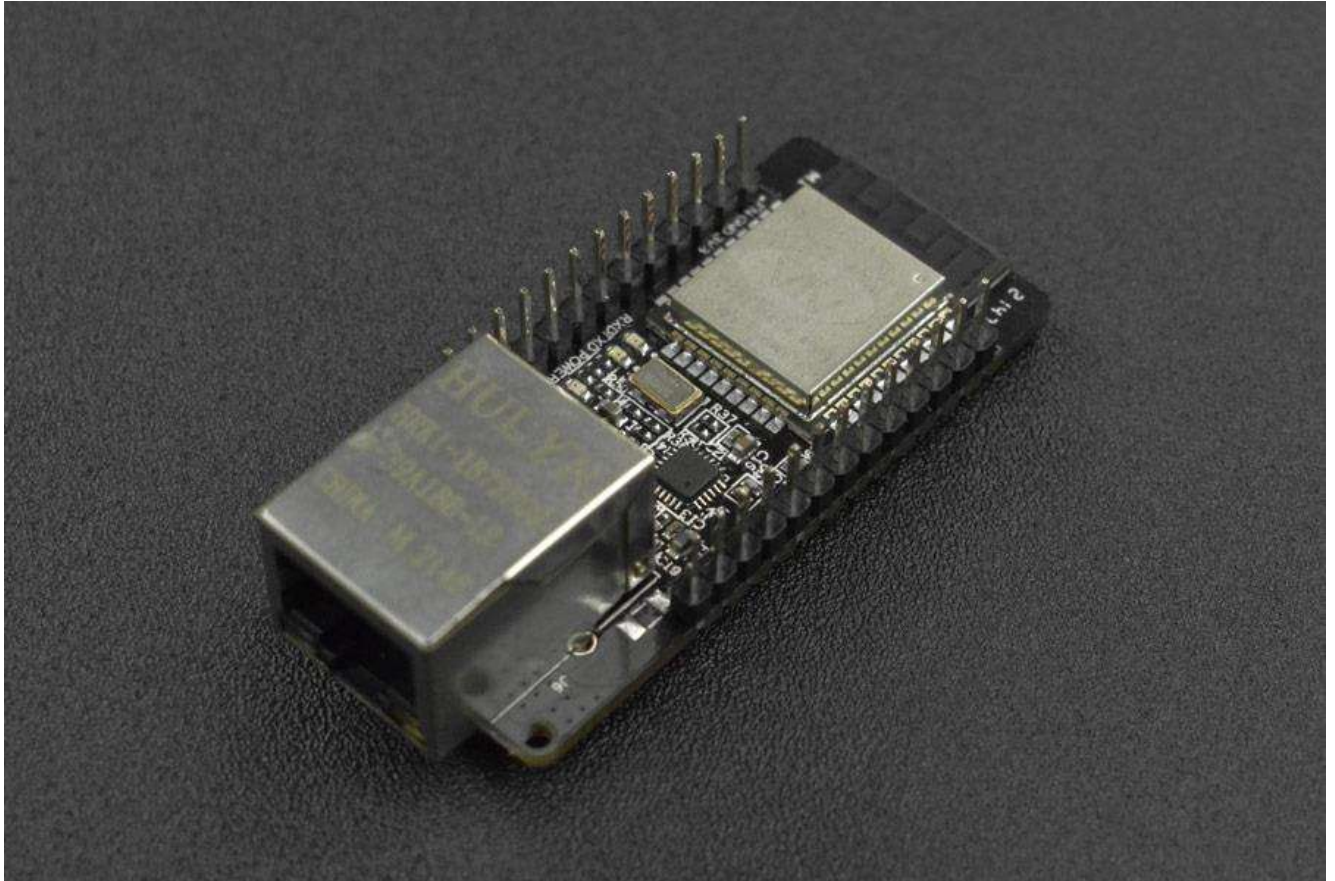




DFROBOT
DRIVE THE FUTURE

Embedded Serial to Ethernet Module

SKU: DFR0963

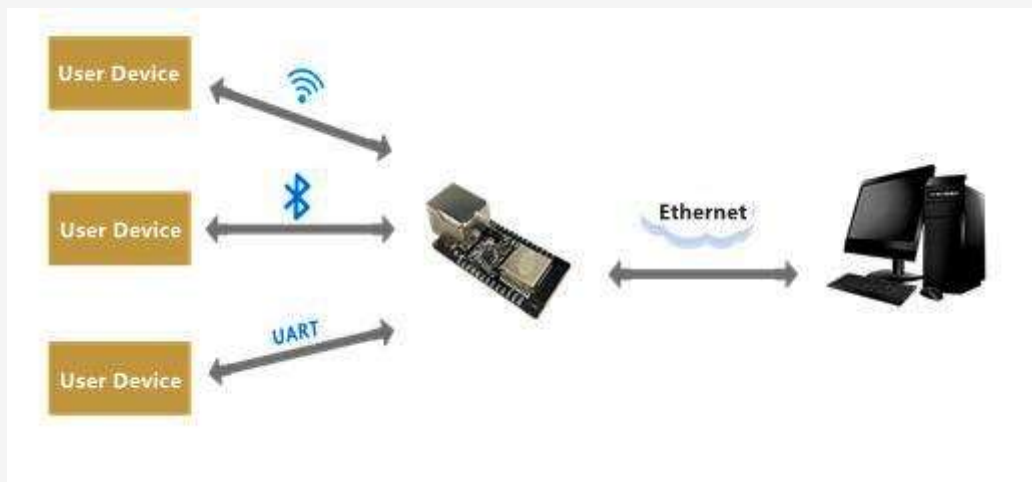


INTRODUCTION

This is an embedded serial-to-Ethernet module based on the ESP32 series, also can be called a gateway. **The module integrates an optimized TCP/IP protocol stack**, which is convenient for users to easily complete the networking functions of embedded devices while reducing development time costs.

The ESP32 series of ICs are SOCs that integrate 2.4GHz Wi-Fi and Bluetooth dual-mode, with ultra-high radio frequency performance, stability, versatility, reliability, and ultra-low power consumption.

The module has diverse and powerful functions. It supports four working modes: TCP Server, TCP Client, UDP Server, and UDP Client; supports serial port, WiFi, Ethernet, and Bluetooth four data ports for pairwise combination, and 6 data transparent transmission modes; supports WiFi to connect to the Internet or local area network through a router, establish a TCP/UDP connection, and access the user's designated server.; support user's secondary development based on ESP32.



The module can be used in agriculture, industry, medical equipment, and other fields. It is an excellent choice for data transmission in IoT scenarios, such as smart agricultural sensor data monitoring.

The module can collect and transmit data from sensors such as air temperature and humidity, soil temperature and humidity, soil PH value, and carbon dioxide concentration to the server.

The module has abundant IO ports, which can realize the functions of temperature acquisition and mutual control of ventilation and heating equipment.

Note: The applicable temperature of the product is $-20^{\circ}\text{C}\sim+70^{\circ}\text{C}$

FEATURES

- Supports complete TCP/IP protocol stack
- Abundant wireless communication interface
- Multiple working modes are available

APPLICATIONS

- IoT scenarios
- Smart agricultural sensor data monitoring

SPECIFICATION

Wi-Fi

- RF certification: FCC/CE/RoHS
- Protocol: 802.11 b/g/n/e/i(802.11n, up to 150Mbps) A-MPDU and A-MSDU aggregation, 0.4 second guard interval support
- Frequency Range: 2.4~2.5GHz

Bluetooth

- Protocols: Compliant with Bluetooth V4.2 BR/EDR and BLE standards
- Radio frequency: NZIF receiver with -97dBm sensitivity

Hardware

- Network port specifications: RJ45, 10/100Mbps, cross-direct connection adaptive
- Serial baud rate: 80~5000000
- On-board Flash: 32Mbit
- Operating Voltage: 5V or 3.3V power supply (optional)
- Working current: Average 80mA
- Supply current: Minimum 500mA
- Working temperature range: -40°C ~ +85°C

- Ambient temperature range: Normal temperature
- Packaging: Half pad/ through-hole connector (optional)

Software

- Wi-Fi mode: Station/ SoftAP/ SoftAP+station/ P2P
- Wi-Fi security mechanism: WPA/ WPA2/ WPA2-Enterprise/ WPS
- Encryption type: AES/ RSA/ ECC/ SHA
- Firmware upgrade: Remote OTA upgrade via network
- Software development: SDK used for further development
- Network protocol: IPv4, TCP/ UDP
- IP access methods: Static IP, DHCP (default)
- Simple transmission mode: TCP Server/ TCP Client/UDP Server/ UDP Client
- User configurations: AT+ commands set

DOCUMENTS

- [AT Command Examples of WT32-ETH01 Wired Module_v1.1.pdf](#)
- [AT Commands of WT32-ETH01 Wired Module_v1.1.pdf](#)
- [WT32-ETH01_datasheet_V1.1.pdf](#)

SHIPPING LIST

- Embedded Serial to Ethernet Module x1