Super OEM Module
with WiFi/BT/BLE/Serial/Ethernet

DRAFT

The Super OEM Module (SOM) is designed as a powerful processor with all the needed networking channels available on one module. The SOM has a single processor using the ESP32-D0WD with on chip / module SRAM and Flash memories. The footprint of the SOM is a 40 pin surface mount pinout. The antenna design supports either U.FL or PCB. The SOM uses the ESP32 integrates a rich set of peripherals, Wi-Fi, BLE, Bluetooth, Ethernet, high-speed SPI, UART, I²S and I²C.

The engine for your next generation of products

Hardware

- **ESP32-D0WD Processor**
- **Ethernet PHY**
- **Microchip ATECC608A CryptoAuthentication, Trust & Go**
- **8MB Flash Memory**
- **8MB PSRAM Memory**
- **40 Pin Surface Mount Module**
- **U.FL Antenna or PCB Antenna Factory Options**

Software

- **Real-time Operating System with TCP/IP stack, webserver, Over the Air (OTA) updates**
- **Serial to Ethernet tunneling**
- **Serial to Wi-Fi tunneling**
- **Modbus RTU/ASCII to Modbus TCP**
- **Modbus RTU/ASCII to EtherNet/IP**
- **Modbus RTU/ASCII to ProfiNET**
- **MQTT**

Specifications

Wi-Fi	IEEE 802.11 b/g/n (802.11n up to 150 Mbps)
Bluetooth	v4.2 BR/EDR and BLE specification
Internet Protocols	IPv4, IPv6, SSL TCP/UDP/HTTP/FTP/MQTT
Security and Authentication	WPA/WPA2/WPA2-Enterprise/WPS
Operating Temperature	40°C to 85°C (-40°F to 185°F)
Serial communication	Serial UART
Input/Output	10 GPIO pins
Certifications	FCC and IC certified

Order Information

GC-ESP32-ETH-SUPER-MODULE	Serial to TCP Tunnelling
GC-ESP32-ETH-SUPER-MODULE-MODBUS	MODBUS Version
GC-ESP32-ETH-SUPER-MODULE-MQTT	MQTT Version

Note: Application firmware will not affect radio parameters

gridconnect®

630-245-1445   **GRIDCONNECT.COM**

1630 W. DIEHL ROAD, NAPERVILLE, IL 60563

GCSM71520

OEM Integrator Use Conditions

This device is intended only for OEM integrator use under the following conditions. The module can be used as certified in a host product if:

1.   The internal PCB antenna or external antenna (only those listed below with a unique antenna connector) for the GC-ESP32-ETH are installed such that 20 cm is maintained between the antenna and any end user (mobile use).

2.   The antenna(s) used with this transmitter do not transmit simultaneously with any other antenna or transmitter, except in accordance with FCC multi-transmitter product procedures. The integrator is fully responsible for proper evaluation (i.e. C2PC or new certification as appropriate) of any co-location as required by FCC and ISED regulations.

3.   The module is used with only the antenna(s) tested and certified with this module as listed below.

4.   The OEM integrator confirms ongoing compliance of the integrated module in line with 996369 D04 Module Integration Guide v02. Please contact GridConnect on how to configure test modes for host product evaluation.

In the event that the above conditions cannot be met (for example device configuration or co-location with another transmitters), then the FCC / ISED authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID / IC number of the module cannot be used on the final product. In these and circumstance, the OEM integrator will be responsible for a new certification.

This module is designed and certified under FCC Rules CFR 47 Part 15.247 and ISED Canada regulation RSS-247.

OEM Integrator Labeling and Instructions to the End User

The final host product must be labeled in a visible area with the following:

<div align="center">

Contains FCC ID: 2AFC3ESPSM001, IC: 22503-ESPSM001

</div>

The final (Host) product or its manual must include instructions to the end user as follows:

Radiation Exposure Statement: This equipment complies with FCC and ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Déclaration d'exposition aux radiations: Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doitêtre installé et utilisé avec un minimum de 20cm de distance entre la source de rayonnement et votre corps.

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Note: Changes or modifications not expressively approved by the party responsible for compliance could void the user's authority to operate the equipment.

Please contact Grid Connect for details on how to configure FCC test modes for host product evaluation. The host product manufacturer is responsible for compliance to any other FCC rules applicable to the host product (e.g. the host product may still require Part 15 Subpart B compliance testing with the modular transmitter installed). Please see FCC 996369 D04 Module Integration Guide for further guidance.

The GC-ESP32-ETH may only be used with the following external antennas:

Antenna Type	Manufacturer	Model	Frequency Range	Peak Antenna Gain (dBi)
PCB Trace	GridConnect	Onbard PCB	2400-2480	3.8 dBi
Whip	V.TORCH	VTWFA-3	2400-2480	5 dBi

Any 50 Ohm antenna of the same type and frequency range, with equal or lesser gain may also be employed with a unique antenna connector.

Recommended Module Mounting

0.25inch

Recommended PCB mounting position