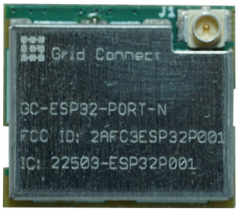

GC-ESP32-PORT-N

Features:

- Wi-Fi/BLE 4.2
- Ethernet RMii
- Serial
  - UART for TTL, RS232, RS422, RS485
  - SPI, I2C, I2S
- Embedded ESP32-D2WQ main processor chip
- 2 MB SPI flash embedded
- 540 KB SRAM
- 2 CPU cores that can be controlled individually
- Adjustable clock frequency 80 MHz to 240 MHz
- FCC/IC certified

Description:

The GC-ESP32-PORT is a family of embedded networking modules that allow the user to create a customized modular solution for all of their networking requirements. The GC-ESP32-PORT modules are all based on the powerful ESP32 processor. The ESP32 processor has all the communication interfaces required to implement today's wired and wireless standards; these include: Wi-Fi, BLE, Ethernet, UART (RS232, RS485), I2C, I2S, and SPI. Each module has different communication hardware and software options that are available for use.

Communication Interfaces
- Wi-Fi
- BLE
- RMii
- SPI, I2S, I2C
- I/O
- UART (RS232, RS422, RS485)

Wi-Fi, BLE
Having a combination of BLE, and Wi-Fi on board makes the modules suitable for a variety of wireless networks, allowing for both Wi-Fi based internet connections and local BLE connections to a smart phone or tablet.

RMii
TBD

Processor
The ESP32 has two CPU cores that can be individually controlled and a clock frequency that is adjustable from 80 MHz to 240 MHz. The ESP32 also has a sleep mode processor that allows for sleep current of less than 5 μA, making it suitable for battery powered applications.

Software / Firmware
The GC-ESP-PORT component utilizes the free RTOS operating system (now owned by Amazon/AWS) with LwIP and a built-in TLS 1.2 with hardware acceleration. It also offers secure, encrypted over-the-air (OTA) updates so that the module firmware can be updated remotely without manual or physical intervention. The AWS cloud extensions provide an application interface (API) for developers that want to implement cloud applications.

Grid Connect has made available for the GC-ESP32-PORT family different firmware and hardware that allows the user to use for standard applications:
- Serial tunneling between the UART and Wi-Fi
- Serial tunneling between the UART and Ethernet
- Bridging between Wi-Fi and Ethernet
- Basic AWS cloud connection
- Custom firmware available

If you wish to develop your own software/firmware there is a standard SDK with many options for your application. The development environment for ESP32 is available on-line and is open source and free.

Grid Connect, Inc.

FCC ID: 2AFC3ESP32P001 Model: GC-ESP32-PORT-N
IC: 22503-ESP32P001

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 recieved, 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 acceptar tout brouillage radioélectrique subi, même si le brouillage est suseptible d'en compromette 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.

Specifications:

Security / Protection	WPA/WPA2/WPA2-Enterprise/WPS AES/RSA/ECC/SHA
Power Supply	3.3 V / 500 mA
Frequency Band	Wi-Fi frequency: 2.4 GHz ~ 2.5 GHz
Interface(s)	RMii, UART, SPI, SDIO, I2C, LED PWM, Motor PWM, I2S, IR GPIO, capacitive touch sensor, ADC, DAC, LNA pre-amp
Network	IPv4, IPv6, SSL, TCP/UDP/HTTP/FTP/MQTT
Protocols	Wi-Fi: • A-MPDU and A-MSDU aggregation and 0.4 μs guard interval support • 802.11 b/g/n/e/i (802.11n up to 150 Mbps) BLE: • BLE 4.2
Core Power	ESP32-D2WQ contains two low-power Xtensa® 32-bit LX6 microprocessors
Dimensions	0.55 x 0.65x 0.25 inches
Certifications	FCC/IC, CE
Software	Software Development: Supports Cloud Server Development/SDK for custom firmware development
Application Firmware	UART Download/ OTA (via network)/ download and write firmware via host. (Application firmware will not affect radio parameters.)
Antenna	External U.FL/IPEX RF Connector
Temperature Range	Operating: -40 ºC to 85ºC (-40ºF to 185ºF)

Ordering Summary

GC-ESP32-PORT-N (Networking Daughter Processor Board)

Contact Us:

Grid Connect Inc.
1630 W. Diehl Road
Naperville, IL 60563

Phone: +1 (630) 245-1445
USA Toll Free: +1 (800) 975-4743
Fax: +1 (630) 245-1717
Email: sales@gridconnect.com
Website: gridconnect.com

gridconnect

Radiation Exposure Statement:
This equipment complies with IC 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.

Déclarationd'exposition aux radiations:
Cetéquipementestconforme aux limitesd'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cetéquipementdoitêtreinstallé et utilisé avec un minimum de 20cm de distance entre la source de rayonnement et votre corps

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

1. The antenna is installed such that 20 cm is maintained between the antenna and any end user.

2. The transmitter module and antenna are not co-located with any other transmit or antenna.

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

As long as 3 conditions above are met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirement with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

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

Contains FCC ID: 2AFC3ESP32P001, IC: 22503-ESP32P001

The GC-ESP32-PORT-N may only be used with the following antennas:

Antenna Type	Manufacturer	Frequency Range (MHz)	Maximum Peak Antenna Gain (dBi)
Whip	V.TORCH VTWFA-3	2400-2480	3dBi
Trace	Airgain N2420	2400-2480	3.8dBi
any 50 Ohm antenna of the same type and frequency range, with equal or lesser gain.			

IMPORTANT NOTE :

In the event that the above conditions cannot be met (for example certain device configuration or co-location with another transmitter), 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 re-evaluating. The end product (including the transmitter) and obtaining a separate FCC authorization.