



# WGM160P Wi-Fi<sup>®</sup> Module Data Short

This is a preliminary document and subject to change before final version is published.

The WGM160P is an ultra low power all-inclusive Wi-Fi<sup>®</sup> module targeted for applications requiring excellent RF performance, low power consumption, high security, integrated customer applications and fast time to market.

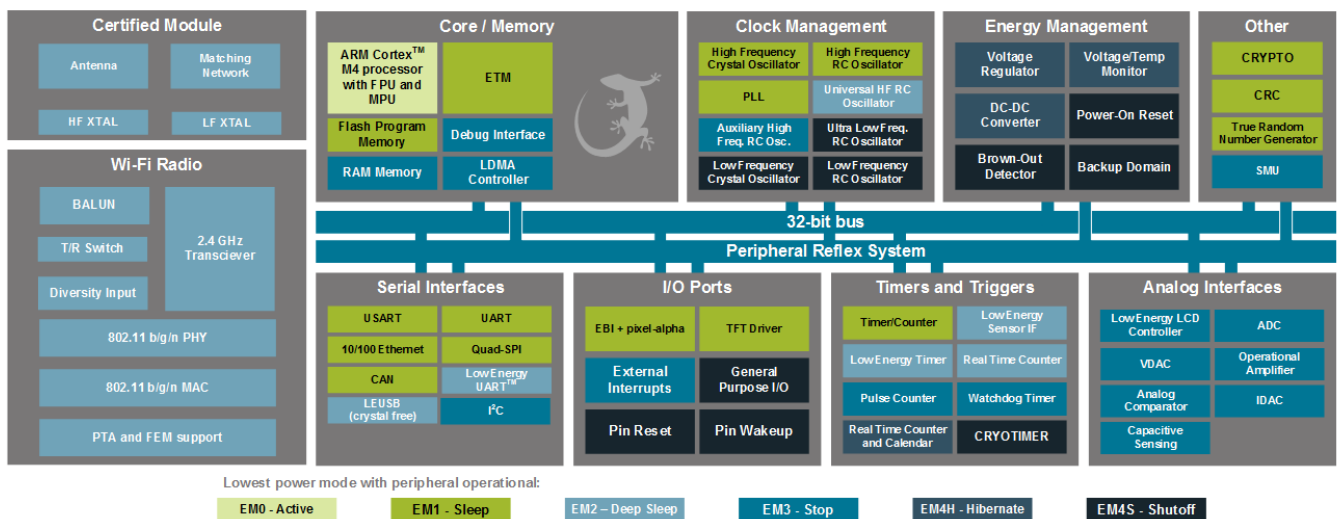
The WGM160P module integrates all of the necessary elements required for a cloud connected IoT Wi-Fi application, including 802.11b/g/n radio, integrated chip antenna, certifications, microcontroller, Wi-Fi and IP stacks, HTTP sever, and multiple protocols, such as TCP and UDP. Co-existence with external 2.4GHz transceivers is supported.

WGM160P can concurrently act as a Wi-Fi client and a Wi-Fi access point, which is ideal for user friendly device provisioning. WGM160P can natively host C-applications, removing the need for an external host controller. Alternatively, the Wi-Fi Module can run in Network Co-Processor (NCP) mode, leaving the complexity of TCP/IP networking to the module so that the customer's own host controller can be fully dedicated to processing the customer application tasks. The WGM160P module has highly flexible host and peripheral hardware interfaces for wide application use.

This module also supports Gecko OS, a comprehensive software suite designed to simplify your Wi-Fi, application, device management and cloud connectivity development process.

## KEY POINTS

- Module variants
  - With or without integrated antenna
- IEEE 802.11 b/g/n compliant
- Integrated 2.4GHz antenna with diversity support
- TX power: +16 dBm
- RX sensitivity: -96 dBm
- CPU core: 32-bit ARM<sup>®</sup> Cortex-M4
- Flash memory: 2 MB
- RAM: 512 kB
- Concurrent mode: Wi-Fi AP and STA
- Ultra low power consumption
- Wi-Fi Alliance certified (Forthcoming)
- Modular certification
  - CE, FCC, IC, Japan, Korea (Forthcoming)
- End-to-end security
- Native C-application support
- Gecko OS support
- Size: 23.8 x 14.2 mm



## 1. Key Features

The key features of the WGM160P module are listed below.

### Radio Features

- Built-in antenna
- TX Power(Precertified Module): +16 dBm
- RX Sensitivity: -96 dBm

### Wi-Fi Features

- 802.11: 2.4 GHz b/g/n
- 2 x 2.4GHz antenna pads for full antenna diversity support
- Bit rate: up to 72.2 Mbps
- 802.11 Security: WPA2/WPA Personal
- STA (Station Mode)
- SoftAP (Soft Access Point Mode): up to TBD clients
- Concurrent modes: AP + STA

### IP Stack

- IP version: IPv4/v6
- IP multicast
- TCP: client/server
- UDP: client/server
- TCP sockets: 20+
- DHCP: client/server
- ARP
- DNS: client/server
- mDNS
- DNS-SD
- HTTP: client/server
- TLS/SSL: client/server

### Applications

- Cloud connectivity and Zentri Cloud DMS
- DFU OTA
- Homekit

### Software APIs

- C API with free SDK for native applications
- Command API for modem usage
  - Wired serial (UART/SPI/USB) and wireless (HTTP REST, Websockets) network interfaces
  - ASCII Machine and Human console modes
  - Packet mode for high throughput and bi-directional asynchronous binary data transfer
  - Streaming mode for seamless streaming between wired and network-based endpoints

### MCU Features

- ARM® Cortex-M4, 72MHz
- 512 kB RAM
- 2 MB Flash

### Hardware Interfaces

- Host interface: UART/SPI/USB
- Peripheral interfaces
  - 2 x USART (UART/SPI/I2S)
  - QSPI with Execute In Place (XIP) support
  - SD Card support (SPI)
  - Capacitive Touch Sensing in all GPIOs
  - LESENSE
  - 10/100 Ethernet MAC with RMI interface
  - USB device (2.0 Full speed)
  - I<sup>2</sup>C peripheral interfaces
  - CAN
- Up to 31 x GPIO with interrupts
- 2 x 12-bit ADC (from any GPIO)
- 2 x 12-bit DAC (to any GPIO)
- Rich selection of timers, inc. Real-time counters
- Co-existence interface (PTA: 2, 3, 4 wire)

### Electrical Characteristics

- Supply voltage: 2.4V to 3.6V

### Environmental specifications

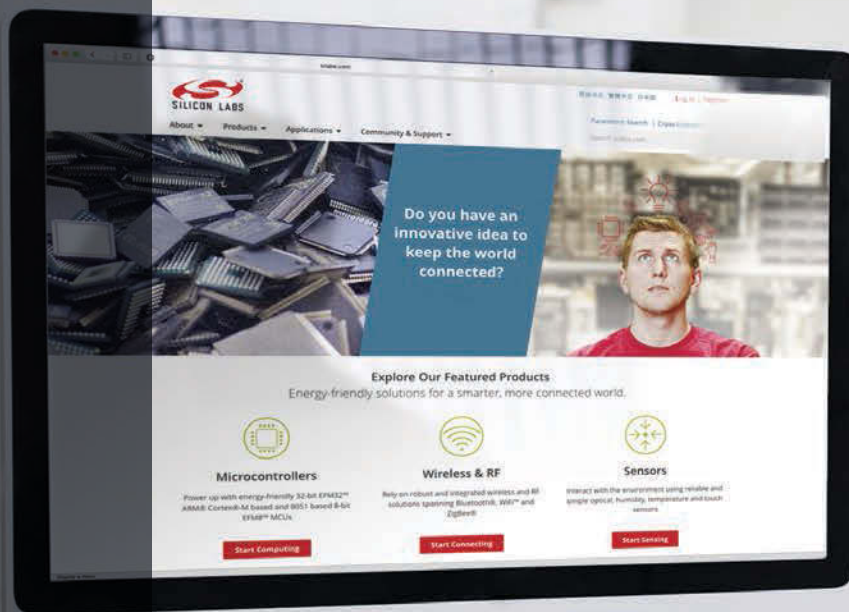
- Temperature range: -40°C to +85°C

### Modular certification (Forthcoming)

- Wi-Fi Alliance
- CE, FCC, IC, Telec, KC
- RoHS/REACH compliant

### Dimensions

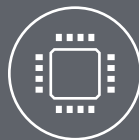
- L x W x H: 23.8 mm x 14.6 mm x 2.2 mm



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