

FUJITSU Component Wireless Modules

Mesh Unit / Mesh Sensor Unit / Mesh Module

FWM8BLZ07P / FWM8BLZ07Y / FWM7BLZ20W

Features

- Ability to construct a large scale network.
- Power saving, high-density network under autonomous network rerouting, even if the network environment changes or device failure occurs.
- Security key provides secure operating environment.
- Mesh unit FWM8BLZ07P has wake-up/sleep function for further energy savings.
- Mesh sensor unit FWM8BLZ07Y embeds temperature, humidity, barometric pressure, illuminance, 3-axis acceleration and sound level sensors (customization option available).

RoHS compliant



FWM8BLZ07P
Mesh Unit

FWM8BLZ07Y
Mesh Sensor Unit

Applications

- Asset management
- Sensor network inside factories
- Smart lighting

Overview

Fujitsu's 2.4 GHz Mesh Unit, Mesh Sensor Unit and Mesh Module along with the supporting gateway and software are the foundation of our Wirepas Mesh technology based IoT solution.

The solution supports a wide variety of IoT applications with superior scalability for networks, positioning service integration and solid application deployment in the field.

The Mesh Unit can be utilized as an Asset Tag, Anchor Node or a remotely manageable Beacon unit as part of the Mesh network's end node.

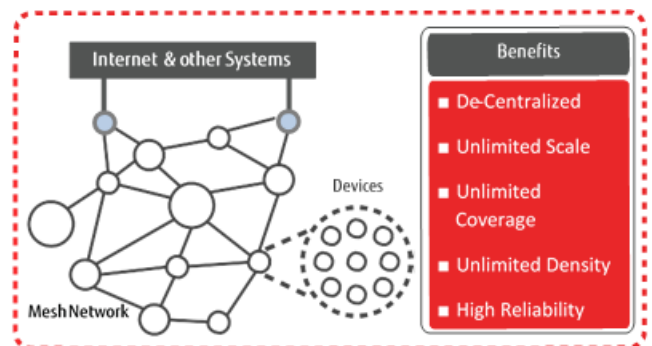
Our Mesh Sensor Unit includes temperature, humidity, barometric pressure, illuminance, 3-axis acceleration, and sound level sensors.

The sensor unit utilizes the Wirepas Mesh network as a sensor network foundation.

At the same time, the Mesh Sensor Unit is capable of supporting the regular end-node of the Mesh Network, thus capable of supporting the Asset Tag, Anchor Node or remotely manageable Beacon unit.

In addition, Fujitsu offers a Mesh Module which is similar to a Bluetooth BLE radio module. Customers can easily adopt Mesh Networking capability into their hardware by integrating the module. The mesh module accepts Wirepas API based communications from the host systems CPU and API software is provided as part of the system.

As well as working with Wirepas ecosystem partners to support multiple configurations of the system and different types of hardware requirements, we also support the gateway. This provides the software to manage the entire Wirepas Mesh network as a whole.



Mesh Network Topology



Mesh Module
FWM7BLZ20W

■ Specifications

| Item | Specifications | | |
|----------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------|
| Part number | FWM8BLZ07P-xxxxxx | FWM8BLZ07Y-xxxxxx | FWM7BLZ20W-xxxxxx |
| Type | Mesh Unit | Mesh Sensor Unit | Mesh Module |
| Mesh technology | Wirepas Mesh | | |
| Antenna | Embedded (pattern antenna) | | |
| Transmit power | -Max. +4 dBm (adjusted automatically) | | |
| IC | Nordic Semiconductor nRF52832 | | |
| Power supply | Coin cell lithium battery CR2450 (not included) | | - |
| Operating temperature / humidity | -30°C to +60°C, 20 to 80% RH | | -40°C to +85°C |
| Sensor | 3-axis acceleration *1 | Temperature, humidity, barometric pressure, illuminance, 3-axis acceleration, sound level | - |
| Dimensions / Weight | 40 x 31 x 12mm / Approx. 10g (without battery) | | 15.7 x 9.8 x 1.7 mm |
| Certifications | Radio Act (Japan), FCC, ISED, CE | | |
| Other | Battery voltage notification function | | - |

Notes: *1: Used for awake function. Data collection capability is not available.

■ Mesh Moduler Specifications

| Item | Specifications | |
|-----------------------|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RAM | 64Kbytes (user usable area is subject to Wirepas firmware and functions) | |
| ROM | 512Kbytes (user usable area is subject to Wirepas firmware and functions) | |
| Transmit power | +4 dBmmax. | |
| Receiver sensitivity | -94 dBm typical | |
| Host interface | UART 115,200 or 125,000 bps | |
| Available interface | NFC (via external antenna), UART, GPIO, SWDCLK, SWDIO, nRESET, SPI, TWI, ADC | |
| Crystal oscillator | Embedded | |
| Operating voltage | 1.7V to 3.6VDC | |
| Power consumption | Tx mode | LDOmode: 11.6mA typical (at 0dBm), DC/DC mode: 5.3mA typical (at 0dBm) |
| | Rx mode | LDO mode: 11.7mA typical (at data rate 1Mbps), 12.9mA typical (at data rate 2Mbps) DC/DC mode: 5.4mA typical (at data rate 1Mbps), 5.8mA typical (at data rate 2Mbps) |
| Operating temperature | -40°C to +85°C | |
| Dimensions | 15.7 x 9.8 x 1.7 mm | |
| Mounting method | Surface mount (SMT) | |
| Certifications | Radio Act (Japan), FCC, IC, CE | |

■ Battery specifications

Note: Use of coin type lithium battery CR2450
 Please use the battery meets Figure 1 (minus electrode height min. 0.9mm, diameter max. 23 mm) to keep enough clearance between beacon holder and battery.

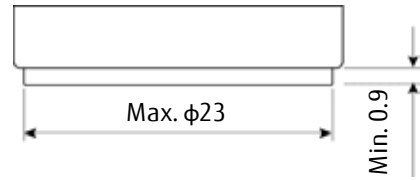
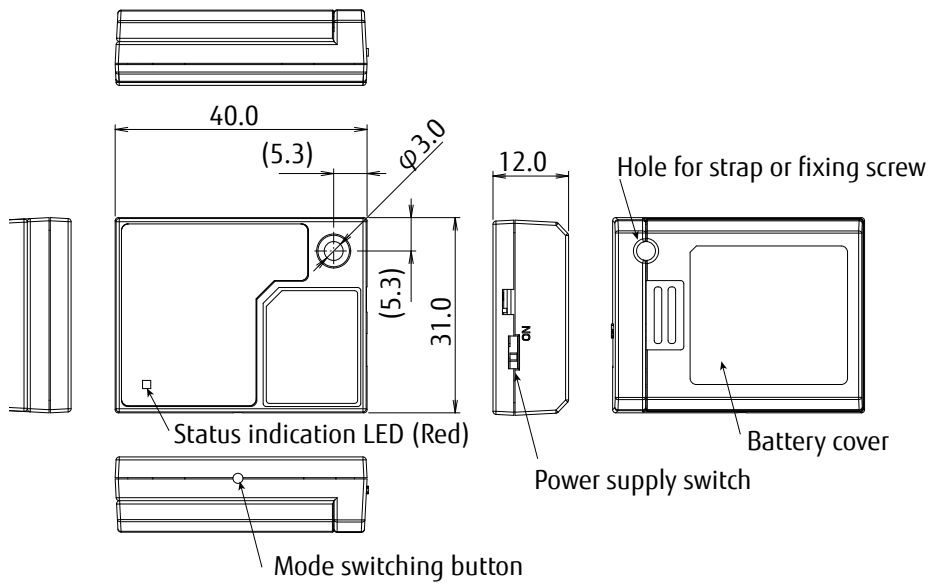


Figure 1

Unit: mm

■ Dimensions

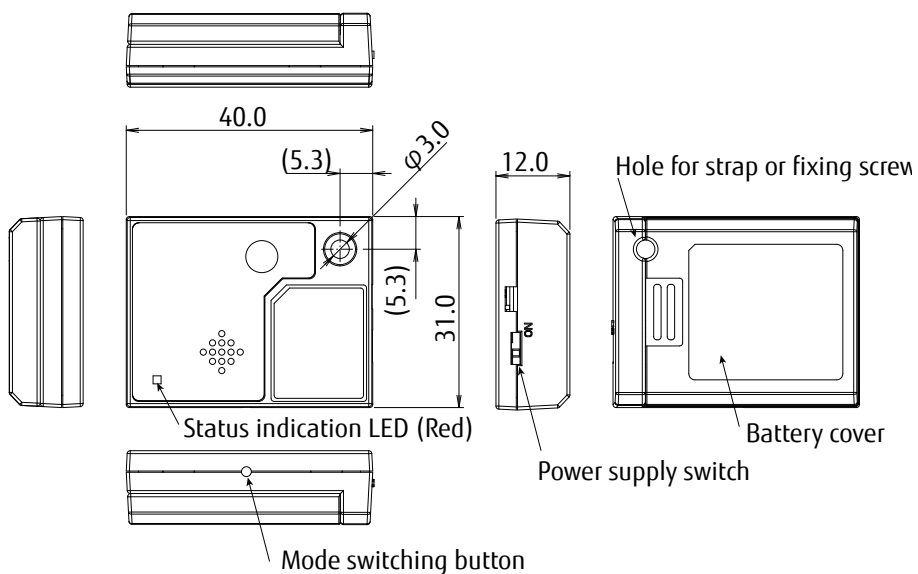
FWM8BLZ07P



Unit: mm

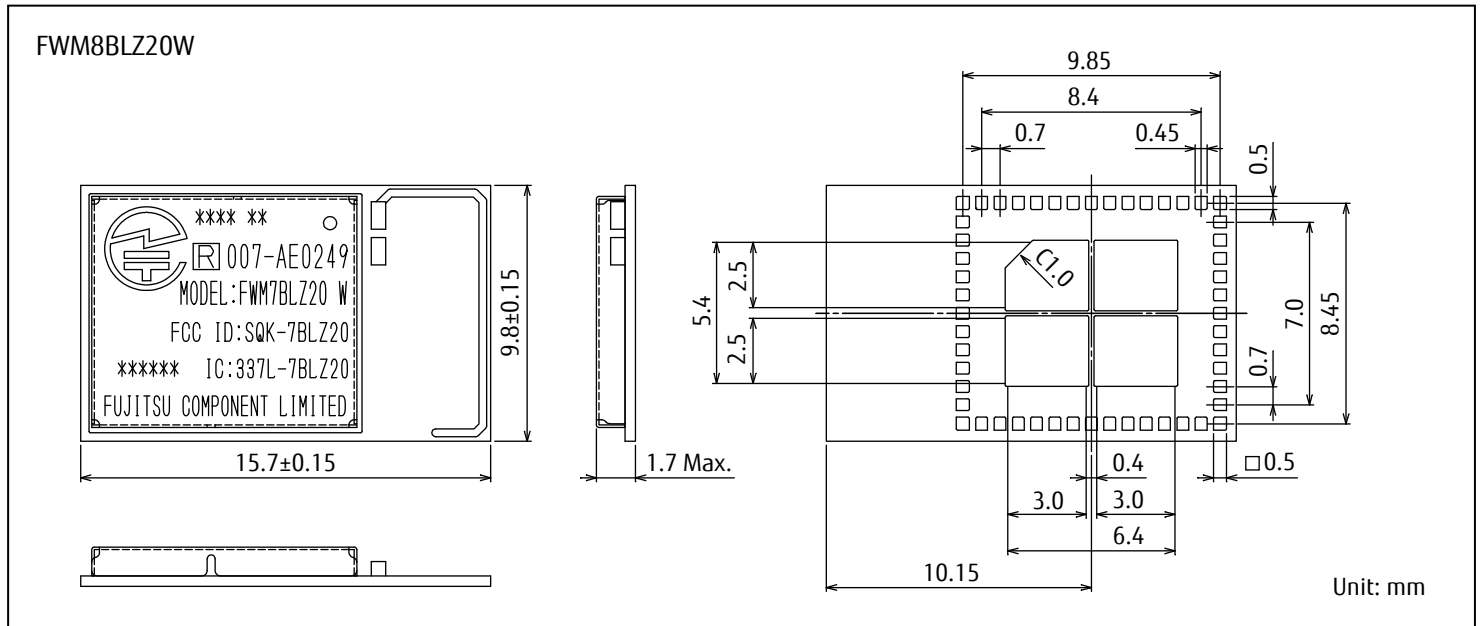
■ Dimensions

FWM8BLZ07Y



Unit: mm

■ Dimensions



■ Available Software (License agreement is required)

WNT: Wirepas Network Tool

- A highly scalable tool for monitoring and analyzing Mesh operation. It provides visibility of individual node behavior and visualization of the logical topology of Mesh.

WPE: Wirepas Positioning Engine

- It provides calculated end-node location coordination from the fixed Anchor nodes locations. It is capable to provide a geographically tagged view on the map or area layout image (e.g. office or warehouse).

Wirepas API

- Provides host CPU API for controlling the Wirepas Mesh Module.

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