FCL Components 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

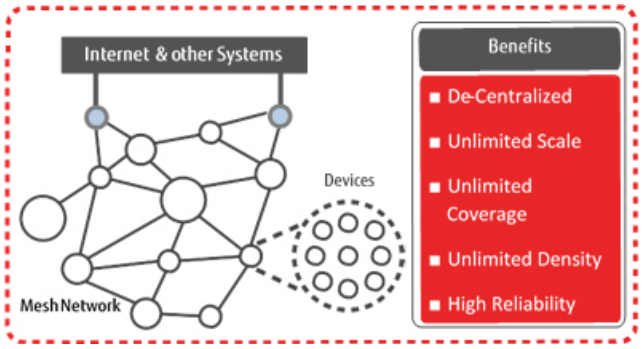
FWM8BLZ07Y
Mesh Sensor Unit

Applications

• Asset management
• Sensor network inside factories
• Smart lighting

Overview

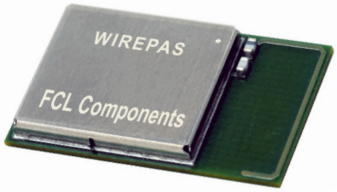
FCL Components' 2.4 GHz Mesh Unit, Mesh Sensor Unit and Mesh Module along with the supporting gateway and software are the foundation of our Wirepas Mesh technology based IoT solution.
The solution supports a wide variety of IoT applications with superior scalability for networks, positioning service 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.



Mesh Network Topology

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, FCL Components 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 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	-30ºC to +60ºC, 20 to 80% RH		-40ºC to +85ºC
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 voltaqe notification function		-

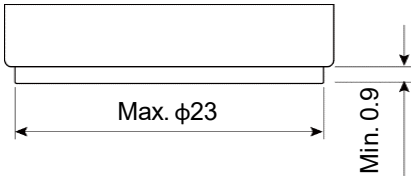
Notes: *1: Used for awake function. Data collection capability is not available.

■ 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		-40ºC to +85ºC
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.

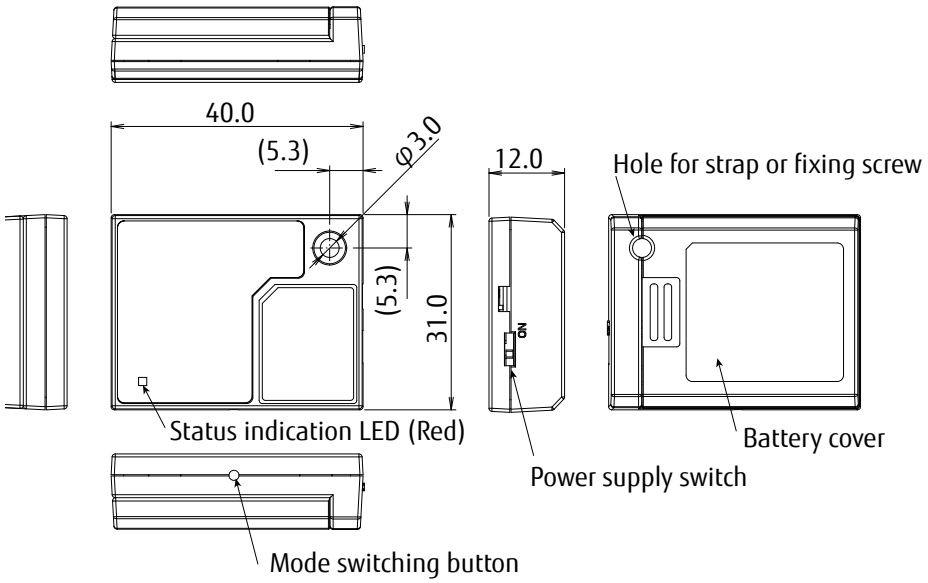


Unit: mm

Figure 1

■ Dimensions

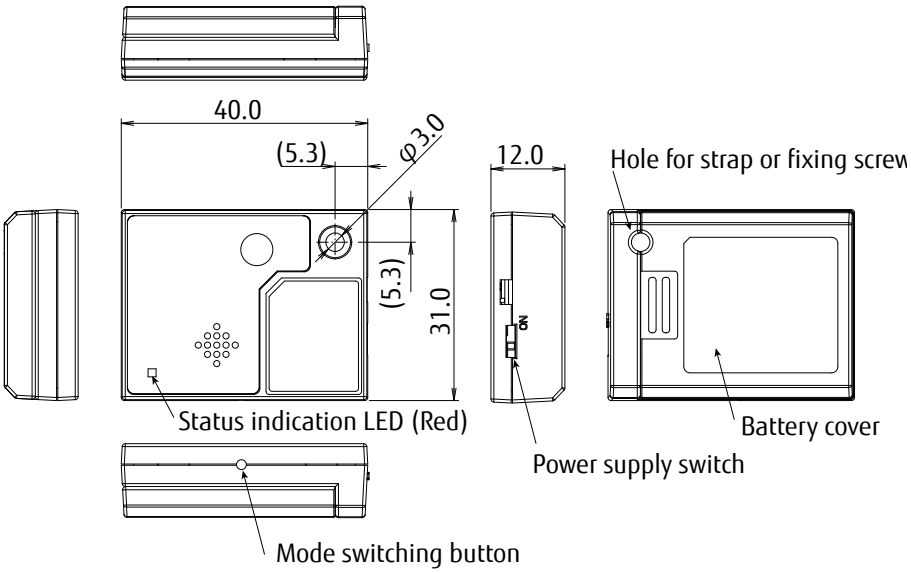
FWM8BLZ07P



Unit: mm

■ Dimensions

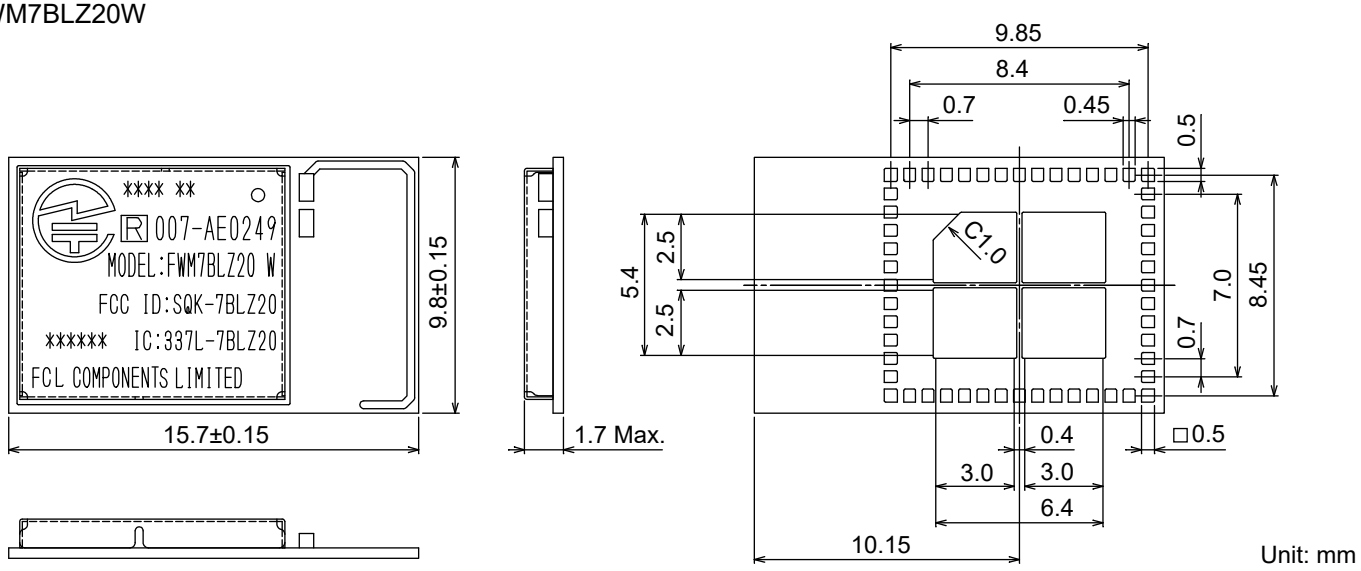
FWM8BLZ07Y



Unit: mm

■ Dimensions

FWM7BLZ20W



■ 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.

Contact

Japan
FCL COMPONENTS LIMITED
Shinagawa Seaside Park Tower
12-4, Higashi-shinagawa 4-chome,
Tokyo 140 0002, Japan
Tel: +81 3 3450 1682
Email: fcl-contact@cs.fcl-components.com

North and South America
FCL COMPONENTS AMERICA, INC.
2055 Gateway Place, Suite 480
San Jose, CA 95110 U.S.A.
Tel: +1 408 745 4900
Email: fcai.components@fcl-components.com

Europe
FCL COMPONENTS EUROPE B.V.
Diamantlaan 25
2132 WV Hoofddorp
Netherlands
Tel: +31 23 5560910
Email: info@fcl-components.eu

Asia Pacific
FCL COMPONENTS ASIA, LTD.
No. 20 Harbour Drive, #07-01B
Singapore 117612
Tel: +65 6375 8560
Email: fcal@fcl-components.com

China
FCL COMPONENTS (SHANGHAI) CO., LTD.
Unit 1105, Central Park –Jing An, No.329 Heng
Feng Road, Shanghai 200070, China
Tel: +86 021 3253 0998
Email: fcsh@fcl-components.com

Hong Kong
FCL COMPONENTS HONG KONG CO., LIMITED
Room 13, 23/F, Seapower Tower, Concordia Plaza,
No.1 Science Museum Road,
Tsim Sha Tsui East, Kowloon, Hong Kong
Tel: +852 2881 8495
Email: fcsh@fcl-components.com

Web: www.fcl-components.com/en/