FCL COMPONENTS

FCL Components Wireless Modules
Mesh Unit / Mesh Sensor Unit
FWM8BLZ07P / FWM8BLZ07Y

Wirepas | **RoHS compliant**

Features

- Ability to build a large scale mesh 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).

FWM8BLZ07PA/T
Anchor / Tag Unit

FWM8BLZ07Y
Mesh Sensor Unit

Applications
- Asset management
- Sensor network inside factories
- Smart lighting

Overview

FCL's 2.4 GHz Mesh Unit, Mesh Sensor Unit and Mesh Module along with the supporting gateway and software are the foundation of the 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 utilised as an Asset Tag, Anchor Node or a Beacon unit as part of the Mesh network's end node.

Mesh Network Topology

FCL Components Mesh Sensor Unit includes temperature, humidity, barometric pressure, illuminance, 3-axis acceleration, and sound level sensors. The sensor unit utilises the Wirepas Mesh network as a sensor network foundation.
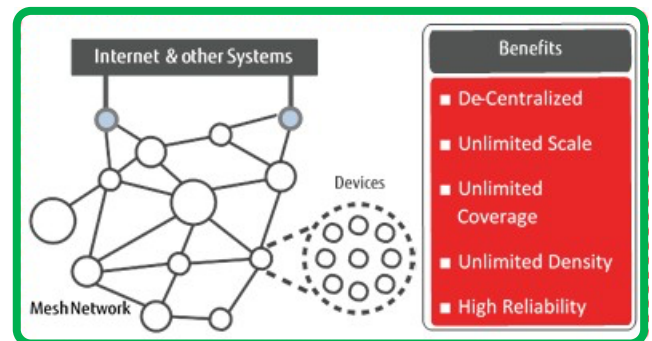
At the same time, the Mesh Sensor Unit is capable of supporting the regular end-node of the Mesh Network, thus capable of supporting the Asset Tag, Anchor Node or remotely manageable Beacon unit.

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.

■   Specifications Mesh Units

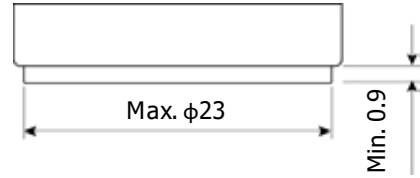| Item	Specifications		
Part number	FWM8BLZ07P-A	FWM8BLZ07P-T	FWM8BLZ07Y
Type	Anchor mesh node	Asset Tag end node	Sensor node
Mesh technology	Wirepas Massive (Mesh) v5		
Antenna	Embedded (pattern antenna)		
Transmit power	-Max. +4 dBm (adjusted automatically)		
IC	Nordic Semiconductor nRF52832		
Power supply	Coin cell lithium battery CR2450 (not included)		
Operating temperature / humidity	-300C to +600C, 20 to 80% RH		
Sensor	3-axis acceleration *1	3-axis acceleration *1	Temperature, humidity, barometric pressure, luminance, sound level, 3-axis acceleration
Dimensions / Weight	40 x 31 x 12mm / Approx. 10g (without battery)		
Certifications	Radio Act (Japan), FCC, ISED, CE, RCM		
Other	Battery voltaqe notification function		

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

■   Specifications Module (inside Mesh Unit)

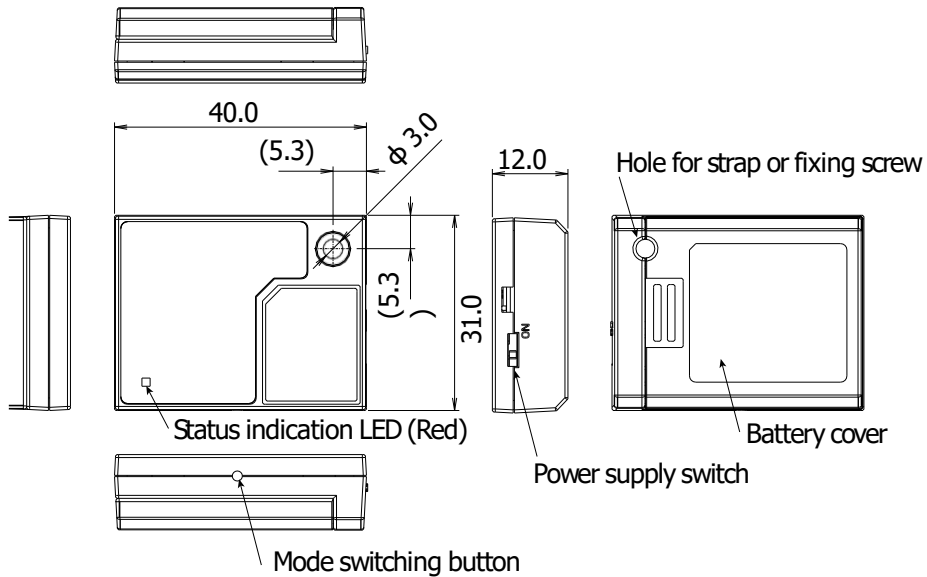| Item		Specifications
RAM		64Kbytes (user usable area is subject to Wirepas firmware and functions)
ROM		512Kbytes (user usable area is subject to Wirepas firmware and functions)
Transmit power		+4 dBm max.
Receiver sensitivity		-94 dBm typical
Host interface		UART 115,200 or 125,000 bps
Available interface		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 temp		-400C to +850C
Dimensions		15.7 x 9.8 x 1.7 mm
Mounting method		Surface mount (SMT)
Certifications		Radio Act (Japan), FCC, IC, CE, RCM

■ Battery specifications

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

Max. φ23

Min. 0.9

Unit: mm

■ Dimensions

FWM8BLZ07_

40.0

(5.3)

φ 3.0

12.0

Hole for strap or fixing screw

(5.3)

31.0

Status indication LED (Red)

Power supply switch

Battery cover

Mode switching button

Unit: mm

■ 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

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