

## EpiSensor Z31 ZigBee Module

### User Information Sheet



#### Description:

The EpiLink Z31 ZigBee Module is a compact, programmable device specially designed for the Ember ZNet ZigBee™ PRO Stack for wireless mesh networks. Using the Ember EM250 radio and microcontroller chip, it has a 10-pin InSight Adapter port to allow easy programming from Ember Development Kits and can be programmed as a ZigBee Co-ordinator, Router or End Device. It includes an on-board memory to allow over-the-air firmware modifications without having to physically access devices that may already be deployed in the field. The module is only 26.5 x 51 x 5mm, and includes a 20-pin serial, analogue and digital interface header connector. It can be supplied with an on-board antenna (utilizing tracks on the printed circuit board to form the antenna) or via a special U.FL connector, an external antenna.

#### Features:

- Compact and rugged device
- 10-pin InSight adapter port for programming and debugging with Ember development kits
- 20-pin I/O interface header connector
- Powered with 3 volts via the I/O interface header connector or the InSight adapter port
- Onboard antenna or external antenna via U.FL connector and U.FL to SMA adapter
- 3 x Indicator LEDs
- Onboard 128K EEPROM to facilitate Ember Multi-Hop Over-the-Air Bootloader Application
- Voltage Supervisor Chip which maintains the device in a Reset state in case of low voltages
- Boost mode available for additional output power

## Specification:

<b>Communications</b>	ZigBee Pro
<b>Radio</b>	2.4 GHz IEEE 802.15.4 compliant transceiver
<b>Microcontroller</b>	Ember EM 250 12MHz XAP2b 16-bit microcontroller core
<b>Memory</b>	128kB Flash EEPROM and 5kB RAM
<b>Regulatory</b>	CE Compliant and FCC Licensed (see Declaration of Conformity for details)
<b>Input Voltage</b>	+3V DC via InSight or I/O connectors
<b>I/O Connector</b>	20 Pin – See data sheet for details
<b>InSight Connector</b>	10-Pin – See <a href="http://www.ember.com">www.ember.com</a> for details on usage
<b>Dimensions</b>	26.5 x 51 x 5 mm
<b>Output Power</b>	+3dBm transmit power (+5dBm boost mode)
<b>Range</b>	Up to 300 metres direct line of sight, or up to 50 metres in typical indoor conditions
<b>Power Consumption</b>	2uA in Deep Sleep mode, 48 mA while transmitting in boost mode

## Intended Use:

The EpiSensor Z31 ZigBee module is intended for Equipment Manufacturers and System Integrators who wish to include ZigBee-based communications capability in their products and systems. They provide a fast and easy way to implement ZigBee wireless networks with a wide variety of I/O options for capturing sensor data or interfacing to controllers and actuators. Wireless sensor networks are ideal for eliminating wires, collecting information from hazardous environments and minimizing time and cost of field installation. Purchasers will need an Ember development kit to program the module. Kits are available from authorised Ember resellers. See [www.ember.com](http://www.ember.com) for details

## Options:

- Antenna option: On board F-antenna or U.FL connector for external antenna  
 USB option: USB connector fitted or not fitted

Model Number Format: Z31-1-2	
1	N: USB circuit and connector not fitted U: USB circuit and connector fitted
2	F: Uses on-board F antenna U: Uses external antenna via U.FL connector

## Accessories:

- 1) U.FL (female) to SMA (male) adapter cable (50 cm)
- 2) EpiLink External F-Antenna Pod with 1 metre of cable and an SMA (female) connector
- 3) EpiLink External F-Antenna Pod with 3 metres of cable and an SMA (female) connector

## NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television



reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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## **Certificate of Conformity**

I hereby declare that the EpiLinkZ31 ZigBee module fulfils the requirements of the European R&TTE directive and that it has been tested and found to be compliant with the following European harmonized standards:

1. IEC 60950-1:2006
2. IEC 60950-1:2005 (2<sup>nd</sup> Edition)
3. EN 300 328 V1.7.1
4. EN 301 489-17 V1.2.1
5. EN 301 489-01 V1.6.1
6. EN 50371: 2002

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Any changes or modifications to the product not expressly approved by EpiSensor could result in the product ceasing to comply with the regulations and standards that apply in the country of use and hence void the user's authority to operate the product.

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Brendan H O'Malley  
Chief Executive  
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