MeshNetics®

Easy Wireless for Things

M2M 100 2008

ZigBit™ 900 Module
868/915 MHz Module for IEEE 802.15.4/ZigBee®
Wireless Mesh Networking Applications

ZigBit 900 is is an ultra-low power 802.15.4/ZigBee RF module for Sub-1-GHz ISM band. The tiny module features an exceptional sensitivity of -110 dBm that results in the line-of-sight range of up to 6,000m. A footprint of less than a half square inch simplifies the integration task. ZigBit 900 module comes bundled with the ZigBee PRO mesh networking software. Backed by the competent support, ZigBit 900 module presents an unparalleled solution for the system integrators and OEMs. The module eliminates the need for costly and time-consuming RF development, and shortens time to market for a wide range of standards based wireless products.

Actual Size

Key Features	Benefits
Outdoor range: up to 6,000 m (over 3.7 miles)*	Best in class operating range
US and European Sub-1-GHz ISM band	Excellent wall penetration
Data rate: up to 1Mbit/s	Avoids data rate penalty for Sub-1-GHz band operation
Battery lifetime: 10 years**	Software architecture optimized for low power
Network topology: Point-to-Point, Star, Tree, Mesh	Flexible network options for every application
Serial AT-commands for easy prototyping and quick setup	No embedded programming required
Less than half square inch footprint	Easy integration

* Measured with an external 3 dBi antenna
** TX/RX every 5 minutes with 2500 mAh battery

ZigBee® Alliance **√RoHS**

ZigBit Applications

Industrial control

Building automation & monitoring

Automated meter reading (AMR)

HVAC monitoring & control

Predictive maintenance

Asset tracking

CUSTOMIZE

Professional customization services are available by request.

US & European 900 MHz ISM Band Operation

ZigBit 900 operates in European ISM band from 863 to 870 MHz and in North American ISM band form 902 to 928 MHz. Compared to the crowded 2.4 GHz band, the Sub-1-GHz frequency is less prone to interference. This frequency provides superior wall penetration capability, increasing indoor range at least 3-fold. These characteristics make ZigBit 900 an ideal solution for industrial control, building automation, automated meter reading and more.

Software Options: ZigBee PRO Stack and AT-Commands

The ZigBit module ships with robust 802.15.4-2006 / ZigBee PRO stack that supports a self-healing, self-organizing mesh network and up to 1Mbit/s data rates. The stack optimizes network traffic and minimizes power consumption. Customers can choose between BitCloud, a ZigBee PRO-certified stack featuring C API for embedded application development, or SerialNet, a private profile supporting serial AT-command interface. Both options enable reliable, scalable, and secure wireless applications running on MeshNetics ZigBit modules, while maintaining the same API across different module families. SerialNet allows programming of the module via serial AT-command interface.

ZigBit™ Development Kits

Development Kit is a convenient way to assess range performance and power consumption of modules in-field. It also enables developers to write custom embedded applications using the BitCloud API. Each kit includes development boards with sensors, accessories, software and documentation.

Professional Support

Over the years, MeshNetics has accumulated a unique range of expertise in hardware, firmware, RF design and development. This combination of experience-based knowledge enables MeshNetics to provide vastly superior support and customer care.

Contact us at info@meshnetics.com for further information.

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Parameter*	ZigBit 900 Module with balanced RF output (suitable for use with PCB and external antenna)
Part number	MNZB-900-B0
Module Operating Conditions	
Supply Voltage (Vcc)	1.8 V to 3.6 V
Current Consumption: RX/TX mode	11 mA / 26 mA
Current Consumption: Power Save Mode	< 6 µA
RF Characteristics	
Max Output Power	up to +11 dBm
Receiver Sensitivity (PER 1%)	up to - 110 dBm
Data rate	up to 1 MBit/s
Frequency	European ISM Band from 863 to 870 MHz North American ISM Band from 902 to 928 MHz
Hardware data encryption	AES 128 bit
Microcontroller Characteristics (AVR Atmega)	
On-Chip Flash Memory Size	128 kBytes
On-Chip RAM Size	8 kBytes
On-Chip EEPROM Size	4 kBytes
Physical/Environmental Characteristics	
Size	18.8 x 13.5 x 2.8 mm 0.53" x 0.74"
Weight	1.3 g
Operating Temperature Range	-40°C to +85°C
Block Diagrams	VCC (1.8 – 3.6V) IRQ UART USART/SPI I2C JTAG Analog ATmega1281 Micro controller AT86RF212 RF Transeiver RF I/O 1-Wire GPIO SPI Bus
Availability	Engineering samples available

Best-in-class sensitivity leads to best-in-class link budget and ultimate in range performance

High speed data transition rate

One module for world-wide operations

Ultra compact size for easy integration

Stable operation through the indicated temperature levels

PRECISION
MANUFACTURED
IN GERMANY

*Values are preliminary data

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