

# MeshNetics®

Easy Wireless for Things

**M2M**  
100 2008

## ZigBit™ Modules

2.4 GHz Modules for IEEE802.15.4/ZigBee®

### Wireless Mesh Networking Applications

ZigBit is a low-power, high-sensitivity 802.15.4/ZigBee module. ZigBit packs impressive functionality into less than a square inch of space and offers superior radio performance with exceptional ease of integration. The ZigBit module eliminates the need for costly and time-consuming RF development, and shortens time to market for a wide range of wireless applications.

Actual Size



Dual Chip Antenna Version



Balanced RF Output Version

Key features	Benefits
Outdoor Range: over ½ mile (1000m)	Best in class un-amplified range
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 need to program the module
Agency approvals: FCC, CE (ETSI), IC, ARIB, ZigBee	Ready for integration in any product

\* TX/RX every 5 minutes with 2500 mAh battery



#### ZigBit Applications



Building automation & monitoring



Automated meter reading (AMR)



HVAC monitoring & control



Industrial monitoring



Predictive maintenance



Asset tracking

**CUSTOMIZE**

Professional customization services are available by request.

#### Industry-leading Atmel® Hardware

ZigBit is based on the industry leading Atmel Z-link hardware platform. The powerful ATmega 1281v MCU features 128kb of flash memory and 8kb of RAM. The transceiver boasts -101dBm of Rx sensitivity and up to +3dBm of Tx power. A link budget of 104 dB gives the ZigBit a much longer range than competitive modules with lower link budgets.

#### Software Options: ZigBee PRO Stack, SerialNet and OpenMAC

The ZigBit module ships with robust 802.15.4/ZigBee stack that supports a self-healing, self-organizing mesh network, while optimizing network traffic and minimizing power consumption. MeshNetics offers three stack configurations: BitCloud, SerialNet and OpenMAC. BitCloud is a certified, ZigBee PRO software development platform supporting reliable, scalable, and secure wireless applications running on MeshNetics ZigBit modules. SerialNet allows programming of the module via serial AT-command interface. OpenMAC is MeshNetics' open source implementation of IEEE802.15.4 MAC layer intended for embedded software experts and enthusiasts.

#### 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.



#### Competent 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](mailto:info@meshnetics.com) for further information.

Parameter	ZigBit Module with Balanced RF Output (for Use with PCB Antenna / External Antenna)	ZigBit Module with Dual Chip Antenna
Part number	MNZB-24-B0	MNZB-24-A2
<b>Module Operating Conditions</b>		
Supply Voltage (Vcc)	1.8 to 3.6 V	
Current Consumption: RX/TX mode	19 mA/18 mA	
Current Consumption: Power Save /Deep Sleep Mode	6 µA/1.5 µA	
<b>RF Characteristics</b>		
Max Output Power	+3 dBm	
Receiver Sensitivity (PER 1%)	- 101 dBm	
<b>Microcontroller Characteristics (AVR Atmega)</b>		
On-Chip Flash Memory Size	128 kBytes	
On-Chip RAM Size	8 kBytes	
On-Chip EEPROM Size	4 kBytes	
<b>Physical/Environmental Characteristics</b>		
Size	18.8 x 13.5 x 2.8 mm 0.53" x 0.74"	24.0 x 13.5 x 2.8 mm 0.53" x 0.95"
Weight	1.3 g	1.5 g
Operating Temperature Range	-40°C to +85°C	
Block Diagrams		
Mechanical Drawings		
All dimensions are in millimeters		
Availability	Mass produced & ready to order	

Low supply voltage (vs. standard 2.1v) extends battery life by as much as 20%.

Best in class sensitivity allows RF link ranges competitive with amplified modules. It ensures bidirectional RF link in the worst conditions.

More RAM means more robust stack performance and more space for user software applications.

Ultra compact size for easy integration.

Stable operation through the indicated temperature levels.

**PRECISION  
MANUFACTURED  
IN GERMANY**



MeshNetics assumes no responsibility for errors and omissions, and disclaims responsibility for any consequences resulting from the use of information included herein. Please address all technical, certification and any other queries to [info@meshnetics.com](mailto:info@meshnetics.com).

### MeshNetics

**EMEA**  
Am Brauhaus 12  
01099, Dresden, Germany  
Tel: +49 351 8134 228,  
Fax: +49 351 8134 200  
E-mail: [info@meshnetics.com](mailto:info@meshnetics.com)

**USA**  
5110 N. 44th St., Suite L200  
Phoenix, AZ 85018 USA  
Tel: +1 (602) 343-8244  
Fax: +1 (602) 343-8245  
E-mail: [info@meshnetics.com](mailto:info@meshnetics.com)

Distributed by: