

MeshNetics®

Easy Wireless for Things

M2M
100 2008

ZigBit™ Amp Module

2.4 GHz Amplified Modules for IEEE 802.15.4/ZigBee®
Wireless Mesh Networking Applications

ZigBit Amp is an amplified IEEE 802.15.4/ZigBee RF module. Its unique RF design achieves a rare combination of the industry-leading range performance and low power consumption. The ZigBit Amp module's small footprint of less than a square inch of space makes the integration easy, while the built-in U.FL antenna connector enables rapid design-in, and provides flexibility in using a different external antenna for every application.

Actual Size



Key features*	Benefits
Outdoor range: Over 2.5 miles (4,000 m)	Best-in-class range
Battery lifetime: 6 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
Built-in U.FL antenna connector	Rapid design-in

* The data is preliminary and subject to change without prior notice.

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



ZigBit Applications



Building automation & monitoring



Automated Meter Reading (AMR)



HVAC monitoring & control



Industrial monitoring



RC applications



Asset tracking

CUSTOMIZE

Professional customization services are available by request.

Industry-leading Atmel's AVR® Z-Link® Hardware Platform

ZigBit Amp is based on the industry leading Atmel's AVR Z-link hardware platform. The combined RF track boasts -104 dBm of Rx sensitivity and 20 dBm of Tx power. The low power amplifier maximizes the range while keeping the power consumption at a minimum. The best-in-class link budget of 124 dB guarantees ZigBit Amp a much longer effective range than that of the modules with lower link budgets.

Software Options: ZigBeeNet, 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: ZigBeeNet, SerialNet and OpenMAC. ZigBeeNet 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 IEEE 802.15.4 MAC layer intended for embedded software experts and enthusiasts.

ZigBit™ Amp Development Kit

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 ZigBeeNet 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 for further information.

Parameter*	ZigBit Amp Module with U.FL connector
Part number	ZDM A1281 PN
Module Operating Conditions	
Supply Voltage (Vcc)	3.0 V to 3.6 V
Current Consumption: RX/TX mode	23 mA / 50 mA
Current Consumption: Power Save Mode	< 10 µA
RF Characteristics	
Max Output Power	+20 dBm
Receiver Sensitivity (PER 1%)	- 104 dBm
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	38.0 x 13.5 x 2.0 mm
Weight	2 g
Operating Temperature Range	-40°C to +85°C
Block Diagrams	
Mechanical Drawings	<p>All dimensions are in millimeters</p>
Availability	Samples available

Current consumption comparable to unamplified modules enables battery powered operation without sacrificing range performance. Less than ½ of industry average TX current

Software adjustable according to FCC, ETSI regulations

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

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

*Values are preliminary data

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