

The ZMM-01 is a new class of low power 2.4GHz ZigBee modules, designed to form the heart of smart metering and control systems. It combines the industry-leading Ember EM357 ZigBee SoC, Cirrus Logic CS5467 AFE together with a highly accurate real-time clock, making the ZMM-01 the first commercially available ZigBee-enabled module that combines both metering and control capabilities with full support of the ZigBee Smart Energy protocol.

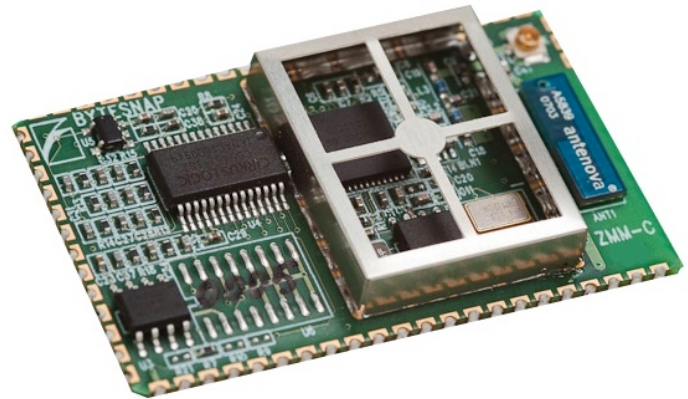
The module enables remote metering and control via a ZigBee mesh network and can form the heart of a meter that meets IEC EN62053-21 Class 1 or 62053-23 Class 2. The module is fully compliant with IEEE 802.15.4-2003.

Key features

- Device control via ZigBee Smart Energy protocol
- CS5467 watt-hour meter on a chip
- 32-bit ARM Cortex™-M3 processor
- External UART/I2C/SPI serial communications
- Real time clock, accuracy up to 3ppm
- Low power consumption
- Hardware CertiCom AES-128 encryption
- Ember InSight port for non-intrusive packet trace
- Surface mountable or pluggable format

AFE features

- Cirrus Logic Analogue Front End (AFE) CS5467
- 2 current inputs and 2 voltage inputs
- Energy Linearity: $\pm 0.1\%$ of Reading over 1000:1 dynamic range
- On-chip functions:
 - Voltage and Current Measurement
 - Active, Reactive, and Apparent Power/Energy
 - RMS Voltage and Current Calculations
 - Current Fault and Voltage Sag Detection
 - System level calibration
 - Phase Compensation
 - Temperature Sensor
 - Energy Pulse Outputs
 - Meets Accuracy Spec for IEC, ANSI, JIS, EN62053-21 (class 1) and EN50470-2 (class 2)



- Low Power Consumption
- Voltage Tamper Correction
- Power Supply Monitor Function

- Internal RMS voltage reference can be used if voltage measurement is disabled by tampering

Typical applications

- Electric Vehicle (EV) charging points
- Smart energy metering
- Street light management and monitoring systems
- Air-conditioning system monitoring and management systems
- Data centre power monitoring and management

The ZMM-01 is certified for the ZigBee Smart Energy profile and, using the supplied development kit (ZDM-01), can be integrated with customer devices – providing customers with a cost-effective way of building ZigBee-enabled management systems.

Real time clock

Standard, low-cost option:

- Accuracy: 20ppm from 0°C to +40°C

High accuracy option:

- Accuracy ± 2 ppm from 0°C to +40°C
- Accuracy ± 3.5 ppm from -40°C to +85°C

In both cases, the RTC can be corrected using mains cycle counting (can be enabled/disabled in software).

Radio features

- Complies with ETSI EN 300 328 V1.7.1 (2006-10)
- Based on Ember EM357 single chip ZigBee unit
- Supports the full ZigBee 2.45GHz range i.e. channels 11-26



