MICRORIDGE
Measurement Collection Specialists
Connect Any Gage into Any Software

Radio Module
MICRO-RM2.4

Isometric View

Top View

Bottom View

Product Summary

The MICRO-RM2.4 Radio Module from MicroRidge Systems is a small wireless module that uses the new Atmel ATmega2564RFR2 microcontroller. The ATmega2564RFR2 is a low-powered CMOS 8-bit microcontroller based on the AVR enhanced RISC architecture combined with a high data rate transceiver for the 2.4 GHz ISM (industrial, scientific and medical) band.

The MICRO-RM2.4 contains an on-board chip antenna. The module contains radio certifications for FCC, IC and EU (CE). No additional RF testing is required as long as the application of the MICRO-RM2.4 follows the approved certifications.

The small size of the MICRO-RM2.4 module allows it to be used in small and compact products. The module measures 12 x 20.75 x 2.82 mm (.472 x .817 x .111 inches). The module requires a power supply of 1.8 to 3.6 volts DC. This voltage range allows the module to be powered by a single 3 volt coin cell or two 1.5 volt batteries.

Why Did MicroRidge Develop the MICRO-RM2.4 Radio Module?

Since 2010 MicroRidge has been using the ATZB-24-A2 radio module produced by Atmel. Atmel has announced the end-of-life for their ATZB module and their replacement modules are too large for use in some of the MicroRidge MobileCollect products.

The new MICRO-RM2.4 Radio Module from MicroRidge is smaller than the previous ATZB module and maintains wireless compatibility with the previous ATZB module. After January 2015, MicroRidge will start using the new MICRO-RM2.4 Radio Module in its MobileCollect product line. This new module will also be available for other companies to integrate into their products.

Features

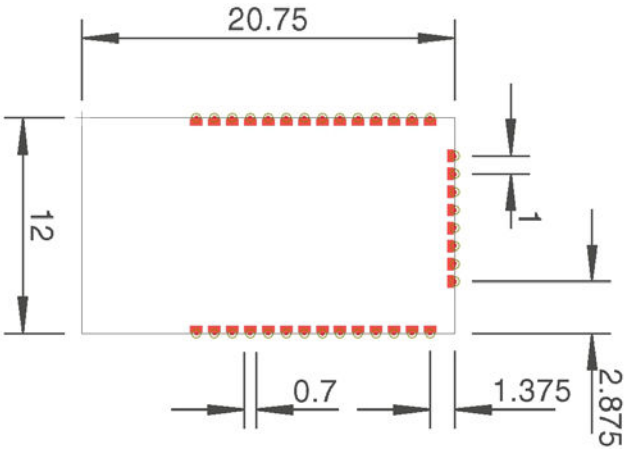
The features of the MICRO-RM2.4 Radio Module are numerous and allow the module to be used in many low powered short range applications. The primary features of this module are as follows:

- Ultra compact size: 12 x 20.75 x 2.81 mm (.472 x .817 x .111 inches).
- Built-in 32.768 kHz crystal for low power and deep sleep modes.
- Built-in 16 MHz crystal for 2.4 GHz transceiver and AVR microcontroller.
- Power supply voltage of 1.8 to 3.6 VDC.
- Typical power consumption:
  - 0.75 μA in sleep mode (transceiver in Sleep and AVR in Power Save/Down mode).
  - 14.5 ma in TX mode at 3.5 dBm.
  - 12.5 ma in RX mode.

- Memory resources:
  - 256K bytes In-System Self-Programmable Flash.
  - 8K bytes EEPROM.
  - 32K bytes SRAM.
- IEEE® 802.15.4 compliant transceiver.
- 2.4 GHz ISM band.
- TX/RX 128 byte frame buffer.
- TX output power from -17 dBm to 3.5 dBm (0.020 mw to 2.238 mw).
- Typical indoor range in excess of 100 feet. Typical outdoor range in excess of 200 feet.
- Receiver sensitivity = -100 dBm.
- 14 RF Channels (11 to 26, channel 14 is reserved for internal use).
- Serial bootloader.
- Interface connections:
  - 30 I/O ports.
  - 2 RS-232 serial ports.
  - JTAG programming connection.
  - I²C interface.
- High performance low power AVR® 8-bit microcontroller.
- ROHS complainant.
- Extensive documentation and software resources available on the Atmel web site.
- Wireless library functions available from MicroRidge. Requires IAR AVR compiler version 6.4 or later.

Radio Module Dimensions

The dimensions for the MICRO-RM2.4 Radio Module are given below. All of the dimensions are in mm. The thickness of the module from the bottom of the module to the top of the RF shield is 2.82 mm. The pad spacing is 1 mm and the pad width is 0.7 mm.



Module Dimensions (mm) and Solder Pad Placement

For More Information

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