

RC2200

ZigBee™-Ready RF Module

The RC2200 RF Transceiver Module is a compact surface-mounted module with embedded ZigBee™-ready protocol stack for wireless star and mesh networks based on IEEE 802.15.4 compliant PHY and MAC layers. The module operates in the 2.45 GHz world-wide license-free ISM band. The complete shielded module is only 16.5 x 29.2 x 3.5 mm, optionally available with integrated antenna or RF connector. The module is surface mounted and tape & reel delivery enables low cost pick & place manufacturing.

Features

- Small size: 16.5 x 29.2 x 3.5 mm
- Very low power consumption
- Compact shielded module
- Integrated antenna or MMCX RF connector options
- 2.7 – 3.6 V supply voltage
- Ultra low power modes
- SMD mounting
- Conforms with EN 300 440 (Europe), FCC CFR 47 part 15 (US), ARIB STD-T66 (Japan)

Resources / application interface

- 128 kB Flash, 4 kB SRAM
- Dual USART
- CTS / RTS flow control optional
- SPI interface
- 4 kB non-volatile EEPROM memory
- 32 digital and analogue I/O
- 8 channel 10 bit ADC
- 6 interrupt driven I/O
- 32 kHz real-time clock (RTC)
- Ultra low power modes
- JTAG, SPI, boot-loader

Embedded protocol

- ZigBee-ready protocol stack
- IEEE 802.15.4 compliant PHY/MAC
- Full Function Device (FFD)
- Reduced Function Device (RFD)

Logic devices:

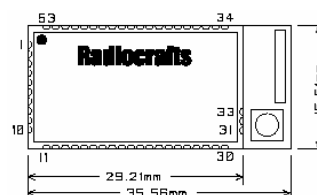
- Coordinator
- Router
- End device

Network topologies:

- Star
- Cluster tree
- Mesh

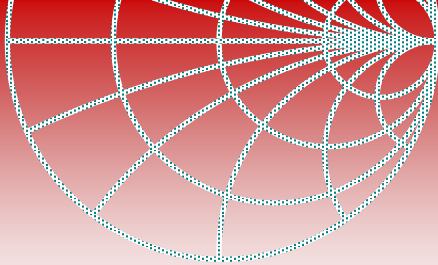
Applications

- Home and building automation
- Industrial control
- OEM equipment
- Fleet and inventory management



RF parameters

- 16 channels
- 2.45 GHz World-wide ISM band
- Excellent sensitivity (-94 dBm)
- 250 kbit/s
- High performance direct sequence spread spectrum (DSSS) RF transceiver
- Very low power (30 mA in RX)
- Up to 0 dBm output power (27 mA)
- 50 Ohm antenna interface
- CE certified under R&TTE



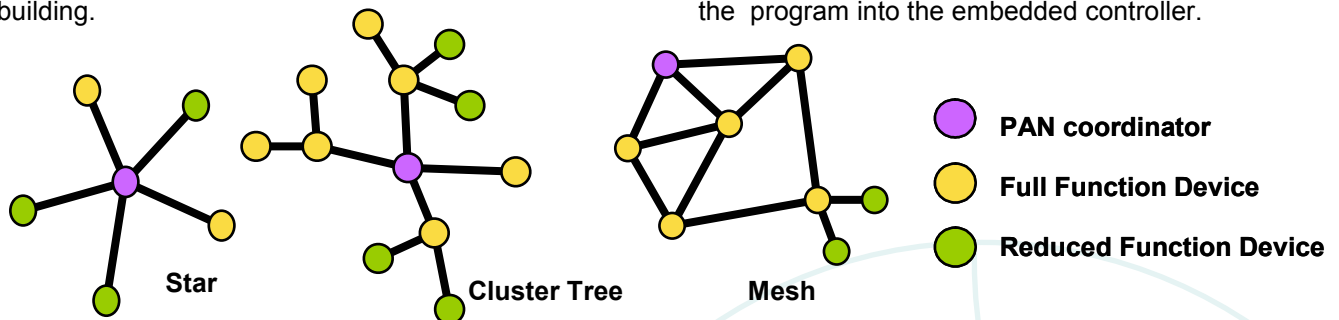
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What is IEEE 802.15.4?

It is a standard for low data rate wireless Personal Area Networks (PAN) focusing on low power, low cost and robustness. It defines a Physical layer (PHY) and a Medium Access Control layer (MAC) and is the basis for the open ZigBee protocol or proprietary protocols.

What is ZigBee?

ZigBee is an open global standard aimed for wireless network communication between devices in home control, industrial and building automation applications. It provides star, cluster tree and mesh topologies (see illustration). The multi-hop and ad-hoc routing properties is ideal for non-static networks covering a house or building.



How do I implement my application?

Your application can be implemented on top of the ZigBee stack sharing the resources in the embedded microcontroller. An extensive number of digital and analogue I/Os can be used to directly interface sensors, switches and actuators. Timing applications can use the on-board 32 kHz real-time clock. Ultra low power modes are ideal for battery operation.

Radiocrafts - Embedded Wireless Solutions

Radiocrafts offers standard RF modules for operation in the license-free ISM bands at 315 / 433 / 429 / 868 / 915 / 2450 MHz. We provide compact modules that are easy to integrate and easy to use, for shortest possible time-to-market. Radiocrafts also makes customer specific solutions, from specification to turn-key delivery. Based on our experience in a wide variety of products and applications we find the best solution to take your idea to the market at a minimum of time and cost.

What about the ZigBee stack?

In principle any third-party ZigBee stack can be used with the module. But the module can be delivered with the Figure8 Wireless stack and Chipcon MAC, as the royalty fee is included in the module cost. The stack license is available from Chipcon.

What development tools do I need?

The following development tools for the embedded MCU (Atmel mega128) are recommended and available free of charge:

- WinAVR / AVR GCC / Programmer's Notepad
- Atmel AVR Studio

The Atmel JTAG ICE mkII can be used to download the program into the embedded controller.

Why should I choose the RC2200 module?

Because it contains all the HW you need, the ZigBee stack and MCU resources in a 100% RF tested and qualified module giving you the shortest time to market. In the simplest case like a home light remote control you only need an external battery and a pushbutton. As an option you can even get the module with integrated antenna or coaxial MMCX connector.

Distributor/rep: