



IEEE 802.15.4 2.4 GHz RF Data Modem IC



TARGET MARKETS AND APPLICATIONS

- Remote Control and Wire Replacement in Industrial Systems
 - Wireless sensor networks
- Factory and Home Automation and Control
 - Heating and cooling
 - Utilities
 - Energy management
 - Security
 - Lighting
- Inventory and Logistics Management
 - Equipment management, cargo, pallets, warehouses
 - Temperature and condition sensing
 - Assembly line management
- HID (Human Interface Devices)
 - Keyboards
 - Mice
- Toys
 - Yard toys
 - In-room toys
- Home Gateways
 - Set-top boxes
 - Entertainment remotes



OVERVIEW

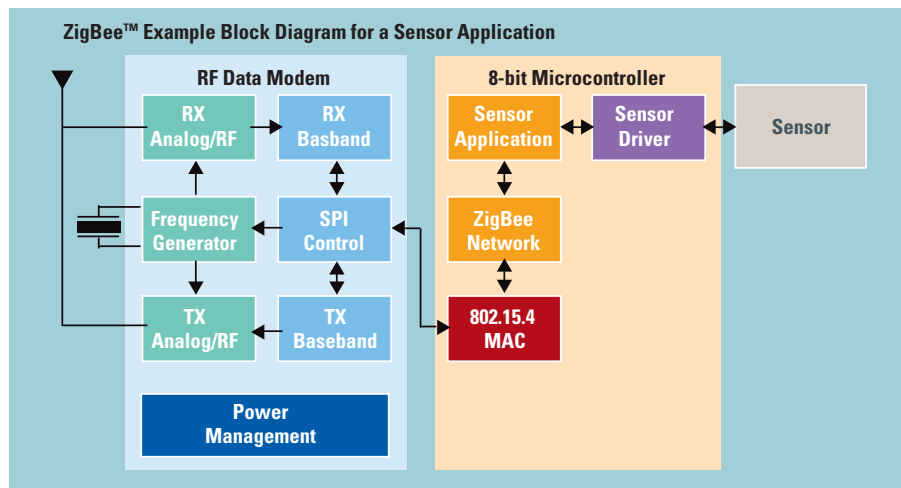
Motorola is a leading member of the IEEE 802.15.4 Standards Body. The 802.15.4 specification is a cost-effective, low data rate (<250 kbps), 2.4 GHz and 868/928 MHz wireless technology designed for personal-area and peer-to-peer mesh networking. Target markets for the 802.15.4 Standard include industrial control and networking, home automation and control, inventory management, human interface devices, as well as wireless sensor networks.

The 802.15.4 Standard is the basis of an application and network layer protocol known as ZigBee™. The ZigBee™ Alliance is an association of companies working together to create software interoperability certification and testing. The alliance's Web site address is www.zigbee.org.

Motorola plans to offer a comprehensive platform solution comprised of an RF data modem designed to support the 2.4 GHz band of this standard along with reference designs and software. The software is targeted to support a broad suite of Motorola microcontrollers, allowing the end user maximum flexibility in application design, memory requirements and peripheral interfaces.

With more than 8 billion processors currently in use, Motorola's embedded electronic solutions are everywhere and permeate virtually all advanced technology applications. Motorola is the market leader in embedded microprocessors, microcontrollers and 8-bit MCUs.

Ratification of this IEEE standard occurred in May 2003. Engineering samples of the RF data modem are currently being offered to development partners to coincide with ratification of this standard.



RF DATA MODEM KEY FEATURES

- Designed for the IEEE 802.15.4 and ZigBee standards
- Operates in the 2.4 GHz ISM band available worldwide
- Comprehensive transceiver data modem with fully packetized data out
- Cost-effective CMOS design. Low external components. Includes on-chip low noise amplifier, 1.0 mW PA, VCO, full spread-spectrum encoding and decoding compatible with 802.15.4
- RX sensitivity of -90 dBm at 1% PER, well above specification
- Buffered transmit and receive data packets for simplified use with low-end microcontrollers
- Engineered to support 250 kbits/s OQPSK data in 5.0 MHz channels, per the IEEE 802.15.4 specification
- No line-of-sight limitations as with infrared (IR)
- Multiple power-down modes enabling standard alkaline battery lifetimes from months to years

- Power supply range: 2.0V to 3.6V with on-chip voltage regulator
- SPI data and control interface, operates at 4 MHz or greater

MAC LAYER SOFTWARE KEY FEATURES

- Designed to support peer-to-peer and star topologies
- Optional time slots for low latency transfer
- Designed to support optional ZigBee network and application layers
- Power-saving modes: doze and hibernate, application configurable

LEARN MORE

To learn more about this platform solution, visit www.motorola.com/zigbee.

