ETRX2 – (ZigBee Technology)

Wireless Mesh Networking Module

The Telegesis ETRX2 module is a low power, 2.4GHz ISM band transceiver, based upon the Ember Corporation EM250 single chip ZigBee / IEEE802.15.4 solution and EmberZNet 2.xx meshing technology.

Designed for integration into any device without the need for RF expertise the ETRX2 enables you to add powerful wireless networking capability to your products and bring them quickly to market. The comprehensive Telegesis AT command line interface allows for quick integration without complex software engineering.

MODULE FEATURES

- Small form factor, SMT module 37.75 x 20.5mm.
- Optional board-to-board or board-to-cable connector.
- 3 antenna options: Integrated ceramic antenna, Hirose U.FL coaxial connector or single port 50Ω pad.
- XAP16b microcontroller with non-intrusive debug interface (SIF).
- 128k flash and 5kbytes of SRAM.
- UART interface with DMA, optional software support for hardware I^2C and SPI.
- Wide supply voltage range (2.1 to 3.6V).
- Module ships with standard Telegesis AT-style software interface based on the EmberZnet 2.xx meshing stack.
- Can act as an End Device, Router or Coordinator.
- 12 general-purpose I/O lines and 2 analogue inputs (all 17 GPIOs of the SN250 are accessible).
- Supports 4 different power modes for extended battery life.
- Current consumption below 1uA in deep sleep mode with self wakeup.
- Firmware upgrades via RS232 or over the air (password protected).
- Hardware supported encryption (AES-128).
- Tested for CE and FCC compliance (with integrated antenna), FCC modular approval.
- Operating temperature range: -40°C to +85°C.
- Future Options: On board, low power voltage regulator, DC/DC regulator and watch crystal.

RADIO FEATURES

- Based on the Ember Corporation EM250 single chip ZigBee / IEEE802.15.4 solution.
- 2.4GHz ISM Band.
- 250kbit/s over the air data rate – NB Actual usable data throughput with ZigBee is 20kbps.
- 16 channels (802.15.4 Channel 11 to 26).
- +3dBm output power (+5dBm in boost mode).
- High sensitivity of -98dBm typ. at 1% packet error rate.
- Hardware acceleration for IEEE 802.15.4 compliant transmissions.

SUGGESTED APPLICATIONS

- AMR – Automatic Meter Reading.
- Wireless Alarms and Security.
- Home/Building Automation.
- Wireless Sensor Networks.
- M2M Industrial Controls.
- Future ZigBee systems.
- PC Peripherals.
- IEEE 802.15.4 Systems.
- Item Tracking.

DEVELOPMENT KITS

- Two complementary development kits consisting of two or three modules and a single development board with USB connectivity and I/O breakouts.
- AT-style software interface command dictionary can be modified for high volume customers.
- Custom software development available upon request.

EXAMPLE AT-STYLE COMMANDS

AT+BCAST	Sends a Broadcast
AT+UCAST:<address>	Sends a Unicast
AT+EN	Establish PAN network

Unlike many other module command layers the Telegesis AT-Style command set fully mirrors the functionality of the EmberZNet mesh networking stack. With the ETRX2 module there is therefore no requirement for any embedded firmware expertise when engineering your mesh networking solution.

The ETRX2 is available in Power Amplified form – see ETRX2-PA for range & specification details.

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