ETRX2-PA – (ZigBee Technology) Power Amplified Mesh Networking Module

The Telegesis ETRX2-PA offers boosted output power whilst being a drop in-replacement for the standard ETRX2. Care was taken to retain the low deep sleep current to make this module ideally suited for battery operated end devices with the lowest transmit current in its class.

Based on the Ember EM250 single chip ZigBee solution utilizing EmberZNet meshing technology, it has been designed for fast integration into any device without the need for RF experience and expertise.

MODULE FEATURES

- Small form factor, SMT module 37.75 x 20.5mm.
- 2 antenna options: Integrated ceramic antenna or Hirose U.FL coaxial connector
- XAP2b microcontroller with non-intrusive debug interface (SIF).
- 128k flash and 5kbytes of SRAM.
- UART interface with DMA, hardware I^{2}C and SPI accessible with custom firmware
- Wide supply voltage range (2.8 to 3.6V).
- Module ships with standard Telegesis AT-style software interface based on the EmberZNet 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 EM250 are accessible).
- Supports 4 different power modes for extended battery life.
- Current consumption below 2µA in deep sleep mode with self wakeup.
- Firmware upgrades via serial port or over the air (password protected).
- Hardware supported encryption (AES-128).
- Tested for CE and FCC compliance, FCC modular approval.
- Operating temperature range: -40°C to +85°C.

RADIO FEATURES

- Based on the Ember EM250 single chip ZigBee/IEEE 802.15.4 solution.
- 2.4GHz ISM Band.
- 250kbit/s over the air data rate – NB actual usable data throughput with ZigBee is 20kbps.
- 14 channels (802.15.4 Channel 12 to 25).
- +18dBm output power (<100mA).
- High sensitivity of -97dBm typ. at 1% packet error rate.
- Hardware acceleration for IEEE 802.15.4 compliant transmissions.

SUGGESTED APPLICATIONS

- ZigBee Smart Energy devices
- AMR – Automatic Meter Reading.
- Wireless Alarms and Security.
- Home/Building Automation.
- Wireless Sensor Networks.
- M2M Industrial Controls.
- PC Peripherals.
- Item Tracking.

FIRMWARE

- Supplied with AT command set firmware pre-installed
- 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.