



Image not shown actual size; enlarged to show detail

## Module Features

- Small form factor, SMT module 25mm x 19mm
- 2 antenna options: Integrated chip antenna or U.FL coaxial connector
- Industry's first ARM® Cortex-M3 based family of ZigBee modules
- Industry standard JTAG Programming and real time network level debugging via the Ember InSightPort
- 192kB (ETRX357-LRS) and 128kB (ETRX351-LRS) flash and 12kB of RAM
- Lowest Deep Sleep Current of sub 1µA and multiple sleep modes
- Wide supply voltage range (2.1 to 3.6V)
- Module ships with standard Telegesis AT-style command interface based on the ZigBee PRO feature set
- Can act as an End Device, Router or Coordinator
- 22 general-purpose I/O lines including analogue inputs
- Firmware upgrades via RS232 or over the air (password protected)
- Hardware supported encryption (AES-128)
- CE and FCC compliance, FCC modular approval
- Approvals for Canada, S Africa, Australia & NZ
- Operating temperature range: -40°C to +85°C
- Standard version without LNA and PA available in the same form factor

## Radio Features

- Based on the Ember EM351 and EM357 single chip ZigBee® solutions
- 2.4GHz ISM Band
- 15 channels (802.15.4 Channel 11 to 25)
- SiGe SE2432L integrated PA and LNA
- +20dBm output power (adjustable down to -21dBm)
- High sensitivity of -106dBm typ. @ 1% packet error rate
- RX Current: 31.5mA, TX Current: approx. 140mA at 20dBm
- Robust Wi-Fi and Bluetooth coexistence
- Over-the-air compatible with the ETRX2

The Telegesis ETRX351-LRS and ETRX357-LRS modules are low power 2.4GHz ZigBee® modules with an added front-end module (SiGe SE2432L) containing both PA and LNA for highest possible link budget.

Based on the latest Ember EM351 and EM357 single chip ZigBee® solution the new long range modules are footprint compatible to the ETRX351 and ETRX357, thus representing a drop-in replacement for all applications where a high link budget is required.

The module's unique AT-style command line interface allows designers to quickly integrate ZigBee technology without complex software engineering. For custom application development the ETRX35x series integrates with ease into Ember's InSight development environment.

## Suggested Applications

- AMR – ZigBee smart energy applications
- Wireless Alarms and Security
- Home/Building Automation
- Wireless Sensor Networks
- M2M Industrial Controls
- Lighting and ventilation control
- Remote monitoring
- Environmental monitoring and control

## Development Kit

- New Development kit containing everything required to set up a mesh network quickly and evaluate range and performance of the ETRX35x and its long range version.
- 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
AT+JN	Join PAN

At power-up the last configuration is loaded from non-volatile S-Registers, which can eliminate the need for an additional host controller.