

ETRX3 ZigBee Module

The ETRX3 series is the latest generation of advanced ZigBee modules from Telegesis and the first module family on the market to feature the latest ARM® Cortex M-3 SoC's from Ember the EM357 and EM351.



ETRX3 series modules work from a 2.1v to 3.6v supply and active power consumption is reduced by over 20% compared to the ETRX2 range.

In deep sleep mode, current consumption is reduced to 800nA and further reduced to 400nA if the self wakeup feature is not enabled.

ETRX3 series modules also feature all the advanced software already present on other Telegesis ZigBee modules such as the Telegesis AT command set which allows the designer to use the functionality of the Ember ZNet stack without the need for complex embedded code. Development is also made easier by the addition of an integrated JTAG and debugging interface.

As with all our modules, ETRX3 series devices are designed to be easily integrated into designs without the need for RF or embedded expertise. Using the latest version of Embers Znet PRO meshing technology ETRX3 family modules allows designers to add the latest meshing radio technology without complex software engineering.

Features

- EM357 / EM351 ZigBee SoC featuring 32-bit ARM® Cortex-M3 processor
- Dimensions 19mm x 25mm x 3mm
- ETRX357 – 192k Flash, 12k RAM
- ETRX351 – 128k Flash, 12k RAM
- RX Current: 25mA, TX Current: 31mA at 3dBm
- +3dBm output power (+8dBm in boost mode)



- RX sensitivity -99dBm (-101dBm Boost)
- 24 general-purpose I/O lines including analogue inputs (all GPIOs accessible)
- Long range version with a link budget of up to 124dB
- Wide supply voltage range (2.1 to 3.6V)
- TX Power 3dBm (5dBm Boost)
- 128µS Wakeup
- Improved hardware MAC acceleration
- JTAG interface for programming and debugging
- Side castellations for easy soldering
- Improved peripherals (ADC, timers etc.)
- Chip antenna and U.FL co-axial connector
- FCC approval, tested for European regulation
- Operating temperature range: -40°C to +85°C

Suggested applications

- AMR – ZigBee Smart Energy applications
- Wireless alarms and security
- Home/building automation
- Wireless sensor networks
- Lighting and ventilation control
- Remote monitoring
- Environmental monitoring and control

ETRX3 Development Kit

The ETRX357DVKA development kit is an ideal starting point for development and evaluation of the ETRX357 Module. The ETRX357 AT command line interface allows designers to quickly integrate ZigBee technology without complex software engineering. For custom application development the ETRX357DVKA integrates easily with Embers InSight development environment.

The kit is supplied with eight ETRX357 ZigBee Modules mounted on carrier boards – two of each variant both standard and Long range 'LR' version and with integrated antenna and Hirose connector for attaching external antenna. This allows all possible combinations of antenna and power output to be tested.

The carrier boards are plugged on to Development boards which can be controlled via USB link from a host PC or can be powered from 2 AAA batteries as a stand alone development board.

Features

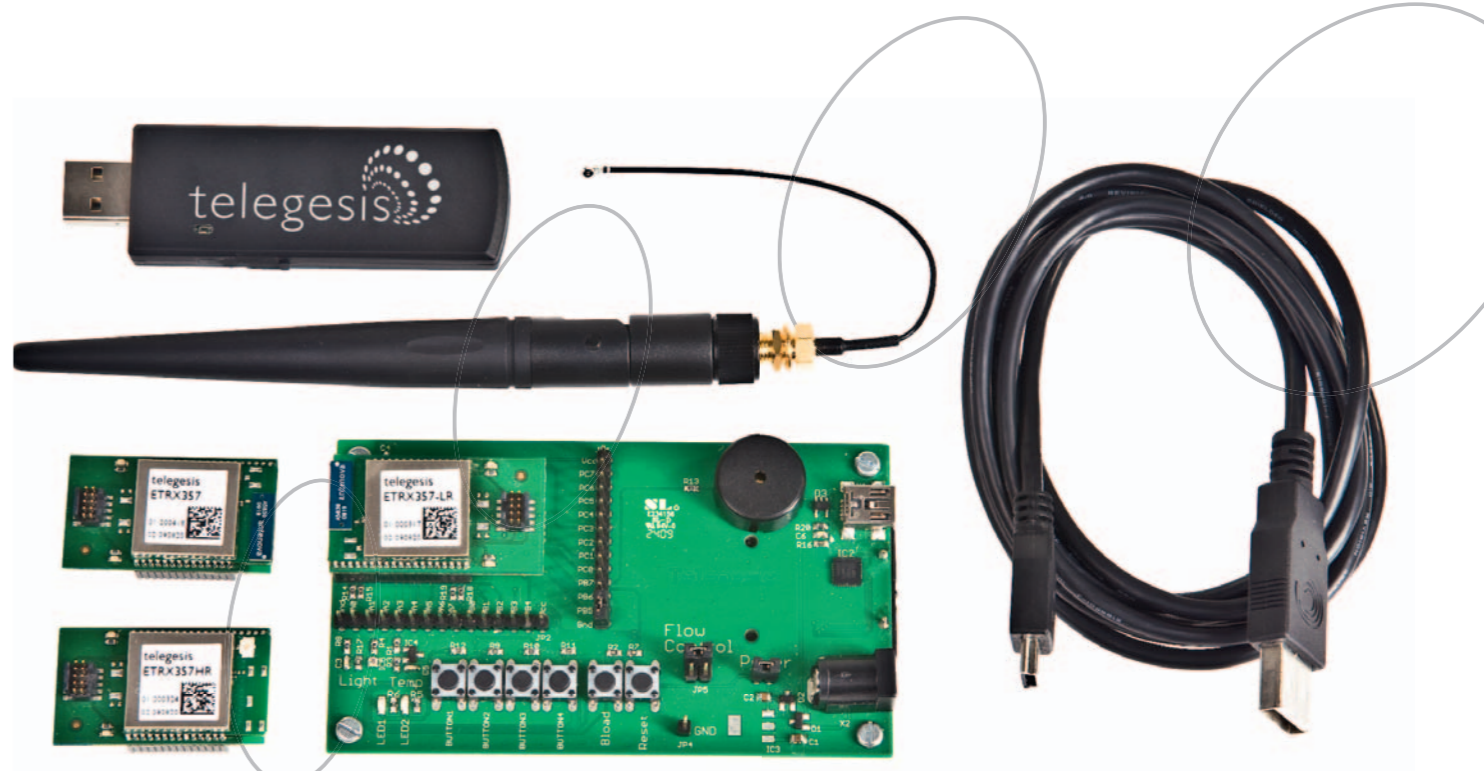
- Low cost evaluation platform for ETRX357 ZigBee wireless mesh networking modules
- Broad selection of modules allows testing of all possible module/antenna combinations
- Set up a ZigBee mesh network in a few minutes without the need for any embedded software
- The downloadable Telegesis Terminal app offers easy interface to development board modules
- Development boards can be used as hardware platform for trials
- Also works with 3rd party terminal software like HyperTerminal
- Battery option allows easy prototyping of end devices
- Seamlessly Integrates into the Ember InSight Toolchain
- USB Drivers available for Windows, MAC OS and Linux

Development kit contents

- 3 x USB Development Boards
- 2 x ETRX357 on Carrier-Board
- 2 x ETRX357HR on Carrier-Board
- 2 x ETRX357LR (long range PA) on Carrier-Board
- 2 x ETRX357HR-LR (long range PA) on Carrier-Board
- 1 x ETRX2USB stick
- 2 x Large Antenna
- 2 x Small Stubby Antenna
- 3 x USB Cables

Development board features

- Power can be supplied via USB, power Jack or on board battery holder (2xAAA)
- Light and Temperature sensor
- Breakout of all GPIO pins
- Access to the Ember InSight Port
- Reset and Bootload Button
- 4 x Buttons, 2 x LEDs, 1 x Buzzer
- USB to Serial converter



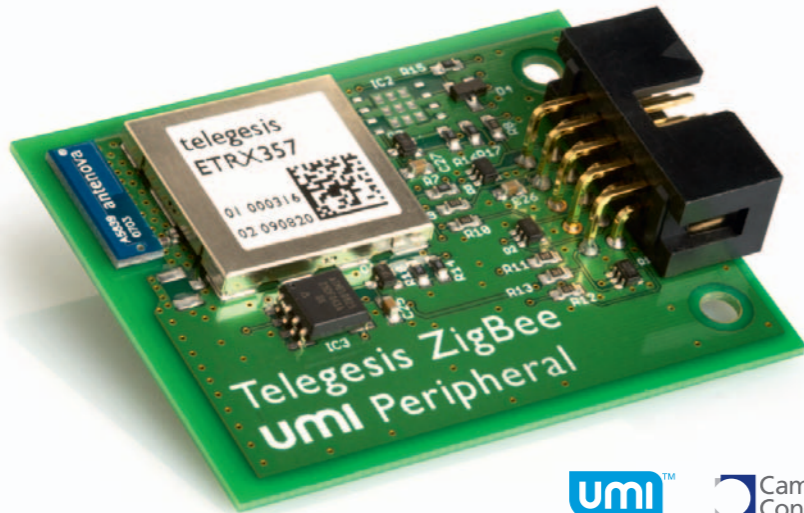
ETRX-UMI

The first ZigBee module on the market meeting the new UMI (Universal Metering Standard).

UMI is a new, low power hardware interface standard developed by Cambridge Consultants to simplify and ease the design of Smart Meters. UMI is primarily aimed at smart metering applications such as:

- Meters (electricity, gas, water and heat)
- Energy displays
- Gateway devices

Meter OEMs can now develop 'Smart-Ready' approved meters by including one or more UMI Ports and when ZigBee support is required the Telegesis ETRX-UMI communication module can be fitted to the meter or alternatively a Gateway or In Home Display. UMI uses a star network topology similar to USB but with much lower power consumption and in some ways UMI can be compared to a rugged version of the SD card interface. Telegesis experience and dedication to ZigBee have taken the ETRX3 series and applied it to the design of the ETRX-UMI module.



UMI and the UMI logo are trademarks of Cambridge Consultants Ltd. For more info please see www.CambridgeConsultants.com/umi

Telegesis Router

The Telegesis Router-E enables increased distance between nodes in a ZigBee network.

For example, if the distance between two nodes is too great for communication to be established, place one or more Routers in-between and the mesh will self-form. A Router has the same distance parameters as a Telegesis module.

Incorporates a Telegesis ZigBee module and external power supply required.

Typical uses

To allow extended distance between nodes in a ZigBee network.

OEM availability

The Telegesis Router is also available as an OEM product and can be supplied without the Telegesis AT command set. With or without plastic cases. Your own logo and artwork printed straight onto the plastic case. For further information on OEM options and prices, please contact us directly.



ETRX3USB ZigBee USB stick

Based on our ETRX357 ZigBee module the ETRX3USB stick brings users all the functionality and performance of the ETRX3 family in a USB stick form factor. For fast production development the device features the Telegesis AT Command line interface which allows quick integration of ZigBee Technology to virtually any USB enabled product.

The ETRX3USB is also available from Telegesis as an OEM device with unbranded black package without a Telegesis logo.

Features

- Driver Support for Windows 98SE/2000/XP/Win7/MAC/Linux
- Form factor: USB Stick L80mm x W26mm x H8.5mm
- Integrated omni-directional antenna
- ETRX3USB acts as a USB2.0 to serial bridge connected to an ETRX357 module
- USB 2.0 Full Speed Device, backwards compatible to USB1.1 hosts
- Activity LED

- Plug on side allows access to programming connector
- USB bus powered
- Virtual COM port interface
- LR (PA/LNA) version also available
- Operating Temperature range: -40°C to +85°C



ETRX2USB ZigBee USB Stick

The ETRX2USB is a high performance, low power 2.4GHz ZigBee transceiver in a USB Stick form factor. Based on the Ember EM250, it provides a cost effective method of adding ZigBee capability to any device which employs USB. For faster production development the device carries the Telegesis AT Command line interface which allows quick integration of ZigBee Technology.

Features

- Driver support for Windows 98SE/2000/XP/Win7/MAC/Linux
- Form factor: USB Stick L80mm x W26mm xH8.5mm
- Integrated omni-directional antenna
- ETRX2USB acts as a USB2.0 to serial bridge connected to an ETRX2 module
- Up to 150m range
- USB 2.0 Full Speed Device, backwards compatible to USB1.1 hosts
- Activity LED
- Plug on side allows access to programming connector
- USB bus powered
- COM port interface (virtual com port in Windows®)
- 0dBm typical output power (-16.6dBm – +3.6dBm range)
- PA (power amplified) version also available
- Low power sleep mode of 1.6mW
- Operating Temperature range: -40C to +85C

ETRXUSB Options

The ETRX2USB is also available from Telegesis as an OEM device. We can supply the ETRX2USB as unbranded (black, no Telegesis logo) available from stock – please ask for details.

In volume quantities, the ETRX2USB is also available without the Telegesis AT command set. Ember's Development system can be used to develop your own Firmware. Plastic cases are available in a variety of colours and you can have your own logo and artwork printed straight onto the plastic. For further information on OEM format options and prices, please contact us directly at OEM@telegesis.com

ETRX2 ZigBee Module

The Telegesis ETRX2 is a low power, 2.4GHz band ZigBee module based on the Ember EM250 ZigBee tranceiver. The ETRX2 has been designed to be integrated into designs without the need for RF or Embedded firmware experience. Utilising Ember Znet firmware the ETRX2 enables a designer add powerful wireless networking capability to your products and quickly bring them to market.

Features

- Small form factor, 37.75 x 20.45mm
- Optional board-to-board or board-to-cable connector
- 3 antenna options: Integrated ceramic antenna, Hirose U.FL coaxial connector or 50Ω pad
- XAP2b microcontroller with non-intrusive debug interface (SIF)
- 128k Flash and 5kbytes of SRAM
- UART interface with DMA, optional software support for hardware I2C and SPI
- Wide supply voltage range (2.1 to 3.6V)
- 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 1uA in deep sleep mode with self wakeup
- Tested for CE and FCC compliance (with integrated antenna)
- Operating temperature range: -40°C to +85°C

Suggested applications

- AMR – Automatic Meter Reading
- Wireless Alarms and Security
- Home/Building Automation
- Wireless Sensor Networks
- M2M Industrial Controls
- Item tracking



EAP Ethernet Access

The Telegesis EAP Ethernet Access Point is a 'Gateway' allowing access to ETRX2 mesh networking modules via an industry standard Ethernet IP Network. Once the IP address of the EAP has been established and Firewall access set, the EAP can be accessed via the internet from anywhere in the world.

For example, multiple EAPs can be deployed, each connected via Ethernet to a ZigBee PAN in different parts of a building.

For fast production development the device carries the Telegesis AT Style Command line interface which allows the quick integration of meshing technology.

EAP features

- Combines a Telegesis ETRX2 module with a Lantronix serial to Ethernet bridge
- Complete TCP/IP protocol stack and Windows deployment software
- Interface: Ethernet 10Base-T or 100Base-TX (auto-sensing)
- Protocols: TCP/IP, UDP/IP, ARP, ICMP, TFTP, Telnet, Auto IP, DHCP
- Link and activity indicator (LED)
- Management: Telnet and Microsoft Windows®-based utility for configuration
- Can offer access to the remote AT-Command Interface via a serial Com port
- SIF interface for custom application development and real time debugging of custom firmware
- External power supply required

Uses

- Remote diagnostics and upgrades
- Networked remote monitoring and control
- Remote data acquisition – e.g. temperature monitoring
- Bridging between ZigBee and Ethernet

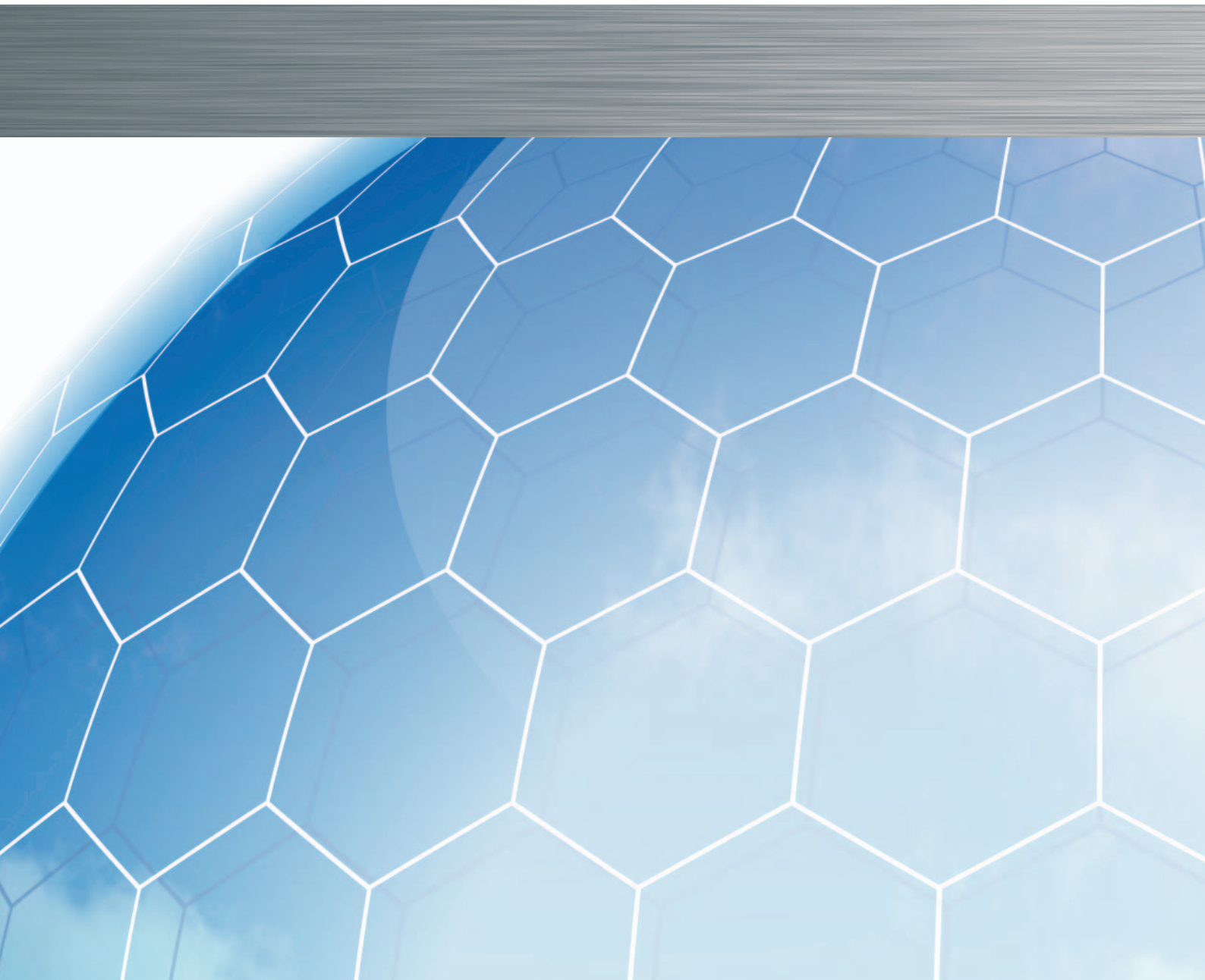
As a starting point for developers, Telegesis supplies the Telegesis Terminal Application with the EAP. Device deployment and network initiation are simplified with Dynamic Host Protocol Support (DHCP) and additional IP configuration methods via the included Windows®-based Lantronix Device Installer software.

OEM format

The EAP is also available as an OEM product. Without the Telegesis AT command set. With or without plastic case. Your own Logo or artwork printed straight onto the plastic case. For further information on OEM format options and prices, please contact us.



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