

WiBORNE, INC.

ZigBee PRO Modules: Visibility for Unlimited Applications



ZigBee PRO Modules are Low cost, low power, low data rate, and good range, with IEEE 802.15.4 compliant for 2.4GHz OEM RF modules. It is designed with a ready made component which allows IEEE 802.15.4 wireless applications, including ZigBee, to be quickly and easily included in product designs. You can simply connect sensors and switches to the module IO pins for customization to your applications quickly.

It offers sufficient processing power for complex systems, while with high link budget for up to 1KM of Line of Sight (LoS), with low standby current. It is supplied with a range of protocol stacks, including a simple IEEE 802.15.4 protocol for point-to-point, star, or tree applications, and a ZigBee mesh networking stack.

WiBorne's ZigBee modules offer variety of integrated antennas and indoor / outdoor housing adapted to your applications without extra cost. Our modules offers multiple market segments, including commercial buildings, infrastructure, meter reading, automotive, medical, RF remote controls, audio, emergency services, toys, gaming, price displays, VOIP, headsets and door intercoms.

Features:

- Operates within the ISM 2.4GHz frequency band
- IEEE 802.15.4 and ZigBee compliant solutions
- Jennic chipset with low processor overhead
- RISC processor with comparators, temperature sensor application timer/counters, system timers, ADC, DACs, UART, SPI ports, wire serial, and GPIO
- 192kB ROM and up to 96kB RAM for complex systems
- Stable and Reliable with field proven network
- Long range from 100m to 1km with high power module, short range for 30-50m indoor
- Secures data / voice with 128-bit AES encryption
- Highly -97dB receive sensitivity
- Sleep current < 2µA with sleep timer for long life of battery
- Supports up to 250 nodes in tree networks, 1,000 nodes in long thin networks as scalable sensor networks
- Proprietary network topo. - supports star, tree and linear
- Adaptive multiple routing and route recovery to avoid interference and node failures
- Mesh networking layer with defined *profiles* for particular applications defined by ZigBee alliance
- Small memory footprint (Coordinator <30KB)
- Fast response times (< 2ms) between two adjacent nodes
- Clear channel assessment, back-off / retries, freq. agility
- Evaluation kits for large network evaluation, software development kits with complete design solutions
- Jenie API, AT-Jenie, or Jennet SDK toolchain
- Broadcast Messages. Reliable and robust communication, ensured by end-to-end ack. for sent messages
- Interfaced with WiBorne's 802.11 WAP / CAP to receive data transferred seamlessly without wired
- Interoperability with 3rd party devices by using interfaces and programmable stack API for variety of applications.

- Modules serve as 'Wireless Dongles' easily add wireless to existing products
- Use with *Tunneling* commands over the air and doesn't need host CPU at remote device. Peripherals can be remotely controlled
- Additional OEM rich set of processor peripherals - uarts, spi, i2c, timers, adc, dac, etc.
- Variety of OEM indoor / outdoor housing and integrated antennas that can be customized for your specific needs
- Automated Meter Reading profile expected Q2 2008
- Modules are standard compliant FCC, ETSI, and TELEC

Household



Lighting



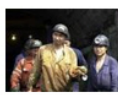
Plumbing



Security



Heating



Health and safety



Logistics

Commercial Premises



Office, Retail, Factory – building control automation



Hospitality

Industries



Pollution control



Managing street lighting



Bridges and Tunnels – earthquake warning



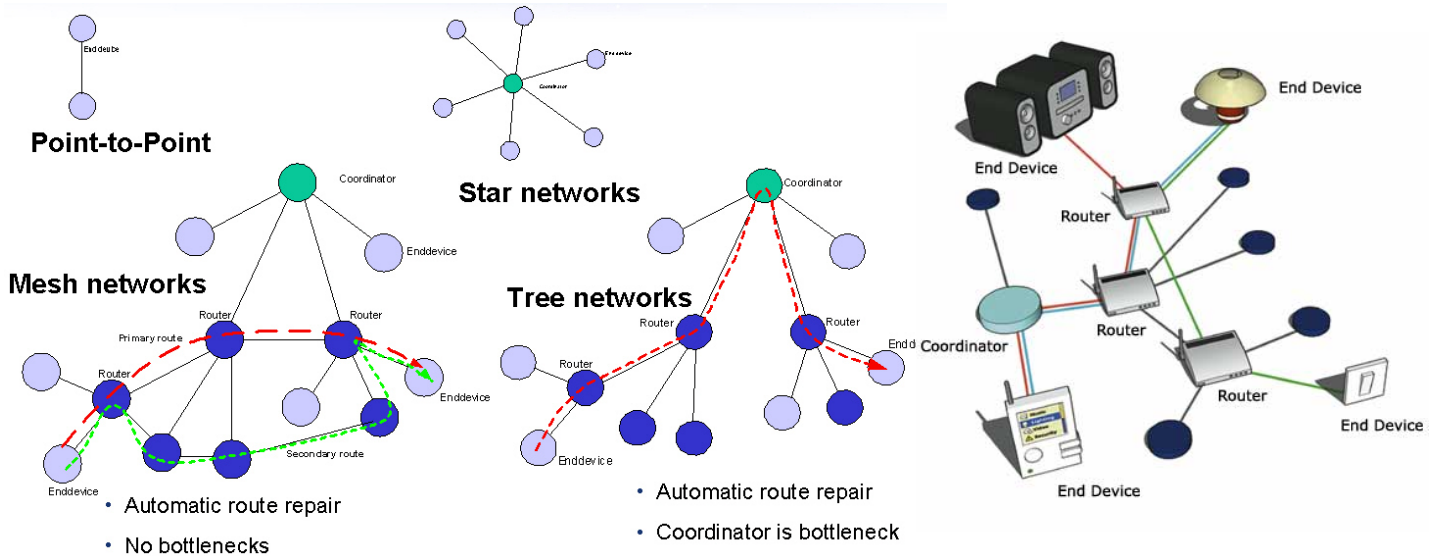
Meter reading and regulation

ZigBee with Limitless Applications

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Integrated Wireless Access Point (CAP)



Wiborne offer integrated 802.11 2.4GHz or 5GHz long-range indoor / outdoor wireless Access Points. This transmits activity of asset tags to monitoring center seamlessly. Customized antennas / housing are available for your specific applications. Programmable API for ZigBee-Pro is available for your applications.

ZigBee Pro Modules: Wireless Everywhere with Unlimited Applications

Model No.	ZigBee Pro
Standard	2.4GHz IEEE 802 compliant.15.4, ZigBee single chip solution
Microcontroller	16MHz 32-bit RISC CPU; 96kB RAM / 192kB ROM
Network Topologies	point-to-point, star, tree, and mesh
Device Types	Coordinator, router, sleeping end devices
Network Formation	Automatic / Self Organizing, Restore network parameters after brownout, Self Healing
Network Size	<ul style="list-style-type: none"> • Max. 150 nodes (mesh) - max depth: 5; max children: 20 • Max. 1,000 nodes (linear) – max depth: configurable; max. children: 10
Data Services	Data to coordinator, data to Peer, or tunnelling of AT-Jenie commands
Services	Binding – association between a light switch and a chosen light
Data Rate and Frequency Channels	IEEE802.15.4 compliant MAC layer. Data rate up to 250kbps. 16 channels in the unlicensed ISM 2.4GHz band
Resource Requirement	Network Size: 150 nodes (96KB RAM); Coordinator: 63kB RAM; Router: 62kB RAM; End Devices: 48kB RAM
Sleep current	2.8uA. Deep sleep current is 1.6uA
Receive sensitivity –	Boost mode: -96.5dBm; Normal mode: -95.5dBm
Temperature Range	Operating: -20°C to 70°C (-4°F to 158°F).
Power Operation	2.7-3.6V. 2 X AAA battery for 3 months or more, extended life available on Q2 2008
Interface (internal)	4-input 12-bit ADC, 2 11-bit DACs, 2 comparators, temperature sensor, 2 Application timer/counters, 3 system timers, 2 UARTs (one for in-system debug), SPI port with 5 selects, 2-wire serial interface, 21 GPIO
Approvals	Radio FCC, ETSI, and TELEC, Lead-free and RoHS compliant