

CEL's MeshConnect ICs combine a powerful RF transceiver with an industry-standard, 8051-based 8-bit microprocessor. Available in a QFN48 or VFBGA72 package, these low cost, highly integrated System-on-Chip radios can help simplify your design, reduce its size, lower its power consumption, and reduce your overall system costs.

At +8 dBm, the MeshConnect IC delivers the industry's leading output power. Combined with excellent -98 dBm receiver sensitivity, the MeshConnect IC provides a best-in-class link budget of 106 dB. The high output power ensures immunity to interference from other 2.4GHz transmissions, while the high sensitivity and link budget can help eliminate the need for power amplifiers and peripheral range extension components.

With 1 Mbps data rates and an on-chip Voice CODEC the MeshConnect IC can handle high-bandwidth voice /data transmission. A variety of other robust peripherals — battery monitor, temperature sensor, RSSI and AES encryption engines — are all designed to help lower your system component count.

MeshConnect ICs are ideal for home and building automation, lighting control, solar/wind, HVAC control, security networks, cable replacement, video, asset management, AMR/AMI, remote sensing and voice applications. With their low Tx, Rx and standby power consumption, they're an excellent choice when battery life is critical.

MeshConnect ICs are part of a broad family of CEL ZigBee products, including integrated radio modules and discrete power amplifiers, LNAs and RFIC switches for ZigBee range extension.

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Integrated RF Transceiver/MCU for ZigBee / IEEE 802.15.4 Networks

FEATURES

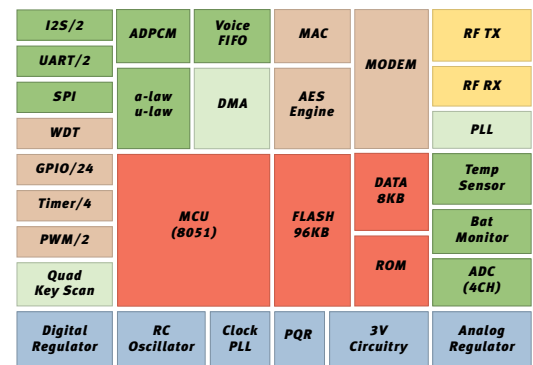
- Integrated 2.4 GHz Transceiver and 8-bit 8051-based Microprocessor
- 106 dB RF Link Budget
- Supports up to 1Mbps Wireless Networks
- On-chip Voice CODEC
- On-chip AES Encryption Engine
- On-chip Battery Monitor and Temperature Sensor
- On-chip RSSI Engine
- Four 16-bit Timers, Two PWMs
- Two UARTs plus SPI Interface
- Single 16MHz Crystal Design
- Single-Differential Bidirectional Antenna Interface

SPECIFICATIONS

| | |
|----------------------|--|
| Operating Voltage | 1.5 – 3.3V |
| Output Power | +8 dBm max |
| Sensitivity | -98 dBm |
| Flash Memory | 96 KB |
| Data Memory | 8 KB |
| Power Consumption | |
| <i>Transmit Mode</i> | QFN48: 30.6 mA @ 0 dBm VFBGA72: 29.7 mA @ 0 dBm |
| <i>Receive Mode</i> | 33.2 mA |
| <i>Standby Mode</i> | 0.3 µA |

APPLICATIONS

- Home & Building Automation
- Lighting Control
- Solar/Wind
- HVAC Control
- Security Networks
- Cable Replacement
- Video
- Asset Management
- AMR/AMI
- Remote Sensing
- Voice



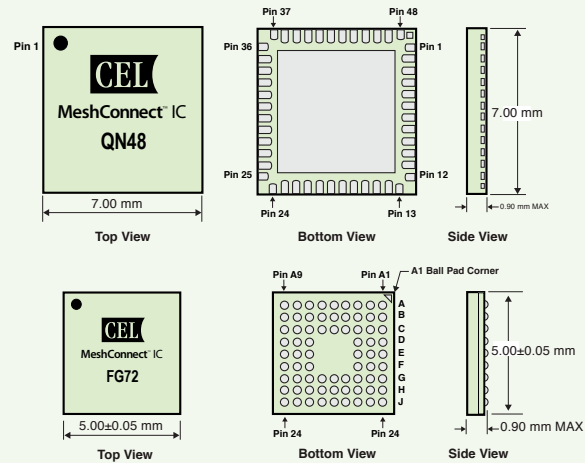
MeshConnect IC Block Diagram

CEL MeshConnect™ Product Family

| MeshConnect™ Module | |
|------------------------------------|--|
| ZICM2410P0-1 | Module with integrated PCB antenna |
| ZICM2410P0-1-SN | Module with integrated PCB antenna and SNAP OS with MAC address |
| ZICM2410P0-1C | Module with connector for external antenna option |
| ZICM2410P0-1C-SN | Module with integrated PCB antenna and SNAP OS with MAC address |
| MeshConnect™ Extended Range Module | |
| ZICM2410P2-2 | Extended Range Module with integrated PCB antenna |
| ZICM2410P2-2-SN | Module with integrated PCB antenna and SNAP OS with MAC address |
| ZICM2410P2-2C | Extended Range Module with connector for external antenna option |
| ZICM2410P2-2C-SN | Module with integrated PCB antenna and SNAP OS with MAC address |
| MeshConnect™ System on Chip ICs | |
| ZIC2410QN48 | 48 pin QFN package |
| ZIC2410FG72 | 72 pin VFPGA package |

MODULE DIMENSIONS (mm)

See Data Sheet for Pin Outs, RF and Electrical Specifications.



MeshConnect™ Development Kits

| | |
|-------------------|---|
| ZICM2410P0-KIT2-1 | Evaluation and Development Kit for both Transceiver ICs and MeshConnect Module |
| ZICM2410P2-KIT1-1 | Evaluation and Development Kit for both Transceiver ICs and Extended Range Module |

CEL MeshConnect / ZigBee Modules / ICs

| MODULE / IC ▶ | MeshConnect™ | MeshConnect™ Extended Range | NEW: MeshConnect™ EM357 Mini | | MeshConnect™ EM357 | FreeStar Pro | MeshConnect™ IC |
|--------------------------------|---|---|---|-------------------------------|--|--|---|
| RADIO | 2405 to 2480 MHz / DSSS / IEEE 802.15.4 | 2405 to 2480 MHz / DSSS / IEEE 802.15.4 | 2405 to 2480 MHz / DSSS / IEEE 802.15.4 | | 2405 to 2480 MHz / DSSS / IEEE 802.15.4 | 2405 to 2480 MHz / DSSS / IEEE 802.15.4 | 2405 to 2480 MHz / DSSS / IEEE 802.15.4 |
| MCU | MeshConnect™ ZIC2410 (SoC) 8 bit, 8051 | MeshConnect™ ZIC2410 (SoC) 8 bit, 8051 | Ember™ EM357 32 bit, ARM® Cortex™-M3 | | Ember™ EM357 32 bit, ARM® Cortex™-M3 | Freescale™ MC13224 / MC13226 32 bit, ARM7 | MeshConnect™ CEL ZIC2410 8 bit, 8051 |
| Fmax | 16 MHz | 16 MHz | 24 MHz | | 24 MHz | 32 MHz | 16 MHz |
| Memory | 96 KB Flash; 8 KB RAM | 96 KB Flash; 8 KB RAM | 192 KB Flash; 12 KB RAM | | 192 KB Flash; 12 KB RAM | 128 KB Flash | 96KB Flash |
| Inputs/Outputs | 22 | 20 | 23 | | 23 | 46 | 22 / 24 |
| NETWORK | Mesh, Point-to-Point, Point-to-Multipoint | Mesh, Point-to-Point, Point-to-Multipoint | Mesh, Point-to-Point, Point-to-Multipoint | | Mesh, Point-to-Point, Point-to-Multipoint | Mesh, Point-to-Point, Point-to-Multipoint | Mesh, Point-to-Point, Point-to-Multipoint |
| Software / ZigBee Stack | SNAP®, MAC, S-MAC, ZigBee® (RF4CE) | SNAP®, MAC, S-MAC, ZigBee® (RF4CE) | EmberZNet PRO™ (ZigBee Pro) | | EmberZNet PRO™ (ZigBee Pro) | BeeStack™ ZigBee Pro - MC13226 MAC, S-MAC - MC13224 | SNAP®, MAC, S-MAC, ZigBee® (RF4CE) |
| PERFORMANCE | | | | | | | |
| Tx Power Output | +6dBm | +20dBm | SP0 +8 dBm | SP2 +20dBm | +20dBm | +20dBm | +8 dBm |
| Rx Sensitivity | -97dBm | -103dBm | SP0 -100 dBm | SP2 -103 dBm | -100dBm | -94dBm | -98 dBm |
| Range (line of sight) | 2,000 ft (609 M) | 16,000 ft (4,876 M) | TBD | | 13,000 ft (3,962 M) | 4,000 ft (1,219 M) | — |
| Vcc | 2.1 - 3.3V | 2.1 - 3.3V | 2.1 - 3.6V | | 2.7 - 3.6V | 2.0 - 3.6V | 1.5V - 3.3V |
| Rx Current | 35mA | 38mA | SP0 30mA | SP2 34mA | 28mA | 30mA | 33.2mA |
| Tx Current @ max dBm | 44mA | 200mA | SP0 44mA | SP2 150mA | 170mA | 193mA | 30.6mA |
| Sleep Current | <1.0µA | <1.0µA | 1.0µA | | 6.0µA | 13µA | 0.3µA |
| Dimensions | 25 x 36 mm | 25 x 36 mm | 23.9 x 16.6 mm | | 25 x 36 mm | 25 x 36 mm | QFN 7 x 7 48 pin VFPGA 5 x 5 72 pin |
| PART NO. ▶ | ZICM2410P0-1 ZICM2410P0-1C | ZICM2410P2-2 ZICM2410P2-1C | ZICM357SP0-1 ZICM357SP0-1C | ZICM357SP2-1 ZICM357SP2-1C | ZICM357P2-2 ZICM357P2-2C ZUSNAP357P2-1 | ZFSM-201-1 ZFSM-201-1C ZFSM-201-2 ZFSM-201-2C | ZICM2410QN48 ZICM2410FG72 |
| EVAL KIT ▶ | ZICM2410P0-KIT2-1 | ZICM2410P2-KIT1-1 | ZICM-EM35X-DEV-KIT-2 | | ZICM357P2-KIT1-1 ZICM-EM35X-DEV-KIT-1 | ZFSM-201-KIT-1 | ZICM2410P0-KIT2-1 |



**Стандарт
Электрон
Связь**

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Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

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Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

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С нами вы становитесь еще успешнее!

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