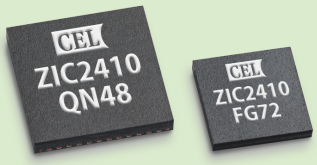


Integrated RF Transceiver/MCU for ZigBee / IEEE 802.15.4 Networks

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.

FEATURES

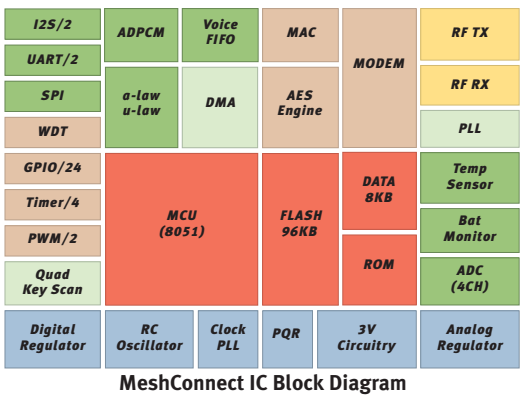
- Integrated 2.4 GHz Transceiver and 8-bit 8051-based Microprocessor
- 106 dB RF Link Budget
- Supports up to 1Mbps Wireless Networks
- On-chip Voice CODEC
- On-chip AES Encryption Engine
- On-chip Battery Monitor and Temperature Sensor
- On-chip RSSI Engine
- Four 16-bit Timers, Two PWMs
- Two UARTs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

SPECIFICATIONS

Operating Voltage	1.5 – 3.3 V
Output Power	+8 dBm max
Sensitivity	–98 dBm
Flash Memory	96 KB
Data Memory	8 KB
Power Consumption	
Transmit Mode	*QFN48*: 30.6 mA @ 0 dBm *VFBGA72*: 29.7 mA @ 0 dBm
Receive Mode	33.2 mA
Standby Mode	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 California Eastern Laboratories

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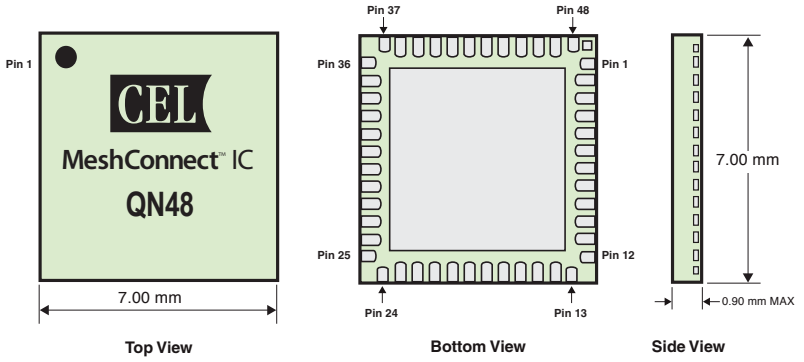
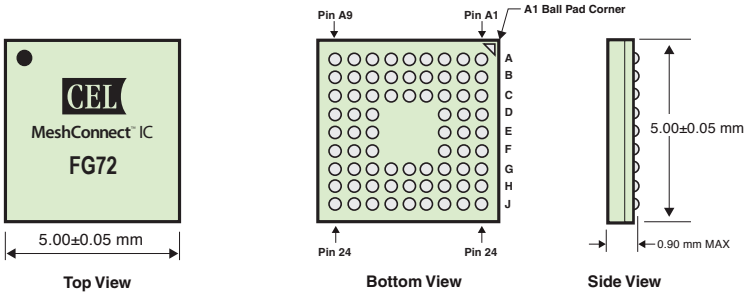
Santa Clara, CA 95054
408.919.2500
www.cel.com

MODULE DIMENSIONS *(mm)*

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





CEL MeshConnect™

MeshConnect Modules Series

ZICM2410P0-1	MeshConnect Module with integrated PCB antenna
ZICM2410P0-1-SN	MeshConnect Module with integrated PCB antenna and SNAP software
ZICM2410P0-1C	MeshConnect Module with external antenna option
ZICM2410P0-1C-SN	MeshConnect Module with external antenna option and SNAP software
ZICM2410P2-1	MeshConnect Extended Range Module with integrated PCB antenna
ZICM2410P2-1-SN	MeshConnect Extended Range Module with integrated PCB antenna and SNAP software
ZICM2410P2-1C	MeshConnect Extended Range Module with external antenna option
ZICM2410P2-1C-SN	MeshConnect Extended Range Module with external antenna option and SNAP software

MeshConnect Transceiver ICs

ZIC2410QN48	48 pin QFN package
ZIC2410FG72	72 pin VFBGA package

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 IEEE 802.15.4 / ZIGBEE RADIO MODULES

NEW

	MODULE ▶	MeshConnect™	MeshConnect™ Extended Range	FreeStar Pro	FreeStar	Apex	Apex LT	Matrix 10mW	Matrix 100mW
MCU	*Transceiver Chipset*	MeshConnect™ ZIC2410 8 bit, 8051		Freescale™ MC13224 32 bit, ARM7	Freescale MC13192 8 bit, HCS08	Ember™ EM250 16 bit, XAP2b	Ember™ EM260 Network processor	TI™ CC2430 8 bit, 8051	
	Fmax	16 MHz		32 MHz	40 MHz	12 MHz	n/a	32 MHz	
	Inputs/ Outputs	22	20	46	8	17	n/a	17	
NETWORK	*Network*	Mesh, Point-to-Point, Point-to-Multipoint		Mesh, Point-to-Point, Point-to-Multipoint	Point-to-Point, Point-to-Multi-point	Mesh		Point-to-Point, Point-to-Multi-point	
	Software/ ZigBee Stack	SNAP®, MAC, S-MAC, ZigBee®		Freescale BeeStack™ (ZigBee PRO, MAC, SMAC)	LSR STAR Protocol BeeStack	Znet Pro® 3.1 (ZigBee Pro Certfied)		LSR STAR Protocol Z-Stack™	
PERFORMANCE	*Tx Power Output*	+6dBm	+20dBm	+20dBm		+20dBm		+10dBm	+20dBm
	Rx Sensitivity	–97dBm	–103.5dBm	–96dBm	–92dBm	–97dBm		–92dBm	
	Range	3000 +ft	12,000+ft	4000+ft	4000ft	4000+ft		2000ft	4000ft
	Vcc	2.1– 3.3V		2.0– 3.6V	2.4 – 3.6V	2.1 – 3.6V		2.1 –3.6V	
	Rx Current	35mA	38mA	30mA	42mA	37mA		27mA	
	Tx Current	44mA	175mA	193mA	150mA	170mA		50mA	130mA
	Standby Current	<1.0µA		1.1µA	5µA	5µA		5µA	
	Dimensions	25 x 34 mm		25 x 36 mm		25 x 33mm		23 x 29mm	23 x 31mm
	PART NO. ▶	ZICM2410P0-1/1C ZICM2410P0-1-SN/1C-SN	ZICM2410P2-1/1C ZICM2410P2-1-SN/1C-SN	ZFSM-201-1	ZFSM-101-1	ZAXM-201-1	ZALM-301-1	ZMXM-400-1	ZMXM-401-1
	EVAL KIT ▶	ZICM2410P0-KIT2-1	ZICM2410P2-KIT1-1	ZFSM-201-KIT-1	ZFSM-101-KIT-1	ZAXM-201-KIT-1	ZAXM-201-KIT-1	ZMXM-400-KIT-2	ZMXM-401-KIT-1