

Wireless Modules & ICs

CEL's MeshConnect line of professional grade wireless radio solutions deliver industry-leading range, high performance, and a rich feature set benefiting Wireless Personal Area Networks (WPAN).



Market Overview

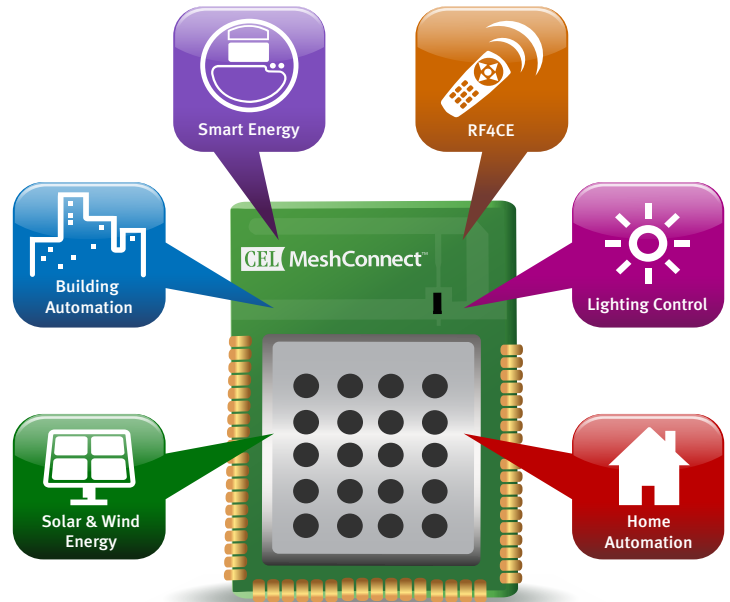
CEL's line of MeshConnect ZigBee/802.15.4 radio modules provide fully integrated hardware and software solutions with high performance and rich feature sets. They are ideal for many M2M (Machine 2 Machine) general wireless networking applications.

FCC, CE and IC certified, CEL modules are the result of 50+ years of RF product development experience. We provide:

- A Technical direct Sales force & strong Rep organization enabling local & timely support
- Stocking distributors enabling immediate access to product
- In house engineering team that is experienced with system bring up, Hardware, and Software radio development
- Professional Grade solutions: 100% RF testing, ISO9000, Rigorous Qualification process

CEL accelerates system and product development and increases system reliability. These values help reduce design risks and accelerate Time To Market.

Solutions



And More...

Module Selection Guide

Voice/SNAP/MAC/RF4CE Applications



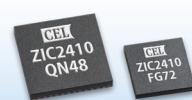
MeshConnect Module
ZICM2410P0

- Tx: +6dBm
- Rx: -97dBm
- Link Budget: 103dB



MeshConnect Extended Range Module
ZICM2410P2

- Tx: +20dBm
- Rx: -103dBm
- Link Budget: 123dB



MeshConnect SoC ICs
ZIC2410 ICs

- Tx: +8dBm
- Rx: -98dBm
- Link Budget: 106dB

Applications

- Smart Energy
 - Building Automation
 - Home Automation
 - Light Link
 - Solar Inverter Control
 - And More
- Lighting Controls
 - Asset Management
 - Voice Applications
 - Security Systems
 - Zigbee Remote (RF4CE)
 - And More

ZigBee Focused Applications



MeshConnect EM357 Mini Modules

ZICM357SP0	ZICM357SP2
• Tx: +8dBm	+20dBm
• Rx: -100dBm	-103dBm
• Link Budget: 108dB	123dB



MeshConnect EM357 Module
ZICM357P2

- Tx: +20dBm
- Rx: -100dBm
- Link Budget: 120dB



MeshConnect EM357 USNAP Module
ZUSNAP357P2

- Tx: +20dBm
- Rx: -100dBm
- Link Budget: 120dB

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	<i>Transceiver Chipset</i>	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
	<i>Fmax</i>	16 MHz	16 MHz	24 MHz		24 MHz	32 MHz	16 MHz
	<i>Memory</i>	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
	<i>Inputs/Outputs</i>	22	20	23		23	46	22 / 24
NETWORK	<i>Network</i>	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
	<i>Software/ZigBee Stack</i>	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	MAC, S-MAC, SNAP® ZigBee® (RF4CE)
PERFORMANCE	<i>Tx Power Output</i>	+6dBm	+20dBm	SP0 +8 dBm	SP2 +20dBm	+20dBm	+20dBm	+8 dBm
	<i>Rx Sensitivity</i>	-97dBm	-103dBm	SP0 -100 dBm	SP2 -103 dBm	-100dBm	-94dBm	-98 dBm
	<i>Range (line of sight)</i>	2,000 ft (609 M)	16,000 ft (4,876 M)	TBD		13,000 ft (3,962 M)	4,000 ft (1,219 M)	—
	<i>Vcc</i>	2.1 - 3.3V	2.1 - 3.3V	2.1 - 3.6V		2.7 - 3.6V	2.0 - 3.6V	1.5V - 3.3V
	<i>Rx Current</i>	35mA	38mA	SP0 30mA	SP2 34mA	28mA	30mA	33.2mA
	<i>Tx Current @ max dBm</i>	44mA	200mA	SP0 44mA	SP2 150mA	170mA	193mA	30.6mA
	<i>Sleep Current</i>	<1.0µA	<1.0µA	1.0µA		6.0µA	13µA	0.3µA
	<i>Dimensions</i>	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 VFBGA 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	ZFSM-201-1 ZFSM-201-1C	ZICM2410QN48 ZICM2410FG72	
	ZICM2410P0-1-SN ZICM2410P0-2C-SN	ZICM2410P2-2-SN ZICM2410P2-2C-SN			ZUSNAP357P2-1	ZFSM-201-2 ZFSM-201-2C		
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	