

California Eastern Laboratories' MeshConnect™ EM357 USB Sticks enable hardware vendors to quickly integrate ZigBee® into existing devices with a USB port. No RF design expertise is required. They can be used as a hardware development platform for rapid prototyping and as a companion to the MeshConnect EM357 Modules in the field.

Development Uses

- **Platform for custom firmware development**
 - Runs EmberZNetPRO™ stack, including Smart Energy, Home Automation, Commercial Building Automation and Light Link ZigBee profiles
 - Virtual COM port is easily accessible by application software using a UART interface
 - Ember InSight Port allows full debugging and trace capabilities
- **Sniffer for Over-the-Air (OTA) Network Logging**
 - Full support for Silicon Laboratories' Ember Desktop Network Analyzer, including Protocol Decoding, Event Aggregation, Filtering and Visualization Tools
 - Quickly determine root cause of any networking issue to get your product to market faster
- **GUIs using Windows, Mac and Linux**
 - Allow users to interact with ZigBee network
 - Develop simulators to allow development testing to be completed if a certain network element is unavailable

Production Uses

- **Network commissioning tool**
 - USB form factor provides a convenient interface for technicians to set up and verify new network installations and troubleshoot existing ones
- **Add ZigBee functionality to any device with a USB port**
 - Easy to retrofit existing products to add ZigBee functionality
 - Reduce time to market and avoid the cost of a hardware redesign required for module- or IC-level integration

The USB Sticks are available in low and high output power options (+8dBm and +20dBm) to accommodate various range and performance requirements.

MeshConnect™ EM357 USB Sticks



Part Number:	ZM357S-USB	ZM357S-USB-LR
Transmit Power:	+8 dBm	+20 dBm
Sensitivity:	-100 dBm	-103 dBm
RF link budget:	+108 dB	+123 dB

FEATURES

- ▶ ZigBee-enable any device with a USB serial port
- ▶ Based on Silicon Laboratories' Ember EM357: 32-bit ARM® Cortex™-M3 processor with 192kB Flash and 12kB RAM
- ▶ Best-in-class RF performance for superior range
- ▶ 1 MB Additional Flash Memory (off-chip) for OTA upgrades or additional program space
- ▶ Direct Connection to Ember InSight Adapter (ISA3) for programming and debugging EM357 applications
- ▶ Contains the industry's premier ZigBee PRO stack: EmberZNet PRO
- ▶ Supports Mesh, Point-to-Point and Point-to-Multipoint Networks

SPECIFICATIONS

- ▶ Frequency : 2405 to 2480 MHz
- ▶ Output Power : +8dBm and +20dBm
- ▶ Rx Sensitivity : -100 dBm and -103 dBm
- ▶ RF Link Budget: 108dB and 123 dB
- ▶ Operating Temperature: -30°C to +70°C
- ▶ Regulatory Certification: FCC/IC/CE
- ▶ Data Rate: 250 kbps
- ▶ One push-button switch and two LEDs for adding application-level functionality
- ▶ Dimensions: 2.075" x 0.984" x 0.393" (52.70 mm x 24.99 mm x 9.98 mm) — Excluding USB connector
- ▶ RoHS Compliant

USB

- ▶ USB 2.0 Complaint (full speed)
- ▶ USB suspend state fully supported
- ▶ Enumerates as Virtual COM Port
- ▶ Driver support for Windows, Mac and Linux

FLASH MEMORY

- ▶ 1 MB Additional Flash Memory (off-chip)
- ▶ Ideal for:
 - OTA Programming
 - Additional program space
 - Storing routing tables in large networks

APPLICATIONS

- ▶ Smart Energy/Smart Grid
- ▶ Commercial and Residential Lighting
- ▶ Home Automation and Control
- ▶ Building Automation and Control
- ▶ Security and Monitoring
- ▶ M2M Industrial Controls
- ▶ General ZigBee Wireless Sensor Networking

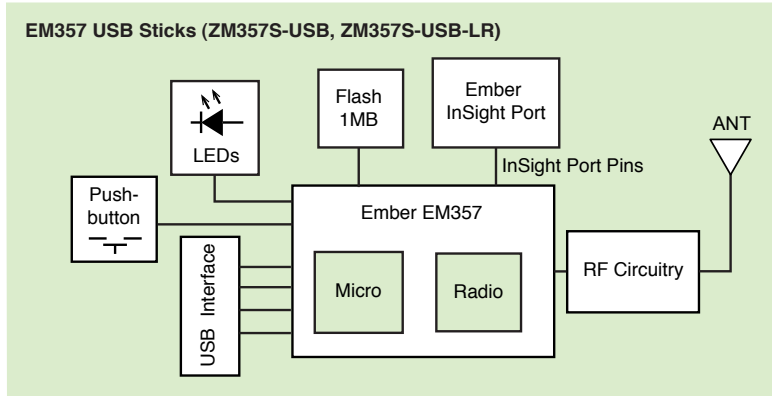
EMBER INSIGHT PORT

- ▶ Direct connection to Ember's InSight Adapter (ISA3)
- ▶ Provides programming, debugging and data emulation capability for EM357 applications
- ▶ Fully supports Ember's Desktop Network Analyzer for OTA network sniffing
- ▶ Self-powered; no USB connection required



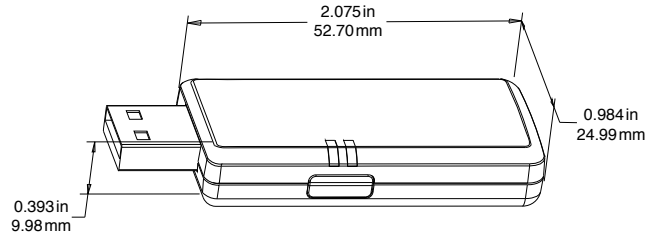
BLOCK DIAGRAM

See the USB Sticks Datasheet for more information.



USB STICK DIMENSIONS

See the USB Sticks Datasheet for Pinouts, RF and Electrical Specifications.



CEL MeshConnect™ EM357 Product Family

MeshConnect™ EM357 USB Sticks	
ZM357S-USB	+8dBm output power, 1 MB Flash memory
ZM357S-USB-LR	+20dBm output power, 1 MB Flash memory
MeshConnect™ EM357 Mini Modules	
ZICM357SP0-1	+8dBm output power, PCB trace antenna
ZICM357SP0-1C	+8dBm output power with RF port castellation pin for external antenna
ZICM357SP2-1	+20dBm output power, PCB trace antenna
ZICM357SP2-1C	+20dBm output power with RF port castellation pin for external antenna
ZICM-EM35X-DEV-KIT-2	MeshConnect EM35x Ember Companion Kit for Ember EM35x Development Kit