



CONNECTIVITY CARD MGM240P MPCIE

Datasheet. Release 1.0

Remote monitoring of critical infrastructure with edge computing

The MGM240P 5G Suite Connectivity Cards from CTHINGS.CO® are extension cards based on the Silicon Labs® MGM240P SoC. They are multi-protocol chips designed to empower IoT integrators to implement IEEE 802.15.4 connectivity like Bluetooth Low Energy, Bluetooth Mesh, Zigbee®, OpenThread® and other 2.4 GHz protocols. The extension card allows for full-fledged utilisation of the on-board 32-bit ARM® Cortex™-M33 CPU.

The product comes with full CE class-B and RED certification and can be used to quickly and reliably add 2.4 GHz protocol stack support to any existing device with a **mini-PCIe** slot without worrying about certification or radio performance. A full J-Trace connector is available on a programming jig for convenient firmware development.

CTHINGS.CO also provides support for Silabs Bootloader and EmberZNet Software Stack.

SPECIFICATIONS

Hardware Features	• Mini PCI-express connector pinout compliant • Single-ended U.FL antenna connector • Based on Silicon Labs® MGM240P • Ultra-low power consumption • RF output power up to +20 dBm • ARM® Cortex®-M33 32-bit processor • Compatible with CTHINGS.CO Programming Jig
Software Features	• Silabs Bootloader • Silabs EmberZNet Software Stack
Electrical Specification	• 3.3 V nominal supply voltage (electrically mini-PCIe compliant) • 3.0 V - 5.0 V supply voltage range • ESD protected • Ultra-Low power consumption
RF Specifications	• +20 dBm TX output power • -106.0 dBm 802.15.4 RX sensitivity • -106.0 dBm (1% PER) @ 250 kbps O-QPSK DSSS • -106.5 dBm (0.1% BER) @ 125 kbps GFSK • -102.2 dBm (0.1% BER) @ 500 kbps GFSK • -98.5 dBm (0.1% BER) @ 1 Mbps GFSK • -95.7 dBm (0.1% BER) @ 2 Mbps GFSK
Embedded Security	• ARM TrustZone • Secure Boot with Root of Trust and Secure Loader (RTSL) • Hardware Cryptographic Acceleration Peripheral

SPECIFICATIONS

Certifications

The CTHINGS.CO® MGM240P mPCIe Connectivity Card is CE Class-B, Radio Equipment Directive (RED), & EU RoHS directive compliant. US FCC and UK CA certification is planned. The device has been tested to meet the following electromagnetic compatibility standards:

Electromagnetic emissions:

- Conducted emission: EN 55022, EN 55014-1, EN 55011
- Radiated emission up to 6 GHz
- Harmonic current emission: EN 61000-3-2
- Voltage fluctuations and flicker: EN 61000-3-3

Immunity to electromagnetic interference (EMI):

- Electrostatic discharge (ESD) immunity: EN 61000-4-2
- Radiated electromagnetic field immunity: EN 61000-4-3
- Electrical fast transient / burst immunity: EN 61000-4-4
- Surge immunity: EN 61000-4-5
- Conducted disturbance immunity: EN 61000-4-6
- Power frequency magnetic field immunity: EN 61000-4-8
- Pulse magnetic field immunity: EN 61000-4-9
- Voltage dips & short interruptions: EN 61000-4-11

Use Cases

- IoT Gateways
- Workstations and Laptops
- Cellular backhaul systems for non-cellular Zigbee meshes
- Bluetooth interface for IoT sensors
- Gateways for Silicon Laboratories MGM240P based IoT systems
- Home Assistant

Zigbee Mesh	Plug-and-play support for Zigbee	Mini-PCIe Pinout Compliance	Small and standardised form factor compliant with common hardware
Bluetooth® 5.3	2.4 GHz transceiver	Multiprotocol	Bluetooth Low Energy, Bluetooth Mesh, OpenThread, Zigbee, ANT
Certified Radio Equipment	Full CE Class-B & Radio Equipment Directive (RED) certification	In-system firmware upgrades	Supported loading firmware via Silabs Bootloader over serial
Performant CPU	32-bit ARM Cortex-M33 CPU	Out-of-the-box support	Out-of-the-box support for Simplicity SDK and Gecko SDK

External appearance



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