CTHINGS.CO®
EDGE IOT SOLUTIONS

CONNECTIVITY CARD
MGM240P M.2

Datasheet. Release 1.1

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 **M.2 Key-E** 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

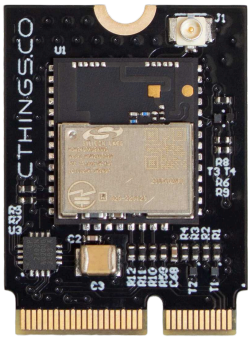
Hardware Features	• M.2 Key-E connector pinout compliant • Single-ended U.FL antenna connector • Based on Silicon Labs® MGM240P • Ultra-low power consumption • RF output power up to +20 dBm • ARM® Cortex®-M33 32-bit processor • Compatible with CTHINGS.CO Programming Jig
Software Features	• Silabs Bootloader (gbl files support) • Silabs EmberZNet ZigBee Protocol Software Stack • Compatibility with host software stacks such as Zigbee2MQTT
Electrical Specification	• 3.3 V nominal supply voltage (electrically M.2 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

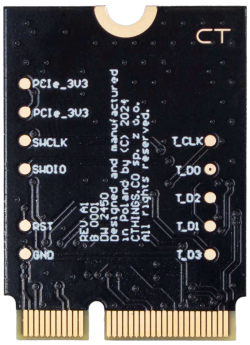
SPECIFICATIONS

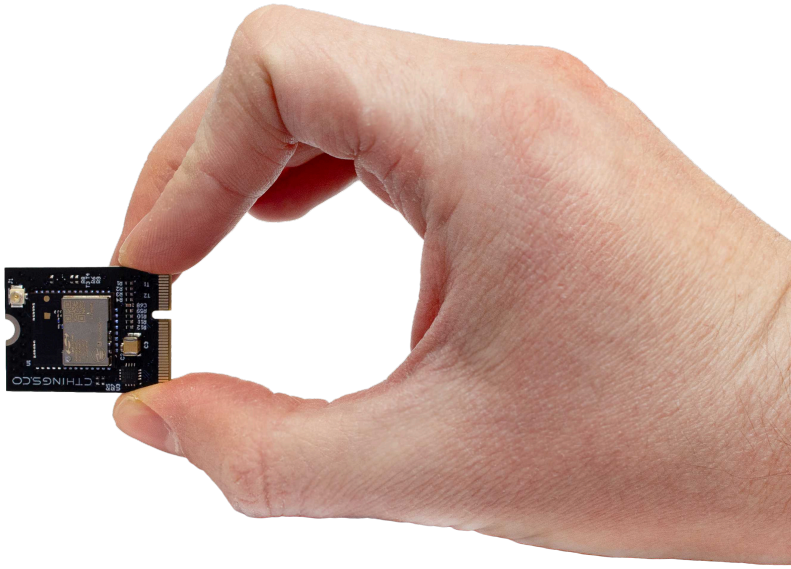
Certifications	The CTHINGS.CO® MGM240P M.2 Connectivity Card is CE Class-B, Radio Equipment Directive (RED), & EU RoHS directive compliant. US FCC and UK CA certification is planned. The device has been tested to meet the following electromagnetic compatibility standards: Electromagnetic emissions: • 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	**M.2 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**	Supported loading firmware via Silabs Bootloader over serial

External appearance







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