

MC-Edge Intelligent Gateway

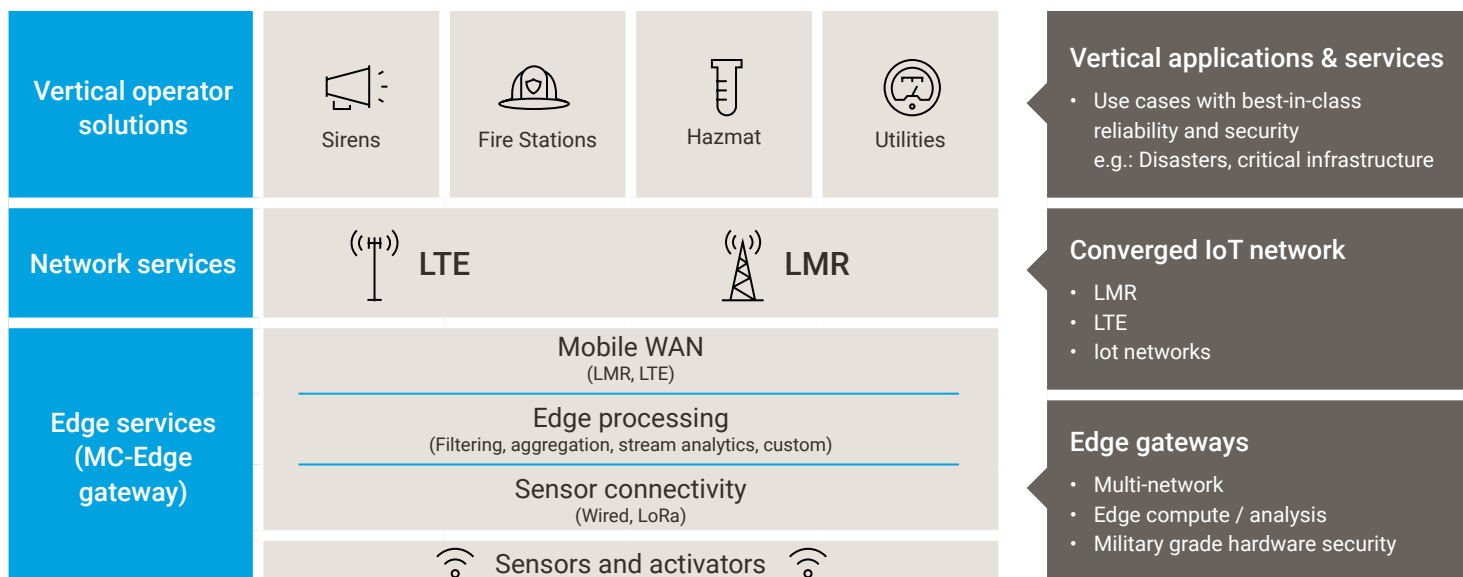
Your gateway to mission-critical IoT

Now, more than ever, systems operating in mission-critical environments require a new level of connectivity and security. Whether it's a natural disaster or a man-made emergency, IoT devices are often on the first line of defense. MC-Edge® is an intelligent gateway designed for IoT applications.

MC-Edge's extensive security, ultra-reliable communication capabilities and reliability of transport across two-way radio, LTE, and analog radio modes make it easy for you to implement, support and grow your IoT systems to fully support all your mission-critical operations. Built for versatility, MC-Edge has you covered today, and prepared for tomorrow.

MC-Edge works with ThingPark, Actility's LoRaWAN Network and is fully configurable and manageable from the ThingPark Enterprise console. This addresses the need for the strictest requirements in security and operational continuity.





Utilize MC-Edge to expand and grow your sensor networks

The MC-Edge gateway enables exceptional remote monitoring and control capabilities.

Expand reach with wireless built-in

Expand your operations that currently have no power or communication coverage with MC-Edge, wireless LoRaWAN gateways and servers. MC-Edge is used as a data aggregator for LoRaWAN IoT devices that can span wide areas with minimal power consumption. Utilize MC-Edge to backhaul LoRa data over two-way radio or wireless broadband to your IoT applications.

Enhance operations with edge computing

With edge computing, activities such as decision-making, filtering, logging and analytics are handled on the edge, thus increasing network capabilities, responsiveness and efficiency.

Enable control and P25 radio system remote management

Integrated into Motorola Solutions' P25 dispatch or radio sites, MC-Edge can be used to control physical access, monitor environmental sensors and manage alarms.

Ensure mission-critical system security

MC-Edge will automatically look for malicious activity or violations of security policies and will only allow legitimate traffic to enter and block other activity. Unauthorized activity is logged and can be reported to a designated control center. AES 256 bit encryption protects sensitive data end-to-end, whether at rest or in transit.

Embrace network agnostic connectivity and redundancy

MC-Edge utilizes MDLC communication protocol to link distant sites for easy scaling and provide alternative communication links in case of fallback. Use of this standard functionality eliminates the need for costly custom programming or additional communications infrastructure.



System specifications

GENERAL

Operating temperature	-30°C to 60°C (-22°F to 140°F)
RTC Battery Charging	0°C to 45°C (32°F to 113°F)
Dimensions (CPU)	2.95" x 6.3" x 4.4" (WxHxD)
Dimensions (SPE I/O module)	1.4" x6 .5" x 4.4" (WxHxD)
Dimensions (CAN bus I/O module)	2.95" x 6.3" x 4.4" (WxHxD)
Backplane dimensions	6.2" x 1.2" x 3.1" (WxHxD)
DIN rail option	Yes
Wall mount option	Yes (using DIN rail)
Construction	Modular
Input voltage	9-30V DC
RTC backup Battery Type	Rechargeable coin-cell battery, capable of maintaining the RTC for at least 30 days at +25°C when the main power is disconnected
SDIO card	Yes
Internal Transceiver Options	P25 (North America), LTE, Private LTE, LoRa
External Connections	Analog MOTOTRBO TETRA P25 Null Modem
Network Topologies	Point-to-Point/Multipoint Store and Forward Star Tree Hierarchy Multi-Communication Backhaul Supported (dual/redundant link)

CPU

RTC	Hardware clock with year, month, date, day, hour, minute, and second supported	Yes
Communication Ports	RS232/RS485	1 port on the main board non-isolated and additional up to 2 ports on piggy Isolated (<115.2Kbps/<460.8Kbps)
	Ethernet	Up to 3 ports, 10/100Mbps (auto negotiation)
	USB	Host port

SOFTWARE

Configuration and maintained tool		PC Tool (STS)
MDLC Networking		Yes
Direct Link		Yes
RTU to RTU communication		Yes
MDLC Store and Forward		Yes
Broadcast		Yes
Diagnostic (local, remote)		Yes
Error Logger (local, remote)		Yes
User programming		C IEC61131-3
Security		AES-256 end-to-end encryption User and machine authentication Central key management Central authentication server Access control Sensitive data in rest encryption IPsec SCEP PKI Secure hardware key storage (MAXIM)
Protocols		DNP 3.0, MDLC, Modbus, MQTT, SSH, SFTP
Time Synchronization		MDLC, NTP
Set Date and Time		Yes (w/ Time Zone and Daylight-Saving)
Services	DNS	Yes
	DHCP	Yes





I/O PORTS		I/O PERFORMANCES
Main Board	3DI + 1DO ML (Isolated)	2 kHz for all inputs
SPE I/O modules		
Mixed I/O Module	16 DI	DI 1-8 Counter Input Frequency: 10 kHz DI 9-16 Counter Input Frequency: 1 kHz
	4DO EE	3 DOs form A (two contacts), 1DO form C (3 contacts)
	4AI (+20mA, 4-20mA)	AI Resolution 16 bit, 0.1% @ 25C
DI/DO Module	32 DI/DO FET	1 kHz for all inputs
	16 DI/DO FET	
CAN bus I/O modules		
Mixed I/O Module	7 DI / 6 DO 4EE 2ML (Isolated)	2 kHz for all inputs
	4AI (+20mA, 4-20mA)	16 bit, 0.1% @ 25C
	1AO (Isolated) (AO: 0 -20mA, 4 -20mA, 0-10V)	12 bit, 0.25% @ 25C
Mixed Digital	8DO EE 16DI 5-18 V /DRY	- 2 kHz for all inputs
	8DO EE 16DI 18-60 V	- 2 kHz for all inputs

4G (LTE) / 3G SUPPORTING BANDS				
	North America	Europe, Middle East, Africa	Asia Pacific	Latin America
4G Bands (LTE)	Verizon B4 & B13 B8 (900MHz US), B48 (CBRS US)	B3, B7, B20, CBRS EU: B42, B43	B3, B28	B4, B7, B28
3G Bands (supporting bands)	B2, B5	B1 for fallback	B5 for fallback (3G Excluded in ANZ)	

INTERNAL P25 RADIO SPECIFICATIONS (NORTH AMERICA)		
	VHF	700/800 MHZ
Frequency Range / Bandsplits ²	TX: 136-174MHz RX: 136-174MHz	TX: 763-776, 793-806/806-824, 851-870MHz RX: 763-776/ 851-870MHz
Channel Spacing	30/25/12.5kHz	25/12.5KHz
TX Output Power	1-5W	1-3W
Receive Sensitivity (12dB SINAD)	0.216µV	0 250uV

² Check with your local Motorola Solutions sales representative for frequencies available in your local area.

LORAWAN SPECIFICATIONS	
LoRaWAN Gateway Hardware	
Radio Chipset	SX1301 and SX1257
Radio Frequency Plan	AS923, AU915-928, EU863-870, US902-928
Frequency Ranges	863-870 MHz, 902-928MHz
Receive Sensitivity	Up to -140dBm
Max TX Output	+28dBm
LoRaWAN Software	
LoRaWAN Server	Yes
LoRaWAN Gateway	
	Basic station for general LoRaWAN network Activity base station for Activity LoRaWAN Network (ThingPark)





POWER MANAGEMENT

Voltage Management	Preconfigured thresholds based scenarios	
Power voltage that can be reduced or disabled	5 power consumption options available	
Power Consumption	CPU module all radios off	Max 300mA / Typical 150mA @ 12V (w/o SD card and USB)
	CPU module all radios on	Max 450mA / Typical 250mA @ 12V (w/o SD card and USB)
	CPU module all radios on P25 TX	1.6 A / Typical @ 12V
	CPU module all radios on LoRA RX 8 channels	0.36A / Typical @ 12V
	CPU module all radios on LoRA TX	0.605A / Typical @ 12V
	CPU module all radios on LTE TX	0.45A / Typical @ 12V
	Mixed IO module	Max 194.4mA / Typical 64mA @12V
	Mixed digital IO modules	Max ~357mA / Typical 21mA @12V
	32DIDO module	Max 178mA / Typical 70 mA@12V
	16DIDO module	Max 145mA / Typical 50mA@12V
	Mixed IO 16 DI 4AO 4AI module	Max 165mA / Typical 80mA@12V

REGULATIONS

Safety	US / Canada	IEC62368-1 (cUL Listed)
	EU, Australia / New Zealand	EN/ANZ 62368
Emission / EMC	US / Canada	CFR 47 FCC part 15, subpart B (class A) ICES003
	EU, Australia / New Zealand	EN301489-52, AS/CA S042.1, Approved per RED

SERVICE AND SUPPORT

- | | |
|-------------------|---|
| One year warranty | 1. Technical Support - Remote Technical Support from our Solutions Support Center |
| | 2. Software Updates - Safeguard your system from vulnerabilities and improve network performance |
| | 3. Software Upgrades - Download the latest integrated system software releases with the latest features, functionalities and enhancements |

To learn more, visit:
www.motorolasolutions.com/mcedge



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