



# MC-EDGE INTELLIGENT GATEWAY

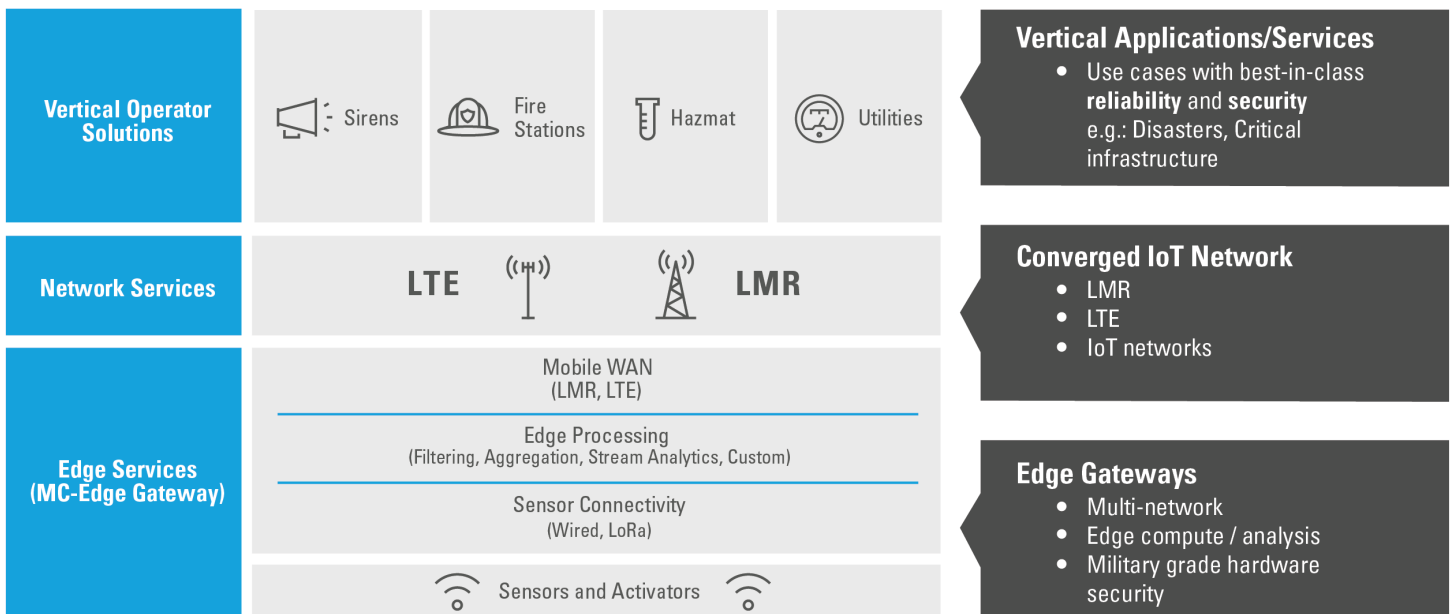
## YOUR GATEWAY TO MISSION-CRITICAL IOT

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 with the capability to leverage existing LMR investments or multiple backhaul options for retrieval of LoRa data - and still provide one holistic ecosystem. LoRaWAN can provide wide coverage, consumes minimal power, is affordable and easy to deploy.

### 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 at dispatch centers to control physical access and other facility systems or at RF sites to manage alarms and monitor site environmental sensors.

### 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	
Environmental with internal radio	-30 °C to +60 °C (-22 °F to 140 °F)
Environmental without internal radio	-40 °C to +70 °C (-40 °F to 158 °F)
RTC Battery Charging	-20 °C to +50 °C (-4 °F to 122 °F)
Dimensions (CPU/IO Modules)	2.95" x 6.3" x 4.4" (WxHxD) (main/each expansion)
DIN rail option	Yes
Wall mount option	Yes (using DIN rail)
Construction	Modular
Input power	9-30V DC
RTC backup Battery Type	Coin rechargeable battery for 30 days
SDIO card	Yes
Internal Transceiver Options	P25, LTE, LoRa
External Connections	Analog MOTOTRBO TETRA P25 Null Modem
Network Topologies	<ul style="list-style-type: none"> <li>• Point-to-Point/Multipoint</li> <li>• Store and Forward</li> <li>• Star</li> <li>• Tree Hierarchy</li> <li>• Multi-Communication Backhaul Supported (dual/redundant link)</li> </ul>

CPU		
RTC	Hardware clock with year, month, date, day, hour, minute, and second supported	Yes
Communication Ports	RS232/RS485	1 port on main board (<115.2Kbps/<460.8Kbps) non-isolated
	Ethernet	Up to 3 ports, 10/100Mbps (auto negotiation)
HazLoc <sup>1</sup>	Non-incendive	Class I, Division 2, Groups A,B,C,D (see footnote)

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	<ul style="list-style-type: none"> <li>• C</li> <li>• IEC61131-3</li> </ul>	
Security	<ul style="list-style-type: none"> <li>• AES-256 end-to-end encryption</li> <li>• User and machine authentication</li> <li>• Central key management</li> <li>• Central authentication server</li> <li>• Access control</li> <li>• Sensitive data in rest encryption</li> <li>• IPsec</li> <li>• SCEP PKI</li> </ul>	
Protocols	DNP 3.0, MDLC, Modbus, MQTT, SSH, SFTP	
Time Synchronization	MDLC, NTP, GLONASS/GPS + 1PPS	
Set Date and Time	Yes (w/ Time Zone and Daylight-Saving)	
Services	DNS	YES
	DHCP	YES

<sup>1</sup> For CPU as telemetering equipment with LMR 7/800, LTE Sierra HL7588 LTE Cat-4 mPCIe. Targeting end of 2021.





#### INTERNAL P25 RADIO SPECIFICATIONS

	VHF	UHF-R1	UHF-R2	700/800 MHZ	900 MHZ
Frequency Range / Bandsplits <sup>2</sup>	TX: 136-174MHz RX: 136-174MHz	TX: 380-470MHz RX: 380-470MHz	TX: 450-520MHz RX: 450-520MHz	TX: 763-776, 793-806/806-824, 851-870MHz RX: 763-776/851-870MHz	TX: 896-901, 935-940MHz RX: 935-940MHz
Channel Spacing	30/25/12.5kHz	25/12.5kHz	25/12.5kHz	25/12.5KHz	12.5kHz
TX Output Power	1-5W	1-5W	1-5W	1-3W	1-2.5W
Receive Sensitivity (12dB SINAD)	0.216µV	0.234µV	0.234µV	0.250µV	0.236µV

#### INTERNAL LTE RADIO SPECIFICATIONS

	North America	Europe, Middle East, Africa	Asia Pacific	Latin America
4G Bands	Verizon B4 & B13 B8 (900MHz US), B48 (CBRS US)	B3, B7, B20	B3, B28	B4, B7, B28
3G Bands		B1 for fallback	B5 for fallback	

#### 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 Actility LoRaWAN Network (ThingPark)

##### I/Os

Main Board	3DI + 1DO (Isolated)	
Input Module	12DI (Isolated)	
	8AI (Isolated) (AI: 0 -20mA, 4 -20mA, 0-5V)	
Output Module	8DO (ML & EE)	
	2AO (Isolated) (AO: 0 -20mA, 4 -20mA, 0-10V)	
Mixed I/O Module	7 DI/6 DO (Isolated)	
	4AI (0-20mA, 4-20mA)	
	1AO (Isolated) (AO: 0 -20mA, 4 -20mA, 0-10V)	
Mixed Digital	8DO EE 16DI 5-18 V /DRY	
Mixed Digital	8DO EE 16DI 18-60 V	
I/O Performances	DI Fast Counter	2 khz for all inputs
	AO Resolution	12 bit, 0.25% @ 25C
	AI Resolution	16 bit, 0.1% @ 25C

<sup>2</sup> Check with your local Motorola Solutions sales representative for frequencies available in your local area.





## 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 APX 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
	Input module	Max 180mA / Typical 100mA @12V
	Output module	Max 450mA / Typical 250mA @12V
	Mixed IO module	Max 194.4mA / Typical 64mA @12V
	Mixed digital IO Modules	Max ~357mA / Typical 21mA @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
HazLoc	US	Non-incendive, Class 1, Division 2, Groups ABCD (for CPU with LMR and LTE)

## 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

For more information visit: [motorolasolutions.com/mcedge](https://motorolasolutions.com/mcedge)



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