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MG460 Gateway

Maritime Cyber Security Gateway

A Maritime Gateway compliance to IEC61162-460 Cyber Security Standards

INTRODUCTION

Robustel's **MG460 Gateway** represents a next-generation industrial maritime gateway, designed to comply with IEC 61162-460 (Maritime Safety and Security) and IEC 60945 standards. The MG460 Gateway serves as a seamless interface between onboard vessel equipment and external services, including cloud platforms and servers.

The MG460 Gateway enhances the security of the navigational equipment network by implementing a multi-layered inspection firewall and access control at both the network and transport layers, utilizing address, port, and protocol-based rules. Powered by a robust 1.6 GHz quad-core CPU and equipped with 64 GB eMMC Flash storage running a Debian Linux OS, the MG460 Gateway is capable of executing complex applications and facilitating efficient software deployment. Featuring 5 Gigabit Ethernet ports (each equipped with its own firewall), 2 software-configurable serial ports, 2 digital inputs, 2 relay outputs, and 3 protected USB ports, the MG460 Gateway provides comprehensive connectivity options for various field devices.

The **Robustel Cloud Manager Service (RCMS)** is a unified cloud-based platform designed for real-time monitoring and centralized management of industrial IoT devices. Fully compatible with Robustel routers and gateways, RCMS delivers an interactive geospatial dashboard that enables users to visualize device locations and track critical metrics such as data usage, signal strength, and network status. To ensure seamless operations, the platform facilitates over-the-air (OTA) updates for firmware, configurations, and applications, minimizing downtime while optimizing system performance. Experience robust, cloud-native device management by registering at: https://rcms-cloud.robustel.net

KEY FEATURES

➢ Comply with IEC 61162-1, IEC 61162-2, IEC 61162-460 Edition 3, and IEC 60945 standards

➢ Achieve DNV Certification as 460-Gateway and 460-Wireless Gateway

➢ Utilize a high-performance compute engine with a 1.6 GHz CPU and 64 GB eMMC Flash for executing complex applications

➢ Establish a DMZ with file storage and application services for secure interconnection

➢ Enable remote access tunnels with VPN for secure connectivity

➢ Leverage a Linux Debian system for user software development and deployment

➢ Provide 5 x 1000 Mbps Ethernet ports, each with an individual firewall for enhanced security

➢ Connect industrial and legacy devices via 2 x RS-232/RS422/RS-485 (software configurable) ports

➢ Facilitate simple monitoring and control with 2 x Digital Inputs and 2 x Relay Outputs

➢ Expand storage capabilities with a microSD slot for recording system logs and navigation data

➢ Support dual SIM card slots for redundant communications

➢ Ensure uninterrupted network connectivity with an industrial-grade design

➢ Manage large device estates efficiently via RCMS (Robustel's router/gateway management platform) and RobustVPN service

APPLICATION EXAMPLE
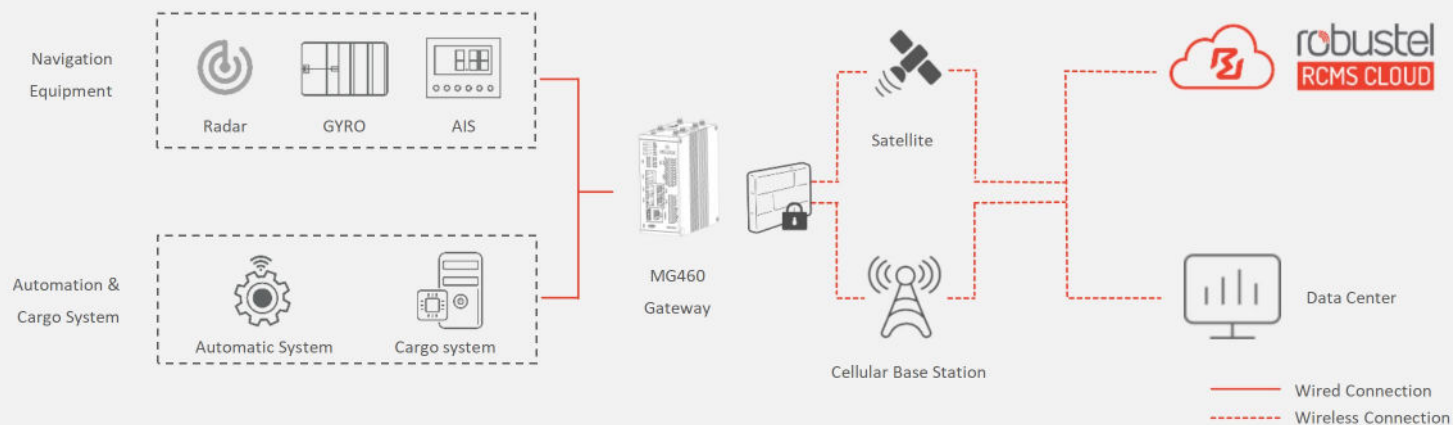
SPECIFICATIONS

Hardware System

CPU	Quad core Cortex-A53, 1.6 GHz
NPU	2.3 TOPS
RAM	4 GB DDR4
Flash	64 GB eMMC

Cellular Interface

Version	4G	5G
Number of antennas	2	4
Connector	SMA-K	
SIM	2 x Mini SIM (2FF)	

Ethernet Port

Number of ports	5 x RJ45, 10/100/1000 Mbps
	Compliance with 1000BASE-T, LAN or WAN
Magnet isolation protection	1 KV

Serial Port

Number of ports	2 x RS-232/RS422/RS-485 (software configurable)
Connector	2 x 5-pin 3.5 mm terminal block
ESD protection	8 KV Air, 4 KV Contact
Baud rate	300 bps to 115200 bps
Signal	RS-232: TXD, RXD, GND, CTS, RTS
	RS-485: Data+ (A), Data- (B), GND
	RS422: RX+, RX-, TX+, TX-, GND

Console Port

Number of ports	1 x RS-232
Connector	RJ45
Baud rate	115200 bps
Signal	TXD, RXD, GND

Digital Input Port

Number of ports	2 x DI, wet contact
Connector	4-pin 3.5 mm terminal block
Isolation	Bi-directional optocoupler (DI)
Absolute maximum VDC	+ 30 V DC
Absolute maximum ADC	100 mA
Signal definition	DI1+, DI1-, DI2+, DI2-

Relay Output Port

Number of ports	2 x Relay Output
Connector	6-pin 3.5 mm terminal block
Absolute maximum VDC	+ 48 V DC
Absolute maximum ADC	100 mA
Signal definition	NC1, NO1, COM1, NC2, NO2, COM2

USB Port

Number of ports	2 x USB 3.0 (host), Type A, 5V, 900mA
	1 x USB 2.0 (OTG), Type C

Wi-Fi Interface

Wi-Fi	Wi-Fi 2.4 GHz/5 GHz , 2 × 2 MU-MIMO
	IEEE 802.11 a/b/g/n/ac/ax

GNSS Interface

Version	4G
Number of antennas	1
Connector	SMA-K
Technology	GPS

Others

SD	1 x microSD
HDMI	1 x HDMI
Reset button	1 x RST
LED indicators	1 x RUN, 1 x Signal, 1 x MDM, 1 x VPN, 2 x USR
Watchdog	External

Software (Basic features of MG Core)

Network protocols	PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, DNS, NTP, SMTP, Telnet, VLAN, HTTPs, ARP, SSH2, DDNS, etc.
VPN tunnels	IPsec, OpenVPN, GRE, DMVPN
Firewalls	DMZ, anti-DoS, Filtering (IP/Domain name/MAC address), Port Mapping, Access Control
Remote management	Web, CLI, SMS
Serial port protocols	Transparent, TCP Client/Server, UDP, Modbus RTU Gateway

SDK

Operating system	MG Core (Based on Debian 11 Bullseye)
Supported programming languages	C, C++, Python, Java, Node.js etc. (for users to develop own applications)
Debian Repository available	
Flash available for SDK	62 GB
RAM available for SDK	2.5 GB

App Center (Available Apps for MG Core)

Apps*	Language, RCMS

*Request on demand. For more Apps please visit www.robustel.com.

Cloud Platform

Robustel Cloud Manager Service (RCMS)	RobustLink, RobustVPN, Operation Console

Power Supply and Consumption

Connector	2-pin 3.5 mm terminal block with lock
Input voltage	24 V DC, reverse polarity protection, surge protection
Power consumption	Idle: 6.24 W@24 V
	Max: 14.64 W@24 V

Physical Characteristics

Ingress protection	IP30
Housing & Weight	Metal, 649 g
Dimensions	58 x 111 x 128 mm
Installations	Desktop, wall mounting and 35 mm DIN rail mounting
Operating temperature	-30 ~ +70 °C
Storage temperature	-40 ~ +85 °C
Relative humidity	5 ~ 95% RH (non-condensing)

Regulatory and Type Approvals

Environmental	RoHS2.0
EMI	EN 55032 Conducted Emission Class B
	EN 55032 Radiated Emission Class A
EMS	EN 61000-3-2 (Harmonic Current)
	EN 61000-3-3 (Voltage Flicker)
	EN 61000-4-2 (ESD) Contact Level 3, Air Level 3
	EN 61000-4-3 (RS) Level 3
	EN 61000-4-4 (EFT) Level 3
	EN 61000-4-5 (Surge) Level 3
	EN 61000-4-6 (CS) Level 2
	EN 61000-4-11 (Dips)

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ORDERING INFORMATION

Model	Order Code	Wi-Fi	GNSS	Frequency Bands*	Country /Region	Certification	Package Contains
MG460-A5ZAZ-NU	A014700002	-	-	-	Global	CE UKCA RCM CB FCC IC	1 x MG460 Gateway (B C ode: B014700001) 1 x DIN Rail Mounting Kit
MG460-A5CAZ-NU	A014700003	√	-	-			1 x MG460 Gateway (B C ode: B014700002) 1 x DIN Rail Mounting Kit
MG460-A5AAZ-4L-A06GL	A014700004	-	√	4G: LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B38/39/40/41			1 x MG460 Gateway (B C ode: B014700003) 1 x DIN Rail Mounting Kit
MG460-A5BAZ-4L-A06GL	A014700005	√	√	3G: WCDMA: B1/2/4/5/6/8/19 2G: GSM: B2/3/5/8			1 x MG460 Gateway (B C ode: B014700004) 1 x DIN Rail Mounting Kit
MG460-A5AAZ-5G-A25GL	A014700006	-	-	5G NR: NSA: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/29/30/38/40/41/48/66/70/71/75/76/77/78/79 SA: n1/2/3/5/7/8/12/13/14/18/20/25/26/28/29/30/38/40/41/48/66/70/71/75/76/77/78/79		CE UKCA RCM FCC IC	1 x MG460 Gateway (B C ode: B014700005) 1 x DIN Rail Mounting Kit
MG460-A5BAZ-5G-A25GL	A014700007	√	-	4G: LTE FDD: B1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/29/30/32/66/71 LTE TDD: B34/38/39/40/41/42/43/48 LAA: B46 3G: WCDMA: B1/2/4/5/8/19			1 x MG460 Gateway (B C ode: B014700006) 1 x DIN Rail Mounting Kit

For more information about frequency bands in different countries, please contact your Robustel sales representative.