MG460

robustOS Pro

Maritime Cyber Security Gateway

A Maritime Gateway compliance to IEC61162-460

Cyber Security Standards

INTRODUCTION

Robustel's MG460 is a new generation of industrial maritime gateway which is compliant to IEC61162-460 (Maritime Safety and Security) standards and IEC60945 standards. The MG460 can be used as a gateway between on-board vessel equipment and external services (Cloud platforms, servers, etc).

MG460 will protect and secure the navigational equipment network providing multilayer inspection firewall and network/transport layer access control based on addresses, ports and protocols.

MG460 is equipped with a powerful quad-core 1.6 GHz CPU, 64 GB eMMC Flash, and a Debian Linux OS, enabling it to run complex applications and facilitate software deployment.

With 5 Gigabit Ethernet ports (each with its own firewall), 2 software configurable serial ports, 2 digital inputs, 2 relay outputs, and 3 protected USB ports, MG460 offers versatile connectivity options for field devices.

RCMS is Robustel's device monitoring service that is fully compatible with the MG460. It allows customers to see a location overview of their routers quickly and simply on a map plus features such as data usage, signal strength, current network and much more can then be viewed on a per router/gateway basis. Over-the-air updates are supported for Firmware, router configuration and Apps serving as essential "insurance" if anything was not quite right during deployment.

KEY FEATURES

➢ Compliance with IEC61162-1, IEC61162-2, IEC61162-460 edition 3, and IEC60945 standards.

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

➢ High-performance compute engine with 1.6 GHz CPU + 64 GB eMMC Flash for running complex applications.

➢ DMZ with file storage and application service for secure interconnection.

➢ Remote access tunnel with VPN for secure connectivity.

➢ Linux Debian system for user software development and deployment.

➢ 5 x 1000Mbps Ethernet ports, each with its own firewall for enhanced security.

➢ 2 x RS232/RS422/RS485 (software configurable) ports for connecting to industrial/legacy devices.

➢ 2 x DI & 2 x Relay Output for simple monitoring and control.

➢ Expanded microSD slot for recording system logs and navigation data.

➢ Dual SIM card slots for redundant communications

➢ Industrial-grade design to ensure uninterrupted network connectivity.

➢ Supports RCMS (Robustel's router/gateway management platform) for efficient management of large device estates via RobustVPN service.

APPLICATION EXAMPLE
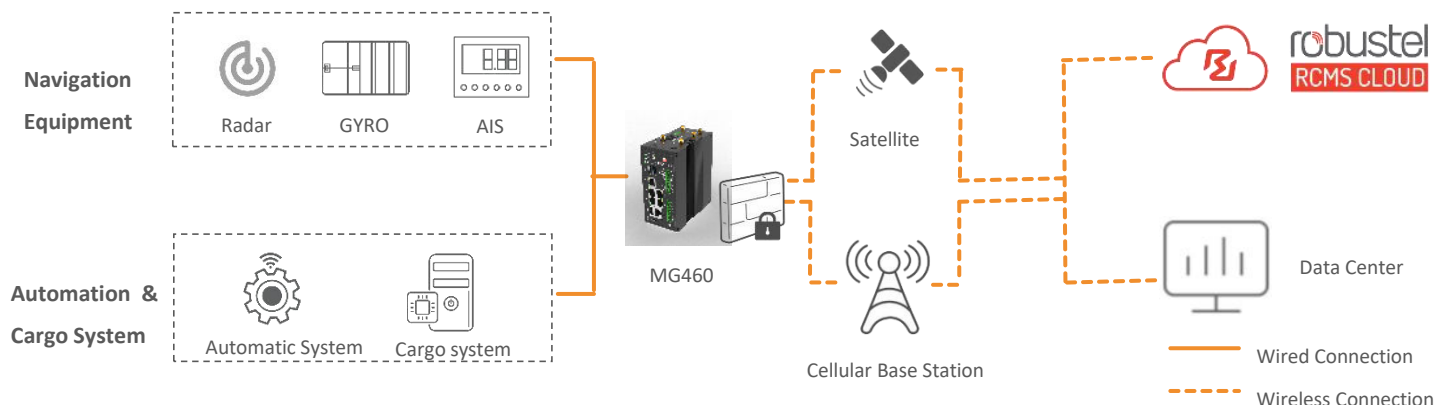
SPECIFICATIONS

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
Number of antennas	2
Connector	SMA-K
SIM	2 x Mini SIM (2FF)

Ethernet Interface

Ports	5 x RJ45, 10/100/1000Mbps, compliance with 1000BASE-T, LAN or WAN
Magnet isolation protection	1 KV

Serial Interface

Type	2 x RS232/RS422/RS485 (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	RS232: TXD, RXD, GND, CTS, RTS RS485: Data+ (A), Data- (B), GND RS422: RX+, RX-, TX+, TX-, GND

Console Interface

Type	1 x RS232
Connector	RJ45
Baud rate	115200 bps
Signal	TXD, RXD, GND

DI Interface

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

Relay Output Interface

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

USB Interface

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

WiFi

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

GNSS Interface

Number of antennas	1
Connector	SMA-K

Others

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

Software (Basic features of RobustOS Pro)

Network protocols	PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, DNS, NTP, SMTP, Telnet, VLAN, HTTPs, ARP, NTP, SMTP, Telnet, VLAN, SSH2, DDNS, etc.
VPN tunnel	IPsec, OpenVPN, GRE, DMVPN
Firewall	DMZ, anti-DoS, Filtering (IP/Domain name/MAC address), Port Mapping, Access Control
Remote management	Web, CLI, SMS
Serial port	Transparent, TCP Client/Server, UDP, Modbus RTU Gateway
Others	Smart Roaming v2*

SDK

Operating System	RobustOS Pro (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 RobustOS Pro)

Apps*	Language, RCMS, etc.

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

Power Supply and Consumption

Connector	2-pin 3.5 mm terminal block with lock
Input voltage	24V DC
Power consumption	Idle: 8.76W
	Data link: 25.44W (peak)

Physical Characteristics

Ingress protection	IP30
Housing & Weight	Metal, 649g
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

Regulatory and Type Approvals (*In progress)

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)

ORDERING INFORMATION

Model	PN	WiFi	GNSS	Cellular	Frequency Bands*	Country/Region	Certification (*In progress)
MG460-A5ZAZ-NU	B147001	-	-	-	-	Global	CE, UKCA,RCM, CB FCC*, IC*
MG460-A5CAZ-NU	B147002	√	-				
MG460-A5AAZ-4L-A06GL	B147003	-	√	4G	**4G**: LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/ B20/B25/B26/B28 LTE TDD: B34/B38/B39/B40/B41 **3G**: WCDMA: B1/B2/B4/B5/B6/B8/B19 **2G**: GSM: B2/B3/B5/B8		
MG460-A5BAZ-4L-A06GL	B147004	√	√				

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