



robustOS Pro

EG5120

Industrial Edge Computing Gateway

2 x Ethernet + 2 x RS-232/RS-485 + 2 x DI + 2 x DO

Wi-Fi, Bluetooth & GPS/GNSS (optional)



INTRODUCTION

The Robustel EG5120 is a 5G-ready industrial edge computing gateway designed for mission-critical deployments, delivering global 5G/4G/3G/2G cellular backhaul and ARMv8-based edge processing. Its full-featured Debian 11 (bullseye) based operating system supports Raspberry Pi-compatible applications, while Docker enables containerized deployment in harsh environments. The gateway integrates **RobustOS Pro** - Robustel's self-developed OS with enterprise-grade cybersecurity (VPN/IPsec/Smart Roaming) and SMS remote management.

Powered by a quad-core 1.6GHz Cortex-A53 CPU and a dedicated NPU (2.3 TOPS), the EG5120 accelerates machine learning inference for edge AI workloads. Combining cellular routing with embedded computing capabilities, this ruggedized platform serves as an all-in-one solution for industrial automation, smart cities, and real-time AI-driven decision-making at the network edge.

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.

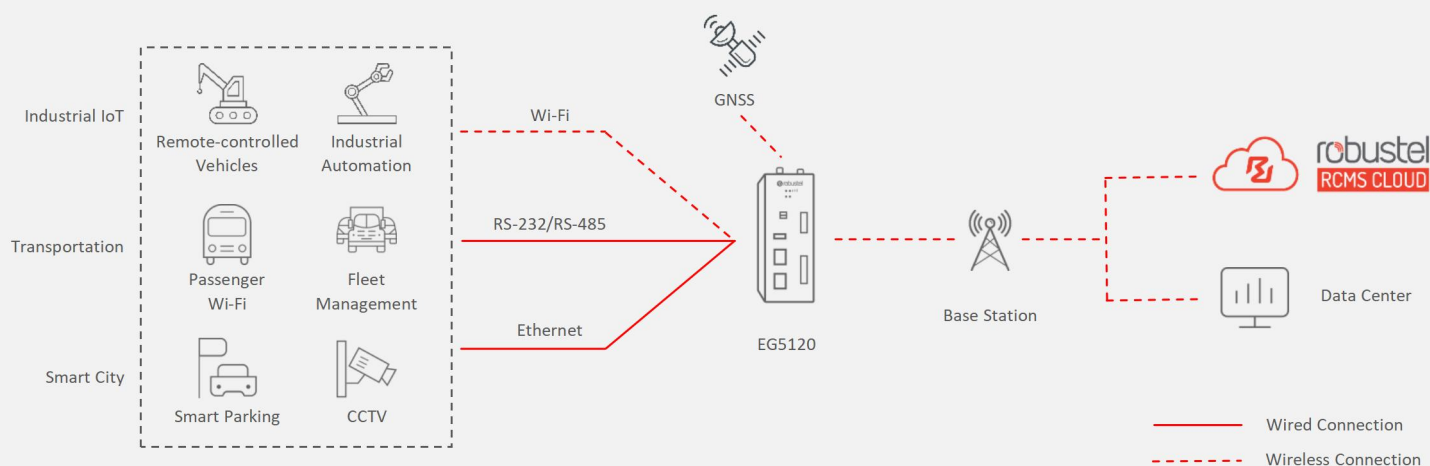
Experience robust, cloud-native device management by registering at: <https://rcms-cloud.robustel.net>



KEY FEATURES

- Industrial-grade 5G/4G/3G/2G cellular with global band support
- 1.6 GHz CPU + 16 GB eMMC Flash storage for edge compute-intensive applications
- Docker containerisation and 50,000+ Debian-compatible packages
- Cutting-edge (Release 16) 5G interface
- Optional 802.11ac Wi-Fi (dual-mode AP/Client) and Bluetooth 5.2
- 2 x software-configurable RS-232/485 for PLC/legacy device integration
- 2 x DI + 2 x DO interfaces with dry contact signal monitoring
- Dual-SIM redundancy and wide operating temperature range
- Native Modbus TCP/RTU with MQTT-to-cloud bridging
- Multi-language SDK support (C/C++/Java/Python/Node.js) and open development toolchain
- Multi-protocol VPN (IPsec/OpenVPN/GRE/L2TP/PPTP/DMVPN) and firewall
- RCMS platform (Robustel Cloud Management System) for fleet-scale management

APPLICATION EXAMPLE



SPECIFICATIONS

Hardware System

CPU	Quad core Cortex-A53, 1.6 GHz
NPU	2.3 TOPS
RAM	2 GB DDR4
Flash	16 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	2 x RJ45, 10/100/1000 Mbps
	Compliance with 1000 BAST-T, LAN or WAN
Magnet isolation protection	1 KV

Serial Port

Number of ports	2 x RS-232/RS-485 (software configurable)
Connector	6-pin 3.5 mm terminal block with lock
ESD protection	8 KV air, 4 KV contact
Baud rate	300 bps ~ 115200 bps
Signal definition	RS-232: TXD, RXD, GND
	RS-485: Data+ (A), Data- (B), GND

Digital Input/Output Port

Number of ports	2 x DI + 2 x DO, wet contact
Connector	8-pin 3.5 mm terminal block with lock (DI/DO)
Isolation	Bi-directional optocoupler (DI)
	Single directional optocoupler (DO)
Absolute maximum VDC	+30 V DC
Absolute maximum ADC	100 mA
Signal definition	DI1+, DI1-, DI2+, DI2-, DO1+, DO1-, DO2+, DO2-

Wi-Fi Interface (Optional)

Number of antennas	2
Connector	RP-SMA-K
Standards	802.11a/b/g/n/ac, 2 x 2 MIMO, Supporting AP and Client modes
Frequency bands	2.412 - 2.484 GHz (2.4 GHz ISM band) 5.15 - 5.85 GHz (5 GHz ISM band)
Security	WEP 64-bit and 128-bit encryption with H/W TKIP processing WPA/WPA2 (Wi-Fi Protected Access) AES-CCMP hardware implementation as part of 802.11i security standard
Data rate	802.11n: up to 300 Mbps - 2 x 2 MIMO 802.11ac: up to 866.7 Mbps (80 MHz channel)

Bluetooth Interface (Optional)

Number of antennas	1 (Multiplexing Wi-Fi antenna)
Connector	RP-SMA-K
Standards	Bluetooth 2.1 and 3.0 + Enhanced Data Rate (EDR) + Bluetooth 5.2

GNSS Interface (Optional)

Version	4G	5G
Number of antennas	1	Optional, requires a 4-in-1 Combo Antenna
Connector	SMA-K	
Technology	GPS	

Others

SD	1 x microSD
Reset button	1 x RST
USB port	1 x USB 2.0 (host), Type A, 5 V, 900 mA
LED indicators	1 x RUN, 1 x Signal, 1 x USR, 1 x MDM
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, SSH2, DDNS, etc.
VPN tunnels	IPsec, OpenVPN, GRE, L2TP, PPTP, 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
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	14 GB
RAM available for SDK	1.5 GB

App Center (Available Apps for RobustOS Pro)

Apps*	Language, RCMS, WireGuard, etc.
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**Request on demand. For more Apps please visit www.robustel.com.*

Cloud Platform

Robustel Cloud Manager Service (RCMS)	RobustLink, RobustVPN, Operation Console
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Power Supply and Consumption

Connector	2-pin 3.5 mm terminal block with lock
Input voltage	12/24/48 V DC, 9 ~ 60 V DC
	Reverse polarity protection, surge protection
Power consumption	Idle: 5 W@12 V Max: 20 W@12 V
Recommended power supply	12 V DC/1.5 A power adapter

Physical Characteristics

Ingress protection	IP30
Housing & Weight	Metal, 567 g
Dimensions	49 x 105 x 128 mm
Installations	Desktop, wall mounting and 35 mm DIN rail mounting
Operating temperature	-40 ~ +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 B
EMS	EN 61000-4-2 (ESD) Level 4 EN 61000-4-3 (RS) Level 3 EN 61000-4-4 (EFT) Level 4 EN 61000-4-5 (Surge) Level 3 EN 61000-4-6 (CS) Level 2 EN 61000-4-8 (PFM) Level 4 EN 61000-4-11 (Dips)

ORDERING INFORMATION

Model	Order Code	Wi-Fi + BLE	GNSS	Frequency Bands ¹	Country /Region	Certification	Package Contains
EG5120-A2ZAZ-NU	A009000710	-	-			CE, UKCA, CB, RCM, FCC, IC	1 x EG5120 Gateway (B Code: B090705) 1 x DIN Rail Mounting Kit
	A009000711						1 x EG5120 Gateway (B Code: B090705) 1 x DIN Rail Mounting Kit 1 x Power Adapter
EG5120-A2EAZ-NU	A009000712	√	-			CE, UKCA, CB, RCM, FCC, IC	1 x EG5120 Gateway (B Code: B090706) 1 x DIN Rail Mounting Kit
	A009000713						1 x EG5120 Gateway (B Code: B090706) 1 x DIN Rail Mounting Kit 2 x Cellular Antenna 2 x Wi-Fi Antenna 1 x Power Adapter
EG5120-A2AAZ-4L-A06GL	A009000714	-	√	4G: LTE FDD: B1/2/3/4/5/7/8/12/ 13/18/19/20/25/26/28 LTE TDD: B34/38/39/40/41		CE, UKCA, CB, RCM, FCC, IC	1 x EG5120 Gateway (B Code: B090702) 1 x DIN Rail Mounting Kit
	A009000715						1 x EG5120 Gateway (B Code: B090702) 1 x DIN Rail Mounting Kit 2 x Cellular Antenna 1 x GNSS Antenna 1 x Power Adapter
EG5120-A2CAZ-4L-A06GL	A009000716	√	√	3G: WCDMA: B1/2/4/5/6/8/19	Global	CE, UKCA, CB, RCM, FCC, IC, PTCRB, AT&T, Verizon, UL, NTC	1 x EG5120 Gateway (B Code: B090704) 1 x DIN Rail Mounting Kit
	A009000717			2G: GSM: B2/3/5/8			1 x EG5120 Gateway (B Code: B090704) 1 x DIN Rail Mounting Kit 2 x Cellular Antenna 2 x Wi-Fi Antenna 1 x GNSS Antenna 1 x Power Adapter
EG5120-A2AAZ-5G-A25GL ²	A009000718	-	Optional	5G: NR SA/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		CE, UKCA, CB, RCM	1 x EG5120 Gateway (B Code: B090701) 1 x DIN Rail Mounting Kit
	A009000719			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 (only supports 2 x 2 MIMO) 3G: WCDMA: B1/2/4/5/8/19			1 x EG5120 Gateway (B Code: B090701) 1 x DIN Rail Mounting Kit 4 x Cellular Antenna 1 x GNSS Antenna 1 x Power Adapter
EG5120-A2CAZ-5G-A25GL ²	A009000720	√	Optional	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 (only supports 2 x 2 MIMO) 3G: WCDMA: B1/2/4/5/8/19		CE, UKCA, CB, RCM, TDRA	1 x EG5120 Gateway (B Code: B090703) 1 x DIN Rail Mounting Kit
	A009000721			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 (only supports 2 x 2 MIMO) 3G: WCDMA: B1/2/4/5/8/19			1 x EG5120 Gateway (B Code: B090703) 1 x DIN Rail Mounting Kit 4 x Cellular Antenna 2 x Wi-Fi Antenna 1 x GNSS Antenna 1 x Power Adapter
EG5120-A2AAZ-4L-A04JP	A009000722	-	√	4G: LTE FDD: B1/3/8/18/19/26 LTE TDD: B41	Japan	TELEC, JATE	1 x EG5120 Gateway (B Code: B090708) 1 x DIN Rail Mounting Kit
	A009000723						1 x EG5120 Gateway (B Code: B090708) 1 x DIN Rail Mounting Kit 2 x Cellular Antenna 1 x GNSS Antenna 1 x Power Adapter
EG5120-A2CAZ-4L-A04JP	A009000724	√	√	3G: WCDMA: B1/6/8/19			1 x EG5120 Gateway (B Code: B090709) 1 x DIN Rail Mounting Kit
	A009000725						1 x EG5120 Gateway (B Code: B090709) 1 x DIN Rail Mounting Kit 2 x Cellular Antenna 2 x Wi-Fi Antenna 1 x GNSS Antenna 1 x Power Adapter

Note:

- For more information about frequency bands in different countries, please contact your Robustel sales representative.
- The models EG5120-A2AAZ-5G-A25GL and EG5120-A2CAZ-5G-A25GL currently do not support Telstra certification and are not recommended for use on the Telstra network.