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# EG5100

Industrial Edge Computing Gateway
2 x ETH + 2 x DI + 2 x DO +
RS-232/485/CAN, Optional Wi-Fi, Bluetooth & GNSS

## INTRODUCTION

The Robustel EG5100 is an industrial-grade edge computing gateway combining global 4G/3G/2G cellular backhaul and ARMv7-based edge processing. Its Debian 11 (bullseye) based operating system supports Raspberry Pi-compatible applications, while Docker enables rapid containerized deployment in harsh environments. The device merges cellular routing and embedded computing for real-time edge analytics.

Powered by a 792 MHz Cortex-A7 CPU, the EG5100 runs **RobustOS Pro** - Robustel's self-developed OS - to deliver enterprise security (VPN/IPsec, smart roaming) and SMS-based remote management. Designed for mission-critical IoT systems, it integrates cellular connectivity, cybersecurity, and edge compute capabilities into a single ruggedized platform, minimizing deployment complexity.

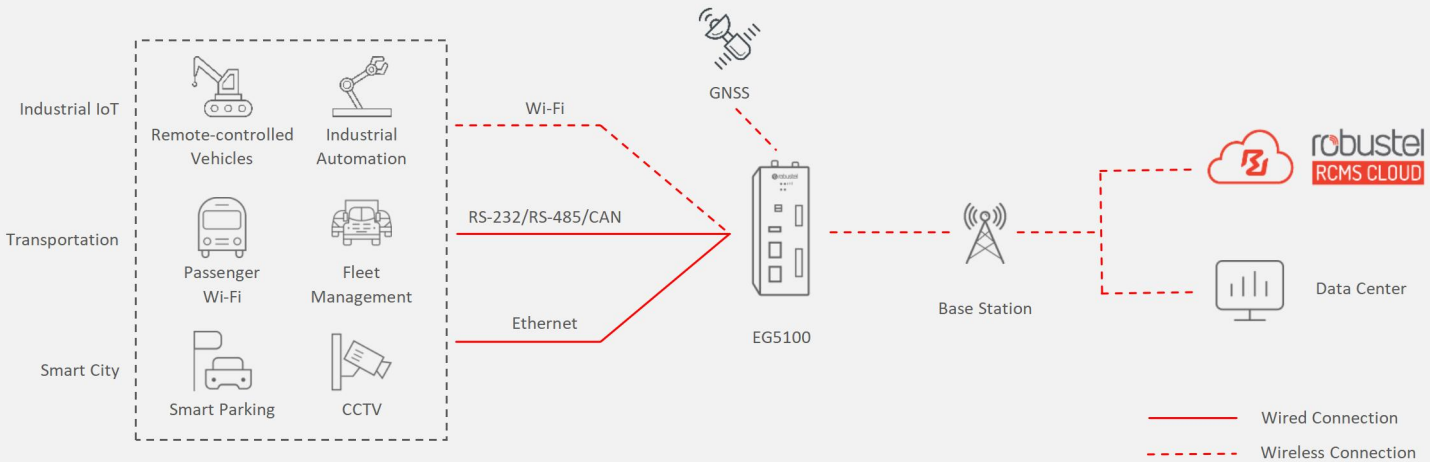
The **Robustel Cloud Manager Service (RCMS)** is a unified cloud-based platform designed for real-time monitoring and centralized management of industrial IoT devices. Fully compatible with Robustel routers and gateways, RCMS delivers an interactive geospatial dashboard that enables users to visualize 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

robustel RCMS CLOUD

## KEY FEATURES

- Industrial-grade 4G/3G/2G cellular connectivity with global band support
- 8GB eMMC Flash storage and ARM compute engine for edge applications
- Docker containerization and 50,000+ Debian compatible packages
- Optional 802.11ac Wi-Fi with dual-mode AP/Client operation
- Optional Bluetooth 5.2 compliant
- 2 x software-configurable RS-232/485 ports (or 1 x RS-232/485 + 1 x CAN)
- 2 x DI/DO interfaces for industrial I/O monitoring
- Dual-SIM redundancy and wide operating temperature range
- Multi-language SDK support (C/C++/Java/Python/Node.js) with open development toolchain
- Multi-protocol VPN (IPsec/OpenVPN/GRE/L2TP/PPTP/DMVPN) and firewall
- RCMS (Robustel Cloud Management System) for large-scale device control

## APPLICATION EXAMPLE



# SPECIFICATIONS

## Hardware System

| | |
|---|---|
| CPU | ARM Cortex-A7, 792 MHz |
| RAM | 1 GB DDR3 |
| Flash | 8 GB eMMC |

## Cellular Interface

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

## Ethernet Port

| | |
|---|---|
| Number of ports | 2 x RJ45, 10/100 Mbps, LAN or WAN |
| Magnet isolation protection | 1 KV |

## Serial Port

| | |
|---|---|
| Number of ports | 2 x RS-232/RS-485 (software configurable) |
| | Or 1 x RS-232/RS-485 (software configurable) + 1 x CAN |
| Connector | 6-pin 3.5 mm terminal block with lock |
| ESD protection | 15 KV air, 8 KV contact |
| Baud rate | 300 bps ~ 115200 bps |
| Signal definition | RS-232: TXD, RXD, GND |
| | RS-485: Data+ (A), Data- (B), GND |
| | CAN: H, L, 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) |
| 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) |
| | 5.18 - 5.825 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 |

## 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)

| | |
|---|---|
| Number of antennas | 1 |
| Connector | SMA-K |
| Technology | GPS |

## Others

| | |
|---|---|
| Reset button | 1 x RST |
| USB port | 1 x USB 2.0 (host), Type A, 5 V, 500 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 | 6 GB |
| RAM available for SDK | 768 MB |

## App Center (Available Apps for RobustOS Pro)

| | |
|---|---|
| Apps* | Language, RCMS, WireGuard, etc. |

**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 | 12/24/48 V DC, 9 ~ 60 V DC |
| | Reverse polarity protection, surge protection |
| Power consumption | Idle: 3 W@12 V |
| | Max: 12 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 | CAN | Frequency Bands* | Country /Region | Certification | Package Contains |
|---|---|---|---|---|---|---|---|---|
| EG5100-A2ECA-NU | A006600707 | √ | - | - | - | Global | CE<br>RCM<br>CB<br>UKCA<br>FCC<br>IC | 1 x EG5100 Gateway (B Code: B066712)<br>1 x DIN Rail Mounting Kit |
| | A006600708 | | | | | | | 1 x EG5100 Gateway (B Code: B066712)<br>1 x DIN Rail Mounting Kit<br>2 x Cellular Antenna<br>2 x Wi-Fi Antenna<br>1 x Power Adapter |
| EG5100-A2ACA-4L-A06GL | A006600709 | - | √ | - | 4G: LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28<br>LTE TDD: B34/38/39/40/41<br><br>3G:<br>WCDMA: B1/2/4/5/6/8/19<br><br>2G:<br>GSM: B2/3/5/8 | | CE<br>RCM<br>CB<br>UKCA<br>FCC<br>IC<br>NTC | 1 x EG5100 Gateway (B Code: B066706)<br>1 x DIN Rail Mounting Kit |
| | A006600710 | | | | | | | 1 x EG5100 Gateway (B Code: B066706)<br>1 x DIN Rail Mounting Kit<br>2 x Cellular Antenna<br>1 x GNSS Antenna<br>1 x Power Adapter |
| EG5100-A2CCA-4L-A06GL | A006600711 | √ | √ | - | | | | 1 x EG5100 Gateway (B Code: B066708)<br>1 x DIN Rail Mounting Kit |
| | A006600712 | | | | | | | 1 x EG5100 Gateway (B Code: B066708)<br>1 x DIN Rail Mounting Kit<br>2 x Cellular Antenna<br>2 x Wi-Fi Antenna<br>1 x GNSS Antenna<br>1 x Power Adapter |
| EG5100-A2ADA-4L-A06GL | A006600713 | - | √ | √ | | | CE<br>RCM<br>CB<br>UKCA | 1 x EG5100 Gateway (B Code: B066716)<br>1 x DIN Rail Mounting Kit |
| | A006600714 | | | | | | | 1 x EG5100 Gateway (B Code: B066716)<br>1 x DIN Rail Mounting Kit<br>2 x Cellular Antenna<br>1 x GNSS Antenna<br>1 x Power Adapter |
| EG5100-A2CDA-4L-A06GL | A006600715 | √ | √ | √ | | | | 1 x EG5100 Gateway (B Code: B066717)<br>1 x DIN Rail Mounting Kit |
| | A006600716 | | | | | | | 1 x EG5100 Gateway (B Code: B066717)<br>1 x DIN Rail Mounting Kit<br>2 x Cellular Antenna<br>2 x Wi-Fi Antenna<br>1 x GNSS Antenna<br>1 x Power Adapter |
| EG5100-A2ACA-4L-A04JP | A006600717 | - | √ | - | 4G:<br>LTE FDD: B1/3/8/18/19/26<br>LTE TDD: B41<br><br>3G:<br>WCDMA: B1/6/8/19 | Japan | TELEC<br>JATE | 1 x EG5100 Gateway (B Code: B066714)<br>1 x DIN Rail Mounting Kit |
| | A006600718 | | | | | | | 1 x EG5100 Gateway (B Code: B066714)<br>1 x DIN Rail Mounting Kit<br>2 x Cellular Antenna<br>1 x GNSS Antenna<br>1 x Power Adapter |
| EG5100-A2CCA-4L-A04JP | A006600719 | √ | √ | - | | | | 1 x EG5100 Gateway (B Code: B066715)<br>1 x DIN Rail Mounting Kit |
| | A006600720 | | | | | | | 1 x EG5100 Gateway (B Code: B066715)<br>1 x DIN Rail Mounting Kit<br>2 x Cellular Antenna<br>2 x Wi-Fi Antenna<br>1 x GNSS Antenna<br>1 x Power Adapter |

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

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