# EG5120 robustOS Pro

Industrial Edge Computing Gateway
2 x Ethernet ports + 2 x RS232/RS485 + 2 x DI/DO
Wi-Fi, Bluetooth & GPS/GNSS (Optional)

## INTRODUCTION

Robustel's EG5120 series is a new generation of industrial edge computing gateways, supporting global 5G/4G/3G/2G networks for cellular backhaul, with a fully-fledged Debian Operating System able to support thousands of existing or new ARMv7 (RPi compatible) based applications.

For many years, customers have used Robustel Gateways as a combination of cellular router + embedded PC and the EG5120 series takes the compute power to the next level with a 1.5GHz Cortex A53 CPU.

EG5120 supports Docker for easy deployment of applications and benefits from '**RobustOS Pro**' – Robustel's latest router OS with enhanced cybersecurity, advanced GUI and a myriad of software features including VPNs, Smart Roaming, SMS remote control and more.

**RCMS** is Robustel's free router monitoring service that is fully compatible with the EG5120. 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.
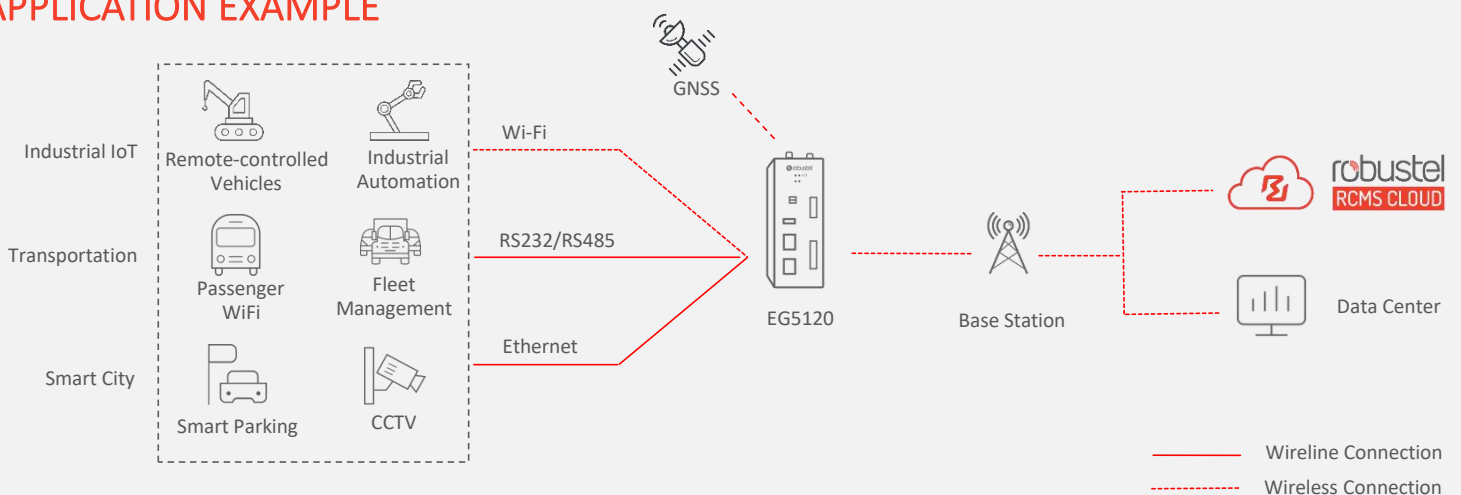
You can try Robustel's free router management platform by signing up here:
https://rcms-cloud.robustel.net

## KEY FEATURES

➢ Highly stable 5G/4G/3G/2G cellular connectivity with global band coverage

➢ High performance compute engine with 1.5 GHz CPU + 16 GB eMMC Flash for running complex applications

➢ 'Docker' containerisation supported

➢ Cutting-edge (Release 16) 5G interface

➢ 802.11ac Wi-Fi (optional) supporting AP and Client modes

➢ Bluetooth (optional), Bluetooth 5.3 compliant

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

➢ 2 x DI & 2 x DO for simple monitoring and control

➢ Dual SIM card slots for redundant communications

➢ Wide Operating Temperature range for industrial applications

➢ Full Modbus TCP and Modbus RTU support including MQTT transfer to mainstream cloud platforms

➢ Supports C, C++, Java, Python, Node.js etc. for users to develop their own applications

➢ More than 50,000 applications from Debian repository currently available

➢ Wireguard/IPsec/OpenVPN/GRE/L2TP/PPTP/DMVPN + more VPN options

➢ Supports RCMS – Robustel's router/gateway management platform for effective management of large estates of devices

## APPLICATION EXAMPLE

# SPECIFICATIONS

## Hardware System

| | |
|---|---|
| CPU | Quad core Cortex-A53, 1.6 GHz Cortex-A7 |
| 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) | |

## GNSS Interface (Optional)

| | | |
|---|---|---|
| Version | 4G | 5G |
| Number of antennas | 1 | Optional, requires a 4-in-1 Combo Antenna |
| Connector | SMA-K | |
| Technology | GPS/GLONASS/BeiDou (Compass) /Galileo/QZSS | |

## Serial Interface

| | |
|---|---|
| Type | 2 x RS232/RS485 (software configurable) |
| Connector | 6-pin 3.5 mm terminal block with lock |
| ESD protection | ±8 KV |
| Baud rate | 300 bps to 115200 bps |
| Signal | RS232: TXD, RXD, GND    RS485: Data+ (A), Data- (B), GND |

## DI/DO Interface

| | |
|---|---|
| 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 | + 30V 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 | 802.11 a/b/g/n/ac, 2 x 2 MIMO, supports AP and Client modes |
| Frequency bands | 2.412 - 2.484 GHz (2.4 GHz ISM band) |
| | 4.915 - 5.925 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 5.3 |

## Ethernet Interface

| | |
|---|---|
| Number of ports | 2 x 10/100/1000 Mbps, LAN or WAN |
| Magnet isolation protection | 1 KV |

## Others

| | |
|---|---|
| SD | 1 x Micro SD |
| Reset button | 1 x RST |
| USB | 1 x USB 3.0 (host), Type A, 5V 900mA |
| LED indicators | 1 x RUN, 1 x MDM, 1 x USR, 1 x Signal |
| Watchdog | External |

## Software (Basic features of RobustOS Pro)

| | |
|---|---|
| Network protocols | PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, HTTP, DNS, NTP, SMTP, Telnet, VLAN, HTTPs, DNS, ARP, NTP, SMTP, Telnet, VLAN, SSH2, DDNS, etc. |
| VPN tunnel | IPsec, OpenVPN, GRE |
| 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 Reboot, Data Guard, Smart Roaming |

## 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* | L2TP, PPTP, DMVPN, VRRP, QoS, SNMP, Language, RCMS, Dynamic route, Captive Portal, Modbus Master, 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 | 9 ~ 60V DC |
| Power consumption | Idle: 5W |
| | Data link: 20W (peak) |

## 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 |

## Regulatory and Type Approvals (*In progress)

| | |
|---|---|
| Environmental | RoHS2.0* |

# ORDERING INFORMATION

| Model | PN | Wi-Fi + BLE | Cellular | Frequency Bands* | Country/ Region | Certification (*In progress) |
|---|---|---|---|---|---|---|
| EG5120-A2AAZ-4L-A06GL | B090702 | - | √ | **4G**: LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/ B20/B25/B26/B28<br>LTE TDD: B34/B38/B39/B40/B41 | | |
| EG5120-A2CAZ-4L-A06GL | B090704 | √ | √ | **3G**: WCDMA: B1/B2/B4/B5/B6/B8/B19<br>**2G**: GSM: B2/B3/B5/B8 | | |
| EG5120-A2AAZ-5G-A25GL | B090701 | - | √ | **5G**: NR SA/NSA: n1/n2/n3/n5/n7/n8/n12/n13/n14/n20/n25/ n26/n28/n29/n30/n38/n40/n41/n48/n66/ n71/n75/n76/n77/n78/n79<br>**4G**: LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/ B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 | Global | CE* RCM* |
| EG5120-A2CAZ-5G-A25GL | B090703 | √ | √ | LTE TDD: B34/B38/B39/B40/B41/B42/B43/B48<br>LAA: B46 (only supports 2 x 2 MIMO)<br>**3G**: WCDMA: B1/B2/B4/B5/B8/B19 | | |
| EG5120-A2ZAZ-NU | B090705 | - | - | - | | |
| EG5120-A2EAZ-NU | B090706 | √ | - | - | | |

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

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