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 is a new generation of industrial edge computing gateway, supporting global 5G/4G/3G/2G networks for cellular backhaul, with a fully-fledged Debian 11(bullseye) based operating system able to support thousands of existing or new ARMv8 (Raspberry Pi compatible) based applications.

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

With a quad core 1.6 GHz Cortex A53 CPU and an integrated NPU of 2.3 TOPS that greatly accelerate machine learning inference, EG5120 will take the compute power to the next level, best for the edge computing and edge AI applications, can also be used as a combination of cellular router + embedded PC in all the industrial filed.

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.
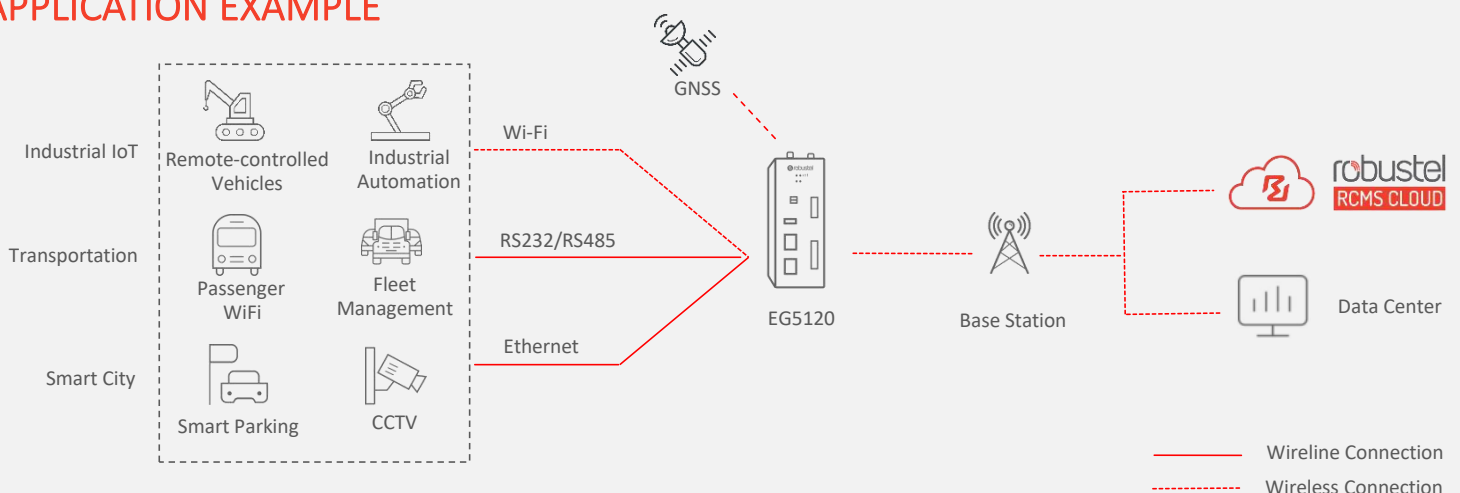
You can try Robustel's free router management platform by signing up here: https://rcms-cloud.robustel.net

robustel RCMS CLOUD

KEY FEATURES

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

➢ High performance compute engine with 1.6 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 5.2 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

Industrial IoT — Remote-controlled Vehicles — Industrial Automation

Transportation — Passenger WiFi — Fleet Management

Smart City — Smart Parking — CCTV

Wi-Fi

RS232/RS485

Ethernet

GNSS

EG5120

Base Station

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Data Center

——— Wireline Connection

------- Wireless Connection

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)	

GNSS Interface (Optional)

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

Ethernet Interface

Ports	2 x RJ45, 10/100/1000Mbps, compliance with 1000BAST-T, LAN or WAN
Magnet isolation protection	1 KV

Serial Interface

Type	2 x RS232/RS485 (software configurable)
Connector	6-pin 3.5 mm terminal block with lock
ESD protection	8 KV Air, 4 KV Contact
Baud rate	300 bps to 115200 bps
Signal	RS232: TXD, RXD, GND RS485: Data+ (A), Data- (B), GND

DI/DO Interface

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 5.2

Others

SD	1 x microSD
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	GPS	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 LTE TDD: B34/B38/B39/B40/B41	Global	CE* RCM*
EG5120-A2CAZ-4L-A06GL	B090704	√	√	√	**3G**: WCDMA: B1/B2/B4/B5/B6/B8/B19 **2G**: GSM: B2/B3/B5/B8		
EG5120-A2AAZ-5G-A25GL	B090701	-	√	√	**5G**: NR SA/NSA: n1/n2/n3/n5/n7/n8/n12/n13/n14/n18/n20/n25 /n26/n28/n29/n30/n38/n40/n41/n48/n66/n70/ n71/n75/n76/n77/n78/n79 **4G**: LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B14/B17/B18/		
EG5120-A2CAZ-5G-A25GL	B090703	√	√	√	B19/B20/B25/B26/B28/B29/B30/B32/B66/B71 LTE TDD: B34/B38/B39/B40/B41/B42/B43/B48 LAA: B46 (only supports 2 x 2 MIMO) **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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