



EG3120e

Industrial High-Performance
Edge Computing Server with LTE and
Multi-Serial Integration



INTRODUCTION

The Robustel EG3120e extends industrial connectivity with edge computing capabilities for local data processing, protocol integration, and application hosting. Powered by a quad-core 2.0 GHz Cortex-A53 processor and with up to 8 GB of RAM, the EG3120e is not just a router—it provides an industrial Linux-based edge platform capable of running local applications and data analytics closer to field devices.

At its core lies **RobustOS Pro**, an advanced operating system built on Debian 11 (Bullseye). This open Linux environment helps developers reduce dependency on proprietary development frameworks, offering native support for standard programming languages (C, C++, Java, Python, Node.js) and access to thousands of existing Debian packages. Whether deploying custom edge logic or utilizing pre-built apps from the **Robustel Cloud Management System (RCMS)**, the EG3120e bridges the gap between OT protocols and IT flexibility.

Designed for complex industrial environments, the EG3120e eliminates the need for separate Industrial PCs (IPCs) and Serial Concentrators. With a dedicated 4 x RS-485 architecture, extensive I/O (DI/DO/AI), and robust LTE Cat 4 connectivity, it provides an integrated platform for smart energy, building automation, and factory retrofit applications.



KEY FEATURES

Server-Grade Edge Power

- Equipped with a Quad-core CPU and up to 8 GB RAM to run heavy local workloads like Docker or Node.js with ease.
- Local processing significantly minimizes cloud data fees and network latency.

E2C Factory: All-in-One Edge Intelligence

- The "6C" Workflow: A unified runtime that seamlessly **Collects** data, **Computes** logic, **Caches** logs, provides a **Canvas** for visualization, **Connects** IT/OT, and enables bidirectional **Control**.
- Instant Operational Insights: Built-in Web SCADA and OEE dashboards automatically calculate performance metrics every minute for a "Transparent Factory".

Direct Legacy Integration (4 x RS-485)

- Four dedicated RS-485 ports allow direct connection to inverters and meters without external hubs.
- Reduces hardware costs and simplifies wiring in complex industrial environments.

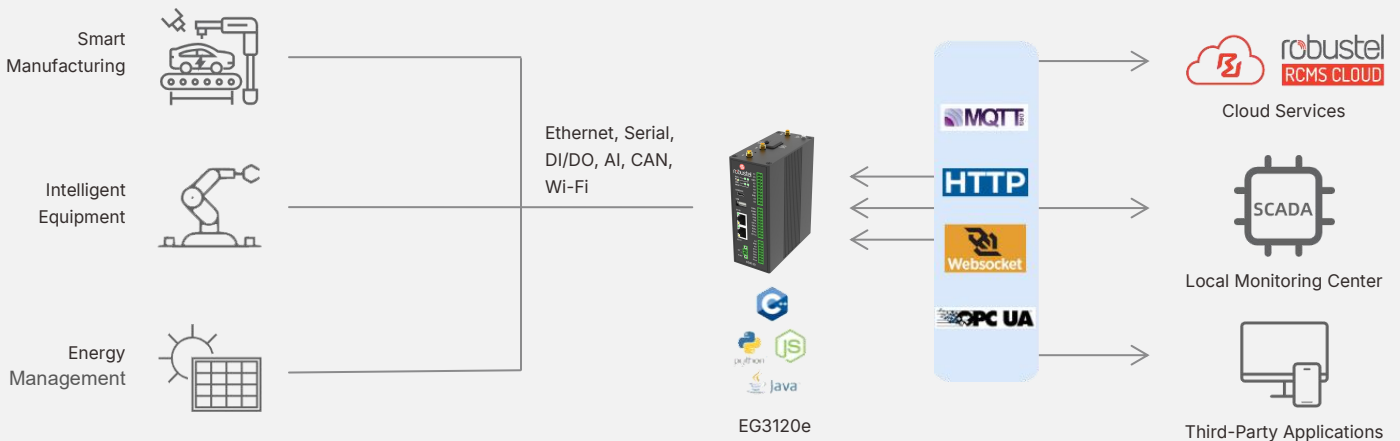
Zero-Touch Global Connectivity (SGP.22 eSIM)

- Native SGP.22 eSIM support allows for Over-the-Air carrier switching via RCMS.
- Supports a "Single Global SKU" strategy, eliminating the need for manual on-site SIM swaps.

Open Ecosystem (Debian 11)

- Built on Debian 11 (Bullseye), providing developers access to massive software repositories.
- Enables easy porting of existing apps to significantly speed up time-to-market.

APPLICATION EXAMPLE



SPECIFICATIONS

Hardware

Hardware System

CPU	Quad-core ARM Cortex-A53@2.0 GHz
RAM & Flash options	2 GB LPDDR4 + 8 GB eMMC 4 GB LPDDR4 + 64 GB eMMC 8 GB LPDDR4 + 64 GB eMMC

Cellular Interface

Cellular technologies	4G LTE Cat4
Number of antennas	2
Connector	SMA-K
SIM	1 x Mini SIM (2FF)
eSIM	1 x eSIM (MFF2); GSMA SGP.22 compliant; supports profile download/removal and typically up to 8 eSIM profiles

Ethernet Port

Number of ports	2 x 10/100 Mbps, WAN or LAN
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Serial Port

Number of ports	Supports up to 4 x RS-485 and 1 x RS-232
Baud rate	300–115200 bps, default 115200 bps

Digital Input / Digital Output

I/O capability	Supports up to 4 x DI and 4 x DO
Contact type	Wet contact
DI input voltage (high level)	9–30 V
DI input voltage (low level)	0–3 V
DO voltage range	5–30 V
DO load current range	0–100 mA

Wi-Fi Interface

Number of antennas	1 x RP-SMA-K, supporting only 1T1R
Standards	802.11 a/b/g/n/ac/ax; supports AP and client modes
Frequency bands	2.412–2.472 GHz (2.4 GHz ISM band) 5.15–5.825 GHz (5 GHz ISM band)

Analog Input Interface

Number of interfaces	2 x AI
Input type	Voltage type
Voltage input range	0–24 V
Current input range	4–20 mA

CAN Interface

Number of interfaces	1 x CAN
Standard	CAN 2.0, up to 1 Mbps

Others

TPM	TPM 2.0
Reset button	1 x RST
USB port	1 x USB 2.0 (host), Type A, 5 V, 500 mA 1 x USB 2.0, Type C, console port
LED indicators	1 x RUN, 1 x RSSI, 1 x MDM, and 1 x USR
microSD	1 x microSD, supporting up to 2 TB
Watchdog	External
RTC	Remains functional up to 5 days after power loss

Power Supply and Consumption

Connector	2-pin 3.5 mm terminal block with lock
Input voltage	12/24 VDC, 9–36 VDC Reverse polarity protection, surge protection
Power consumption	Idle: 1.5 W@12 V Max: 15 W@12 V
Rec. power supply	12 VDC/1.5 A power adapter

Physical Characteristics

Ingress protection	IP30
Housing & Weight	Metal, 587 g
Dimensions	49 x 105 x 128 mm
Installation	Desktop, wall mounting & 35 mm DIN rail mounting
Operating temperature	-25 to +70 °C
Storage temperature	-40 to +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 3 EN 61000-4-3 (RS) Level 3 EN 61000-4-4 (EFT) Level 3 EN 61000-4-5 (Surge) Level 3, AC Mains Power Port Level 3, Signal Ports EN 61000-4-6 (CS) Level 3

Software

Operating System (Basic Features of RobustOS Pro)

Network protocols	PPP, PPPoE, ARP, VLAN, ICMP, NAT, TCP, UDP, DHCP, DNS, DDNS, NTP, HTTP, HTTPS, Telnet, SSH2, SMTP, Static Routing, etc.
VPN tunnels	IPsec, OpenVPN, GRE, L2TP, PPTP, DMVPN, WireGuard
Firewalls	DMZ, anti-DoS, Filtering (IP/Domain name/MAC address), Port Mapping, Access Control
Remote management	Web, CLI, SMS, RCMS
Serial port protocols	Transparent, TCP Client/Server, UDP, Modbus RTU Gateway
Others	Smart Roaming V3, Language, eSIM Management, etc.

SDK

Operating system	RobustOS Pro (Based on Debian 11 Bullseye)
Programming languages	C, C++, Python, Java, Node.js, etc. (for users to develop own applications)
Debian repository available	Supports APT and DPKG package management tools
Available Flash for SDK	8 GB Flash version: 6 GB 64 GB Flash version: 62 GB
Available RAM for SDK	2 GB DDR version: 1.6 GB 4 GB DDR version: 3.6 GB 8 GB DDR version: 7.6 GB

App Center* (Available Apps for RobustOS Pro)

*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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ORDERING INFORMATION

Model	Order Code	RAM	Flash	Interfaces	Frequency Bands	Region	Package Contents
EG3120e-E2EDA-4L-A35GL	A015700001	2 GB	8 GB	4 x RS-485 1 x RS-232 4 x DI 4 x DO 2 x AI 1 x CAN Wi-Fi 6	4G: LTE FDD: B1/2/3/4/5/7/8/ 12/13/18/19/20/25/26/28/66 LTE TDD: B34/38/39/40/41 3G: WCDMA: B1/2/4/5/6/8/19 2G: GSM: B2/3/5/8	Global	1 x EG3120e (B Code: B015700001) 1 x DIN Rail Mounting Kit
	A015700002	2 GB	8 GB			Global	1 x EG3120e (B Code: B015700001) 2 x Cellular Antenna 1 x Wi-Fi Antenna 1 x Power Adapter 1 x DIN Rail Mounting Kit
EG3120e-E2EDB-4L-A35GL	A015700003	8 GB	64 GB	4 x RS-485 1 x RS-232 4 x DI 4 x DO 2 x AI 1 x CAN Wi-Fi 6	4G: LTE FDD: B1/2/3/4/5/7/8/ 12/13/18/19/20/25/26/28/66 LTE TDD: B34/38/39/40/41 3G: WCDMA: B1/2/4/5/6/8/19 2G: GSM: B2/3/5/8	Global	1 x EG3120e (B Code: B015700002) 1 x DIN Rail Mounting Kit
	A015700004	8 GB	64 GB			Global	1 x EG3120e (B Code: B015700002) 2 x Cellular Antenna 1 x Wi-Fi Antenna 1 x Power Adapter 1 x DIN Rail Mounting Kit
EG3120e-E2EDC-4L-A35GL	A015700013	4 GB	64 GB	4 x RS-485 1 x RS-232 4 x DI 4 x DO 2 x AI 1 x CAN Wi-Fi 6	4G: LTE FDD: B1/2/3/4/5/7/8/ 12/13/18/19/20/25/26/28/66 LTE TDD: B34/38/39/40/41 3G: WCDMA: B1/2/4/5/6/8/19 2G: GSM: B2/3/5/8	Global	1 x EG3120e (B Code: B015700009) 1 x DIN Rail Mounting Kit
	A015700019	4 GB	64 GB			Global	1 x EG3120e (B Code: B015700009) 2 x Cellular Antenna 1 x Wi-Fi Antenna 1 x Power Adapter 1 x DIN Rail Mounting Kit

NOTE:

1. For more information about regional and carrier-specific variants, please contact us.
2. * Denotes certification in progress.