LG5120

Intelligent Building Edge Controller

2 x Ethernet + 1 x KNX + 1 x M-Bus + 1 x P1 + 2 x RS-485 + 1 x RS-232 + 2 x DI + 2 x DO + 2 x AI, and Wi-Fi



INTRODUCTION

The Robustel LG5120 is an industrial-grade edge computing gateway optimized for E2C Facility (Edge-to-Cloud Facility) applications. Acting as an intelligent building control gateway, this version is designed to bridge the gap between traditional building automation and modern cloud management. It integrates a specialized expansion board to support common building automation protocols, natively supporting KNX, BACnet, and M-Bus alongside long-range wireless LoRaWAN.

Powered by a quad-core 1.6 GHz processor and the **RobustOS Pro** based on Debian Linux, the LG5120 provides the local intelligence required to balance occupant comfort with energy-efficiency goals. By processing complex logic at the edge—such as HVAC optimization and lighting automation—it delivers true "Cloud-Edge Synergy," reducing latency and ensuring operational continuity for retail chains, small and medium-sized buildings, auxiliary factory systems, and OEM sites.

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. For more information or to get started with RCMS, visit: https://rcms-cloud.robustel.net

KEY FEATURES

E2C Facility: Building Automation at the Edge

- **The 6C Runtime Capabilities**: A unified runtime that seamlessly **Collects** data, **Computes** logic, maintains operational **Continuity**, provides a **Canvas** for visualization, **Connects** IT/OT, and enables bidirectional **Control**.
- **Built-in Niagara Station:** Supports lightweight building management system deployment with complex edge logic, intelligent alarms, and visual dashboards.
- **One-Click ETS Integration**: Supports the direct import of ETS files to auto-generate KNX mappings, reducing deployment time from days to minutes.
- **Instant Semantic Mapping (LTE-Mode)**: Includes an integrated library of mainstream KNX devices to auto-map data points, eliminating manual configuration.
- **Multi-Protocol Facility Aggregator**: Natively integrates and bridges KNX, BACnet, M-Bus, P1, and LoRaWAN into a single unified stream (BACnet/IP or MQTT) for comprehensive building digitalization.

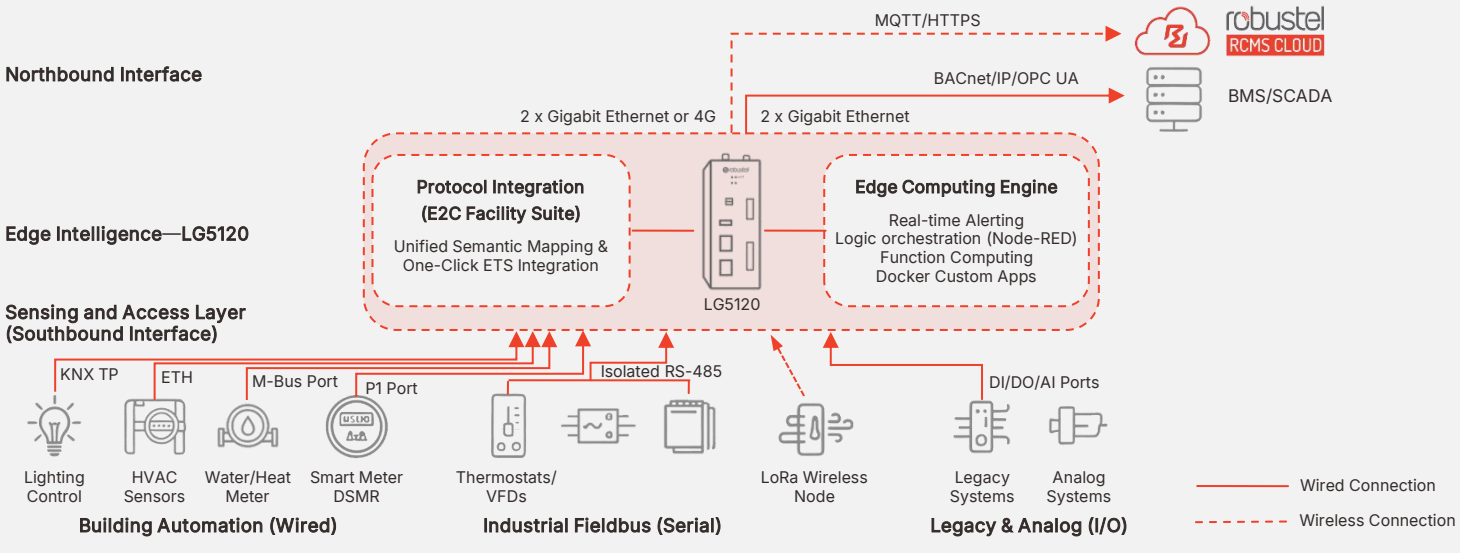
Versatile Fieldbus & Wireless Connectivity

- **LoRaWAN Gateway**: Features an onboard Semtech SX1302 chipset to connect large numbers of low-power wireless sensors across building and facility environments.
- **Dual Isolated RS-485 Ports**: Provides two isolated ports for reliable communication with Modbus RTU and BACnet MS/TP hardware.
- **Smart Metering Integration**: Includes a dedicated P1/DSMR port, up to 115200 bps, for retrieving data from smart meters.

Advanced Edge Processing

- **Logic Orchestration (Node-RED)**: Includes a pre-integrated visual programming tool with custom nodes for device data subscription and automated digital output (DO) control.
- **Dashboard Visualization**: Built-in design and runtime tools for creating professional, drag-and-drop monitoring dashboards.

APPLICATION EXAMPLE



SPECIFICATIONS

Hardware

Hardware System	
CPU	Quad-core Cortex-A53, 1.6 GHz
NPU	2.3 TOPS
RAM	8 GB DDR4
Flash	64 GB eMMC
Cellular Interface	
Version	4G LTE
Number of antennas	2
Connector	SMA-K
SIM	2 x Mini SIM (2FF)
Ethernet Port	
Number of ports	2 x RJ45, 10/100/1000 Mbps, compliant with 1000BASE-T; configurable as 1 x WAN + 1 x LAN or 2 x LAN
Magnetic isolation protection	1.5 kV
Serial Port	
Number of ports	1 x M-Bus, 1 x KNX, 1 x P1, 2 x isolated RS-485, 1 x RS-232
Connector	3.5 mm terminal block
Signal definition	M-Bus: M+, M- KNX: K+, K- P1: P1-R, P1-D, GND RS-232: TXD, RXD, GND RS-485: Data+(A), Data-(B), GND
Digital Input / Digital Output	
Number of ports	2 x DI + 2 x DO, wet contact
Connector	3.5 mm terminal block
Isolation	Bidirectional optocoupler for DI; unidirectional optocoupler for DO
Absolute max voltage	+30 VDC
Absolute max current	100 mA
Signal definition	DI1+, DI2+, DIcom, DO1+, DO2+, DOcom
Analog Input Port	
Number of interfaces	2 x AI
Data reading type	Voltage / Current type, software configurable
Voltage input range	0–24 V
Current input range	4–20 mA
Signal definition	AI1+, GND, AI2+, GND
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)
LoRa Interface	
Number of antennas	1 x RP-SMA-K
Frequency bands	EU868, AU915, AS923, US915
Sensitivity	-140 dBm Sensitivity @ 292 bps
Tx power	27 dBm Max (Conducted, adjustable per regional regulations)
Protocol	LoRaWAN V1.0.4, supporting Class A and Class C
Channel capacity	Up to 8 channels for simultaneous data reception
Device capacity	Up to 2,000 LoRaWAN end devices
Others	
GNSS	GNSS integrated into the cellular module
SD	1 x microSD
Reset button	1 x RST
USB port	1 x USB 3.0 (host), Type-A, 5 V, 900 mA
LED indicators	1 x RUN, 1 x Signal, 1 x USR, and 1 x MDM
Watchdog	External
RTC	Remains functional up to 7 days after power loss

Power Supply and Power Consumption	
Connector	2-pin 3.5 mm terminal block with lock
Input voltage	12/24/48 VDC, 9–60 VDC Reverse polarity protection, surge protection
Power consumption	Idle: 5 W@12 V Max: 16 W@12 V
Rec. power supply	12 VDC/1.5 A power adapter
Physical Characteristics	
Ingress protection	IP30
Housing & Weight	Metal, 560 g
Dimensions	49 x 105 x 128 mm
Installation	Desktop, wall mounting & 35 mm DIN rail mounting
Operating temperature	-40 to +70 °C
Storage temperature	-40 to +85 °C
Relative humidity	5–95% RH (non-condensing)
Regulatory and Type Approvals	
Environmental	RoHS 2.0
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 EN 61000-4-11 (Dips)

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, etc.
E2C Facility Suite	
LNS configuration	Built-in LoRaWAN Network Server with zero-code sensor integration
Data collection	Unified polling for KNX, BACnet, Modbus, and OPC UA protocols
Logic Orchestration & Scenario Management	Node-RED orchestration and automated scene management for trigger-based control
Data forwarding	Converts edge data into BACnet/IP and OPC UA data streams for external systems
Alarms & Visualization	Real-time multi-channel alerts and a drag-and-drop HMI/SCADA dashboard builder
Niagara Station	Supports lightweight BMS deployment with advanced edge logic, intelligent alarm management, and graphical visualization
SDK	
Operating system	RobustOS Pro (based on Debian Linux)
Programming languages	C, C++, Python, Java, Node.js, etc. (for users to develop their own applications)
Available RAM for SDK	6 GB
Available Flash for SDK	50 GB

App Center* (Available Apps for RobustOS Pro)

*Available upon request. 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	LoRa Frequency	Frequency Bands	Region	Certifications	Package Contents
LG5120-GBKGC-4L-A35GL	A016000001	EU868	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	EU	CE, UKCA	1 x LG5120 (B Code: B016000001) 2 x Cellular Antenna 1 x Wi-Fi Antenna 1 x LoRa Antenna 1 x GNSS Antenna 1 x Power Adapter 1 x DIN Rail Mounting Kit
LG5120-GCKGC-4L-A35GL	A016000002	AU915	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	AU	RCM	1 x LG5120 (B Code: B016000002) 2 x Cellular Antenna 1 x Wi-Fi Antenna 1 x LoRa Antenna 1 x GNSS Antenna 1 x Power Adapter 1 x DIN Rail Mounting Kit
LG5120-GEKGC-4L-A35GL	A016000003	AS923	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	Asia	-	1 x LG5120 (B Code: B016000003) 2 x Cellular Antenna 1 x Wi-Fi Antenna 1 x LoRa Antenna 1 x GNSS Antenna 1 x Power Adapter 1 x DIN Rail Mounting Kit
LG5120-GDKGC-4L-A35GL	A016000004	US915	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	NA	-	1 x LG5120 (B Code: B016000004) 2 x Cellular Antenna 1 x Wi-Fi Antenna 1 x LoRa Antenna 1 x GNSS 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.

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Subject to change without notice.