LG5100

robustOS Pro

Industrial LoRaWAN Gateway
Low Power Consumption & Long Range Communication
2 x ETH + 2 x RS-232/485 + 2 x DI + 2 x DO + 1 x POE-PD

INTRODUCTION

Robustel's LG5100 series is a new generation of industrial LoRaWAN gateway, supporting global 4G/3G/2G networks for cellular backhaul. This gateway runs with a fully-fledged Debian Operating System, capable of supporting thousands of existing and new ARMv7 (Raspberry Pi compatible) based applications.

The LG5100 utilizes **RobustOS Pro**, an IoT gateway operating system developed by Robustel based on **Debian 11** (Bullseye). This user-friendly platform enables customers to create edge computing applications tailored to their needs, supporting various programming languages, including C, C++, Python, Java, and Node.js. Users can also download the latest applications through the Robustel Cloud Manager Service (RCMS), addressing the diverse requirements of fragmented IoT deployments. LG5100 supports **Docker** for simplified application deployment while benefiting from RobustOS Pro's enhanced cybersecurity, advanced GUI, and a wide range of software features, including VPNs, Smart Roaming, and SMS remote control.
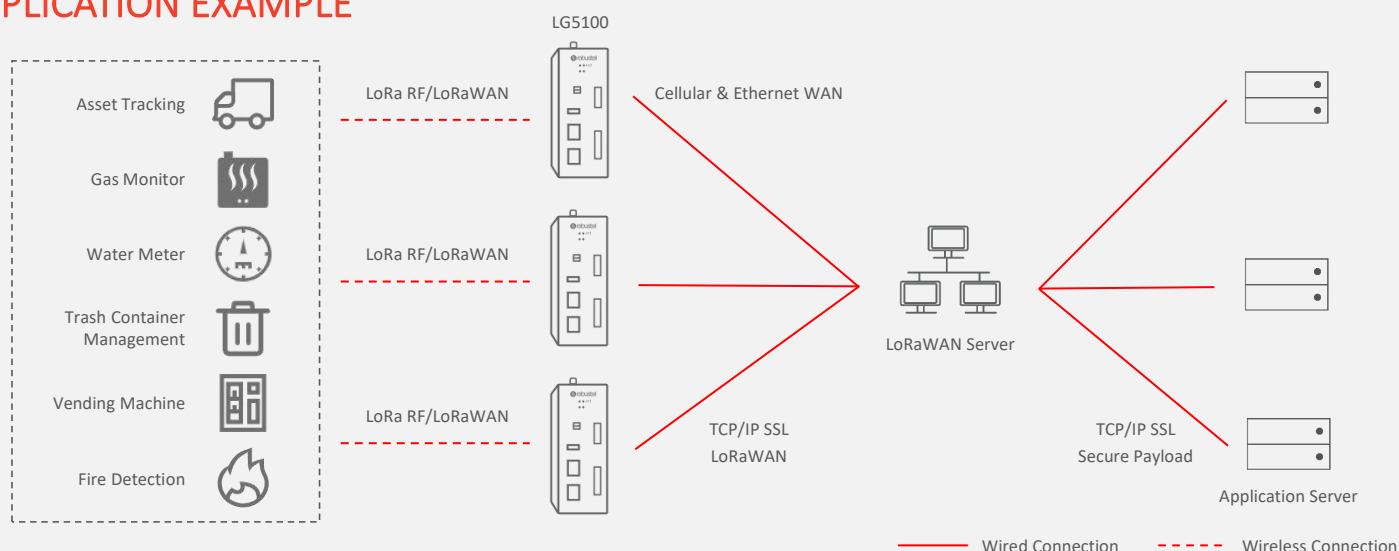
The **Robustel Cloud Manager Service (RCMS)** is a unified cloud-based platform designed for real-time monitoring and centralized management of industrial IoT devices. Fully compatible with Robustel routers and gateways, RCMS delivers an interactive geospatial dashboard that enables users to visualize 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

➢ Supports global LoRaWAN frequency bands

➢ Compatible with LoRaWAN and private protocols

➢ Facilitate deployment using Docker containerization

➢ Integrate embedded LoRaWAN network server

➢ Receive data on up to 8 channels simultaneously

➢ Supports Packet Forwarder Version 2.2.1 and Packet Forwarder Protocol Version 1

➢ Rich interfaces with 2 x RS-232/RS-485 (software configurable), 2 x Digital Inputs (DI,) 2 x Digital Outputs (DO)

➢ Dual SIM card redundant back-up with embedded 4G wireless communication module

➢ Cellular WAN, Ethernet WAN,link backup and ICMP detection

➢ RobustOS Pro + SDK + Apps

➢ Robust industrial design (9 to 60V DC input voltage, support desktop, wall mounting or rail mounting)

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

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 10/100 Mbps, LAN or WAN
WAN port	Supports 802.3af PD feature on ETH0
Magnet isolation protection	1 KV

LoRa Interface

Number of antennas	1
Connector	SMA-K
Frequency* (in progress)	EU868
	AU915
	CN470
	EU433*
	US915*
	RU864*
	IN865*
	KR920*
	AS923*
Max transmitted power	+25 dBm
Max sensitivity	-140 dBm
Channel capacity	Supports up to 8 channels receive data simultaneously

Serial Port

Number of ports	2 x RS-232/RS-485 (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 definition	RS-232: TXD, RXD, GND
	RS-485: Data+ (A), Data- (B), 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-

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)

LoRaWAN protocols	V1.0.4 Class A/Class B/Class C
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, 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 Reboot, 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)
Flash available for SDK	6 GB
RAM available for SDK	768 MB

App Center (Available Apps for RobustOS Pro)

Apps*	L2TP, PPTP, DMVPN, VRRP, QoS, SNMP, Edge2Cloud, Language, RCMS, Dynamic route, Captive Portal, Modbus Master, Edge2Cloud, 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	12/24/48V DC, 9 to 60V DC
	Reverse polarity protection, surge protection
Power consumption	Idle: 2.2 W@12 V
	Max: 12 W@12 V
Recommended power supply	12V DC/1.5 A power adapter

Physical Characteristics

Ingress protection	IP30
Housing & Weight	Metal, 555 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 (*In progress)

Environmental	RoHS2.0*
EMI	EN 55032 Conducted Emission Class B
	EN 55032 Radiated Emission Class B
EMS	EN 61000-4-2 (ESD) Contact Level 4
	EN 61000-4-3 (RS) Level 3
	EN 61000-4-4 (EFT) Level 4
	EN 61000-4-5 (Surge) Level 4
	EN 61000-4-6 (CS) Level 2
	EN 61000-4-8 (PFM) Level 4
	EN 61000-4-11 (Dips) Class 2

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ORDERING INFORMATION

Model	Order Code	LoRa Frequency	Frequency Bands*	Country /Region	Certification	Package Contains
LG5100-BAB-4L-A06GL	A009200707	868 MHz	4G: LTE FDD: B1/2/3/4/5/7/8/12/13/18/19/20/25/26/28 LTE TDD: B34/38/39/40/41 3G: WCDMA: B1/2/4/5/6/8/19 2G: GSM: B2/3/5/8	EU	CB CE UKCA	1 x LG5100 Gateway (B Code: B092702) 1 x DIN Rail Mounting Kit
LG5100-BAB-4L-A06GL	A009200703	868 MHz		EU	CB CE UKCA	1 x LG5100 Gateway (B Code: B092702) 1 x DIN Rail Mounting Kit 2 x Cellular Antenna 1 x LoRa Antenna
LG5100-CAB-4L-A06GL	A009200708	915 MHz		NA+ANZ	CB RCM	1 x LG5100 Gateway (B Code: B092703) 1 x DIN Rail Mounting Kit
LG5100-CAB-4L-A06GL	A009200704	915 MHz		NA+ANZ	CB RCM	1 x LG5100 Gateway (B Code: B092703) 1 x DIN Rail Mounting Kit 2 x Cellular Antenna 1 x LoRa Antenna
LG5100-BAB-NU	A009200709	868 MHz	-	EU	CB CE UKCA	1 x LG5100 Gateway (B Code: B092706) 1 x DIN Rail Mounting Kit
LG5100-BAB-NU	A009200705	868 MHz		EU	CB CE UKCA	1 x LG5100 Gateway (B Code: B092706) 1 x DIN Rail Mounting Kit 1 x LoRa Antenna
LG5100-CAB-NU	A009200710	915 MHz		NA+ANZ	CB RCM	1 x LG5100 Gateway (B Code: B092707) 1 x DIN Rail Mounting Kit
LG5100-CAB-NU	A009200706	915 MHz		NA+ANZ	CB RCM	1 x LG5100 Gateway (B Code: B092707) 1 x DIN Rail Mounting Kit 1 x LoRa Antenna

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