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Industrial IoT Communication Expert

USR-LG27 0 Specification

LoRaWAN Edge Gateway



Product Description

USR-LG270 is a high-performance industrial LoRaWAN® edge computing gateway developed and designed by PUSR. It integrates LoRaWAN NS edge computing, protocol conversion, data acquisition, and remote management, specifically designed for industrial IoT scenarios. The gateway adopts an industrial-grade RK3506J ARM triple-core processor platform, equipped with Semtech SX1302 8-channel LoRa baseband chip, supporting global mainstream LoRaWAN frequency bands such as CN470, US915, AU915, AS923, EU868, etc., possessing powerful data processing capabilities and stable reliable communication performance.

The product has a built-in LoRaWAN Network Server (NS), allowing the construction of a private LoRaWAN network without additional server deployment, supporting stable access and management of thousands of LoRaWAN nodes. Meanwhile, the gateway integrates the WukongEdge edge computing engine, supporting local data processing, logical operations, linkage control, and protocol conversion, helping users reduce cloud dependency and improve system response speed and data security.

USR-LG270 provides rich industrial interfaces and multi-network access capabilities, including dual Gigabit Ethernet ports, dual-band Wi-Fi 6, Cat.1 cellular network, RS485/RS232 serial ports, I/O, USB, etc., supporting various communication protocols such as MQTT, HTTP, TCP, Modbus, BACnet, DLT645. The product adopts industrial-grade wide temperature and wide voltage design, with EMC industrial-grade protection, suitable for complex and harsh industrial environments.

Product Features

■ Hardware System

- RK3506J, industrial-grade main control, 3-core Cortex A7, ARM architecture, 1.2GHz main frequency;
- 1G RAM + 8G EMMC, supports external TF memory card;
- Rich communication interfaces, LoRaWAN, 2 * Ethernet ports (1WAN/LAN + 1LAN), 2 * serial ports (1RS485 + 1RS232/485), IO ports (1DI + 1DO), dual-band WiFi 6 (AP/STA), cellular (Cat 1 dual SIM single standby), USB (Type-A);
- Reserved M.2 interface, expandable to 5G cellular, ZigBee, Bluetooth and other communication methods. Reserved GNSS positioning;

■ LoRaWAN Network

- Supports LoRaWAN® standard protocol,supports CN470, US915, AU915, AS923, EU868 and other frequency bands;
- Uses Semtech SX1302 eight-channel LoRa® chip, supports half-duplex transmission, strong data processing capability;
- Supports access of third-party standard LoRaWAN terminals, supports access of thousands of nodes
- Built-in LoRaWAN NS service
- Compatible with third-party LoRaWAN platforms such as ChirpStack and TTN

■ Edge Computing

- Built-in WukongEdge edge computing engine,supports edge collection, edge computing, grouped reporting, supports collection of 1000 data points
- Rich collection protocols, supports Modbus RTU, Modbus TCP, BACnet, DLT645, etc.

■ Industrial Design

- Wide voltage input 9~48VDC
- Operating temperature -25℃ ~ +75℃
- EMC industrial grade protection
- DIN rail mounting,ear mounting

■ Power-off Alarm

- Continues to work for about 20 seconds after power off
- Automatically report power-off alarms
- Ensure complete upload of critical event data

■ Open Development

- Standard Ubuntu 22.04 operating system
- Supports Node-RED for customer secondary development
- Provides a rich software development environment

Basic Diagram



Product Dimensions

Unit:mm

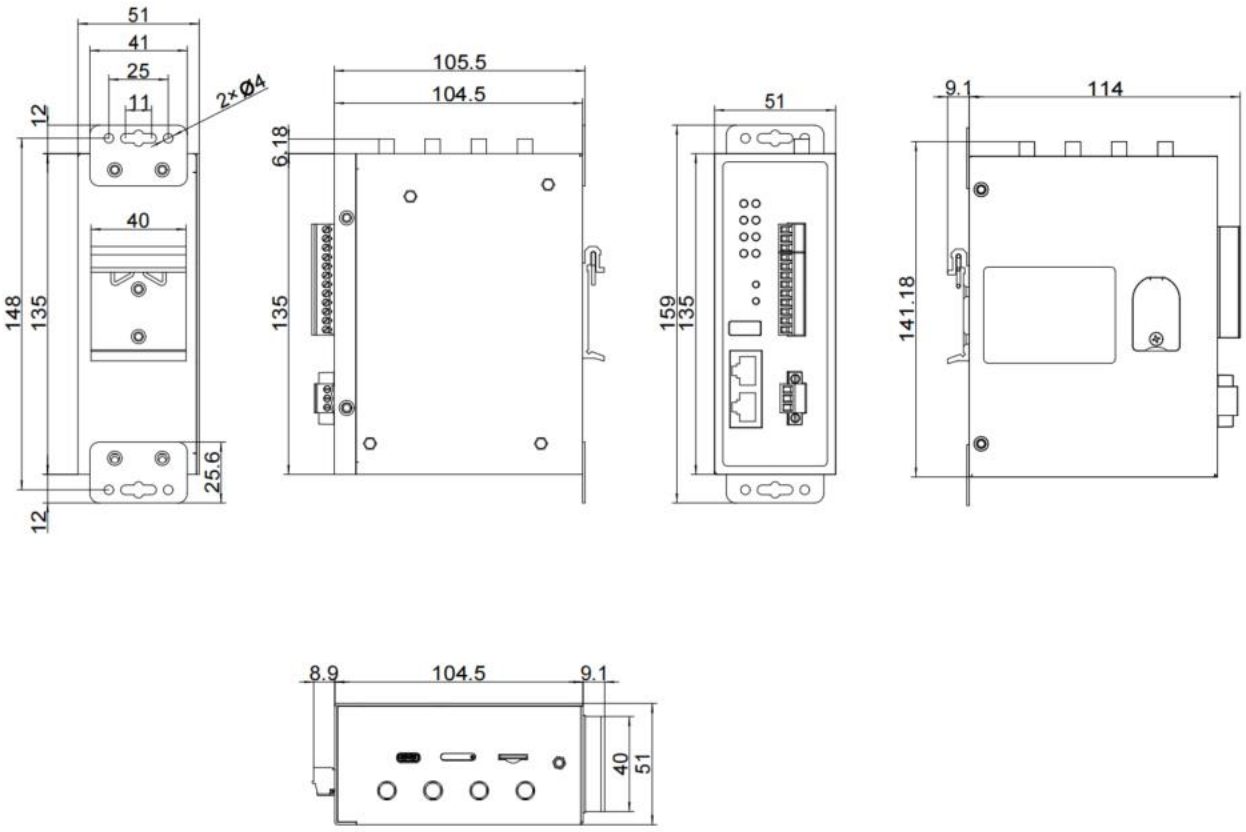


Figure 1 **USR-LG270 Product Dimensions**

USR-LG270 Gateway Basic Parameters

Category	Item	Specifications
Hardware System	CPU	RK3506J, Triple-Core ARM Cortex-A7, Max Frequency 1.2GHz
	Memory	512M DDR
	Flash	8GB eMMC
	External Storage	TF Card Expansion Supported
LoRaWAN	LoRa Chip	Semtech SX1302
	LoRa Channels	8 Channels
	Protocol	V1.0 Class A/Class B/Class C and V1.1 Class A/Class B/Class C
	Frequency Bands	CN470, AU915, US915, EU868, AS923-1/2/3/4
	Receive Sensitivity	-140dBm @292bps
	Transmit Power	27dBm Max
	Antenna Interface	1 × Standard SMA Female External Antenna Interface, Characteristic Impedance 50 Ohms
	Communication	Based on LoRaWAN® communication, wide coverage range,

Category	Item	Specifications
	Distance	transmission distance up to 10 km in open areas, and up to 2 km in urban areas (communication distance is closely related to the actual deployment environment; actual communication distance depends on the specific deployment environment).
	LoRaWAN Node Capacity	1000+ End Devices
Ethernet Port	Ethernet Interface	2 × 10/100 Mbps RJ45 (1 WAN/LAN + 1 LAN)
Serial Port & I/O	Serial Interface	1 × RS485, 1 × RS232/485
	Digital Input/Output	1 × DI, 1 × DO
WiFi	WiFi Standard	IEEE 802.11b/g/n/ax, 2.4GHz IEEE 802.11a/n/ac/ax, 5GHz
	WiFi Frequency Bands	2.4G: 2.4 - 2.4835GHz (2.4GHz ISM Band) 5.8G: 5.15 - 5.25GHz; 5.25 - 5.35GHz; 5.47 - 5.73GHz; 5.735 - 5.835GHz (5GHz ISM Band)
	Antenna Interface	1 × Standard SMA Female External Antenna Interface, Characteristic Impedance 50 Ohms
	Operating Mode	AP or STA
Cellular Network	Frequency Bands	China/India Version: TDD-LTE: Band 34/38/39/40/41 FDD-LTE: Band 1/3/5/8 Global Version: TDD-LTE: Band 34/38/39/40/41 FDD-LTE: Band 1/2/3/4/5/7/8/12/13/14/17/18/19/20/25/26/28/66/71
	Antenna Interface	1 × Standard SMA Female External Antenna Interface, Characteristic Impedance 50 Ohms
	SIM Card Slot	2 × Nano SIM Slots, Dual SIM Single Standby
	Theoretical Speed	Max Downlink Speed 10Mbps, Max Uplink Speed 5Mbps
Other Interfaces	USB	1 × USB Type-A, for image upgrade (in secondary development mode, can be used for user customization)
	Buttons	Reload Button: Long press for 3-15 seconds to restore factory settings (in secondary development mode, can be used for user customization) REC Button: For image upgrade
	LED Indicators	PWR, WORK, LTE, WiFi, LoRa, User Defined × 3
	Type-C	For device debugging
	Grounding Screw	Grounding Screw
	Reserved Interface	M.2 Slot: Expandable with 5G Cellular, ZigBee, Bluetooth, etc.

Category	Item	Specifications
	GNSS	Reserved
Software Features	Operating System	Ubuntu Linux 22.04
	Edge Computing Engine	WukongEdge
	Edge Computing Points	Up to 1000 Points
	Built-in NS Service	Supported
	LoRaWAN Activation Method	OTAA / ABP
	ADR	Supported
	Third-party LoRaWAN Platform	ChirpStack, TTN
	Northbound Protocol	MQTT, TCP, HTTP
	Industrial Protocol	Modbus RTU, Modbus TCP, BACnet, DLT645, Various PLC Protocols, etc.
	Local Data Storage	Supported
	Secondary Development	Ubuntu 22.04, Node-RED
	VPN	PPTP, L2TP, OpenVPN
Electrical and Environmental Parameters	Power Supply	9 ~ 48VDC
	Power-off Alarm	Built-in Supercapacitor
	Power-off Backup Time	Max 20 Seconds
	Operating Temperature	-25°C ~ +75°C
	Storage Temperature	-40°C ~ +85°C
	Operating Humidity	5% ~ 95% RH (Non-condensing)
	EMC Protection	Industrial Grade Protection
Mechanical	Product	135 × 104.5 × 51 mm

Category	Item	Specifications
Characteristics	Dimensions	
	Installation Method	DIN Rail/Wall Mount Installation
	Housing Material	Sheet Metal

Ordering Guide

Model	Frequency	Environment	Cellular	WiFi	Ethernet	GNSS
USR-LG270-470*	470 ~ 510MHz	Indoor	--	Dual Band WiFi6 2.4G: IEEE 802.11b/g/n/ax 2.4000 - 2.4835GHz 5.8G: IEEE 802.11a/n/ac/ax 5.15 - 5.25GHz; 5.25 - 5.35GHz; 5.47 - 5.73GHz;5.735 - 5.835GHz	√	--
USR-LG270-470-C1	470 ~ 510MHz	Indoor	√		√	--
USR-LG270-470h-C1*	470 ~ 510MHz	Outdoor	√		√	√
USR-LG270-915*	902 ~ 928MHz	Indoor	--		√	--
USR-LG270-915-GL1	902 ~ 928MHz	Indoor	√		√	--
USR-LG270-915h-GL1*	902 ~ 928MHz	Outdoor	√		√	√
USR-LG270-868*	863 ~ 870MHz	Indoor	--		√	--
USR-LG270-868-GL1	863 ~ 870MHz	Indoor	√		√	--
USR-LG270-868h-GL1*	863 ~ 870MHz	Outdoor	√		√	√

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