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Communication Expert of Industrial IoT

LoRa Gateway Specification

USR-LG210



Product Description

The LoRa ad-hoc network system is a complete solution designed by USR IOT for wireless ad-hoc communication. Core devices include the dual-channel gateway (USR-LG210-H) and various node devices (such as the WH-L101-L module, USR-LG206-L, USR-LG207-H (IO version) data transmission terminals, USR-DR216-L, USR-DR206-L DIN-rail terminals, etc.). The system supports cloud-edge collaborative collection, low-power data transmission, remote control command issuance, active device reporting, multi-hop relay networking, and real-time status uploading. It can be widely applied in scenarios such as agricultural irrigation monitoring, warehouse environment management, building energy consumption monitoring, smart metering, smart streetlights, and smart fire protection. With its characteristic of one-time deployment and long-term stable operation, it significantly reduces customers' long-term operation and maintenance costs as well as network costs.

The USR-LG210-H is a dual-channel LoRa gateway. For uplink, it can connect to private servers, PUSR Cloud, or AWS viaEthernet. For downlink, it communicates wirelessly with various node devices (including the WH-L101-L module, USR-LG206-L, USR-LG207-H (IO version) data transmission terminals, as well as USR-DR216-L and USR-DR206-L DIN-rail data transmission terminals) through its internal dual-channel LoRa RF.

Product Features

Stable and Reliable

- Full industrial design, metal casing, high protection level;
- Wide voltage DC 9-36V input with reverse power protection;
- Multiple protections against electrostatic discharge, surges, and electrical fast transients;
- High-performance industrial-grade LoRa RF chip;
- High-power LoRa module for longer transmission distance;
- Built-in hardware watchdog to ensure system stability;
- Data encryption and checksum processing to improve the security and reliability of data transmission;

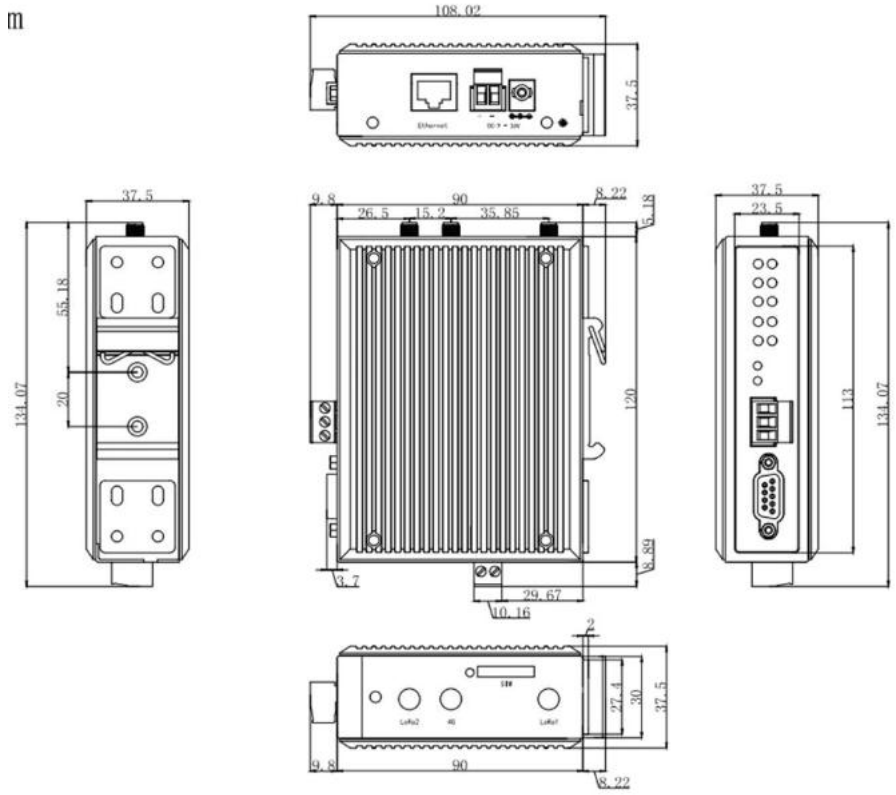
Application Intelligence

- LoRa intelligent self-organizing network, localized partition management, automatically assigns channels to connected nodes, reducing on-site construction difficulty;
- Gateway and node data transmission uses networking and broadcasting, 2-channel mounting, less interference;
- LoRa gateway supports uploading to USR Cloud, Alibaba Cloud, private servers, supports TCP, MQTT, RS232\485 transmission;
- Supports edge collection, active reporting, low power consumption, and other functions
- Supports bidirectional data flow communication, data can be uploaded to USR Cloud and private servers.
- LoRa private protocol communication is simple, secure, and reliable; users do not need to worry about the protocol, simply configure the gateway and LORA terminal for communication
- Dedicated configuration software, configurable via serial port and Ethernet port, also supports network commands.
- Supports setting corresponding LoRa node modules to low power mode

Powerful Functions

- Multiple function modes suitable for multi-scenario needs;
- Edge collection, active reporting, low power consumption, networking ID communication, transparent transmission;
- Supports pairing with USR-LG207-H (IO version) for remote IO collection/control;
- Connect to USR Cloud, Alibaba Cloud, private servers;
- MQTT/TCP communication, SSL encryption, two-way Socket connection, RS232\485 serial port;
- Supports remote operation and maintenance, convenient and fast
- Heartbeat packet, registration packet, no-data reconnection, no-data restart
- Supports ModbusTCP and ModbusRTU protocol conversion;
- Node information reporting function, monitors node signal quality;
- High EMC protection level, hardware watchdog;

Product Dimensions



USR-LG210-H Product Dimensions



USR-LG210-H Hardware Interface Diagram

Hardware Specifications

USR-LG210 Specification

Power	
Power Supply	DC: 9-36V, standard 5.5*2.1 power jack, or 2-PIN 5.08mm ternimal blocks
Working Current	Max: 0.75A@12V (Standard 12V/1A)
Ethernet port	
Ethernet port	1 * RJ45 connector, 10/100 compatible,
LoRa	
Radio Chip	SX1262
Frequency	860M~930M Hz
Channel	2 * Channel
Transmit Power	12 ~ 30 dBm
Serial port	
No.	1*RS232/RS485
Signal	RS232: Tx, Rx,G(public), DB9 female connector
Baud Rate	2400bps~230400bps
Physical Property	
Casing material	Metal & aluminum casing
Dimensions	108* 134 * 17.5 mm(Including terminal block and DIN rail kit)
Installation	DIN rail mounting, wall mounting
Operating temperature	-40℃ ~ +85℃
Storage temperature	-40℃ ~ +125℃
Operating humidity	5%~95%RH (Non-condensing)
Storage humidity	1%~95%RH (Non-condensing)
EMC protection	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV
	IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
	IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV
Software Function	
Communication Protocol	TCP, MQTT
Encryption	SSL 1.0/1.2
Modbus Gateway	Modbus TCP/RTU conversion
Edge function	Edge acquisition, edge computing, up to 300 data points
Config	PC software, serial AT command, network AT command
Others	

Set button	Set botton: reserved
Reload button	Press and hold for 4~15 to reset to factory settings
Indicators	PWR, Work, LoRa1, LoRa2
APPROVALS	
Regulatory	CE, RoHS

Indicator Lights

USR-LG210-H has 1 power PWR light, 1 working status light, 2 LoRa data interaction lights corresponding to 2 channels,44Gsignal strength indicator lights. Indicator light descriptions are as follows inTable 2-2Indicator Light DescriptionIndicator Light Description:

USR-LG210-HIndicator Light Description	
Name	**Remarks**
PWR	Stays on after power is connected
Work	In working mode: flashes with a 1s cycle; In upgrade mode:stays on
LoRa1, LoRa2	Working mode: Status flips when LoRa sends/receives data

Standard Accessories



The LoRa frequency supported by the concentrator is 860MHz~930MHz. The standard LoRa antenna supports the frequency band of 860MHz~930MHz. If the LoRa frequency set by the user exceeds the frequency range supported by the antenna, the communication quality will be poor. Users can replace the antenna with one that supports the set

frequency band according to their needs.

Installation Guide

Antenna Assembly: Please refer to the shell silk screen and antenna label for installation.

Installation Method: DIN rail mount and side ear fixation, as shown in the figure below.

