TECHNOLOGY

HOLYKELL®

HW500

WIRELESS
•DATASHEET•

HW500 LoRa Wireless Gateway

▌Features

Industrial Grade Design
- Utilizes high-performance industrial-grade wireless module
- High-performance industrial-grade 64-bit RISC-V processor
- Fast transmission speed and high stability
- Constructed with an aluminum alloy casing
- Wide power supply 10~30VDC(DC12 2A recommended)
- Maximum working current: 0.2A
- Supports standard industrial-grade push-pull SIM/USIM card

Stable and Reliable
- Features hardware and software watchdogs
  along with multi-level link detection mechanisms, enabling automatic fault detection and recovery
- Multiple self-check mechanisms for devices, ensuring smooth links and alarm alerts
- ESD protection on all interfaces to prevent electrostatic shock
- LED indicators display operational status

Functional Features
- Supports 4G LTE network, backward compatible with 3G and 2G
- Supports wired/4G/WIFI network switching
- WiFi support, IEEE802.11b/g/n standards
- Remote networking for point-to-point and point-to-multipoint transmission
- Supports wireless transparent transmission/Modbus protocol

Extended Functions
- Supports optional high-precision independent GPS positioning function

▌Profiles

The HW500 series remote control gateway is an IoT wireless communication gateway that supports internationally recognized standards, including FDD-LTE, TDD-LTE, WCDMA (HSPA+), CDMA2000 (EVDO), TD-SCDMA, and other 3G/4G mobile broadband network protocols. It provides users with fast and convenient high-speed network transmission.

This series uses a high-performance 64-bit specialized network communication processor and an embedded Linux operating system as the software platform, ensuring secure, high-speed, and reliable 3G/4G wireless routing. It also supports one Ethernet RJ45 interface communication. The product can be widely used in industrial environments to assist terminals in data collection and transmission.

1

Technical Parameters

Built-in 4G Module Wireless Parameters	
Wireless Module	Industrial-grade wireless module
Standards and Frequency Bands	LTE-TDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B26/ B28 LTE-TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8 **Theoretical Bandwidth:** HSPA(850/900/1900/2100MHz)/GSM850/900/1800/1900MHz EVDO(800MHz); TD-SCDMA(Band34, Band39) FDD/TDD LTE: Upstroke: 50 Mbps / Downstroke: 100 Mbps HSPA+: Upstroke: 5.76 Mbps / Downstroke: 21 Mbps EVDO: Upstroke: 1.8 Mbps / Downstroke: 3.1 Mbps
Receiving Sensitivity	-99 ~ -108dBm
Transmit Power	+23 ~ +33dBm

Built-in WiFi Module Wireless Parameters	
Standards & Frequency Bandwidth	Supports IEEE802.11b/g/n standard, with a max data rate of 150 Mbps
Security Encryption	Supports multiple encryption methods including WEP, WPA, WPA2
Receiving Sensitivity	< -72dBm@54Mpbs
Transmit Power	+16 ~ +23dBm(11g/b/n)

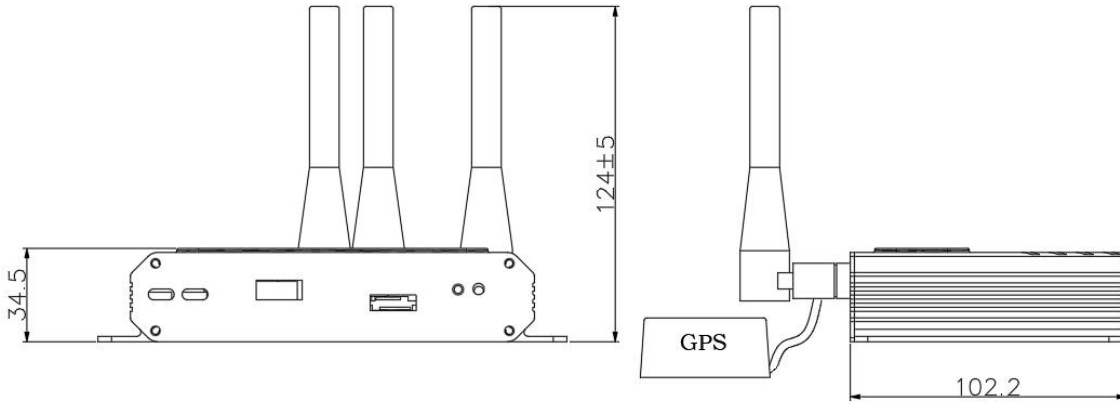| Built-in LoRa Module Wireless Parameters	Wireless RF
Modulation	LoRa
Frequency Range	433MHz ~ 923MHz (optional frequency bands)
Transmission Rate	Spreading factor (SF) and bandwidth (BW) settings
FIFO	Maximum 256 bytes
Receiving Sensitivity	-137 ~ -148dBm
Transmit Power	+22dBm

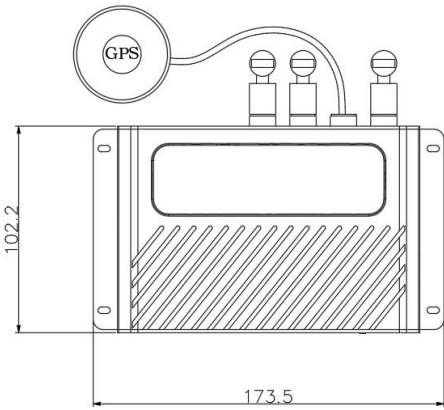| Power Consumption	
Maximum Transmit Current	≤ 110mA (22 dBm)
Maximum Receive Current	< 6mA

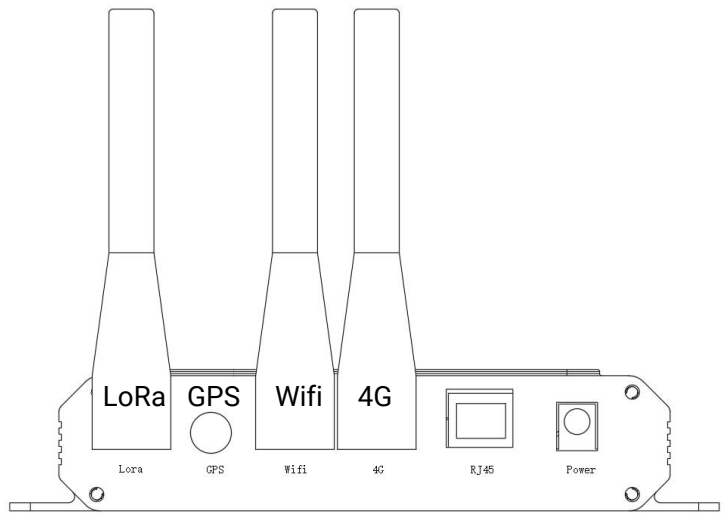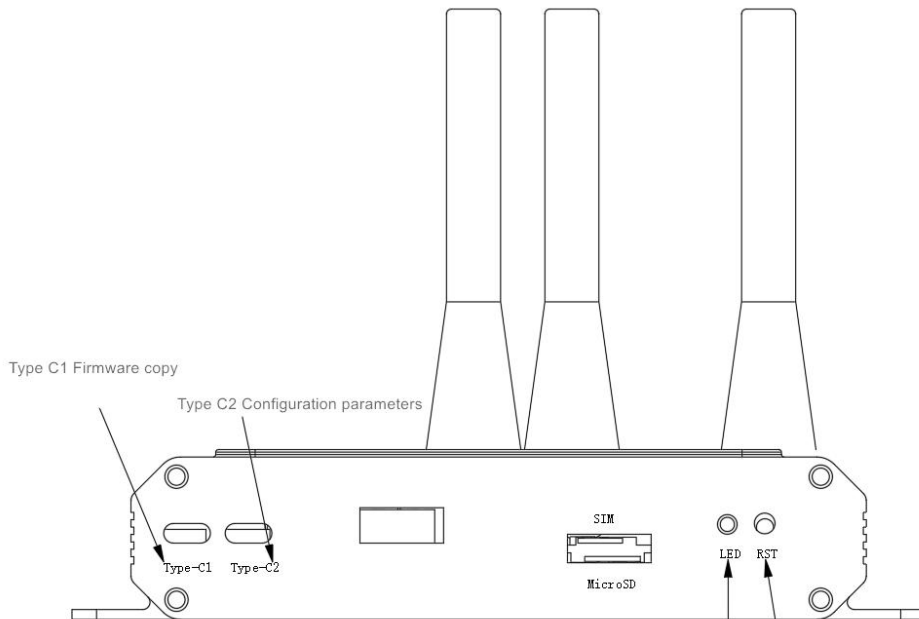| Interface Types	
One LAN Ethernet Interface(RJ45 socket). Adaptive MDUMDIX built-in electromagnetic isolation protection	
Indicators	1 channel tri-color light, indicating system operating status, network status. The flashing frequency and color distinguish different statuses.
Antenna Interface	1 standard SMA antenna interface (for 3G/4G); 3 standard SMA reserved antenna interfaces(for WiFi, GPS, and LoRa)
SIM/USIM Interface	Standard industrial-grade push-pull SIM/USIM card interface
Type-C Interface	1 for gateway debugging software, 1 for firmware program upgrades and updates
Power Interface	10~30V (standard DC12V 2A), with built-in power surge protection
Reset Button	Resets the gateway system

Dimensions

Unit, mm

124±5

34.5

GPS

102.2

Side view

GPS

102.2

173.5

Top view

LoRa GPS Wifi 4G

Lora   GPS   Wifi   4G   RJ45   Power

Back view

Type C1 Firmware copy

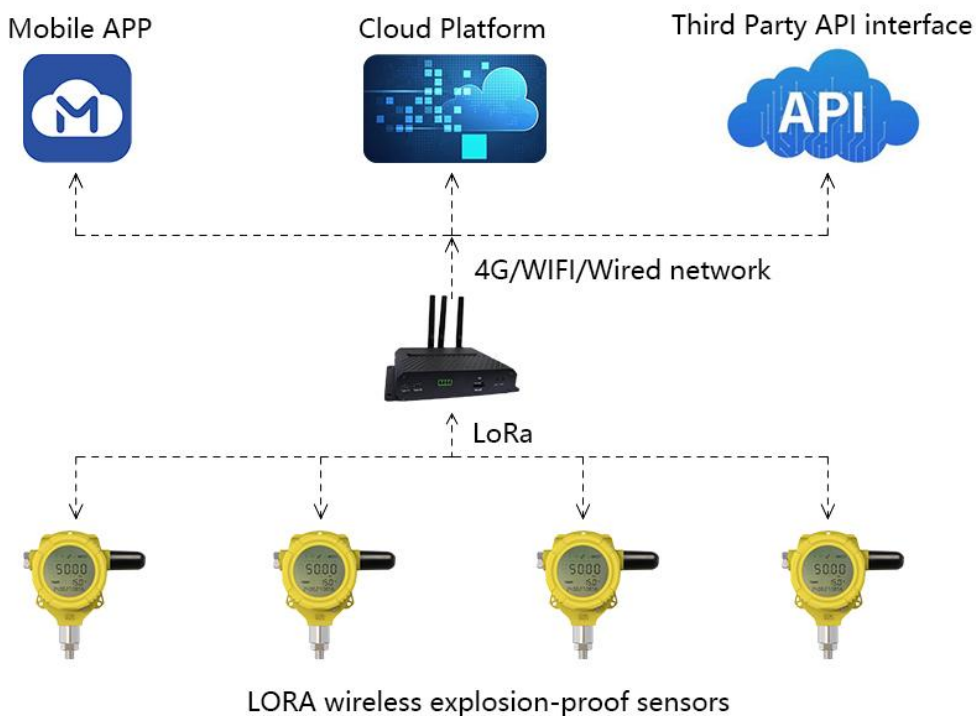Type C2 Configuration parameters

Type-C1   Type-C2

SIM

MicroSD

LED   RST

LED:
Red light flashing, MQTT is not connected
Red light is always on, network is not connected
Blue light flashing, normal

Reset
(Short press to reset)

Front view

3

•DATASHEET•

WIRELESS MONITORING SYSTEM

System Topography

LORA wireless explosion-proof sensors

Notes

1. Before configuring parameters, ensure that the LED lights are on. Only then can the upper computer or serial debugging tool be used for parameter configuration.

2. The WiFi password and network name must match the actual network settings (first configure the WiFi name and password, then switch to the WiFi network). Note: Ensure the network is properly configured before switching to WiFi.

3. After changing product parameters, the device must be restarted.

4. Domestic 4G Parameter Settings:
Fill in the corresponding parameters based on the network operator.
If the parameter field is empty, you can enter 0 or leave it blank in the upper computer software.
When using China operator SIM cards, select "Domestic" for the region, or the 4G network may not function properly.

Access Point Names (APN)	APN	Dial-up number	APN username	APN password
WCDMA: (China Unicom)	3gnet	*99#	/	/
CDMA2000(China Telecom) EVDO Network	ctnet	#777	ctnet@mycdma.cn	vnet.mobi
1X Network	/	#777	card(CARD)	card(CARD)
China Mobile TD-SCDMA	cmet	*98*1#	/	/
China Mobile GPRS	cmet	*99***1#	/	/

4

5. After enabling the positioning function on the gateway, there is a satellite search process (the first power-up may take a little longer). The positioning module needs to be placed near a window or outside. When connecting the instrument to the gateway, the corresponding serial number must be set (the serial number is sourced from the cloud).

For example:
Gateway Serial Number: DEPUCF997MYTBINL
Instrument Serial Number: APJWZLKTJKAA2B1U

H2600 Series		Notes
mqtt client id	APJWZLKTJKAA2B1U	Write it in full characters in the sensor
Gateway id	7MYTBINL	Write the last 8 characters in the sensor
Gateway		
LoRa device id	APJWZLKTJKAA2B1U	Write it in full characters in the gateway
mqtt client id	DEPUCF997MYTBINL	Write it in full characters in the gateway

6. The LoRa parameters of the gateway and pressure gauge must match for proper communication between the gateway and the instrument.