

LoRa Gateway_WIFI

--User Manual V2.2



1 Product Overview

The LoRa Gateway_WIFI is an ultra-long-range wireless data acquisition gateway dedicated to receiving our temperature and humidity LoRa sensor. built-in high-performance WIFI module can support WIFI and Ethernet data transmission. LoRa Gateway_WIFI uses high-performance 32-bit industrial processor and industrial-grade wireless module, with high reliability, stability and data security. Different from the previous ASK, FSK,GFSK, this gateway uses a special spread spectrum modulation technology LoRa greatly improved the sensitivity of the received, up to 157db link budget so that the wireless communication distance has improved significantly. The distance can up to 5km in open area.

2 Product Feature

- Built-in high-performance WIFI module can support WIFI and Ethernet data transmission;
- External special USB configure interface, user can configure operating module;
- Can be download command to LoRa Sensor ;
- Prevent collision: advanced technology to prevent the collision;
- Security: encryption algorithm and certification to ensure data security, to prevent the data link eavesdropping and data to be cracked;
- Metal shell, resistance to high pressure, easy to install and easy to use

3 Technical Parameter

RF Frequency	433/470/868/915 MHZ
RF Receiving Sensitivity	-148dBm
RF Modulation	LoRa
LoRa Sensor Identification Angle	3D
Interface	WIFI/LAN
LED	3 LED lights (RF, Net, power)
Firmware Update	Support
RF Protocol	Private protocol
Flash Memory	32Mb/about 8600
Supply Power	DC12V
Net Weight	0.27kg
Operating Temperature	-20°C~+60°C
Operating Humidity	5% ~ 95% (non-condensing)

Dimension	112mm*105mm*27mm
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4 Definition of Interface

4.1 Appearance



4.2 Function of Interface

Interface	Function
A. LED light	RF, Net, Power
B. USB	Configure device and save log
C. LAN	Send data by connecting to the RJ45 network cable
D. Switch of power	Turn on/off
E. Charge interface	Connect power plug
F. WIFI antenna interface	Connect WIFI antenna
G. RF antenna interface	Connect RF antenna

5 LED Light Indicating Status

Blue light - RF	
RF light status	Explanation
Keep on always	OTA/Read or write configure/into WIFI module configuration mode
Sparkling 0.1 second	Receive data

Green light - Net	
Net light status	Explanation
Keep on always	OTA /Read or write configure/into WIFI module configuration mode
On 0.1second, off 0.1second	Sending data
Keep on 2 seconds	Data sent successfully
Off 2 seconds	Data sent failure
On 0.1 second, off 5 seconds	The module is free
On 2 second, off 2 seconds	The Module initialization

Red light - Power	
Power light status	Explanation
Keep on always	OTA/Read or write configure/Connect power/into WIFI module configuration mode
Sparkling each 2seconds	Not connect power

6 Data Protocol

Please refer to the document LoRa Gateway_WIFI data protocol.

7 Command List

The following commands are ASCII, can be set by serial port or server.

Note: \$\$\$\$\$\$ is LoRa Gateway `s password, and the initial password is 000000

Note: (1) The WIFI module must be connected to 12V external power supply to work properly

(2) Server ACK is enabled on the machine by default, every time the machine sends data to the server, the server must respond @ACK, Packet index (Hex converted into decimal)# to the machine. Then the machine will continue to send next data to the server, Otherwise, the data will be sent repeatedly.

(3) Set LORA_WIFI Gateway RTC time :

The machine cannot get the right time on its own, so when the server receives the machine data, the following information can be sent to the machine to modify the machine's RTC time

Format: @UTC, yyyy-MM-dd HH:mm:ss#

For example: @UTC, 2021-11-24 02:56:43#

1. Set LAN transfer mode:

(1) Set the transfer mode: (The default is LAN mode, you don't have to set it)

Format: *\$\$\$\$\$,005,X#

For Example: *000000,005,1#

If you send the command of USB to device, the serial port tool will show:

CMD bytes: 0E

*000000,005,1#

ComdType:005(SETTRANSTYPE)

Type:LAN

(2) Connect the RJ45 wire to the router:

2. Set WIFI transfer mode:

(1) Set the data transfer mode:

Format: *\$\$\$\$\$,005,X#

For Example: *000000,005,0#

If you send the command of USB to device, the serial port tool will show:

CMD bytes: 0E

***000000,005,0#**

ComdType:005(SETTRANSTYPE)

Type:WIFI

(2) Set WIFI:

Format: *\$\$\$\$\$,050,WIFI Name ,WIFI Password #

For Example: *000000,050,TZONE1,tzone2014#

If you send the command of USB to device, the serial port tool will show:

CMD bytes: 1D

***000000,050,TZONE1,tzone2014#**

ComdType:050(SETWIFINET)

Name:TZONE1

Password:tzone2014

NO.	Instruction	Format	Note
001	Modify user password	*\$\$\$\$\$,001,@#@#@#@#	\$\$\$\$\$: old password @#@#@#@: new password (default: 000000)
005	Set the data transfer mode	*\$\$\$\$\$,005,X#	X=0 WIFI X=1 LAN (default);
008	Extend setting	*\$\$\$\$\$,008,ABCDEFG#	A=0,disable Sensor ACK download function; A=1,enable Sensor ACK download function(default); Note:when the Sensor ACK is disable, the machine will no longer reply the ACK information to the Sensor.

			<p>B=0, C=0, D=0, D=1, E=0, F=0, G=0, disable Server ACK function G=1, enable Server ACK function (default)</p> <p>Note: if enable ACK function, every time the machine sends data to the server, the server must respond @ACK,Packet index (Hex converted into decimal)# to the machine. Then the machine will continue to send next data to the server, Otherwise, the data will be sent repeatedly.</p>
015	Set IP Address & PORT Number	*\$\$\$\$\$,015,X,IP,PORT#	<p>X=0 use IP connect the server X=1 use DN connect the server IP: xxx.xxx.xxx.xxx DN: (domain name) www.xxx.com PORT: [1,65535]</p>
018	Set the time interval for data transfer	*\$\$\$\$\$,018,X#	<p>X=[10,6000], time interval (unit: s) (default: 300)</p>
019	Set up transfer data protocol	*\$\$\$\$\$,019,X#	<p>X=0, use the UDP mode X=1, use the TCP mode (default)</p>
050	Set WIFI	*\$\$\$\$\$,050,X,Y#	<p>X: WIFI Name, no more than 20 characters; Y: WIFI Password, no more than 20 characters; Note:The name and password cannot contain #.</p>
136	Enable RF function	*\$\$\$\$\$,136,X#	<p>X=0, disable RF function X=1, enable RF function (default)</p>
144	Add a LoRa sensor	*\$\$\$\$\$,144,X,Y,ID#	<p>X: LoRa sensor type X=0, TAG07/TAG07B/TAG08/TAG</p>

			<p>08B/TAG08L/TAG09 (Humidity unit % TAG) X=2,TAG07B/TAG08B (Humidity unit 0.1%) X=3,TAG09 (double temperature) X=4,TAG11 Y: Channel, [1,100]; ID: LoRa sensor ID, 8 characters; Note:The number of all sensor should not be more than 100. By default, all sensor in all ranges can be received. This function needs to be configured only when binding sensor and using RS485 Modbus mode, and the TAG07B default is %, TAG08B default humidity unit is 0.1%.</p>
144	Add a LoRa sensor	*\$\$\$\$\$,144,X,Y,ID,N#	<p>X: LoRa sensor type X=0, TAG07/TAG07B/TAG08/TAG08B/TAG08L/TAG09 (Humidity unit % TAG) X=2,TAG07B/TAG08B (Humidity unit 0.1%) X=3,TAG09 (double temperature) X=4,TAG11 Y: Channel, [1,100]; ID: LoRa sensor ID, 8 characters; N:The number of sensor ID added, followed by 1 Note:The number of all sensor should not be more than 100. By default, all sensor in all ranges can be received. This function needs to be configured only when binding sensor and using RS485 Modbus mode, and the TAG07B default is %, TAG08B default humidity unit</p>

			is 0.1%.
145	Delete a LoRa sensor	*\$\$\$\$\$,145,X,Y#	X: LoRa sensor type X=0, TAG07/TAG07B/TAG08/TAG 08B(Humidity unit %TAG) X=2,TAG07B/TAG08B(Humid ity unit 0.1% TAG) X=3,TAG09 (double temperature) X=4,TAG11 Y: Channel, [1,100];
146	Delete all LoRa sensors	*\$\$\$\$\$,146,1#	
147	Read all added LoRa sensors	*\$\$\$\$\$,147,1#	
148	RF reboot	*\$\$\$\$\$,148,X#	X: [1,1440],default:20,unit:min RF module will reboot if gateway cannot receive any sensors within this time period
500	Clear data flash	*\$\$\$\$\$,500#	Clear stored in the flash memory inside the machine
600	Auto reboot	*\$\$\$\$\$,600,X,Y#	X=0, Disable this function X=1, Active this function (Default) Y: Reboot time interval, [10,9999], unit: min, (default: 1440)
800	Query command	*\$\$\$\$\$,800,X #	X:The instruction that needs to be queried
801	Read the IMEI number	*\$\$\$\$\$,801#	This instruction is available for the IMEI, firmware version number, WIFI version number of LoRa Gateway
900	Download command to LoRa Sensor	*\$\$\$\$\$,900,ID,cmd#	ID: Sensor ID; cmd: Sensor command, please see the LoRa Sensor download command V1.0 Note: if need use this function, please enable the ACK function in LoRa Sensor
901	Delete download command	*\$\$\$\$\$,901#	

990	Initialization of device	*\$\$\$\$\$\$,990,099#	It will set all parameters to factory default value (Excluding the password/Frequency band).
991	Reboot now	*\$\$\$\$\$\$,991#	Reboot the LoRa Gateway
	Query single instruction	#D5XXX	XXX: instruction
	Query all instructions	#DE	
	Restore default configuration	#DO	
	Update the firmware	#DU	

8 Data Query

TZONE cloud platform.

Please register an account and add a device. After adding a device, you can query the data by device ID.

For more details, please log in and view the help documentation.

Tzone cloud platform website: <http://cloud.tzonedigital.com/>

Tzone Server Domain: t-gateway.tzonedigital.cn(default)

Tzone Server Port: 54929 (default)

URL: <http://g.cloud.tzonedigital.cn:18811/Receive> (HTTP)



