

# RD06 user manual

V2.2



## 1 Product overview

The TZ-RD06 is an ultra-long-range wireless data acquisition gateway dedicated to receiving our temperature and humidity sensor Tag06/06B. Support GPRS (850,900,1800,1900MHz), RS485, MODBUS-RTU and other communication interface. RD06 uses high-performance 32-bit industrial processor and industrial-grade wireless module, with high reliability, stability and data security. TZ-RD06 support the local sound and light alarm, SMS alarm, GPRS alarm and other alarm methods.

## 2 Product feature

- Four band GPRS(850、 900、 1800、 1900MHz);
- RS-485;
- Support MODBUS-RTU;
- Compatible with TCP/UDP/HTTP;
- 1 digital output ,can be used to alert;
- Kinds of alarm method;
- External special USB configure interface, user can configure RD06 operate mode;
- 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;

## 3 Technical Parameters

RF frequency	433M
RF modulation mode	GFSK
RF Receiving Sensitivity	-124dBm
RF identification Angle	3D
Interface	TCP/UDP/HTTP/RS485/MODBUS-RTU
GSM	Support 4 band ( 850/ 900/1800 /1900MHZ )
LED	3 LED (RF、 GSM、 Power)
Firmware update	Support
RF protocol	Private protocol
Supply power	DC12V

Flash Memory	32Mb/about 8600
Net weight	0.27kg
Operating temperature.	-40°C~+60°C
Operating humidity.	5% ~ 95% (non-condensing)
Dimension	112mm*105mm*27mm

## 4 Definition of interfaces

### 4.1 Appearance



## 4.2 All interfaces

Interfaces	Functions
A.LED light	RF、GSM、Power
B.Expansion interface	Expand functions (Pls check explanation following)
C.USB	Configure device and save log
D.Switch of power	Turn on/off
E.Charge interface	Connect power plug
F.SIM card slot	Insert SIM card
G.RF antenna interface	Connect RF antenna
H.GSM antenna interface	Connect GSM antenna

## 4.3 Expand interfaces

Interfaces	Functions
1- RS-485B	RS-485B
2- RS-485A	RS-485A
3- GND	GND
4- OUT	Output
5-GND	GND
6-12V	12V output

## 5 LED light indicating status

Blue light - RF	
RF light status	Explanations
Keep on always	OTA、Read or write configure
Sparkling 0.1 second	Receive TAG

Green light - GSM	
GSM light status	Explanations
Keep on always	OTA 、Read or write configure、In communicating
On 0.1second,off 0.1second	Can't read IMEI、Wait for picking up
On 0.1second,off 0.2second	Receive SMS
On 0.1second,off 0.9second	Connect with GPRS network
On 0.1second,off 2.9second	Connect with GSM network

On 1second,off 2second	Can't connect with GSM network
On 0.5second,off 0.5second	Can't connect with SIM card

<b>Red light - Charging</b>	
<b>Charging light status</b>	<b>Explanations</b>
Keep on always	OTA、 Read or write configure、 connect power
Sparkling each 2seconds	not connect power

## 6 GPRS data protocol

Pls read the document RD06 GPRS data protocol.

## 7 HTTP data protocol

Pls read the document RD06 HTTP data protocol.

## 8 RS485 data format

### 7.1 Report automatically

Pls read the document RD06 report automatically protocol .

### 7.2 Modbus Protocol

RD06 support standard RS485 Modbus protocol, pls read the document RS485 modbus protocol.

## 9 Command List

The following commands is ASCII, can be set via SMS, or can be set by serial port and GPRS.

**Note:** \$\$\$\$\$\$ is RD06 `s password, and the initial password is 000000

**Note:** (1) The default has been configured for 5 minutes to send a GPRS data to the Tzone platform;

If the SIM card needs to set APN to be used, please set 011 instructions.

(2) Set RD06 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#

**Set the APN (Access Point Name)**

**Format:** \*\$\$\$\$\$,011,APN,Username,Password#

**Notes:** The username and password could to be null.

**For example:** \*000000,011,cmnet,,#

**Explication:** The China Mobile’s APN is “cmnet”, and the username and password are empty.

After you send the command of SMS to device, it will reply to your mobile phone:

**Receive:**’011’OK

\*000000,011,cmnet,,#

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

**CMD bytes:** 14

\*000000,011,cmnet,,#

**ComdType:**011(SETAPN)

**APNnumber:**cmnet

**Username:**

**Password:**

NO.	Instruction	Format	Note
001	Modify user password	*\$\$\$\$\$,001,@@@@#@#	\$\$\$\$\$ is old password @@@@@ is new Password (default:000000)
003	Set a preset SMS number	*\$\$\$\$\$,003,SMS Number#	SMS Number: must less than 25 digits

008	Extend setting	*\$\$\$\$\$,008,ABCDEFG#	<p>A=0,disable TAG ACK download function;                      A=1,enable TAG ACK download function(default);  <b>Note:when the TAG ACK is disable, the machine will no longer reply the ACK information to the TAG.</b>                      B=0,                      C=0,                      D=0, default,                      D=1,Close all SMS function'                      E=0,                      F=0,                      G=0,disable Server ACK function, default,                      G=1,enable Server ACK function  <b>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.</b></p>
009	Change band	*\$\$\$\$\$,009,S#	<p>S=0, work in 900/1800                      S=1, work in 850/1900                      S=2, Automatic selection                      S=3, not set(default)  <b>Note: the default of parameter is S=3, not set the frequency band, if the unit of GSM module support three frequency(900/1800/1900), then you could set the parameter to S=0, if the unit of GSM module support the four frequency(850/900/1800/1900), then you could set the parameter to S=1.</b></p>
011	Set APN,Username,Password	*\$\$\$\$\$,011,APN,Username,Pass	APN : must<28 character

		word#	<p>Username: must&lt;28 character Password: must&lt;28 character</p> <p>* If haven't username or password, then left it blank. For example: *000000,011,CMNET,,#</p>
014	Set DNS	*\$\$\$\$\$,014, X,DNS1,DNS2# Disable the DNS	<p>X=0 Disable the DN(default) X=1 Enable the DNS DNS is the domain name server , xxx.xxx.xxx.xxx</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</p> <p>If select the HTTP protocol, Please write URL in here PORT : [1,65535] If select the HTTP protocol, can fill in any Port</p>
016	Enable/Disable GPRS function	*\$\$\$\$\$,016,X#	<p>X=0 Disable GPRS unction X=1 Enable GPRS Function (default)</p>
018	Set the time intervals of GPRS Data	*\$\$\$\$\$,018,X#	<p>X=0 stop send time interval GPRS =[10,6000] Time interval (Unit: sec) (default:300)</p>
019	Set the GPRS mode	*\$\$\$\$\$,019,X#	<p>X=0, Use the UDP mode X=1, Use the TCP mode (default)</p>
020	Local digital OUTPUT alarm function	*\$\$\$\$\$,020,X#	<p>X=0, disable X=1, enable,(default)</p>
030	Set SMS alarm function	*\$\$\$\$\$,030, ABCDEFG#	<p>A=1,Enable SMS alarm for temperature and humidity alert, (default); B=1; C=1; D=0; E=0; F=0; G=0;</p>



040	RS485 setting	*\$\$\$\$\$,040, A,B,C,D #	A: Baud rate [1200,115200], 9600(default); B: Data bit, 0-8bit(default), 1-9bit; C: Stop bit, 0-0.5bit, 1-1bit(default), 2-1.5bit, 3-2bit D: Parity bit, 0-null(default), 1-Even parity, 2-Odd parity
041	RS485 working mode	*\$\$\$\$\$,041, X#	X:0-Report automatically; X:1-modbus, Should add TAG to channels(command 144) ,default;
042	RS485 address	*\$\$\$\$\$,042, AB#	AB:[0-F], Can't be 00, default:01
043	RS485 Anti-Reread	*\$\$\$\$\$,043, X#	X:[0-3600],unit:s,default:0 RS485 send once tag data within this time period, no matter RD06 receive this tag many times. <b>Only use in RS485 Report automatically mode</b>
044	Max tag online time	*\$\$\$\$\$,044, X#	X:[0-86400],unit:s,default:300 RD06 will think tag is offline if it do not receive this tag within this time period <b>Only use in RS485 modbus mode</b>
136	Enable RF function	*\$\$\$\$\$,136,X#	X:0:disable RF function 1:enable RF function ( default )
142	Set Tag temperature and humidity alert function	*\$\$\$\$\$,142,X,Temp_H,Temp_L, RH_H,RH_L#	X=0,disable (default)  X=1, If tag's temperature exceed Temp_H、 under Temp_L、 humidity

			<p>exceed RH_H、 under RH_L, RD06 alert;</p> <p>X=2, If tag's status means alert RD06 alert;</p> <p>X=3, If tag's temperature exceed Temp_H RD06 alert, when temperature under Temp_L RD06 relieve alert;</p> <p>If tag's humidity exceed RH_H RD06 alert, when humidity under RH_L RD06 relieve alert;</p> <p>X=4, If tag's temperature under Temp_L RD06 alert, when temperature exceed Temp_H RD06 relieve alert;</p> <p>If tag's humidity under RH_L RD06 alert, when humidity exceed RH_H RD06 relieve alert;</p>
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			<p>Temp_H: high temperature threshold, [-55~125],unit:°C, default: 100;</p> <p>Temp_L: low temperature threshold, [-55~125],unit:°C, default: 0</p> <p>RH_H: high humidity threshold, [0~100],unit:%, default: 80</p> <p>RH_L: low humidity threshold, [0~100],unit:%, default: 0</p>
144	Add a TAG	*\$\$\$\$\$,144,X,Y,ID#	<p>X:TAG Type, X=0 (TAG06/06B), Y:Channel,[1,100]; ID:TAG ID,8 character;</p> <p><b>Note:</b>The number of all tag should not be more than 100. By default, all tag in all ranges can be received. This function needs to be configured only when binding tag and using RS485 Modbus mode.</p>
145	Delete a TAG	*\$\$\$\$\$,145,0,Y#	<p>X:TAG Type, X=0 (TAG06/06B), Y:Channel,[1,100];</p>
146	Delete all TAG	*\$\$\$\$\$,146,1#	
147	Read all added TAG	*\$\$\$\$\$,147,1#	
148	RF reboot	*\$\$\$\$\$,148,X#	<p>X:[1,1440],default:5,unit:min RF module will reboot if RD06 can not receive any tag within this time period</p>
200	Set GPRS transmission format	*\$\$\$\$\$,200,X#	<p>X:0-TCP/IP(default); X:1-Http</p>
201	Set Http Proxy Server	*\$\$\$\$\$,201,X,IP,PORT#	<p>X=0 disable; X=1 enable;</p>

			IP:Proxy Server IP PORT:[1,65535] Proxy Server Port
500	Clear data flash	*\$\$\$\$\$,500#	Clear stored in the flash memory inside the machine
600	Auto Reboot	*\$\$\$\$\$,600,X,Y#	X=0,Disable his 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	Reading the IMEI number	*\$\$\$\$\$,801#	RD06 reply the IMEI number
990	Initialization Tracker	*\$\$\$\$\$,990,099#	It will set all parameter to factory default value.(Excluding the Frequency band)
991	Reboot now	*\$\$\$\$\$,991#	Reboot the RD06

## 10 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.

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)



Public Device User Login

Q Please enter IMEI/SN Search →



Public Device User Login

Username  
Username/Email/Tel

Password  
Password

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