

# TZ-WF502

## WiFi Temperature Sensor

### User Manual V1.1



# 1 Product Overview

TZ-WF502 is a high-tech product developed based on Internet of Things technology. Products are widely used in food, catering, logistics and HACCP system certification industries. Through WiFi data transmission, combined with the cold chain Internet of Things platform, customers can remotely view and manage data through real-time monitoring data online through a browser or smartphone wireless terminal. At the same time, it's also with the platform alarm and buzzer alarm functions. It has a built-in 3.6 V lithium battery, which is non-rechargeable. It can still provide real-time data upload and platform alarm services when the external power is cut off.

## 2 Application

- Freezers, refrigerators, etc.;
- Agricultural greenhouses;
- Workshops with inconvenient wiring;
- Catering, food, HACCP system certification, etc. ;
- Medicine warehouse, biochemical laboratory, etc.;

## 3 Features

- 1) Using DS18B20 temperature sensor, strong anti-interference ability, high precision and fast response;
- 2) Built-in 4000mAh /3.6V battery, replaceable, long standby time;
- 3) Connect to a WiFi access point, collect data and upload it to the platform in real time;
- 4) It supports three working modes: normal working mode, low pressure mode, and temperature overrun mode, which can complete temperature monitoring more effectively and intelligently;

- 5) It can store 20,000 sets of data, and the server is not limited by storage;
- 6) Easily generate PDF report via USB port;
- 7) Equipped with an LCD display, you can intuitively view temperature data, alarm status, WiFi status, battery power and other information;
- 8) Equipped with a buzzer, when the temperature exceeds the limit, it will alarm;

## 4 Product Specifications

Project	Features
Powered by	Built-in 4000mAh /3.6V battery
Measuring medium	Air
Sensor range	-55°C ~ +125°C
Sensor Accuracy	±0.3°C
Working environment	-30°C~+60°C; 0%RH ~ 85%RH (non-condensing)
Way of communication	WiFi
WiFi frequency band	2.4GHz
WiFi standard	802.11b
Collection interval	1 minute to 60 minutes, the default is 15 minutes, user definable
Transmission frequency	1 to 1440, 3 by default, user-defined
Low pressure alarm	support, user definable
Temperature alarm	support, user definable
Battery life	One and a half years (10 minute collection interval, 3 packets sent)
IP protection class	IP54
Number of storage	20000
Dimensions	106mm*57mm*33mm

Note: The transmission frequency means how many times the data is collected and then sent to the background, which is used in conjunction with the acquisition interval. If the acquisition interval is 10min and the transmission frequency is 3, the machine will send the data to the background once every 30min.

The machine will immediately send data to the background under the following four conditions: machine alarm, machine restart, machine exit from configuration mode, and press the machine button

## 5 Working Modes

Operating mode	Working status
Normal mode	The transmitter collects the temperature according to the set collection interval and then starts the module to send it according to the transmission frequency
Low voltage mode	When the transmitter voltage is lower than 2.5V (settable), the data will be collected and transmitted at a 30 minute interval with a transmission frequency (settable). At this time, the transmitter power supply is nearly exhausted, and the customer should replace the battery in a timely manner
Temperature alarm mode	When the ambient temperature exceeds the range set by the user, the transmitter can send data (settable) according to the collection interval after alarm with the transmission frequency, so that the customer can record the change of ambient temperature

Note: Priority: Temperature alarm mode > Low Voltage Mode > Normal Mode

## 6 LCD Display Description

When the device is in shutdown mode, the LCD is turned off to display, and when the device is turned on, the LCD is turned on to display, which can display WiFi status ,temperature alarm signs, operating status, temperature overrun signs, battery status, and temperature value information.



	sensor is abnormal -----
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## 7 On-off operation and indicator status

### 1) On-off operation and device status

Operation	How to operate	device light status	Illustrate
Boot	Press and hold the button for 3 seconds	The status light is green for 5 seconds	The device starts to work
Shutdown	Press and hold the button for 3 seconds	The status light is red for 5 seconds	device stops working
Send data	short press	Status light flashes green once	device sends data

Note: Please make sure the power button is turned to ON when switching on/off the machine..

### 2) Indication of the current status light of the device

device state	LED lights	Illustrate
Send data exception	Red light flashes every 10s	Not connected to wifi or server
Generate PDF	Both green and red lights flashing at the same time	
Configuration mode	Green light is always on	

## 8 Alarm Mode

The user can use the configuration software to set the temperature range to enable the temperature alarm function. When the temperature exceeds the limit, the machine is in the alarm mode. In the alarm mode, the machine will immediately send an alarm data, and subsequently collect and send data according to the collection interval and transmission frequency set by the user. After the temperature returns to normal, the alarm mode will be released and the previous acquisition interval will be restored.

At the same time, the machine has the local buzzer alarm function in the alarm mode. If the buzzer function is enabled (it is enabled by default and always beeps), the machine will beep according to the set buzzer time.

How to close the buzzer:

1. The temperature returns to normal;
2. Background sends 037 downlink command
3. The working time of the buzzer has expired;
4. Press the button;

Note: The buzzer will not work again until the temperature is abnormal again (the temperature returns to normal first and then abnormal)

## 9 Platform data query

Tzone temperature and humidity cloud platform website:

<http://cloud.tzonedigital.com/>

After power on, configure wifi and other parameters with configuration software, and users can query data on the Tzone platform. To access the platform, you need to

register users first, and then add the IMEI of WF502 in the "Device Management" . After adding, you need to wait for a period of time for the user to query the data after the machine has reported the data.

Note: By default, the machine sends data to the server once every 10 minutes of collection interval and three times of transmission frequency. The customer can also press the button, and the machine will immediately send data.

The steps to query data are as follows:

The image shows two screenshots of the TZONE Cloud Platform interface. The top screenshot shows the login page with a search bar containing the device ID 50200000000002. The bottom screenshot shows the data dashboard for the device, displaying real-time sensor data and a chart.

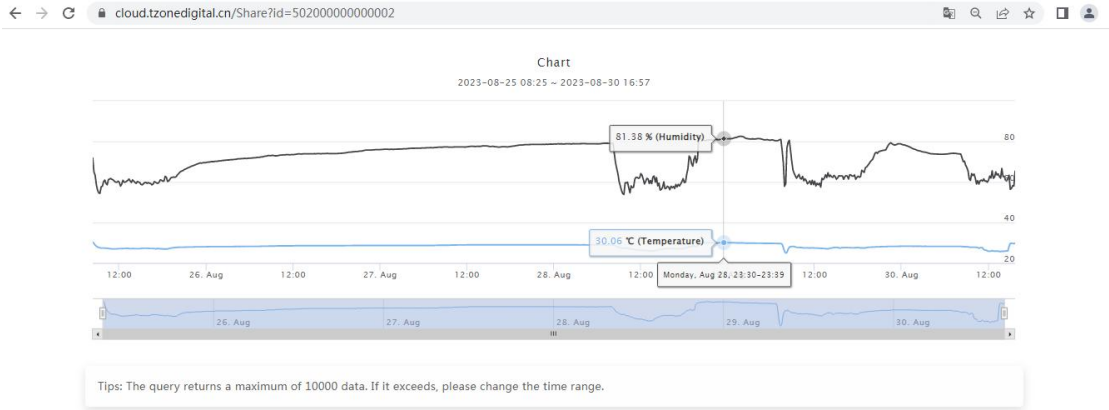
**Search Page:**

- URL: cloud.tzonedigital.cn/LoginIndex/
- Search Input: 50200000000002
- Search Button: Search →

**Data Dashboard:**

- Device ID: 50200000000002
- Temperature: 29.8°C
- Humidity: 67.8%
- Battery: 90%
- Light: --lux
- Timestamp: 2023/08/30 16:57:32
- Chart Selection: Chart (selected), List
- Time Range: 2023/08/23 16:58 to 2023/08/30 16:58
- Buttons: View, Download
- Chart Title: Chart
- Chart X-axis: 2023-08-25 08:25 ~ 2023-08-30 16:57



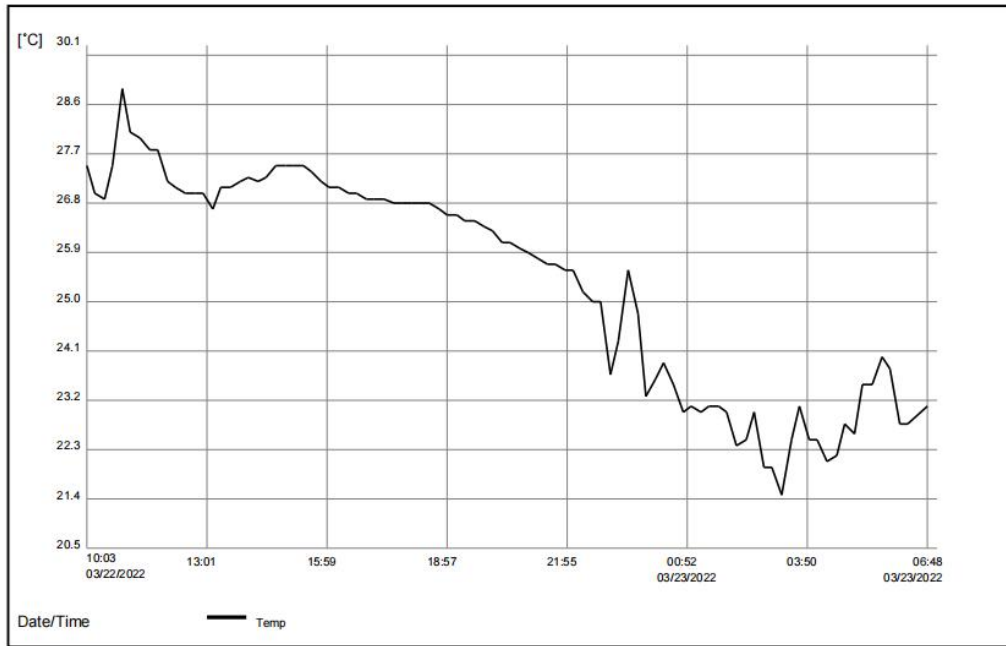


## 10 PDF report data query

The machine supports the local PDF report function. Users can generate PDF by simply connecting the machine to the computer. The traffic lights flash during the generation process, and the traffic lights are always on after the completion.

The PDF format is as follows:

DATA REPORT			
			ID: 50200000000001
File Information			
File Created Date:	03/23/22 06:55:23		
Note: All Times shown are based on UTC+0:00 and 24-Hour clock [MM/DD/YY HH:MM:SS]			
Device Information			
Device Type:	WF502	Firmware Version:	1.07
ID:	50200000000001		
Logging Summary			
First Point:	03/22/22 10:03:55	Max:	29.1°C
Stop Time:	03/23/22 06:48:25	Min:	21.5°C
Number of Points:	93	Average:	25.4°C
Trip Length:	00d 20h 44m 30s	MKT:	25.6°C



Temperature Table

Date	Time	°C	Date	Time	°C	Date	Time	°C	Date	Time	°C	Date	Time	°C
03/22/2022	10:03:55	27.5												
03/22/2022	10:18:25	27.0												
03/22/2022	10:33:25	26.9												
03/22/2022	10:48:25	27.5												
03/22/2022	11:03:25	29.1												
03/22/2022	11:18:25	28.1												
03/22/2022	11:33:25	28.0												
03/22/2022	11:48:25	27.8												
03/22/2022	12:03:25	27.8												
03/22/2022	12:18:25	27.2												
03/22/2022	12:33:25	27.1												
03/22/2022	12:48:25	27.0												
03/22/2022	13:03:25	27.0												
03/22/2022	13:18:25	27.0												
03/22/2022	13:33:25	26.7												
03/22/2022	13:48:25	27.1												
03/22/2022	14:03:25	27.1												
03/22/2022	14:18:25	27.2												
03/22/2022	14:33:25	27.3												
03/22/2022	14:48:25	27.2												
03/22/2022	15:03:25	27.3												
03/22/2022	15:18:25	27.5												
03/22/2022	15:33:25	27.5												
03/22/2022	15:48:25	27.5												
03/22/2022	16:03:25	27.5												
03/22/2022	16:18:25	27.4												
03/22/2022	16:33:25	27.2												
03/22/2022	16:48:25	27.1												
03/22/2022	17:03:25	27.1												
03/22/2022	17:18:25	27.0												
03/22/2022	17:33:25	27.0												
03/22/2022	17:48:25	26.9												
03/22/2022	18:03:25	26.9												
03/22/2022	18:18:25	26.9												
03/22/2022	18:33:25	26.8												
03/22/2022	18:48:25	26.8												
03/22/2022	19:03:25	26.8												
03/22/2022	19:18:25	26.8												
03/22/2022	19:33:25	26.8												
03/22/2022	19:48:25	26.7												
03/22/2022	20:03:25	26.6												
03/22/2022	20:18:25	26.6												
03/22/2022	20:33:25	26.5												
03/22/2022	20:48:25	26.5												
03/22/2022	21:03:25	26.4												
03/22/2022	21:18:25	26.3												
03/22/2022	21:33:25	26.1												
03/22/2022	21:48:25	26.1												
03/22/2022	22:03:25	26.0												

## 11 Machine function configuration

The machine supports the configuration of relevant functions with our configuration software. Connect the machine to the computer and configure it after generating PDF files. For specific methods, please refer to the configuration tool

documentation。

## **12 Client server connection**

The machine supports docking with the client server. If the customer needs, please contact our sales personnel to obtain relevant agreements, SDK and other materials.