深圳天圆数码科技有限公司
TZONE DIGITAL TECHNOLOGY CO.,LTD

WF503L

Temperature Sensor

---User Manual V1.0

1 Product Overview

WF503L is a high-tech product developed by our company based on Internet of Things technology. Products are widely used in food, catering, logistics and HACCP - system - certified industries. Via 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 functions. It has a built-in 3.6V rechargeable and replaceable lithium battery. It can still provide real-time data upload and platform alarm services when the external power is cut off.

2 Product Applications

- Freezers, refrigerators, etc.
- Agricultural greenhouses, etc.
- Workshops with inconvenient wiring.
- Catering, food, and HACCP - system - certified industries, etc .
- Pharmaceutical warehouse, biochemical laboratories, etc.

3 Product Features

1. Adopts the PT100 temperature sensor with strong anti-interference ability, high precision and fast response speed;
2. Can monitor ultra-low temperature down to -200℃;
3. Built-in replaceable 8,000mAh/3.6V battery for ultra-long standby time;
4. Connects to WiFi access points and uploads collected data to the platform in real time;
5. The transmitter supports three working modes: Normal Working Mode, Low Voltage Mode and Temperature Over Limit Mode, enabling more effective and intelligent temperature monitoring;
6. Can store 18,368 sets of data with no storage limit on the server;

7. Equipped with an LCD display for intuitive viewing of temperature data, alarm status, WiFi status, battery level and other information;

8. Supports NFC function for easy parameter configuration;

9. Built-in buzzer that triggers an alarm when temperature exceeds the set limits.

4 Product Specifications

Item	Specification
Battery	Built-in 8000mAh/3.6V Lithium Battery
Measuring Medium	Air
Sensor Range	-200℃ ~ +200℃
Accuracy	Temperature: 0.15 + 0.002* | t |
Operating Temperature	-30℃~+60℃;
Operating Humidity	5%RH ~ 95%RH (non-condensing)
Communication	WiFi
Configuration Method	NFC
WiFi Frequency Band	2.4GHz/5GHz
WiFi Standard	802.11b/g/n
Uploading Interval	Default 60 minutes, 4 sets of data uploaded at a time (i.e., 1 set recorded every 15 minutes), customizable by users
Temperature & Humidity Alarm	Supported, user-definable
Battery Life	2 years (at the default 60-minute upload interval)
IP rating	IP65
Memory Capacity	18,368 sets
Dimension	99mm*85mm*28mm
Weight	174g

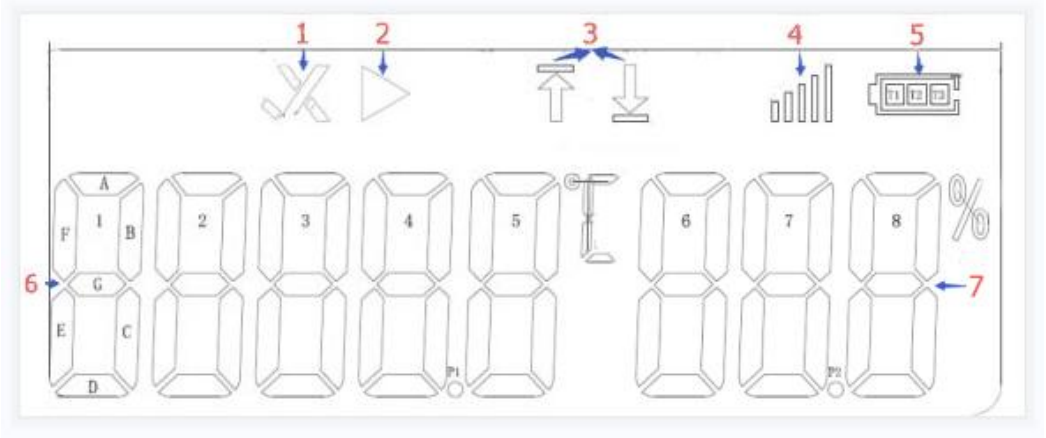
5 Working Modes

Working Mode	Working Status
Normal Mode	The transmitter activates the module to send data according to the set collection interval and transmission frequency
Low Voltage Mode	When the transmitter voltage is lower than 2.5V (configurable), it collects and sends data at a 30-minute interval (configurable) with the set transmission frequency. The transmitter power is nearly exhausted at this time, and the customer should replace the battery in a timely manner
Alarm Mode	When the ambient temperature exceed the user-set range, the transmitter can collect and send data according to the set collection interval and transmission frequency after the alarm (both configurable), facilitating customers to record changes in ambient temperature

Note: Priority order: Alarm Mode > Low Voltage Mode > Normal Mode

6 LCD Display Description

The LCD turns off in the device's shutdown mode and turns on in the startup mode, displaying WiFi status, temperature alarm indicator, operation status, temperature over-limit indicator, battery status, temperature value .



Item	Function	Illustration
1	Temperature alarm signs	Normal: √ Alarm: ×
2	Operating status	▷ Start operation
3	temperature out-of-range indicator	Over the upper limit: ↑ Over the lower limit: ↓ Both the upper and lower limits are over: ↑↓
4	WiFi signal strength	 : Very strong signal  : Strong signal  : Good signal  : Normal signal  :Weak signal No display: not connected to WiFi
5	Battery status	 : High battery  : High battery  : Normal power  : Low battery
6	Temperature value	Optional Celsius or Fahrenheit display (set by 08 command), unit 0.1, display when the sensor is abnormal ------
7	Multi-function Zone	1. Displays NFC in NFC mode 2. Displays OFF in shutdown mode

7 Switch operation and indicator status

1) On -off operation and device status

Operation	Operation Method	Indicator Light Status	LCD Display	Description
Power On	Press and hold the button for 3 seconds	Green indicator light stays on for 5 seconds	Default interface displayed	The device starts operating
Power Off	Press and hold the button for 3 seconds	Red indicator light stays on for 5 seconds	OFF displayed	The device stops working
Data Sending	Short press the button once	Green indicator light flashes once	Default interface displayed	The device sends data
Enter NFC Mode	Touch the NFC antenna area with a mobile phone	Green indicator light stays on for 10 seconds	NFC displayed	The device enters NFC mode for configuration

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

2) Indication of the current status light of the device

Device Status	LED Light	Description
Data Sending Abnormality	Red light flashes every 10 seconds	Not connected to WiFi or the server
NFC Mode	Green light stays on for 10 seconds	Exits NFC mode 10 seconds after moving the mobile phone away from the NFC antenna area

8 Alarm Mode

Users can set the temperature range using the configuration software to enable the temperature alarm function. When the temperature exceeds the set limits, the device enters the alarm mode, in which it immediately sends a set of alarm data and then collects and sends data according to the user-set collection interval and transmission frequency. The alarm mode is canceled and the original collection interval is restored when the temperature return to normal.

The device is equipped with a local buzzer alarm function in the alarm mode. If the buzzer function is enabled (always beeping by default), the buzzer will activate according to the set duration.

Ways to turn off the buzzer:

1. The temperature return to normal;

2. The platform sends the 037 downlink command;

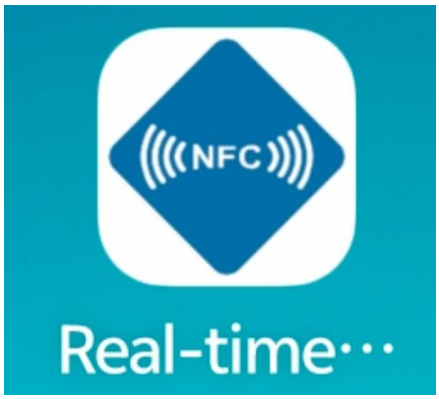
3. The set buzzer working duration ends;

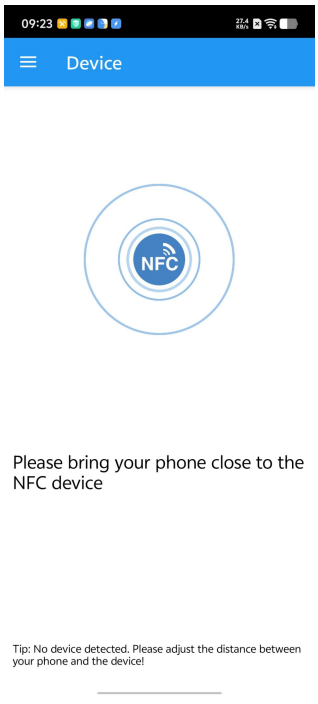
4. Press the button.

Note: The buzzer will only be activated again if the temperature become abnormal again (return to normal first and then exceed the limits) after the buzzer stops working.

9 NFC Configuration

1. Open the NFC configuration tool of our company on the mobile phone: Real-time Data

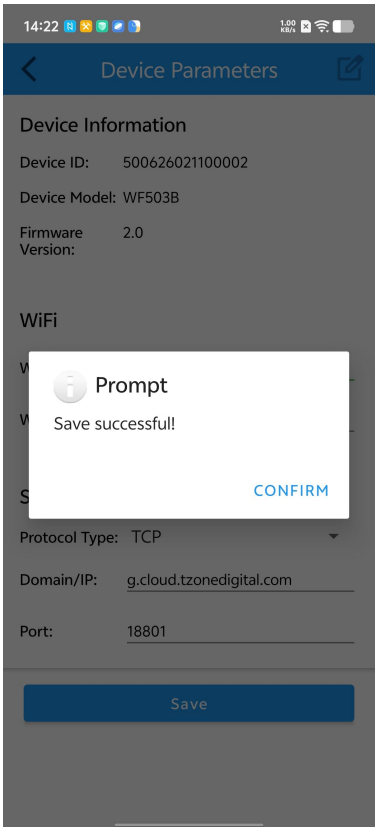




2. Touch the NFC area of the mobile phone to the NFC area of WF503L; the LCD displays "NFC", indicating that the device has entered the NFC mode.

3. Click the edit button in the upper right corner, configure the parameters and click "Save".

4. Touch the NFC area of the mobile phone to the NFC area of WF503L again to save the settings; a pop-up prompt of "Save successful!" indicates that the configuration is completed.



10 Data Query

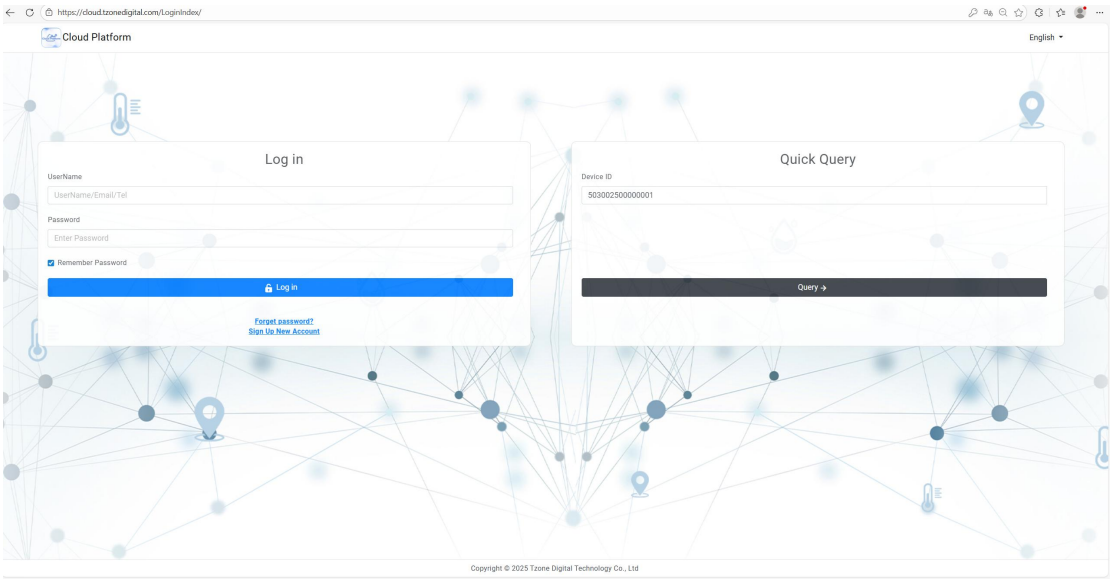
10.1 Browser Query

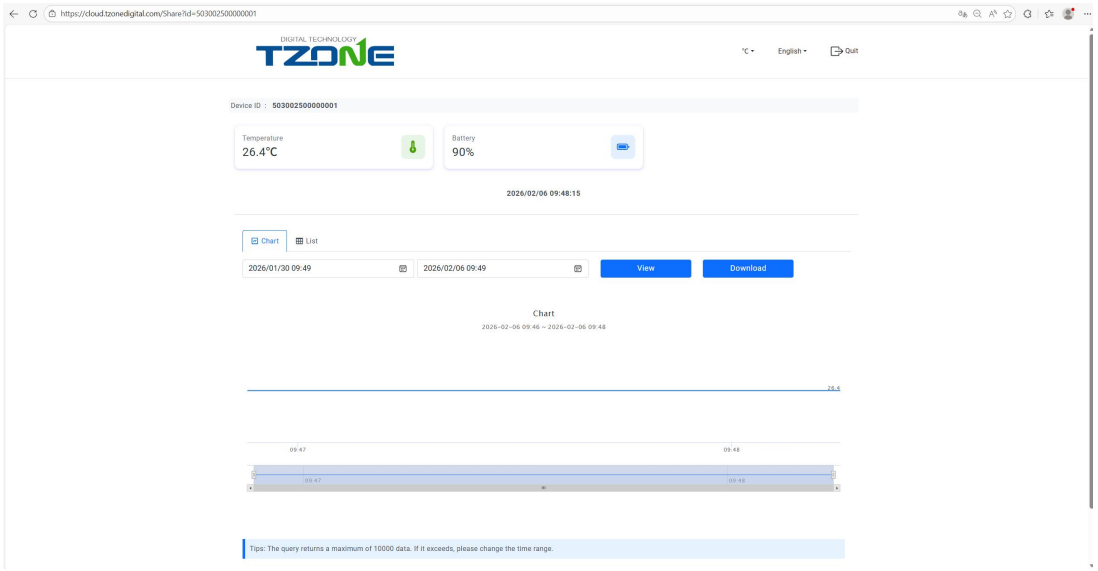
Tzone Temperature and Humidity Cloud Platform Website: http://cloud.tzonedigital.com/

After powering on, configure Wi-Fi and other parameters using the NFC configuration tool "Real-time Data Logger" APP. Users can then query data on the Tzone platform. To access the platform, you must first register a user. After logging in, add the WF503L IMEI in "Device Management." After adding the device and powering it on, users can query the data once the machine reports data.

Note: The device's default reporting interval is 60 minutes, and the recording interval is 15 minutes. It sends 4 data entries to the server at a time. Users can also press a button, and the device will immediately send data.

Data query steps are as follows:

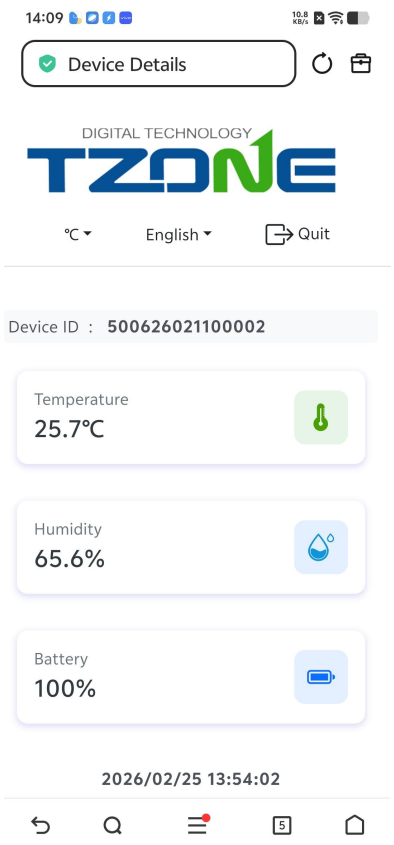




10.2 Mobile Phone Query

After adding the device,scan the QR code on the device with a mobile phone camera or browser to enter the data interface. The interface displays real-time data including Device ID, temperature and battery level, and also supports viewing historical data in list or chart form, as well as data viewing and downloading by time range.


TZONE
WiFi Temp Sensor
WF503L
SCAN QR CODE:
SCAN


14:09
Device Details
DIGITAL TECHNOLOGY
TZONE
℃
English
Quit
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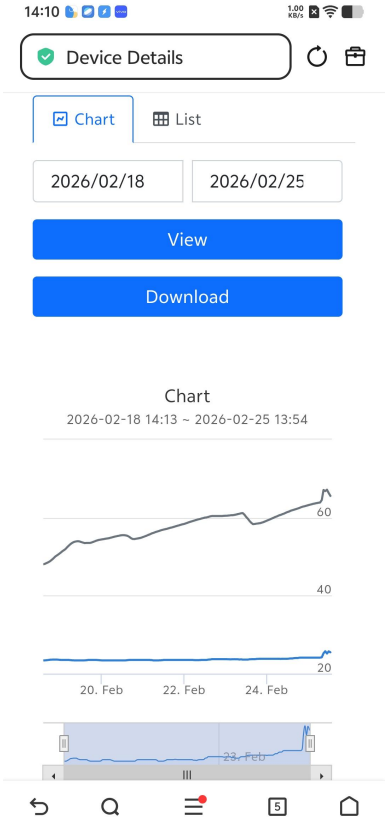
Humidity
65.6%
Battery
100%
2026/02/25 13:54:02


14:10
Device Details
Chart
List
2026/02/18
2026/02/25
View
Download
Chart
2026-02-18 14:13 ~ 2026-02-25 13:54
60
40
20
20. Feb
22. Feb
24. Feb