GPRS
Smart Multi-Function Digital Meter
TP500 V3.0

User Manual

Electronics
TOPRIE

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Chapter 1 Brief Introduction

This product is a smart multi-function digital meter designed by our company. It is intelligent , portable and durable. It is mainly comprised of a host meter and a specific type of sensor (external sensor). When connected with different type of sensors it can be used to detect , monitor and record accurate real-time data on the spot. With high performance wireless communication module of GPRS / 4G / Wi-Fi , this smart digital meter can automatically record and upload real-time on spot data to your smart phone App and IoT cloud platform online 24 hours a day. When the data exceeds the set value, it will immediately send alarm information via smart phone App , SMS and E-mail. The historical data can be exported in PDF or CSV format. It also supports bluetooth data printing. With a built-in 5000 mAh high-capacity Li-ion battery, it also can serve as a perfect self-contained datalogger in the field of cold-chain logistics and food transportation. It can work alone for about 30 days without any outside power supply.

Chapter 2 Product Features & Characteristics

2.1 Product Features

- ✧ Multi-function: connect with different type of sensor to monitor different parameter
- ✧ Storage capacity of 110,000 readings
- ✧ Built-in 5000 mAh Li-ion battery
- ✧ Touch control buttons and LCD display interface
- ✧ Aluminum alloy housing , anti-impact tempered glass cover
- ✧ Magnetic back for fast & simple mounting
- ✧ Automatic over limit alarming function
- ✧ Support HTTP to ensure data integrity
- ✧ Support remote monitor and control via smartphone app or cloud platform

2.2 Electrical characteristics

a) Power supply: external power supply 5V DC ; built-in 5000 mAh Li-ion battery

b) Wireless communication module: GPRS module (Wi-Fi and 4G module is optional)

c) Radio communication band: 850 / 900 / 1800 / 1900 MHz

d) Static power consumption: under stand-by ≤ 1mA, normal operation 3mA;

e) Communication mode: USB (serial port), GPRS, GPS, support MQTT protocol, TCP fixed protocol upload;

f) Working temperature: -20~60℃;

g) Storage temperature: recorder (-20~80 °C) , sensor (-50~125 °C);

2.3 Built-in temperature and humidity sensor

a) Measurement range: temperature -20~60℃ humidity 0%~95% RH

b) Measurement accuracy: temperature ± 0.3℃ humidity ± 3% RH

2.4 External temperature sensor (supports dual channel temperature)

a) Measurement range: -200~200℃ (optional) -40~80℃ (standard type)

b) Measurement accuracy: ±0.5℃ (-100~100℃) other ranges ±1℃

2.5 External temperature & humidity sensor

(support dual channel temperature and humidity)

a) Measurement range: temperature -40~80℃ , humidity 0~99% RH

b) Measurement accuracy: temperature ± 0.2℃ , humidity ± 2% RH

2.6 External dew point temperature sensor

a) Measurement range: -10~60℃

b) Measurement accuracy: temperature ± 0.3℃, humidity ± 3% RH

2.7 External PT1000 high precision temperature sensor

a) Measurement range: -50~150℃

b) Measurement accuracy: ±0.05℃

2.8 Structure size

a) Recorder host: 110.7*68.5*20mm;

b) External temperature and humidity sensor: Φ12x100mm

c) Sensor extension cable 1m

d) GPRS antenna 43.5mm

2.9 Materials and protection

a) the host : aluminum alloy housing; tempered high-strength glass top cover

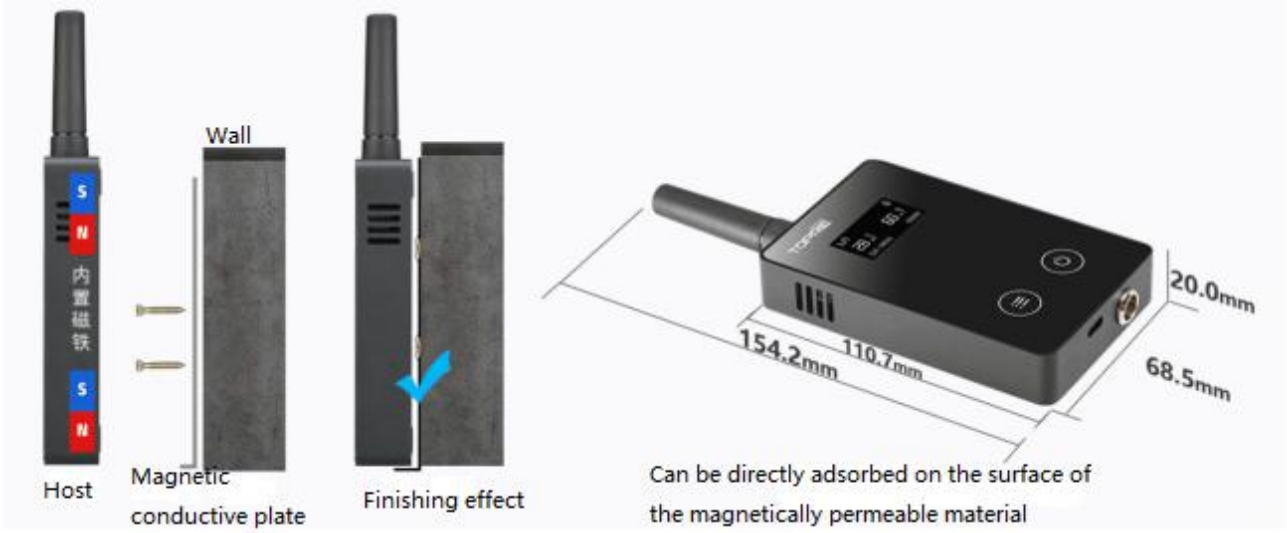
b) sensor : aluminum alloy

2.10 Application Field

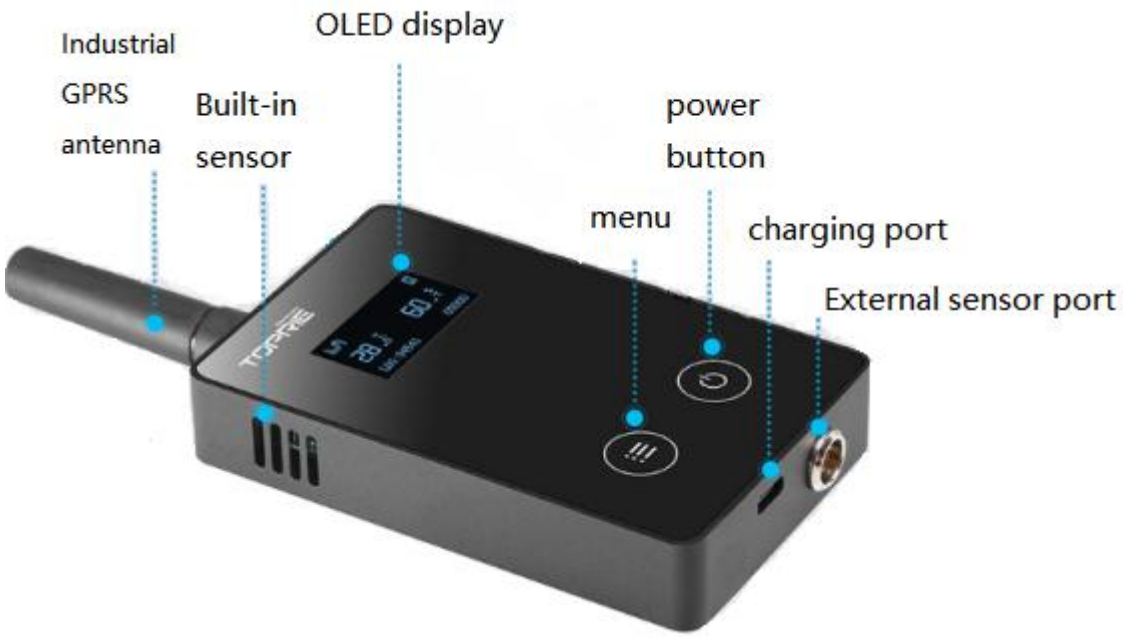
a) This instrument is for indoor use only;

b) With complete installation accessories , it is easy to install.

Chapter 3 Installation and dimension



Chapter 4 Interface and Touch Control button



How to use the touch control buttons

	Touch Menu Button	Touch Power Button
Long press	Enter / Exit menu	Power on / off
Short press	Turn to next page	Wake up interface
	Wake up interface	

Chapter 5 Operating Menu

The recorder's working interface is shown below:

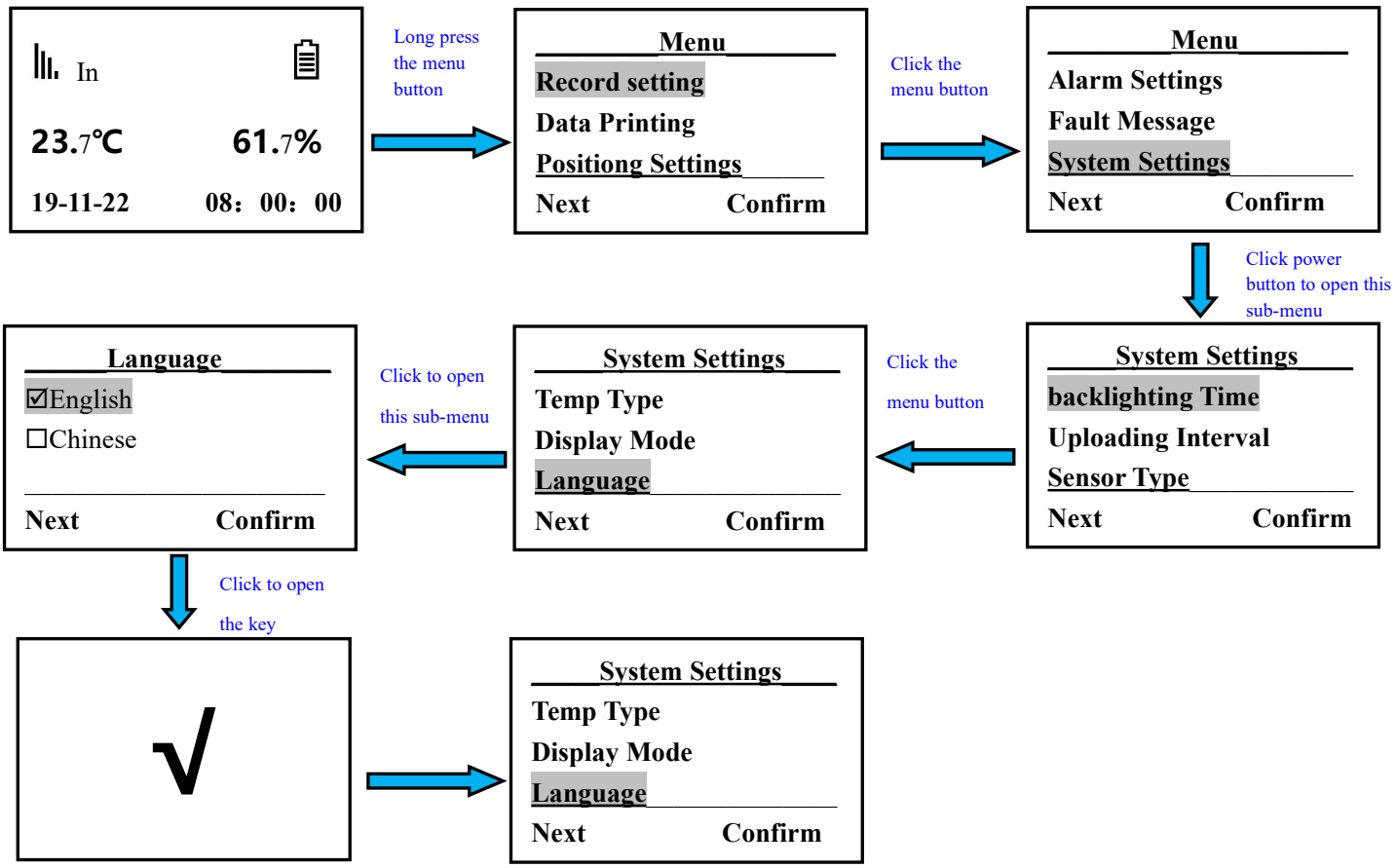
Inside: Display data for the 1st channel and the 2nd channel (left to right)

Outside: Display data for the 3rd channel and the 4th channel (left to right)

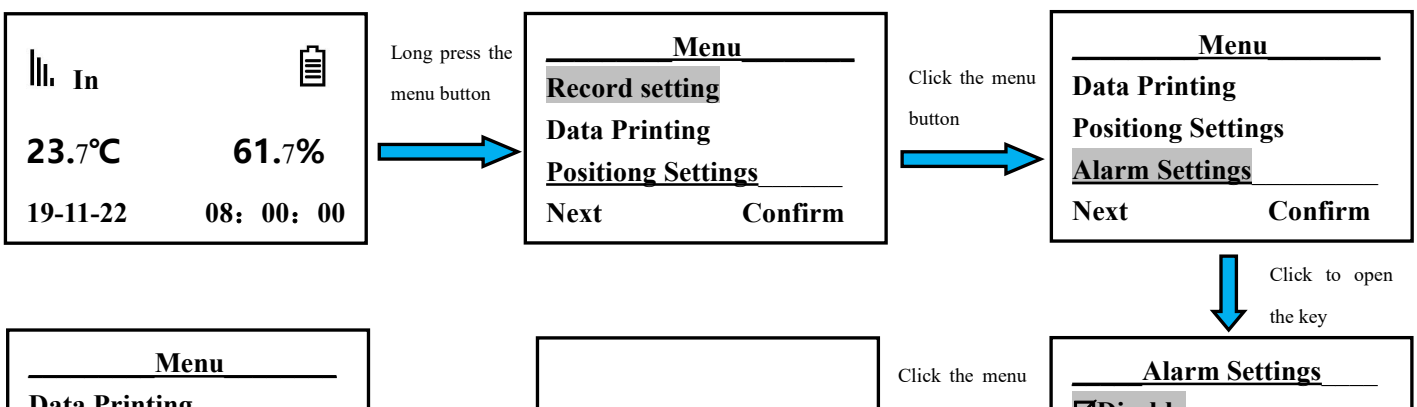
a) The main interface has two sensor display interfaces, the display can be switched by buttons.

b) Press and hold the menu button to enter the menu, and then select the corresponding option to enter the sub menu item.

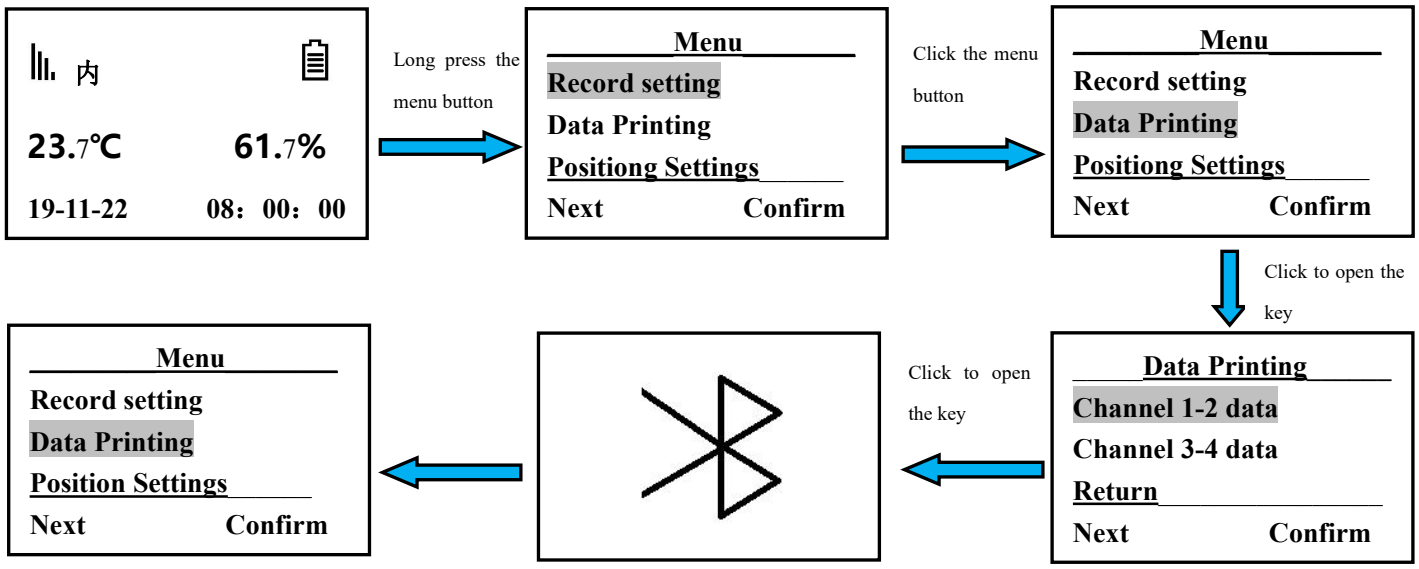
c) Language Selection



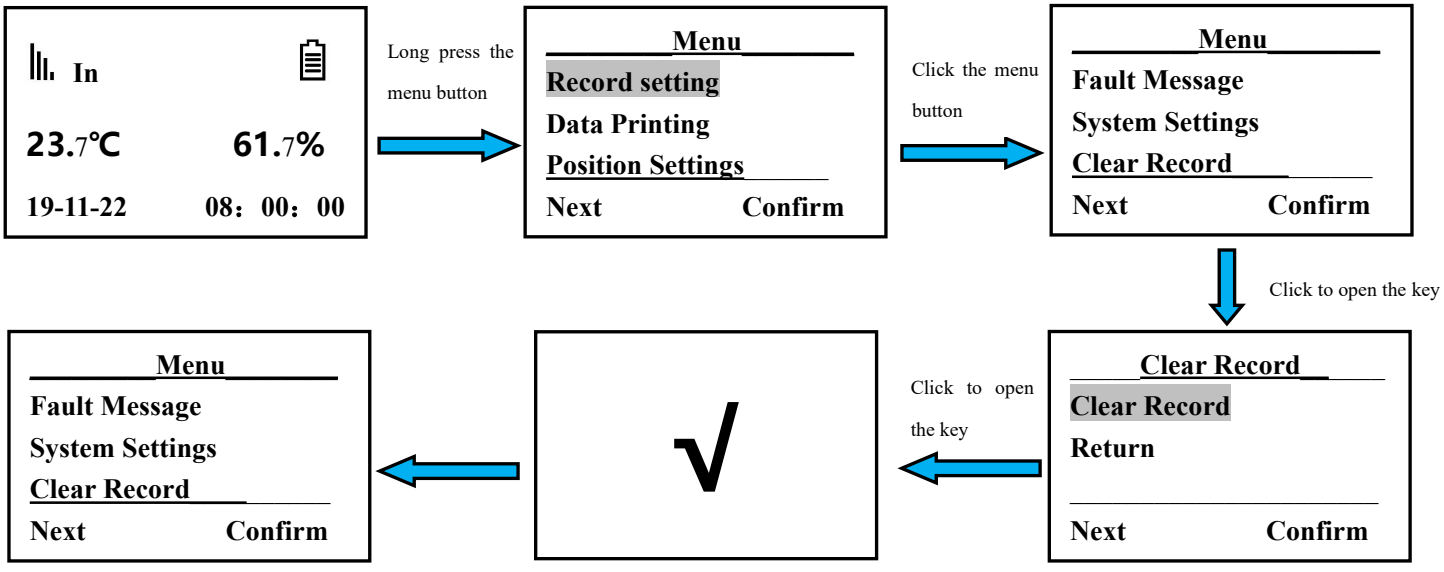
d) Alarm setting



e) Bluetooth print setting



f) Clearing historical data



Chapter 6 Alarm Mode

Host buzzer alarm: set the upper and lower thresholds, exceed the threshold, and the live buzzer alarms;

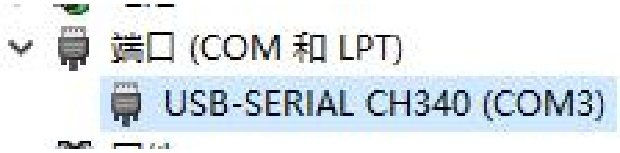
WeChat push alarm: pay attention to the WeChat public account, and bind the account password, you can push the alarm information through the WeChat ;

Alarm threshold setting: alarm threshold can be set by the upper computer

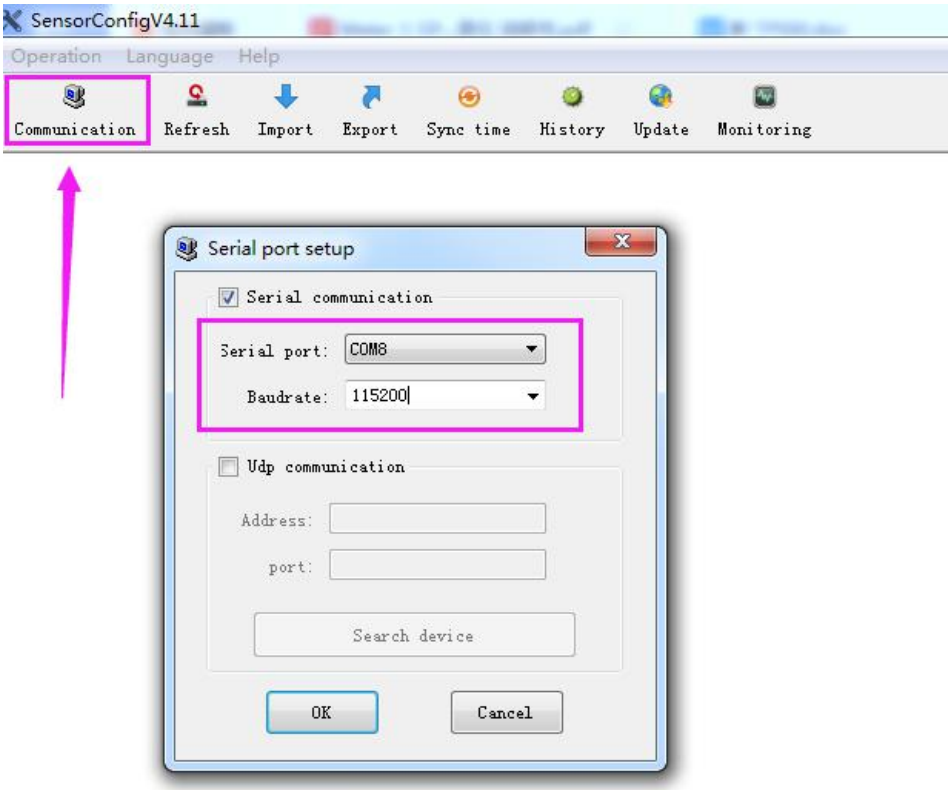
Chapter 7 Driver installation and configuration

Reminder : The Driver files can be downloaded on our website or requested by email

1. Install the CHR340 driver in the product data to power on the device. After connecting the device to the computer with the USB cable, you can find the com port corresponding to the TP500V3.0 device in the device manager port option of the computer, as shown in the figure below :



2. Open the configuration tool and click the communication setting on the left side of the configuration tool. The serial port popup window appears. The serial port selects the com port corresponding to the CH340 driver, that is, the com8 port, and the baud rate of the USB port is 115200. As shown in the figure:



3. After setting the serial port, click the refresh button in the main menu bar to configure all the configuration options.


SensorConfigV4.5
Operation
Language
Help
Communication
Refresh
Import
Export
Sync time
History
Update
Monitoring
01. 保存参数[Save]
02. 重启设备[Restart]
03. 清除历史数据[Clear historical data]
04. 设备名称[Name] : edge meter
05. ----服务器设置[Server Setting]----
06. 服务器地址[Server Addr] : tcp1500.dtuip.com
07. 服务器端口[Server Port] : 1500
08. 序列号[SN] : 2103VNQ6I35VMY46
09. ------系统设置------
10. 主页切换方式(自动切换/手动切换) : 自动切换
11. 数据记录时间[分](1/2/5/30/60) : 1
12. GPS模式(关闭/基站定位/GPS) : 基站定位
13. 背光时间(20秒/40秒/60秒/常亮) : 60秒
14. 温度单位(摄氏度/华氏度) : 摄氏度
15. 传感器类型(DS18B20/TP) : TP
16. 内部传感器(开启/关闭) : 开启
17. 通道1值修正 :
18. 通道2值修正 :
19. 通道3值修正 :
20. 通道4值修正 :
21. ------打印参数设置------
22. 打印用户名 :
23. 打印标题 :

The configuration options of the TP500V2 configuration tool are described as follows:

01. Save parameters: double-click to save all configured option information.

02. Restart the device: double click to restart the device

03. Clear historical data: double click to clear historical data

04. Device Name: Device Name

05. Server Settings

06. Server Address: Default is Enterprise IP

07. Server port: default is the enterprise port

08. Serial number [SN]: Each device has one and only one serial number, and you can find it at the back of the device.

09. System settings

10. Homepage switching mode (automatic switching/manual switching): The default is manual switching, user can customize.

11. Data recording time [minutes] (1/2/5/30/60): default is 1 minute, user can customize.

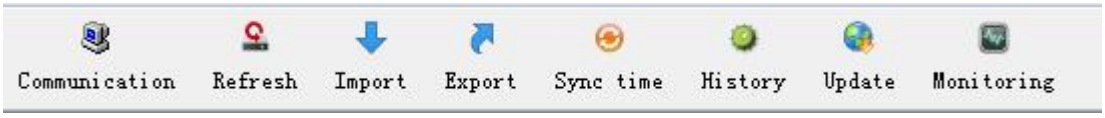
12. GPS mode (off / base station positioning / GPS): default is base station positioning, user can

customize.

13. Backlight time (20 seconds / 40 seconds / 60 seconds / always bright): the default is 60 seconds, user can customize.
14. Temperature unit (Celsius / Fahrenheit): The default is Celsius, user-definable.
15. Sensor Type (DS18B20/TP): The default is TP. Set to TP if using our sensor, set as DS18B20 if DS18B20 sensor is used.
16. Internal sensor (on/off): default is on, user can customize.
17. Channel 1 value correction: built-in sensor temperature correction, user-defined.
18. Channel 2 value correction: built-in sensor humidity correction, user-defined.
19. Channel 3 value correction: external sensor temperature correction, user-defined.
20. Channel 4 value correction: external sensor humidity correction, user-defined.
21. Print parameter settings.
22. Print User Name: User-defined.
23. Print title: User-defined.
24. Overrun settings
25. Over limit alarm (off / on): the default is off, user can customize.
26. Channel 1 upper limit: default value is 30, user can customize.
27. Channel 1 lower limit: default value is 0, user can customize.
28. Channel 2 upper limit: default value is 90, user can customize.
29. Channel 2 lower limit: default value is 0, user can customize.
30. Channel 3 upper limit: default value is 30, user can customize.
31. Channel 3 lower limit: default value is 0, user can customize.
32. Channel 4 upper limit: default value is 90, user can customize.
33. Channel 4 lower limit: default value is 0, user can customize.

34. Generation time: Oct 24 2019

Other function description



Import configuration and export configuration: for high-volume device settings, A device parameters can be copied to B device to use this function.

Sync time: synchronize the time on the device with the time of the local computer

Historical data: Query a certain piece of historical data, support exporting CSV table format and PDF format

Update firmware: device upgrade

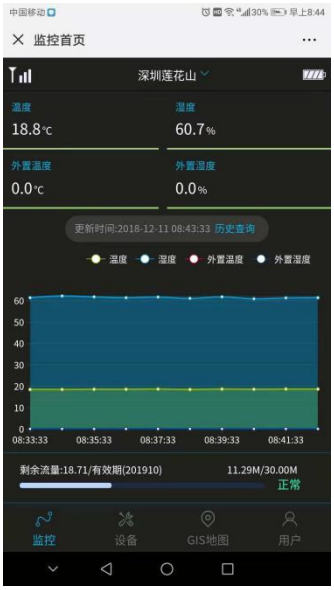
Device monitoring: Detail status of device operation

Chapter 8　Smart App and Cloud platform Connection

1, Each instrument has a unique QR code behind it, which is the ID card of this instrument. Simply scan it with WeChat and the meter will automatically connect to the platform (first login requires registering account and setting password)

2. After the device is successfully added, directly enter the main interface (below). The device name is filled in by yourself; In the data monitoring interface clicks the real-time value to enter the alarm setting, set the alarm threshold, alarm mode, and alarm object.

3. Query historical data, click the historical data of the data monitoring interface, you can query and download the historical data of the instrument (PDF), the value and curve can be switched.



Chapter 9 FAQs

9.1 Why does the device not print data when I press the print key after I connect the printer ?

Answer : First of all, please check whether the printer is turned on normally. When the printer is turned on normally, the indicator light is on and blue. If no indicator light is on, please press the printer power button to turn on the printer. Please charge the printer.

Secondly, check whether the data cable between the printer and the TP500 device is connected correctly. Note that both ends of the cable are mini USB headers.

Third, check whether the TP500 device is in the print recording mode. If not, please set the TP500 to the print recording mode. For the setting method, refer to Section 5 “Key Function Introduction” above.

9.2 Why is there only print name and print header, no data ?

Answer : If your TP500 is just entering the print recording mode, please wait for a recording cycle time and then press the print button, or you can check the number of data records by [Up/Down/Page] to see if historical data is recorded inside the device. . For the operation method, refer to Section 5 “Introduction of Key Functions” above.

9.3 Why can't open the configuration tool to connect to the device ?

Answer : Check if the driver is installed on the computer, and if the CH340 serial port number is generated.

9.4 Can't open the configuration tool ?

Answer : Since many users' computer systems are pirated or simplified systems, the system lacks a boot file. If you encounter this problem, please contact customer service, ask for the corresponding boot file and install it with the computer system.

9.5 The device is working properly, but can't link to the platform ?

Answer : First check whether the SIM card is inserted properly, confirm whether the SIM card is a data card, and whether it is a 2G data card, and whether the SIM card is down; Secondly, check whether the GPRS antenna is plugged in. You can check whether the GPRS signal strength is greater than 13 through the configuration tool; Third, whether the device is powered by a USB-connected computer and the battery is in a dead state. If so, use an adapter to power the device; Fourth, check whether the configuration information is correct. If it is not resolved, please contact our after-sales for help.

9.6 Already set the alarm upper and lower limits, why does the device not send alarm messages ?

Answer : First, please check whether the alarm indicator is blinking. If it is not, please check whether the alarm value is set successfully. There are two ways to check: read the device information through the configuration tool; switch the view through the control buttons on the device. Refer to "Key Function Introduction" above. If it flashes, please check if the SIM card is inserted. You can judge whether the SIM card is inserted through the GSM indicator. Under normal conditions, the GSM indicator flashes every 2 seconds. If it flashes quickly, it means that the GSM part is not activated during startup. Blinking indicates

that the SIM card is abnormal. Secondly, the above functions are normal. Please check whether the SIM card is down and make sure that the phone card can send and receive text messages (non-Internet of Things dedicated card). It should be noted here that the mobile SIM has a false shutdown phenomenon, that is, your card has been stopped due to arrears but mobile The card's answering function will be kept for 24 hours, and there will be no shutdown when making the call. It is recommended to use the card to call other numbers to test, or wait 24 hours to make a judgment. Third, because the trigger point of the device's text message alarm is normal value to over limit value and over limit value returns to normal value. If you set the alarm value, the actual data of the device has exceeded the alarm value, then the SMS alarm action will not be triggered. In this case, please restore the device sensor value to the normal value and let the device trigger again.