SC01-xx-N01-HHT
Handheld Water Quality Quick Test Recorder
User Manual



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Table of contents

1.Product description 1
2.Dimensions 2
3.Instructions 2
4.Function and operation instructions 4
5.Configuration software instructions 7
6.Description of charging function 15
7.Precautions 15
8.Common faults and solutions 16

1.product description

1.1product description

The handheld water quality speed test recorder developed and designed by our company adopts the latest digital integrated circuit technology and international testing technology to design a brand-new intelligent handheld detector. The recorder adopts a large-size full-color LCD screen, which can display readings in real time. At the same time, it uses a detection circuit designed by digital chips from international manufacturers, which can achieve very high sensitivity and excellent repeatability. It integrates measurement, storage, recording and analysis, and is widely used in water treatment, aquaculture, environmental monitoring and other industries. According to different selections, the pH, conductivity, ammonia nitrogen concentration, turbidity, dissolved oxygen, COD and other elements can be measured in the water body respectively.

1.2Features

1) The measurement results can be displayed directly, which is simple and convenient, with low measurement cost and fast measurement speed;

2) High measurement accuracy and rich measurement types;

3) Large-size color display screen, beautiful interface;

4) One-click data export, convenient and fast;

5) Free access to 485 devices;

6) Large storage space, can store up to 34w pieces of data;

7) Over-limit alarm, various prompts.

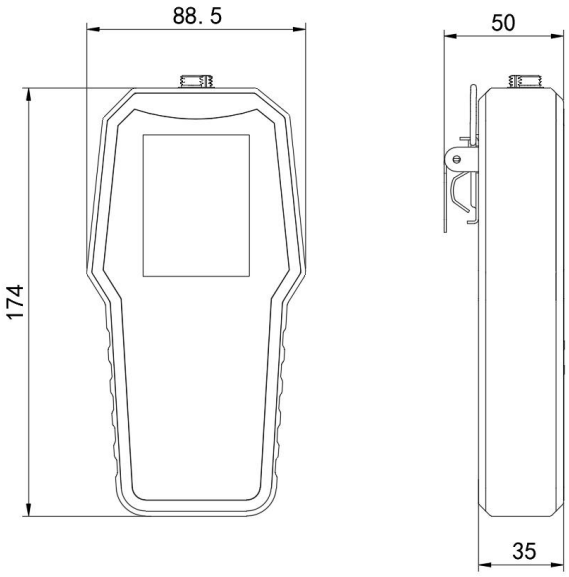
1.3 technical parameter

Power supply	Battery powered (5000mAh lithium battery)
Display method	2.8 inch LCD screen
data storage	34W pieces of data
charging time	≤8h
working environment	Temperature -20℃-60℃; humidity <95%RH without condensation
letter of agreement	Modbus-RTU protocol
Operating Voltage	DC 3.7V
Standby time	More than 8h continuous
size	174*88.5*35mm
weight	284g

1.4product model

SC01-				company code
	PH-			PH sensor
	EC-			EC sensor
	COD-			COD sensor
	LDO-			LDO sensor
	NHN-			NHN sensor
	ZD-			ZD sensor
	CL-			CL sensor
		N01-		485 communication
			HHT	Portable Handheld

2.Dimensions



Equipment dimension drawing (unit: mm)

3.Instructions

3.1 Equipment List

■1 handheld water quality speed test recorder
■1 water quality equipment
■1 charger
■1 data line
■1 5m cable
■Certificate, Warranty Card

3.2 Structure description



3.3Sensor connection device



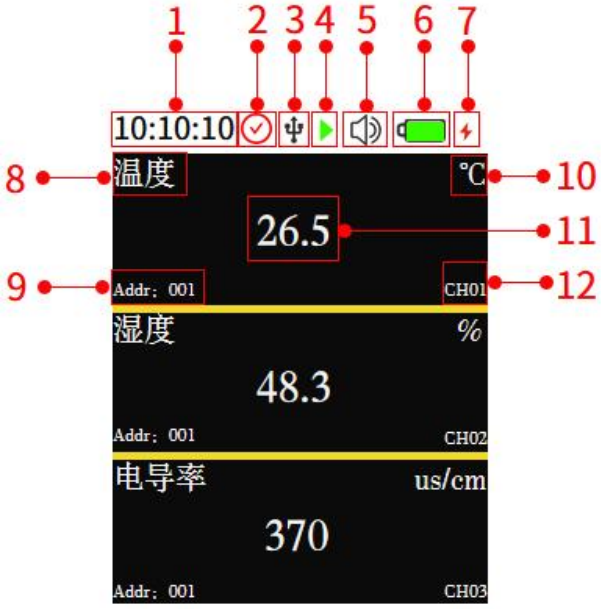
Take out the 5m connecting cable, connect one end with a metal aviation plug to the speed tester, and the other end to the water quality equipment, and lock the aviation pair plug to prevent the equipment from short-circuiting due to water ingress.

4.Function and operation instructions

4.1Key Description

picture	name	explain
	up arrow key	Main interface: long press to turn on the sound when the alarm state is on, and long press to cancel the alarm sound when an alarm occurs; short press up on the menu interface to select setting items and increase the value; short press on the password interface increases the value
	down arrow	Main interface: long press to turn off the sound when the alarm state is on Short press down on the menu interface to select the setting item and increase the value Short press on the password interface to decrease the value
	left arrow key	Short press left on the main interface to switch the display interface of different devices Short press on the menu interface to move the cursor to the left
	direction right	Short press right on the main interface to switch the display interface of different devices Short press on the menu interface to move the cursor to the right
	Enter	Host interface: long press to turn on or off data logging, short press to enter the password interface; Short press on the menu interface to confirm the selection
	return key	Short press on the menu interface to return to the previous interface; Any interface: long press to return to the main interface.
	Bluetooth printing (not yet developed)	Long press for one-key Bluetooth printing
	Power button	Power off state: long press for 2S, the device enters the power on state; Main interface status: long press for 4S, the device is turned off,

4.2Main interface introduction



NO	name	illustrate
1	time	Display the current time (manual adjustment)
2	Call the police	As shown in the figure, the total alarm sound is turned on (the buzzer alarm can be turned off separately)，when displayed⊗ ，Indicates that the general alarm is turned on
3	USB socket	After plugging in the USB, this sign is displayed
4	data record	As shown in the figure, it means to open the record data (can be set to open or close the record data)，when displayed■ ，Indicates that logging data is turned off
5	buzzer	As shown in the figure, the buzzer is normally enabled, and it is displayed when the buzzer is disabled： The buzzer cannot be enabled when the alarm is off
6	Electricity	Displays the current remaining battery level
7	charging sign	Show this logo when the device is charging
8	feature name	Measurement feature name
9	address	The 485 address of the device corresponding to the measurement element
10	unit	unit of measure
11	real-time value	Displays the current detection actual feature value
12	aisle	channel number

4.3Instructions

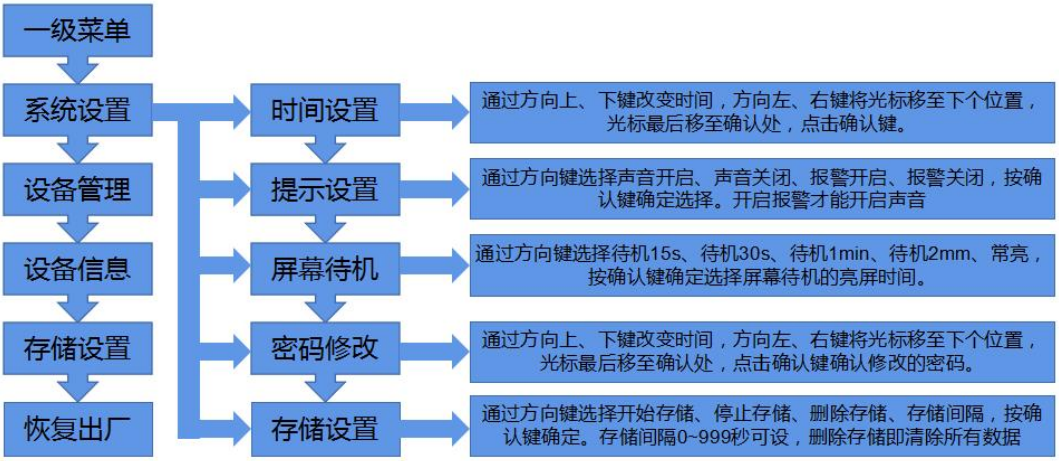
1. In the off state, long press the confirmation button for 2S, the device detects whether the buzzer is in normal use, and the device enters the main interface
2. Short press the confirm key on the main page to enter the password interface, the default password is 0000, press the cycle key to move the cursor to confirm, and click the confirm key to enter the menu interface. As shown in Figure 1:



figure 1

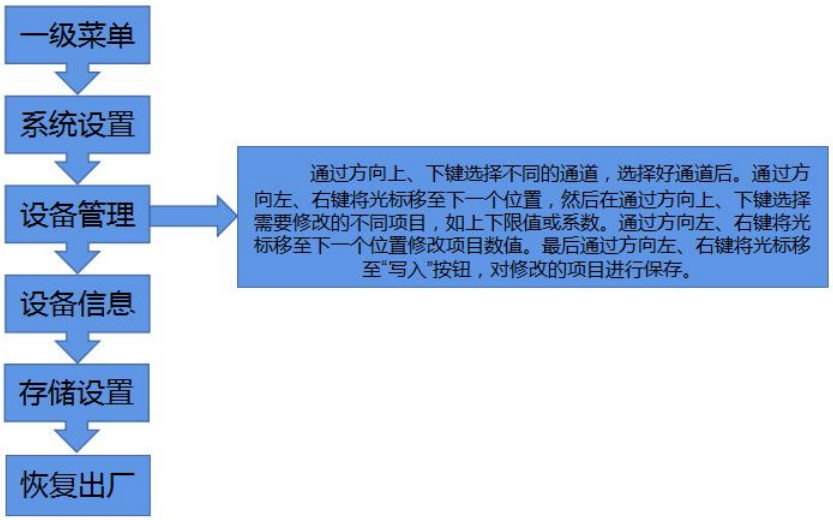
4.3.1System Equipment Description

Move the cursor to the corresponding icon and click the OK button to enter the setting interface



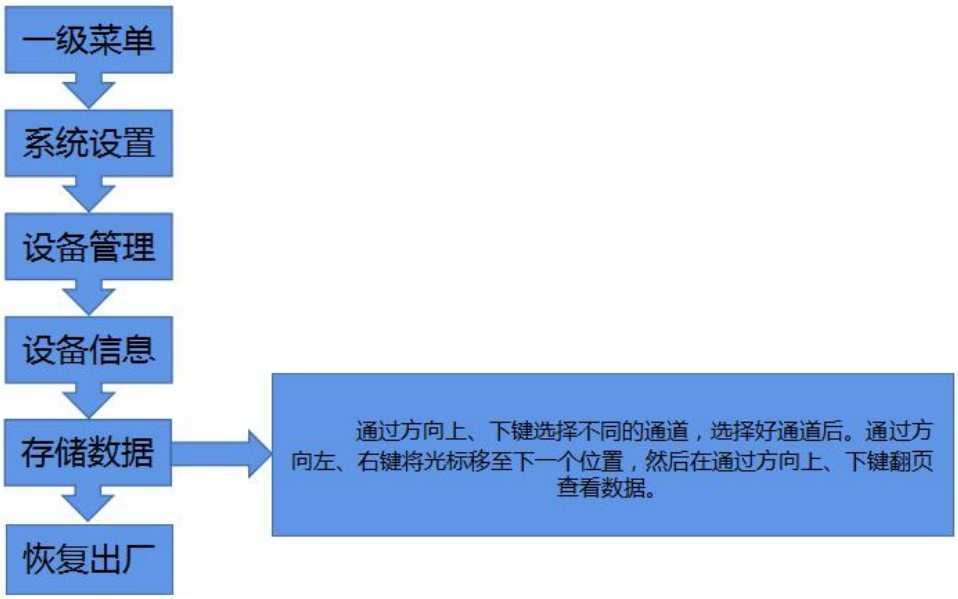
4.3.2Device Management Instructions

Note: When connecting multiple sensors at the same time, the sensor addresses should not conflict, so as to avoid confusion when the configuration software is viewing the data curve.



4.3.3View historical data description

In this operation, you can view historical data on the device, and you can also import the device storage data into the computer for viewing. For specific operations, please refer to the instructions in Sections 5.4 and 5.5.



5. Configuration software instructions

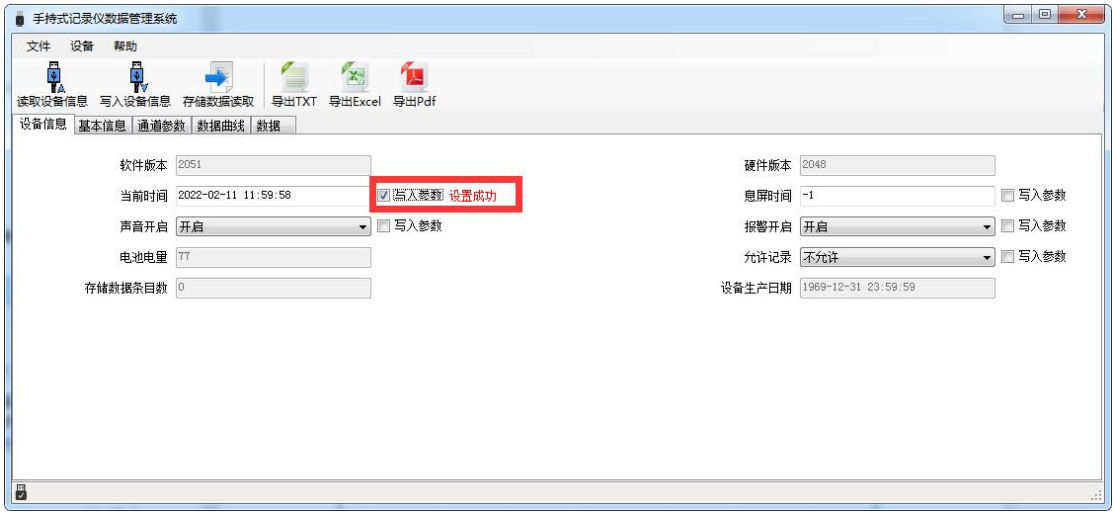
After the software installation is complete, it will be generated on the desktop“”icon， Double click to open the software。

5.1 Device Information

Connect the device to the computer through a USB data cable, and open the software will automatically read the device information,After editing the device parameters, click "Write Device Information" to write the parameters into the device.



It should be noted that after the modified parameters, tick the modified parameters, and then click to write the device information, the parameter will be written to the device. This function is for the convenience of modifying other parameters by mistake when modifying individual parameters. set.



Software version: factory default, can be viewed but not modified.

Hardware version: Factory default, viewable but not modifiable.

Current time: You can check the clock time indicated by the recorder to determine whether you need to adjust the time.

Screen off time: 15 seconds, 30 seconds, 1 minute, 2 minutes, always on can be set, the default is 30 seconds.

Sound On: Set the alarm sound function of the recorder on or off.

Alarm On: Set the recorder's overrun alarm function on or off.

Battery power: the current remaining power of the detector.

Allow Recording: Set the storage function of the detector on or off.

Stored entries: the number of records currently stored by the detector (the total number of records of all sensors).

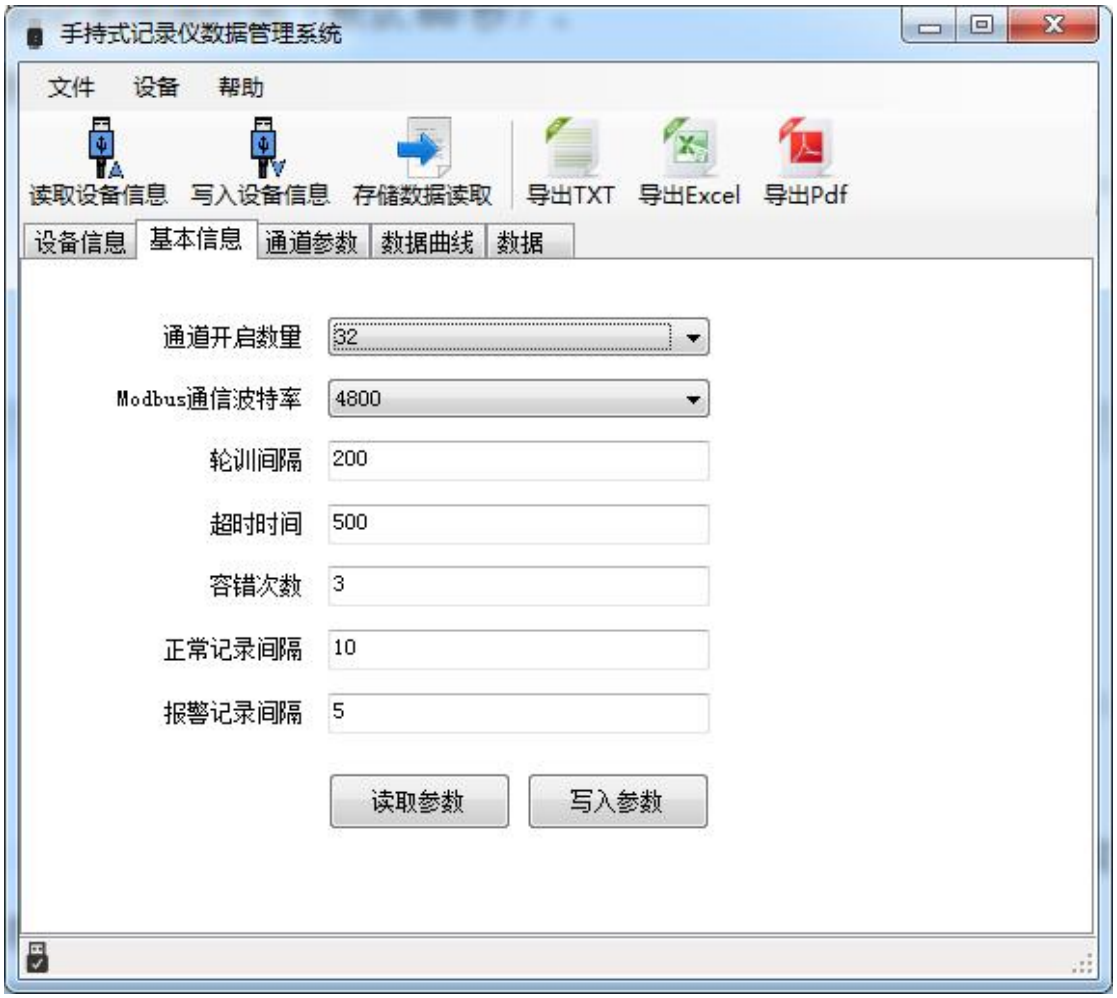
Equipment production date: factory default, can be viewed but not modified.

Recording Interval: Set the recording interval of the detector (default 60 seconds).

Current recording status: The data recording is turned on, and it is turned off by default.

5.2 Basic Information

Click "Read Parameters" to read the basic information of the device. If you need to modify the parameters, after modifying the parameters, click "Write Parameters" to send the parameters to the device.


手持式记录仪数据管理系统
文件
设备
帮助
读取设备信息
写入设备信息
存储数据读取
导出TXT
导出Excel
导出Pdf
设备信息
基本信息
通道参数
数据曲线
数据
通道开启数里
32
Modbus通信波特率
4800
轮训间隔
200
超时时间
500
容错次数
3
正常记录间隔
10
报警记录间隔
5
读取参数
写入参数

Number of channels open: Up to 32 channels can be opened at the same time, and each channel can measure one element.

Modbus communication baud rate: 2400, 4800, 9600, the 485 device connected to the recorder must use the same baud rate.

Polling interval: The polling interval between the main station port of the recorder and the 485 device, 100~65565ms, the default is 500ms.

Timeout time: When the 485 device does not respond, the waiting time of the main station port of the recorder is 100~65565ms, and the default is 500ms.

Fault tolerance times: When the 485 device has no response, the number of inquiries from the main station port of the recorder, 1~65535, default 3.

Normal recording interval: the data recording interval when the device has no alarm, 1~999s, the default is 60s.

Alarm recording interval: The data recording interval when the device alarms, 1~999s, the default is 30s.

5.3Channel parameters

Select the channel you want to configure, click "Read Parameters", and modify the parameters of the channel. After modifying the parameters, click "Write Parameters" to send the parameters to the device.


手持式记录仪数据管理系统
文件
设备
帮助
读取设备信息
写入设备信息
存储数据读取
导出TXT
导出Excel
导出Pdf
设备信息
基本信息
通道参数
数据曲线
数据
通道名称
Modbus槽位
启用
Modbus从站地址
Modbus数据类型
功能码
寄存器起始地址
寄存器个数
寄存器偏移
通道单位
系数A
系数B
小数位数
报警上限
报警下限
读取参数
写入参数

Channel Name: User-defined channel name, up to six Chinese characters.

Modbus slot: reserved.

Modbus slave address: The device address polled by the master.

Modbus data type: The data type of the 485 device register can be selected according to the actual situation. Big endian means that the high bits are in the front and the low bits are behind, and the little endian is the opposite.

Function code: 03/04, the default function code is 03.

Register start address: Set the start address of the register read by the channel.

Number of registers: Set the length of the registers to be read.

Register offset: When the device only allows to read fixed commands, the starting register read will be read from the register after the offset value.

Channel Unit: The unit of the channel measurement element, which can be customized, up to six characters.

Coefficient A, Coefficient B: Value=Ax+B, the original value is processed by coefficient.

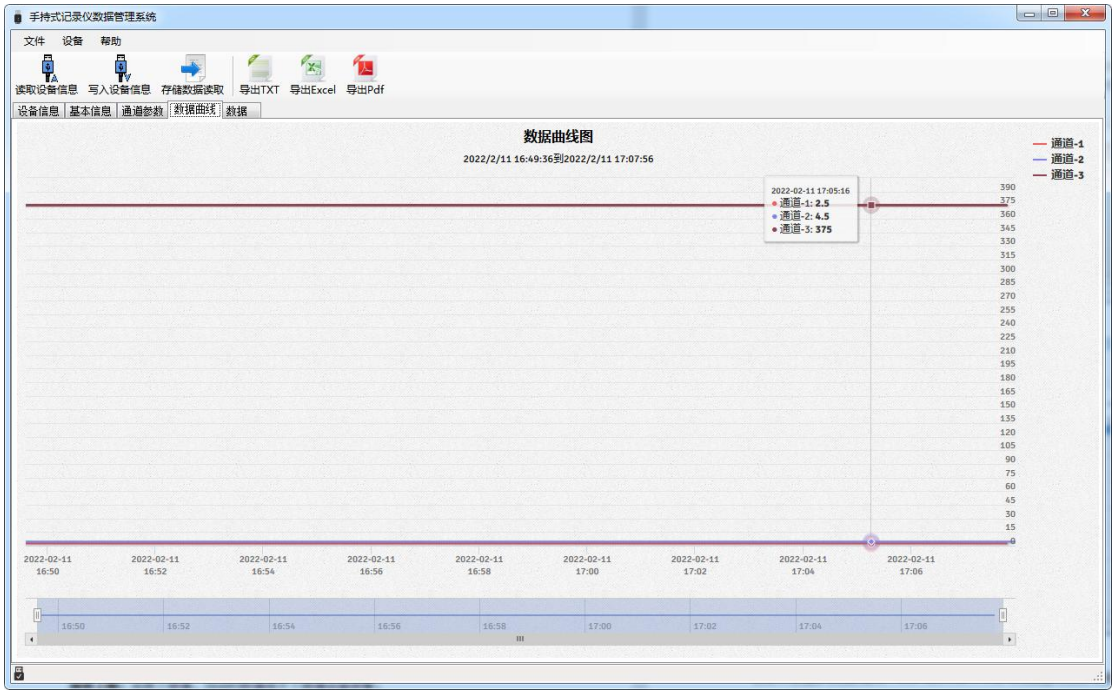
Decimal point: The decimal point position of the data display.

Alarm upper limit: set the upper limit, when the real-time value exceeds the upper limit, the device will alarm.

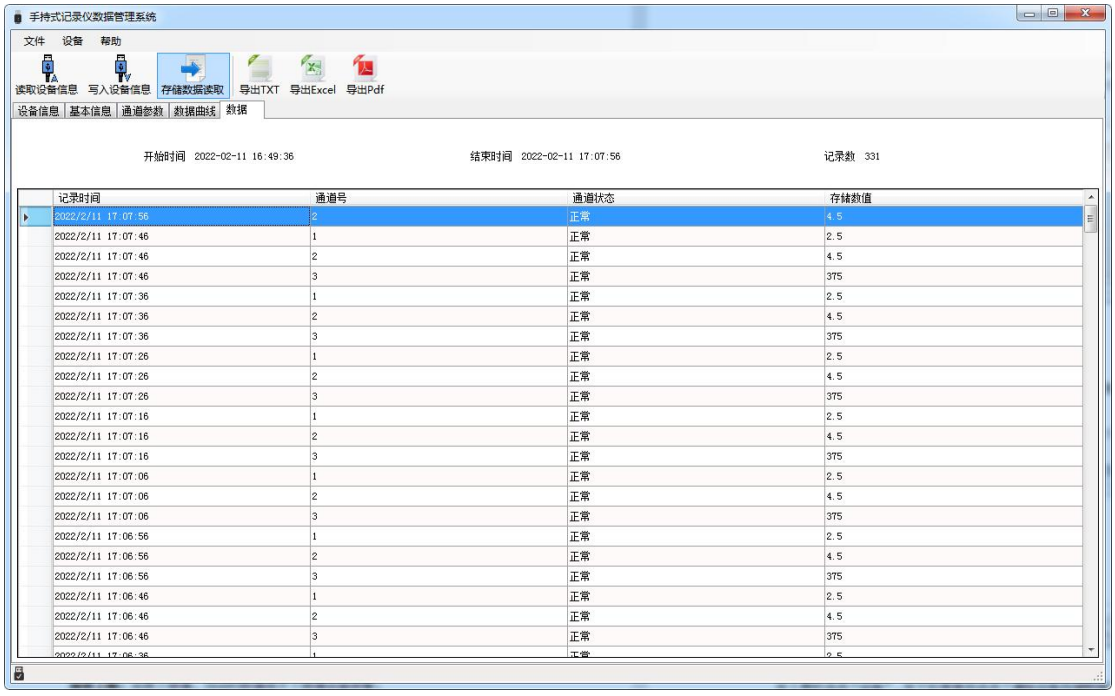
Alarm upper limit: set the lower limit, when the real-time value is lower than the lower limit, the device will alarm.

5.4Import Data

Connect the recorder to the computer via a USB cable, and then open the handheld recorder configuration software. The software will automatically read "read device information", and then click "stored data read" to import the data stored in the detector into the configuration software.



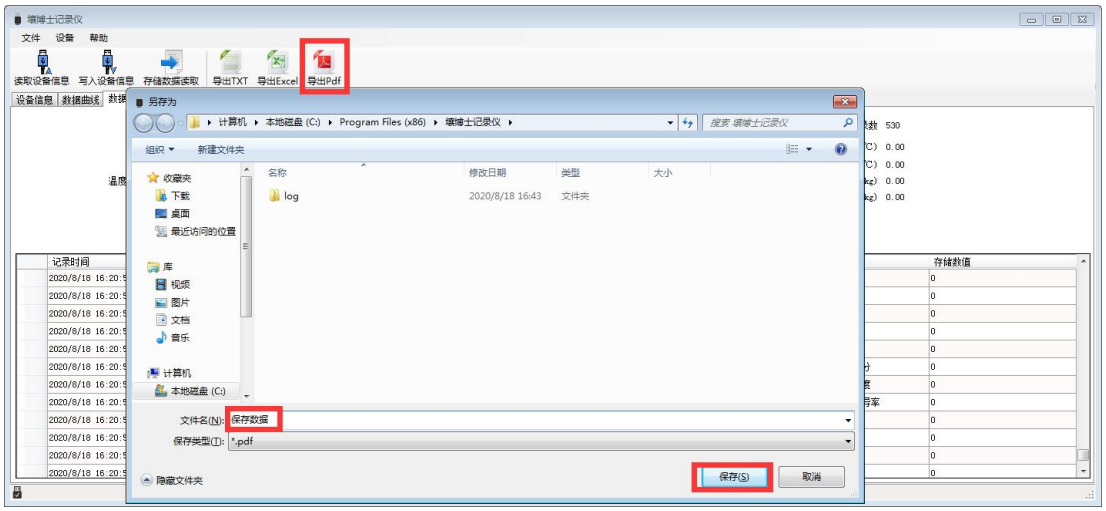
Click on the data to view the stored historical data in time。



5.5export data

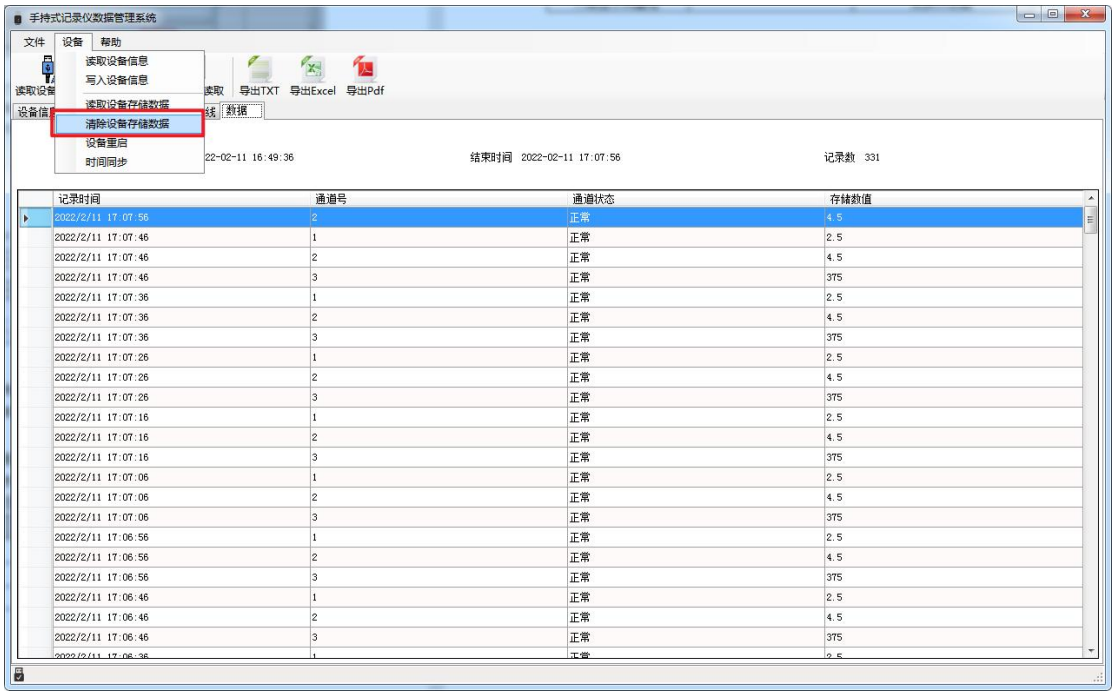
Select the export format (TXT/XLS/PDF) on the toolbar to save the data export to the specified path (take PDF as

an example), indicating that the export is successful.



5.6Clear device data

Click "Device" on the toolbar, and click "Clear Device Storage Data" in the drop-down menu to clear the device data. After clearing, the software prompts "Data Cleared Successfully".



6.Description of charging function

When the device is turned off, connect the charger to the recorder, and connect the other end to the AC220V AC power supply. After the detector is fully charged, the battery will display full, and it can be used normally.

7.Precautions

◆When the equipment has obvious failure, please do not open it to repair it by yourself, and contact us as soon as possible!

◆Prevent the unit from being dropped from a height or subjected to severe vibrations.

◆Please use the recorder strictly in accordance with the instructions, otherwise it may result in inaccurate test results or damage to the product。

◆The device contains sensitive optical components and electronic parts, make sure that the device is not subjected to severe mechanical shock.

◆The equipment should be calibrated before each use. If it is used in water for a long time, it is recommended to calibrate it every three months to ensure the accuracy of the sensor. The calibration frequency should be properly adjusted according to different application conditions (the degree of contamination in the application, the deposition of chemical substances, etc.).

8.Common faults and solutions

fault phenomenon	Possible cause of failure	How to handle
Can not boot	Voltage is too low	Please charge in time
	crash	Please contact dealer or manufacturer for repair
	circuit failure	Please contact dealer or manufacturer for repair
Inserting the sensor does not respond	circuit failure	Please contact dealer or manufacturer for repair
Display is not accurate	sensor failure	Please contact dealer or manufacturer for repair
	long-term uncalibrated	Please mark in time
time display error	The battery is completely drained	Replace the RTC battery and reset the time
	Strong electromagnetic interference	reset time
When the instrument detects normally The interface shows the full scale	sensor failure	Please contact dealer or manufacturer for repair

Appendix

Handheld water quality speed test recorder detection type, optional range detailed parameter comparison

Test items	Optional range	Resolution	precision	Conditions of Use	Response time
PH	0-14PH	0.01PH	±0.15PH	0-60℃	≤30s
EC	1~2000 μ s/cm	0.1 μ s/cm	±1%FS	-20-60℃	≤10s
	10~20000 μ s/cm	1 μ s/cm			
COD	0~500mg/L equiv.KHP	0.1mg/L	±5%FS equiv.KHP（25℃）	0~40℃	≤20s
dissolved oxygen	0~20mg/L（0~200%saturation）	0.01mg/L；0.1%	±3%FS	0~40℃	≤60s
Ammonia nitrogen	0-10mg/L	0.01mg/L	±3%FS	0~50℃	≤30s
	0-100mg/L				
Turbidity	0~200NTU	0.1NTU	±5%FS（25℃）	0~40℃	≤10s
	0~1000NTU	0.1NTU			
	0~4000NTU	1NTU			
Residual chlorine	0-10mg/L	0.01mg/L	±5%FS	0-40℃ PH：4-9 flow rate：30～60L/h	≤30s
	0-2mg/L				

The performance data stated above were obtained under test conditions using our test system and software. In order to continuously improve products, we reserve the right to change design features and specifications without prior notice.