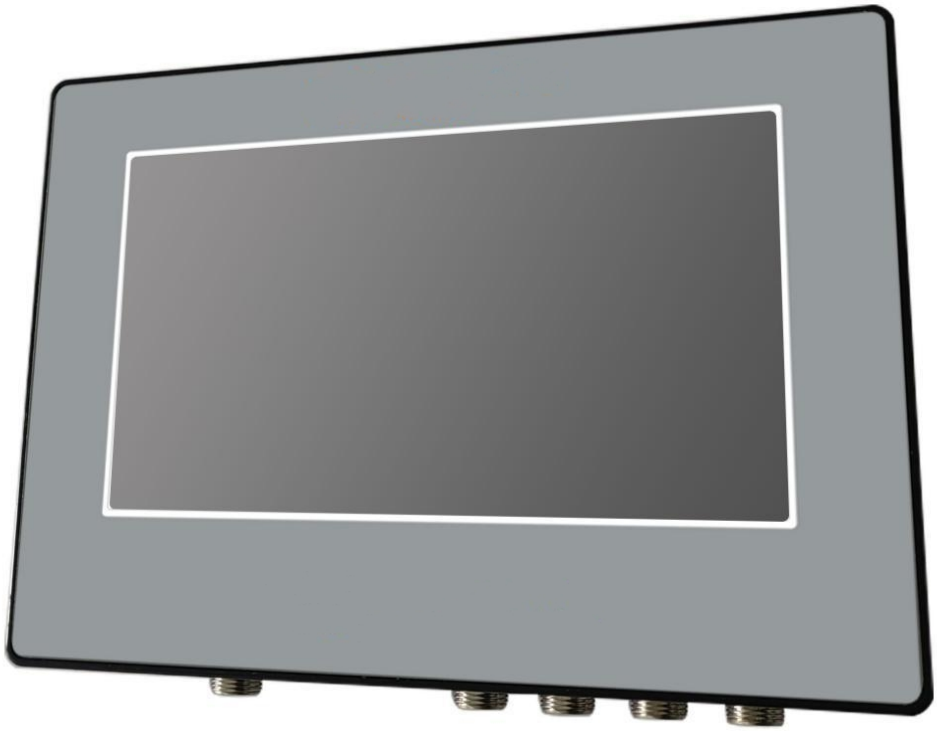
Apure Water Quality Analysis

KPC-206S Multi-Function End User Manual - General



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Content

Ⅰ.Working principle

The KPC-206S multifunctional terminal can be used with all kinds of sensors with RS485 Modbus interface of our company to display the measured value and electrode status in real time. It is widely used in surface water, municipal sewage, industrial wastewater, sewage treatment, waterworks, industrial processes, aquaculture and other industries.

The instrument will read the sensor measurement data displayed on the LCD screen can store 60 days of test data. At present, the terminal can be connected to the conventional sensor and the wet chemical sensor at the same time. The wet chemical equipment needs to be powered separately.

The specific parameters are shown in the following table:

Hardware Parameters	Display 7 "16:9 TFT LCD screen
Resolution of resolution	1024 x 600
color	24
brightness	350 CD/m squared
backlight	LED
LCD life	50000 hours
Touch screen	4 wire industrial resistance touch screen
Liquid crystal viewing Angle	'85 /' 85 / '85 /' 85
(T/B/L/R)	Rated power < 10W
Electrical Specifications	DC24V, working range DC 9V~28V
Rated voltage	With lightning surge protection
Power supply protection	< 5mS
Allow loss of power	In accordance with EN61000-6-2:2005, EN61000-6-4:2007 standards
CE & RoHS	Operating temperature
Environmental Requirements	- 20 ~ 60 ℃
Storage temperature	Do not work in strong ultraviolet environment (such as direct sunlight)
Uv protection	10~90%RH (no condensation)
Ambient humidity	10~25Hz (X, Y, Z directions 2G/30 minutes)
Resistance to shock	Natural air cooling
Mode of cooling	Protection grade front panel meets IP65

The wiring terminal are shows as follows:

Ports 1 to 7 are numbered from left to right. The ports are defined in the following table:

Port number	Port Definition
1	Power port
2	DTU interface
3	USB port
4-7	Sensor interface

Ⅱ.Operation of instrument

1.Main Screen

Power-on will enter the "main interface" by default. The main interface displays as shown in Figure 2.1.1:

- Home page for page shows all the function keys, including data monitoring, parameter setting, maintenance, installation, calibration set, historical records, after contact, etc., click to enter the function of the corresponding page.
- Home page on the upper left corner and upper right corner shows the current date and time information.

Figure 2.1.1 Interface of measurement

2.Monitoring of data

Click the "Data Monitoring" button on the main page to view the real-time data of the current connected sensor. This function is convenient for users to view the real-time data of all the current sensors at any time.

The page displays the data of the corresponding sensors in real time. At present, 25 kinds of sensors can be identified, including 20 conventional sensors and 5 wet chemical sensors, while only 9 sensors with smaller addresses can be displayed at the same time.

- Data detection: Display as real-time data, as shown in Figure 2.2.1;

Figure 2.2.1 Data monitoring interface

- Address corresponding: sensor can currently access sensor types and corresponding address location shown in the table below.

Sensor type (conventional)	Corresponding address (in decimal)
Electrical conductivity 1(us/cm)	1
Electrical conductivity 2(ms/cm)	2
PH	3
ORP	4
Dissolved oxygen	5
Ammonium nitrogen	6
turbidity	7
salinity	8

COD	9
Residual chlorine	10
chlorophyll	11
Blue green algae	12
Transparency	13
Suspended solids	14
Oil in water	15
chroma	16
Concentration of sludge	64
Nitrate nitrogen	66
Chloride ion	76
Fluorine ion	86

Sensor Type (wet chemistry)	Corresponding address (in decimal)
Total nitrogen	51
Total phosphorus	52
Ammonia nitrogen (N)	53
Permanganate	54
CODcr	55

- The left button, can quickly switch the corresponding page, including the home page, data monitoring, parameter setting, the historical record.

3.Sensor page

Click any sensor button in the data monitoring page to enter the corresponding sensor page. The interface of conventional sensors shows the COD as shown in Figure 2.3.1.

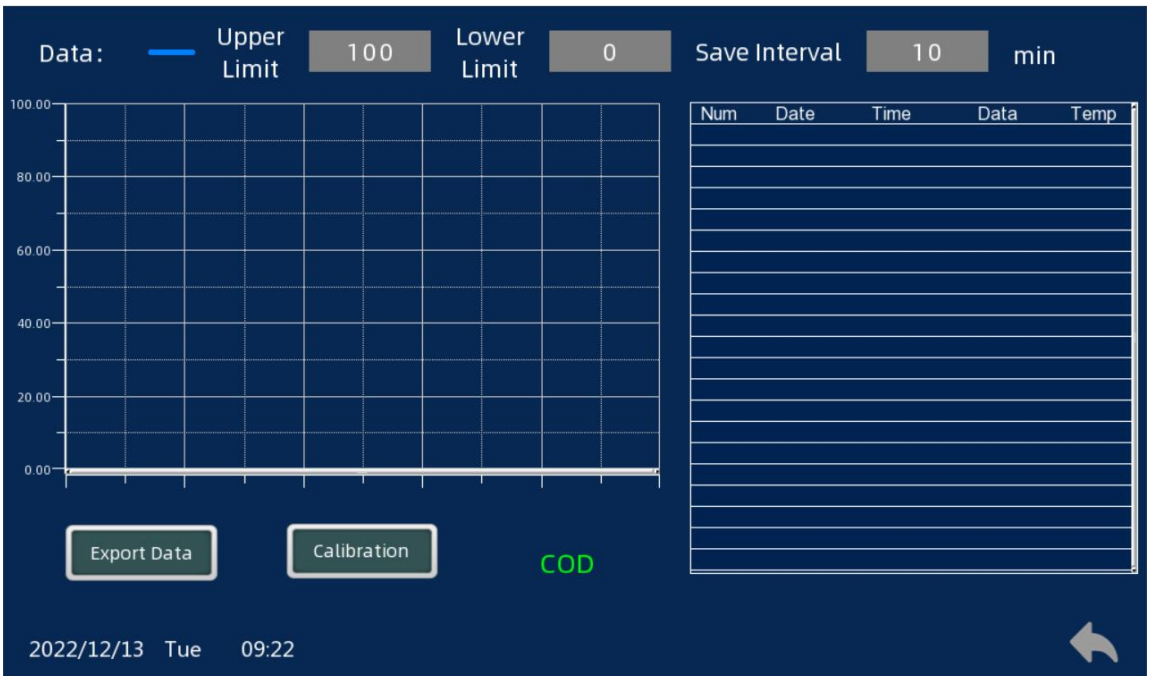

Figure 2.3.1 General sensor page

- A key calibration function is used to the temperature of the sensor zero slope parameters calibration, need a password to enter the page, the initial password is 888888, after entering the page as shown in figure 2.3.2. The position of the first 0 in each line is data input. You can input the value you want to calibrate, and then click one key to calibrate. Three to five seconds later, the calibration will be successful; The current numerical offset of the corresponding parameter at the position of the second 0 in each line. After successful calibration, the corresponding offset value will be refreshed.
- On lower limit set, the graph is used to set the upper and lower limits and alarm Settings of the upper and lower, when measured data beyond the upper and lower range, will start alarm;
- Save interval is used to set time intervals for each of the saving data, save data temporarily stored in the memory, can use U disk is derived;
- Exported to the U disk function is used to save the data to a CSV file inside the equipment export to U dish, and the data of every day as a separate file storage, export have pop-up prompts U disk is derived in progress, as shown in figure 2.3.3.

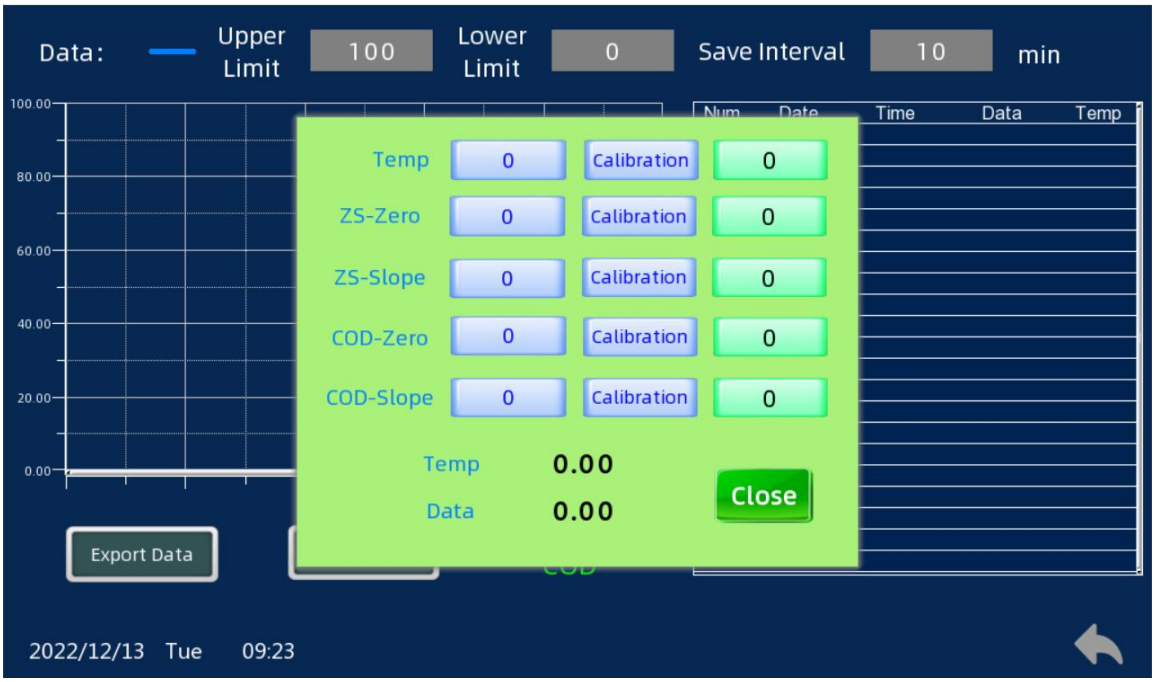

Figure 2.3.2 Interface of conventional sensor calibration

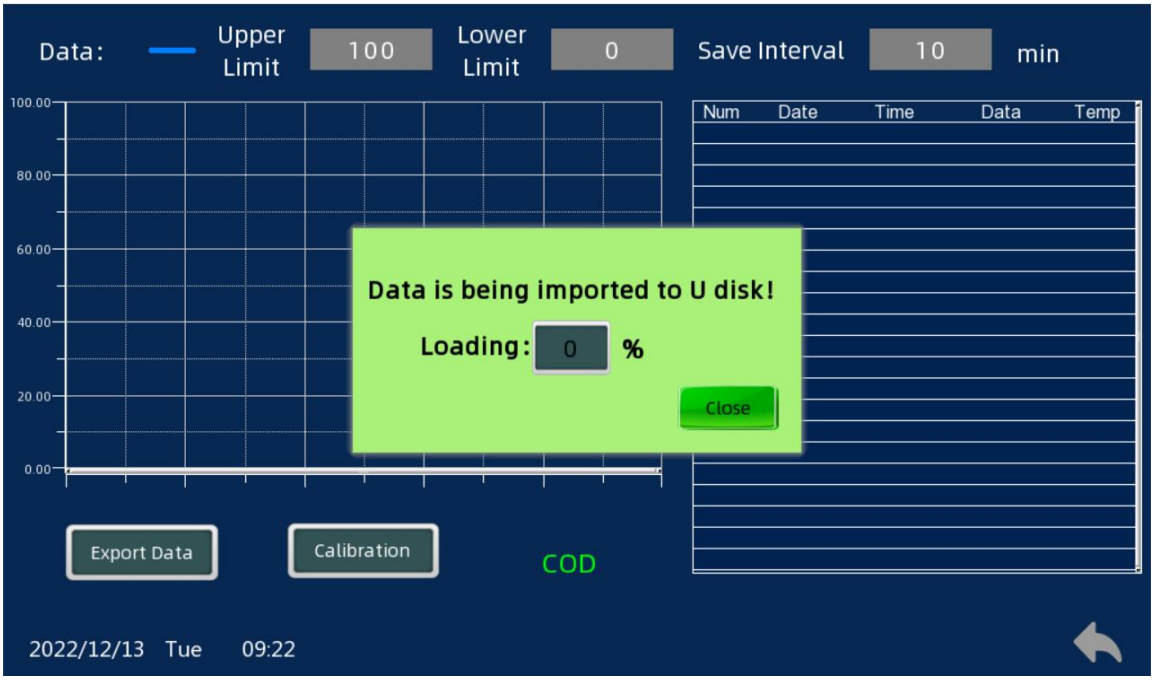

Figure 2.3.3 Data import USB flash drive interface

The interface of the wet chemical sensor takes total nitrogen as an example, which is slightly different from that of the conventional sensor, as shown in Figure 2.3.4

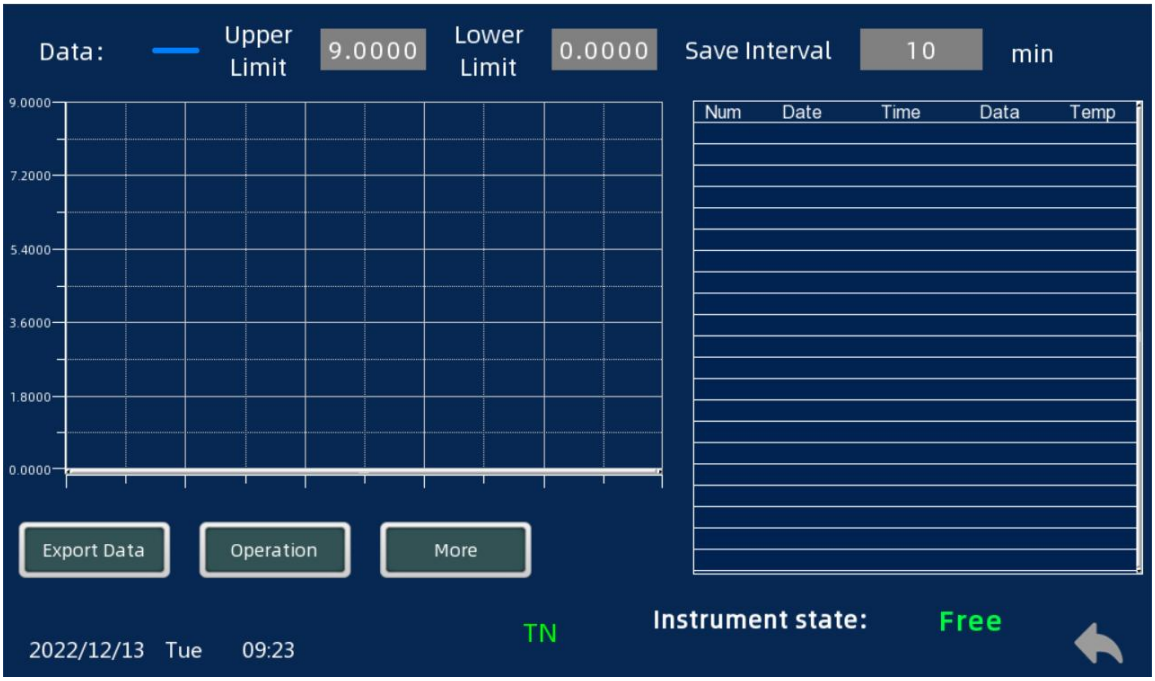

Figure 2.3.4 Interface of wet chemical sensor

- Read the current status and display on the page, including filling, measuring, cleaning, such as emptying state;

- More data after button clicks, you can see the detailed information of the current wet chemical equipment including measurement data values, the measured signal value, reference value signal, real time, temperature, absorbance, slope; See Figure 2.3.5 for details

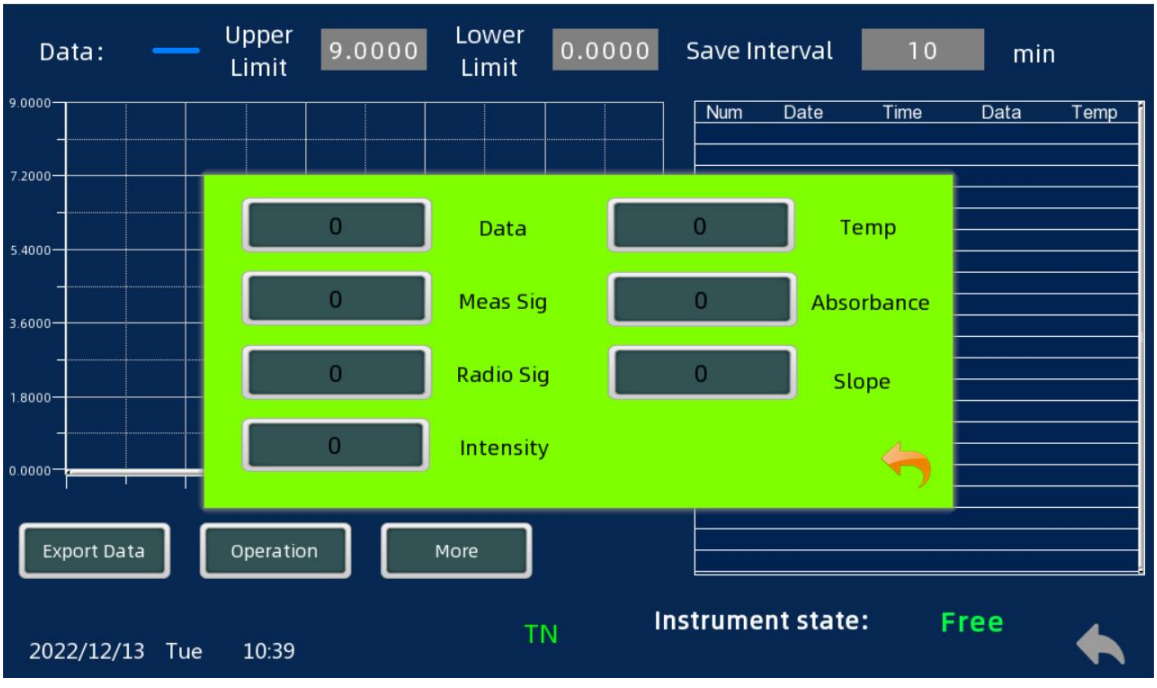

Figure 2.3.5 Details of wet chemistry

- Performed manually click on the button, the display can perform various operations, such as filling agent, single cleaning, a single measurement, cycle measurement, empty, the function such as emergency stop, after clicking on the corresponding prompt. The difference of the emptying operation is that the operation will be performed only when the instrument temperature drops below 50℃. After clicking emptying, the current temperature will be displayed in the pop-up window and other operations will be blocked until emptying is started, as shown in FIG. 2.3.6.

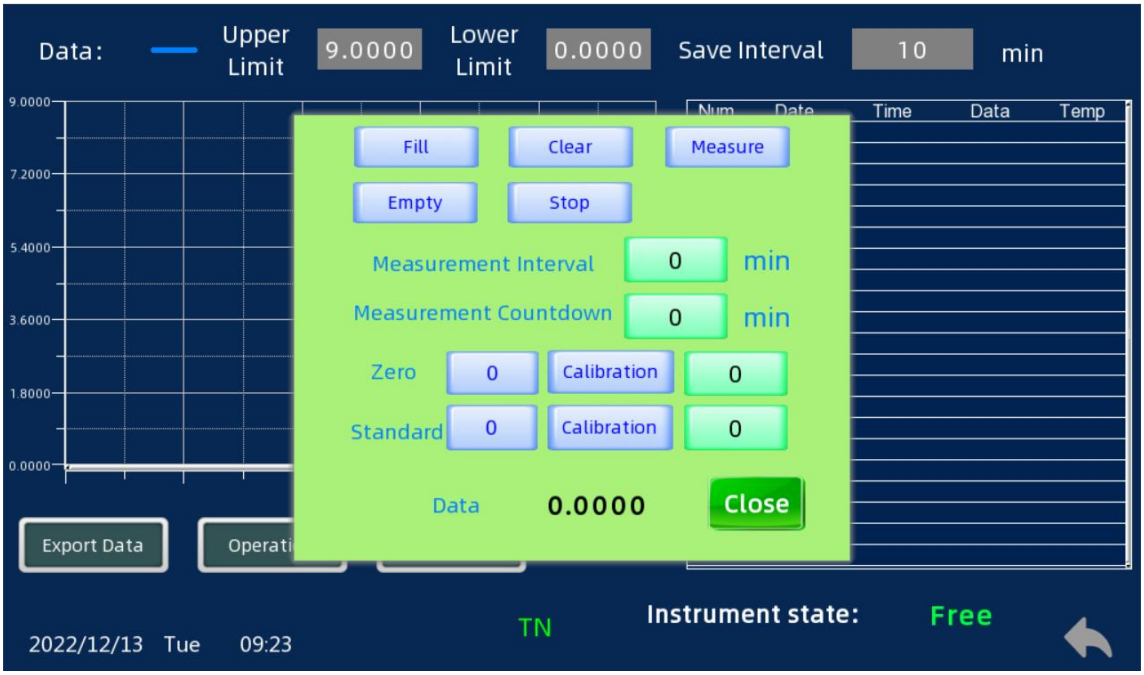

Figure 2.3.6 Manual execution interface of the wet chemical sensor

4.Parameter Setting

Click the "Parameter Setting" button to enter the parameter setting interface, which is used to manually read the data of the corresponding register address of the sensor, and obtain the status, type and unit type of the sensor corresponding to the current address, as shown in Figure 2.4.1.

- Enter the corresponding address in the sensor address, and then enter the register address you want to read, you can read the corresponding register data in the register data.

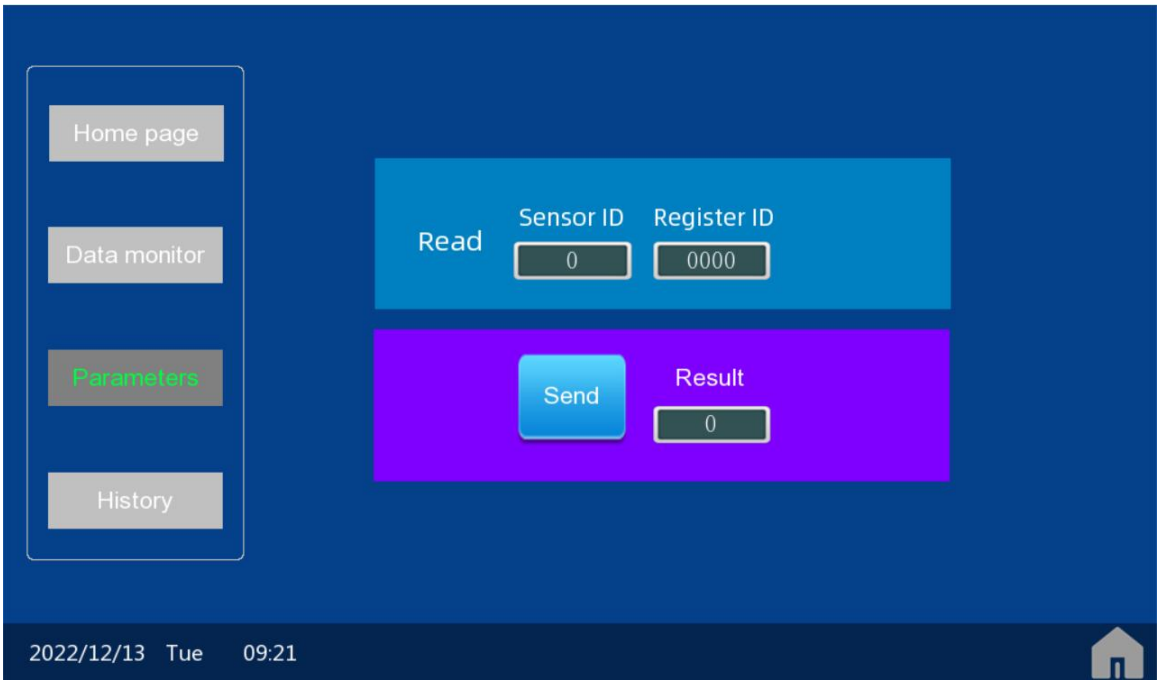

Figure 2.4.1 Parameter Settings

5.Control of flow

When connected to the serial port IO controller accessories, can realize the flow control, through the time cycle of multiple relays on and off control, power can be saved.

Set the cycle time and the switch time of the corresponding relay. When the judgment is valid, enable the corresponding relay, and then click start control to carry out the cycle time control relay. The second window of the cycle time displays the moment of the cycle time at this time, in the unit of minutes. It can be controlled by pause control and reset control button; You can also enter the page through manual control for manual relay switch control.

Note: When modifying the time, the following judgments can be made to determine the validity:

a、a. Opening/closing time ≤ cycle;

b、 Open time 1 < close time 1 < open time 2 < close time 2

c、 If the open time 2 and close time 2 are set to 0, the control of time 2 is disabled

Figure 2.5.1.

Figure 2.5.1 Flow control

6.System Settings

It is used to set the status of MSC-206S itself. Currently, it has added the function of manual calibration system time, active upload interval setting, active upload switch, screen brightness setting, device restart function, clearing historical data function, and switching between English and Chinese. Figure 2.6.1

Figure 2.6.1 System Settings

7. Historical record

Used to query the history of sensors monitored by the MPC-206S, as shown in Figure 2.7.1.

Figure 2.7.1 Historical record

Ⅲ.Communication protocol

1. Description of Communication

It supports the standard Modbus communication protocol and adopts the RTU communication format. The host computer sends a command to the multifunctional terminal, and the multifunctional terminal sends back a response signal. In this way, the communication under the circumstance of non-active participation of the multifunctional terminal is realized.

2. Communication parameters

Factory default communication parameters:

Baud rate: 9600;

Data bits: 8;

Stop bit: 1;

Check bit: NONE

3. Upload protocol

For example: Serialnum: 1234,ecm: 0.000,tmpecm: 0.00,phg: 0.000,tmpphg: 0.00,rdo: 0.000,tmprdo: 0.00,nhn: 0.000,tmpnhn: 0.00,tzs: 0.000,tmptzs: 0.00,cod: 0.000,tmpcod: 0.00,end

Analysis:

Serialnum:1234	The device number is 1234 (each device is unique and cannot be changed)
ecm:0.000	Electrical conductivity detection value
phg:0.000	Ph detection value
rdo:0.000	Dissolved oxygen detection value
nhn:0.000	Ammonium nitrogen detection value
tzs:0.000	Turbidity detection value
cod:0.000	COD detection value
tmpecm:0.00	Indicates the temperature of the sensor
tmpphg:0.00	
tmprdo:0.00	
tmpnhn:0.00	
tmptzs:0.00	
tmpcod:0.00	

Note: The type of sensor sent is the type of the sensor currently connected.

Ⅳ.Precautions

- Avoid water and sunlight.
- Avoid strong electromagnetic interference
- Avoid strong corrosive gas
- Avoid shaking and it broke
- Equipment operation, please don't touch bare metal terminals, must be power off before maintenance
- Use ground fault circuit breaker as far as possible;
- The connection by grounding operation unit operating conditions.
- Touch screen is fragile, do not cross touch screen with sharp objects.
- When not in use, turn the power off, please.

1.Q&A

error	Possible causes	The Solution
Screen Prompt"  **"**	The sensor data exceeds the upper and lower limits	Check the sensor and environment, or adjust the upper and lower limits

2.Quality assurance

- Supplier quality inspection department shall establish standard test procedures, with advanced testing equipment and means, and in strict accordance with the discipline inspection, the product to do 72 hours ageing experiment, stability experiment, don't let an unqualified products.
- Not qualified rate reached 2% of the product batch on the receiving party directly returned, all the expenses shall be borne by the supplier. Refer to the product description provided by the supplier for inspection standards.
- Receiving request the supplier to ensure supply of goods quantity, delivery speed.

3.Accessories and spare parts

This product includes:

- KPC - 206S multi-function terminal 1
- Instructions 1
- Certificate 1 copies

4.After-sales service commitment

Our company provides a one year after-sales guarantee from the sales date of the machine, but not including the damage caused by improper use, if you need to repair or adjust, please return, but the freight is at your own expense, send back to ensure that the packaging is in good condition to avoid damage in transit, our company will repair the damage of the instrument free of charge.