

Directory

Safe operation-----2

Instrument use-----2

Inductive conductivity controller Product content and warranty-----2

Specifications-----3

Acid-base concentration meter Instrument installation-----4

Wiring labels-----6

Electrode wiring diagram-----6

Relay contact protection diagram-----7

Display instructions-----8

Button description-----11

Hold mode-----11

Measurement settings-----12

Output Settings-----12

Relay settings -----13

Data logging settings -----14

Output test-----16

Correction -----16

Date setting-----18

Language settings-----18

Backlight Settings-----18

Tenber version-----19

Restore factory settings-----20

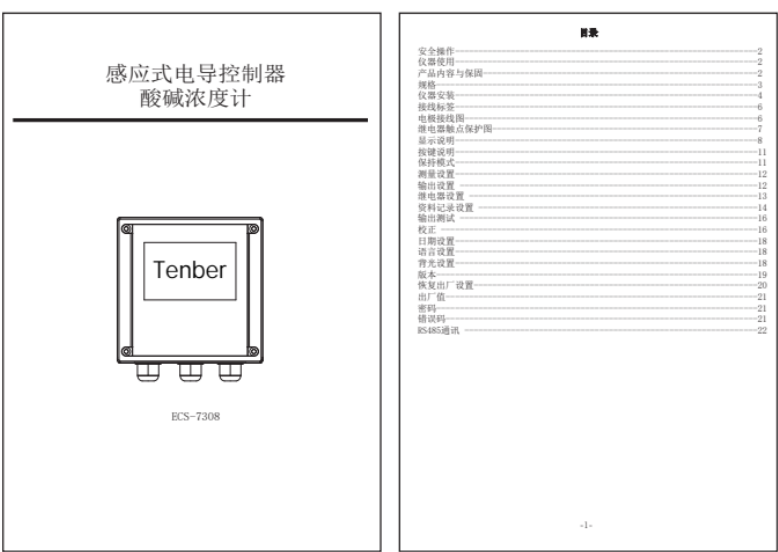
Factory value-----21

Password-----21

Error code-----21

RS485 communication -----22

ECS-7308



Original visual reference: page 1

Safe Operation Specifications

Please read the following instructions for safe operation carefully before use. Inductive conductivity/acid-base concentration meter

1. Before use, please observe whether the appearance of the instrument is damaged due to transportation and extrusion. Conductivity measurement range 0-2000mS/cm (can be customized)
2. The instrument must be operated by trained professional technicians. Conductivity measurement accuracy $\pm 0.5\%$ F.S.
3. Read the operation manual carefully before use to avoid incorrect wiring that may cause safety problems and damage to the instrument. Conductivity resolution $\pm 0.1\%$ F.S
4. After all wiring is completed, it must be carefully checked before power can be supplied and the connected equipment must be confirmed to be correct.

Salinity measurement range 0-30g/Kg

5. Please install the instrument away from high temperature, high humidity and corrosive environment, and avoid direct sunlight.

Salinity measurement accuracy $\pm 0.1\%$ /Kg

6. Avoid using power supplies that can produce surge interference. If there is surge interference, please separate the instrument power supply from other interfering equipment.

Separate power supply Salinity resolution $\pm 0.01\%$ /Kg

Acid-base detection range Hydrochloric acid (HCL): 0-40% Nitric acid (HNO3): 0-25%

Sulfuric acid (H2SO4): 0-100% Caustic soda (NaOH): 0-40%

Instrument use

The instrument is used to measure conductivity/salinity/acid-base concentration. Acid-base measurement accuracy is $\pm 2\%$ F.S.

The instrument can be installed on the panel, wall or pipeline. The acid-base resolution is $\pm 0.1\%$ F.S.

The instrument provides 2 current outputs, the maximum load is 500Ω, and the temperature measurement range is 0-120°C

The instrument provides 3-way control relays. The maximum withstand voltage and current of the relay is 5A/250VAC or 5A/30VDC. The temperature measurement accuracy is $\pm 0.1^{\circ}\text{C}$.

Temperature resolution 0.1°C

Temperature compensation method PT1000

Product Contents and Warranty

Instrument temperature range 0 to +70°C/-20 to +70°C

Product packaging includes 1 instrument and 4 sets of brackets (screws, fixing blocks, fixing rods)

Maximum flow speed 3 meters/second

Instrument operating/storage ambient temperature -20 to +70°C

Display LCD with backlight

Inductive conductivity current output 1 Isolated 4 to 20mA output, maximum load 500Ω

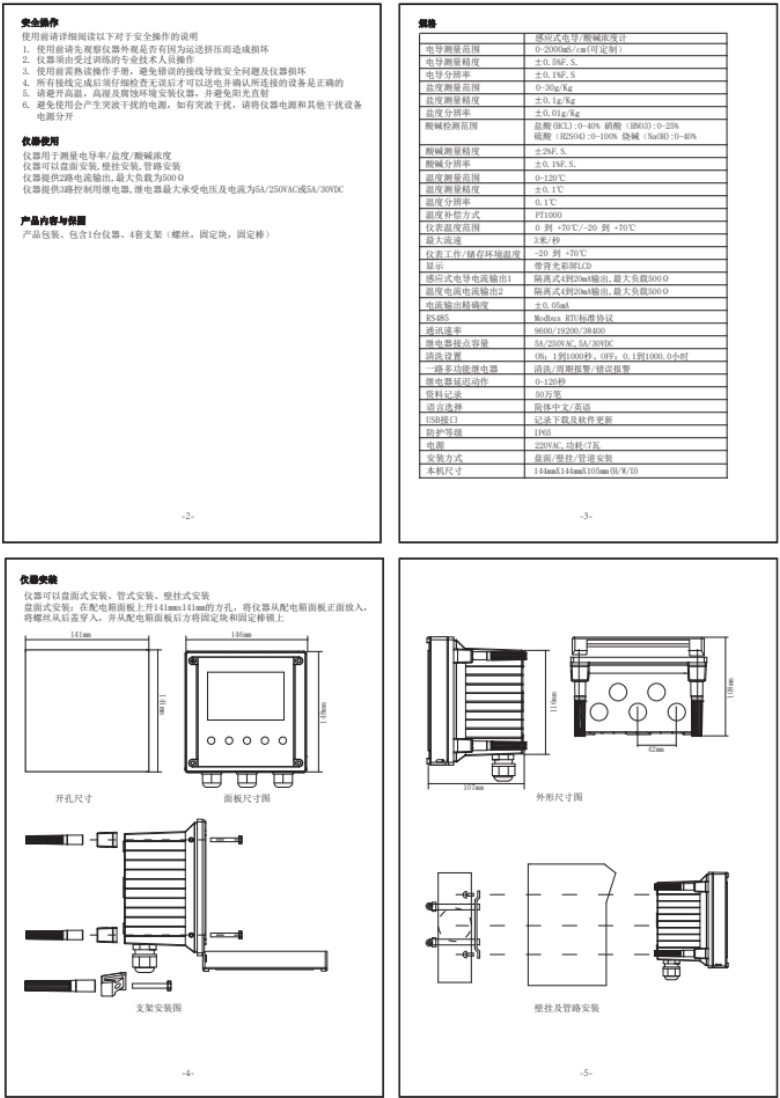
Temperature current current output 2 Isolated 4 to 20mA output, maximum load 500Ω

Current output accuracy $\pm 0.05\text{mA}$

RS485 Modbus RTU standard protocol

Communication rate 9600/19200/38400

Relay contact capacity 5A/250VAC, 5A/30VDC



Original page 2 - translation continued

Cleaning settings ON: 1 to 1000 seconds, OFF: 0.1 to 1000.0 hours
One way multi-function relay cleaning/periodic alarm/error alarm
Relay delay action 0-120 seconds
500,000 data records
Language selection Simplified Chinese/English
USB interface record download and software update

Protection grade IP65
Power supply 220VAC, power consumption <7 watts
Installation method: panel/wall-mounted/pipe installation
Machine size 144mmX144mmX105mm(H/W/D)
Instrument installation
The instrument can be installed in panel type, pipe type or wall-mounted type.
Panel installation: Open a 141mmx141mm square hole on the distribution box panel, and place the instrument from the front of the distribution box panel.
Insert the screws through the back cover and lock the fixing block and fixing rod from behind the distribution box panel.
141mm 146mm
108mm
141mm 116mm
148mm
42mm
107mm
Hole size Panel size drawing Overall dimension drawing
Bracket installation diagram Wall mounting and pipeline installation

Wiring label Relay contact protection diagram

Relay contacts receiving electrical sparks will affect their service life, especially in inductive and capacitive loads. In order to suppress sparks and

For arc effects, an RC circuit should be used to extend the life of the relay.

19 18 17

GND PT- PT+ D- D+ S+ S- ~ ~

RS485B RS485A

AC AC mA-

mA1+ mA2+

RELAY1 RELAY2 RELAY3 1

1 2

POWER CONTACTS OUTPUT COM SENSOR ONLY

POWER:220VAC 50/60Hz

4-20mA: Isolation Max.Load 500 ohm

3 2

Relay:5A/250VAC 5A/30VDC

3

~ ~

AC protection for inductive loads

1. Load

2. RC spark elimination, for 220VAC, R=10 ohm 1 watt, C=0.1630V

Electrode wiring diagram 3. Relay contacts

GND PT- PT+ D- D+ S+ S-

A+ B C

7 6 5 4 3

20 19 A1 A2 B1

C1

B2

A3 B3 C3

power cord

-

A DC protection, A1: inductive load A2: 1N4007, A3: relay contact

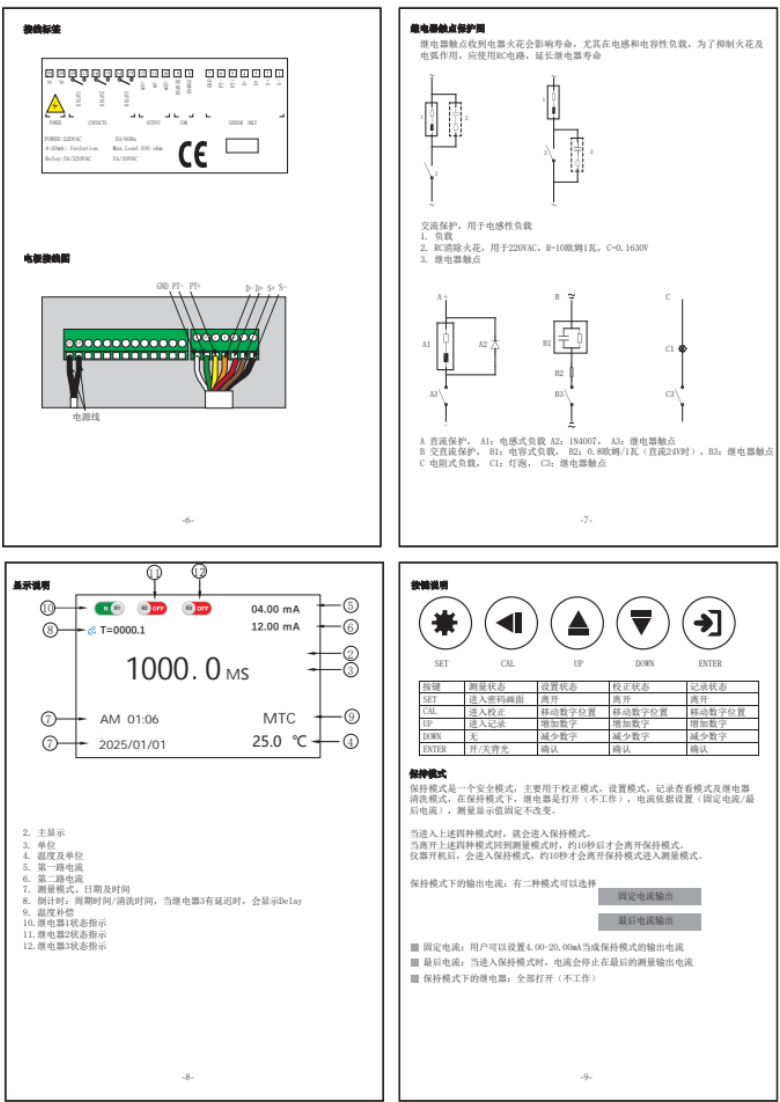
B AC and DC protection, B1: capacitive load, B2: 0.8 ohm/1 watt (at 24V DC), B3: relay contact

C resistive load, C1: light bulb, C3: relay contact

11 12

Display instructions Key instructions

10 R1 R2 R3 04.00 mA 5



Original page 3 - translation continued

T=0000.1 12.00 mA 6
8
2
1000.0 MS 3
Button
SET
Measurement status
CAL
Set status
UP DOWN
Calibration status
ENTER
record status
SET Enter password screen Leave Leave Leave
CAL Enter Calibration Move numeric position Move numeric position Move numeric position
7 AM 01:06 MTC 9 UP Enter record Add number Add number Add number
DOWN
7 2025/01/01 25.0 °C 4 ENTER
None
Turn on/off backlight
reduce numbers
Confirm
reduce numbers
Confirm
reduce numbers
Confirm
hold mode
Hold mode is a safe mode, mainly used for calibration mode, setting mode, record viewing mode and relay
Cleaning mode, in hold mode, the relay is open (not working), the current is based on the setting (fixed current/maximum
current), the measurement display value is fixed and does not change.

2. Main display When entering the above four modes, it will enter the hold mode.
3. Unit When leaving the above four modes and returning to the measurement mode, it will take about 10 seconds to leave the
hold mode.
4. Temperature and unit: After the instrument is turned on, it will enter the hold mode, and it will take about 10 seconds to leave
the hold mode and enter the measurement mode.
5. The first current
6. Second current output current in hold mode: there are two modes to choose from

Original page 3 - translation continued

- 7. Measurement mode, date and time
 - 8. Countdown: cycle time/cleaning time, when relay 3 has a delay, Delay fixed current output will be displayed
 - 9. Temperature compensation
 - 10. Relay 1 status indication final current output
 - 11. Relay 2 status indication
 - 12. Relay 3 status indication Fixed current: The user can set 4.00-20.00mA as the output current in hold mode
- Last current: When entering hold mode, the current will stop at the last measured output current
- Relays in hold mode: all on (not working)

Settings Measurement settings Concentration

Press the SET key, use the UP/DOWN key and SHIFT key, enter the password 0001, and press the ENTER key to enter the settings, measurement settings parameter settings

You can also press the SET button to leave. If no button is pressed for more than 10 minutes, it will automatically return to the measurement mode. Solution = hydrochloric acid (0-20%)

Parameter settings

Password Password Salinity (0-20%)

Temperature setting Sodium hydroxide (0-15%)

Sodium hydroxide (15-50%)

Nitric acid (0-30%)

0000 0001 Nitric acid (30-100%)

Sulfuric acid (0-31%)

Sulfuric acid (31-86%)

Parameter settings Parameter settings

Measurement type = Sulfuric acid (86-92%) Temperature coefficient = 02.00 %/°C

Hydrofluoric acid (0-30%)

Reference temperature = 25.0°C

Potassium hydroxide (0-28%)

Acetic Acid (0-18%) Offset = + 0 0 .0 %

Main Screen Acetate (18-100%) Filter = 01

Press the UP/DOWN key to select the function, and press the ENTER key to enter the function setting: Phosphoric acid (0-35%) Number of reference points = 10

Custom one

Custom two

Settings 1/2 General Settings

Measurement settings Date settings Conductivity Salinity

Output settings Language settings

Relay settings Backlight settings Parameter settings Parameter settings

Data Record Settings Version

Offset = +0000 uS Offset = +0.00 g/kg

Output settings Restore factory settings

Correction Filter = 01 Filter = 01

General settings

First page Second page

Instructions: 1. To select the measurement type, press the UP/DOWN key to select, optional conductivity/salinity/concentration

1. During setting, when the entered value is not within the specified range, "error" will appear at the top of the display; 2. Offset input, range $\pm 100\text{mS}$, $\pm 1.00\text{g/Kg} \pm 10.0\%$

2. After inputting the value, press the ENTER key to save it; 3. Filter setting: range 0-10



Original page 4 - translation continued

3. When setting, you can press the SET key to leave at any time;

4. In setting mode, if the button is not pressed for more than 10 minutes, it will automatically return to measurement mode.

Note: When you find that the reading value is unstable, you can try to increase the filter value appropriately, but this will also cause the reading value to become unstable.

Change slowly.

Measurement settings Temperature settings Current settings Communication settings

Parameter setting Current setting Communication address = 001

Offset = +0.0°C

Temperature setting Communication rate = 9600

Display = Yes Communication settings

1. Temperature offset, range $\pm 5.0^{\circ}\text{C}$

2. Whether the temperature is displayed on the measurement page 1. Communication address selection: 1-255;

2. Communication rate, press UP/DOWN key to select.

Output settings Relay settings

Current setting Current 1 setting

Relay settings Relay 1 settings

Current setting 4.00 mA = 0 0 0 0 mS

20.00 mA = 2 0 0 0 mS Relay 1 Setting Switch = On

Communication settings

Offset = + 0.0 0 mA Relay 2 Setting Off

Filter time = 0 0 0 seconds Multifunctional relay Closing point = 2 0 0 0 mS

Hold Mode = Fixed Current Release Point = 0 0 0 0 mS

0 4 .0 0 mA delay time = 0 0 0 seconds

final current

Current 1 setting Current 1 setting

4.00 mA = 0 0 .0 0 g/kg 4.00 mA = 0 0 .0 % Relay 1 setting Relay 1 setting

20.00 mA = 0 6 .0 0 g/kg 20.00 mA = 1 0 0 .0 %

Offset = + 0 .0 0 mA Offset = + 0 .0 0 mA Switch = On Switch = On

Filter time = 0 0 0 seconds Filter time = 0 0 0 seconds Off Off

Holding mode = fixed current Holding mode = fixed current Closing point = 0 0 .0 0 g/Kg Closing point = 1 0 0 .0 %

0 4 .0 0 mA 0 4 .0 0 mA Release point = 1 5 .0 0 g/Kg Release point = 0 0 0 .0 %

Last current Last current Delay time = 0 0 0 seconds Delay time = 0 0 0 seconds

1. Set the corresponding value of 4.00mA output

2. Set the corresponding value of 20.00mA output. The value between 4.00mA and 20.00mA must be at least 100mS or 1.00g/Kg 1. Switch: Press the UP/DOWN key to select on or off. If it is off, the relay will not work.

Or 10% difference 2. Closing point: the closing point (action) of the relay

3. Set the current offset, the range is $\pm 1.00\text{mA}$ 3. Release point: the release point of the relay (no action)

Original page 4 - translation continued

4. Set the current filter time to 0-120 seconds. When the current changes from one point to another, a software low 4. Delay time: 0-120 seconds. When the relay reaches the closed value, it will delay for a period of time before taking action.

Through the intervention of the filter, the current presents a smoother output. The longer the filtering time, the slower the current changes.

5. Set the current holding mode. Use the UP / DOWN button to select fixed current or final current. If fixed current is selected, note: If you want the pump to operate at 50mS and release at 1000mS (the pump does not operate), then the closing point is set to 50mS.

After pressing the ENTER key, you can enter a fixed current and set the release point to 1000mS.

Note: The current value is finally displayed with or without offset in the current setting. The maximum current is 22.00mA and the minimum current is 3.50mA.

Note: The settings of relay 2 are the same as those of relay 1, and the values corresponding to the closing point and the release point of the relay cannot be the same.

Data logging settings Read data

Relay settings Multi-function relay

Data record settings Download records

Relay A Setting Status = Disabled

Query data records

Relay B setting cycle time = 0001.0

Download history

Multifunctional relay cleaning time = 0010 seconds

Delay time = 000 seconds

Function = Error Alarm

Press the UP/DOWN key to select the function, and press the ENTER key to enter the data storage settings:

1. Switch: Press the UP/DOWN key to select on or off. If it is off, the relay will not work; 1. Record data on/off, select the UP/DOWN key;
2. Cycle time: cleaning cycle or cycle alarm time; 2. Display mode, UP/DOWN key selection;
3. Cleaning time: When the cleaning cycle comes, the time to start cleaning; 3. Storage interval 1-60 minutes.
4. Delay time: When the relay reaches the closing value, it will delay for a period of time before acting; 4. Whether to clear all records, select the UP/DOWN key;
5. Mode: Press the UP/DOWN key to select cleaning, periodic alarm, and error alarm. 5. Query data and enter the starting record;
6. Insert the USB disk into the USB port and execute the download function. It takes about 10 minutes to download 500,000 data and about 50,000 data.

Data logging setup takes 1 minute.

Data Record Settings Data Record Settings Description:

1. When the data recording is selected to be on, data will be stored according to the storage interval time in the measurement mode.

Data recording settings Status = Off 2. Recording method: Select record display (5 data per page) or graphic display (150 data per page).

Query data records Display mode = Record 3. When you choose to clear records, you have to wait for about 10 seconds before all records will be cleared.

Download history storage interval = 01 minutes

Clear Records = No

Record display, 5 pens each time Graphic display, 150 pens each time

Record 0010300 Graphic 0010300

24-01-14 21:20:49 0050 mS 025.0°C 2000

24-01-14 21:20:49 0050 mS 025.0°C

Data record settings Enter starting record

24-01-14 21:20:49 0050 mS 025.0°C 1000



Original page 5 - translation continued

Data record settings

Query data records 24-01-14 21:20:49 0050 mS 025.0°C

Download record 000000 24-01-14 21:20:49 0050 mS 025.0°C 0000 2024-07-14 05:20:49

Output Test Conductivity Correction

Output test 1. Current A output test: 4.00-20.00 mA; Conductivity correction 1. Place the electrode into the known standard solution

2. Relay A test, UP/DOWN key selection; 2. The conductivity measurement value will display the conductance measured by the current electrode.

Current output A = 04.00 mA

3. Relay B test, UP/DOWN key selection. Last constant = 01.0000 value

Current output B = 04.00 mA 3. After waiting for stability, press the up and down keys to enter the cell constant.

Conductivity measurement = 00000uS

Relay A = Release point Note: This function is used to test the current output and relay. The conductivity measurement value is the same as the standard liquid value. Press the confirmation key.

Relay B = release point

Temperature = +010.0°C

Is it working properly? save

Multifunctional relay = release point Input constant = 01.0000 4. If the measured value of the electrode is greater than the maximum value of the selected measuring segment

If the value is high or the temperature exceeds 0.0-60.0°C, the display will

An error will be displayed when entering the cell constant.

Correction Resistance correction

Press the UP/DOWN key to select the function, and press the ENTER key to enter the calibration. Slope correction 1. When calibrating, pass a 20/

Correction

1. Parameter setting: Enter the solution temperature coefficient and the high-precision calibration resistor with reference temperature of 200/2000Ω, and then close the head and tail.

2. Zero point calibration: Calibrate the conductivity zero point 20.00Ω Count1:12345. Press ENTER after the reading value is stable, and finally remove the resistor and place it in the empty

Parameter setting 3. Slope correction: Calibrate the conductivity slope 200.00Ω Count1:01234. Perform an open circuit correction in air to complete the calibration.

Conductivity correction 4. Restore factory settings: Restore the factory calibration value Count1:12345 2. Different ranges have different calibration resistance values, here

Resistance correction 2000.00Ω Count1:01234 Take 0-50mS as an example

Restore factory settings Open circuit

Open circuit and press OK

Parameter settings

Factory reset

Parameter settings 1. Solution temperature coefficient: Enter the temperature coefficient of the solution,

Original page 5 - translation continued

Range: 0.01% to 40.00% Restore factory settings This function will restore the correction value to the factory state.

Solution temperature coefficient = 0.2 . 0.0 %/°C 2. Enter the reference temperature: range 15°C to 35°C

Reference temperature = 25.0°C Recovery = No

Note: Under normal circumstances, the conductance is compensated back to 25.0°C. Note: The recovery here is to restore the calibration to the factory state, not

If the user wishes to compensate back for other temperatures, they can change the parameters changed in the Effect settings.
reference temperature

General Settings-Date Settings General Settings-Version

Date setting: Press the UP/DOWN button to set the date and time. After power off, version displays the current version model and can be inserted when updating the software.

The time will last about two days. U disk, select software update, put the new software into the USB disk, and execute Year = 2024 version update. The software update time is about 30 seconds.

month = 01

Day = 14 HW Version V1.00

Hours = 21 SW Version V1.00

points = 09

seconds = 17

General Settings-Language Settings

General settings-restore factory settings

Language setting: The display language is set to Simplified Chinese. Press the UP/DOWN key to select individual recovery of current or relay or

Factory reset

Language setting = Simplified Chinese is all, but does not affect the following values: language, backlight setting

Restore measurement = No Centered setting comparison, communication settings, measurement mode.

Recovery Current = No

Recovery Relay = No

Restore communication = No

Note: Restoration here will not affect conductivity and specific resistance.

Restore all = No Calibrated values for salinity and TDS

General Settings-Backlight Settings

Backlight setting: Press the UP/DOWN button and select to automatically turn off the backlight in 60 seconds or use Manual backlight.

Language setting = automatic

Factory value

Relay 3 cycle time 1 hour Range: 0.1-1000.0

EC 20.00mA corresponding value 2000 uS/cm Range: 100 - 2000

Relay 3 cleaning time 10 seconds Range: 1-1000

EC 4.00mA corresponding value 0 uS/cm Range: 0 - 1900

Relay 3 delay time 0 seconds Range: 0-120

The difference between high and low is at least 100

Relay 3 function error alarm range: cleaning, periodic alarm, error alarm

Salinity 20.00mA corresponding value 20.00 MΩ Range: 0.00 - 78.00

Storage interval 1 minute Range: 1-60

Salinity 4.00mA corresponding value 0.00 MΩ Range: 0.00 - 77.00



Original visual reference: page 6

Original page 6 - translation continued

Communication ID address 1 Range: 1-255
The difference between high and low is at least 1.00
Communication propagation rate 9600 Range: 9600,19200,38400
Concentration 20.00mA corresponding value 100.0 % range: 0.0 - 100.0
EC offset 0.00 uS/cm Range: +/-100
Concentration 4.00mA corresponding value 0 % range: 0.0 - 99.0
Salinity offset 0.00 g/kg Range: +/-1.00
The difference between high and low is at least 1
Concentration offset 0.00 ppm Range: +/-100
Temperature 20.00mA corresponding value 100.0 °C Range: 0.0 - 130
Measurement mode 0-2000 uS/cm Range: 0-20.000,
Temperature 4.00mA corresponding value 0.0 °C Range: -10.0 - 120.0
0-20.00/0-200.0
The difference between high and low is at least 10.0
0-2000/0-20.00
Current 1 Output Offset 0.00 mA Range: +/- 1.00
0-200.0/0-2000
Current 1 filter time 1 second Range: 0 - 120
Temperature offset 0.0 °C Range: +/- 5.0
Current 1 Fixed output current 4.00 mA Range: 4.00-20.00
Manual temperature measurement 25.0 °C Range: -10.0 - 130.0
Current 1 Hold Mode Last Range: Fixed/Last
Manual temperature correction 25.0 °C Range: 0.0 - 60.0
Relay 1 EC closing point 1000 uS/cm Range: 0 - 2000
Filter 1 Range: 0-10
Relay 1 EC release point 10 uS/cm Range: 0 - 2000
Temperature compensation mode automatic range: automatic, manual
The minimum difference between the two is 1
Temperature probe NTC30K Range: Pt1000, NTC30K
Relay 1 Salinity closing point 10.00 g/kg Range: 0.00 - 30.00
Record display mode Record range: record, graphics
Relay 1 Salinity release point 0.1 g/kg Range: 0.00 - 30.00
The minimum difference between the two is 0.01 Password
Relay 1 Concentration closing point 100 % Range: 0 - 100.0 Press SET key
Relay 1 Concentration release point 1 % Range: 0 - 100.0 SHIFT: User electrode calibration
The minimum difference between the two is 1 0001: function settings

Original page 6 - translation continued

Relay 1 delay time 0 seconds Range: 0 - 120 If no button is pressed within 10 minutes, it will automatically leave and all changed parameters before leaving will be stored

Relay 2 EC closing point 10 uS/cm Range: 0 - 2000

error code

Relay 2 EC release point 1000 uS/cm Range: 0 - 2000

The minimum difference between the two is 1 Error 01 Storage error

Relay 2 Salinity closing point 0.1 MΩ Error 02 The measured value is greater than the maximum value

Range: 0.00 - 30.00

Error 03 The measured value is less than the minimum value

Relay 2 Salinity release point 20.00 MΩ Range: 0.00 - 30.00 Error 04 Temperature is greater than the maximum value

The minimum difference between the two is 1 Error 05 The temperature is less than the minimum value

Relay 2 concentration closing point 10 % Range: 0 - 100 Error 06 The first current output is higher than 20.5 mA, the maximum current limit is 22.00mA

Relay 1 concentration release point 100 % Range: 0 - 100 Error 07 The first current output is lower than 3.8 mA, the minimum current limit is 3.5mA

The minimum difference between the two is 1 Error 08 The second current output is higher than 20.5 mA, and the maximum current limit is 22.00mA

Error 09 The current output of the second channel is lower than 3.8 mA, and the minimum current limit is 3.5mA.

Error 10 Recorder failure

Error 11 ADC failure

Error 12 Factory data is missing

RS485 communication

The instrument adopts the standard Modbus-RTU protocol, and the measured values are floating point numbers. Other data are double-byte parameters. 03: Definition

(-32767 32767), represented by hexadecimal number, the highest element is the symbol address

The command format sent by the host computer: (00) 0x00 EC current 1 20.00mA corresponding value reading value: X1

Instrument ID Ground Data starting bit Number of data (01) 0x01 EC current 1 4.00mA Corresponding value Reading value: X1

Command CRC16 (02) 0x02 SAL current 1 20.00mA Corresponding value Reading value: X0.01

Address setting quantity

(03) 0x03 SAL current 1 4.00mA corresponding value reading value: X0.01

Length 1 byte 1 byte 2 byte 2 byte 2 byte

(04) 0x04 Concentration current 1 20.00mA corresponding value Reading value: X0.1

Example 0x01 0x03 0x0001 0x0001 0xD5CA (05) 0x05 Concentration current 1 4.00mA corresponding value Reading value: X0.1

(06) 0x06 Temperature current 1 20.00mA corresponding value Reading value: floating point number

This is the first data to be read, please refer to the table below (07) 0x07 Temperature current 1 4.00mA corresponding value Reading value: floating point number

(08) 0x08 Current 1 offset reading value: X 0.01

Response format of slave computer:

(09) 0x09 Current 1 filter time reading value: X1

Instrument ID Ground Data (10) 0x0A Current 1 fixed current Reading value: X0.01

Command Data quantity CRC16

Address Capacity (11) 0x0B Current 1 Hold Mode Reading Value: X1 0=Fixed Current,

Length 1 byte 1 byte 1 byte N byte 2 byte 1=final current

0x02 (12) 0x0C Relay 1 EC closing point Reading value: X1

Example 0x01 0x03 0x02 0xB895

0xBC (13) 0x0D Relay 1 EC release point Reading value: X1

(14) 0x0E Relay 1 SAL closing point Reading value: X0.01

When the machine replies 01, the function code cannot be recognized

(15) 0x0F Relay 1 SAL release point Reading value: X0.01

When the machine replies 02, the address is incorrect

(16) 0x10 Relay 1 concentration closing point Reading value: X0.1

When the machine replies 03, the number of data is incorrect

(17) 0x11 Relay 1 concentration release point reading value: X0.1

Function 03: Read setting value

(17) 0x11 Relay 1 delay time Reading value: X1

Function 04: Read measured value

(18) 0x12 Relay 2 EC closing point Reading value: X1

(19) 0x13 Relay 2 EC release point Reading value: X1

03: 定义 仪器采用标准Modbus-RTU协议, 测量值为浮点数其他资料为双字节参数为 (-32767~32767), 用进制数表示, 最高元为符号 上位机发送命令格式:			
	仪器 ID 地址	命令	数据起始位置
长度	1 byte	1 byte	2 byte
举例	0x01	0x03	0x0001
此为读取第一个资料, 请参考下表			
下位机回应格式:			
	仪器 ID 地址	命令	数据数量
长度	1 byte	1 byte	1 byte
举例	0x01	0x03	0x02
当机器回复 01, 功能码无法辨识			
当机器回复 02, 位址不正确			
当机器回复 03, 资料数量不正确			
功能 03: 读取设置值			
功能 04: 读取测量值			
04: 定义			
地址			
(00)	0x00	机型	该值: 固定 M
(01)	0x01	机型	该值: 固定 2
(02)	0x02/0x03	测量值	该值: 浮点数
(04)	0x04/0x05		
(06)	0x06	温度值	该值: X 0.1
(07)	0x07	测量 1 电流值	该值: X 0.01
(08)	0x08	测量 2 电流值	该值: X 0.01
(09)	0x09	单位	该值: X 1
(10)	0x0A		
(11)	0x0B	错误码	该值: X 1
(12)	0x0C	状态	该值: X 1

03: 定义			
地址			
(00)	0x00	EC 电流 1 20.00mA 对应值	该值: X1
(01)	0x01	EC 电流 1 4.00mA 对应值	该值: X1
(02)	0x02	SAL 电流 1 20.00mA 对应值	该值: X0.01
(03)	0x03	SAL 电流 1 4.00mA 对应值	该值: X0.01
(04)	0x04	浓度电流 1 20.00mA 对应值	该值: X0.1
(05)	0x05	浓度电流 1 4.00mA 对应值	该值: X0.1
(06)	0x06	温度电流 1 20.00mA 对应值	该值: 浮点数
(07)	0x07	温度电流 1 4.00mA 对应值	该值: 浮点数
(08)	0x08	电流 1 滤波时间	该值: X 0.01
(09)	0x09	电流 1 固定电流	该值: X1
(10)	0x0A	电流 1 保持模式	该值: X0.01
(11)	0x0B		该值: X1 0=固定电流, 1=最后电流
(12)	0x0C	继电器 1 EC 闭合点	该值: X1
(13)	0x0D	继电器 1 EC 释放点	该值: X1
(14)	0x0E	继电器 1 SAL 闭合点	该值: X0.01
(15)	0x0F	继电器 1 SAL 释放点	该值: X0.01
(16)	0x10	继电器 1 浓度 闭合点	该值: X0.1
(17)	0x11	继电器 1 浓度 释放点	该值: X0.1
(18)	0x12	继电器 1 延迟时间	该值: X1
(19)	0x13	继电器 2 EC 闭合点	该值: X1
(20)	0x14	继电器 2 EC 释放点	该值: X1
(21)	0x15	继电器 2 SAL 闭合点	该值: X0.01
(22)	0x16	继电器 2 SAL 释放点	该值: X0.01
(23)	0x17	继电器 2 浓度 闭合点	该值: X0.1
(24)	0x18	继电器 2 浓度 释放点	该值: X0.1
(25)	0x19	继电器 2 延迟时间	该值: X1
(26)	0x1A	继电器 3 清洗时间	该值: X0.1
(27)	0x1B	继电器 3 延迟时间	该值: X1
(28)	0x1C	继电器 3 功能	该值: X1 0=清洗, 1=周期报警, 2=错误报警
(29)	0x1D	记录储存时间	该值: X1
(30)	0x1E	EC 偏移量	该值: X1
(31)	0x1F	SAL 偏移量	该值: X0.01
(32)	0x20	温度偏移量	该值: X0.1
(33)	0x21	语言选择	该值: X1 0=英文, 1=中文

Original page 7 - translation continued

(20) 0x14 Relay 2 SAL closing point Reading value: X0.01
04: Definition (21) 0x15 Relay 2 SAL release point Reading value: X0.01
Address (22) 0x16 Relay 2 concentration closing point Reading value: X0.1
(00) 0x00 Model Reading value: Fixed M (23) 0x17 Relay 2 concentration release point Reading value: X0.1
(01) 0x01 Model reading value: fixed 2 (24) 0x18 Relay 2 delay time reading value: X1
(02) 0x02/0x03 Measured value Reading value: floating point number (25) 0x19 Relay 3 cycle time Reading value: X0.1
(04) 0x04/0x05 (26) 0x1A Relay 3 cleaning time Reading value: X0.1
(06) 0x06 Temperature value Reading value: X 0.1 (27) 0x1B Relay 3 delay time Reading value: X1
(07) 0x07 Measurement 1 current value Reading value: X 0.01 (28) 0x1C Relay 3 function Reading value: X1 0=Cleaning,
(08) 0x08 Measure 2 current value Reading value: X 0.01 1=Periodic alarm, 2=Error alarm
(09) 0x09 unit reading value: X 1 (29) 0x1D record storage interval reading value: X1
(10) 0x0A (30) 0x1E EC offset reading value: X1
(11) 0x0B error code reading value: X 1 (31) 0x1F SAL offset reading value: X0.01
(12) 0x0C status reading value: X 1 (32) 0x20 temperature offset reading value: X0.1
(33) 0x21 Language selection Reading value: X1 0=English, 1=Chinese
(28) 0x1C filter reading value: X1
(29) 0x1D Solution temperature coefficient Reading value: X0.01 0.01%-40.00%
(30) 0x1E Measurement mode reading value: X1 0=EC,
2=SAL,4=concentration
(31) 0x1F
(32) 0x20 Manual temperature measurement Reading value: X 0.1
(33) 0x21 Manual temperature correction Reading value: X 0.1
(34) 0x22 Temperature compensation mode Reading value: X 1 0=Auto,
1>manual