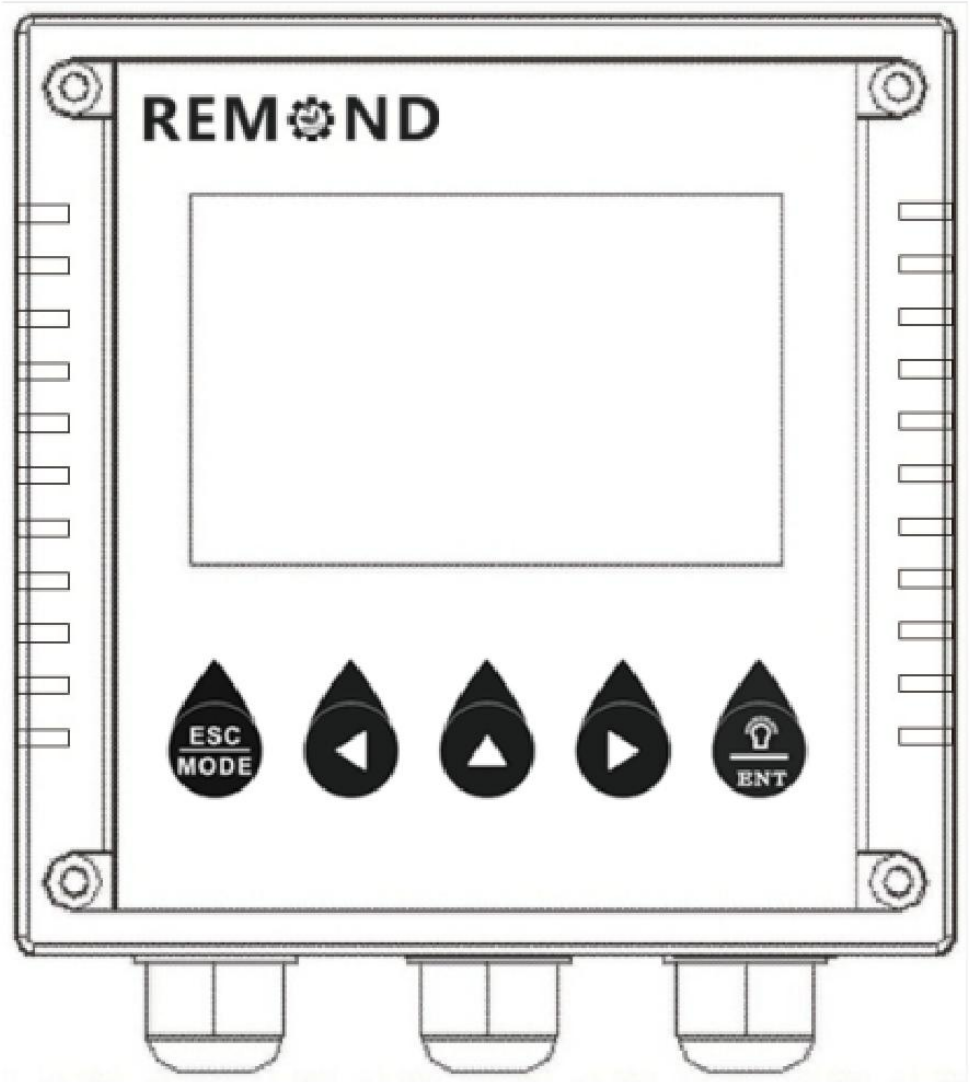
Lanchang Group | REMOND

User's Manual
PH/ORP Controller



Shanghai Lanchang Automation Technology Co., Ltd

RMD-H18

Contents

Chapter 1: Preface

Thank you for purchasing pH/ORP controller. Please read this manual carefully before operating and using it correctly to avoid unnecessary losses caused by false operation.

Note

- Modification of this manual's contents will not be notified as a result of some factors, such as function upgrading.
- We try our best to guarantee that the manual content is accurate, if you find something wrong or incorrect, please contact us.
- This product is forbidden to use in explosion-proof occasions.

Safety Precautions

- Read the following instructions before using the instrument.
- After unpacking the instrument, please confirm the package contents before starting the operation.
- The instrument must be operated by trained professional and technical personnel.
- Please read the manual carefully to avoid incorrect wiring connection that can cause equipment damage and safe problem.
- Confirm if the supply voltage is in consistent with the rated voltage before operation.
- To prevent from electric shock, operation mistake, a good grounding protection must be made.
- Cut off electric powers before making any checks to avoid electric shock.
- Check the condition of the terminal screws regularly. If it is loose, please tighten it before use.
- It is not allowed to disassemble, process, modify or repair the product without authorization, otherwise it may cause abnormal operation, electric shock or fire accident.
- Don't use the instrument if it is found damaged or deformed at opening of package.
- Prevent dust, wire end, iron fines or other objects from entering the instrument during installation, otherwise, it will cause abnormal movement or failure.
- After wiring carefully check all are correct then can power on and make sure the other equipment are correct.
- During operation, to modify configuration, signal output, startup, stop, operation safety shall be fully considered. Operation mistakes may lead to failure and even destruction of the instrument and controlled equipment.
- Each part of the instrument has a certain lifetime, which must be maintained and repaired on a regular basis for long-time use.
- Please avoid installing in a high humidity, high temperature, corrosive and in a direct sunlight environment.
- Please separate the power line of instrument from other machines that produces high noise in the power line.

- When not using this product, be sure to turn off the power switch.
- This manual only describes the functions of the product. The company does not guarantee that the product will be suitable for a particular use by the user.

Chapter 2: Product introduction

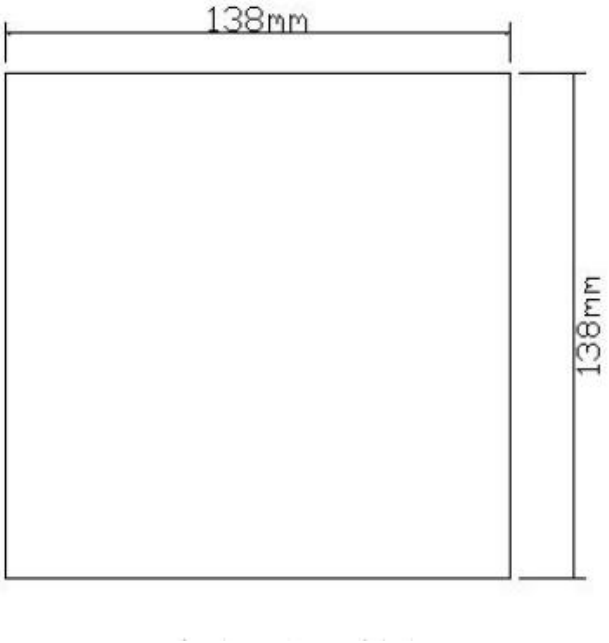
- The product package contains 1 controller, 1 manual.
- The controller is used for industrial PH/ORP and temperature measurement, such as: fermentation, drinking water, boiler water, seawater, aquaculture, aquarium, surface water, industrial sewage, urban wastewater, environmental monitoring, food production process, etc.
- The controller can be panel, wall or pipe mounted.
- The controller provides two current outputs. The maximum load is 500Ω.
- The controller provides 3 relays. It can pass though a maximum of 5A/250VAC or 5A/30VDC.

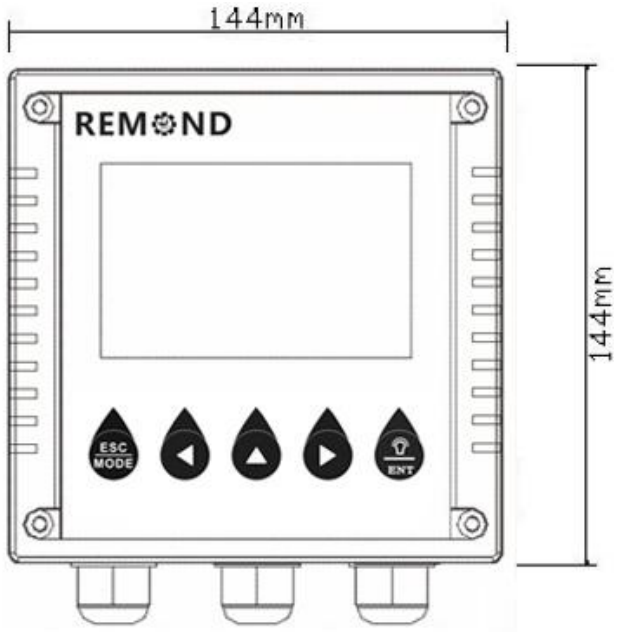
Chapter 3: Specifications

Function	PH	ORP
Measuring range	-2.00 to +16.00pH	-2000mV to +2000mV
Resolution	0.01pH	1mV
Accuracy	±0.02pH	±1mV
Temp. compensation	PT1000/NTC10K	
Temp. range	-10.0 to +130.0℃	
Temp. compensation range	-10.0 to +130.0℃	
Temp. resolution	0.1℃	
Temp. accuracy	±0.2℃	
Ambient temperature range	0 to +70℃	
Storage temp	-20 to +70℃	
Display	Back light, dot matrix LCD display	
DO current output1	Isolated 4-20mA output, max. load 500Ω	
Temp. current output2	Isolated 4-20mA output, max. load 500Ω	
Current output accuracy	±0.05 mA	
RS485	Modbus RTU protocol	
Baud rate	9600/19200/38400	
Maximum relay contacts capacity	5A/250VAC、5A/30VDC	
Cleaning setting	ON: 1 to 100 seconds;　OFF: 0.1 to 1000.0 hours	
One multi function relay	Rinse / Interval alarm / Error alarm	
Relay delay	0-120 seconds	
Data logging capacity	500,000	
Language selection	English/ Traditional Chinese/ Simplified Chinese	
Waterproof grade	IP65	
Power supply	90-260VAC, power consumption < 5 Watts	
Installation	Panel / Wall installation	

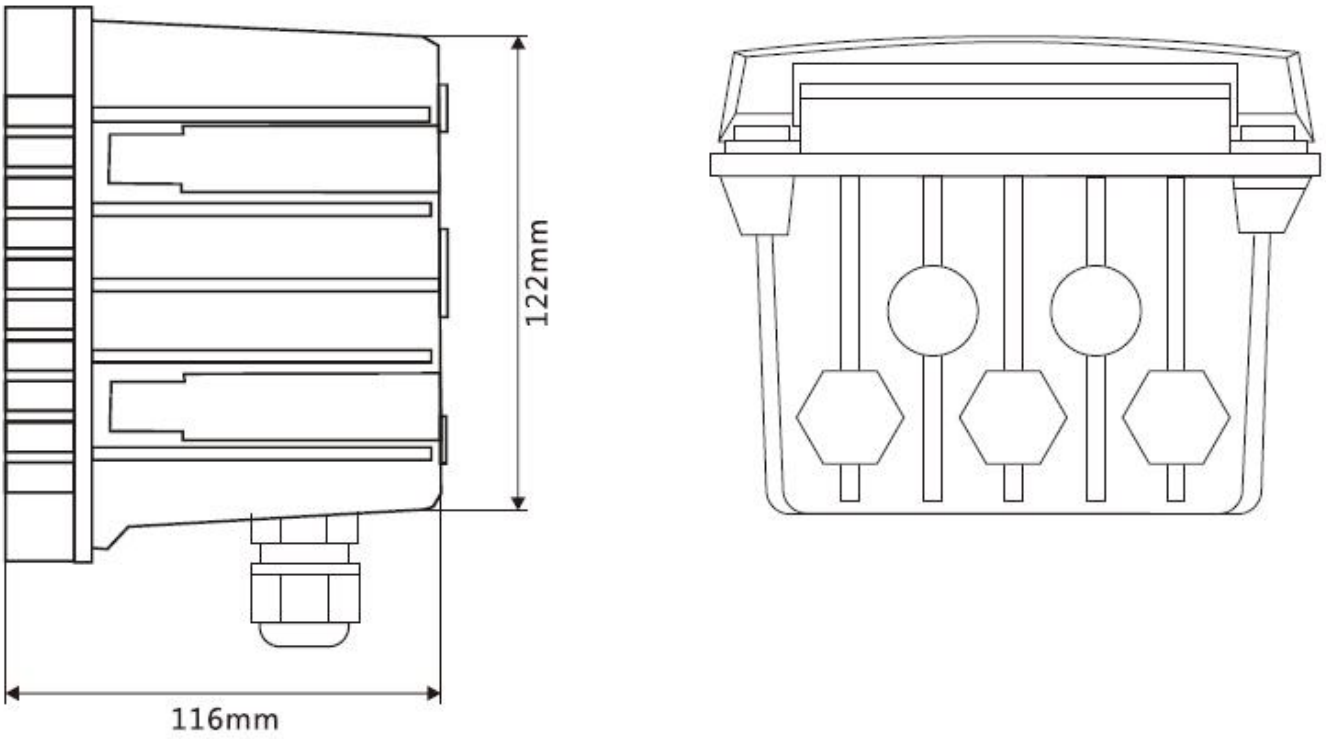
Chapter 4: Instrument installation

- The instrument can be panel, wall or pipe mounted installation.
- Panel Installation: Make a 138x138mm square cutout and insert the instrument. Screw in the fixed block with the screws and fixed bar.

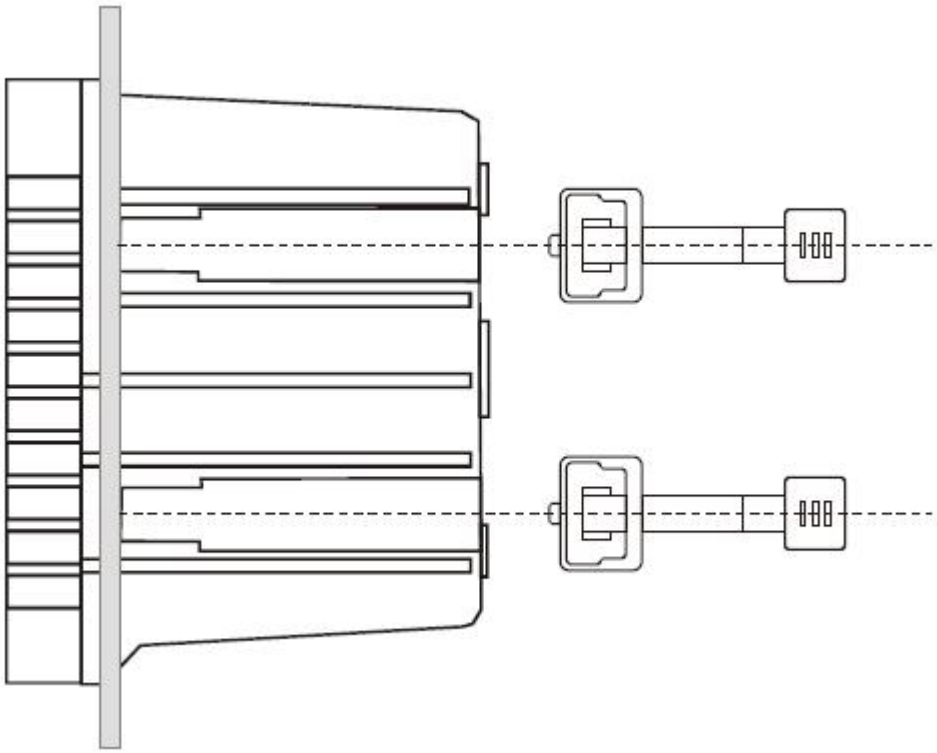




144 series cutout size

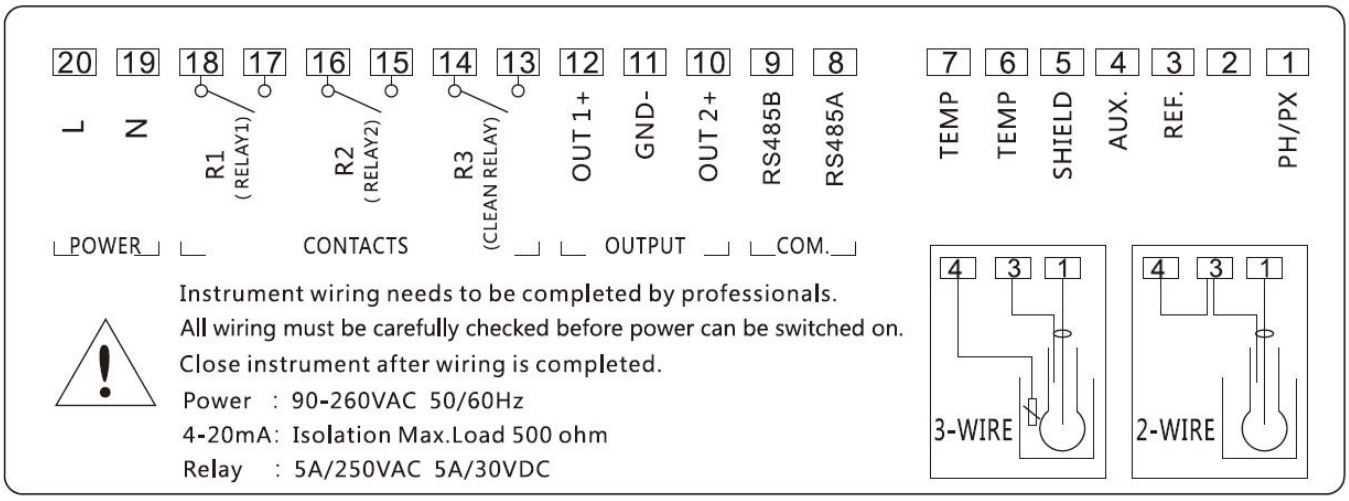


144 series dimension



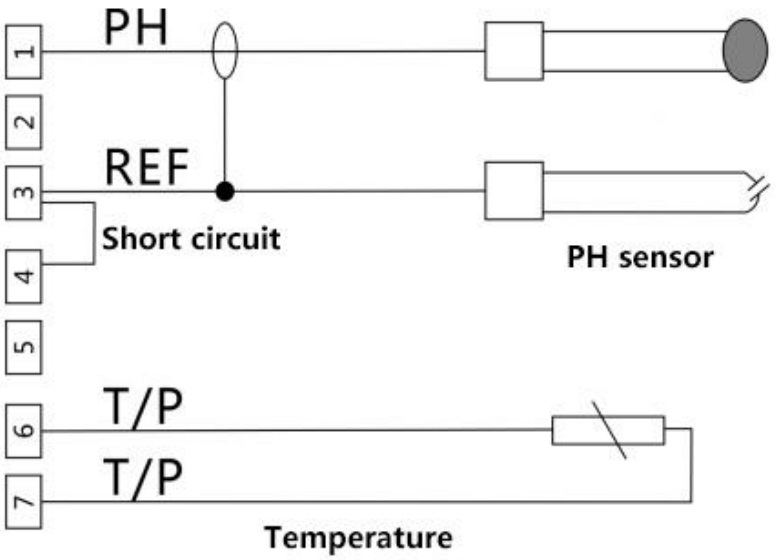
144 series installation figure

Chapter 5: Wiring



Notice: If the power supply is DC24V, terminal 20 : DC24V+ (L+); terminal 19 : DC24V- (L-)

Electrode connection figure

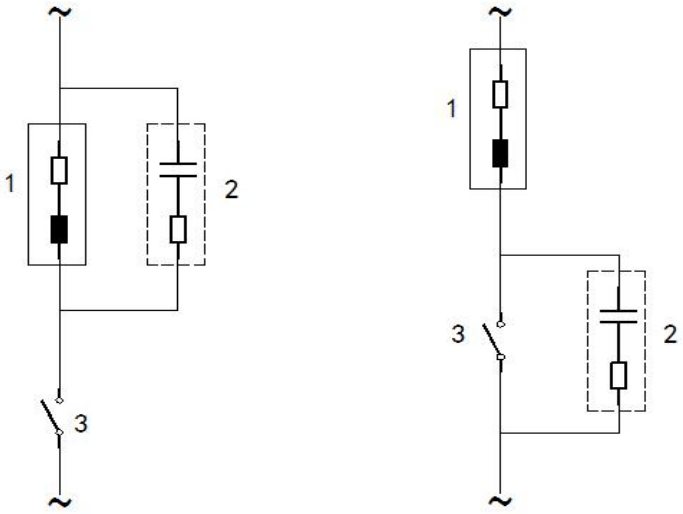


Wiring description

Item	Symbol	Description
1	pH /ORP	PH/ORP input terminal +
2	/	/
3	REF	PH reference wire Short circuit to pin 4 using a jumper
4	AUX	PH liquid ground wire Short circuit to pin 3 using a jumper
5	SHIELD	/
6	TEMP	pH sensor temperature wire
7	TEMP	pH sensor temperature wire
8	RS485A	Connect Modbus bus interface A signal line
9	RS485B	Connect Modbus bus interface B signal line
10	OUT2	4-20mA output positive pole, current output
11	GND	4-20mA output negative pole
12	OUT1	4-20mA output positive pole, current output
13	RELAY3	Relay 3
14	RELAY3	Relay 3
15	RELAY2	Relay 2
16	RELAY2	Relay 2
17	RELAY1	Relay 1
18	RELAY1	Relay 1
19	N	AC power supply (neutral wire)
20	L	AC power supply (live wire)

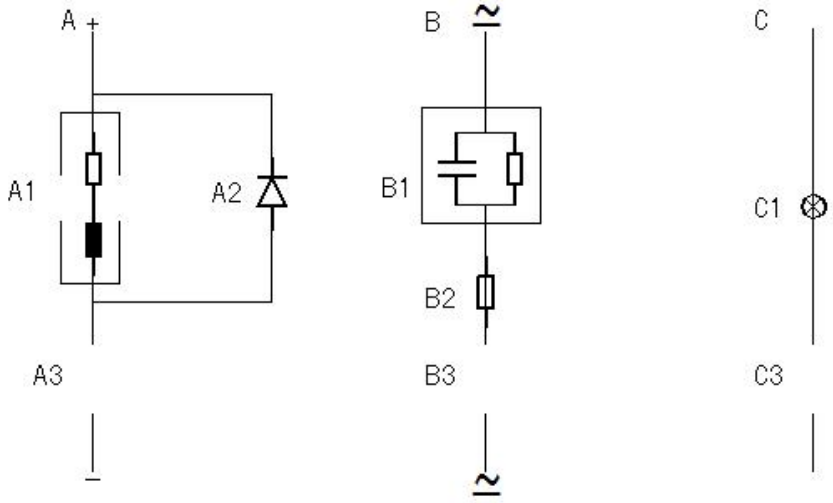
Chapter 6: Relay contact protection

Electrical spark at the relay contact may affect the life of the relay, especially in an inductive and capacitive load. In order to inhibit the spark and arc, user should use an RC circuit to extend the life of the relay.



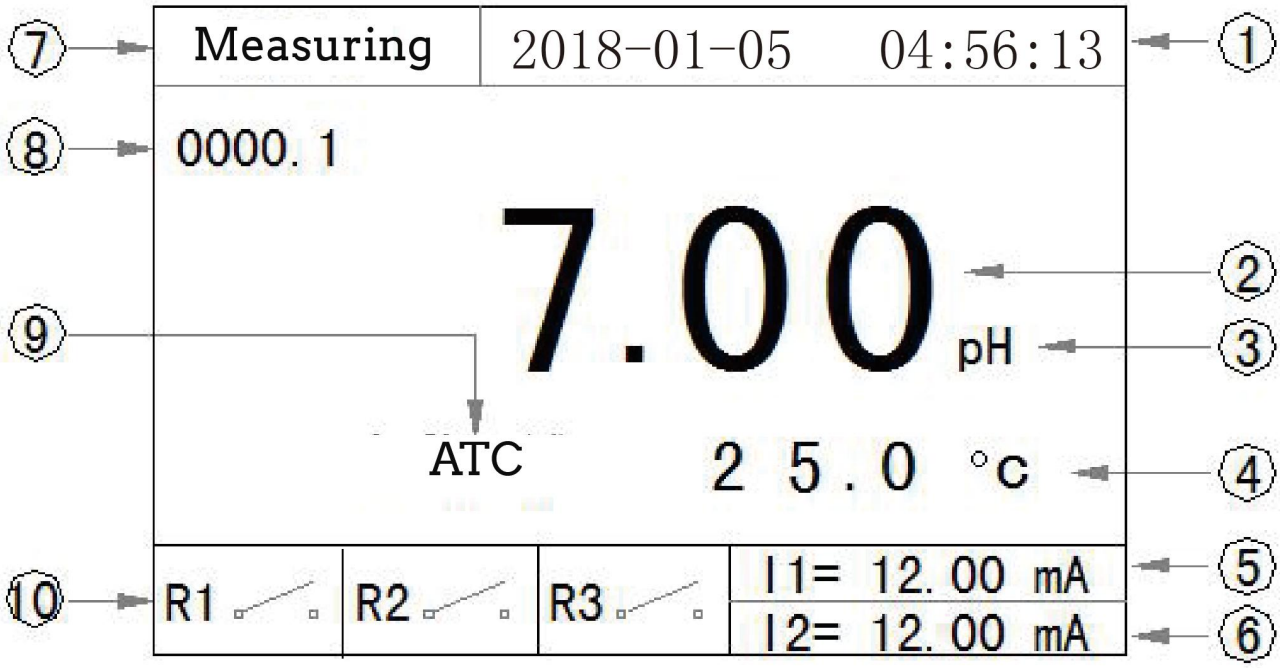
AC protection, use for inductive load

1. load
2. RC eliminate spark, using in 220VAC, R=100 ohm1W, C=0.1uF630V
3. Relay contact



1. DC protection : A1: inductive load; A2: 1N4007; A3: relay contact
2. AC/DC protection: B1: capacitive load; B2: 0.8 Ohm/1W（DC24V）; B3: relay contact
3. Resistive load : C1:lamp bulb; C3:relay contact

Chapter 7: Display



1. Date and time
2. Main display
3. Unit
4. Temperature and unit
5. First current output
6. Second current output
7. Measurement status and Error indicator, there is no display if meter is in keeping mode
8. Count down timer: Period time/ Clean time, it also displays the “Delay” when relay3 has a delay enabled.
9. Temp. compensation: Auto(ATC) or Manual(MTC)
10. Relay indicator

Note:

If the PH value exceeds the positive and negative range, it will display -9.99/99.99

If the ORP value exceeds the positive and negative range, it will display -9999/9999

If the temperature exceeds the positive and negative range, it will display -99.9/999.9

Chapter 8: Key function

MODE SHIFT UP DOWN ENTER

Key name	Meas. status	Setting status	Cal. status	Record status
MODE	Enter password	Exit	Exit	Exit
SHIFT	None	Move digit	Move digit	Move digit
UP	Enter record	Inc	Inc	Inc
DOWN	None	Dec	Dec	Dec
ENTER	ON/OFF back light	Enter	Enter	Enter

Chapter 9: HOLD Type

HOLD type is a safe mode. It is for Calibration, Setting, Record and Clean. In this mode all the relays are open(inactive), current output follows the setting by user(last current or fixed current).

The instrument will enter HOLD type when user presses into Calibration, Setting, Record or the instrument works in clean mode.

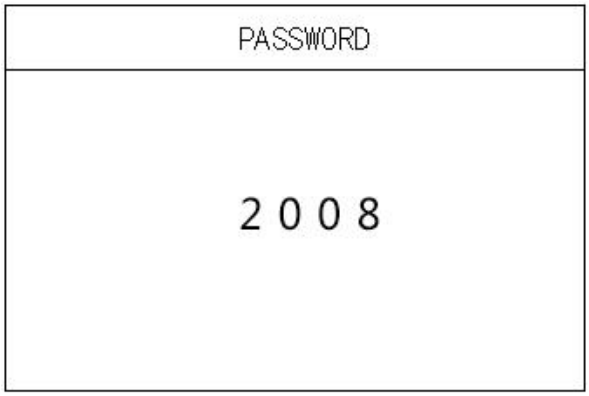
It will in HOLD type around 10 seconds when it goes back to measurement mode form the above mentioned 4 modes then left HOLD type.

The instrument will go into the HOLD type when turn on the power.
Current output in HOLD type:

User has two choices: fixed current output or last current output.

- Fixed current: User can set the output current from 4.00 to 20.00mA when instrument goes into HOLD type.
- Last current: User can set the output current keep at the last current when instrument goes into HOLD type.
- Relays in HOLD type: All relays are opened.(inactive)

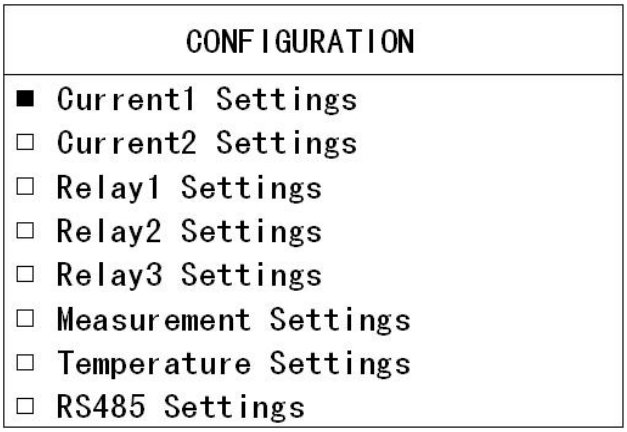
Chapter 10: Setting



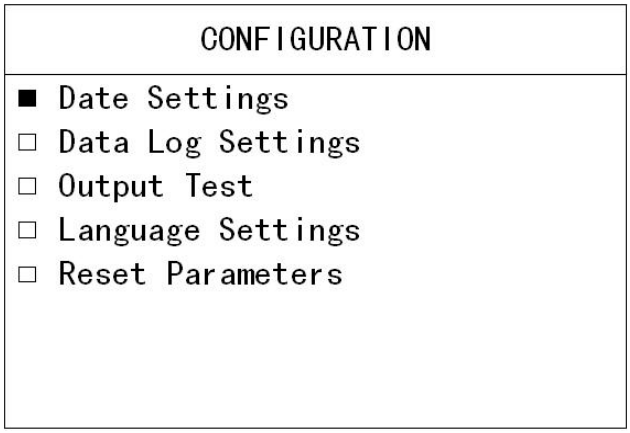
Press MODE key to enter the password menu , then press UP/DOWN/SHIFT key to input password 2008 , press ENTER will enter to setting mode or press MODE key to exit. If no key is be pressed and over 10 minutes then it will go back to measurement mode.

10.1 Home screen

Page1



Page2

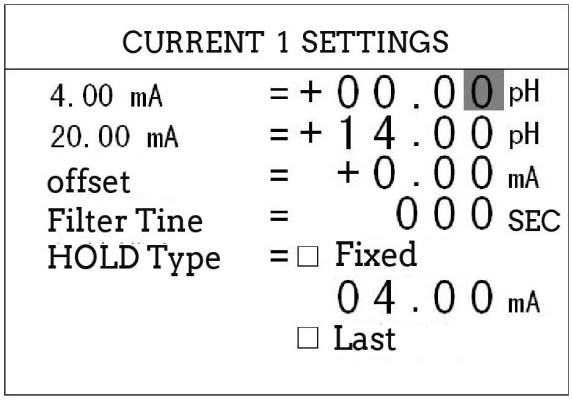


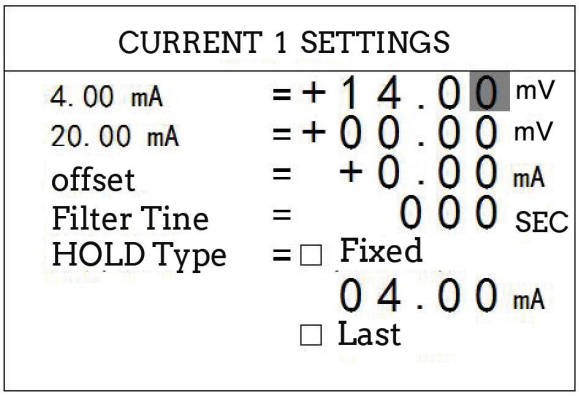
Press UP/DOWN key to choose functions, press ENTER key enter the function.

Notice:

- When the input data is not in correct range then it will display ERROR on the top of LCD.
- After input data user needs to press ENTER to save the data.
- Press MODE to exit.
- No key is be pressed in 10 minutes then it will go back to measurement mode.

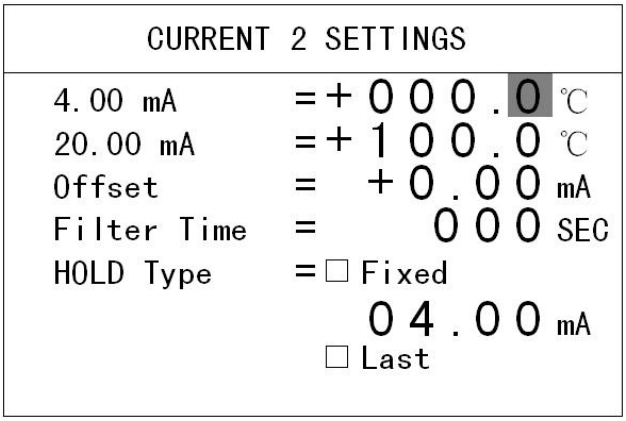
10.2 Current 1 settings





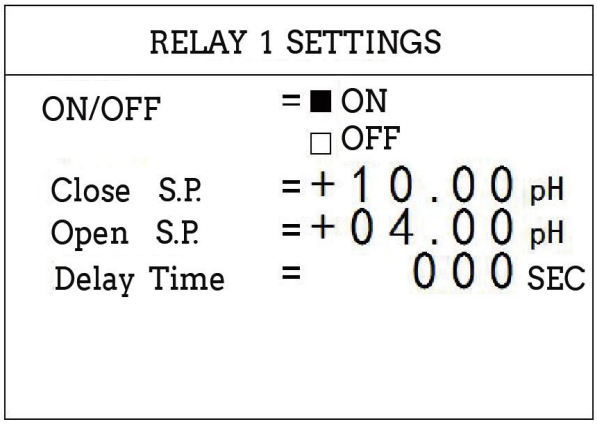
- Set the corresponding 4.00mA to PH/ORP.
- Set the corresponding 20.00mA to PH/ORP, The PH value between 4.00mA and 20.00mA must be at least 1.00PH. The ORP value must be at least 100mV.
- Set the offset current of PH/ORP, the range is±1.00mA.
- The filter time range is 0-120 seconds, the low pass filter of software will active when the current from one point to another point if user sets the filter time.
- Set the current 1 output mode(fixed / last) when instrument enter into keeping mode.

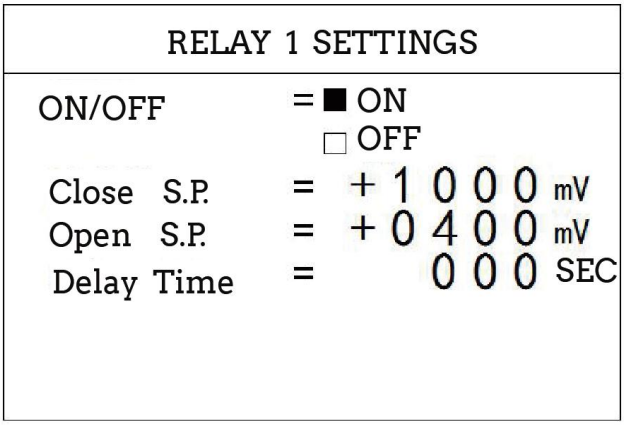
10.3 Current 2 settings



- Set the corresponding 4.00mA to temperature.
- Set the corresponding 20.00mA to temperature, the difference at least between 4.00mA and 20.00 mA is 10.0℃.
- Set the offset current of temperature, the range is±1.00mA.
- The filter time range is 0-120 seconds, the low pass filter of software will active when the current from one point to another point if user sets the filter time.
- Set the current 2 output mode(fixed / last) when instrument enter into keeping mode.

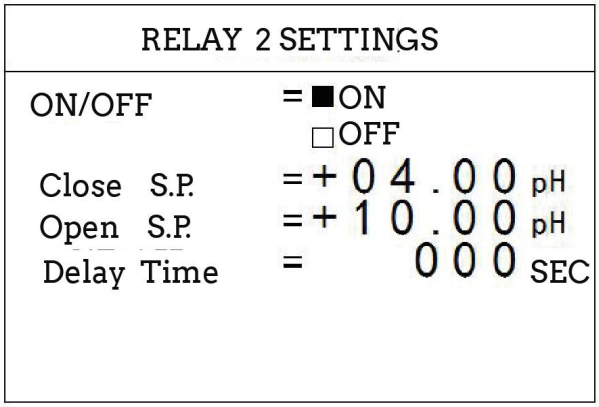
10.4 Relay 1 settings

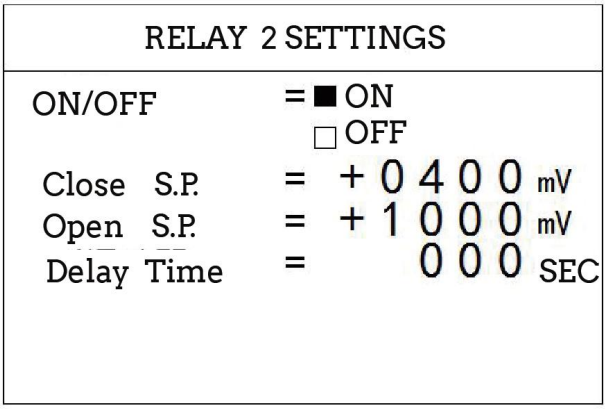




- Press UP/DOWN key to ON/OFF (enable/ disable) relay1.
- Close set point: active point for pH/ORP.
- Open set point: inactive point for pH/ORP.
- Delay time: The range is 0-120 seconds. Relay needs to delay first then active if the measuring data is reach to close set point.
- Ex: If user want to add the drug at pH10.0 and release it at pH4.00 (without dosing), then the close S.P. set to 10.00pH and the Open S.P. set to 4.00pH.

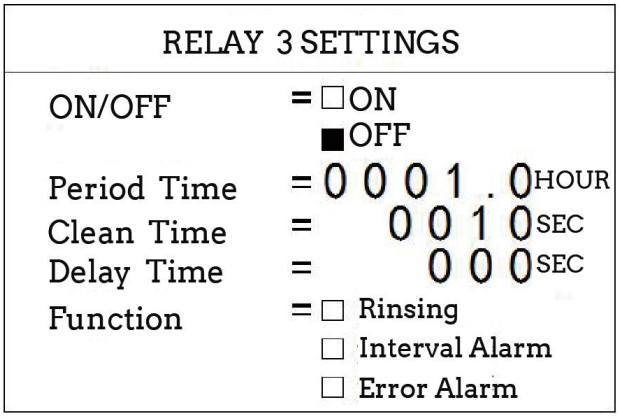
10.5 Relay 2 settings





- Press UP/DOWN key to ON/OFF (enable/ disable) relay
- Close set point: active point for pH/ORP.
- Open set point: inactive point for pH/ORP.
- Delay time: The range is 0-120 seconds. Relay needs to delay first then active if the measuring data is reach to close set point.
- Ex: If user want to add the drug at pH4.00 and release it at pH10.00 (without dosing), then the close S.P. set to 4.00pH and the Open S.P. set to 10.00pH.

10.6 Relay 3 settings

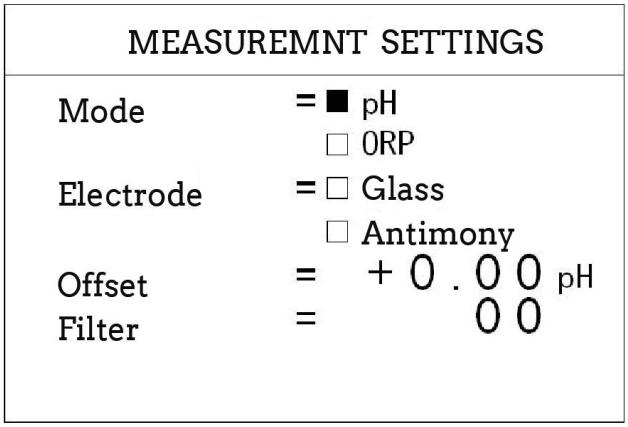


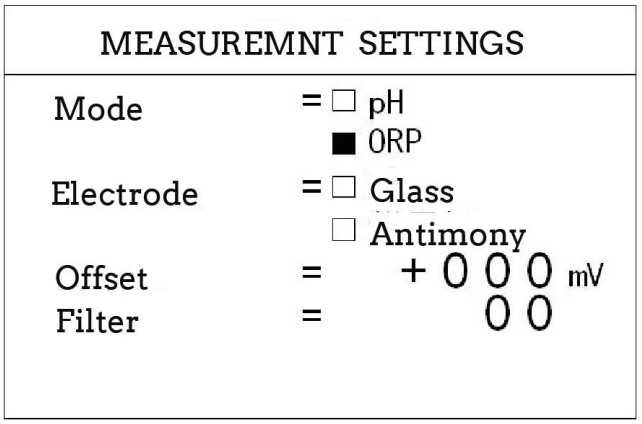
- Press UP/DOWN key to ON/OFF (enable/disable) relay3.
- Period time: The period for Rinsing or Interval alarm function.
- Clean time: When period is timeout then relay active (ON: 1 to 1000 seconds; OFF: 0.1 to 1000.0 hours).
- Delay time: The range is 0-120 seconds. Relay needs to delay first then active if the period is timeout.
- Function: Press UP/DOWN key to choose Rinsing / Interval alarm / Error alarm.

Notice:

- Rinsing: When period timeout then clean-relay will active, when clean time is timeout the repeat count for the period.
- Period alarm: When period timeout then clean-relay active until user resets the interval then the clean-relay inactive and repeat count for the period.
- Error alarm: The clean-relay active when there is a error produce. No delay time function in this mode.

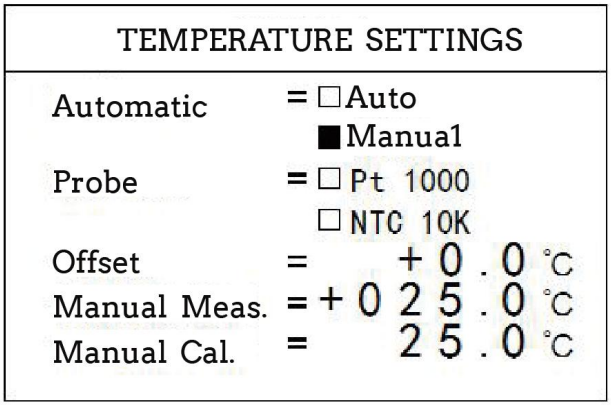
10.7 Measurement settings

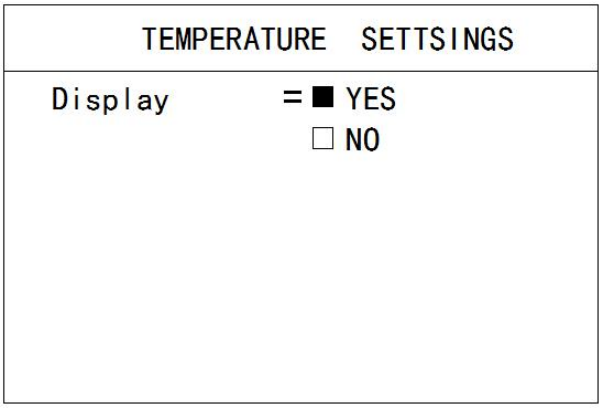




- Choose the mode for measuring, press UP/DOWN key to choose, press ENTER to next.
- The selection of electrode type, press UP/DOWN, is invalid when the measuring unit is ORP.
- Offset , range is ±1.00PH or ±100mV.
- Filter: Range 0-10.
- Notice : If the reading is not stable then user can set the filter to average the readings, but it will also make the reading change slowly.

10.8 Temperature settings



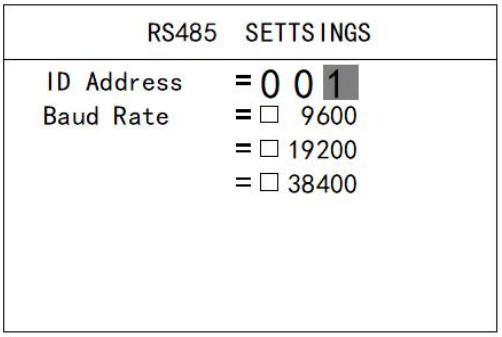


- Temperature compensation setting, press UP/DOWN key to choose.
- Temperature probe, press UP/DOWN key to choose.
- Temperature offset, the range is ±5.00℃ (only for Automatic).
- Temperature for measuring when user set the temperature to manual.
- Temperature for calibration mode when user sets the temperature to manual.
- Temperature display: display the temperature on measurement mode or not.

Notice:

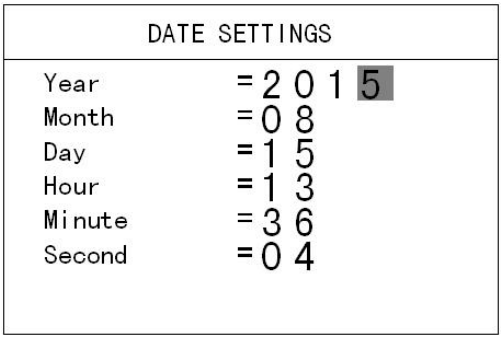
- When user chooses AUTO and doesn't connect temperature probe then the display will not correct.
- When select the probe needs to make sure the probe type is correct.
- Manual measurement: the instrument will use this temperature for compensation in measurement mode when user chooses Manual.
- Manual calibration: the instrument will use this temperature for compensation in calibration mode when user chooses Manual.

10.9 RS485 settings



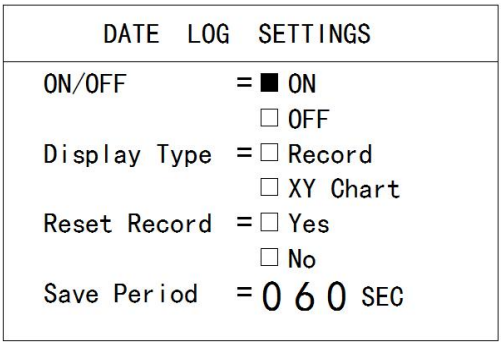
- ID address:1-255.
- Baud rate, press UP/DOWN key to choose.

10.10 Date settings



Press UP/DOWN key to set the date. When power off the date will be kept for around 2 days.

10.11 Data log settings

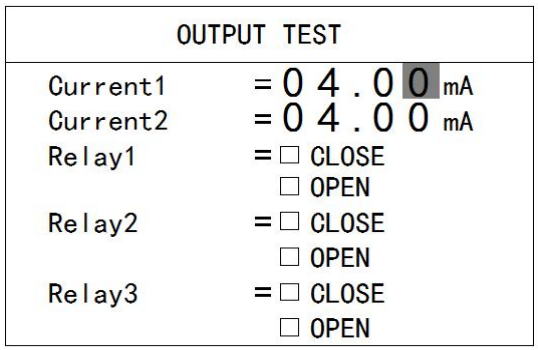


- Press UP/DOWN key to ON/OFF (enable/disable) this function.
- Display type, press UP/DOWN key to choose.
- Reset all the records, press UP/DOWN key to choose.
- Save period from 5 to 120 seconds.

Notice:

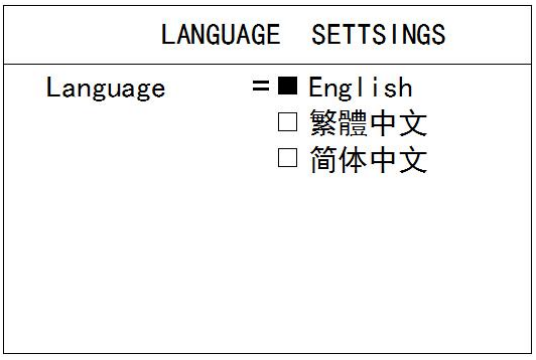
- When user chooses ON, it will save measuring data follow the save period time.
- Display type: Record, display the detail of record(5 records in one page), XY chart, display a chart.(150 records in one page)
- When reset the records, it will spend around 10 seconds.

10.12 Output test



- Current 1 output: 4.00-20.00mA, press UP/DOWN to set.
- Current 2 output: 4.00-20.00mA, press UP/DOWN to set.
- Relay 1 output, press UP/DOWN to choose.
- Relay 2 output, press UP/DOWN to choose.
- Relay 3 output, press UP/DOWN to choose.
- Notice: This function for testing the output only.

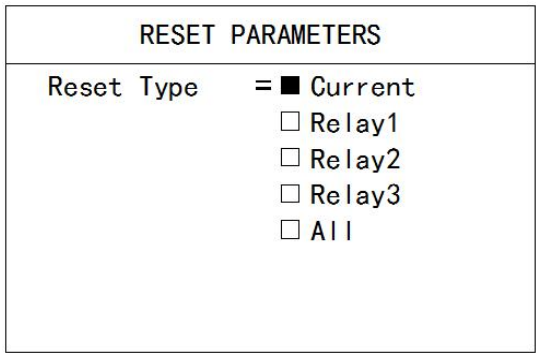
10.13 Language settings



Press UP/DOWN key to choose the language.

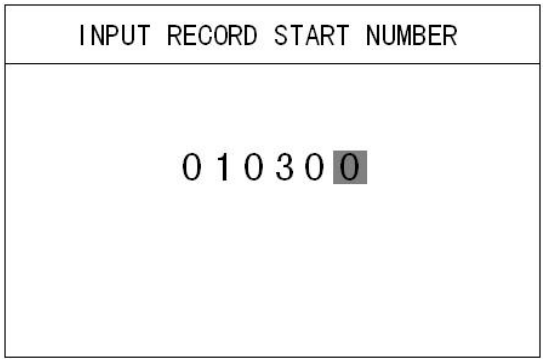
English, Traditional Chinese, Simplified Chinese.

10.14 Reset parameters



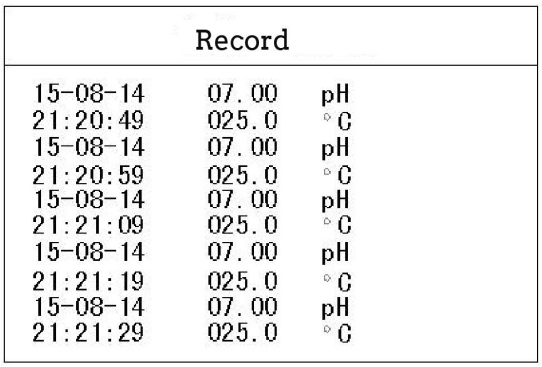
- Press UP/DOWN key to choose the reset.
- Notice: The reset will not affect the calibrated parameters.

10.15 Record query

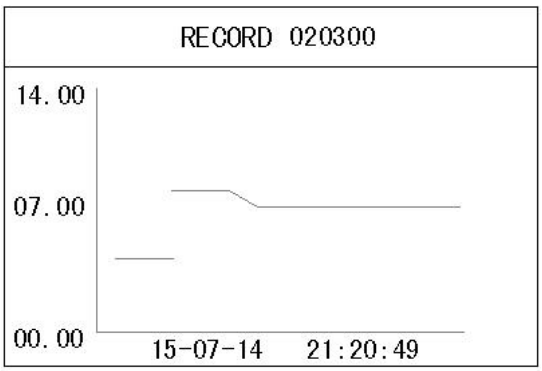


- Press UP key at the measurement mode to enter record query mode.
- Press UP/DOWN and SHIFT key to input record number then press ENTER key enter or press MODE key exit.

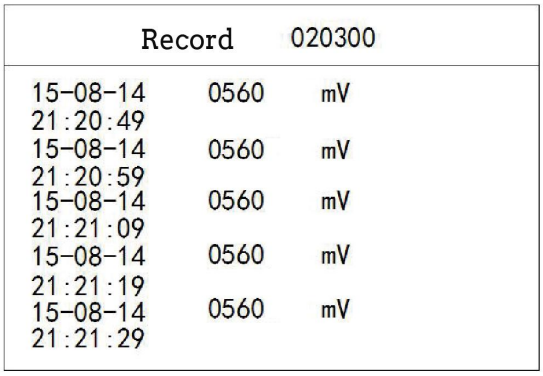
Display PH record at record, 5 records each time



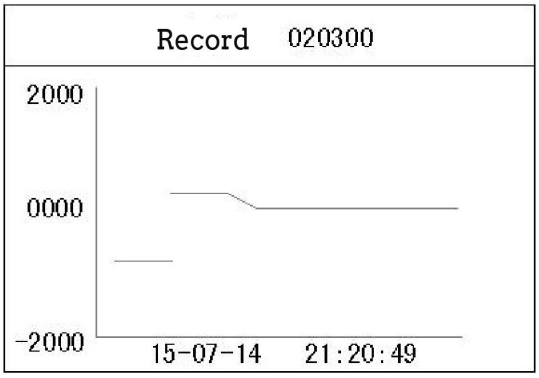
Display PH record at XY chart, 150 records each time



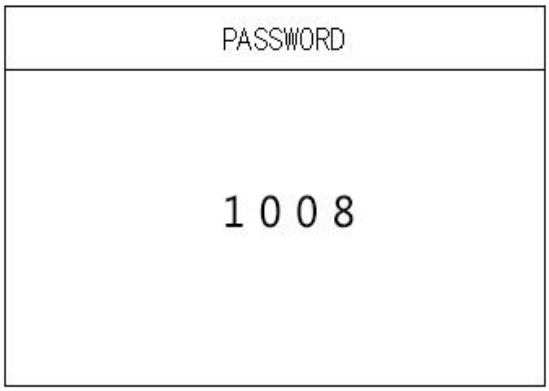
Display ORP record at record, 5 records each time



Display ORP record at XY chart,150 records each time

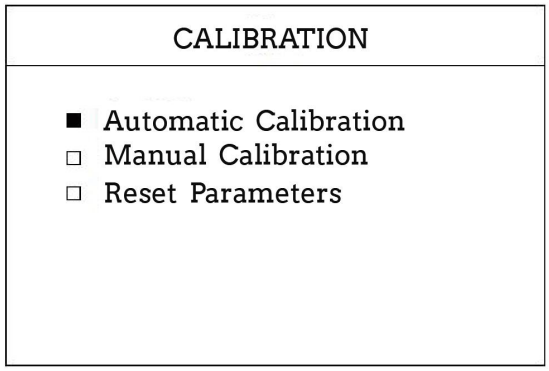


10.16 PH Calibration



Press MODE key to enter the password menu, then press UP/DOWN/SHIFT key to input password 1008 , press ENTER will enter to calibration mode or press MODE key to exit. If no key is be pressed and over 10 minutes then it will go back to measurement mode.

10.17 Home screen

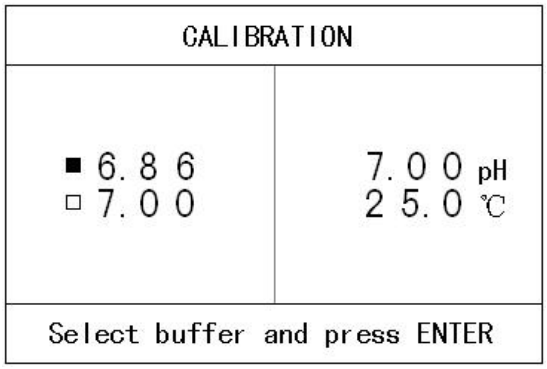


Press UP/DOWN key to calibration

- ◆ Automatic calibration
- ◆ Manual calibration
- ◆ Reset parameters

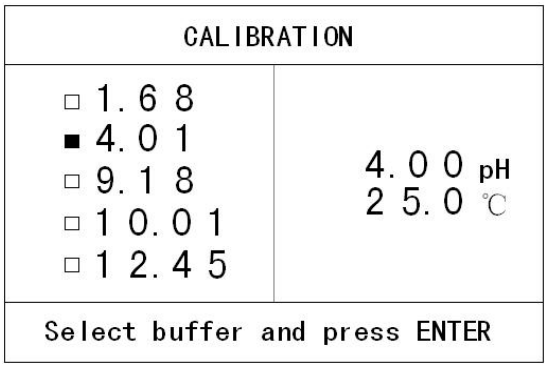
10.18 PH Automatic calibration

10.18.1 Stand calibration



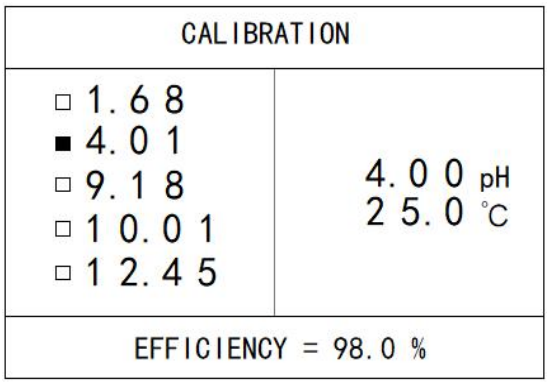
- Put the electrode to the first buffer solution.
- Press UP/DOWN key to select the correct buffer solution then press ENTER to start calibration.
- User can press ENTER to go to next or wait for it auto lock.
- Display the idea pH on the right side.
- If the value is over pH7.00±1.5 or temperature is over 0.0-60.0℃, then it will display error message on the button of LCD.

10.18.2 Slope calibration



- Put the electrode to the second buffer solution.
- Press UP/DOWN key to select the correct buffer solution then press ENTER to start calibration.
- User can press ENTER to go to next or wait for it auto lock.
- Display the idea pH on the right side.
- If the value is over 30% or temperature is over 0.0-60.0℃ then it will display error message on the button of LCD.

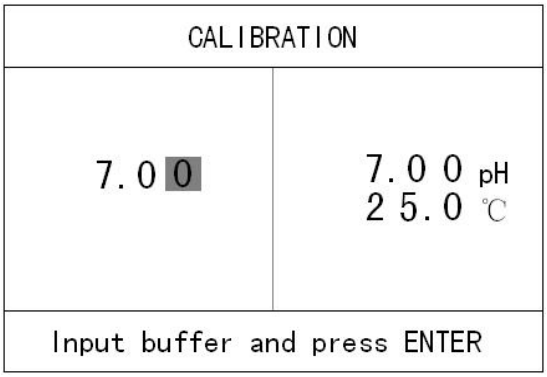
10.18.3 Display efficiency



- If the efficiency is lower than 80%, that means the electrode is aged, user should replace the new electrode.

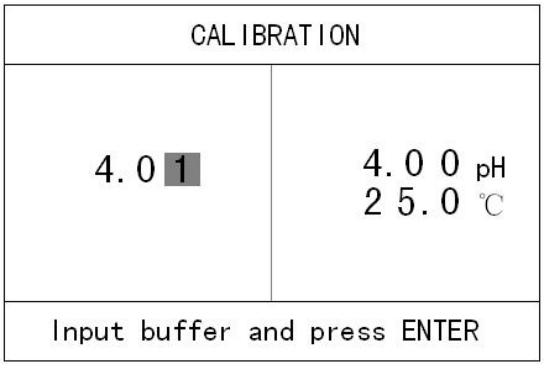
10.19 PH Manual calibration

10.19.1 Stand calibration



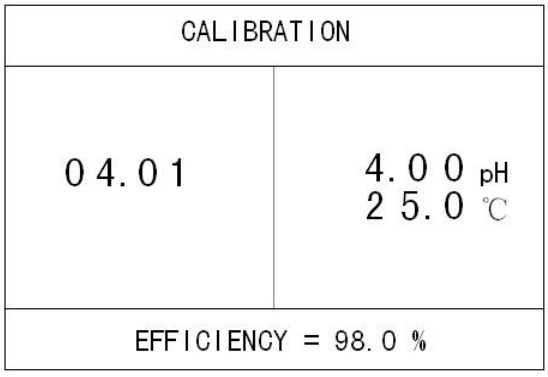
- Put the electrode to the first buffer solution.
- Press UP/DOWN key input the standard buffer solution then press ENTER to start calibration.
- User can press ENTER to go to next or wait for it auto lock.
- Display the idea pH on the right side.
- If the value is over pH7.00±1.5 or temperature is over 0.0-60.0℃, then it will display error message on the button of LCD.

10.19.2 Slope calibration



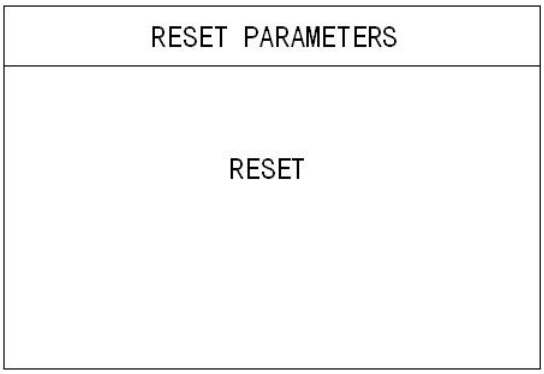
- Put the electrode to the second buffer solution.
- Press UP/DOWN key input the standard buffer solution then press ENTER to start calibration.
- User can press ENTER to go to next or wait for it auto lock.
- Display the idea pH on the right side.
- If the value is over 0.00-14.00 pH, or temperature is over 0.0-60.0℃ then it will display error message on the button of LCD.

10.19.3 Display efficiency



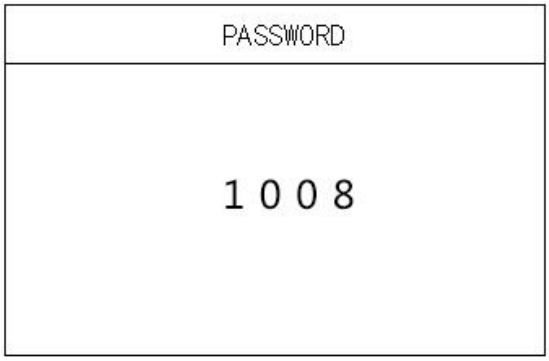
- If the efficiency is lower than 80%, that means the electrode is aged, user should replace the new electrode.

10.20 PH Reset parameters



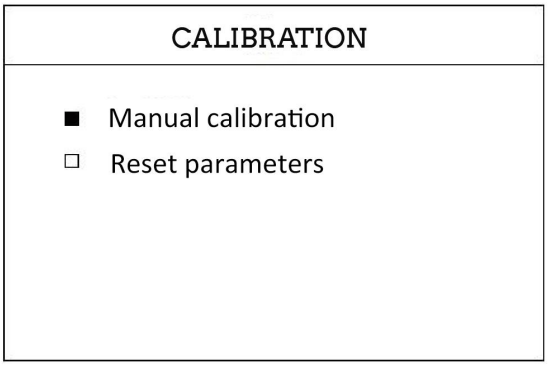
This will reset all of the calibrated parameters to default.

10.21 ORP Calibration



Press MODE key to enter the password menu, then press UP/DOWN/SHIFT key to input password 1008 , press ENTER will enter to calibration mode or press MODE key to exit. If no key is be pressed and over 10 minutes then it will go back to measurement mode.

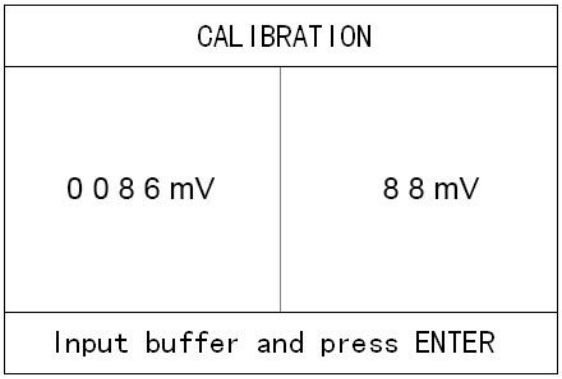
10.22 Manu



Press UP/DOWN key to calibration

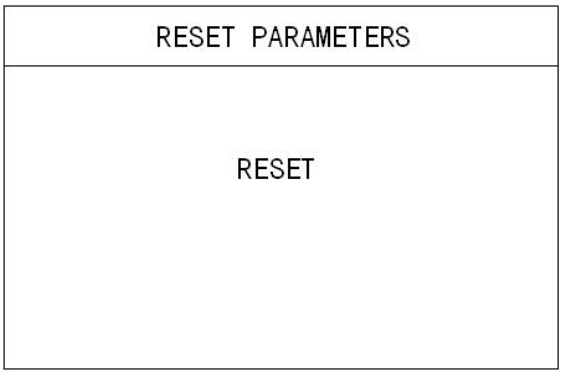
- Manual calibration: Manually enter the value of the standard solution.
- Reset parameters: Reset the factory calibration value.

10.23 ORP Manual calibration



- Put the electrode to buffer solution.
- Press UP/DOWN key to input the buffer solution, after the reading is stable, press ENTER key to start calibration.
- Display the idea ORP on the right side.
- Notice: The input value and actual measured value cannot exceed ±100mV.

10.24 OPR Reset parameters



This will reset all of the calibrated parameters to default.

Chapter 11: Default

PH 20.00mA corresponding	14.00	PH	range: -2.00 to 16.00
PH 4.00mA corresponding	0.00	PH	range: -2.00 to 16.00 difference : 1.00PH
ORP 20.00mA corresponding	2000	mV	range: -2000 to + 2000
ORP 4.00mA corresponding	-2000	mV	range: -2000 to + 2000 difference : 100mV
Temp. 20.00mA corresponding	100.0	℃	range: 0.0 - 130
Temp. 4.00mA corresponding	0.0	℃	range: -10.0 - 120.0 difference : 10.0
Current 1 output offset	0.00	mA	range: +/- 1.00
Current 2 output offset	0.00	mA	range: +/- 1.00
Current 1 filter	0	second	range: 0 - 120
Current 2 filter	0	second	range: 0 - 120
Current 1 fixed output	4.00	mA	range: 4.00 - 20.00
Current 2 fixed output	4.00	mA	range: 4.00 - 20.00
Current 1 HOLD type	last		range: fixed/last
Current 2 HOLD type	last		range: fixed/last
Relay 1 PH close S.P.	10.00	PH	range: -2.00 to 16.00PH
Relay 1 PH open S.P.	4.00	PH	range: -2.00 to 16.00PH difference : 0.01PH
Relay 1 ORP close S.P.	1000	mV	range:-2000 to +2000mV
Relay 1 ORP open S.P.	400	mV	range:-2000 to +2000mV difference : 1mV
Relay 1 delay time	0	second	range: 0 - 120
Relay 2 PH close S.P.	4.00	PH	range: -2.00 to 16.00PH
Relay 2 PH open S.P.	10.00	PH	range: -2.00 to 16.00PH difference :0.01PH
Relay 2 ORP close S.P.	400	mV	range:-2000 to +2000mV
Relay 2 ORP open S.P.	1000	mV	range:-2000 to +2000mV difference :1mV
Relay 2 delay time	0	second	range: 0 - 120
Relay 3 period time	1.0	hour	range: 0 - 1000.0
Relay 3 clean time	10	second	range: 0 - 1000
Relay 3 delay time	0		range: 0 - 120
Relay 3 function	Error alarm		range: Rinse/ Interval alarm/ Error alarm
Save period	60	second	range: 5 - 120
ID address	1		range: 1 - 255
Baud rate	9600		range: 9600,19200,38400
PH Offset	0.00	PH	range: +/-1.00PH

ORP Offset	0.00	mV	range: +/-100mV
Measuring unit	PH		range: PH/ORP
Temp. Offset	0.0	℃	range: +/- 5.0
Manual Temp.for measurement	25.0	℃	range: -10.0 - 130.0
Manual Temp. for calibration	25.0	℃	range: 0.0 - 60.0
Language	English		range: English Traditional Chinese Simplified Chinese
Filter	1		range: 0 to 10
Temp. compensation	ATC		range: ATC/MTC
Temp. probe	PT1000		range: Pt1000, NTC10K
Record type	record		range: record/XY chart

Chapter 12: Password

Press MODE key
1008: Calibration mode
2008: Setting mode
If no key is be pressed and over 10 minutes then it will go back to measurement mode.

Chapter 13: Error code

Error 01	memory error
Error 02	reading is over maximum
Error 03	reading is under minimum
Error 04	temperature is over maximum
Error 05	temperature is under minimum
Error 06	current 1 output is over 20.5 mA,the maximum is 22.00mA
Error 07	current 1 output is under 3.8 mA, the minimum is 3.5mA
Error 08	current 2 output is over 20.5 mA,the maximum is 22.00mA
Error 09	current 2 output is under 3.8 mA, the minimum is 3.5mA
Error 10	record error
Error 11	ADC damage
Error 99	default parameters lost

Chapter 14: RS485 command

The instrument use the standard Modbus-RTU protocol, all of the data are word type(2 bytes), the range is -32767～32767 ,16 system.

PC command:

	ID address	Command	Start address	Data number	CRC16
Length	1 byte	1byte	2 byte	2 byte	2 byte
Ex.	0x01	0x03	0x0001	0x0001	0xD5CA

Instrument response:

	ID address	Command	Data number	Data content	CRC16
Length	1 byte	1 byte	1byte	N byte	2 byte
Ex.	0x01	0x03	0x02	0x02 0xBC	0xB895

If response is 01, the command is wrong.
If response is 02, the address is not correct.
If response is 03, data number is not correct.
Communication Baud rate: 9600 (fixed)
Data: 8
Parity: None
Stop bit: 1
Command 03: read the settings
Command 04: read the readings

04:definition

Address		
(00) 0x00	Measuring PH or ORP	reading:PH X 0.01/ ORPX 1
(01) 0x01	PH or ORP current	reading:X 0.01
(02) 0x02	Temperature	reading:X 0.1
(03) 0x03	Temperature current	reading:X 0.01
(04) 0x04	Error code	reading:X 1
(05) 0x05		
(06) 0x06		
(07) 0x07		
(08) 0x08		
(09) 0x09	Model type	reading:fix 1

03:definition

Address			
(00) 0x00	PH 20.00mA corresponding (current 1)		reading:X0.01
(01) 0x01	PH 4.00mA corresponding (current 1)		reading:X0.01
(02) 0x02	ORP 20.00mA corresponding (current 1)		reading:X1
(03) 0x03	ORP 4.00mA corresponding (current 1)		reading:X1
(04) 0x04	Temp. 20.00mA corresponding (current 2)		reading:X 0.1
(05) 0x05	Temp. 4.00mA corresponding (current 2)		reading:X 0.1
(06) 0x06	Current 1 offset		reading:X0.01
(07) 0x07	Current 2 offset		reading:X0.01
(08) 0x08	Current 1 filter		reading:X1
(09) 0x09	Current 2 filter		reading:X1
(10) 0x0A	Current 1 fixed current		reading:X0.01
(11) 0x0B	Current 2 fixed current		reading:X0.01
(12) 0x0C	Current 1 HOLD type	reading:X1	0=fixed,1=last
(13) 0x0D	Current 2 HOLD type	reading:X1	0=fixed,1=last
(14) 0x0E	Relay 1 PH close S.P.		reading:X0.01
(15) 0x0F	Relay 1 PH open S.P.		reading:X0.01
(16) 0x10	Relay 1 ORP close S.P.		reading:X1
(17) 0x11	Relay 1 ORP open S.P.		reading:X1
(18) 0x12	Relay 1 delay time		reading:X1
(19) 0x13	Relay 2 PH close S.P.		reading:X0.01
(20) 0x14	Relay 2 PH open S.P.		reading:X0.01
(21) 0x15	Relay 2 ORP close S.P.		reading:X1
(22) 0x16	Relay 2 ORP open S.P.		reading:X1
(23) 0x17	Relay 2 delay time		reading:X1
(24) 0x18	Relay 3 period time		reading:X0.1
(25) 0x19	Relay 3 clean time		reading:X1
(26) 0x1A	Relay 3 delay time		reading:X1
(27) 0x1B	Relay 3 function	reading:X1	0=Rinse,1=Interval alarm, 2=Error alarm
(28) 0x1C	Record save time		reading:X1
(29) 0x1D	Measure unit	reading:X1	0=PH, 1=ORP
(30) 0x1E	PH Offset		reading:X0.01
(31) 0x1F	ORP Offset		reading:X1
(32) 0x20	Temp. offset		reading:X0.1
(33) 0x21	Manual Temp.for measurement		reading:X0.1
(34) 0x22	Manual Temp. for calibration		reading:X0.1
(35) 0x23	Temperature compensation	reading:X1	0=ATC 1=MTC
(36) 0x24	Temp. probe	reading: X1	0=Pt1000,1=NTC 10K
(37) 0x25	Language	reading:X1	0=English ,1=Traditional Chinese, 2=Simplified Chinese
(38) 0x26	Filter		reading:X1

Chapter 15: Warranty

The product has a year warranty period from the date of the purchase, but does not include the damage which caused by improper using, disassembling and repairing the product. As long as the damage is caused by improper use of non-human within the warranty period, please prepaid freight, return it with a good packing to avoid damaging during transport, we will repair it for you free of charge. We will analyze the reasons for the damage of the product, if the damage exceeds the warranty conditions, we need to charge the repair fee.

Lanchang Group | REMOND

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