pH/ORP CONTROLLER

OPERATION MANUAL

MTWPH5000/

MTWPH5200

CONTENTS

一、Safety information

Before installing this controller please read the following instructions.

1. Before power on, please check wires connect correctly .
2. To avoid install controller in the environment of high temperature,high humility and corrosion.
3. The electrode cable has to use the specific coaxial cable.
4. To avoid the surge interference from power , please make sure the power cable connects to the ground or separate the power cable with motor/VFD equipments and use a surge absorber.
5. The relays contact rating is 5A. If the equipment current is over than 5A please don't use the controller's relay. You should use excess relay.

二、Specifications

Function	pH	ORP
Measure Range	-2.00 to +16.00 pH	-2000mV to +2000mV
Resolution	0.01pH	1mV
Accuracy	±0.01	±1mV
ATC	Pt-100 / pt-1000	
Temperature Range	-10.0 to +120.0℃	
Temp. resolution	0.1℃	
Temp. accuracy	±0.2℃	
Ambient temperature	0.0 to +50℃	
Stored temperature	-20 to +70℃	
Input resistance	>1012Ω	
Display	Large LCD	
Output 1	4 to 20mA for pH/ORP, load < 600Ω	
Output 2	4 to 20mA for Temperature, load < 600Ω	
RS485	Modbus RTU protocal	
Relay contact rating	5A/250VAC、 5A/30VDC	
Clean relay ON：	1 to 1000 S、 OFF： 1 to 1000 hour	
Protection grade	IP65	
Power	90 to 260VAC	
Installing	Wall /Piping/Panel mounting	
Dimension	144mm X 144mm X 115mm (H/W/D)	
Cutout size	138mm X 138mm	
Weight	0.8Kg	

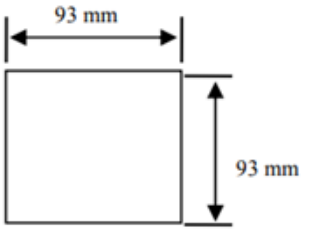
三、 Assembly

3.1 Meter installation

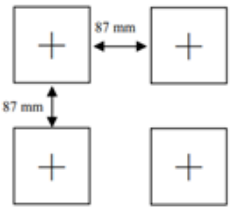
There are three kinds of installing method.

Panel mounting,Pipe mounting and Wall mounting

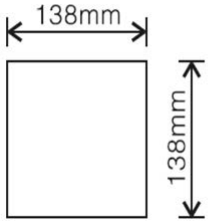
3.2 Panel mounting



96 x 96 hole dimensions

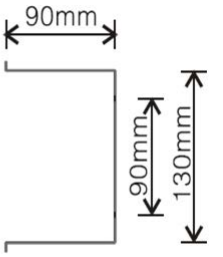


96 x 96 square hole spacing of the distribution box

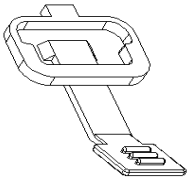


Hole dimensions,

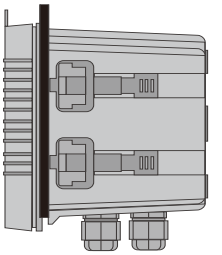
side drawings



fixers

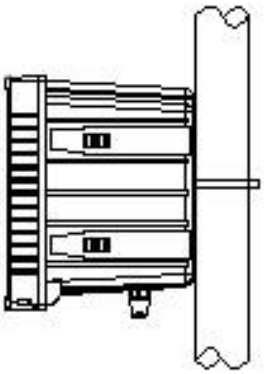


holder

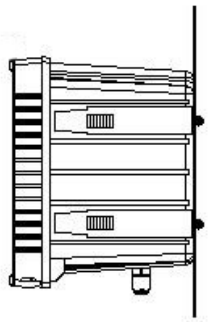


Holder for panel mounting

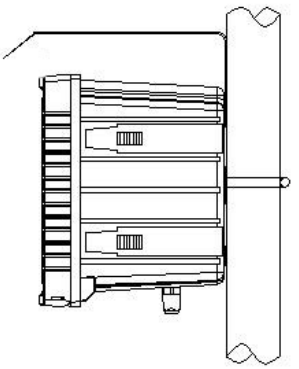
3.3 Pipe mounting and Wall mounting



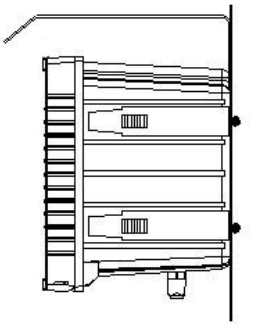
Pipe mounting



Wall mounting



Pipe mounting and shade



Wall mounting and shade

3.4 wire stripping

Black conductive rubber

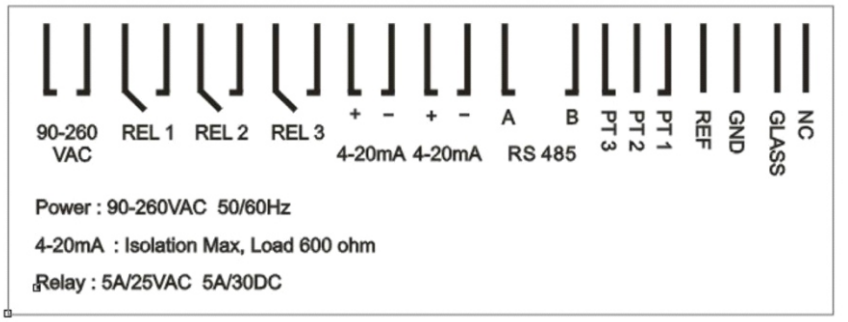
removed conductive rubber

① The black conductive rubber has to be stripped

② No any connections between electrode to meter unless specific connect box, the core wire connects to GLASS connector, the shade wire connects to Ref connector.

四、 Connector

4.1 Wirings



4.2 Connector information

90-260AC： Power input， 50 or 60Hz

REL1： Relay 1 connector （5A/250VAC、 5A/30DC)

REL2： Relay 2 connector （5A/250VAC、 5A/30DC)

REL2： Clean relay connector （5A/250VAC、 5A/30DC)

pH4-20mA： pH/ORP output

Temp4-20mA： Temperature output

RS485： RS485， Modbus RTU protocal

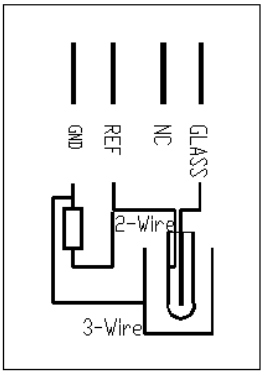
Pt100： Pt100 or Pt1000 temperature probe

GND： no earth pin then short with REF
Or correct to earth pin

REF：Reference electrode

GLASS：Glass electrode

4.3 3-wire electrode



2-wire electrode:
GND short with REF
REF connects to reference electrode
GLASS connects to glass electrode
3-wire electrode:
GND connects to earth pin
REF connects to reference electrode
GLASS connects to glass electrode

五、 Panel introduction

5.1 Panel drawing

5.2 Keypad

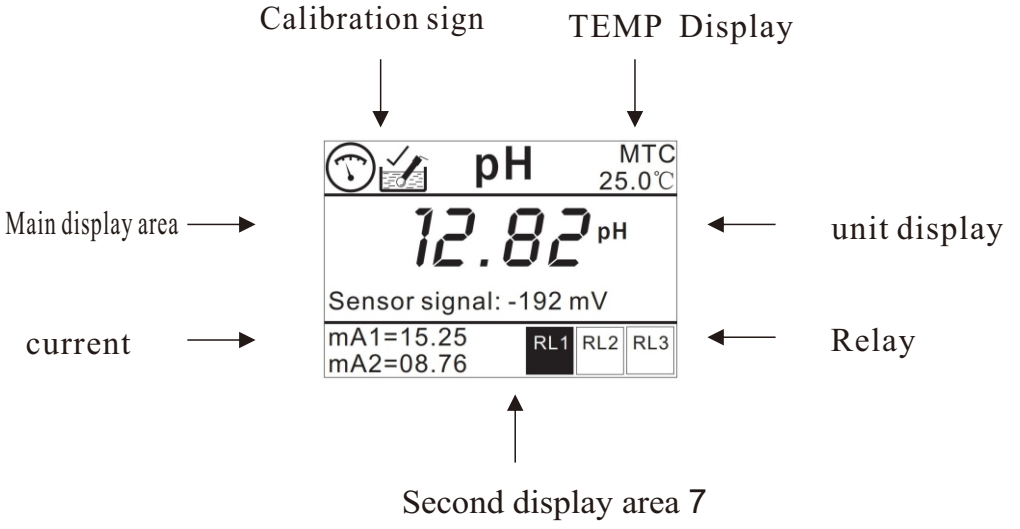
MENU，Enter in Setting Mode

UP/DOWN， Choose buffer

BACK， Exit

ENTER， Save and go to next mode

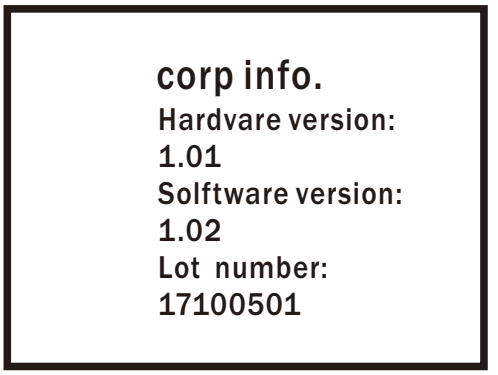
5.3 LED introduction



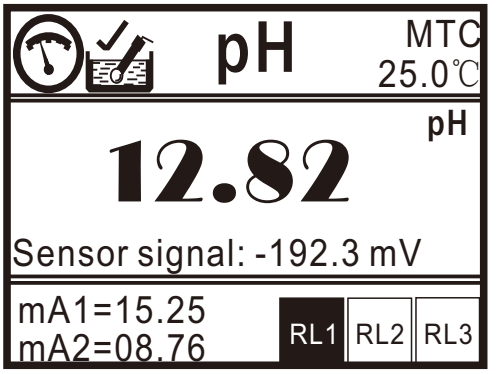
六、 Parameters setting

6.1 Calibration

Boot screen



Measurement mode

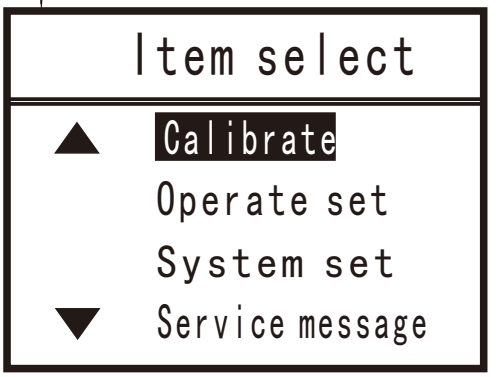


MTC，Means temperature set by manual
If it auto set，there will display ATC
Relay is on the sign will changed to black

After calibration,
the sign have a tick.

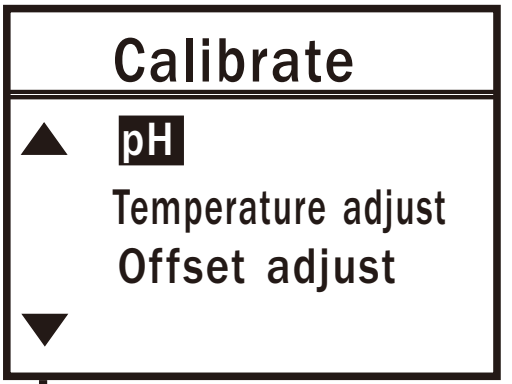
Measuring sign

Press 🛠 to enter in item select screen

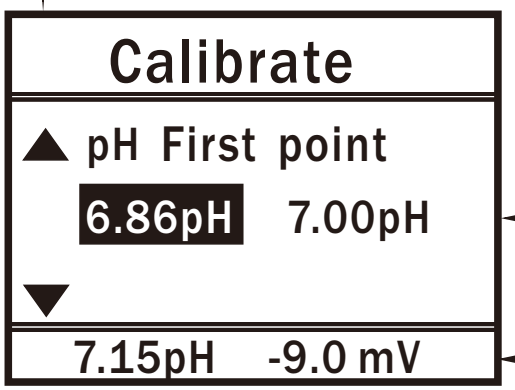


pH Calibration

Select calibration at item select screen, then press ↵ to enter Calibrate mode



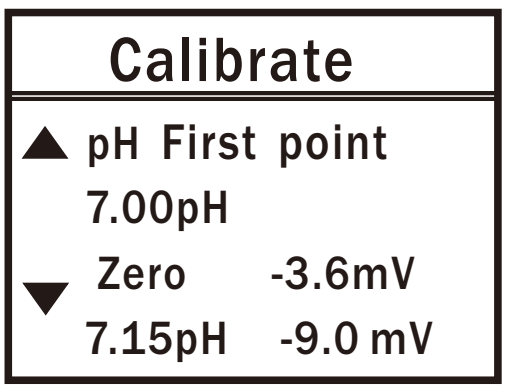
Press ▲ or ▼ to select pH calibration , press ↵ go to next menu.



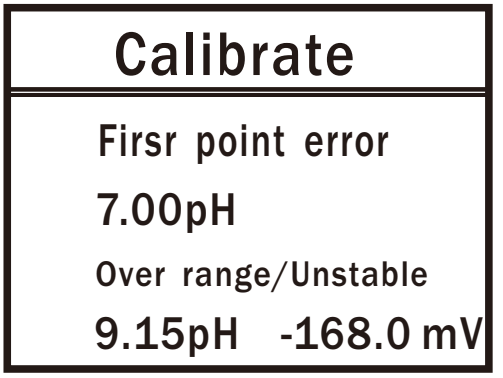
Select 6.86pH or 7.00pH

Display pH data and sensor signal

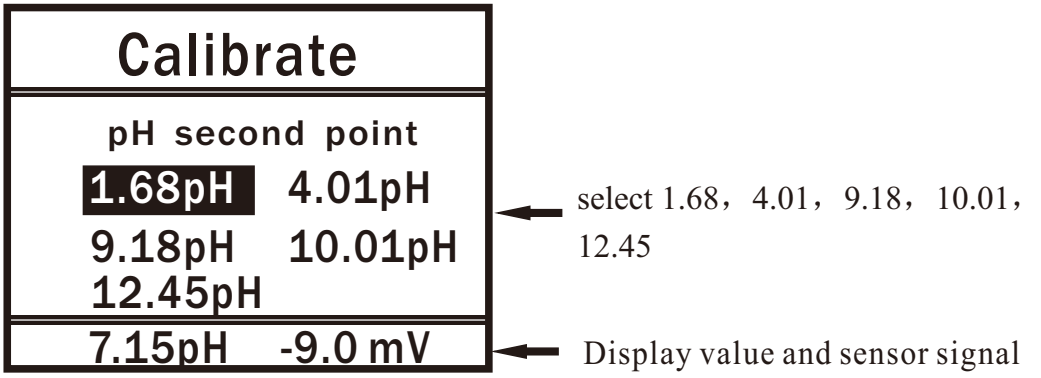
After finished the Calibration, the LED will keep 3 seconds then go to next mode.



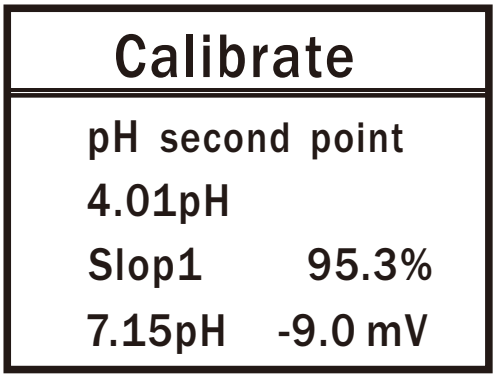
Calibration have not passed, if no any action within 10 minutes, system will go back to measuring mode



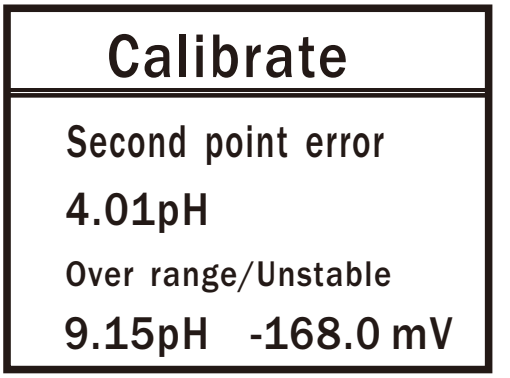
First point result passed then go to sencond point

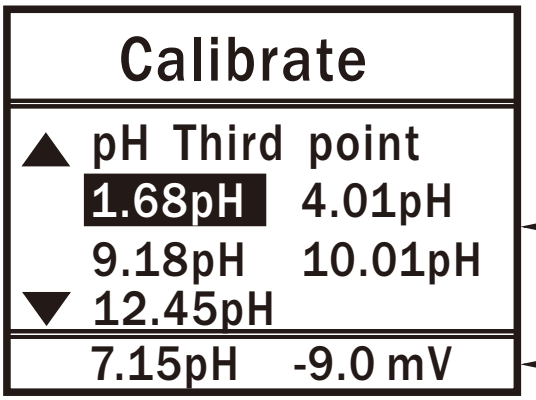


Calibration result is passed，the screen will keep 3 seconds then go to next mode



Calibration have not passed, if no any action within 10 minutes, system will go back to measuring mode.

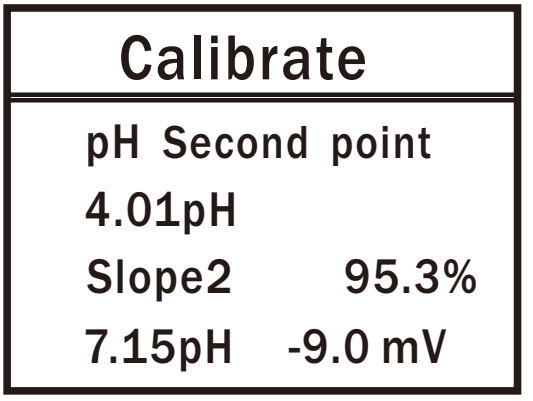




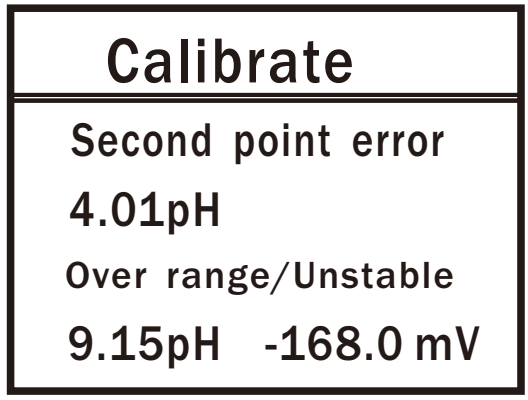
Select 1.68，4.01，9.18，10.01，12.45

Display value and sensor signal

Calibration result is passed，the screen will keep 3 seconds then go to next screen.



Calibration have not passed,if no any action within 10 minutes, system will go back to measuring mode.

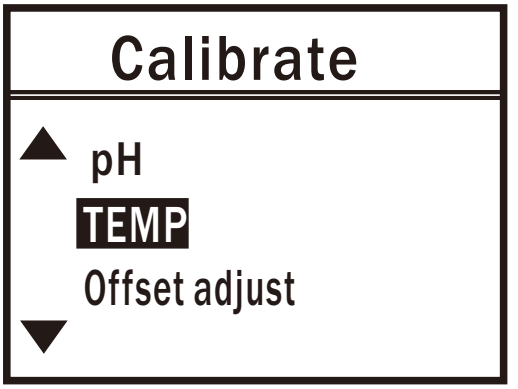


Notice:

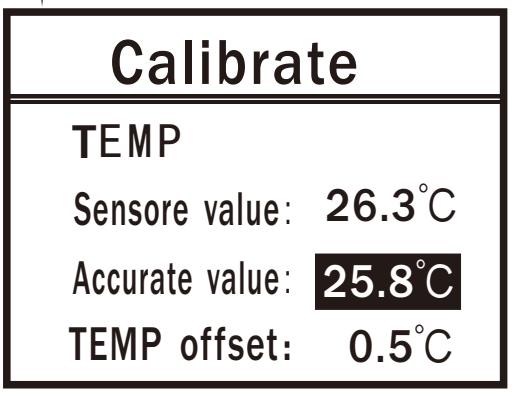
Calibration function can judge terminal point and stability. If the data changed with 0.01pH in10seconds Consider it as terminal point and stability. If the data can not keep stable within 5 minutes, the screen will display unstable.

Temprature calibration

Select Calibrate at Item select Screen then press ↵ to enter

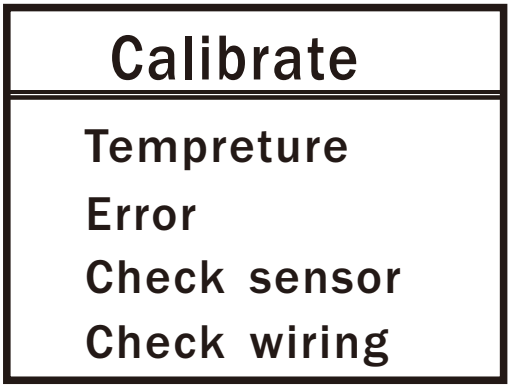


Press ▲ or ▼ to select TEMP calibrate then press ↵ to enter



In this screen, you can adjust accurate value with ▲ or ▼ and press ↵ to save data.

TEMP offset range:-10℃ to10℃

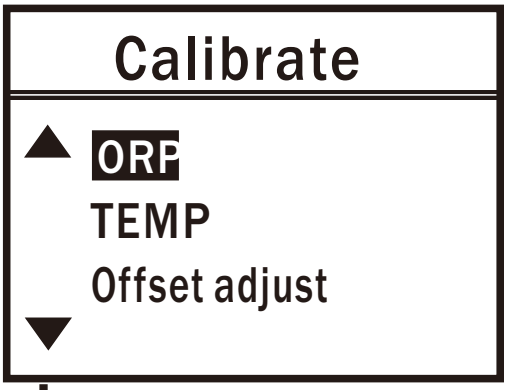


Notice:

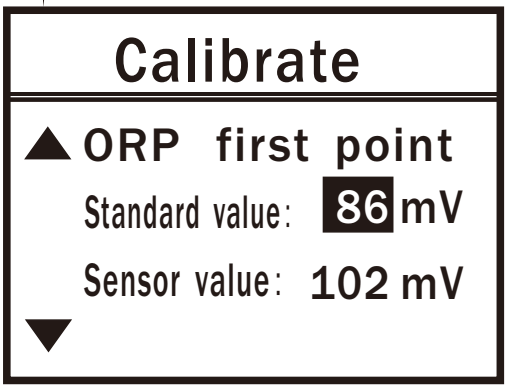
Temperature calibration action can perform only when have auto temperature adjustment. If there isn't temperature sensor, it will display error information.

ORP Calibration

Select Calibrate at Item select Screen then press ↵ to enter



Press ▲ or ▼ to select ORP then press ↵



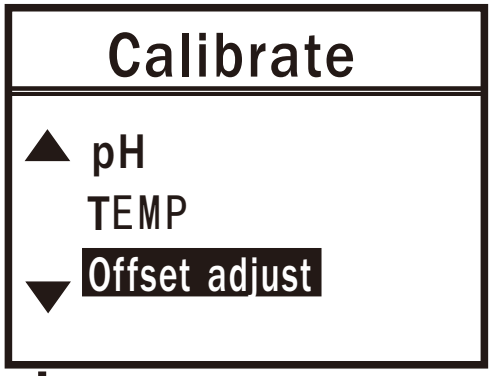
ORP calibrate: User can set standard value with ▲ or ▼ then press ↵ perform calibration. It will auto judge terminal point or press ↵ by maual. After calibration the screen will show first point data.

ORP has two-point calibration at most, the display after calibration can refer to pH calibration process.

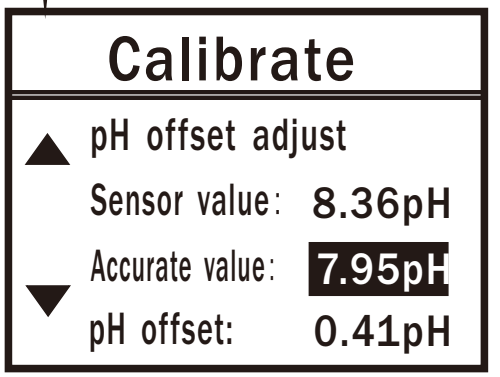
The error information is also refer to pH calibration.

pH offset adjust

Select Calibrate at Item select Screen then press ↵ to enter



Press ▲ or ▼ to select offset adjust then press ↵ to enter



In this screen, you can adjust accurate value with▲ or ▼ and press ↵to save data.

pH offset range: +− 2.00 pH.

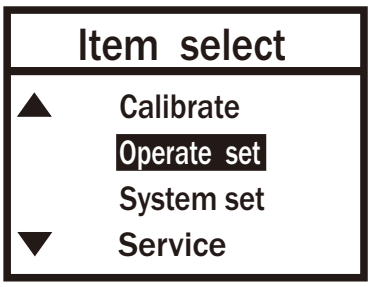
Notice:

After calibration pH offset will be reset to zero.

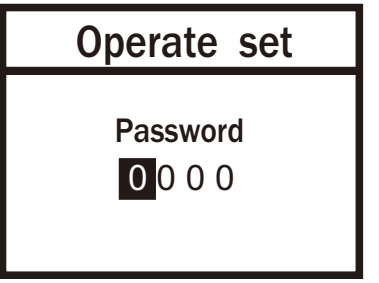
ORP offset adjust procedure please refer to pH offset adjust screen.

6.2.1 pH Operate set

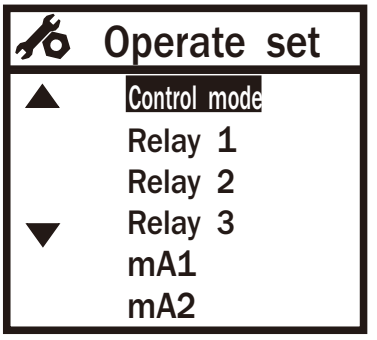
Press enter in Item select screen



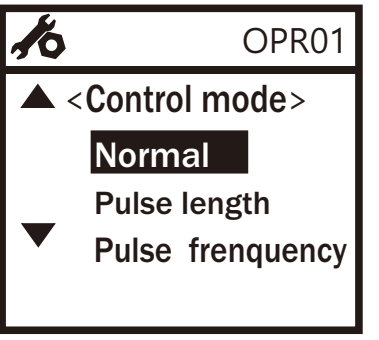
Select operate set then press



Enter in password then press

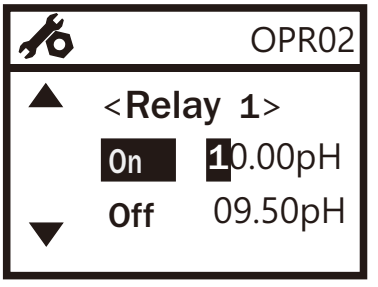


Select control mode then press



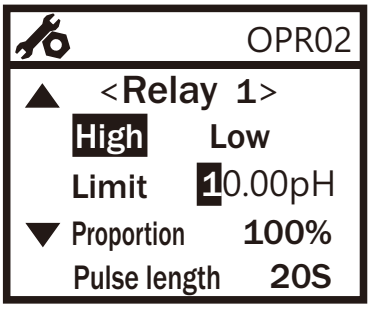
Select relay1 then press

Normal mode



Limit，High or Low

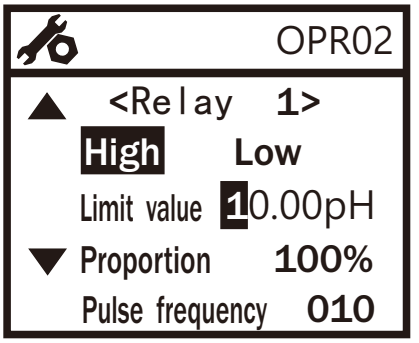
Pulse length mode



Limit，High or Low

Proportion range：10%to200%

Range 5-50s



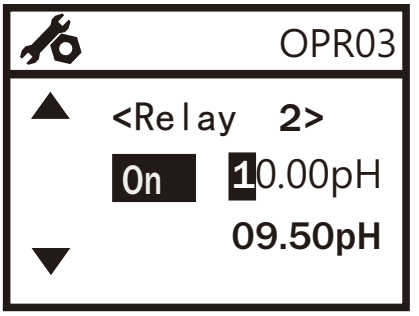
Limit，High or Low

Proportion range：10%to200%

Pulse frenquency range:6-120

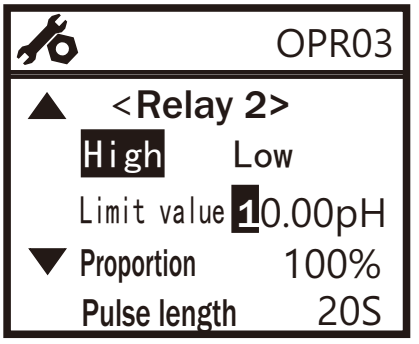
Select Relay2，press ↵ enter in Normal mode

Normal mode



Normal mode only have On/Off。

Pulse length mode

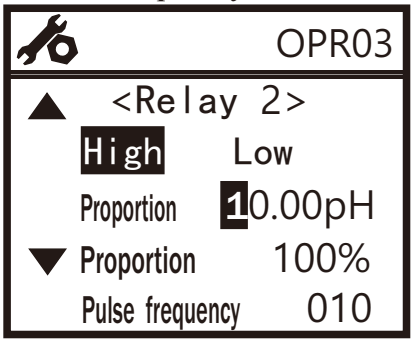


Limit，High or Low

Proportion range：10%to200%

Range 5-50s

Pulse frenquency mode

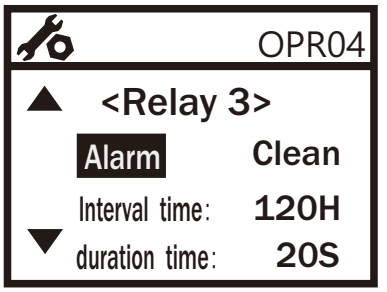


Limit，High or Low

Proportion range：10%to200%

Pulse frenquency range:6-120

select Relay3 then press ↵



← Select Alarm , relay1 and relay2 work

← Range: 1−1200 hours

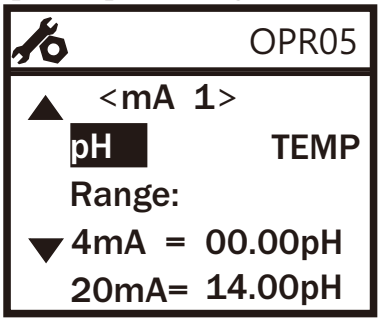
← Range: 5−60 senconds

Notice:

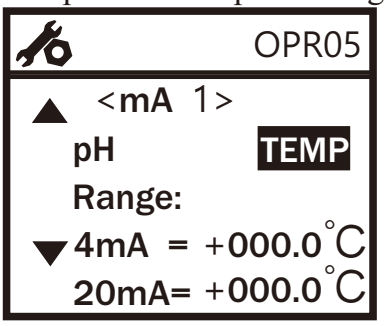
When perform clean.Please lock display value and current output. Turn off Relay1 and relay2 to keep system no error happened .After compete clean 1-2 minutes ,recover system. The same operation is needed when select relay 3 and perform clean by manual.

Select mA1 then press ↵

pH output setting

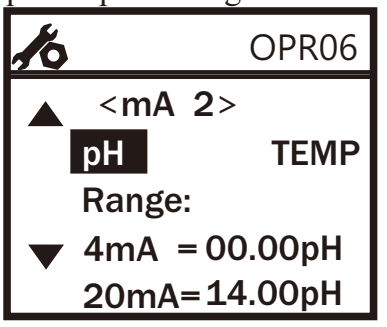


Temperature output setting

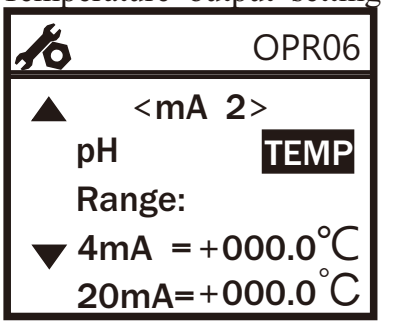


Select mA2 then press ↵

pH output setting

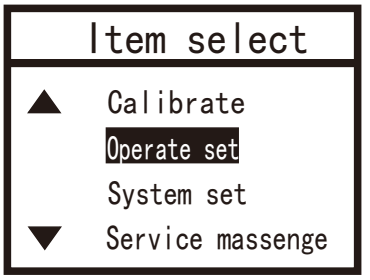


Temperature output setting

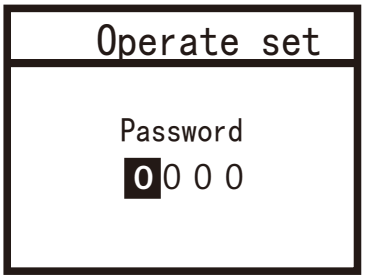


6.2.2 ORP Operate set

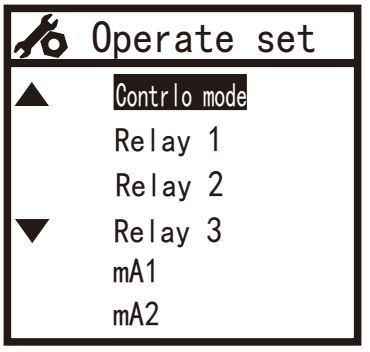
Press 🛠 enter in Item select screen



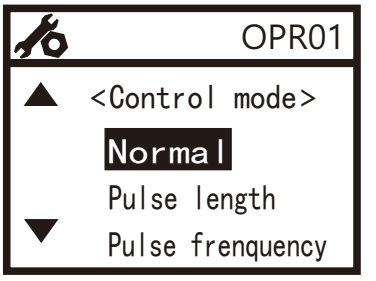
Select operate set then press ↵



Enter in password then press ↵

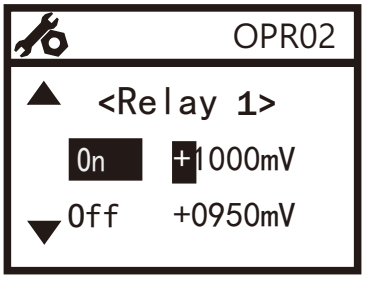


Select cotrol mode then press ↵



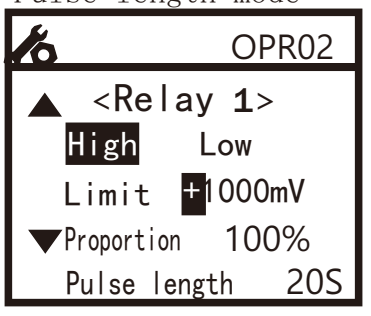
Select relay1 then press ↵

Normal mode



Normal mode only have On/Off.

Pulse length mode

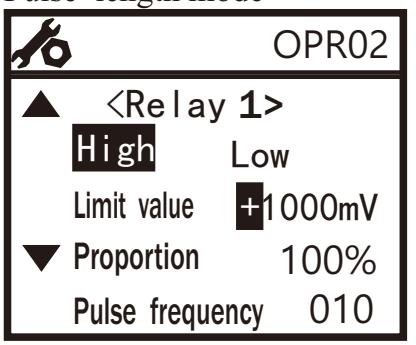


← Limit, High or Low

← Proportion range:10%to200%

← Range 5-50s

Pulse length mode



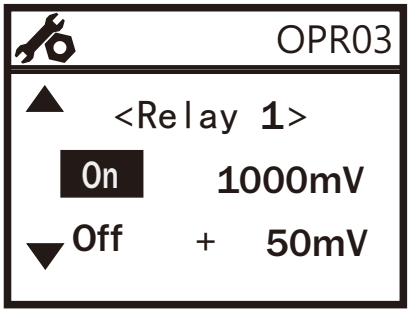
Limit，High or Low

Proportion range：10% - 200%

Pulse frenquency range:6-120

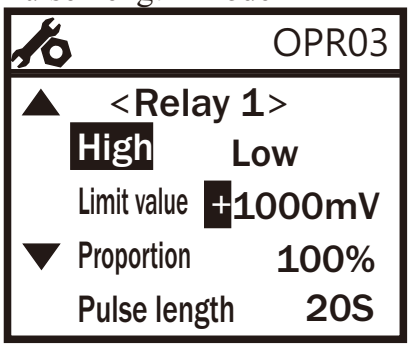
Select Relay2，press enter to Normal mode

Normal mode



Normal mode only have On/Off

Pulse length mode

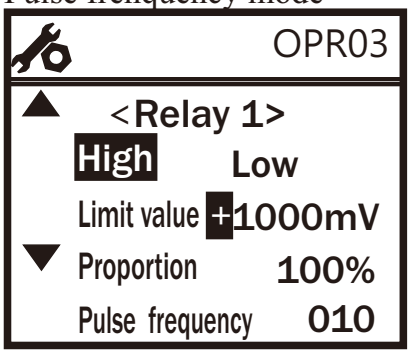


Limit，High or Low

Proportion range：10%to200%

Range 5-50s

Pulse frenquency mode



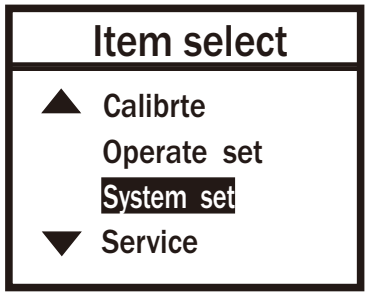
Limit，High or Low

Proportion range：10%to200%

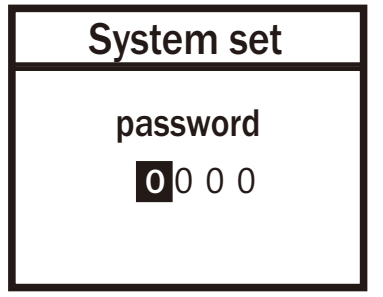
Pulse frenquency range:6-120

6.3 System set

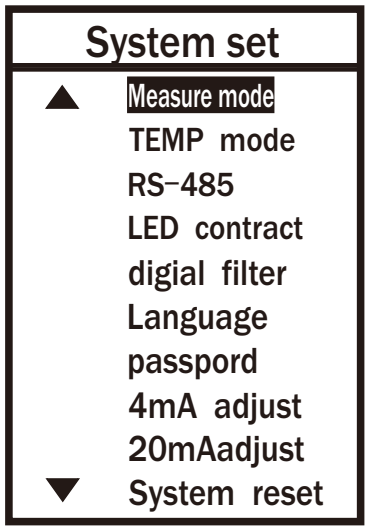
Press 🛠 enter in item select



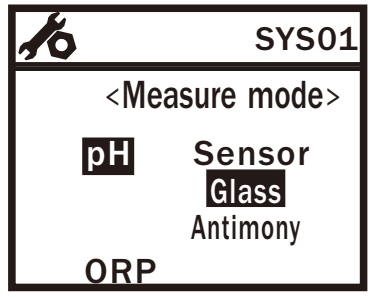
select system set then press ↵



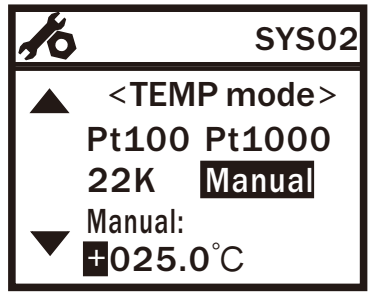
Enter in password then press 🛠 and select measure mode



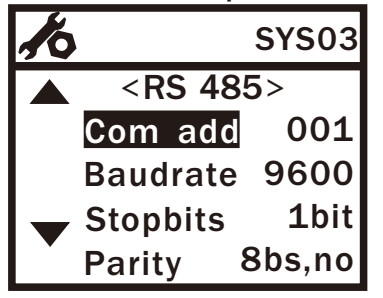
Measure mode select



TEMP mode select



Communication protocol



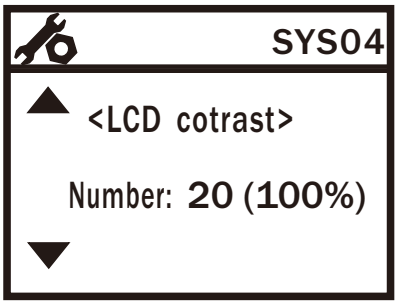
Id NO. Max is 128,

Baudrate range:2400to19200

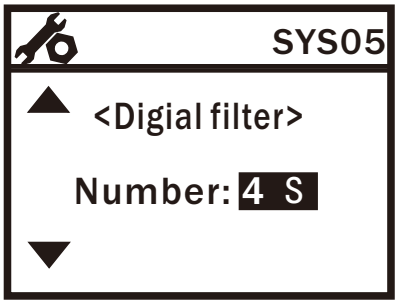
Stopbits can be set

parity can be set

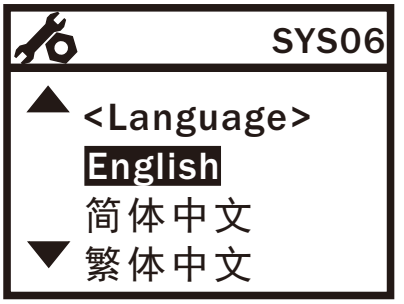
LED contrast



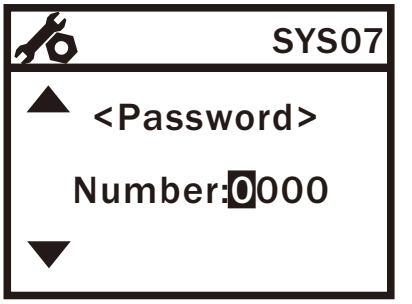
Digital filter



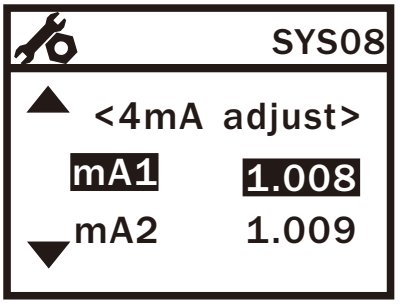
Language



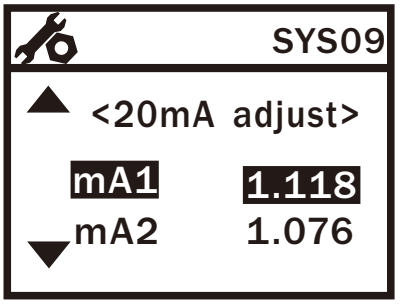
Password



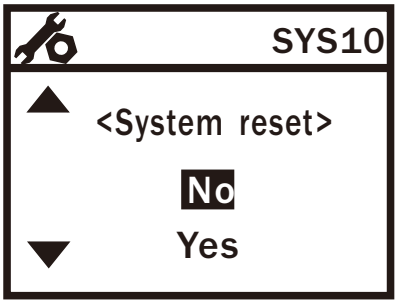
current output adjust



current output adjust



current output adjust

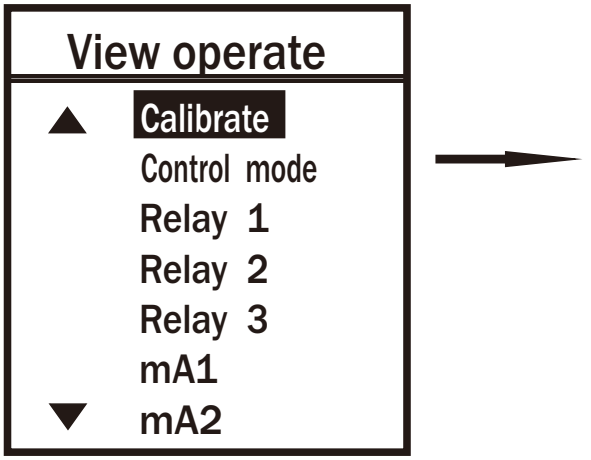


Notice:

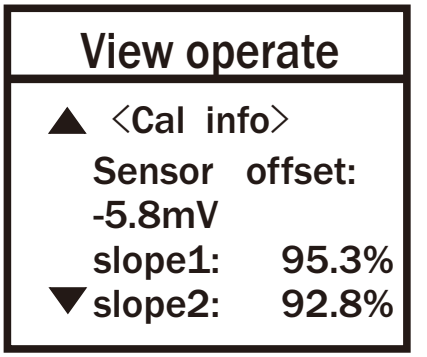
If you haven't action within 10 s System setting mode will return to measuring mode

6.4 View operate

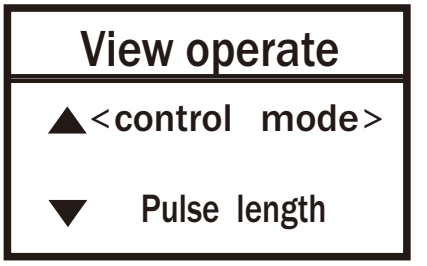
Press ▼ to enter in View operate setting



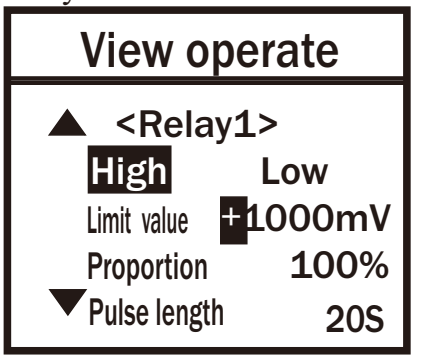
Cal info screen



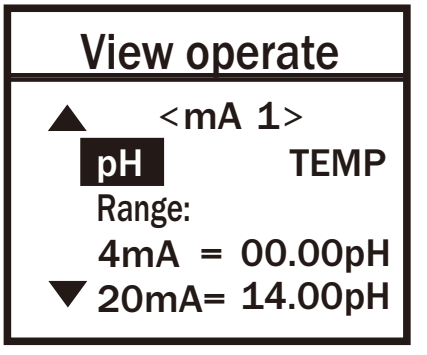
Control mode screen



Relay screen



Current outpur screen

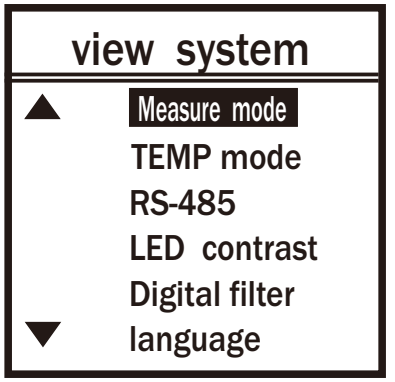


Notice:

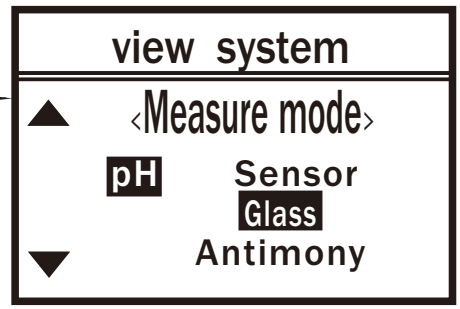
This section only can view operating setting data.

6.5 View system

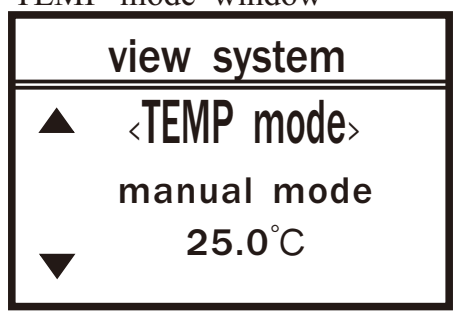
Press ▲ (at measuring mode) swich to view system mode



measure mode window



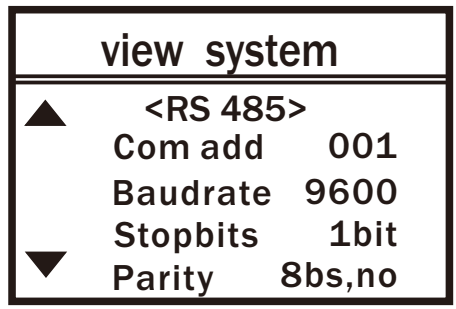
TEMP mode window



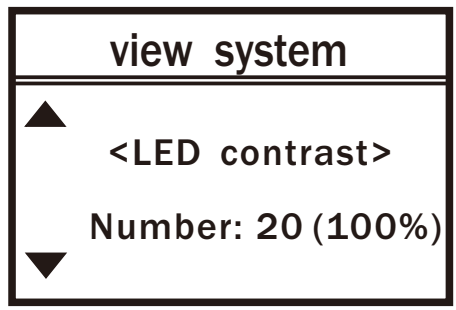
Notice:

This section only can view setting data.

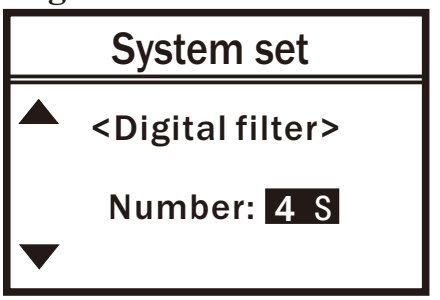
RS-485 window



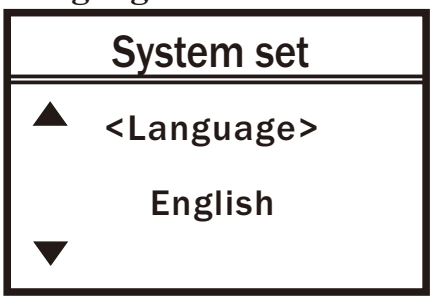
LED contrast mode



Digial filter

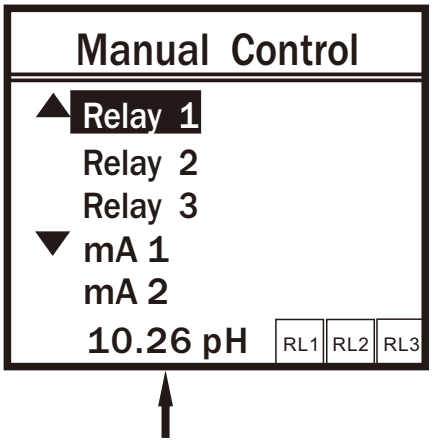


Lauguage window



6.6 Manual control

Press enter key for 3s(at measuring mode)swich to manual control mode



Here show measuring data

Press ▲ or ▼ choose the relay then press ↵