



Recorder



Flow



Pressure



Temp



Analyzer



Level

Datasheet

Online pH/ORP Meter

SUP-pH6.0

**Datasheet****Online pH/ORP Meter  
SUP-pH6.0**

This product is a self-developed instrument for online monitoring of pH/ORP value. It is output to the monitoring room through RS485 or current transmission for record keeping.

The pH/ORP controller is an intelligent online chemical analysis instrument, which is widely used in thermal power, chemical fertilizer, metallurgy, environmental protection, pharmaceutical, biochemical, food and tap water industries to continuously monitor the pH value or ORP value and temperature in the solution. The continuous monitoring data is connected to the recorder through the transmission output to realize remote monitoring and recording. It can also be connected to the RS485 interface to communicate with the computer through the Modbus-RTU protocol, so as to realize the computer monitoring and recording of the instrument.

**Applications**

- Sewage Treatment
- Exhaust Gas Treatment
- Dyeing Wastewater
- Strong Acid And Base
- Metal Surface Treatment
- Fertigation System
- Food Processing
- Power Plants

**Features**

- Easy operation
- Modular design
- Automatically Temperature Compensation
- Directly switchable to PH or ORP
- Set buzzer, LCD backlight switch function
- Using isolated transmission output, less affected by interference
- Set high and low alarm and hysteresis functions
- RS485 communication Relay output

**Online pH/ORP Meter**

## Parameters

| Parameters               | Details   |
|--------------------------|---|
| Dimensions Size (mm):    | 100mm×100mm×150mm   |
| Hole Size(mm)            | 92.5mm×92.5mm   |
| Range                    | pH:(0.00 ~ 14.00)pH<br>ORP:(-1000 ~+1000)MV,(-2000~+2000)MV                         |
| Communications           | RS485、Modbus-RTU、Isolated   |
| Output                   | Current (4-20 mA)   |
| Accuracy                 | pH±0.02PH<br>ORP±1Mv  |
| Temperature compensation | NTC10K (-10~60)°C,±0.3°C (60~130)°C,±2°C<br>PT1000 ±0.3°C (-10~130)°C Manual / Auto |
| Transmit output          | Isolated 4-20mA output<br>maximum loop is 750 Ω ,±0.2%FS                            |
| Relay                    | 2 relays AC250V/3A  |
| Relative humidity        | (5%~95%)RH(No condensation)   |
| Operating temperature    | (0 ~ 60)°C  |
| Power supply             | AC: 220V±10%, 50HZ/60HZ<br>DC: 24V±20%, Input Power≥6W                              |
| Storage temperature      | (-15~65)°C  |
| Input impedance          | ≥10 <sup>12</sup> Ω   |

**Display**

- 1 Temperature: Compensation temperature
- 2 Analyst output: Analyst output
- 3 Measured value: Real-time measurements value
- 4 High alarm: High alarm
- 5 Low alarm: Low alarm
- 6 ESC: Check related warning status on the “monitoring page”  
Return to previous level page in the up& down level page linked to “menu page”
- 7 Menu: Enter the MENU on the “monitoring page”  
Exit the MENU on the “menu page”
- 8 Choose: “MOVE RIGHT” and “MOVE DOWN”
- 9 Enter: Enter the sub-menu or confirm modification on the “menu page”

**Monitor page**

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★ pH monitor:

|         |        |
|---------|--------|
| H25.0°C | 4.00mA |
| 0.00 pH |        |

|          |         |
|----------|---------|
| H25.0°C  | 20.00mA |
| 14.00 pH |         |

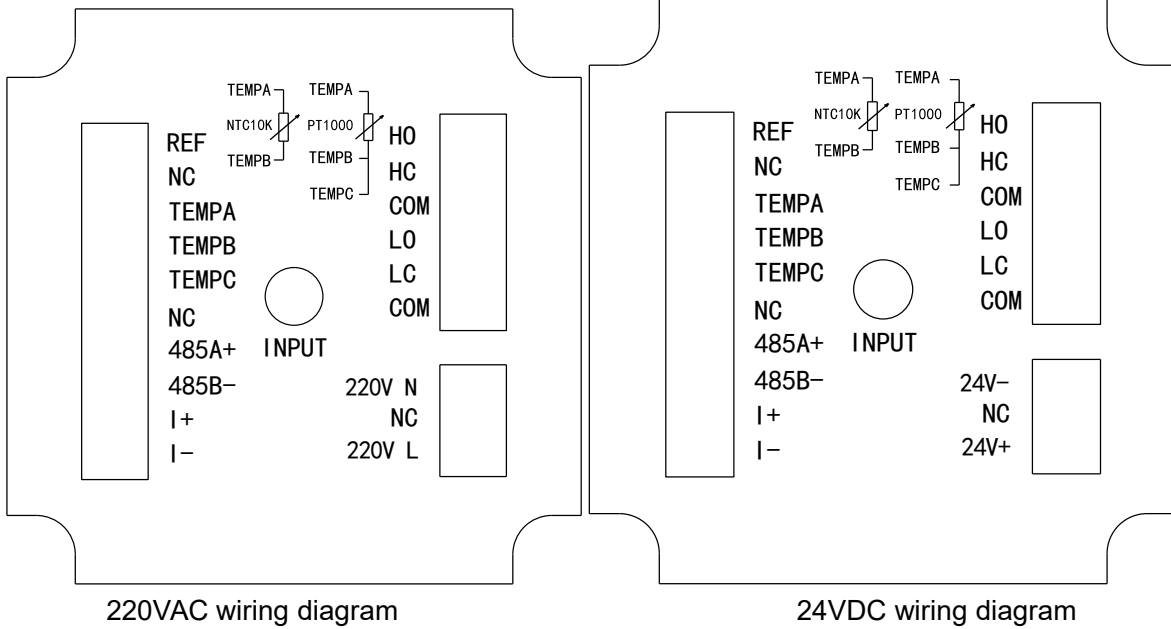
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★ ORP monitore

|          |        |
|----------|--------|
| H25.0°C  | 4.00mA |
| -0999 mV |        |

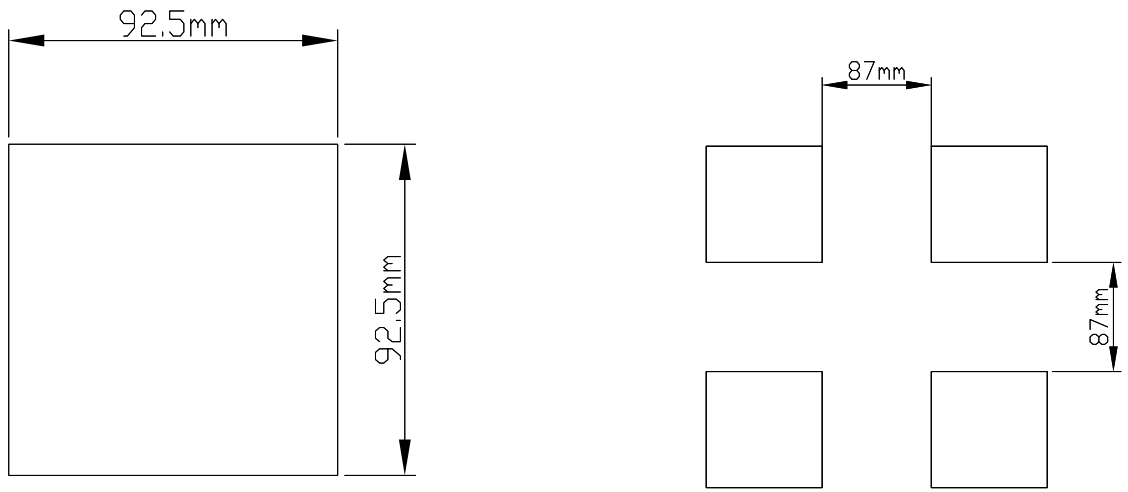
|          |         |
|----------|---------|
| H25.0°C  | 20.00mA |
| +0999 mV |         |

Wiring

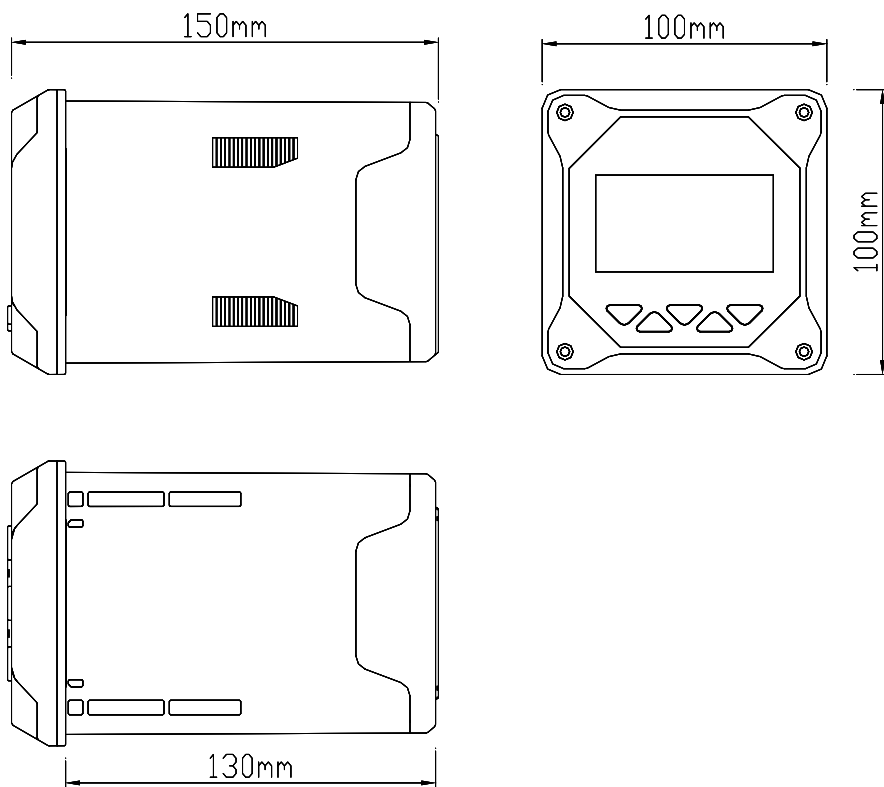


- INPUT: Measuring terminal of the electrode
- REF: Reference terminal of the electrode
- TEMP A: Temperature Compensation Terminal A
- TEMP B: Temperature Compensation Terminal B
- TEMP C: The temperature compensation terminal C, the temperature ground of the PT1000 three-wire system, should be shorted to B when connected to the PT1000 two-wire system, and the C terminal should be left floating when connected to the NTC10K
- NC: Unidentified
- RS485 (A +): RS485 communication interface A +
- RS485 (B -): RS485 communication interface B-
- I+: 4-20mA output end+
- I-: 4-20mA output end -
- HO: High alarm normally open relay
- HC: High alarm normally closed relay
- COM: relay common terminal
- LO: Low alarm normally open relay
- LC: Low alarm normally closed relay
- 24V+: 24VDC +
- 24V-: 24VDC -
- 220V N: AC220V power terminal
- 220V L: AC220V power terminal

Dimensions



Opening size and minimum distance between square holes of distribution box



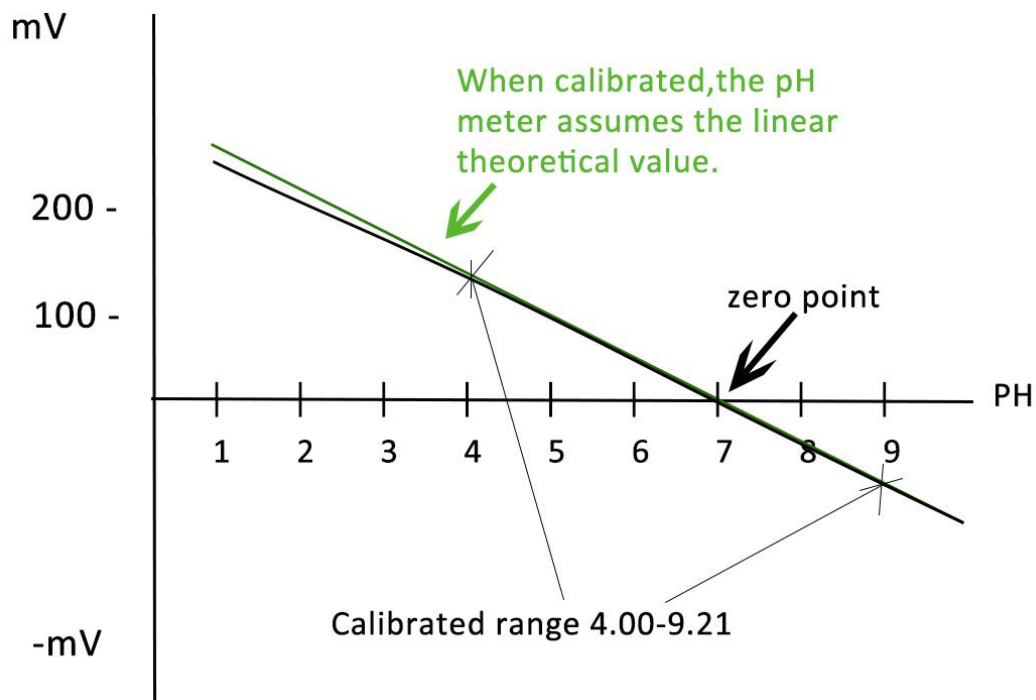
Instrument dimensions

## Multi-point calibration

To achieve the best possible accuracy, the calibration should cover the range of the desired measurement values. If the readings go beyond the calibrated range, the pH meter assumes linearity and simply extrapolates the value to be displayed. The true value may be slightly different.

More advanced pH meters will let the user calibrate at three, four or five and even higher numbers of pH values. A multi-point calibration mean, in comparison to a two-point calibration, that you can calibrate your pH tester on both sides of the zero point (pH 7.00). This will expand your pH measurement range without the need of recalibrating.

Example) Three-point calibration at pH 4.00, 7.0 and 9.21





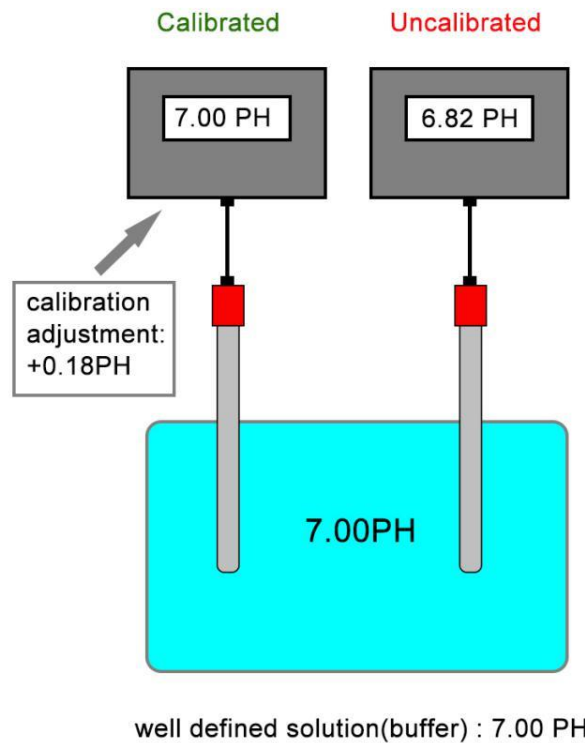
## pH calibration

A pH calibration is the procedure of adjusting the pH meter by measuring solutions of known pH values.

### Why you need to calibrate:

The characteristic of a pH electrode will change with time due to electrode coating and aging. And even a pH electrode would be stable over time, pH electrodes cannot be produced with identical characteristics.

In practice the response of a real pH sensor does not exactly follow the Nernst equation. This difference between the theoretical and actual behavior of a pH electrode must be compensated for. A calibration is required to match the pH meter to the current characteristics of the used pH sensor.



How to calibrate: Main Menu- Online Calibration- PH Calibration

----- Main Menu -----

- 1.System Setting
- 2.Signal Setting
- 3.Online Calibrtion
- 4.Remote Setting
- 5.Alarm Setting
- 6.Information Inquiry



----- Online Calibrtion -----

- 1.PH Calibration
- 2.PH Modification
- 3.ORM Calibration
- 4.ORM Modification

- **PH Calibration:** Enter the PH calibration screen, the first PH electrode into the 4.00PH standard solution, standing for a moment, to be stable after the show, press the **【ENT】**, then the PH electrode into the 6.86PH standard solution Set the PH electrode into the 9.18PH standard solution, put it aside for a moment, after the test is stable, press **【ENT】**, the display shows the success of the calibration, the whole process of PH calibration completes.
- **PH Modification:** The measured PH can be modified between 2 PH values.
- **ORP Calibration:** enter the ORP calibration screen, the first ORP electrode into the 86mV standard solution, standing for a moment, to be shown after the stability, press the **【ENT】** , then the ORP electrode into the 256mV standard solution, static Set a moment, after the display is stable, press the **【ENT】** display calibration is successful, ORP calibration process is over.
- **ORP Modification:** The measured ORP can be modified between 300mV.
- **Temperature correction:** You can correct the temperature of the automatic temperature compensation, the correction range is  $\pm 20.0$  °C.

**Ordering code**

| SUP-pH6.0-RT1-O1-D1-A2-V2 |     |    |    |    |   |   |   |   |   |   |   |   | Description |                               |
|---------------------------|-----|----|----|----|---|---|---|---|---|---|---|---|-------------|-------------------------------|
| SUP-pH6.0                 | -   | -  | -  | -  | - | - | - | - | - | - | - | - | -           | (0~14) pH,<br>(-1000~1000) MV |
| Range                     | RT1 |    |    |    |   |   |   |   |   |   |   |   |             | (0~14) pH,<br>(-2000~2000)MV  |
|                           | RT2 |    |    |    |   |   |   |   |   |   |   |   |             | (4~20) MA                     |
| Transmit output           | O1  |    |    |    |   |   |   |   |   |   |   |   |             | RS485                         |
| Communication             |     | D1 |    |    |   |   |   |   |   |   |   |   |             | 2 relay output                |
| Relay output              |     |    | A2 |    |   |   |   |   |   |   |   |   |             | 24VDC                         |
|                           |     |    |    | V1 |   |   |   |   |   |   |   |   |             | 220VAC                        |
| Power supply              |     |    |    | V2 |   |   |   |   |   |   |   |   |             | 110VAC                        |
|                           |     |    |    | V4 |   |   |   |   |   |   |   |   |             |                               |



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