



pH meter

# Datasheet

## Online pH meter

The pH meter is a true multivariable analyzer used for measuring/controlling the pH with temperature and ORP. The function is switchable on the device itself. Depending on the measured variable, combination electrodes (e. g. pH sensors) or split versions (glass electrodes with a separate reference electrode) can be readily connected.

Truly unique is the pH meter in the Human Machine Interface. The high resolution digital display and LCD screen make the measurements are clearly legible and the keyboard operation make it easier for the user to configure the device. The instructions on screen assure that the best configuration for the application is obtained

Universal application in water and waste water engineering, service/process water and drinking water and well/surface water, leakage monitoring in refrigeration plant



pH4.0 pH meter

## Features

- Easy operation
- NEMA enclosure for field mounting and panel mounting
- Automatically Temperature Compensation
- Directly switchable to PH or ORP
- Large LCD display with background lighting
- PH or ORP sensors can be connected thanks to the sensor supply integrated in the output
- Using the setup program: user-friendly programming
- 4-20mA analog output
- RS485 communication

## General Specifications of PH4.0

- (A) **Measure Range:** PH(0-14) ; ORP(-1000~+1000Mv)
- (B) **Resolution:** PH: 0.01 ORP: 1Mv
- (C) **Stability:** PH:  $\leq 0.02\text{PH}/24\text{H}$ ; ORP:  $\leq 3\text{Mv}/24\text{H}$
- (D) **Accuracy:** PH:  $\pm 0.02\text{PH}$ ; ORP:  $\pm 1\text{Mv}$
- (E) **Input impedance:**  $\geq 10^{12}$
- (F) **Temperature compensation:** NTC 10K 0-100°C
- (G) **Communication:** RS485, MODBUS-RTU
- (H) **Power Supply:** AC220V  $\pm 10\%$ , 50Hz or DC 24V
- (I) **Relay output:** AC250V, 3A
- (J) **Cable Length:** 5M, 10M, 15M
- (K) **Transmission signals:** 4-20 mA
- (L) **Process alarm:** High/Low process alarms, selected from pH, ORP
- (M) **Panel Front Size (mm):** 96(W) x 96(H) x Approx.112 (D)
- (N) **Panel Cutout Size (mm):** 92(W) x 92(H) x Approx.112 (D)
- (O) **Converter weight :** Approx. 1 kg
- (P) **Display:** LCD with back lights in English
- (Q) **Calibration:** Semi-automatic 3 points calibration using pre-configured buffer tables 4, 7& 10, or 4, 6.18& 9.18
- (R) **Color:** Black
- (S) **Ambient temperature :** -20 to +55°C (-5 - 130 °F).
- (T) **Storage temperature :** -30 to +70°C (-20 - 160 °F).
- (U) **Humidity :** 10 to 90% RH at 40°C (100 °F)



## General Specifications of PH6.0

- (V) **Measure Range:** PH(0-14) ; ORP(-1000~+1000Mv)
- (W) **Resolution:** PH: 0.01 ORP: 1Mv
- (X) **Stability:** PH:  $\leq 0.02\text{PH}/24\text{H}$ ; ORP:  $\leq 3\text{Mv}/24\text{H}$
- (Y) **Accuracy:** PH:  $\pm 0.02\text{PH}$ ; ORP:  $\pm 1\text{Mv}$
- (Z) **Input impedance:**  $\geq 10^{12}$
- (AA) **Temperature compensation:** NTC 10K  
or PT1000 -10-130°C
- (AB) **Communication:** RS485, MODBUS-RTU
- (AC) **Power Supply:** AC220V  $\pm 10\%$ , 50Hz or DC 24V
- (AD) **Relay output:** AC250V, 3A
- (AE) **Cable Length:** 5M, 10M, 15M
- (AF) **Transmission signals:** 4-20 mA
- (AG) **Process alarm:** High/Low process alarms, selected from pH, ORP
- (AH) **Panel Front Size (mm) :** 100(W) x 100(H) x Approx.150 (D)
- (AI) **Panel Cutout Size (mm):** 92(W) x 92(H) x Approx.150(D)
- (AJ) **Converter weight :** Approx. 1 kg
- (AK) **Display:** LCD with back lights in English
- (AL) **Calibration:** Semi-automatic 3 points calibration using pre-configured buffer tables 4, 7& 10, or 4, 6.86& 9.18
- (AM) **Color:** Black
- (AN) **Ambient temperature :** -20 to +55°C (-5 - 130 °F).
- (AO) **Storage temperature :** -30 to +70°C (-20 - 160 °F).
- (AP) **Humidity :** 10 to 90% RH at 40°C (100 °F)



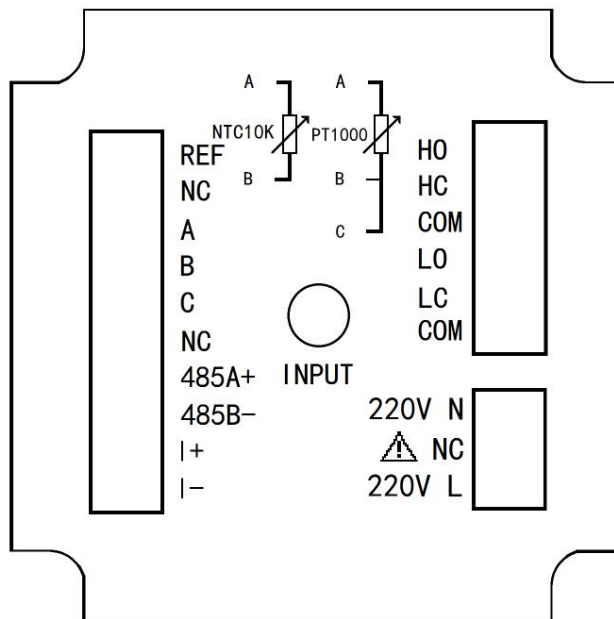
The device is designed for use on site. A rugged housing protects the electronics and the electrical connections from corrosive environmental conditions . As an alternative, the device can also be installed in a control panel.



(PH4.0)

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

## Instrument wiring



Wiring diagram

## Identification of terminal

- INPUT: Measuring terminal of the electrode
- REF: Reference terminal of the electrode
- A: Temperature compensation terminal A, NTC10K and PT1000 connect here
- B: Temperature compensation terminal B, NTC10K and PT1000 connect here
- C: Temperature compensation terminal C, PT1000 three-wire temperature grounding, PT1000 two-wire need to be short-connected to TEMPB, not NTC10K.
- NC: Unidentified
- RS485 (A +): RS485 communication interface A +
- RS485 (B -): RS485 communication interface B-
- 4-20mA (+): 4-20mA output end+
- 4-20mA (-): 4-20mA output end-
- AC220V (L): AC220V FireWire
- AC220V (N): AC220V zero line
- HO: high alarm normally open relay
- HC: high alarm normally closed relay
- LO: low alarm normally open relay
- LC: low alarm normally closed relay
- COM: common

**pH monitor:**

H25.0°C	20.00mA
<b>14.00PH</b>	

**ORP monitor:**

H25.0°C	20.00mA
<b>±1000mV</b>	

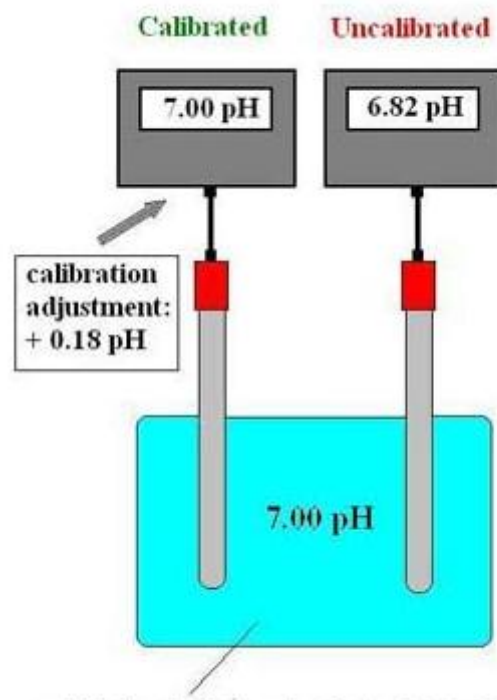
## pH Calibration

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.



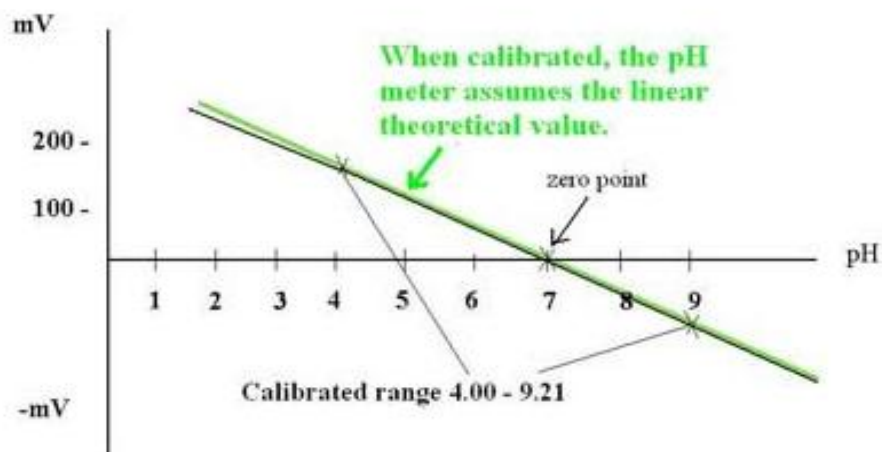


### Multi-point calibration:

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.



# Ordering Code

## Basic Type

A:PH4.0

B:PH6.0

## pH Probe

C: Plastic pH sensor with NTC 10K (0-60°C)

D: Glass pH sensor with NTC 10K (0-80°C)

E:High Temperature pH sensor with NTC 10K (0-130°C)

F: Made in Germany pH sensor (0-80°C)

G:Made in Germany pH sensor with PT1000 (0-80°C)

H: Plastic ORP sensor with NTC 10K (0-60°C)

I: Glass ORP sensor with NTC 10K (0-80°C)

## Cable Length

J: 5 meters

K: 10 meters

## Calibration Points

L: pH4, 7, 10

M:pH 4, 6.86.9.18

## Power Supply

N: 220VAC

O: 24VDC

## Medium

P: Normal water

Q: Waste water

R: Nutrient solution

S: Galvanic plating

T: Cooling water

U: Drinking water

V: Others:

Note: 4-20mA, RS485 and relay output are standard functions

Make inquiries by placing letter in the pertinent boxes

Order code:

Order example: A      C      J      L      N      P