ECC

Environmental Competency Consultancy

pH Electrode / ORP Electrode Datasheet

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Product Description

ECCSB pH electrode is a high-quality sensor for the analysis and measurement of liquid components during industrial automation. These electrodes are known for their use of top-quality materials and components. They are designed as combined electrodes (the measuring electrode and the reference electrode are combined in one shaft).The temperature probe can also be integrated as an option.

According to different environments to provide electrodes to meet the requirements:

•For industrial wastewater engineering measurements

•For high-alkaline liquid measurements

•For high acidic liquid measurements

•For high-temperature sterilization processes measurements

•For desulfurization process liquid analysis

•For measurements in low-ion media

Signal Parameters

Electrode slope: The slope of the glass electrode is 59.16 mV at 25 ℃ theoretically, i.e. potential change of 59.16 mV for each pH change in the solution. But in fact, neither glass electrode can reach the theoretical value 100%; in general, the electrode slope is more than 98% of the theoretical value (percentage slope). In addition, the mV difference corresponding to each unit pH value varies under different temperatures. The conversion of temperature to electric potential difference is as follows:

$$\Delta E=59.16*[（273+T）/298]*\Delta pH$$

Type of pH Electrode

Electrode Models	Designation	pH and ORP Range	Temperature Range
ECCSB-pH5011	Plastic pH Electrode	0 - 14pH	0 – 60°C
ECCSB-pH5013A	PTFE Electrode	0 - 14pH	0 – 60°C
ECCSB-pH5041	Glass pH Electrode	0 - 14pH	0 – 90°C
ECCSB-pH5050	High Temperature Glass pH Electrode	0 - 14pH	0 – 130°C
ECCSB-pH5015	High Temperature Glass pH Electrode	0 - 14pH	0 – 130°C
ECCSB-pH5018	Glass pH Electrode	0 - 14pH	0 – 100°C
ECCSB-pH5019	Plastic pH Electrode	0 - 14pH	0 – 60°C
ECCSB-pH5022	Germany pH Electrode	0 - 14pH	-5 – 80°C
ECCSB-pH5020	Pure Water pH Electrode	0 - 14pH	0 – 60°C
ECCSB-ORP6040	Plastic ORP Electrode	± 2000 mV	0 – 60°C
ECCSB-ORP6041	Glass ORP ELectrode	± 2000 mV	0 – 90°C

Features of pH Electrode

1. Adopt international advanced solid dielectric and large area PTFE liquid junction, easy maintenance.

2. Long distance reference diffusion paths, extends electrode life greatly in harsh environments.

3. Electrode is made of high quality low-noise cable; make signal output length greater than 40 meters or more, without interference.

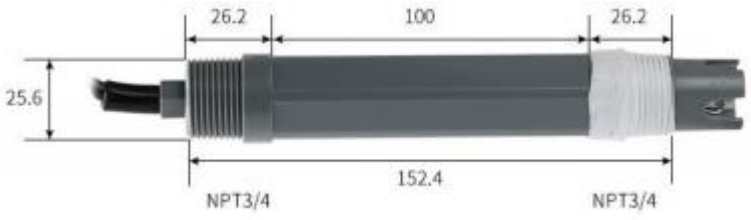
4. High accuracy, fast response, good repeat-ability.

5. With silver ions Ag / Ag-Cl reference electrode.

6. Side or vertically installation to the reaction tank or pipe.

7. Electrode can be used interchangeably with similar electrodes.

ECCSB-pH5011 (Plastic pH Electrode)

Technical Parameters	Measure range: 0-14pH Temperature range: 0-60℃ Temperature compensation: NTC10K(standard)/PT1000/PT100 Pressure resistant: 0.6MPa Material: PPS/PC/PTFE Cable length: 5m/10m/15m Tread type: 3/4NPT
Applications	**Recommended application:** Drinking water monitoring and treatment Swimming pools Aquariums(also marine aquariums) Lightly polluted service water Process water and wastewater Rainwater, pond water and surface water **Not recommended:** ≥60℃ Strong acid and alkaline Contains organic, heavy metal ions Biotechnology, sterilization process
Image	

ECCSB-pH5013A (PTFE pH Electrode)

Technical Parameters	Measure range: 0-14pH Temperature range: 0-60℃ Temperature compensation: NTC10K(standard),PT1000 Pressure resistant: 0.6MPa Material: PTFE Cable length: 5m/10m/15m Tread type: 3/4NPT
Applications	**Recommended application:** Strong acid and alkaline Lightly polluted service water Process water and waste water Rainwater, pond water and surface water **Not recommended:** ≥60℃ Contains organic, heavy metal ions Biotechnology, sterilization process
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ECCSB-pH5041 (Glass pH Electrode)

Technical Parameters	Measure range: 0-14pH Temperature range: 0-80℃ Temperature compensation: NTC10K(standard)/PT1000/PT100 Pressure resistant: 0.6MPa Material: Glass Cable length: 5m/10m/15m Tread type: PG13.5
Applications	**Recommended application:** Drinking water monitoring and treatment Swimming pools Lightly polluted service water Process water and wastewater Rainwater, pond water and surface water **Not recommended:** ≥80℃ Biotechnology, sterilization process
Image	

ECCSB-pH5050 (High Temperature Glass pH Electrode)

Technical Parameters	Measure range: 0-14pH Temperature range: 0-130℃ Temperature compensation: NTC10K(standard)/PT1000/PT100 Pressure resistant: 0.6MPa Material: Glass Cable length: 5m/10m/15m Tread type: PG13.5
Applications	**Recommended application:** Drinking water monitoring and treatment Swimming pools Lightly polluted service water Process water and wastewater Rainwater, pond water and surface water **Not recommended:** ≥130℃ Biotechnology, sterilization process
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ECCSB-pH5018 (Glass pH Electrode)

Technical Parameters	Measure range: 0-14pH Temperature range: 0-100℃ Temperature compensation: NTC10K(standard),PT100,PT1000 Pressure resistant: 0.4MPa Material: Glass Cable length: 5m/10m/15m Connector: VP, S8M, K2, etc
Applications	**Recommended application:** Drinking water monitoring and treatment Swimming pools Aquariums(also marine aquariums) Lightly polluted service water Process water and wastewater Rainwater, pond water and surface water **Not recommended:** ≥80℃ Strong acid and alkaline Contains organic, heavy metal ions Biotechnology, sterilization process
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ECCSB-pH5019 (Plastic pH Electrode)

Technical Parameters	Measure range: 0-14pH Temperature range: 0-80℃ Temperature compensation: NTC10K(standard),PT1000 Pressure resistant: 0.3MPa Material: Modified PON Cable length: 5m/10m/15m Tread type: 3/4NPT
Applications	**Recommended application:** Drinking water monitoring and treatment Swimming pools Aquariums(also marine aquariums) Lightly polluted service water Process water and wastewater Rainwater, pond water and surface water **Not recommended:** ≥80℃
Image	

ECCSB-pH5022 (Germany pH Electrode)

Technical Parameters	Measure range: 0-12pH Temperature range: -5-80℃ Temperature compensation: No Pressure resistant: 0.6MPa Material: Glass Cable length: 5m/10m/15m Tread type: PG13.5
Applications	**Recommended application:** For industrial and communal water and wastewater engineering For measurements in suspensions and varnishes For measurements in low-ion media For high-alkaline, high-temperature and sterilization processes For media containing fluorides and low-temperature applications PRO version for the toughest operating condition **Not recommended:** ≥80℃ Strong acid and alkaline Biotechnology, sterilization process
Image	

ECCSB-ORP6040 (Plastic ORP Electrode)

Technical Parameters	Measure range: -2000mV~+2000mA Temperature range: 0-60℃ Temperature compensation: NTC10K(standard) Pressure resistant: 0.3MPa Material: PPS/PC/PTFE Cable length: 5m/10m/15m Tread type: 3/4NPT
Applications	**Recommended application:** Drinking water monitoring and treatment Swimming pools Aquariums(also marine aquariums) Lightly polluted service water Process water and wastewater Rainwater, pond water and surface water **Not recommended:** ≥60℃ Strong acid and alkaline Contains organic, heavy metal ions Biotechnology, sterilization process
Image	

ECCSB-ORP6041 (Glass ORP ELectrode)

Technical Parameters	Measure range: -2000mV~+2000mA Temperature range: 0-80℃ Temperature compensation: NTC10K(standard)/PT1000/PT100 Pressure resistant: 0.6MPa Material: Glass Cable length: 5m/10m/15m Tread type: PG13.5
Applications	**Recommended Application:** Drinking water monitoring and treatment Swimming pools Lightly polluted service water Process water and wastewater Rainwater, pond water and surface water **Not recommended:** ≥80℃ Biotechnology, sterilization process
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Related Products

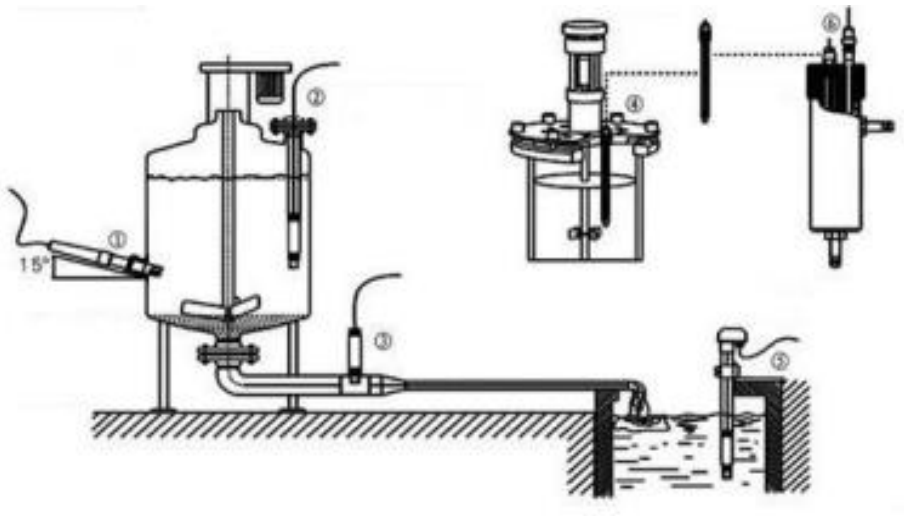
PTFE pH Sheath

Stainless Steel pH Sheath

Flow Cup

Electronic Controlled Box

Installation of Electrode



Schematic Diagram of Common Installation Method

①Side wall installation

②Flange mounted at the top

③Pipe installation

④Top installation

⑤Submersible installation

⑥Flow-through installation

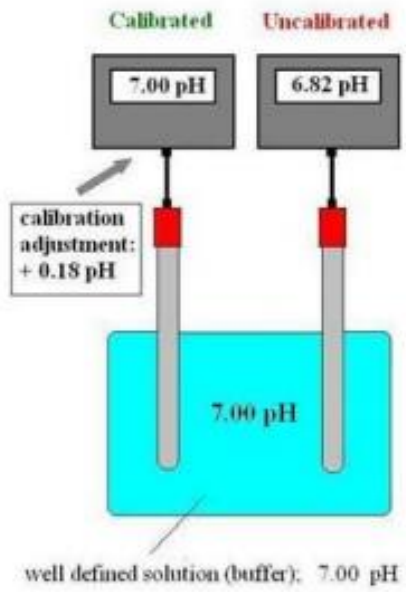
The interface must be in 15°oblique angle, or it will affect the normal test and use of the electrode. We won't be responsible for any results due to this.

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 means, 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.