

Sensor

# pH Deep Sea



## pH combination sensor for submersible probe systems

- Single housing for glass electrode and reference electrode
- Special double membrane for high signal stability
- Suitable for deployments at depths of up to 6,000 m

### Applications

- Marine & climate research
- Offshore industry
- Environmental & water monitoring
- Energy sector
- Maritime technologies
- Universities & research institutes

### The problem:

Measuring pH in seawater using glass electrodes requires a specialized sensor design to avoid errors caused by the high ionic strength of seawater.

When using conventional reference electrodes with ceramic diaphragms, additional issues can arise due to high and variable junction potentials that occur under pressure.

For this reason, pH electrodes have historically only been available for depths of up to 1,500 m.

### The solution: Versatile combination electrode for underwater probe systems – also suitable for standalone operation

The pH combination sensor integrates a reference electrode and a pH-sensitive glass electrode within a single housing, saving a free channel in the probe system. To enable accurate measurements even in deep-sea environments, a double-membrane design is used for the reference electrode, preventing signal instability caused by pressure fluctuations.

### Technical data

|                       |                                                                     |
|-----------------------|---------------------------------------------------------------------|
| Measuring range       | Variable between 0–14 pH, standard: 2–11 pH                         |
| Initial accuracy      | 0,05 pH / 0,01 pH                                                   |
| Pressure range        | Up to 6,000 dbar                                                    |
| Required power supply | 9,5–18 V DC (standard; other options on request)                    |
| Signal output         | 0 to +5 V DC (other outputs available on request)                   |
| Dimensions            | Diameter approx. 30.0 mm, total length 250 mm                       |
| Connector             | SubConn BH4M titanium version (other versions available on request) |



UNION Sensors GmbH  
Estlandring 9, D-23560 Lübeck

Tel.: +49 721 6803810

[info@union-sensors.com](mailto:info@union-sensors.com)

[www.union-sensors.com](http://www.union-sensors.com)

