DATA SHEET

ORAKEL SYSTEM

# pH SENSOR

**The range of ORAKEL pH Sensors measure the online pH of any aqueous solution. They are combination glass electrodes with integral reference and automatic temperature compensation which use no reagents, are extremely stable and have reduced maintenance and lower whole-life costs.**

## WHAT MAKES IT UNIQUE

The **pH5** electrode has a double-junction reference to prevent contamination of the reference from sample components. This design gives the electrode a longer life compared to ordinary electrodes (up to 3 years). The electrode also has a hemi-shaped glass measuring surface which is more durable than the traditional bulb-shaped glass. Although they command a higher price in the market place, these sensors are more cost-effective with their longer life and lower maintenance requirements, typically only needing calibration once every two or three months.

**pH5** and **pH6** are particularly sensitive to difficult applications, such as very low ionic-strength waters or high temperature applications.

**pH1** - **pH3** are less expensive, more traditional combination electrodes.

## APPLICATIONS

Anywhere you have a requirement to measure pH is a suitable application for the **ORAKEL System.**

The range is particularly suited to working in sites where reliability and ease of use are most important. One area where the **ORAKEL pH Sensors** excel is in the measurement of pH in very low conductivity or ultra clean water.

Typical applications:

- Remote sites
- Cooling towers
- Food preparation
- Paper mills
- Chemically challenging applications

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## QUICK SELECTION GUIDE

| | |  pH1 |  pH2 |  pH3 |  pH5 |  pH6 |
|---|---|---|---|---|---|---|
| Applications | Potable Water | | ✔ | | ✔ | ✔ |
| | Waste Water | | | ✔ | ✔ | |
| | Pool/Spa | ✔ | | | | |
| | Process | | ✔ | ✔ | ✔ | ✔ |
| | Boiler Feedwater | | | | ✔ | ✔ |
| Mounting Options | Single Open Flow Cell | ✔ | ✔ | | ✔ | ✔ |
| | Dual Open Flow Cell | ✔ | ✔ | | ✔ | ✔ |
| | Triple Open Flow Cell | ✔ | ✔ | | ✔ | ✔ |
| | Closed Flow Cell | ✔ | ✔ | | ✔ | ✔ |
| | Autoclean (flow cell) | | ✔ | | ✔ | ✔ |
| | Autoclean Immersion (dip) | | | ✔ | | |
| | Autoclean Insertion (in pipe) | | | ✔ | | |
| | At Line Tee | | ✔ | ✔ | ✔ | ✔ |
| | Handrail | | | ✔ | ✔ | ✔ |
| | Welding Stub | | ✔ | ✔ | ✔ | ✔ |
| Specifications | Connector | BNC Connector | Built-in cable | Built-in cable | Built-in cable | Built-in cable |
| | Standard Cable Length | 1m | 3m | 6m | 6m | 6m |
| | Submersible* | | | ✔ | ✔ | ✔ |
| | Inbuilt Temperature | | ✔ | ✔ | ✔ | ✔ |
| | Maximum Temperature | 80°C | 80°C | 80°C | 100°C | 100°C |
| | Automatic Temperature Compensation | | ✔ | ✔ | ✔ | ✔ |
| | Conductivity | >100 µS/cm | >100 µS/cm | >100 µS/cm | >100 µS/cm | >300 µS/cm |
| | Junction | Single | Single | Double | Double | Double |
| | Life Expectancy (application dependent) | 12-18 months | 12-18 months | 12-18 months | 3 years | 18 months |
| | Back/Front Thread | ¾" NPT (back only) | ¾" NPT (front & back) | ¾" NPT (front & back) | ¾" NPT (front & back) | ¾" NPT (front & back) |

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*It is recommended that the probe be submerged on the end of a pole with the cable protected by running inside the pole.

## AUTOFLUSH

AUTOCLEAN INSERTION

AUTOFLUSH CELL

AUTOCLEAN IMMERSION

The **ORAKEL pH Sensor** range can come equipped to automatically clean itself at user-defined intervals with all the benefits of 'no operator intervention' for 6 months.

The **Autoflush** is particularly useful in food preparation, pulp and paper, plus many other applications where there is likely to be a build-up of solids in the sample.

**Autoflush** is available for at line, and in line versions including dip and screw in autoclean pipe version.

## INSTALLATION

The **ORAKEL pH Sensors** can be installed in a variety of auxiliary flow cells and self-cleaning devices.

SINGLE OPEN FLOW CELL

DOUBLE OPEN FLOW CELL

TRIPLE OPEN FLOW CELL

SINGLE CLOSED FLOW CELL

AT LINE TEE *(screw in)*

AT LINE TEE *(quick connect)*

WELDING STUB *(screw in)*

## TECHNICAL SPECIFICATION

| | pH1 | pH2 | pH3 | pH5 | pH6 |
|---|---|---|---|---|---|
| Type | Combined reference and measuring electrode | | | | |
| Reference Type | Ag/AgCl gel filled | Ag/AgCl gel filled | Ag/AgCl gel filled | Ag/AgCl gel filled | Ag/AgCl gel filled |
| pH Range | 0-12 | 0-14 | 0-13 | 0-14 | 0-14 |
| Slope | 95-102% | 95-102% | 95-102% | ≥ 97% | ≥97% |
| Pressure Range | 0-7 Bar | 0-7 Bar | 0-7 Bar | 0-7 Bar | 0-7 Bar |
| Impedance | ≤135 MOhm | ≤150 MOhm | ≤130 MOhm | <150 MOhm | <150 MOhm |
| Response Time | 95% of step pH2 to pH12 <5s | | | 95% of step pH2 to pH12 ≤3s | |
| Temperature Range | 0-80°C | -5-80°C | 0-80°C | 0-100°C | 0-100°C |
| Conductivity | >100µS/cm | >100 µS/cm | >100 µS/cm | >100 µS/cm | >300 µS/cm |
| Wetted Surface | PVC/glass | PVC/glass | PVC/glass | RYTON/glass | RYTON/glass |
| Junction | Single gelled | Single gelled | Double gelled | Double gelled | Double gelled |
| Cable Length | 1m | 3m | 6m | 6m | 6m |
| Shelf Life | 12 months | 12 month | 12 months | 12 months | 12 months |
| ATC | - | PT100 | PT100 | PT100 | PT100 |
| Estimated Life (application dependent) | 12-18 months | 12-18 months | 12-18 months | 3 years | 18 months |
| Warranty | 3 months | 3 months | 3 months | 6 months | 6 months |

## THE ORAKEL SYSTEM


The **ORAKEL System** is the ultimate fluid measurement product range.

Created as a modular system with a wide range of sensors that can be added to measure various characteristics for a truly bespoke and cost effective solution.

- On-screen graphing
- 9 buttons for easy navigation
- Secure website viewing option available
- 4-20mA and Modbus outputs available
- Multilingual options
- Connects up to 2 sensors as standard; expandable up to 16 sensors

To learn more about the **Detectronic ORAKEL System** and how it can help your business, get in touch:

Call: **+44 (0)1282 449 124**
Email: **sales@detectronic.org**
Visit: **www.detectronic.org**

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