

# GAS & SPECIALTY SENSORS



## PH OR ORP TRANSMITTER 50000 PH & ORP SERIES

**bürkert**  
Fluid Control Systems

### DESCRIPTION

The **Bürkert 50000 pH and ORP transmitter** is a compact device designed for measuring the pH or oxidation-reduction potential (ORP) in clean liquids or liquids that may have low conductivity. The transmitter consists of a replaceable standard 120 mm pH or ORP probe screwed in a probe holder with integrated Pt1000 temperature sensor.

This assembly is then mated to an enclosure containing the electronic module and a removable display for a quick and easy installation. The pH/ORP transmitter can operate independent of the display, but it will be required for programming the transmitter and also for visualizing the measured and processed data.

The **50000 Standard** is available with either two transistors and one 4-20 mA output or two transistors and two 4-20 mA outputs. The **50000 Neutrino Series** is a cost effective less featured product measuring pH and ORP but with one 4-20 mA output and is not available with an LCD display.

**Principles of Operation:** The 50000 device can be used as a pH or a ORP transmitter according to the probe version mounted into the holder. The pH or redox probe is a glass membrane with variable selectivity according to the pH or the redox, which must be calibrated with buffer solution before the installation of the transmitter into the pipe.

When a pH probe is immersed into the solution a difference in potential is formed due to ions (H+) between the glass membrane and the solution. This difference in potential measured in relation to a reference electrode is directly proportional to the pH value.

NEW!



559168  
w/ 561025



559168



560693



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### FEATURES

- **Programmable outputs: two transistor and single or dual analog 4-20 mA**
- **Removable backlighted display**
- **Universal process connection**
- **Compatible with pH/ ORP probes**
- **Diagnostic functions**
- **Additional material construction: PVC or PVDF**

| SPECIFICATIONS                 |  |
|--------------------------------|--|
| <b>Supply Voltage</b>          | 14-36 VDC reversed polarity protection   |
| <b>Accuracy</b>                | pH: $\pm 0.02$ pH or 0.5 mV ORP: $\pm 3$ mV temperature: $\pm 1^\circ\text{C}$ (1.8°F)   |
| <b>Supply Current</b>          | With Sensor: $\leq 1$ A (with transistor loads) analog output: $\leq 25$ mA (at 14 VDC without transistor loads, with current loop)                    |
| <b>Signal Output Standard</b>  | Switch: Transistor<br>Current: 4-20 mA @ 610Ω  |
| <b>Neutrino Resolution</b>     | Current: 4-20 mA @ 610Ω  |
| <b>ORP Resolution</b>          | pH: 0.01 pH or 0.1 m   |
| <b>Measurement Range ORP</b>   | 1 mV Temperature: $0.1^\circ\text{C}$ (0.18°F)   |
| <b>Display</b>                 | pH: -2 to 16 pH or -580 to +580 mV<br>-2000 to +2000 mV<br>Temperature: $-40$ to $+130^\circ\text{C}$<br>( $-40$ to $266^\circ\text{F}$ )              |
| <b>Response Time</b>           | Grey dot matrix 128x64 with backlighting   |
| <b>Wiring Terminations</b>     | 150 ms (10 to 90%)<br>Single analog output: 1x 5-pin M12 male fixed connector  |
| <b>Fluid Pressure Limit</b>    | 0 to 87 PSI (0 to 6 bar)   |
| <b>Maximum Pressure</b>        | 58 psi (4 bar)   |
| <b>Media Compatibility</b>     | pH: Contaminated fluids (viscous, suspended solids, small volumes)<br>ORP: Clean (cooling-water, waste water or slightly contaminated)                 |
| <b>Media Temperature Range</b> | pH: $32^\circ$ to $176^\circ\text{F}$ ( $0^\circ$ to $+80^\circ\text{C}$ )<br>$14^\circ$ to $122^\circ\text{F}$ ( $-10^\circ$ to $+50^\circ\text{C}$ ) |
| <b>Operating Humidity</b>      | $\leq 85\%$ , without condensation   |
| <b>Operating Temperature</b>   | Transmitter: $14^\circ$ to $140^\circ\text{F}$<br>( $-10^\circ$ to $+60^\circ\text{C}$ )   |
| <b>Probe (Flatrobe)</b>        | $32^\circ$ to $140^\circ\text{F}$ ( $0^\circ$ to $+60^\circ\text{C}$ )   |
| <b>Enclosure Rating</b>        | NEMA 4, IP65 and IP67 with M12 cable plug mounted and cover tightened  |
| <b>Dimensions</b>              | 12"H x 3"W x 4.4"D<br>(30.5 x 7.6 x 11.2 cm)   |
| <b>Approvals</b>               | UL file E27737, CAN/CSA-C22, CE  |
| <b>Warranty</b>                | 1 year   |

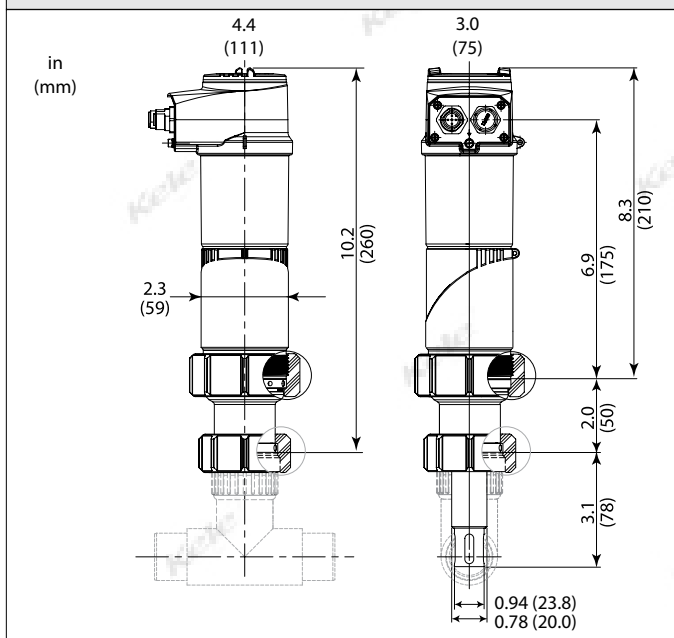
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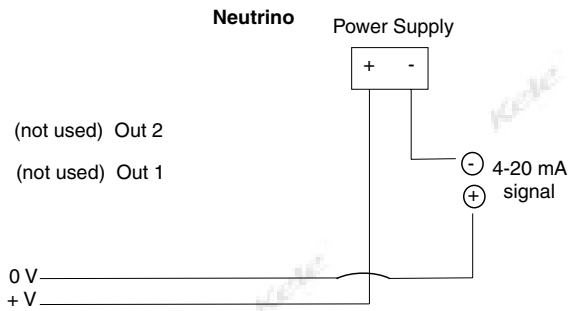
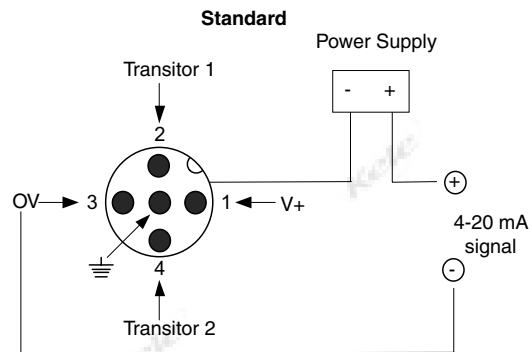
## PH OR ORP TRANSMITTER 50000 PH & ORP SERIES

### DIMENSIONS



**Installation:** The 50000 series pH/ORP transmitter can be installed into 560693 Tee. Install it in a vertical position with an angle no greater than 75° from the vertical center line.

### WIRING



### ORDERING INFORMATION

| Parts needed for unit with display and single 4-20 mA and two transistors |   |
|---|---|
| 559168  | Display programming module                |
| 559634  | Standard pH transmitter, PVC mounting nut |
| 560693  | 1 in NPT mounting adapter tee             |
| 917116  | Electrical plug                           |
| 561025  | pH probe 0 to 14 pH                       |
| <b>For ORP, order 561027 probe instead of pH probe listed above</b>       |   |
| Parts needed for unit without display and single 4-20 mA                  |   |
| 562557  | Neutrino pH transmitter, PVC mounting nut |
| 560693  | 1 in NPT mounting adapter tee             |
| 917116  | Electrical plug                           |
| 561025  | pH probe 0 to 14 pH                       |
| <b>For ORP, order 561027 probe instead of pH probe listed above</b>       |   |

### RELATED PRODUCTS

|        |  |
|--------|--|
| 561228 | SO22 threaded adapter for use with threaded tank or pipe, 1 1/4" NPT, PVC-U/FKM, EPD |
| 561232 | SO22 welded adapter for use directly on a pipe, Stainless steel/FKM, EPD             |

### ACCESSORIES

|           |   |
|-----------|---|
| 418540    | Buffer solution, 500 ml, pH = 4               |
| 418541    | Buffer solution, 500 ml, pH = 7               |
| 418543    | Buffer solution, 500 ml, pH = 10              |
| 418555    | Buffer solution, 500 ml, ORP = 475 mV         |
| 418557    | Storage solution for probes (KCl 3M), 500 ml  |
| 560949    | Cleaning solution set for probes, 3x 500 ml   |
| DCP-1.5-W | Power supply, 24 VAC IN to 24 VDC OUT         |
| DCPA-1.2  | Power supply, 120 VAC IN to 24 VAC/24 VDC OUT |

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