

Signet 2724-2726 pH/ORP Electrodes

Compatible with ALL Signet pH/ORP Instruments



Flat
Glass



Protected
Bulb

The Signet 2724-2726 pH and ORP Electrodes features a patented reference electrode design and uses the unique foul-proof patented DryLoc® connector. The large area PE reference junction and pathway is constructed to increase the total reference effectiveness and ensures long service life.

The DryLoc® connector with corrosion resistant gold plated contacts readily connects the sensor to the mating 2760 preamplifier or the 2750 sensor electronics. The robust Ryton® threaded sensor body and choice of flat pH, bulb pH, or flat ORP sensing elements provides broad range of chemical compatibility for a wide variety of applications. There are two optional pH sensing versions available, HF and LC. The HF version is for applications where traces of hydrofluoric acid (2% or less) will attack standard pH glass in levels of pH 6 and below. The LC version can be used for low conductivity fluids 20 - 100 µS/cm nominal and below 20 µS when mounted under controlled conditions.

The quick temperature response is available in either a PT1000 or 3 KΩ temperature sensor and allows compatibility with all Signet pH/ORP instruments. The 2724-2726 electrodes are general-purpose sensors ideal for a wide range of applications. The sensors incorporate ¾ inch NPT or ISO 7/1-R 3/4 threads for installing into standard pipe-tees. They can also be mounted directly into Signet standard fittings, DN15 to DN100 (½ to 4 inch)

Features

- Patented reference design for exceptional performance *
- Mounts in Signet standard fittings from DN15 to DN100 (½ to 4 in.)
- ¾" NPT or ISO 7/1-R 3/4 threaded sensors for use with reducing tees DN15 to DN100 (½ to 4 in.)
- Special design allows for installation at any angle, even inverted or horizontal
- Ryton® (PPS) body for broad range of chemical compatibility
- Patented DryLoc® connector with gold plated contacts
- Quick temperature response
- Bulb HF Resistant glass available for trace HF, less than 2% concentration, applications
- Low conductivity sensor available for liquids down to 20 µS/cm
- New! Flat HF resistant glass available for trace HF, less than 2% concentration applications. Especially in applications with abrasive particles or that require extensive probe cleaning

Applications

- Water & Wastewater Treatment
- Neutralization Systems
- Effluent Monitoring
- Sanitization Systems
- Pool & Spa Control
- Aquatic Animal Life Support Systems
- Process Control
- Cooling Towers

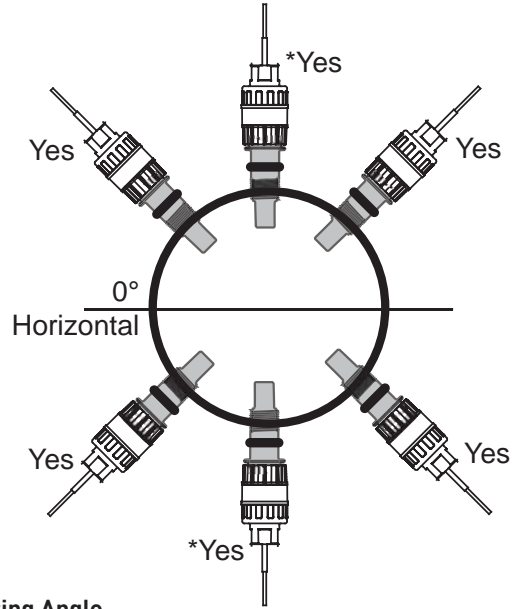
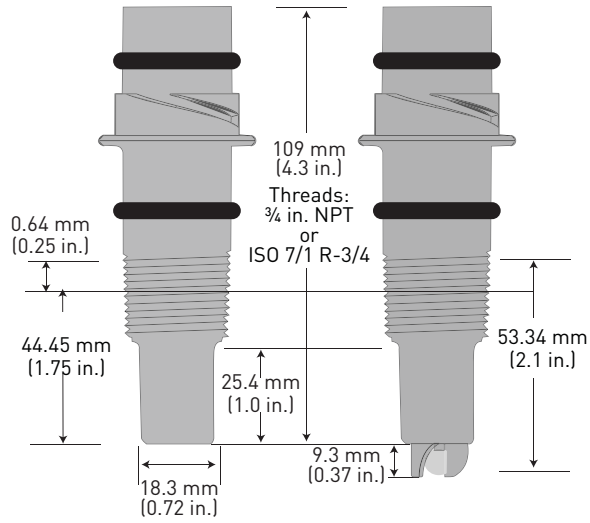
*U.S. Patent Nos.: 6,666,701,
7,799,193 B2, 7,867,371 B2 and
8,211,282 B2

Specifications

| General | | | |
|---|--|---|-----------------------------|
| Performance | Efficiency | >97% @ 25 °C (77 ° F) | |
| Operating Range | pH | 0 to 14 pH | |
| | ORP | ±2000 mV | |
| | 3-2726-LC | Low conductivity fluids; 20 - 100 µS/cm nominal < 20 µS; flow must be less than 150 ml/min in a properly grounded system | |
| | 3-2724-HF, 3-2726-HF | Hydrofluoric acid resistant glass, pH 6 or below; trace HF ≤2% | |
| Compatibility | | | |
| | 2750 Electronic (for 8900, 9900, 4 to 20 mA), 2760 Preamplifier (8750) | | |
| Temperature Sensor | | | |
| | PT1000 versions | Compatible with Signet 2750 pH/ORP Sensor electronics for connection to a PLC or to the Signet 8900 or 9900 instruments | |
| | 3 KΩ Balco versions | Compatible with the Signet 2760 pH/ORP preamplifier for connection to the Signet 8750 pH/ORP Transmitter and 2750 with 8900 or 9900 instruments | |
| Process Connection | | | |
| | ¾ in. NPT | ISO 7/1-R ¾ | Mounts into Signet fittings |
| Wetted Materials | | | |
| | pH | Ryton® (PPS), glass, UHMW PE, FPM | |
| | ORP | Ryton® (PPS), glass, UHMW PE, FPM, Platinum | |
| Max. Temperature/Pressure Rating | | | |
| Operating Temperature Range* | -10 °C to 85 °C | 14 °F to 185 °F | |
| Operating Pressure Range | 0 to 6.9 bar (0 to 100 psi) @ -10 °C to 65 °C (14 °F to 149 °F) | | |
| | Linearity Derated 6.9 to 4.0 bar (100 to 58 psi) @ 65 °C to 85 °C (149 °F to 185 °F) | | |
| *Best performance for 2724-HF and 2726-HF sensors is above 10 °C (50 °F) | | | |
| Recommended Storage Temperature | | | |
| | 0 °C to 50 °C | 32 °F to 122 °F | |
| The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F) | | | |
| The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F) | | | |
| Mounting | | | |
| In-line Mounting | Use the sensor threads | | |
| | Use a Signet standard fitting ½ to 4 in. | | |
| | Sensor can be mounted at any angle | | |
| Submersible Mounting | Use threads on models 2750 or 2760 | | |
| | Requires ¾ inch NPT or ISO 7/1-R ¾ male threaded liquid tight extension conduit. | | |
| Shipping Weight | | | |
| | 0.25 kg | 0.55 lb | |
| Standards and Approvals | | | |
| | RoHS Compliant, China RoHS | | |
| | Manufactured under ISO 9001 for Quality, ISO 14001 for Environmental Management and OHSAS 18001 for Occupational Health and Safety | | |

See Temperature and Pressure graphs for more information

Dimensions



Mounting Angle

Models 2724-2726 may be mounted at any angle without affecting the performance.

*Avoid locations with air pockets and sediment.

System Overview

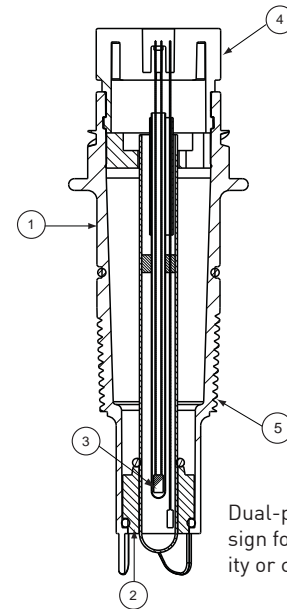
| Panel Mount | Field Mount - Pipe, Tank, Wall | 4 to 20 mA Input |
|---|--|--|
| Signet Instruments 8750 with 2760 Preamplifier 8900 9900 with 2750 Electronics | Signet Instruments 9900 with 2750 Electronics and 3-8050 Universal Mount kit | 3-2750 Sensor Electronics and customer supplied Chart Recorder or Programmable Logic Controller |
| Signet 2724-2726 DryLoc® pH/ORP Electrodes | | |
| In-Line Installation - Signet and threaded fittings only | | Submersible Installation - Customer supplied pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads* |

All sold separately

*Refer to the Signet Submersion brochure located in the K-Factors Fittings and More Kit (3-0000-709) for installation suggestions and options.

Electrode Key Features and Benefits:

1. Ryton® body for chemical compatibility with most harsh chemicals.
2. Porous UHMW PE (ultra high molecular weight polyethylene) junction resists fouling and build-up.
3. Internal temperature sensor located in the glass stem for a quick temperature response.
4. DryLoc® connector with corrosion resistant gold pins for quick and easy sensor removal.
 - Resists moisture and dirt intrusion.
5. Dual-patented reference design with a 406 mm (16 inch) reference pathway enhances longer life. This enables the sensor to last significantly longer than other standard pH/ORP electrodes in most applications.
- 5a. With the new patented reference design, the Signet 2726-LC version performs better in low conductivity water between 20 - 100 μS and lasts longer than previous "DI" electrodes.
- 5b. The 2726-LC sensor also performs in applications with extremely low (less than 20 μS) conductivity. Special precautions must be taken to avoid measurement complications. Please note the following.
 - Electrostatic charges (streaming potentials) can cause dramatic offsets in a system with very low conductivity water. To minimize this, sensors should be placed in a well grounded system.
 - To enhance performance, a low flow cell is recommended to provide a steady flow rate (150 ml/minute). Sensors placed in high flow applications will experience noisier readings due to streaming potential.
6. Threads for NPT or ISO process connection into reducing tees
 - Use off-the-shelf GF reducing tees DN20 to DN100 (¾ in. to 4 in.).
7. Mounts directly into Signet fittings (½ in. 4 in.) for easy sensor retrofitting.
8. Mount submersed into a tank via the 2750 or 2760 back threads.



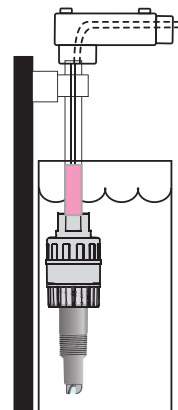
Dual-patented reference design for long life in conductivity or chemicals.



⑥ Sensor in threaded reducing tee



⑦ Sensor in Signet fitting

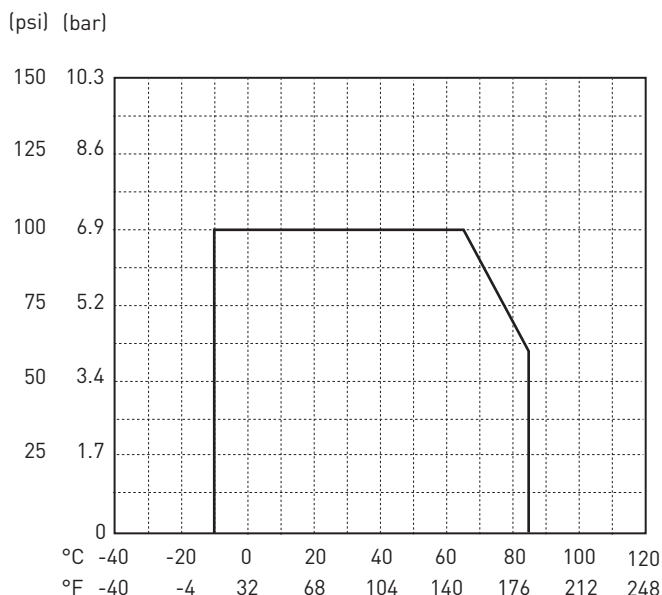


⑧ Sensor submersible installation

Operating Temperature/Pressure Graph

Note:

The pressure/temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification.



Application Tips

- Use the flat glass electrodes when a self-cleaning feature is desired; especially useful in applications with abrasive chemicals.
- Use bulb protected electrodes for general purpose applications
- ORP electrodes are generally used for chemical reaction monitoring, not control.
- Ensure that sensor materials are chemically compatible with the process liquid.
- Keep electrode tip wet, avoid air pockets and sediment.

Model 2724-2726 Ordering Notes

- 1) pH and ORP electrodes require connection to model 2750 sensor electronics or 2760 preamplifier.
- 2) The 2750 "EasyCal" feature recognizes common pH and ORP buffer values of 4, 7 and 10 pH and *87 and *264 mV for ORP.

Buffer Solutions

3822-7004
3822-7007
3822-7010

Quinhydrone

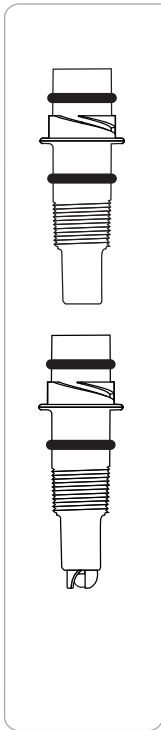
3822-7115

The Signet pH buffers are ideal for calibration. The liquid solutions are conveniently packaged in one pint (473 ml) bottles. pH buffer kits in powder pillows are available for mixing fresh solutions with water at the time of use.

All pH buffers are color coded for easy identification; 4.01 pH is red, 7.00 pH is yellow, and 10.00 pH is blue. All pH buffers are traceable to NIST standards. These buffer solutions can be used to calibrate ORP sensors when saturated with quinhydrone.



Ordering Information



| Mfr. Part No. | Code | Tip design | Process Connection Thread Options |
|---|--------------------|-------------------------------------|-----------------------------------|
| pH Electrodes | | | |
| Temperature element PT1000; use with 2750 sensor electronics* | | | |
| 3-2724-00 | 159 001 545 | Flat | 3/4 in. NPT, Thread |
| 3-2724-01 | 159 001 546 | Flat | ISO 7/1-R 3/4 Thread |
| 3-2726-00 | 159 001 553 | Bulb | 3/4 in. NPT, Thread |
| 3-2726-01 | 159 001 554 | Bulb | ISO 7/1-R 3/4 Thread |
| 3-2726-HF-00 | 159 001 549 | Bulb, HF resistant ¹ | 3/4 in. NPT, Thread |
| 3-2726-HF-01 | 159 001 550 | Bulb, HF resistant ¹ | ISO 7/1-R 3/4 Thread |
| 3-2726-LC-00 | 159 001 557 | Bulb, Low Conductivity ² | 3/4 in. NPT, Thread |
| 3-2726-LC-01 | 159 001 558 | Bulb, Low Conductivity ² | ISO 7/1-R 3/4 Thread |
| Temperature element 3 KΩ Balco; use with 2760 preamplifier** or 2750 sensor electronics* | | | |
| 3-2724-10 | 159 001 547 | Flat | 3/4 in. NPT, Thread |
| 3-2724-11 | 159 001 548 | Flat | ISO 7/1-R 3/4 Thread |
| 3-2724-HF-10 | 159 001 771 | Flat, HF resistant ¹ | 3/4 in. NPT, Thread |
| 3-2724-HF-11 | 159 001 772 | Flat, pH resistant ¹ | 7/1-R 3/4 Thread |
| 3-2726-10 | 159 001 555 | Bulb | 3/4 in. NPT, Thread |
| 3-2726-11 | 159 001 556 | Bulb | ISO 7/1-R 3/4 Thread |
| 3-2726-HF-10 | 159 001 551 | Bulb, HF resistant ¹ | 3/4 in. NPT, Thread |
| 3-2726-HF-11 | 159 001 552 | Bulb, HF resistant ¹ | ISO 7/1-R 3/4 Thread |
| 3-2726-LC-10 | 159 001 559 | Bulb, Low Conductivity ² | 3/4 in. NPT, Thread |
| 3-2726-LC-11 | 159 001 560 | Bulb, Low Conductivity ² | ISO 7/1-R 3/4 Thread |
| ORP Electrodes; Compatible with both the 2750 sensor electronics* and the 2760 preamplifier** | | | |
| 3-2725-60 | 159 001 561 | Flat | 3/4 in. MNPT, Thread |
| 3-2725-61 | 159 001 562 | Flat | ISO 7/1-R 3/4 Thread |

*The 2750 sensor electronics has a digital (S³L) output which is used with 8900 or 9900 instruments. It also has a 4 to 20 mA output for connections to PLC's, data recorders, etc.

**The 2760 preamplifier is used for connection directly to Signet 8750 Transmitter or other analog transmitters.

¹HF resistant $\leq 2\%$ HF

²Low conductivity applications, 20 - 100 μ S/cm recommended

Note:
The 3K Balco temperature element electrodes are also compatible with the 2750 sensor electronics, 8900 and 9900 instruments.

Accessories and Replacement Parts

| Mfr. Part No. | Code | Description |
|---------------|--------------------|---|
| 1220-0021 | 198 801 000 | O-ring, FPM |
| 3-2700.395 | 159 001 605 | Calibration kit: includes 3 polypropylene cups, box used as cup stand, 1 pint (473 ml) pH 4.01, 1 pint (473 ml) pH 7.00 |
| 3822-7115 | 159 001 606 | 20 gm bottle quinhydrone for ORP calibration (must use pH 4.01 and/or pH 7.00 buffer solutions) |
| 3-2759 | 159 000 762 | pH/ORP System Tester (adapter cable sold separately) |
| 3-2759.391 | 159 000 764 | 2759 DryLoc [®] Adapter Cable (for use with 2750 and 2760) |
| 3-0700.390 | 198 864 403 | pH Buffer Kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each) |
| 3822-7004 | 159 001 581 | pH 4.01 buffer solution, 1 pint (473 ml) bottle |
| 3822-7007 | 159 001 582 | pH 7.00 buffer solution, 1 pint (473 ml) bottle |
| 3822-7010 | 159 001 583 | pH 10.00 buffer solution, 1 pint (473 ml) bottle |



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