

# Signet 2724-2726 pH and ORP Electrodes



## Description




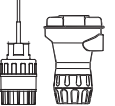






The Signet 2724-2726 pH and ORP Electrodes features a patented reference electrode design and uses the unique foul-proof patented DryLoc® connector. The large area PE reference junction and pathway is constructed to increase the total reference effectiveness and ensures long service life.

The DryLoc connector with foul-proof 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 sensing versions, HF and LC, available. 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 (not less than 20 µS/cm).

The quick temperature response is available in either a PT-1000 or 3KΩ 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 3/4" NPT or ISO 7/1 R3/4 threads for installing into standard pipe-tees. They can also be mounted directly into Signet standard fittings.

## System Overview

In-Line Installation		Submersible Installation	
<b>Panel Mount</b> Signet Instrument (sold separately) 5700 8750 8900 	<b>4 to 20 mA Input</b> Chart Recorder OR Programmable Logic Controller 	<b>Panel, Pipe, Tank, Wall Mount</b> Signet Instrument (sold separately) 5700 8750 8900 	
Signet 2750 and Signet 2760 (sold separately) with 	Signet 2750 (sold separately) with 	Signet 2750 and Signet 2760 (sold separately) with 	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads (customer supplied) 
<b>Signet 2724-2726 DryLoc® pH/ORP Electrodes</b> 		<b>Signet 2724-2726 DryLoc® pH/ORP Electrodes</b> 	
Signet and Threaded only for in-line installs (sold separately) 			

Ryton (PPS) is a registered trademark of Chevron Phillips Chemical Co. LLC  
 Go to [www.cpchem.com](http://www.cpchem.com) for more information on Ryton

## Features

- Mounts in Signet standard fittings from DN15 to DN100 (0.5 to 4 in.)
- 3/4" NPT or ISO 7/1 R3/4 threaded sensors for use with reducing tees
- Ryton® (PPS) body for broad range of chemical compatibility
- Patented\* reference design for exceptional performance
- Patented DryLoc® connector with gold plated contacts
- Quick temperature response
- HF resistant glass available for trace HF of ≤2%
- Optional Low conductivity sensor for liquids down to 20 µS/cm

## Applications

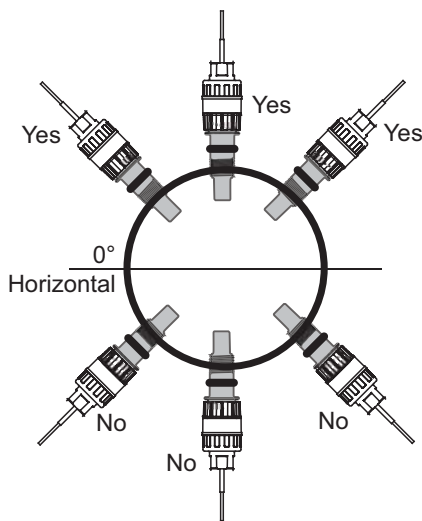
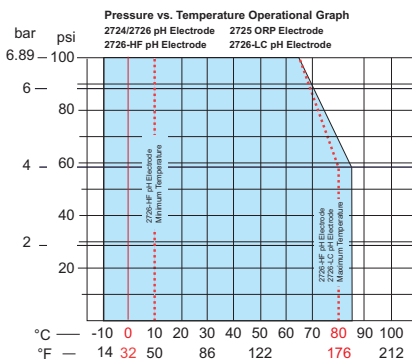
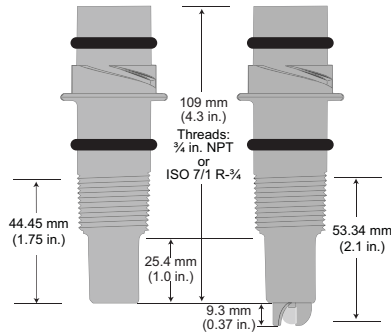
- Water & Wastewater Treatment
- Neutralization Systems
- Effluent Monitoring
- Sanitization Systems
- Pool & Spa Control
- Aquatic Animal Life Support Systems
- Process Control
- Cooling Towers

U.S. Patent No.: 6,666,701

\*Patents pending

## Dimensions

### Flat electrode Bulb Electrode



### Mounting Angle:

Models 2724-2726 may be mounted at any angle above the 0° horizontal without affecting the performance.

## General

### Performance

- Efficiency: >97% @ 25°C (77° F)

### Measuring Range:

- pH: 0 to 14 pH
- ORP: ±2000 mV
- 3-2726-LC: Low Conductivity fluids; 20µS/cm minimum.
- 3-2726-HF: Hydrofluoric acid resist glass, pH 6 or below; trace HF ≤2%

### Compatibility:

2750 Electronics, 2760 Preamplifier  
 pH Temperature Sensor:

- PT1000 versions are compatible with Signet 2750 pH/ORP Sensor electronics for connection to a PLC or to the Signet 8900 Multi-Parameter Controller.
- 3KΩ Balco versions are compatible with the Signet 2760 pH/ORP preamplifier for connection to the Signet 5700 pH/ORP Monitor and the Signet 8750 pH/ORP Transmitter.

### Process Connection:

- 3/4 in. NPT
- ISO 7/1 R3/4
- 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:

2724, 2725, 2726:  
 -10°C to 85°C (14°F to 185°F)

2726-LC:  
 -10°C to 80°C (14°F to 176°F)

2726-HF:  
 10°C to 80°C (50°F to 176°F)

#### Maximum Pressure:

2724, 2725, 2726:  
 • 6.89 bar @ -10°C to 65°C,  
 4 bar @ 85°C  
 • 100 psi @ 14°F to 149°F,  
 58 psi @ 185°F

2726-LC:  
 • 6.89 bar @ -10°C to 65°C,  
 4 bar @ 80°C  
 • 100 psi @ 14°F to 149°F,  
 58 psi @ 176°F

2726-HF:  
 • 6.89 bar @ 10°C to 65°C,  
 4 bar @ 80°C  
 • 100 psi @ 50°F to 149°F,  
 8 psi @ 176°F

## Recommended Storage

### Temperature:

The best storage temperature for the 272X pH and ORP electrodes is 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)

**Shipping Weight:** 0.25 kg (0.55lb)

## Standards and Approvals

- Manufactured under ISO 9001:2000 for Quality and ISO 14001: 2004 for Environmental Management

## Mounting:

### In-line Mounting:

- Use the sensor threads
- Use a Signet standard Tee
- Sensor must be mounted at any angle above the horizontal axis

### Submersible Mounting:

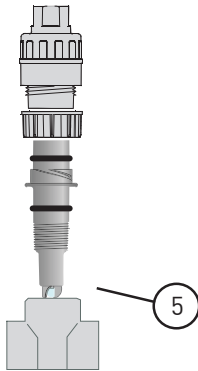
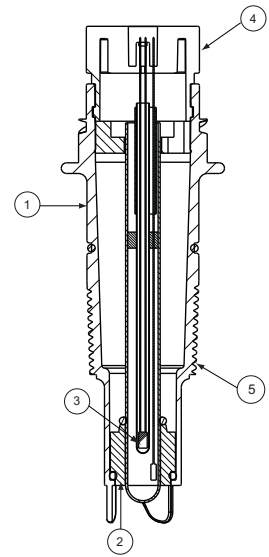
- Use threads on models 2750 or 2760
- Requires a 3/4 inch NPT or ISO 7/1 R3/4 male threaded extension

Signet installation fittings available for in-line mouning:

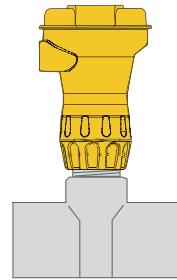
Type	Description
Plastic tees	<ul style="list-style-type: none"> <li>• Available in 1 in. to 4 in. sizes</li> <li>• PVC, CPVC w/solvent cement sockt</li> <li>• PVDF and PP w/union end fittings</li> </ul>
PVC saddles	<ul style="list-style-type: none"> <li>• Available in 2 in. to 4 in. sizes</li> <li>• Requires 1-7/16 in. hole in pipe</li> </ul>
Iron strap-on saddles	<ul style="list-style-type: none"> <li>• Available in 2 in. to 4 in. sizes</li> <li>• Requires 1-7/16 in. hole in pipe</li> </ul>
Carbon steel, stainless steel and brass weldolets	<ul style="list-style-type: none"> <li>• Available in 2 in. to 4 in. sizes</li> <li>• Requires 1-7/16 in. hole in pipe</li> <li>• Install by certified welder only</li> </ul>
Carbon steel, iron, stainless steel threaded tees	<ul style="list-style-type: none"> <li>• Available in 1 in. to 2 in. sizes</li> <li>• Female NPT ends</li> </ul>

## Electrode Key Features and Benefits:

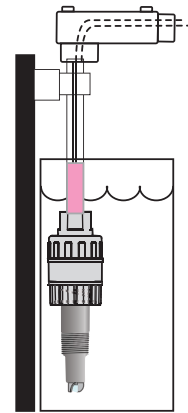
1. Ryton® body for chemical compatibility with most harsh chemicals.
2. Porous UHMW PE (ultra high molecular weight polyethylene) junction resists fouling and build-up.
3. Internal temperature sensor located in the glass stem for a quick temperature response.
4. Dryloc connector with corrosion resistant gold pins for quick and easy sensor removal.
  - Resists moisture and dirt intrusion.
  - "Clicks" when connected to mating 2750 sensor electronics or 2760 yellow preamplifier; ensures proper connection.
5. Threads for NPT or ISO connection into reducing tees
  - Use off-the-shelf GF reducing tees.
6. Mounts directly into Signet fittings for easy sensor retrofitting.
7. Mount submersible into a tank via the 2750 or 2760 back threads.



Sensor in threaded reducing tee



Sensor in Signet fitting



Sensor submersible installation

## Accessories

### Buffer Solutions

The Signet pH buffers are ideal for routine calibration requirements. The liquid solutions are conveniently packaged in one pint (473 ml) bottles. pH buffer kits in powder pillows are low weight and are ideal for low cost shipping requirements.

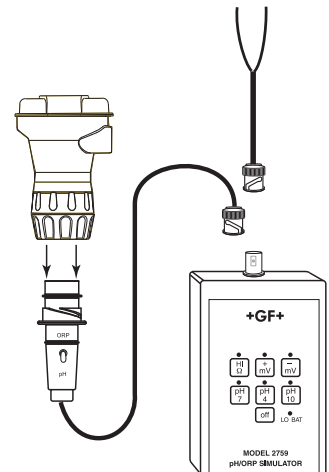
All pH buffers are color coded for easy identification; 4.0 pH is red, 7 pH is yellow, and 10 pH is blue. All pH buffers are traceable to NIST standards.

These buffer solutions can be used to calibrate ORP sensors when saturated with quinhydrone (which can be provided upon special request).



### pH/ORP Simulator

The 2759 pH/ORP Simulator is a battery-powered millivolt generator that simulates pH values of 4, 7 and 10, plus ORP values of +/-700 mV. This device is useful as a troubleshooting aid and for general verification of system operation. A bypass adapter cable ships with the tester to wire directly to an instrument. Sensor simulation adapter cable (sold separately) enables the 2759 to connect directly to Model 2760 preamplifier or Model 2750 pH/ORP Sensor Electronics. The adapters include a selector switch for pH or ORP simulation. The switch triggers automatic sensor-recognition software in Signet pH/ORP instrumentation.



## Model 2724-2726

### Ordering Notes:

- 1) pH and ORP electrodes require connection to model 2750 sensor electronics or 2760 preamplifier.
- 2) Use the flat glass electrodes when a self-cleaning feature is desired; especially useful in applications with abrasive chemicals
- 3) Use bulb protected electrodes for general purpose applications
- 4) ORP electrodes are generally used for chemical reaction monitoring, not control.
- 5) The 2750 "Easy Cal" feature recognizes common pH and ORP buffer values.

pH Electrodes	
3-2724	Flat glass pH
3-2726	Bulb glass pH
3-2726-HF	Bulb glass pH, HF resistant $\leq 2\%$ HF
3-2726-LC	Bulb glass pH, Low conductivity applications, 20 $\mu\text{s/cm}$ minimum
Temperature Element	
-0	PT-1000; use with 2750 sensor electronics
-1	3K $\Omega$ Balco; use with 2760 preamplifier
Threaded process connection	
0	$\frac{3}{4}$ " MNPT, Thread
1	ISO 7/1 R $\frac{3}{4}$ Thread
ORP Electrodes	
3-2725-6	Flat ORP with 10k Ohm ID Resistor
Threaded process connection	
0	$\frac{3}{4}$ " MNPT, Thread
1	ISO 7/1 R $\frac{3}{4}$ Thread

Preamplifiers & Sensor Electronics - Choose one (required for initial installation of any pH or ORP electrode)

The Sensor Electronics below can be used with the Signet 8900 or as a blind transmitter with 4 to 20 mA output for connection to a PLC, PC, chart recorder, and other devices requiring 4 to 20 mA input.	
3-2750-1	In-line Sensor electronics w/junction box
3-2750-2	In-line Sensor electronics w/junction box and EasyCal
3-2750-3	Submersible Sensor electronics w/4.6m (15 ft) cable and $\frac{3}{4}$ in. NPT threads
3-2750-4	Submersible Sensor electronics w/4.6m (15 ft) cable and 7/1 R $\frac{3}{4}$ ISO threads
The Preamplifiers below can be used with the Signet 5700 or 8750 Instruments	
3-2760	pH/ORP Preamplifier or Connector (for use with other manufacturer's instruments) with 4.6m (15ft.) cable
Preamplifier or Connector Style; Choose one	
-1	Preamplifier with $\frac{3}{4}$ inch NPT threads
-2	Preamplifier with ISO 7/1R $\frac{3}{4}$ threads
-3	Connector with $\frac{3}{4}$ inch NPT threads
-4	Connector with ISO 7/1 R $\frac{3}{4}$ threads
Mounting Configurations; Choose one	
-	Submersible mounting - gray body
1	In-line mounting - yellow body
3-2760	-2 1 Example Part Number

Mfr. Part No.	Code	Mfr. Part No.	Code	Mfr. Part No.	Code
3-2724-00	159 001 545	3-2726-10	159 001 555	3-2726-LC-00	159 001 557
3-2724-01	159 001 546	3-2726-11	159 001 556	3-2726-LC-01	159 001 558
3-2724-10	159 001 547	3-2726-HF-00	159 001 549	3-2726-LC-10	159 001 559
3-2724-11	159 001 548	3-2726-HF-01	159 001 550	3-2726-LC-11	159 001 560
3-2726-00	159 001 553	3-2726-HF-10	159 001 551	3-2725-60	159 001 561
3-2726-01	159 001 554	3-2726-HF-11	159 001 552	3-2725-61	159 001 562

## Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2750-1	159 000 744	In-line Sensor Electronics w/Junction Box
3-2750-2	159 000 745	In-line Sensor Electronics w/Junction Box and Easy-Cal
3-2750-3	159 000 746	Submersible Sensor Electronics with 15 ft. cable, $\frac{3}{4}$ in. NPT threads
3-2750-4	159 000 842	Submersible Sensor Electronics with 15 ft. cable, ISO 7/1 R $\frac{3}{4}$ threads
3-2760-1	159 000 939	Submersible Preamplifier with $\frac{3}{4}$ in. NPT threads and 4.6 m (15 ft.) cable
3-2760-2	159 000 940	Submersible Preamplifier with ISO 7/1 R $\frac{3}{4}$ threads and 4.6 m (15 ft.) cable
3-2760-3	159 000 941	Submersible Connector with 4.6 m (15 ft.) cable and $\frac{3}{4}$ in. NPT threads
3-2760-4	159 000 942	Submersible Connector with 4.6 m (15 ft.) cable and ISO 7/1R $\frac{3}{4}$ in. threads
3-2760-11	159 001 367	In-line Preamplifier with $\frac{3}{4}$ in. NPT threads and 4.6 m (15 ft.) cable
3-2760-21	159 001 368	In-line Preamplifier with ISO 7/1 R $\frac{3}{4}$ threads and 4.6 m (15 ft.) cable
3-2760-31	159 001 369	In-line Connector with 4.6 m (15 ft.) cable and $\frac{3}{4}$ in. NPT threads
3-2760-41	159 001 370	In-line Connector with 4.6 m (15 ft.) cable and ISO 7/1 R $\frac{3}{4}$ threads
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 buffer solution, 1 pint (473 ml) bottle
3822-7007	159 001 582	pH 7 buffer solution, 1 pint (473 ml) bottle
3822-7010	159 001 583	pH 10 buffer solution, 1 pint (473 ml) bottle

### Georg Fischer Signet LLC

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