

Signet 2714-2717 Twist-Lock pH/ORP Electrodes

To be discontinued in January 2015 - Please refer to the 3-2724-2726 pH/ORP DryLoc electrodes and the 3-2760 pH/ORP DryLoc Preamplifier for options.



Protected bulb

Flat surface



Wet-Tap

2720 to be discontinued in March 2010 Please refer to the 2760 Preamplifiers and other DryLoc electrodes for options

Compatible with the 2720 Preamplifier



Features

- Durable CPVC or glass body with Twist-Lock connector
- Flat or bulb surfaced electrodes available
- Large reference volume and solid polymer electrolyte
- Integrated temperature sensor (pH)
- Designed for maximum protection from process contamination
- DI option (pH) for pure water use (<100 µS)
- HF option (pH) for applications containing trace amounts of HF (<2%)

Description

Feature-packed Signet 2714-2717 Twist-Lock pH & ORP Electrodes provide unsurpassed simplicity, reliability and accuracy for a wide variety of industrial applications. Rugged construction, large reference volume and intelligent positioning of internal elements combine to extend the service-life of these dependable and highly responsive electrodes. Flat versions allow sediment and particles to sweep past the measurement surface, minimizing risks of

abrasion, breakage and coating. The unique Twist-Lock design enables sensor connections to the Signet 2720 preamplifier in one easy motion. The integral temperature sensor built into the pH electrode or the I.D. resistor in the ORP electrodes is used for automatic sensor recognition by Signet pH/ORP instrumentation, adding convenience and versatility to our systems.

System Overview

In-Line Installation		Submersible Installation	Wet-Tap Installation
Panel Mount Signet Instrument (sold separately) 5700 8750	Pipe, Tank, Wall Mount Signet pH/ORP Transmitter (sold separately) Signet Universal Adapter Kit (3-8050) (sold separately) 	Panel, Pipe, Tank, Wall Mount Signet Instrument (sold separately) 5700 8750	Panel, Pipe, Tank, Wall Mount Signet Instrument (sold separately) 5700 8750
Signet 2714-2717 pH/ORP Electrode with 2720 Preamplifier (each sold separately) 	Signet 2714-2717 pH/ORP Electrode with 2720 Preamplifier (each sold separately) 	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads (customer supplied) 	Signet 2716-WT 2717-WT and 2720 preamp. (sold separately)
Signet sensor cap (sold separately) 		Signet 2714-2717 pH/ORP Electrode with Signet 2720 Preamplifier 	Signet 3719 WetTap Assembly (sold separately)
Signet Fittings* (sold separately) 			Signet Fittings* (sold separately)

Applications

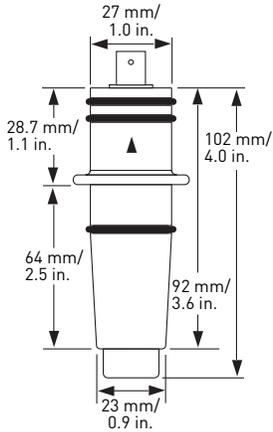
- Water & Wastewater Treatment
- Neutralization Systems
- Effluent Monitoring
- Sanitization Systems
- Commercial Pools & Spas
- Aquatic Animal Life Support Systems
- Process Control
- Cooling Towers
- Boiler Protection



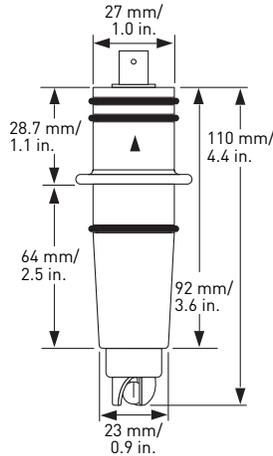
* See Fittings section for more information.

Dimensions

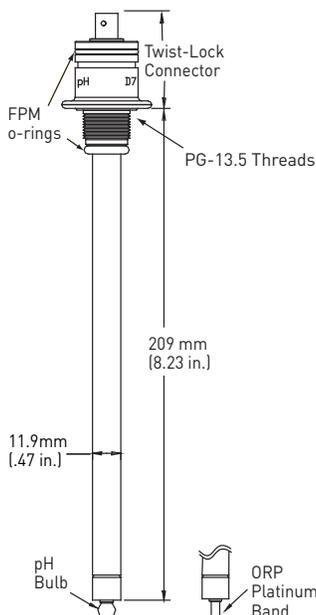
2714/2714-HF pH Electrode 2715 Flat ORP Electrode



2716/2716-DI Bulb pH Electrode 2717 Bulb ORP Electrode



2716-WT and 2717-WT WetTap Electrode



Specifications

2714 - 2717 pH/ORP Electrodes

General

Operating Range:

- 2714, 2716, 2716-DI: 0 to 14 pH
- 2714-HF: 0 to 12 pH
- 2715, 2717: $\pm 2,000$ mV

Pipe Size Range:

- $\frac{1}{2}$ in. and up: use Signet installation fittings from $\frac{1}{2}$ to 4.0 in. (use pipe adapter in pipes over 4 in.)

Mounting:

- In-line pipe mounting: $\geq 5^\circ$ to the horizontal plane
- Submersion with 3-2720 preamplifier requires $\frac{3}{4}$ in. NPT or ISO 7-1/R $\frac{3}{4}$ in. Male threaded extension.

Efficiency: $> 97\%$ @ 25 °C (77 °F)

pH Response Time:

- < 5 secs. for 95% of signal change

ORP response time: application dependent

Reference:

Electrolyte: Solidified Acrylamide Gel

- 3.5M KCl
- 0.1 M KCl (2716-DI only)

Secondary junction: Nylon filament

Element: Ag/AgCl

Primary Functions:

- 2714/2715: Flat surface resists fouling
- 2716/2717: Bulb surface for general use
- 2714-HF: Extended use in applications with trace hydrofluoric acid ($< 2\%$)
- 2716-DI: Extended use in pure waters ($< 100 \mu\text{S}$)

Temperature Sensor:

- 3K Balco (3000 Ω = 25 °C)

Response Time, τ :

- 2714: 140 secs.
- 2716: 196 secs.

Wetted Materials

- Body: CPVC
- O-rings: FPM
- O-ring junction: Porous UHMW Polyethylene
- Sensing Surface: glass membrane (pH), platinum (ORP)

Max. Temperature/Pressure Rating

Operating Temperature:

- 2716/2717: 0 °C to 85 °C (32 °F to 185 °F)
 - 2714/2715: 10 °C to 85 °C (50 °F to 185 °F)
 - 2714-HF: 0 °C to 50 °C (32 °F to 122 °F)
- Storage Temp.: -10 °C (15 °F) to 30 °C (86 °F)
- Temperature and Pressure Limit:
- 6.89 bar @ 0 °C (100 psi @ 32 °F to 149 °F)
 - 4.00 bar @ 85 °C (58 psi @ 150 °F to 185 °F)

See Temperature and Pressure graphs for more information.

Shipping Weight 0.2 kg 0.4 lb

2716-WT and 2717-WT Wet-Tap pH/ORP Electrodes

General

Operating Range:

- pH: 0 to 14 pH
- ORP: -2000 to +2000 mV

Compatibility:

- Signet 3719 Wet-Tap Connector (CPVC): Twist-Lock

Mounting:

- Any angle is acceptable. Use with 3719 wet-tap assembly for mounting electrodes.

Efficiency: $> 97\%$ @ 25 °C (77 °F)

Response Time:

- pH: < 5 sec. for 95% of signal change
- ORP: Application dependent

Reference:

Junctions: Porous PTFE

Electrolyte: 3.5M KCl

Elements: Ag/AgCl

Temp. Sensor (pH):

- 3K Balco (3-2716-WT)
- Temp. Response Time (τ): 438s

Wetted Materials

- Body: Glass
- O-rings: FPM
- Junctions: Porous PTFE
- Sensing Surface: glass Membrane (pH), platinum (ORP)

Max. Temperature/Pressure Rating

Operating Temperature:

- 0 °C to 85 °C (32 °F to 185 °F)

Storage Temperature:

- 0 °C to 85 °C (32 °F to 185 °F)

Temperature and Pressure Limit:

- 6.9 bar @ 65 °C (100 psi @ 149 °F)

See Temperature and Pressure graphs for more information.

Shipping Weight 0.22 kg 0.5 lb

Standards/Approvals

- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Specifications (continued)

2720 pH/ORP Preamp

General

Input Range: $\pm 2,500$ mV
 Power Requirements:
 ± 4.5 to ± 8 VDC, dual supply (provided by all Signet pH/ORP instruments)
 Maximum Current: < 1 mA, dual supply
 Temp. Contact Resistivity: $< 0.1\Omega$
 Input Impedance: $> 10^{11}\Omega$
 Gain: Unity
 End Connection: Twist-Lock mount to Signet 271X Electrodes
 Cable Type:

6 conductor, foil shield, w/drain wire, 24 AWG

Cable Length:

4.6 m (15 ft) supplied; maximum extension to 120 m (400 ft)

Wetted Material CPVC

Max. Temperature/Pressure Rating

Operating Temperature:

- 7 bar (100 psi) max @ 65 °C (149 °F)
- 4 bar (58 psi) max @ 80 °C (176 °F)

Storage Temperature:

0 °C to 80 °C (32 °F to 176 °F)

See Temperature and Pressure graphs for more information.

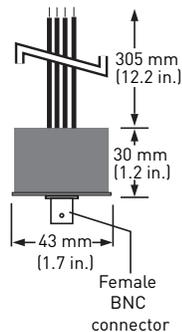
Shipping Weight 0.5 kg 1.2 lb

Standards and Approvals

- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

2721 Remote Preamp

The 2721 remote preamplifier should be used with special order sensors that are built with cables (Signet Models 277X-HT, 277X-1-HT, or other Signet sensors ordered with cables). It can also be used for applications where another manufacturer's sensor is used with a Signet 5700 or 8750 instrument.



2721 Remote pH/ORP Preamp

General

Input power: ± 4.5 to ± 8 VDC dual supply (provided by Signet pH/ORP instruments)
 Compatibility: pH sensors with cables and BNC connector (supplied by other manufacturers)
 Input Impedance: $> 10^{11}\Omega$
 Gain: Unity
 Current consumption: < 1 mA, dual supply
 Electronics assembly: Epoxy encapsulated

Material

Housing: Low density polyethylene

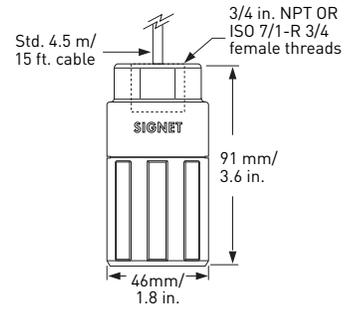
Max. Temperature/Pressure Rating

Operating temperature:

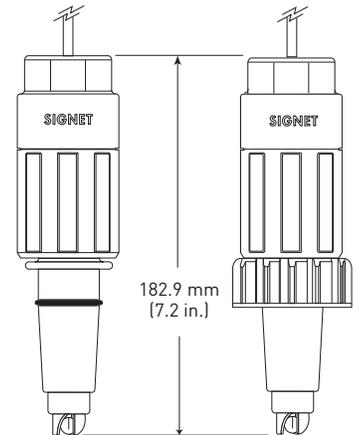
-15 °C to 65 °C (-5 °F to 150 °F)



2720 Preamp

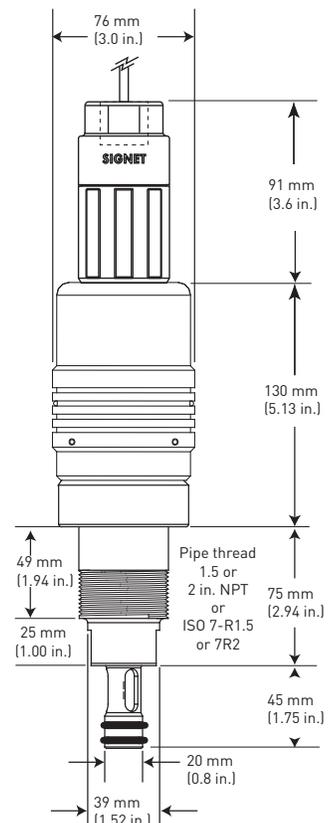


2714-2717 w/2720 Preamp



2716/17-WT w/ 2720 Preamp

in 3719 WetTap Assembly



Ordering Information

Model 2714-2717 and Model 2720 Ordering Notes

- Electrodes require purchase of preamplifier for full system installation.
- To replace electrodes, simply untwist from preamplifier to replace with new electrode.
- Always purchase a Signet cap and installation fitting for pipe applications.
- Conduit and mounting brackets for submersible installation must always be used (customer supplied).
- Use pipe adapters to install in pipes larger than DN100 (4 in.). Specify socket weld or NPT thread.
- Use 3-2721 remote preamplifier when connecting other manufacturers electrodes to Signet instruments.

Electrode Part Number- Choose either a pH or ORP Electrode		
pH Electrodes		
3-2714	Flat pH surface electrode	
3-2714-HF	Flat pH surface electrode, for use in trace HF (hydrofluoric acid) in concentrations < 2%	
3-2716	Bulb pH electrode with bulb protection (on plastic body electrodes only)	
3-2716-DI	Bulb pH electrode with bulb protection, for process liquids <100 µS/cm conductivity	
ORP Electrodes		
3-2715	Flat ORP surface electrode	
3-2717	Bulb ORP electrode with bulb protection (on plastic body electrodes only)	
↓	Options	
	-	For electrodes used in in-line mounting with Signet fittings, use red or blue electrode cap (see sensor caps for in-line mounting)
	-WT	Glass electrode with Twist-Lock connector; for use with the 3719 Wet-Tap Assembly Only. Available for Part Numbers 3-2716 and 3-2717 only
3-2714	Example Part Number	
3-2716	-WT Example Part Number	

Sensor Caps for In-Line Mounting - Choose one (required for initial installation of any pH or ORP electrode)	
P31542	Red Sensor Cap (commonly used for distinguishing pH from ORP sensors)
P31542-3	Blue Sensor Cap (commonly used for distinguishing ORP from pH sensors)
P31542	Example Part Numbers

Preamplifiers - Choose one (required for initial installation of any pH or ORP electrode)	
3-2720	¾ inch FNPT submersion threads; 4.6 m (15 ft) cable
3-2720-2	ISO 7/1-R3/4 inch FNPT submersion threads; 4.6m (15 ft) cable
3-2714 and 3-2720	Example Part Numbers

Application Notes

- Use the flat glass electrodes when a self-cleaning feature is desired; especially useful in applications with abrasive particles.
- Use bulb protected electrodes for general purpose applications
- ORP electrodes are generally used for chemical reaction monitoring, not process control.
- Ensure that sensor materials are chemically compatible with the process liquid.
- Cleaning and calibration of electrodes is application dependent.

Please refer to Installation, Accessories and Fittings sections for more information.

Mfr. Part No.	Code	Mfr. Part No.	Code
3-2714	198 844 300	3-2717	198 844 303
3-2714-HF	198 844 305	3-2717-WT	159 000 811
3-2715	198 844 301	3-2720	198 864 602
3-2716	198 844 302	3-2720-2	198 864 603
3-2716-DI	198 844 306	3-2721	198 864 610
3-2716-WT	159 000 809		

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Calibration Accessories		
3-2759	159 000 762	pH/ORP System Tester (includes bypass adapter)
3-0700.390	198 864 403	pH Buffer Kit
Mounting		
P31515-0P200	159 000 630	PVC Pipe Adapter, 1.25 in. O.D.
P31515-0C200	159 000 631	CPVC Pipe Adapter, 1.25 in. O.D.
P31515-0V200	159 000 459	PVDF Pipe Adapter, 1.25 in. O.D.
Other		
1220-0021	198 801 186	Replacement O-ring, FPM (for electrodes)
1224-0021	198 820 006	Replacement O-ring, EPDM (for electrodes)
1228-0021	198 820 007	Replacement O-ring, Kalrez® (for electrodes)
5523-0624	159 000 636	Cable, 24 AWG, 6-conductor (specify length)
3-2721	198 864 610	Remote pH/ORP preamplifier
3-2759.393	159 000 765	Adapter cable for use with 2720
P31542	198 801 630	Sensor cap, red
P31542-3	159 000 464	Sensor cap, blue

3-2714.099 Rev E (01/10)

© Georg Fischer Signet LLC
 3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com
 Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.



3-2721.090

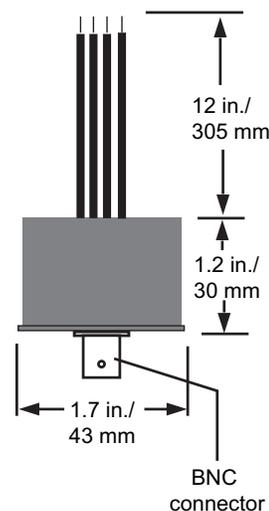
Rev. D 10/05

English

1. Specifications

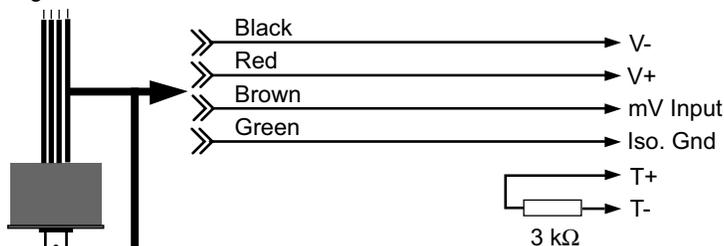
Housing material:	Low density polyethylene
Electronics assembly:	Epoxy encapsulated
Input Impedance:	$>10^{11} \Omega$
Operating temp.:	-15 to 65°C
Gain:	X1 (unity)
Input power:	± 4.5 to ± 8 VDC, dual supply
Current consumption:	<1 mA, dual supply
mV input signal:	$<\pm 2500$ mV

Dimensions:



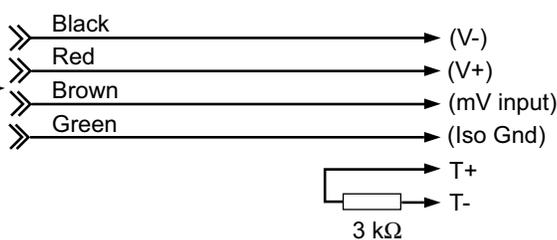
2. pH Wiring

Pre-amplifier:
Signet 2721



Signet 5700

- A 3 kΩ resistor is required across the 5700 rear T+ and T- terminals.
- A shielded cable/pre-amplifier enclosure is recommended for optimum performance.

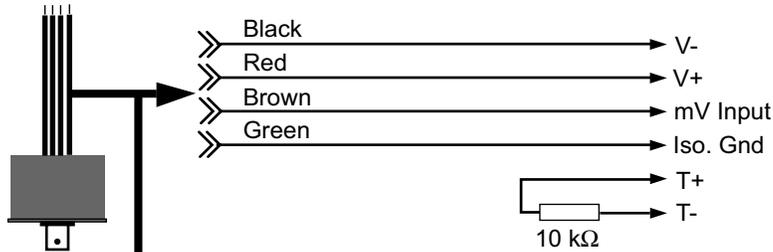


Signet 8750

- 8750 terminal numbers vary depending on model number. See 8750 Instruction Manual.
- A 3 kΩ resistor is required across 8750 rear T+ and T- terminals.
- A shielded cable/pre-amplifier enclosure is recommended for optimum performance.

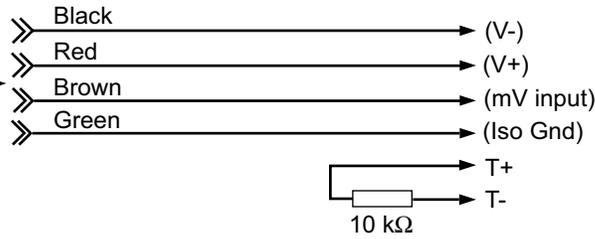
3. ORP Wiring

Pre-amplifier:
Signet 2721



Signet 5700

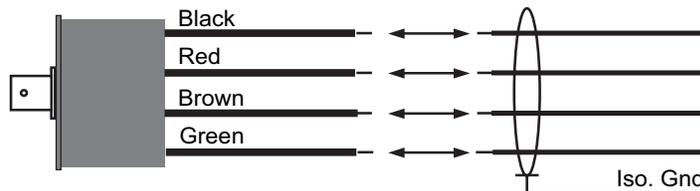
- A 10 kΩ resistor is required across the 5700 rear T+ and T- terminals.
- A shielded cable/pre-amplifier enclosure is recommended for optimum performance.



Signet 8750

- 8750 terminal numbers vary depending on model number. See 8750 Instruction Manual.
- A 10 kΩ resistor is required across the 8750 rear T+ and T- terminals.
- A shielded cable/pre-amplifier enclosure is recommended for optimum performance.

4. Cable Extensions



- Use shielded cable for cable extensions up to 400 ft/120 m.

+GF+

George Fischer Signet, Inc. 3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057
 For Worldwide Sales and Service, visit our website: www.gfsignet.com • Or call (in the U.S.): (800) 854-4090



Signet 2724-2726 pH/ORP Electrodes

Compatible with ALL Signet pH/ORP Instruments



Flat Glass



Protected Bulb

Features

- Patented DryLoc® connector with gold plated contacts
- Mounts in Signet standard fittings from DN15 to DN100 (½ to 4 in.)
- ¾" NPT or ISO 7/1-R ¾ 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* reference design for exceptional performance
- Quick temperature response
- HF resistant glass available for trace HF of <2%
- Optional Low conductivity sensor for liquids down to 20 µS/cm

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 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 ¾ threads for installing into standard pipe-tees. They can also be mounted directly into Signet standard fittings, DN15 to DN100 (½ to 4 inch)

System Overview

In-Line Installation		Submersible Installation	
Panel Mount Signet Instrument (sold separately) 5700 8750 8900 	4 to 20 mA Input Chart Recorder Programmable Logic Controller OR 	Panel, Pipe, Tank, Wall Mount Signet Instrument (sold separately) 5700 8750 8900 	
Signet 2760 (sold separately) 	Signet 2750 (sold separately) 	Signet 2750 (sold separately) 	Signet 2750 or Signet 2760 (sold separately)
Signet 2724-2726 DryLoc® pH/ORP Electrodes 		Signet 2724-2726 DryLoc® pH/ORP Electrodes 	
Signet and Threaded only for in-line installs (sold separately) 		Pipe extension or conduit with ¾ in. NPT or ISO 7/1-R ¾ threads (customer supplied) 	
		Signet 2724-2726 DryLoc® pH/ORP Electrodes 	

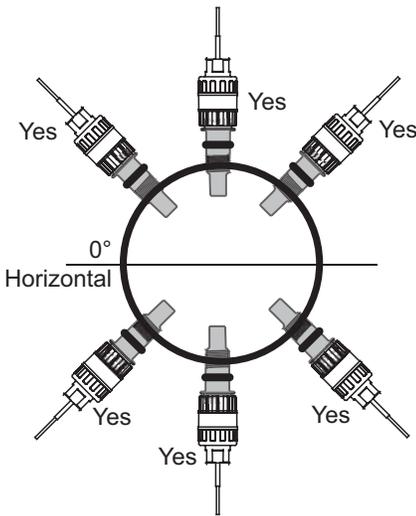
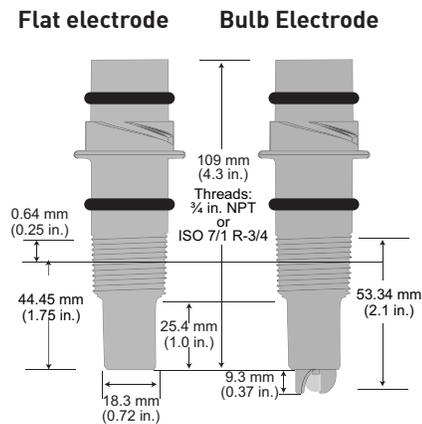
Applications

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

See Technical Reference section for assistance in choosing the correct sensor.

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

Dimensions



Mounting Angle

Models 2724-2726 may be mounted at any angle without affecting the performance. Avoid locations with air pockets and sediment.

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 μ S/cm nominal
 - <20 μ S; flow must be less than 150 ml/min in a properly grounded system
 - 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.
- 3 K Ω 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-R 3/4
- 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 Range:*

-10 °C to 85 °C (14 °F to 185 °F)

Operating Pressure Range:

-10 °C to 65 °C (14 °F to 149 °F):

0 to 6.9 bar (0 to 100 psi)

65 °C to 85 °C (149 °F to 185 °F),

linearity derated 6.9 to 4.0 bar

(100 psi to 58 psi)

- * Best performance for 2726-HF sensors is above 10 °C (50 °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)

Mounting

In-line Mounting:

- Use the sensor threads
- Use a Signet standard fitting up to 4 in.
- Sensor can be mounted at any angle

Submersible Mounting:

- Use threads on models 2750 or 2760
- Requires 3/4 inch NPT or ISO 7/1-R 3/4 male threaded liquid tight extension conduit.

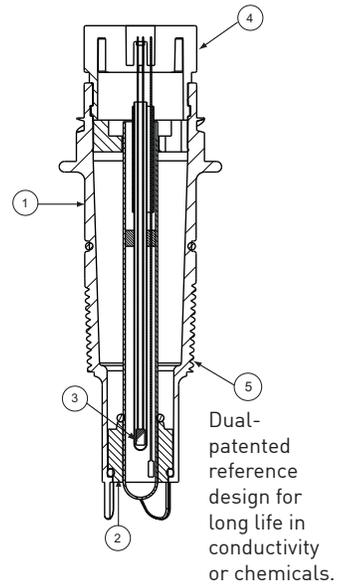
Shipping Weight 0.25 kg 0.55 lb

Standards and Approvals

- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Electrode Key Features and Benefits:

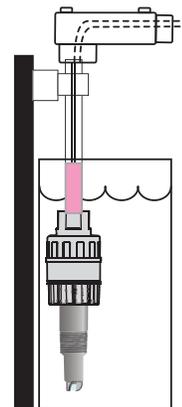
1. Ryton® body for chemical compatibility with most harsh chemicals.
2. Porous UHMW PE (ultra high molecular weight polyethylene) junction resists fouling and build-up.
3. Internal temperature sensor located in the glass stem for a quick temperature response.
4. DryLoc® connector with corrosion resistant 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, including those which usually destroy electrodes such as liquids with cyanide (CN⁻), bromide (Br⁻), iodide (I⁻), sulfide (S₂⁻), and nitrate (NO₃⁻). These compounds are known as “poisoning ions” and will react with the internal parts of the pH (or ORP) electrode.
 - Metal ions such as mercury (Hg²⁺), copper (Cu⁺), lead (Pb²⁺) also offset the reference electrode.
 - An alternative to standard style electrodes is to use the 2764-2767 Differential electrodes.
- 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 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.



5 Sensor in threaded reducing tee



6 Sensor in Signet fitting



7 Sensor submersible installation

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 "EasyCal" feature recognizes common pH and ORP buffer values of 4, 7 and 10 pH and +87 and +264 mV for ORP.

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.

Ordering Information

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 - 100 $\mu\text{S}/\text{cm}$ recommended	
↓	Temperature Element - Choose One	
	-0	PT1000; use with 2750 sensor electronics*
	-1	3 K Ω Balco; use with 2760 preamplifier**
	Threaded Process Connection	
↓	0	$\frac{3}{4}$ in. MNPT, Thread
	1	ISO 7/1-R 3/4 Thread
3-2726	-1	1 Example Part Number
ORP Electrodes		
3-2725-6	Flat ORP with 10 k Ohm ID Resistor	
↓	Threaded Process Connection	
	0	$\frac{3}{4}$ in. MNPT, Thread
	1	ISO 7/1-R 3/4 Thread
3-2725-6	0	Example Part Number

*The 2750 sensor electronics has a digital (S³L) output which is used with the 8900 Controller. 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 5700 Monitor or 8750 Transmitter.

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
3-2700.395	159 001 605	Calibration kit: includes 3 polypropylene cups, box used as cup stand, 1 pint pH 4.01, 1 pint 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

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 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.

3-2724.099 Rev A (01/10)

© Georg Fischer Signet LLC

3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com
Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.

Signet 2764-2767 Differential DryLoc® pH/ORP Electrodes



Description

The Signet 2764-2767 Differential pH & ORP electrodes are built with the DryLoc® connector, a Ryton® body, and PTFE reference junction to handle the most extreme and harshest of chemical applications.

These differential electrodes use a field-proven 3-electrode differential technique: the pH and reference electrodes are measured against a ground electrode, insuring a steady and stable signal. A key feature is the reference electrode, which is housed in a glass half-cell embedded in the reference chamber and is protected from compounds that may contain sulfides (S₂) and metals. To ensure long service life, the reference features a refillable electrolyte chamber and a replaceable equitransferant salt bridge, both easily serviced in the field. The patented porous PTFE reference junction resists fouling, clogging and chemical attack.

Other elements of the design are the solution ground, the pH/ORP electrodes, and the temperature element. The solution ground eliminates noisy measurements by draining electrical current away from the reference electrode. The pH/ORP electrodes are designed with a flat or bulb measurement surface, and a temperature device that is positioned at the tip of the measurement surface, making the temperature response of T_{95%} less than 1 minute. Various temperature devices offered include 3 KΩ, 300 Ω, or PT1000 RTD.

The electrodes are used with the Signet 2750 Sensor Electronics, which provide a blind 4 to 20 mA output or use the digital (S³L) output to connect the Signet 8900 Multi-Parameter Controller. The electrodes can also be used with the Model 2760 preamplifier to connect to the Signet 5700 or 8750.

Features

- Differential design for stable measurements in the most aggressive applications
- Long service life even in severe or difficult chemical applications
- Water-tight DryLoc® connector with foul-proof gold contacts
- Porous PTFE reference junction
- Rebuildable reference electrode
- Solution ground
- Temperature sensor (pH)
- Easy sensor replacement using DryLoc® electrode connector
- Quick temperature response
- Compatible with all Signet instruments and other suppliers' pH/ORP instruments

System Overview

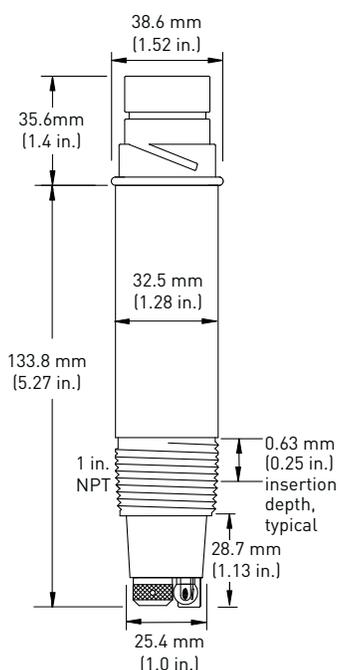
In-Line Installation				Submersible Installation	
Panel Mount Signet Instrument (sold separately) 5700 8750 8900 	4 to 20 mA Input Chart Recorder OR Programmable Logic Controller 	Pipe, Tank or Wall Mount Signet Instrument (sold separately) 8750 Signet Universal Adapter Kit (3-8050) (sold separately) Signet 2760 (sold separately) 	Other Instruments Customer supplied Signet 2760 (sold separately) 	Panel, Pipe, Tank, Wall Mount Signet or Other Instrument 5700 8750 8900 Pipe extension or conduit with 3/4 in. FNPT threads (customer supplied) 	Signet 2750 or Signet 2760 (sold separately)
Signet 2764-2767 Differential pH/ORP Electrodes 				Signet 2764-2767 Differential pH/ORP Electrodes 	
Fittings - Customer supplied					

Applications

- Water and Waste Water Treatment
- Coagulation and Flocculation
- Plant Effluent
- Plating Baths
- Scrubbers
- Textile Dye Process
- Harsh Chemical Applications
- Heavy metal Removal and Recovery
- Toxics Destruction
- Surface Finishing

See Technical Reference section for assistance in choosing the correct sensor.

Dimensions



Flat and Bulb versions have the same dimensions

Specifications

General

Compatibility: Signet 2750 and 2760

Operating Range:

- 2764/2766: 0 to 14 pH
- 2765/2767: +/-1500 mV (ORP)

Process Connection: 1 in., for use in reducing tees up to 4 in.

Wetted Materials

Body: Ryton®

Reference Junctions: PTFE

Sensing Surface:

- Glass membrane: (pH)
- Platinum: (ORP)

O-rings: FPM

Solution Ground: carbon graphite

Max. Temperature/Pressure Rating

Operating Temperature:

0 °C to 95 °C (32 °F to 203 °F)

Max. Operating Pressure:

6.89 bar (100 psi) @ 95 °C (203 °F)

Storage Temperature: > 0 °C (32 °F)

Recommended Storage Temp.

The best storage temperature for the 276X 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)

Mounting

- In-line/vertical mounting: Use sensor 1 inch threads. Sensor must be mounted at least 15 degrees above the horizontal axis.
- Submersible mounting: Use threads on Model 2750 or 2760; requires ¾ inch NPT or ISO 7/1-R ¾ inch male threaded extension.

Reference:

Electrolyte:

3.5 M KCl, solidified acrylamide gel

Element: Ag/AgCl

Temperature Sensor:

- pH: 3 KΩ, PT1000 RTD, or 300 Ω
- ORP: 10K ID Resistor, PT1000 RTD, or 300 Ω

Primary Functions:

- 2764 and 2765: Flat surface resists fouling
- 2766 and 2767: Bulb surface for general use

Shipping Weight 0.25 kg 0.55 lb

Standards & Approvals

- Manufactured under ISO 9001 for Quality

A Differential electrode solves many common problems typically experienced by standard pH/ORP electrodes at troublesome measuring points. See the table below to find the common problem, cause and effect, and the Differential pH/ORP electrode solution.

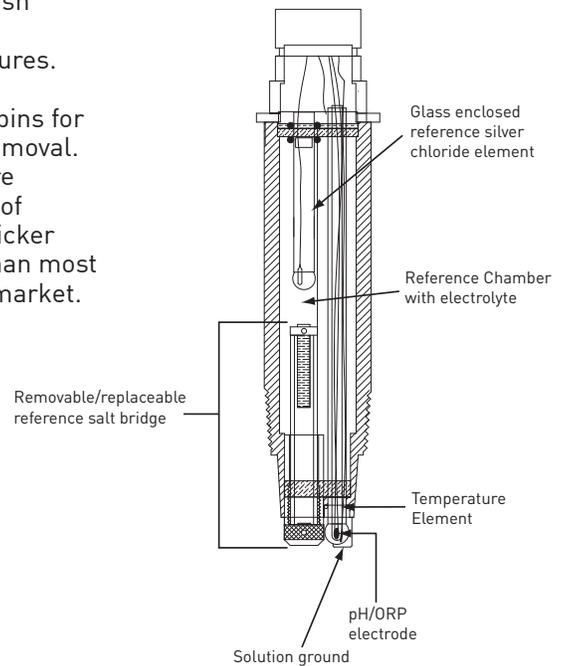
If the standard (Signet Models 272X or 277X) pH/ORP electrode experiences the following:	The cause and effect of the problem may be:	Use a Differential Electrode to solves the problem because:
*Reading slowly drifts over time *Sensor responds slowly	*Chemical attack from Hg ⁺⁺ , Cu ⁺ , Pb ⁺⁺ , ClO ₄ ⁻ or other compounds which dilute the KCl reference electrolyte concentration.	*Salt bridge will slow or stop attack. If attacking ions penetrate the salt bridge and affect the KCl, simply refill KCl solution
	*Reference junction gets clogged from oils, grease, and dirt from the process.	*Readings do not drift due to stable Differential reference design, however may require cleaning or replacement of the salt bridge if electrode gets too dirty.
*Reading slowly drifts over time *Sensor reading becomes erratic	*Chemical attack of the Ag ⁺ reference billet from Br ⁻ , I ⁻ , CN ⁻ , and S ₂ ⁻ compounds.	*Will not affect electrode due to Ag ⁺ element protected in glass encased reference electrode.
	*Clogged reference and slowed reading from silver compounds forming on the inside of the reference electrode from Ag ⁺ of reference element reacting and precipitating AgS, AgBr, AgI, AgCN, or other silver compounds.	*Will not affect electrode due to Ag ⁺ element protected in glass encased reference electrode
*Reading suddenly jumps to a new value *Reading unexpectedly changes	*Stray electrical currents in the process liquid; Ag ⁺ reference element picks up current and shifts reference reading, resulting in shifted pH reading. The Ag ⁺ element will eventually become totally stripped. Process must be properly grounded or place metal rod close to electrode.	*Will not affect electrode due to Ag ⁺ element protected in glass encasement; also, electrode has a built in solution ground, so if there is a stray current, it will not be seen by the electrode

Ion	Ion name	Ion	Ion name	Compound	Compound name
Br ⁻	Bromide	Hg ⁺⁺	Mercury	KCl	Potassium Chloride
Cu ⁺	Copper iron	ClO ₄ ⁻	Perchlorate	AgS	Silver sulfide
CN ⁻	Cyanide	Ag ⁺	Silver	AgBr	Silver bromide
I ⁻	Iodide	S ₂ ⁻	Sulfide	AgI	Silver iodide
Pb ⁺⁺	Lead			AgCN	Silver cyanide

Electrode Key Features and Benefits:

- Glass encased reference electrode protects the Ag/AgCl (silver/silver chloride) element from reacting with certain chemical compounds that typically leach into the reference chambers. Keeps the pH/ORP reading stable.
- Large volume reference electrolyte chamber resists dilution over time for a long service life. Chamber is refillable. Holds approximately 30 ml of electrolyte
- Salt Bridge serves as a double reference junction and is the first line of defense to keep out process chemicals from the reference electrolyte chamber. It is built with a porous PTFE reference junction which is highly compatible to chemicals, resists fouling and build-up of dirt.
- Ryton® body for chemical compatibility to most harsh chemicals. Also able to withstand high temperatures.
- DryLoc® connector with corrosion resistant gold pins for quick and easy sensor removal.
- Capillary TC (temperature sensor) embedded in tip of pH/ORP electrode for quicker temperature response than most other electrodes on the market.

Electrode Cut-Away View



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 2764-2767

Ordering Notes

- 1) pH and ORP electrodes require connection to model 2750 or 2760.
- 2) Conduit and mounting brackets for submersible installations must always be used (customer supplied)
- 3) Adapters from 1 - 1½ in. are available.
- 4) Use sensor threads for in-line mounting; Model 2750 or 2760 threads for submersible mounting.
- 5) Reference electrode can be rebuilt with replacement electrolyte and salt bridge.

Ordering Information

Electrode Part Number- Choose Either a pH or ORP Electrode	
pH Electrode	
3-2764	Flat pH surface differential electrode
3-2766	Bulb pH differential electrode with bulb protection
↓	Temperature Element - Choose One
	-1 3K Ω for pH for connection to 8750 or 5700 instruments when used with the 2760 preamplifier**
	-2 PT1000 RTD for pH for use with the 8900 instrument when used with the 2750 sensor electronics*
	-3 300 Ω for connection to other instruments when used with the 2760 preamplifier or connector**
ORP Electrode	
3-2765	Flat ORP surface differential electrode
3-2767	Bulb ORP differential electrode with bulb protection
↓	Temperature Element - Choose One
	-1 10 KΩ ID resistor for connection to 8750 or 5700 when used with the 2760 preamplifier or connection to the 8900 with the 2750 sensor electronics
	-2 PT1000 RTD for connection to other instruments using the 2760 preamplifier or connector
	-3 300 Ω for connection to other instruments using the 2760 preamplifier or connector**
3-2765	-1 Example Part Number

*The 2750 sensor electronics has a digital (S³L) output which is used with the 8900 Controller. 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 5700 Monitor or 8750 transmitter.

Mfr. Part No.	Code	Mfr. Part No.	Code
3-2764-1	159 000 943	3-2766-1	159 000 949
3-2764-2	159 000 944	3-2766-2	159 000 950
3-2764-3	159 000 945	3-2766-3	159 000 951
3-2765-1	159 000 946	3-2767-1	159 000 952
3-2765-2	159 000 947	3-2767-2	159 000 953
3-2765-3	159 000 948	3-2767-3	159 000 954

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2700.395	159 001 605	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint 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)
3864-0001	159 001 007	Replacement salt bridge
3864-0002	159 001 008	Replacement reference electrolyte solution, 500 mls
2120-0015	159 001 009	CPVC adapter: 1.5 in. MNPT to 1 in. FNPT
2122-0015	159 001 010	PVDF adapter: 1.5 in. MNPT to 1 in. FNPT
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
3-2759	159 000 762	pH/ORP system tester
3-2759.391	159 000 764	Adapter cable for use with 2750/2760

3-2764.099 Rev A (01/10)

© Georg Fischer Signet LLC

3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com
 Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.

Signet 2774-2777 DryLoc® pH/ORP Electrodes



Description

The Signet 2774 - 2777 pH and ORP Electrodes feature a unique foul-proof DryLoc® connector with gold-plated contacts designed specifically for use with the Signet 2750 and 2760 preamplifiers, sensor electronics, and connectors. These dependable and highly responsive electrodes feature a PTFE double reference junction with KNO_3 in the front chamber to block various poisoning ions such as Copper (Cu^{++}), Lead (Pb^{++}), Mercury (Hg^{++}), and a large reference chamber that combine to extend the service-life. Embedded

positioning of the temperature element in the pH sensing tip allows, the temperature response to be quick and accurate. The electrodes are offered with either flat or bulb style sensing elements. The flat versions allow sediment and particles to sweep past the measurement surface, minimizing risks of abrasion, breakage and coating. The bulb versions can be used for general-purpose applications. Due to the specially designed chambers which keep electrolyte in place, all versions can be installed at any angle, even inverted.

Features

- Durable DryLoc® connector with gold plated contacts
- Special design allows for installation at any angle, even inverted
- Quick temperature response
- Easy sensor replacement using DryLoc® electrode connector
- High temperature versions available
- Mounts into standard 3/4 inch threads
- Compatible with all pH/ORP and other suppliers' instruments

Applications

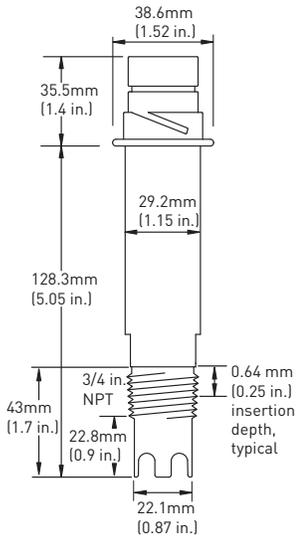
- Water Treatment & Water Quality Monitoring
- Demineralizer, Regeneration & Rinse
- Cooling Tower and Boiler Protection
- Aquatic Animal Life Support Systems
- Pool and Spa Control
- Neutralization Systems

System Overview

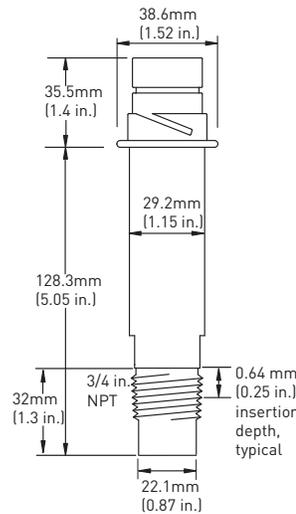
In-Line Installation				Submersible Installation	
Panel Mount Signet Instrument (sold separately) 5700 8750 8900 	4 to 20 mA Input Chart Recorder OR Programmable Logic Controller 	Pipe, Tank or Wall Mount Signet Instrument (sold separately) 8750 Signet Universal Adapter Kit (3-8050) (sold separately) 	Other Instruments Customer supplied 	Panel, Pipe, Tank, Wall Mount Signet or Other Instrument 5700 8750 8900	
Signet 2750 or Signet 2760 (sold separately) 	Signet 2750 (sold separately) 	Signet 2760 (sold separately) 	Signet 2760 (sold separately) 	Pipe extension or conduit with 3/4 in. FNPT threads (customer supplied) 	
Signet 2774-2777 DryLoc pH/ORP Electrodes 				Signet 2774-2777 DryLoc pH/ORP Electrodes 	
Fittings - Customer supplied					

See Technical Reference section for assistance in choosing the correct sensor.

Dimensions



Bulb Electrode



Flat Electrode

Specifications

General

Compatibility:

Signet Models 2750 and 2760

Operating Range:

- 2774/2776: 0 to 14 pH
- 2775/2777: +/-2000 mV (ORP)

Process Connection: 3/4 in., for use in reducing tees up to 4 in.

Reference:

Electrolyte:

KNO₃/KCl acrylamide gel

Element: Ag/AgCl

Primary Functions:

- 2774 and 2775: Flat surface resists fouling
- 2776 and 2777: Bulb surface for general use

Wetted Materials

- Body: Ryton®
- Reference junctions: PTFE
- Sensing surface: Glass membrane: (pH)
Platinum: (ORP)
- O-rings: FPM

Max. Temperature/Pressure Rating

Operating Temperature:

0 °C to 85 °C (32 °F to 185 °F)

Maximum Operating Pressure:

6.9 bar (100 psi)

Storage Temperature:

> 0°C (32 °F)

Higher temperature and pressure sensors are available.

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)

Mounting

- In-line/vertical mounting: Use the electrodes 3/4 inch threads to install into pipe fitting. Electrode can be mounted at any angle.
- Submersible mounting: Use threads on Model 2750 or 2760; requires 3/4 inch NPT or ISO 7/1-R 3/4 male threaded extension.

Temperature Sensor:

- pH: 3 KΩ or PT1000 RTD
- ORP: none

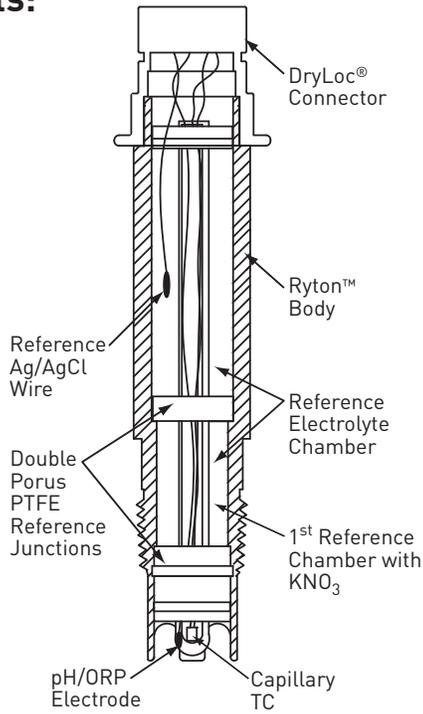
Shipping Weight 0.25 kg 0.55 lb

Standards and Approvals

- Manufactured under ISO 9001 for Quality

Electrode Key Features and Benefits:

- Ryton® body for chemical compatibility to most harsh chemicals. Also able to withstand high temperatures.
- Porous PTFE reference junctions are highly chemically resistant; resists fouling and dirt buildup.
- First reference chamber with KNO_3 protects Ag/AgCl wire for a prolonged sensor life.
- Capillary TC (temperature sensor) embedded in tip of pH electrode for quicker temperature response than most other electrodes on the market.
- DryLoc® connector with corrosion resistant gold pins for quick and easy sensor removal.



Electrode Cut-Away View

Model 2774-2777

Ordering Notes

- 1) pH and ORP sensors require connection to model 2750 or 2760.
- 2) Conduit and mounting brackets for submersible installation must always be used (customer supplied).
- 3) All of these sensors can be installed upside-down.
- 4) Special order options may have longer delivery time. Consult your local Georg Fischer sales representative for lead times.

Application Tips

- Use the flat glass electrodes for in-line pH sensor applications 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.

Ordering Information

Electrode Part Number- Choose Either a pH or ORP Electrode	
pH Electrodes	
3-2774	Flat pH surface electrode
3-2776	Bulb pH electrode with bulb protection
Temperature Element - Choose One	
-	3K Ohm RTD for pH for connection to 8750 or 5700 instruments when used with the 2760 preamplifier**
-1	PT1000 RTD for pH for connection to the 8900 when used with the 2750 sensor electronics*
Special Order Options for pH Electrodes - Options -HT and -C can only be used with the 3-2721 Preamplifier. (These options cannot be used with the 2750 or 2760)	
-HT	For high temperature and high pressure applications, up to 110 °C (230 °F) @ 150 psig; DryLoc® connector is removed and replaced with a 4.6 m (15 ft) cable.
-C	Remove DryLoc® connector and add 4.6m (15 ft) cable. Other cable lengths are available
-ISO	ISO 7/1-R 3/4 Threaded electrodes are available.
ORP Electrodes	
3-2775	Flat ORP surface electrode
3-2777	Bulb ORP electrode with bulb protection
Temperature Element - Choose One	
-	10 K ID resistor for ORP electrodes for connection to the 8750 and 5700 when used with the 2760 preamplifier or the 8900 when used with the 2750 sensor electronics
-1	No T.C. for ORP electrodes for use with other suppliers instruments when used with the 2760 connector
Special Order Options for ORP Electrodes - Options -HT and -C can only be used with the 3-2721 Preamplifier (These options cannot be used with the 2750 or 2760)	
-HT	For high temperature and high pressure applications, up to 110 °C (230 °F) @ 150 psig; DryLoc® connector is removed and replaced with a 4.6 m (15 ft) cable.
-C	Remove DryLoc® connector and add 4.6 m (15 ft) cable. Other cable lengths are available
-ISO	ISO 7/1-R 3/4 Threaded electrodes are available.
3-2775	Example Part Number

*The 2750 sensor electronics has a digital (S²L) output which is used with the 8900 Controller. 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 5700 Monitor or 8750 transmitter.

Mfr. Part No.	Code	Mfr. Part No.	Code
3-2774	159 000 955	3-2776	159 000 959
3-2774-1	159 000 956	3-2776-1	159 000 960
3-2775	159 000 957	3-2777	159 000 961
3-2775-1	159 000 958	3-2777-1	159 000 962

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2700.395	159 001 605	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint 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)
3-0700.390	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
3-2759	159 000 762	pH/ORP system tester
3-2759.391	159 000 764	Adapter cable for use with 2750/2760
3-2721	198 864 610	Remote mount pH/ORP preamplifier

Please refer to
Wiring, Installation,
and Accessories
sections for more
information.

3-2774.099 Rev A (01/10)

© Georg Fischer Signet LLC

3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com
Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.

Signet 2750 DryLoc® pH/ORP Sensor Electronics



Features

- In-line integral mount and submersible installation versions
- Automatic temperature compensation
- Auto configuration for pH or ORP operation
- Optional EasyCal calibration aid with automatic buffer recognition
- Junction boxes for convenient wiring

Description

The Signet 2750 pH/ORP Sensor Electronics featuring the DryLoc® connector, provides a variety of functions to suit various requirements.

The 2750 has a preamplified signal and features two different outputs: a two-wire 4 to 20 mA loop output with EasyCal function or a digital (S³L) output which allows for longer cable lengths and is compatible with the Signet 8900 Multi-Parameter Controller.

The 2750 self-configures for pH or ORP operation via automatic recognition of the electrode type. The optional EasyCal feature allows simple push-button calibration and includes an LED indicator for visual feedback.

The DryLoc® electrode connector quickly forms a robust assembly for submersible and in-line installations. NEMA 4X junction enclosures are integral parts of the 2750 in-line version and are also available as accessories for the submersible 2750.

The 2750 submersible preamplifier can also be used as an In-line preamplifier when used with the 3/4" or 1" threaded sensors including the 2724, 2774 and 2764 series electrodes. The 2750 In-line preamplifier can be used with Signet fittings up to DN100 (4 in.) and wet-tap assemblies.

Applications

- Water/Wastewater Treatment
- Neutralization Systems
- Scrubber Control
- Effluent Monitoring
- Surface Finishing
- Flocculent Coagulation
- Heavy Metal Removal and Recovery
- Toxics Destruction
- Sanitization Systems
- Pool & Spa Control
- Aquatic Animal Life Support Systems

System Overview

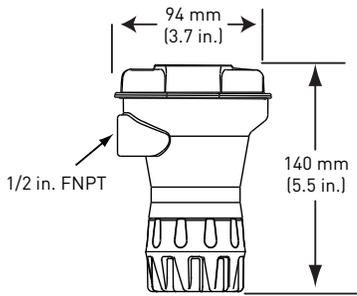
In-Line Installation		Submersible Installation	Wet-Tap Installation
Panel Mount Signet 8900 Multi-Parameter Controller (sold separately) 	4 to 20 mA Input Chart Recorder OR Programmable Logic Controller 	Panel Mount Signet 8900 Multi-Parameter Controller (sold separately) 	4 to 20 mA Input Chart Recorder OR Programmable Logic Controller
Signet 2750 Sensor Electronics 	Signet Universal junction box (3-8050-2) EasyCal (sold separately) Signet 2750 Sensor Electronics 	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads (customer supplied) 	Signet 2750 Sensor Electronics with Signet Wet-Tap Electrode 2756, 2757 (each sold separately)
DryLoc® pH/ORP Electrodes 2724-2726, 2764-2767, 2774-2777 (sold separately) 		Signet 2750 Sensor Electronics 	Signet 3719 Wet-Tap (sold separately)
2724-2726 DryLoc® Electrodes: Use GF Fittings* or 3/4 in. NPT fittings (customer supplied) 2764-2767 and 2774-2777 DryLoc® Electrodes: Use 3/4 in. or 1 in. NPT fittings (customer supplied)		DryLoc® pH/ORP Electrodes 2724-2726, 2764-2767, 2774-2777 (sold separately) 	GF PP Clamp-On Saddles for 3719 Wet-Tap or GF Tees and Fittings (sold separately) see model 3719 for more info



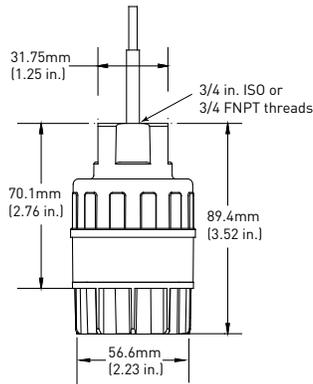
*See Fittings section for more information.

Dimensions

3-2750-1,-2



3-2750-3, -4



Specifications

General

Compatible Electrodes:

Signet DryLoc® pH and ORP Electrodes
Models 2724-2726, 2756-2757 Wet-Tap,
2764-2767, 2774-2777,

Operating Range:

- pH: 0 to 14 pH
- ORP: $\pm 2,000$ mV

Response Time:

- pH: < 6 sec. for 95% of change
- ORP: application dependent

Materials:

- In-line: Valox® (PBT)
- submersible: CPVC

Electrical

Cable:

4.6 m/15 ft, 3-conductor shielded
22 AWG, 100 ft max.

Power:

- 12 to 24 VDC $\pm 10\%$, regulated for 4 to 20 mA output
- 5 to 6.5 VDC $\pm 5\%$ regulated recommended, 3 mA max., for digital (S³L) output

Current output:

- pH: Fixed 4 to 20 mA, isolated, = 0 to 14 pH (custom scaling available)
- ORP: Fixed 4 to 20 mA, isolated, = -1000 to 2000 mV (custom scaling available from ± 2000 mV)
- Max Loop Resistance: 100 Ω max. @ 12 V
325 Ω max. @ 18 V
600 Ω max. @ 24 V
- Accuracy: ± 32 μ A
- Resolution: ± 5 μ A
- Update Rate: 0.5 seconds
- Error indication: 3.6 mA

Digital (S³L) output:

- Serial ASCII, TTL level 9600 bps
- Accuracy: pH: ± 0.03 pH @ 25 °C (77 °F)
ORP: ± 2 mV @ 25 °C (77 °F)
- Resolution: pH: ≤ 0.01 pH
ORP: 1 mV
Temp.: ≤ 0.2 °C (32.3 °F)

Electrical (continued)

- Update Rate: 0.5 seconds
- Available Data: Raw mV, pH or ORP, temperature (pH)
- Error indication: Open input diagnostic
- Input Impedance, Z: $>10^{11}\Omega$

Environmental

Enclosure:

- 3-2750-1 & -2: NEMA 4X/IP65 with electrode connected
- 3-2750-3 & -4: NEMA 6P/IP68 with electrode and watertight conduit and/or extension pipe connected

Max. Temperature/Pressure Rating

Operating Temperature:

- Temperature (submersible): 0 °C to 85 °C (32 °F to 185 °F)
- Temperature (in-line): 0 °C to 110 °C (32 °F to 230 °F)

Storage Temperature:

-20 °C to 85 °C (-4 °F to 185 °F)

Relative Humidity:

0 to 95%, non-condensing (without electrode connected)

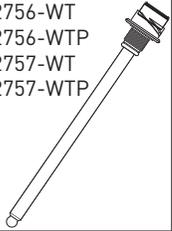
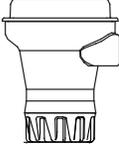
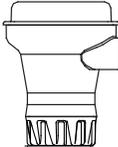
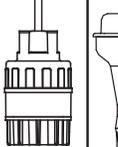
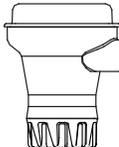
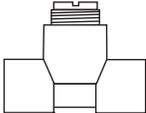
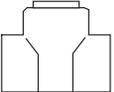
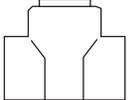
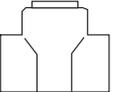
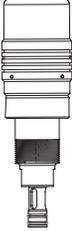
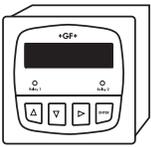
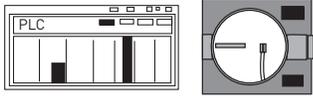
Shipping Weight

- 2750-1 & 2: 0.75 kg 1.65 lb
- 2750-3 & -4: 0.64 kg 1.41 lb

Standards and Approvals

- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

2750 Product Selection Guide

<p>1. Choose the Electrode</p>	<p>2724-2726 3-2724-00, -01 3-2725-60, -61 3-2726-00, -01 3-2726-HF-00, -01 3-2726-LC-00, -01</p> 	<p>2764-2767 Differential</p> <p>3-2764-2 3-2765-1 3-2766-2 3-2767-1</p> 	<p>2774-2777</p> <p>3-2774-1 3-2775-1 3-2776-1 3-2777-1</p> 	<p>2756 and 2757 Wet-Tap</p> <p>3-2756-WT 3-2756-WTP 3-2757-WT 3-2757-WTP</p> 		
<p>2. Determine the mounting style:</p> <p>In-line</p> <p>-In-line fitting</p> <p>Submersible</p>	 <p>2750-1 or -2</p>	 <p>2750-3 or -4</p>	 <p>2750-1 or -2</p>	 <p>2750-3 or -4</p>	 <p>2750-1 or -2</p>	 <p>2750-1 or -2</p>
	 <p>Signet fitting</p>	 <p>3/4" reducing tee</p>	 <p>1" threaded tee</p>	 <p>3/4" reducing tee</p>	 <p>3719 Wet-Tap Assembly</p> <p>(Submersible not applicable with Wet-Tap assembly)</p>	
<p>3. Junction Boxes</p>	<p>3-8050-1: Use when extending the submersible cable over long distance. 3-8050-2: Use with the submersible 2750-3 or -4 and the in-line 2750-1 for best calibration results with the EasyCal function when using the blind 4 to 20 mA output.</p>					
<p>4. Choose the output instrument</p> <p>Digital (S³L) 4 to 20 mA</p>	 <p>8900 Multi-Parameter Controller</p>		<p>OR</p>	 <p>PLCs or Chart Recorders</p>		

Ordering Information

Model 2750

Ordering Information

- 1) Model 2750 requires 12 to 24 VDC to function as a blind 4 to 20 mA output transmitter.
- 2) Order a 3-2750-2 or any other 2750 with a junction box 3-8050-2 if the EasyCal feature is desired.
- 3) Conduit and mounting brackets for submersion installation must always be used (customer supplied).
- 4) The 3-2759 System Tester must be ordered with the adapter cable 3-2759.391 for exclusive use with the 2750.
- 5) All sensor electronics, preamplifiers and connectors require a DryLoc® electrode for full system installation.

Sensor Electronics		
3-2750		Sensor Electronics with preamplified signal and Digital (S ³ L) output (for use with the 8900 controller) or 4 to 20 mA output - power supplied to unit dictates output type.
↓	-1	In-line Sensor electronics (yellow body) - recommended for 8900 Controller
	-2	In-line Sensor electronics with EasyCal (yellow body) - recommended for 4 to 20 mA use
	-3	Submersible Sensor electronics with 4.6 m (15 ft) cable and ¾ in. NPT threads - when 4 to 20 mA is required use the 3-8050-2 junction box with EasyCal
	-4	Submersible Sensor electronics with 4.6 m (15 ft) cable and ISO 7/1R 3/4 threads - when 4 to 20 mA is required use the 3-8050-2 junction box with EasyCal
	↓	
3-2750	-2	Example Part Number

Mfr. Part No.	Code
3-2750-1	159 000 744
3-2750-2	159 000 745
3-2750-3	159 000 746
3-2750-4	159 000 842

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Calibration		
3-2700.395	159 001 605	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint 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 adapter cable for use with 2750
3-0700.390	198 864 403	DryLoc® sensor electronics
		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
Mounting		
3-8050-1	159 000 753	Universal mount junction box
3-8050-2	159 000 754	Universal mount junction box w/EasyCal (for submersible applications, use with 3-2750-3/4 where 4 to 20 mA is required)
3-9000.392-1	159 000 839	Liquid tight connector kit, NPT (1 connector)
3-9000.392-2	159 000 841	Liquid tight connector kit, PG 13.5 (1 connector)
Other		
5523-0322	159 000 761	Sensor cable (per ft), 3-cond. plus shield, 22 AWG, black/red/white (for use with 2750)

Application Tips

- The EasyCal feature automatically recognizes standard 4.0, 7.0, and 10.0 pH buffer or ORP Quinhydrone solutions of 87 and 264 mV and simplifies calibration
- Frequency of calibration of electrodes is dependent upon the application.

3-2750.099 Rev B (01/10)

© Georg Fischer Signet LLC

3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com

Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.

Signet 2760 DryLoc® pH/ORP Preamplifiers & Connectors



Features

- In-line integral mount and submersible installation versions
- Automatic temperature compensation
- Auto configuration for pH or ORP operation
- Junction boxes for convenient wiring

Applications

- Water/Wastewater Treatment
- Neutralization Systems
- Scrubber Control
- Effluent Monitoring
- Surface Finishing
- Flocculent Coagulation
- Heavy Metal Removal and Recovery
- Toxics Destruction
- Sanitization Systems
- Pool & Spa Control
- Aquatic Animal Life Support Systems



Description

The Signet 2760 pH/ORP Preamplifiers features the DryLoc® connector, providing a robust connection to Signet DryLoc® electrodes.

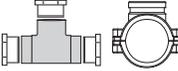
The 2760 preamplifier allows any DryLoc® pH/ORP electrode to work with Signet ProcessPro® and ProPoint® pH/ORP instruments. It is also sold as a simple connector for use with other manufacturers' instruments that do not require a preamplified signal.

The DryLoc® electrode connector system quickly forms a robust assembly for submersible and in-line installations. NEMA 4X junction enclosures are to extend the preamplifier cable to long distances.

The 2760 submersible preamplifier can also be used as an In-line preamplifier when used with the 3/4 in. or 1 in. threaded sensors including the 2724, 2774 and 2764 series electrodes. The 2760 In-line preamplifier can be used with Signet fittings up to DN100 (4 in.) and wet-tap assemblies.

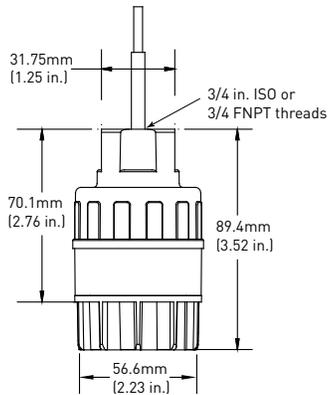


System Overview

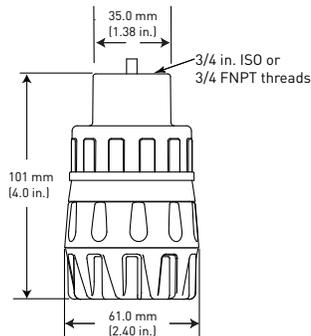
In-Line Installation		Submersible Installation	Wet-Tap Installation	
Panel Mount Signet Instrument (sold separately) 5700, 8750 	Pipe, Tank, Wall Mount Signet pH/ORP Transmitter (sold separately) 8750  Signet Universal Adapter Kit (3-8050) (sold separately) 	Panel, Pipe, Tank, Wall Mount Signet Instrument (sold separately) 5700, 8750 	Panel Mount Signet Instrument (sold separately) 5700, 8750 	Pipe, Tank, Wall Mount Signet pH/ORP Transmitter (sold separately) 8750  Signet Universal Adapter Kit (3-8050) (sold separately) 
Signet 2760 Preamplifier 	Signet 2760 Preamplifier 	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads (customer supplied) 	Signet 2760 Preamplifier with Signet Wet-Tap Electrode 2756, 2757 (each sold separately) 	
DryLoc® pH/ORP Electrodes 2724-2726, 2764-2767, 2774-2777 (sold separately) 		Signet 2760 and Preamplifier 	Signet 3719 Wet-Tap (sold separately) 	
2724-2726 DryLoc® Electrodes: Use GF Fittings* or 3/4 in. NPT fittings (customer supplied) 2764-2767 and 2774-2777 DryLoc® Electrodes: Use 3/4 in. or 1 in. NPT fittings (customer supplied)		DryLoc® pH/ORP Electrodes 2724-2726, 2764-2767, 2774-2777 (sold separately) 	GF PP Clamp-On Saddles for 3719 Wet-Tap or GF Tees and Fittings (sold separately) see model 3719 for more info 	

Dimensions

3-2760-1, -2, -3, -4



3-2760-11, -21, -31, -41



Specifications

General

Compatible Electrodes:

Signet DryLoc® pH and ORP Electrodes
Models 2724-2726, 2756-2757 Wet-Tap
2764-2767, 2774-2777

All pH sensors used with the 2760 must have a 3K Temperature sensor

Operating Range:

- pH: 0 to 14 pH
- ORP: ± 2,000 mV

Response Time*:

- pH: < 6 sec. for 95% of change
- ORP: application dependent

Materials:

- In-line: Valox® (PBT)
- Submersible: CPVC

Electrical

Cable:

- 4.6 m/15 ft, supplied, 120 m/400 ft max
- 6 cond., foil shield with drain wire, 24 AWG

Environmental

Enclosure:

- Submersible: NEMA 6P/IP68 with electrode and watertight conduit and/or extension pipe connected
- In-line: NEMA 4 with electrode and watertight conduit and/or extension pipe connected

Max. Temperature/Pressure Rating

Operating Temperature:

- Temperature (submersible): 0 °C to 85 °C (32 °F to 185 °F)
- Temperature (in-line): 0 °C to 110 °C (32 °F to 230 °F)

Storage Temperature:

-20 °C to 85 °C (-4 °F to 185 °F)

Relative Humidity:

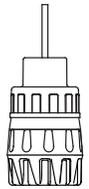
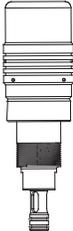
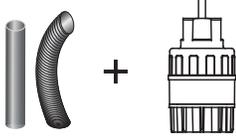
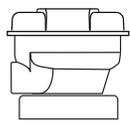
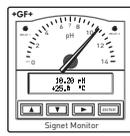
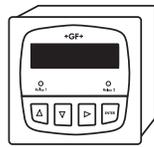
0 to 95%, non-condensing (without electrode connected)

Shipping Weight 0.64 kg 1.41 lb

Standards and Approvals

- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

2760 Product Selection Guide

<p>1. Choose the Electrode</p>	<p>2724-2726 3-2724-10, -11 3-2725-60, -61 3-2726-10, -11 3-2726-HF-10, -11 3-2726-LC-10, -11</p> 	<p>2764-2767 Differential</p> <p>3-2764-1 3-2765-1 3-2766-1 3-2767-1</p> 	<p>2774-2777</p> <p>3-2774 3-2775 3-2776 3-2777</p> 	<p>2756 and 2757 Wet-Tap</p> <p>3-2756-WT-1 3-2756-WTP-1 3-2757-WT 3-2757-WTP</p> 		
<p>2. Determine the mounting style:</p> <p>In-line</p> <p>-In-line fitting</p> <p>Submersible</p>	 <p>2760-11 or -21</p>	 <p>2760-1 or -2</p>	 <p>2760-11 or -21</p>	 <p>2760-1 or -2</p>	 <p>2760-11 or -21</p>	 <p>2760-11 or -21</p>  <p>3719 Wet-Tap Assembly</p> <p>(Submersible not applicable with Wet-Tap assembly)</p>
<p>Signet fitting</p>	<p>3/4" reducing tee</p>	<p>1" threaded tee</p>	<p>3/4" reducing tee</p>			
	<p>2760-1 or -2 and cable conduit (customer supplied) connected to 3/4" sensor electronics</p> 					
<p>3. Junction Boxes</p>	<p>3-8050-1: Use when extending the submersible cable over long distance. 3-8050-2: Use with the submersible 2760-1 or -2. For simple calibration with the EasyCal function.</p>					
<p>4. Choose the Signet instrument</p>	 <p>5700</p> <p style="text-align: center;">OR</p>  <p>8750</p>					

Ordering Information

Model 2760

Ordering Information

- Conduit and mounting brackets for submersion installation must always be used (customer supplied).
- The 3-2759 System Tester must be ordered with the adapter cable 3-2759.391 for exclusive use with the 2760.
- All sensor preamplifiers and connectors require a DryLoc® electrode for full system installation.
- Use Models 2724-2726, 2756-WT, 2757-WT, 2764-2767 and 2774-2777 pH and ORP electrodes with the 2760.

Preamplifier and Connector		
3-2760	pH/ORP Preamplifier (for use with the 8750 or 5700 instrument) or Connector (for use with other manufacturer's instruments) with 4.6 m (15 ft cable)	
↓	Preamplifier	
	-1	Preamplifier, with 3/4 in. NPT threads and 4.6 m (15 ft) cable
	-2	Preamplifier, with 3/4 in. ISO threads and 4.6 m (15 ft) cable
	Connectors (for use with other manufacturer's instruments)	
	-3	Connector with 4.6 m (15 ft) cable and 3/4 in. NPT threads
	-4	Connector with 4.6 m (15 ft) cable and ISO 7/1R 3/4 threads
	Mounting Configurations	
	-	Submersible mounting (gray body)
	1	In-line mounting (yellow body); use for wet-tap sensors
	3-2760	-2 Example Part Number

Mfr. Part No.	Code
3-2760-1	159 000 939
3-2760-2	159 000 940
3-2760-3	159 000 941
3-2760-4	159 000 942
3-2760-11	159 001 367
3-2760-21	159 001 368
3-2760-31	159 001 369
3-2760-41	159 001 370

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Calibration		
3-2700.395	159 001 605	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint 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 adapter cable for use with 2750 and 2760
3-0700.390	198 864 403	DryLoc® sensor electronics
3822-7004	159 001 581	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3822-7007	159 001 582	pH 4 buffer solution, 1 pint (473 ml) bottle
3822-7010	159 001 583	pH 7 buffer solution, 1 pint (473 ml) bottle pH 10 buffer solution, 1 pint (473 ml) bottle
Mounting		
3-8050-1	159 000 753	Universal mount junction box
3-8050-2	159 000 754	Universal mount junction box w/EasyCal
3-9000.392-1	159 000 839	Liquid tight connector kit, NPT (1 connector)
3-9000.392-2	159 000 841	Liquid tight connector kit, PG 13.5 (1 connector)
Other		
5523-0624	159 000 636	Cable, 6-cond. plus shield, 24 AWG, black/red/white (for use with 2760, orders must specify length per foot)

Application Tips

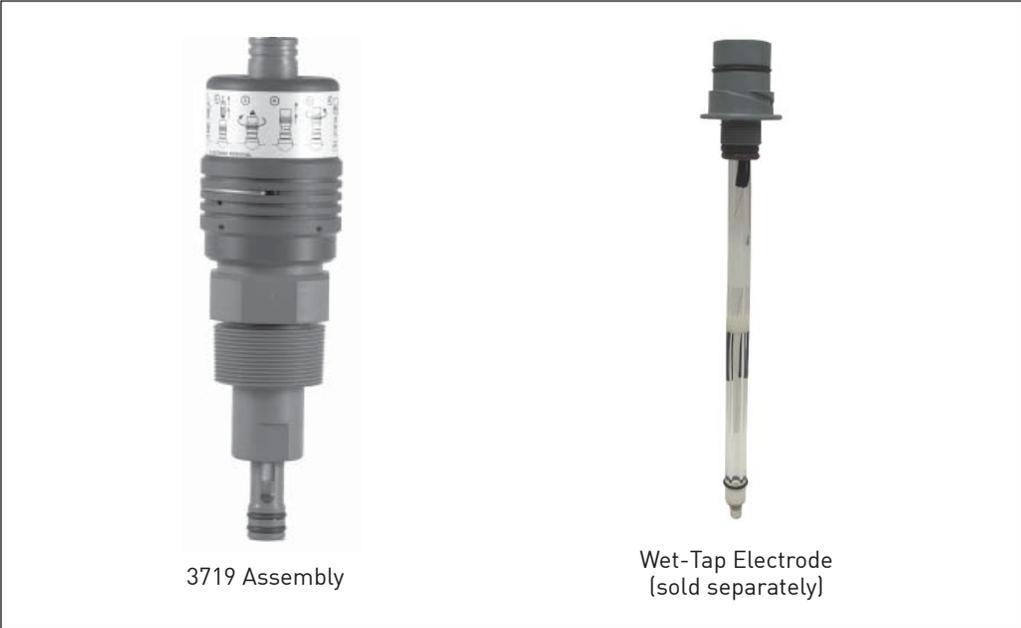
- The EasyCal feature automatically recognizes standard 4.0, 7.0, and 10.0 pH buffer or ORP Quinhydrone solutions of 87 and 264 mV and simplifies calibration
- Frequency of calibration of electrodes is dependent upon the application.

3-2760.099 Rev A (01/10)

© Georg Fischer Signet LLC

3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com
Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.

Signet 3719 pH/ORP Wet-Tap Assembly



Features

- Electrode removal without process shutdown
- Space saving 45 mm (1.75 in.) short-stroke design
- Sealed pneumatic dampening for smooth and safe operation
- SafeLoc™: Cam- activated automatic locking mechanism
- Protects electrode sensing surface from breakage
- Suitable for mounting in any orientation
- Process threaded connection NPT or ISO
- Low profile clamp-on saddle fittings for convenient installation in ASTM pipe sizes 2½ to 12 in.

Description

The Signet 3719 pH/ORP Wet-Tap allows installation and removal of pH or ORP electrodes, even under process pressure, without the need for process shutdown during routine electrode maintenance and calibration. Automatic process isolation is achieved during electrode retraction with a double O-ring seal on a unique and compact

retraction assembly; no separate valve is required. A patented cam-activated automatic locking mechanism, SafeLoc™, and the short stroke design help to assure operator safety. The wet-tap unit can be mounted at any angle and can be used with the Signet DryLoc® Wet-Tap electrodes.

Applications

- Aquatic Animal Life Support Systems
- Recreational Water Monitoring
- Water & Wastewater Treatment
- Effluent Monitoring
- Neutralization Systems
- Sanitization Systems
- Pool and Spa Control

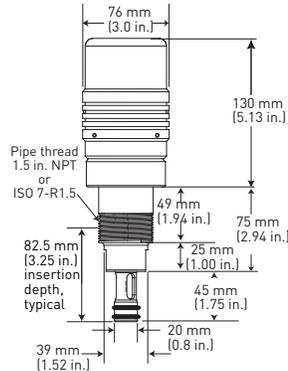
System Overview

Wet-Tap Installation			
Panel Mount Signet Instrument (sold separately) 	4 to 20 mA Input Chart Recorder OR Programmable Logic Controller 	Pipe, Tank or Wall Mount Signet Instrument (sold separately) 	Other Instruments (customer supplied)
Signet 2750 or 2760 (sold separately) 	Signet 2750 (sold separately) 	Signet 2760 (sold separately) 	Signet 2760 connector (-3 or -4 only) (sold separately)
Signet 3719 Wet-Tap Assembly Signet 2756-WT, 2756-WTP 2757-WT, 2757-WTP (sold separately) 			
GF PP Clamp-On Saddles for 3719 Wet-Tap or GF Tees and Fittings (sold separately) see model 3719 for more info 			

Dimensions

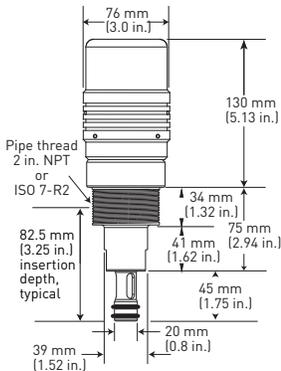
3719-1X

For pipe sizes up to 4 in.



3719-2X

For pipe sizes 6 to 12 in.



Model 3719

Ordering Information

- 1) Use a mounting saddle or a standard threaded part to mount Wet-Tap assembly.
- 2) ASTM fittings are available to order; metric fittings are customer supplied.
- 3) Use -11 or -12 versions for pipe sizes up to 4 in.
- 4) Use -21 or -22 versions for pipe sizes 6 to 12 inches.

Specifications

3719 Wet-Tap

General

Compatible DryLoc® Electrodes:

- 2756-WT, 2756-WT-1 (glass)
- 2756-WTP, 2756-WTP-1 (plastic)
- 2757-WT (glass)
- 2757-WTP (plastic)

Process Connection:

- 3719-11: NPT 1½ in.
- 3719-21: NPT 2 in.
- 3719-12: ISO 7/1 - R 1.5
- 3719-22: ISO 7/1 - R 2

Maximum Flow Velocity: 3 m/s (10 ft/s)

Materials

- Retraction Housing (Wetted): CPVC
- O-rings (Wetted): FPM
- Locking Shroud: PVC
- Hardware: 316 stainless steel

Low Profile Clamp-on Saddle Fittings

Materials

- Saddle body (Wetted): Polypropylene (Grade 8, ASTM D2565, 1-8, UV stabilized)
- Gasket (Wetted): FPM
- Saddle Hardware: 316 stainless steel
- Reinforcement Ring: 430 stainless steel
- Size range: 2½ to 12 in. (ASTM)

Max. Temperature/Pressure Rating

Operating Pressure:

100 psi (6.9 bar) maximum

Operating Temperature:

See Temperature/Pressure graphs for more information

Shipping Weight 1.2 kg 2.7 lb

Standards/Approvals

- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Wet-Tap Part Number		
3-3719	Wet-Tap Assembly	
↓	Mounting Options - Choose one	
	-11	1½ inch NPT process threads for 2½ to 4 in. pipes
	-12	ISO 7/1-R 1.5 process threads for 2½ to 4 in. pipes
	-21	2 inch NPT process threads for 6 to 12 in. pipes
	-22	ISO 7/1-R 2 process threads for 6 to 12 in. pipes
	↓	
3-3719	-11	Example Part Number

Mfr. Part No.	Code	Mfr. Part No.	Code
3-3719-11	159 000 804	3-3719-21	159 000 805
3-3719-12	159 000 806	3-3719-22	159 000 807

Specifications

2756-WT and 2757-WT pH/ORP

Wet-Tap Electrodes

General

Compatibility:

- Signet 3719 Wet-Tap Assembly, 2750 sensor electronics or 2760 preamplifier

Operating Range:

- pH: 0 to 14 pH
- ORP: Application dependent

Connector (CPVC): DryLoc®

Temperature Sensor (pH):

- PT1000 or 3K Balco for pH
- Response time, τ : 438 secs.

Reference junctions: Porous PTFE

- Electrolyte: 3.5M KCl
- Elements: Ag/AgCl

Performance

- Efficiency: > 97% @ 25 °C (77 °F)

Response Time

- pH: < 5s for 95% of signal change
- ORP: Application dependent

Impedance (pH): < 150 M Ω @ 25 °C

Sodium Ion Error:

- < 0.05 pH in 0.1 molar Na+ ion at 12.8 pH

Wetted Materials

- Body: Glass or PAS (Poly Aryl Sulphone)
- Reference Junctions: Porous PTFE
- Sensing surface: Glass membrane (pH) Platinum (ORP)
- O-rings: FPM
- Connector: CPVC

Max. Temperature Rating

Operating Temperature:

- 0 °C to 85 °C (32 °F to 185 °F)

Storage Temperature:

- 0 °C to 85 °C (32 °F to 185 °F)

Mounting:

- Any angle is acceptable. Use with 3719 wet-tap assembly for mounting electrodes.

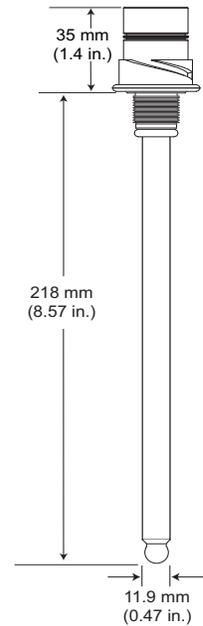
Shipping Weight 0.2 kg 0.4 lb

Standards and Approvals

- Manufactured under ISO 9001 for Quality

Dimensions

3-2756 Wet-Tap pH
3-2757 Wet-Tap ORP



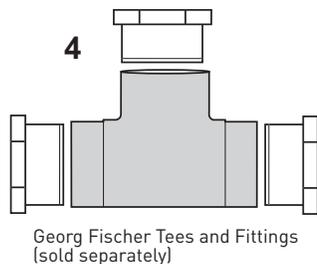
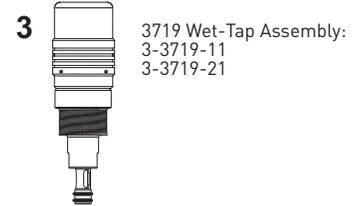
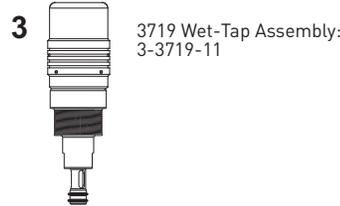
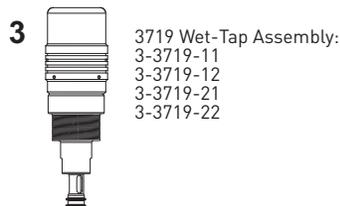
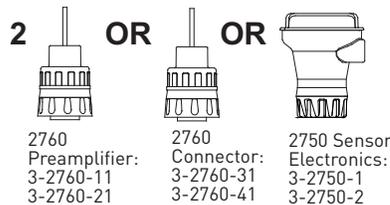
Product selection Guide:

Step 1 - Choose Sensor

Step 2 - Choose preamplifier or sensor electronics

Step 3 - Choose Wet-Tap assembly

Step 4 - Choose mounting option



Model 2756-2757**Ordering Notes**

- 1) pH and ORP electrodes require connection to model 2750-1 or -2 or 2760-X1.

Ordering Information

Wet-Tap Assembly Compatible Electrodes	
3-2756-WT	DryLoc® pH (glass) Electrode (Used with 2750 sensor electronics) - PT1000
3-2756-WT-1	DryLoc® pH (glass) Electrode (Used with 2760 Preamplifier) - 3 KΩ
3-2757-WT	DryLoc® ORP (glass) Electrode (Used with 2750 sensor electronics or 2760 preamplifier)
3-2756-WTP	DryLoc® pH (plastic) Electrode (Used with 2750 sensor electronics) - PT1000
3-2756-WTP-1	DryLoc® pH (plastic) Electrode (Used with 2760 Preamplifier) - 3 KΩ
3-2757-WTP	DryLoc® ORP (plastic) Electrode (Used with 2750 sensor electronics or 2760 preamplifier)

*The 2750 sensor electronics has a digital (S³L) output which is used with the 8900 Controller. 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 5700 Monitor or 8750 transmitter.

Mfr. Part No.	Code	Mfr. Part No.	Code
3-2756-WT	159 000 834	3-2756-WTP-1	159 001 384
3-2756-WT-1	159 001 383	3-2757-WT	159 000 835
3-2756-WTP	159 001 390	3-2757-WTP	159 001 391

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2700.395	159 001 605	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint 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)
Mounting Saddles		
2007-0225	159 000 812	PP Clamp-on Saddle, 2.5 x 1.5 in. (ASTM, NPT)
2007-0230	159 000 813	PP Clamp-on Saddle, 3 x 1.5 in. (ASTM, NPT)
2007-0240	159 000 814	PP Clamp-on Saddle, 4 x 1.5 in. (ASTM, NPT)
2007-0260	159 000 815	PP Clamp-on Saddle, 6 x 2 in. (ASTM, NPT)
2007-0280	159 000 816	PP Clamp-on Saddle, 8 x 2 in. (ASTM, NPT)
2007-0210	159 000 817	PP Clamp-on Saddle, 10 x 2 in. (ASTM, NPT)
2007-0212	159 000 818	PP Clamp-on Saddle, 12 x 2 in. (ASTM, NPT)
Other		
1220-0114	159 000 854	3719 O-ring, FPM (spare part)
1224-0205	159 000 836	O-ring, EPR (EPDM)
3-3719.390	159 000 855	3719 Locking Shroud (spare part)
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

Please refer to Wiring, Installation, and Accessories sections for more information.

3-3719.099 Rev B (01/10)

© Georg Fischer Signet LLC

3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com
Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.

Signet 5700 pH/ORP Monitor

Member of the ProPoint® Family of Monitors



Analog and Digital Display

Description

The Signet 5700 pH/ORP Monitor is a versatile and intelligent instrument that recognizes the type of sensor connected, either pH or ORP, then automatically sets itself for the corresponding display and functionality. Also, during EasyCal operation, the monitor automatically recognizes standard buffers/test solutions, thereby shortening and simplifying routine calibration procedures. Two programmable relays and one scaleable 4 to 20 mA output are included, and the four-button keypad arrangement

with intuitive software design is very user-friendly. The monitors require 12 to 24 volts $\pm 10\%$, regulated, AC or DC, and can be used with many Signet pH/ORP electrodes and preamplifiers, or with electrodes from other manufacturers by using the 2721 Preamplifier. Several useful accessories are available, including the optional splashproof rear cover kit.

Features

- Displays pH/temp/mV or ORP/mV
- EasyCal simplifies routine calibration
- Simple push-button operation
- Intuitive software design
- Scaleable 4 to 20 mA output internally powered (active)
- Two programmable relays
- Dual proportional control capability
- Non-volatile memory
- Versatile low voltage power requirement

Applications

- Water & Wastewater Treatment
- Neutralization
- Scrubber Control
- Effluent Monitoring
- Surface Finishing
- Heavy Metal Removal and Recovery
- Toxics Destruction
- Sanitization Systems
- Pool & Spa Control
- Aquatic Animal Life Support Systems
- Process Control

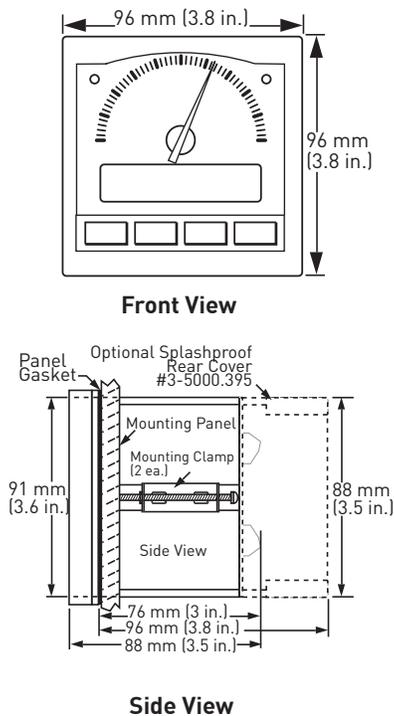
System Overview

In-Line Sensor Installation	Submersible Sensor Installation	WetTap Sensor Installation
Panel Mount Signet 5700 Instrument 	Panel Mount Signet 5700 Instrument 	Panel Mount Signet 5700 Instrument
Signet compatible pH/ORP Electrode with Preamplifier 2724-2726, 2764-2767, 2774-2777, 2760 (each sold separately) 	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads 	Signet Wet-Tap Electrode 2756, 2757 with Preamplifier 2760 (each sold separately)
GF Fittings* (sold separately) 	Signet compatible pH/ORP Electrode with Preamplifier 2724-2726, 2764-2767, 2774-2777, 2760 (each sold separately) 	Signet 3719 Wet-Tap (sold separately)
		GF PP Clamp-On Saddles for 3719 Wet-Tap or GF Tees and Fittings (sold separately) see model 3719 for more info

*See Fittings Section for more information.



Dimensions



Specifications

General

Operating Range:

- pH: 0 to 14 pH, optically isolated
- Temp: -25 °C to 120 °C (-13 °F to 248 °F)
- ORP: -2,000 to +2,000 mV, optically isolated

Accuracy: ± 0.2% of scale

Display

- Analog: Reversible dial: 0 to 14 pH or ±1000 mV
- Digital: Backlit LCD, 2x16 alphanumeric character

Materials

- Enclosure: ABS Plastic
- Keypad: Silicone Rubber
- Panel and case gasket: Neoprene
- Window: Hard-coated polycarbonate

Electrical

Power Requirements:

12 to 24 VAC or DC ±10%, regulated recommended, 50 to 60 Hz, 10W max.

Current Output:

- 4 to 20 mA, non-isolated, active, internally powered

Electrical (continued)

- Loop Impedance: 350 Ω max. @ 12V, 950 Ω max. @ 24V
- Accuracy: ± 0.1%
- Alarm Contacts:
 - Two SPDT relays:
 - 5A @ 30 VDC
 - 5A @ 125 VAC
 - 3A @ 250 VAC max.
 - High/low/pulse programmable with adjustable hysteresis
 - Dual proportional control capability, maximum pulse rate 300 pulses/min.

Environmental

Operating Temperature:

-10 °C to 55 °C (14 °F to 131 °F)

Relative Humidity:

0 to 95%, non-condensing

Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.82 kg 1.81 lb

Standards and Approvals

- CE, UL, CUL
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Model 5700

Ordering Information

- 1) Panel cutout should be 92 x 92mm (3.62 x 3.62 in.)
- 2) Reversible dials with standard ranges for pH and ORP are included with the instrument
- 3) An optional splashproof rear cover can be ordered separately if needed.
- 4) Protective overlays are available for the front panel.
- 5) Order RC filter kits to protect relays from voltage spikes.
- 6) To mount the unit onto a wall, use the heavy duty wall mount bracket.

Please refer to **Wiring, Installation, and Accessories** sections for more information.

Ordering Information

Mfr. Part No.	Code	Description
3-5700	198 825 003	pH/ORP Monitor

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-5000.395	198 840 227	Splashproof rear cover kit
3-5000.399	198 840 224	5 x 5 inch adapter plate to retrofit older Signet installations
3-5000.598	198 840 225	Surface mount bracket (panel mount only)
3-8050.392	159 000 640	¼ DIN retrofit adapter
3-0000.596	159 000 641	Heavy duty wall mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	159 000 368	Liquid tight connector kit for rear cover (3 connectors)
3-9000.392-1	159 000 839	Liquid tight connector kit, NPT (1 connector)
3-9000.392-2	159 000 841	Liquid tight connector kit, PG 13.5 (1 connector)
Other		
3-5000.390	159 000 323	Installation kit
3-5000.397	159 000 326	5000 series window kit
3-5000.525-1	198 840 226	Bezel, 5000 series
3-0700.390	198 864 403	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3-5000.398	159 000 646	Protective overlay kit (10 pcs)
3-8050.396	159 000 617	RC filter kit (for relay use), 2 per kit

3-5700.099 Rev F (01/10)

© Georg Fischer Signet LLC

3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com
Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.

Signet 8750 pH/ORP Transmitters

Member of the ProcessPro® Family of Instruments



Panel Mount



Pipe, Tank, Wall Mount

Description

The Signet 8750 pH/ORP Transmitter is designed for broad application and ease of setup and use. The unit auto-configures for either pH or ORP use when connected to Signet pH or ORP electrodes. Multiple mounting options allow for installation best suited to your particular application.

The EasyCal menu features automatic buffer recognition for mistake-proof pH or ORP electrode calibrations. Intuitive software and the four button keypad arrangement make it easy to access important information such as pH or ORP, mV input, temperature, calibration, relay setup menus and more.

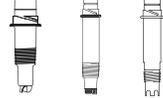
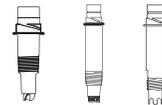
Features

- Automatic temperature compensation
- Temperature display in °C or °F
- Hold and simulate functions
- Relay options available
- Output scalability
- Optional Dual output
- NEMA 4X/IP65 enclosure with self-healing window
- EasyCal option available

Applications

- Neutralization Systems
- Heavy Metals Recovery
- Plating Control
- Scrubber Control
- Pool and Spa Control
- Environmental Study
- Water Treatment
- Water Quality Monitoring
- Waste Treatment
- Disinfection

System Overview

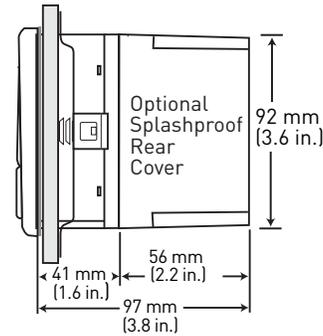
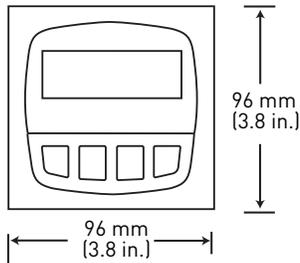
In-Line Sensor Installation		Submersible Sensor Installation		Wet-Tap Sensor Installation	
Panel Mount Signet 8750 pH/ORP Instrument 	Pipe, Tank, Wall Mount Signet 8750 pH/ORP Instrument  Signet 3-8050 Universal Adapter Kit (sold separately) 	Panel, Pipe, Tank, Wall Mount Signet 8750 pH/ORP Instrument  Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads 	Panel Mount Signet 8750 pH/ORP Instrument 	Pipe, Tank, Wall Mount Signet 8750 pH/ORP Instrument  Signet 3-8050 Universal Adapter Kit (sold separately) 	
Signet 2760 Pre-amplifier (sold separately) 	Signet 2760 Pre-amplifier (sold separately) 	Signet Wet-Tap Electrode 2756, 2757 with Pre-amplifier 2760 (each sold separately) 			
Signet pH/ORP electrode (sold separately) 2724-2726 2764-2767 2774-2777 	Signet pH/ORP electrode (sold separately) 2724-2726 2764-2767 2774-2777 	Signet 3719 Wet-Tap (sold separately) 			
GF Fittings* (sold separately) or customer supplied fittings 		GF PP Clamp-On Saddles for 3719 Wet-Tap or GF Tees and Fittings (sold separately) see model 3719 for more info 			

*See Fittings Section for more information.

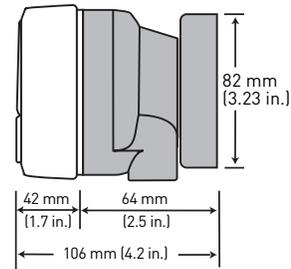


Dimensions

3-8750-XP Panel Mount



Field version with Universal Mounting Kit



Model 8750

Ordering Information

- For panel version, cutout should be 92 x 92 mm (3.62 x 3.62 in.)
- To mount the panel version on a wall, use the heavy duty wall mount bracket.
- An optional splashproof rear cover can be ordered separately if needed - panel mount version only.
- Use the universal mounting kit with the field mount instrument to mount to a pipe, tank or wall.
- Order RC filter kits to protect relays from voltage spikes.

Please refer to **Wiring, Installation, and Accessories** sections for more information.

3-8750.099 Rev C (04/10)

© Georg Fischer Signet LLC

3401 Aerojet Avenue, El Monte, CA 91731-2882 U.S.A. • Tel. (626) 571-2770 • Fax (626) 573-2057 • www.gfsignet.com • e-mail: signet.ps@georgfischer.com

Specifications subject to change without notice. All rights reserved. All corporate names and trademarks stated herein are the property of their respective companies.

Specifications

General

Accuracy: ± 0.03 pH, ± 2 mV ORP

Display:

Alphanumeric 2 x 16 LCD

Contrast: User selectable, 5 levels

Material

- Case: PBT
- Panel case gasket: Neoprene
- Window: Polyurethane coated polycarbonate
- Keypad: Sealed 4-key silicone rubber

Electrical

Power:

12 to 24 VDC $\pm 10\%$ regulated

- [-1] 21 mA max.
- [-2] 220 mA max.
- [-3] 60 mA max.

Electrode Input Range:

- pH: 0 to 14 pH
- Temp.: 3K Balco, -25 °C to 120 °C (-13 °F to 248 °F)
- ORP: -1000 to $+2000$ mV, isolated (10 K Ω I.D. resistance T+, T-)

Current Output:

- 4 to 20 mA, isolated, passive, fully adjustable and reversible
- Max. Loop Impedance:
 - 50 Ω max. @ 12 V
 - 325 Ω max. @ 18 V
 - 600 Ω max. @ 24 V
- Update rate: 0.5 seconds
- Accuracy: ± 0.03 mA @ 25 °C, 24 V

Electrical (continued)

Relay Output:

- Mechanical SPDT contacts: High, Low, Pulse, Off
- Maximum Voltage Rating: 5 A @ 30 VDC, or 5 A @ 250 VAC resistive load
- Hysteresis: User-adjustable Max 400 pulses/min. Open-Collector Output: High, Low, Pulse, Off
- Optically isolated, 50 mA max, sink, 30 VDC max. pull-up voltage.
- Hysteresis: User-adjustable Max. 400 pulses/min.

Environmental

Operating Temperature:

-10 °C to 70 °C (14 °F to 158 °F)

Storage Temperature:

-15 °C to 80 °C (5 °F to 176 °F)

Relative Humidity:

0 to 95%, non-condensing

Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.6 kg 1.3 lb

Standards and Approvals

- CE, UL listed, CUL
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Part Number	
3-8750	pH/ORP Transmitter
↓	Input(s), Outputs, and Power - Choose One
	-1 One input with 4 to 20 mA output and one open collector; uses 2 wire power
	-2 One input with 4 to 20 mA output and two relays; uses 4 wire power
	-3 One input with two 4 to 20 mA outputs and 2 open collectors; uses 4 wire power
↓	Field or Panel Mount - Choose One
	- Field mount for pipe, wall, or tank mounting
	P Panel mount; including mounting bracket and panel gasket
3-8750	-1 P Example Part Number

Mfr. Part No.	Code	Mfr. Part No.	Code
3-8750-1	159 000 053	3-8750-2P	159 000 056
3-8750-1P	159 000 054	3-8750-3	159 000 057
3-8750-2	159 000 055	3-8750-3P	159 000 058

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-8050	159 000 184	Universal mounting kit
3-8050.392	159 000 640	¼ DIN retrofit adapter
3-8050.395	159 000 186	Splashproof rear cover (panel mount only)
3-0000.596	159 000 641	Heavy duty wall mount bracket (panel mount only)
3-5000.598	198 840 225	Surface mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	159 000 368	Liquid tight connector kit for rear cover (3 connectors)
3-9000.392-1	159 000 839	Liquid tight connector kit, NPT (1 connector)
3-9000.392-2	159 000 841	Liquid tight connector kit, PG 13.5 (1 connector)
Other		
3-8050.396	159 000 617	RC filter kit (for relay use), 2 per kit
3-0700.390	198 864 403	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3-8050.625-70	159 001 654	Clear window display with adhesive