

Signet pH/ORP Electrodes



		2756 Wet-Tap	2757 Wet-Tap	2724 2726	2725
Operation Range		0 to 14 pH	±1500 mV	0 to 14 pH	±2000 mV
Connector Style		DryLoc®			
Compatible Preamps/Sensor Electronics		2751 Sensor Electronics and 2760 Sensor Preamplifiers			
Temperature Range		0 °C to 85 °C (32 °F to 185 °F)		-10 °C to 85 °C (14 °F to 185 °F)	
Pressure Range		6.89 bar (100 psi)		6.9 bar @ -10 to 65 °C (100 psi @ 14 to 150 °F) 4 bar @ 65 to 85 °C (58 psi @ 150 to 185 °F)	
Pipe Size Range for In-line		2½ in. to 12 in.		2724-2727 pipe size range ½ in. to 4 in. Signet fittings or a variety of ¾ in. fittings	
Process Connection for Submersible		N/A		¾ in. NPT threads or ISO 7-1/R 3/4 in. (using threads from submersible 2751 or 2760)	
Wetted Materials	Body	Glass or Plastic		Ryton® (PPS)	
	Reference Junction Material	PTFE		Porous UHMW Polyethylene	
	O-rings	FKM			
	Sensing Element	Glass (pH) or Platinum (ORP)			
Mounting Position		Any angle, even upside down			
Sensor Technology		Standard			
Compatible Signet Instruments		8900, 9900, 9950			
Application Usage		General purpose; sensor accessible without process shutdown		General purpose; also options available for use in HF (< 2%) and low conductivity liquids (<100 µS)	
Standards and Approvals		Manufactured under ISO 9001 for Quality		RoHS compliant, China RoHS	

Specification Matrix



	2734 2736	2735	2764 2766	2765 2767	2774 2776	2775 2777
Operation Range	0 to 14 pH	±2000 mV	0 to 14 pH	±1500 mV	0 to 14 pH	±2000 mV
Connector Style	DryLoc®					
Compatible Preamps/ Sensor Electronics	2751 Sensor Electronics (for 8900, 9900, 4 to 20 mA)		2751 Sensor Electronics and 2760 Sensor Preamplifiers			
Temperature Range	10 °C to 100 °C (50 °F to 212 °F)		0 °C to 95 °C (32 °F to 203 °F)		0 °C to 85 °C (32 °F to 185 °F)	
Pressure Range	6.9 bar @ -10 to 65 °C (100 psi @ 14 to 150 °F) 4 bar @ 65 to 100 °C (58 psi @ 150 to 212 °F)		6.9 bar @ 95 °C (100 psi @ 203 °F)		6.9 bar (100 psi) maximum	
Pipe Size Range for In-line	2734-2735 pipe size range ½ in. to 4 in. Signet fittings or a variety of ¾ in. fittings		1 in. and up		¾ in. and up	
Process Connection for Submersible	¾ in. NPT threads or ISO 7-1/R 3/4 in. or Signet flow fittings		¾ in. NPT threads or ISO 7-1/R 3/4 in. (using threads from 2751 or 2760)			
Wetted Materials	Body Ryton® (PPS)					
	Reference Junction Material PTFE					
	O-rings FKM					
	Sensing Element Glass (pH) or Platinum (ORP)					
Mounting Position	Any angle, even upside down		Angle is minimum +15° from horizontal		Any angle, even upside down	
Sensor Technology	Standard		Differential		Standard	
Compatible Signet Instruments	8900, 9900, 9950		8900, 9900, 9950			
Application Usage	General purpose; also options available for use in HF (< 2%)		Harsh Chemicals (heavy metals, Hg ⁺⁺ , Cu ⁺ , Pb ⁺⁺ , ClO ₄ ⁻ , Br ⁻ , I ⁻ , CN ⁻ , S ₂ ⁻ and other chemicals that react with Ag ⁺ or KCl.)		General purpose; options for higher temperatures are available, 110 °C (230 °F) @ 150 PSI	
Standards and Approvals	CE, FCC, RoHS compliant, China RoHS		Manufactured under ISO 9001 for Quality			

Signet pH/ORP Electrodes Application Matrix

	2724 2726	2724-HF 2726-HF	2726-LC	2725	2734 2736	2734-HF 2736-HF
Measurement						
pH	*****	*****	*****		*****	*****
ORP				*****		
Application						
Low Temperature < 10 °C	*****	∅	*****	*****	∅	∅
High Temperature > 85 °C	∅	∅	∅	∅	*****	*****
General Purpose	*****	*****	*****	*****	***	***
Harsh Application	**	**	**	**	*****	*****
Low Conductivity (< 100 uS)	∅	∅	*****	∅	∅	∅
Chemical Compatibility						
Hydrofluoric Acid (HF) < 2%	∅	*****	∅	∅	∅	*****
Mercury (Hg²⁺)	**	**	∅	**	***	***
Copper (Cu⁺)	**	**	∅	**	***	***
Lead (Pb²⁺)	**	**	∅	**	***	***
Perchlorate (ClO₄⁻)	**	**	∅	**	***	***
Bromine (Br⁻)	**	**	∅	**	***	***
Iodine (I⁻)	**	**	∅	**	***	***
Cyanide (CN⁻)	**	**	∅	**	***	***
Sulfide (S²⁻)	**	**	∅	**	***	***
Silver Sulfide (Ag₂S)	**	**	∅	**	***	***
Silver Bromide (AgBr)	**	**	∅	**	***	***
Silver Iodide (AgI)	**	**	∅	**	***	***
Silver Cyanide (AgCN)	**	**	∅	**	***	***
Mounting						
Submersible	*****	*****	*****	*****	*****	*****
Signet Fitting	*****	*****	*****	*****	*****	*****
Wet-Tap	∅	∅	∅	∅	∅	∅
3/4 in. NPT	*****	*****	*****	*****	*****	*****
1 in. NPT	***	***	***	***	***	***
ISO 7/1-R 3/4	*****	*****	*****	*****	*****	*****

Chart Key	
Ø	Not Recommended
**	Compatible
***	Good
****	Better
Special	Special Order Product

	2735	2756-WT	2757-WT	2764 2766	2765 2767	2774 2776	2775 2777
Measurement							
pH		****		****		****	
ORP	****		****		****		****
Application							
Low Temperature < 10 °C	***	****	****	****	****	****	****
High Temperature > 85 °C	****	Ø	Ø	****	****	Special	Special
General Purpose	***	***	***	**	**	***	***
Harsh Application	****			****	****	***	***
Low Conductivity (< 100 uS)	Ø	Ø	Ø	Ø	Ø	Ø	Ø
Chemical Compatibility							
Hydrofluoric Acid (HF) < 2%	Ø	Ø	Ø	Ø	Ø	Ø	Ø
Mercury (Hg²⁺)	***	Ø	Ø	****	****	***	***
Copper (Cu⁺)	***	Ø	Ø	****	****	***	***
Lead (Pb²⁺)	***	Ø	Ø	****	****	***	***
Perchlorate (ClO₄⁻)	***	Ø	Ø	****	****	**	**
Bromine (Br⁻)	***	Ø	Ø	****	****	**	**
Iodine (I⁻)	***	Ø	Ø	****	****	**	**
Cyanide (CN⁻)	***	Ø	Ø	****	****	**	**
Sulfide (S²⁻)	***	Ø	Ø	****	****	**	**
Silver Sulfide (Ag₂S)	***	Ø	Ø	****	****	**	**
Silver Bromide (AgBr)	***	Ø	Ø	****	****	**	**
Silver Iodide (AgI)	***	Ø	Ø	****	****	**	**
Silver Cyanide (AgCN)	***	Ø	Ø	****	****	**	**
Mounting							
Submersible	****	Ø	Ø	****	****	****	****
Signet Fitting	****	Ø	Ø	Ø	Ø	Ø	Ø
Wet-Tap	Ø	****	****	Ø	Ø	Ø	Ø
3/4 in. NPT	****	Ø	Ø	Ø	Ø	****	****
1 in. NPT	***	Ø	Ø	****	****	***	***
ISO 7/1-R 3/4	****	Ø	Ø	Ø	Ø	Special	Special

Signet 2724-2726 pH/ORP Electrodes

General Purpose

Compatible with ALL Signet pH/ORP instruments and SmartPro transmitters



Flat



Protected Bulb

The Signet 2724-2726 pH and ORP electrodes are general purpose sensors ideal for a wide range of applications. These feature a patented reference 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 2751 pH/ORP Smart Sensor Electronics or the 2760 Preamplifier. The robust Ryton® threaded sensor body and choice of flat pH, bulb pH, or flat ORP sensing elements allows a broad range of chemical and mechanical 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. The LC version can be used for low conductivity fluids 20 - 100 $\mu\text{S}/\text{cm}$ nominal and below 20 μS when mounted under controlled conditions.

The quick temperature response is available in either a Pt1000 or 3 K Ω temperature sensor and allows compatibility with all Signet pH/ORP instruments. The 2724-2726 electrodes incorporate 3/4 inch NPT or ISO 7/1-R 3/4 threads for installing into standard pipe-tees. They can also be mounted directly into Signet standard fittings, DN15 to DN100 (1/2 to 4 inch).

Features

- Patented reference design for exceptional performance and prolonged life in harsh environments*
- Memory chip enabled for access to a wide range of unique features when connected to the Signet 2751 pH/ORP Smart Sensor Electronics
- Ryton® (PPS) body for broad range of chemical compatibility
- Patented DryLoc® connector with gold plated contacts
- Special design allows for installation at any angle, even inverted or horizontal
- 3/4" NPT or ISO 7/1-R 3/4 threaded sensors for use with reducing tees DN15 to DN100 (1/2 to 4 in.)
- Mounts in Signet standard fittings from DN15 to DN100 (1/2 to 4 in.)
- Quick temperature response
- Bulb and flat HF resistant glass available for trace HF, in less than 2% concentration applications
- Low conductivity sensor available for liquids down to 20 $\mu\text{S}/\text{cm}$



Applications

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

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

Specifications

General			
Performance	Efficiency	>97% @ 25 °C (77 ° F)	
Operating Range	pH	0 to 14 pH	
	ORP	±2000 mV	
	3-2726-LC	Low conductivity fluids; 20 - 100 µS/cm nominal < 20 µS; flow must be less than 150 ml/min in a properly grounded system	
	3-2724-HF, 3-2726-HF	Hydrofluoric acid resistant glass, pH 6 or below; trace HF ≤2%	
Compatibility			
	2751 Smart Sensor Electronics (for 8900, 9900, 9950, 4 to 20 mA or Profibus Concentrator), 2760 Preamplifier		
Temperature Sensor			
	Pt1000 versions	Compatible with Signet 2751 pH/ORP Smart Sensor Electronics for connection to a PLC or to the Signet 8900, 9900 or 9950 instruments	
	3 KΩ Balco versions	Compatible with Signet 2751 pH/ORP Smart Sensor Electronics or with Signet 2760 pH/ORP Preamplifier for connection to the Signet 8750 pH/ORP Transmitter	
Process Connection			
	¾ in. NPT	ISO 7/1-R 3/4	Mounts into Signet fittings
Wetted Materials			
	pH	Ryton® (PPS), glass, UHMW PE, FKM	
	ORP	Ryton® (PPS), glass, UHMW PE, FKM, Platinum	
Max. Temperature/Pressure Rating			
Operating Temperature Range*		-10 °C to 85 °C	14 °F to 185 °F
Operating Pressure Range		6.8 bar @ -10 to 65 °C (100 psi @ 14 to 150 °F)	
		4 bar @ 65 to 85 °C (58 psi @ 150 to 185 °F)	
*Best performance for 2724-HF, 2726-HF sensors is above 10 °C (50 °F)			
Recommended Storage Temperature			
	0 °C to 50 °C		32 °F to 122 °F
The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F)			
The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F)			
Mounting			
In-line Mounting	Use the sensor threads		
	Use a Signet standard fitting up to 4 in.		
	Sensor can be mounted at any angle		
Submersible Mounting	Use threads on models 2751 or 2760		
	Requires ¾ 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			
	RoHS compliant, China RoHS		
	Manufactured under ISO 9001 for Quality, ISO 14001 for Environmental Management and OHSAS 18001 for Occupational Health and Safety		

See Temperature and Pressure graphs for more information

Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

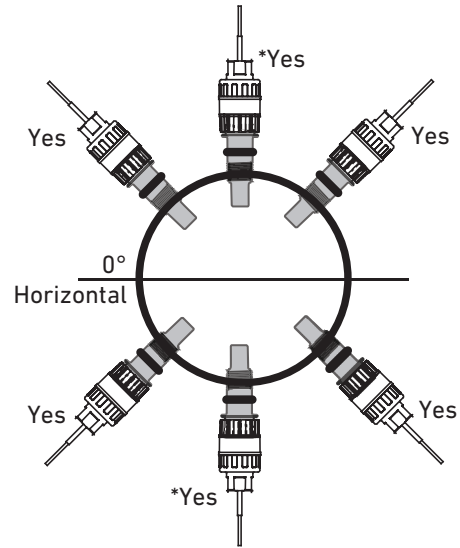
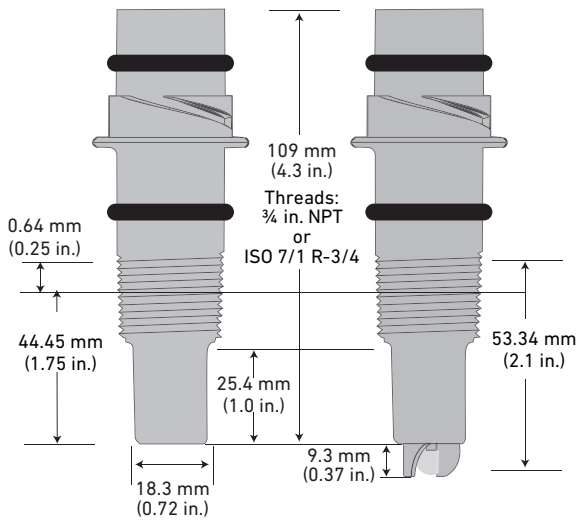
Other Products

Installation & Wiring

Technical Reference

Temperature/Pressure Graphs

Dimensions

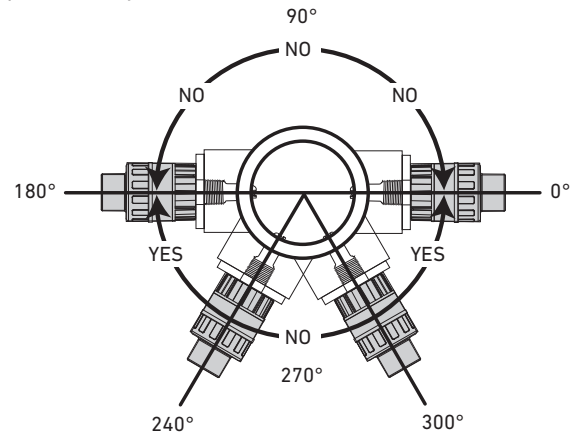


Mounting Angle

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

*Avoid locations with air pockets and sediment

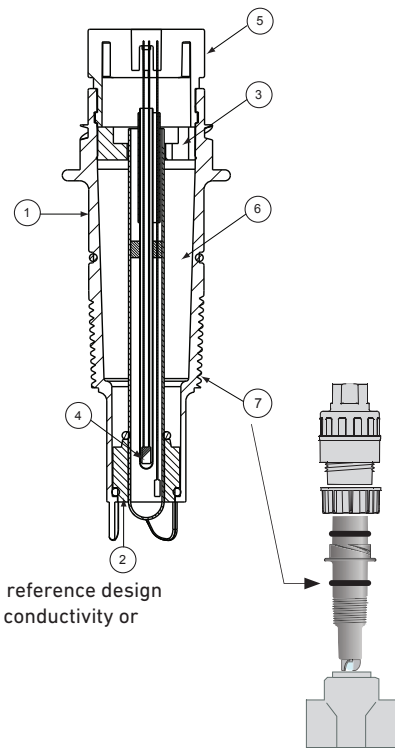
When mounting in standard threaded fittings the electrode must be mounted horizontally to 60 degrees below horizontal position only.



System Overview	<p>Panel Mount</p> <p>Signet Instruments with 2751 Smart Sensor Electronics</p> <ul style="list-style-type: none"> - 8900 - 9900 - 9950 	<p>Pipe, Tank, Wall Mount</p> <p>Signet Instruments with 2751 Smart Sensor Electronics</p> <ul style="list-style-type: none"> - 9900 and Rear Enclosure 	<p>4 to 20 mA Output</p> <p>2751 Smart Sensor Electronics with</p> <ul style="list-style-type: none"> - Customer Supplied Chart Recorder or Programmable Logic Controller or Programmable Automation Controller 	<p>Automation System</p> <p>2751 Smart Sensor Electronics with</p> <ul style="list-style-type: none"> - 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or Programmable Automation Controller
	<p>Signet 2724-2726 DryLoc® pH/ORP Electrodes</p>			
	<p>In-Line Installation - Signet and threaded 1/2 in to 4 in fittings only</p>	<p>Submersible Installation - Customer supplied pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads</p>		<p>All sold separately</p>

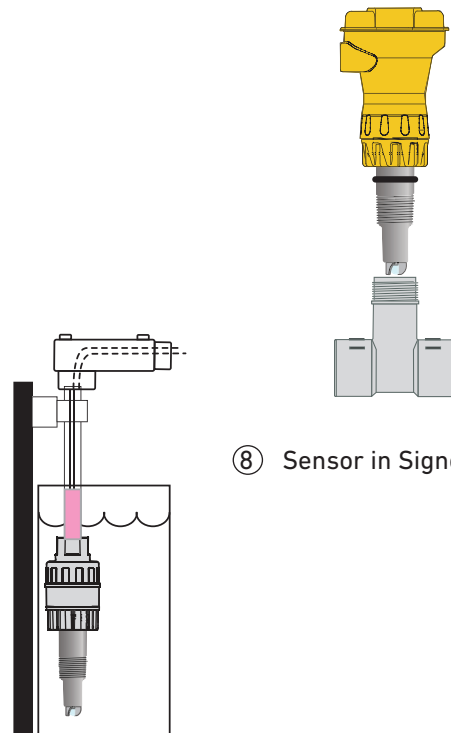
Electrode Key Features and Benefits:

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. Memory chip enabled for convenient data storage and access (calibration data, operational data, and manufacturing data), electrode health monitoring via glass impedance measurement when used in connection with the 2751 pH/ORP Smart Sensor Electronics.
4. Internal temperature sensor located in the glass stem for a quick temperature response.
5. DryLoc® connector with corrosion resistant gold plated pins for quick and easy sensor removal. Resists moisture and dirt intrusion.
6. Dual-patented reference design with a 406 mm (16 in.) reference pathway for prolonged life in harsh environments. This enables the sensor to last significantly longer than other standard pH/ORP electrodes in most applications.
- 6a. With the 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.
- 6b. 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.
7. Threads for NPT or ISO process connection into reducing tees
 - Use off-the-shelf GF reducing tees DN20 to DN100 ($\frac{3}{4}$ to 4 in.).
8. Mounts directly into Signet fittings ($\frac{1}{2}$ to 4 in.) for easy sensor retrofitting.
9. Mount submersed into a tank via the 2751 or 2760 back threads.



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

Sensor in threaded reducing tee



⑧ Sensor in Signet fitting

⑨ Sensor submersible installation

Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

Other Products

Installation & Wiring

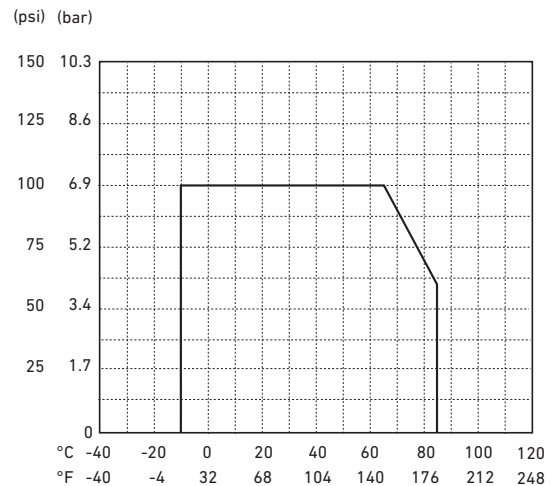
Technical Reference

Temperature/Pressure Graphs

Temperature/Pressure Graph

Note:

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



Application Tips

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

Model 2724-2726 Ordering Notes

- 1) pH and ORP electrodes require connection to model 2751 pH/ORP Smart Sensor Electronics or 2760 Preamplifier.
- 2) The 2751 "EasyCal" feature recognizes common pH and ORP buffer values of 4, 7 and 10 pH and +87, +264 and +469 mV for ORP.

Buffer Solutions

3822-7004
3822-7007
3822-7010

Quinhydrone

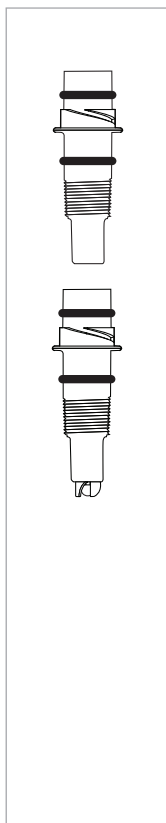
3822-7115

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

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



Ordering Information



Mfr. Part No.	Code	Tip Design	Process Connection Thread Options
pH Electrodes			
Temperature Element Pt1000; use with 2751 pH/ORP Smart Sensor Electronics* and Profibus Concentrator			
3-2724-00	159 001 545	Flat	3/4 in. MNPT, Thread
3-2724-01	159 001 546	Flat	ISO 7/1-R 3/4 Thread
3-2726-00	159 001 553	Bulb	3/4 in. MNPT, Thread
3-2726-01	159 001 554	Bulb	ISO 7/1-R 3/4 Thread
3-2726-HF-00	159 001 549	Bulb, HF Resistant ¹	3/4 in. MNPT, Thread
3-2726-HF-01	159 001 550	Bulb, HF Resistant ¹	ISO 7/1-R 3/4 Thread
3-2726-LC-00	159 001 557	Bulb, Low Conductivity ²	3/4 in. MNPT, Thread
3-2726-LC-01	159 001 558	Bulb, Low Conductivity ²	ISO 7/1-R 3/4 Thread
Temperature Element 3 KΩ Balco; Compatible with both the 2751 pH/ORP Smart Sensor Electronics* and the 2760 Preamplifier**			
3-2724-10	159 001 547	Flat	3/4 in. MNPT, Thread
3-2724-11	159 001 548	Flat	ISO 7/1-R 3/4 Thread
3-2724-HF-10	159 001 771	Flat, HF Resistant ¹	3/4 in. NPT, Thread
3-2724-HF-11	159 001 772	Flat, pH Resistant ¹	ISO 7/1-R 3/4 Thread
3-2726-10	159 001 555	Bulb	3/4 in. MNPT, Thread
3-2726-11	159 001 556	Bulb	ISO 7/1-R 3/4 Thread
3-2726-HF-10	159 001 551	Bulb HF Resistant ¹	3/4 in. MNPT, Thread
3-2726-HF-11	159 001 552	Bulb HF Resistant ¹	ISO 7/1-R 3/4 Thread
3-2726-LC-10	159 001 559	Bulb, Low Conductivity ²	3/4 in. MNPT, Thread
3-2726-LC-11	159 001 560	Bulb, Low Conductivity ²	ISO 7/1-R 3/4 Thread
ORP Electrodes; Compatible with both the 2751 pH/ORP Smart Sensor Electronics* and the 2760 Preamplifier**			
3-2725-60	159 001 561	Platinum, Flat, 10 KΩ ID, 3/4 in. NPT	3/4 in. MNPT, Thread
3-2725-61	159 001 562	Platinum, Flat, 10 KΩ ID, ISO 7/1 R 3/4	ISO 7/1-R 3/4 Thread

*The 2751 pH/ORP Smart Sensor Electronics has a digital (S³L) output which is used with 8900, 9900 or 9950 instruments, and the Profibus Concentrator.

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 8750 transmitter or other analog transmitters.

¹HF resistant $\leq 2\%$ HF

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

Note:

The 3 KΩ Balco temperature element electrodes are compatible with the 2751 pH/ORP Smart Sensor Electronics, 8900, 9900 and 9950 instruments.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
1220-0021	198 801 000	O-ring, FKM (2 required per sensor)
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 2751 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
3800-5000	159 838 107	3.0M KCl Storage Solution for pH and ORP, 1 pint (473 ml) bottle
3-2700.397	159 001 870	Protective Cap for pH/ORP Electrodes, 5 pieces
3-2700.398	159 001 886	O-ring Lubricant Kit (5 packs of Super Lube, 1cc each)

Signet 2734-2736 pH/ORP Electrodes

High Performance

Compatible with Signet 8900/9900/9950 Instruments



Flat



Protected Bulb

The Signet 2734-2736 pH and ORP electrodes are ideal for a wide range of harsh applications with low concentrations of poisoning ions, and chemicals that react with silver ion, Ag⁺. The superior glass formulation provides excellent chemical resistance in acidic and alkaline/caustic environments. The large area PTFE reference junction, salt bridge and reference electrode are constructed to increase the total reference effectiveness, resist chemical attack, help resist coating, and ensure long service life in harsh applications.

The DryLoc[®] connector with corrosion resistant gold plated contacts readily connects the sensor to the mating 2751 pH/ORP Smart Sensor Electronics. The robust Ryton[®] threaded sensor body and choice of flat, bulb pH, or flat ORP sensing elements provide a broad range of chemical compatibility for a wide variety of applications.

There is an optional pH sensing version available for applications with HF. The HF version is for applications where traces of hydrofluoric acid (2% or less) will attack standard pH glass.

The quick temperature response is available in a Pt1000 temperature sensor and allows compatibility with the Signet 8900, 9900 and 9950 instruments.

The sensors incorporate 3/4 inch NPT or ISO 7/1-R 3/4 threads for installing into standard pipe-tees. They can also be mounted directly into Signet standard fittings, DN15 to DN100 (1/2 to 4 inch).

Features

- Enhanced reference chemistry to resist chemical poisoning and prolong the life of the electrodes in harsh environments
- PTFE reference junction resists fouling and chemical attack
- Superior pH glass formulation for excellent chemical resistance in acidic and alkaline/caustic environments
- Ryton[®] (PPS) body for broad range of chemical compatibility
- Memory chip enabled for access to a range of unique features when connected to the Signet 2751 pH/ORP Smart Sensor Electronics
- Patented reference design for exceptional performance*
- Patented DryLoc[®] connector with gold plated contacts
- Mounts in Signet standard fittings from DN15 to DN100 (1/2 to 4 in.) or standard pipe fitting, 3/4" NPT or ISO 7/1-R 3/4
- Special design allows for installation at any angle, even inverted or horizontal
- Quick temperature response
- Bulb and flat HF resistant glass available for trace HF, in less than 2% concentration applications



Applications

- Water & Wastewater Treatment
- Neutralization Systems
- Plating Baths
- Air Scrubbers
- Metal Removal
- Process Control
- Cooling Towers

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

Specifications

General			
Performance	Efficiency	>95% @ 25 °C (77 ° F)	
Operating Range	pH	0 to 14 pH	
	ORP	±2000 mV	
Compatibility	3-2734-HF, 3-2736-HF	Hydrofluoric acid resistant glass, pH 6 or below; trace HF ≤2%	
	2751 pH/ORP Smart Sensor Electronics (for 8900, 9900, 9950 , Profibus Concentrator, 4 to 20 mA)		
Temperature Sensor	Pt1000	Compatible with Signet 2751 pH/ORP Smart Sensor Electronics for connection to a PLC or to the Signet 8900, 9900 or 9950 instruments and 0486 Profibus Concentrator	
	Process Connection		
	¾ in. NPT	ISO 7/1-R ¾	Mounts into Signet fittings
Wetted Materials			
	pH	Ryton® (PPS), glass, PTFE, FKM	
	ORP	Ryton® (PPS), glass, PTFE, FKM, Platinum	
Max. Temperature/Pressure Rating			
Operating Temperature Range		10 °C to 100 °C	50 °F to 212 °F
Operating Pressure Range		0 to 6.9 bar (0 to 100 psi) @ 10 °C to 65 °C (50 °F to 149 °F)	
		Linearity Derated 6.9 to 4.0 bar (100 to 58 psi) @ 65 °C to 100 °C (149 °F to 212 °F)	
Recommended Storage Temperature			
		0 °C to 50 °C	32 °F to 122 °F
The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F)			
The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F)			
Mounting			
In-line Mounting	Use the sensor threads		
	Use a Signet standard fitting ½ to 4 in.		
	Sensor can be mounted at any angle		
Submersible Mounting	Use threads on model 2751		
	Requires ¾ in. NPT or ISO 7/1-R ¾ male threaded liquid tight extension conduit		
Shipping Weight			
	0.25 kg	0.55 lb	
Standards and Approvals			
CE, FCC, RoHS compliant, China RoHS			
Manufactured under ISO 9001 for Quality, ISO 14001 for Environmental Management and OHSAS 18001 for Occupational Health and Safety			

See Temperature and Pressure graphs for more information

Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

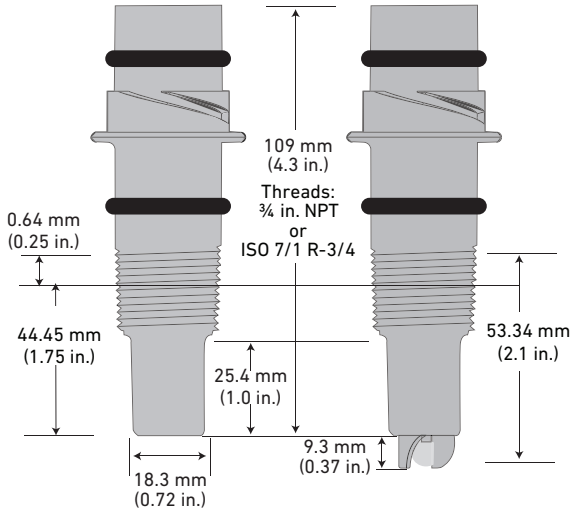
Other Products

Installation & Wiring

Technical Reference

Temperature/Pressure Graphs

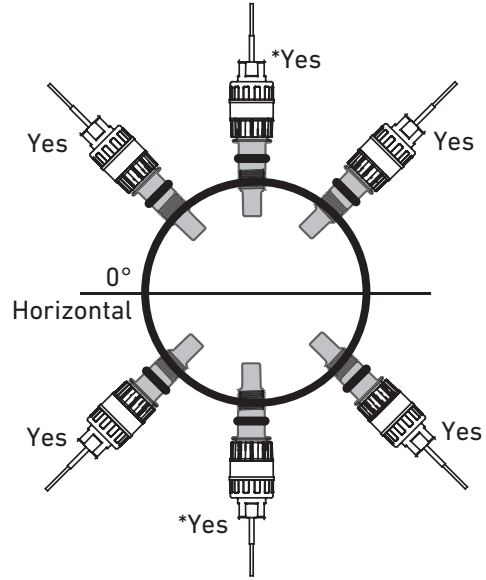
Dimensions



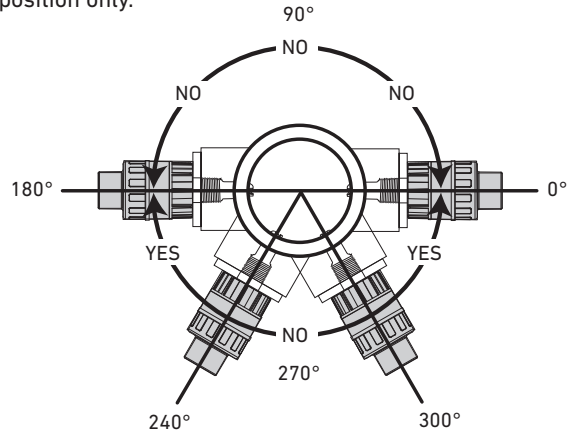
Mounting Angle using GF Signet Fittings

Models 2734-2736 may be mounted at any angle without affecting the performance.

*Avoid locations with air pockets and sediment



When mounting in standard threaded fittings the electrode must be mounted horizontally to 60 degrees below horizontal position only.



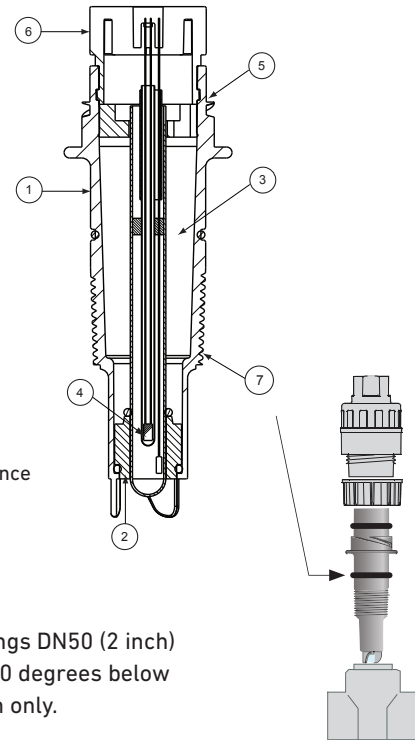
System Overview

Panel Mount	Pipe, Tank, Wall Mount	4 to 20 mA Output	Automation System
Signet Instruments with 2751 Smart Sensor Electronics - 8900 - 9900 - 9950 	Signet Instruments with 2751 Smart Sensor Electronics - 9900 and Rear Enclosure 	2751 Smart Sensor Electronics with - Customer Supplied Chart Recorder or Programmable Logic Controller or - Programmable Automation Controller 	2751 Smart Sensor Electronics with - 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller
Signet 2734-2736 DryLoc® pH/ORP Electrodes 			
In-Line Installation - Signet and threaded fittings only (1/2 in. to 4 in.) 		Submersible Installation - Customer supplied pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads 	

All sold separately

Electrode Key Features and Benefits:

1. Ryton® body for chemical compatibility with most harsh chemicals.
2. Porous PTFE junction resists fouling, chemicals, and build-up.
3. Enhanced reference chemistry to resist poisoning and to prolong the life of the electrodes in harsh media applications.
4. Internal temperature sensor located in the glass stem for a quick temperature response.
5. Memory chip enabled for convenient data storage and access (calibration data, operational data, and manufacturing data), electrode health monitoring via glass impedance measurement when used in connection with the 2751 pH/ORP Smart Sensor Electronics.
6. DryLoc® connector with corrosion resistant gold plated pins for quick and easy sensor removal. Resists moisture and dirt intrusion.
7. Threads for NPT or ISO process connection into reducing tees. Use off-the-shelf GF reducing tees DN20 to DN100 (¾ to 4 in.).
8. Mounts directly into Signet fittings (½ in. to 4 in.) for easy sensor retrofitting.
9. Mount submersed into a tank via the 2751 pH/ORP Smart Sensor Electronics.



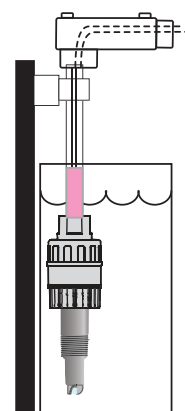
Dual-patented reference design for long life.

For pipes and fittings DN50 (2 inch) or larger, mount 60 degrees below horizontal position only.

Sensor in threaded reducing tee



⑧ Sensor in Signet fitting



⑨ Sensor in submersible installation

Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

Other Products

Installation & Wiring

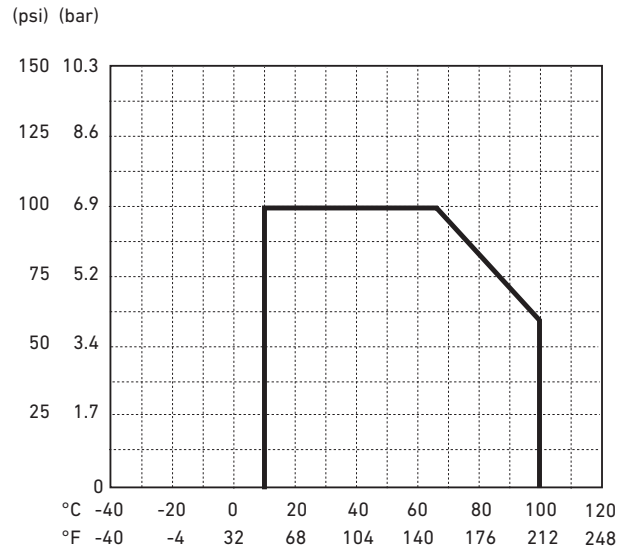
Technical Reference

Temperature/Pressure Graphs

Temperature/Pressure Graph

Note:

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



Application Tips

- Use the flat glass electrodes when a self-cleaning feature is desired; especially useful in applications with abrasive chemicals, in-line installations.
- Use the 2736-0X bulb protected electrodes in high pH alkaline/caustic applications (10 to 14 pH) or in applications of low pH range (0 to 3 pH).
- 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 2734-2736 Ordering Notes

- 1) pH and ORP Sensor Electrodes require connection to model 2751 pH/ORP Smart Sensor Electronics.
- 2) The 2751 "EasyCal" feature recognizes common pH and ORP buffer values of 4, 7 and 10 pH and +87, +264 and +469 mV for ORP.

Buffer Solutions

- 3822-7004
- 3822-7007
- 3822-7010

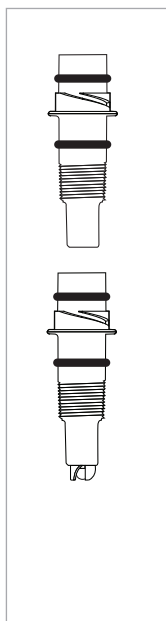
Quinhydrone
3822-7115

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

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



Ordering Information



Mfr. Part No.	Code	Tip Design	Process Connection
pH Electrodes - Temperature Element Pt1000; use with 2751 pH/ORP Smart Sensor Electronics*			
3-2734-00	159 001 774	Flat	3/4 in. NPT, Thread
3-2734-01	159 001 775	Flat	ISO 7/1-R 3/4 Thread
3-2734-HF-00	159 001 776	Flat, HF Resistant ¹	3/4 in. NPT, Thread
3-2734-HF-01	159 001 777	Flat, HF Resistant ¹	ISO 7/1-R 3/4 Thread
3-2736-00	159 001 778	Bulb	3/4 in. NPT, Thread
3-2736-01	159 001 779	Bulb	ISO 7/1-R 3/4 Thread
3-2736-HF-00	159 001 780	Bulb, HF Resistant ¹	3/4 in. NPT, Thread
3-2736-HF-01	159 001 781	Bulb, HF Resistant ¹	ISO 7/1-R 3/4 Thread
ORP Electrodes - Compatible with 2751 pH/ORP Smart Sensor Electronics			
3-2735-60	159 001 782	Platinum, Flat, 10 KΩ ID, 3/4 in. NPT	3/4 in. NPT, Thread
3-2735-61	159 001 783	Platinum, Flat, 10 KΩ ID, ISO 7/1 R3/4	ISO 7/1-R 3/4 Thread
3-2735-G-60	159 001 844	Graphite, Flat, 10 KΩ ID, 3/4 in. NPT	3/4 in. NPT Thread
3-2735-G-61	159 001 845	Graphite, Flat, 10 KΩ ID, ISO 7/1-R3/4	ISO 7/1-R 3/4 Thread

*The 2751 pH/ORP Smart Sensor Electronics has a digital (S³L) output which is used with 8900, 9900 or 9950 instruments, and Profibus Concentrator.

It also has a 4 to 20 mA output for connections to PLC's, data recorders, etc.

¹HF resistant $\leq 2\%$ HF

Note:

The 2734 and 2736 pH electrodes are **not** compatible with the Signet 2760 Preamplifier.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
1220-0021	198 801 000	O-ring, FKM (2 required per sensor)
3-2700.395	159 001 605	Calibration Kit: includes 3 polypropylene cups, box used as cup stand, 1 pint (473 ml) pH 4.01, 1 pint (473 ml) pH 7.00
3822-7115	159 001 606	20 gm Bottle Quinhydrone for ORP Calibration (must use pH 4.01 and/or pH 7.00 buffer solutions)
3-2759	159 000 762	pH/ORP System Tester (adapter cable sold separately)
3-2759.391	159 000 764	2759 DryLoc Adapter Cable (for use with 2751 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
3800-5000	159 838 107	3.0M KCl Storage Solution for pH and ORP, 1 pint (473 ml) bottle
3-2700.397	159 001 870	Protective Cap for pH/ORP Electrodes, 5 pieces
3-2700.398	159 001 886	O-ring Lubricant Kit (5 packs of Super Lube, 1cc each)

Signet 2764-2767 Differential DryLoc® pH/ORP Electrodes

High Performance



Flat
Glass



Protected
Bulb

The Signet 2764-2767 Differential pH & ORP electrodes are high performance sensors 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, ensuring 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 (S^{2-}) 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 surface, and a temperature device positioned at the tip of the measurement surface for a quick temperature response. Various temperature devices offered include 3 KΩ, or Pt1000 RTD.

The electrodes are used with the Signet 2751 Smart Sensor Electronics, which provide a blind 4 to 20 mA output or use the digital (S^3L) output to connect the Signet 8900, 9900 or 9950 instruments, and the Profibus Concentrator. The electrodes can also be used with the 2760 Preamplifier to connect to ProPoint® and ProcessPro® series of pH/ORP instrumentation.

Features

- Differential design for stable measurements in the most aggressive applications
- Long service life even in severe or difficult chemical applications
- Memory chip enabled for access to a wide range of unique features when connected to the Signet 2751 pH/ORP Smart Sensor Electronics
- Ryton (PPS) body for broad range of chemical compatibility
- Watertight DryLoc® connector with foul-proof gold plated contacts*
- Porous PTFE reference junction resists fouling and chemical attack
- Rebuildable reference electrode
- Solution ground
- Temperature sensor (pH)
- Easy sensor replacement using DryLoc electrode connector
- Quick temperature response
- Compatible with all Signet instruments

Applications

- Water and Wastewater Treatment
- Coagulation and Flocculation
- Plant Effluent
- Plating Baths
- Scrubbers
- Textile Dye Process
- Harsh Chemical Applications
- Heavy Metal Removal and Recovery
- Toxic Destruction
- Surface Finishing

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

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

Specifications

General		
Compatibility	Signet 2751 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	pH	Glass membrane
	ORP	Platinum
O-rings	FKM	
Solution Ground	Carbon graphite	
Maximum Temperature/Pressure Rating		
Operating Temperature	0 °C to 95 °C	32 °F to 203 °F
Maximum Operating Pressure	6.89 bar @ 95 °C	100 psi @ 203 °F
Recommended Storage Temperature		
	0 °C to 50 °C	32 °F to 122 °F
The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F).		
The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F).		
Mounting		
In-line/Vertical Mounting	Use sensor 1 in. threads. Sensor must be mounted at least 15 degrees above the horizontal axis.	
Submersible Mounting	Use threads on Model 2751 or 2760; requires ¾ in. NPT or ISO 7/1-R 3/4 in. male threaded extension.	
Reference		
	Electrolyte	Buffered equi-transferant salt solution gel
	Element	pH half-cell
Temperature Sensor	pH	3 KΩ, Pt1000 RTD
	ORP	10K ID Resistor
Shipping Weight		
	0.25 kg	0.55 lb
Standards & Approvals		
	Manufactured under ISO 9001 for Quality	

Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

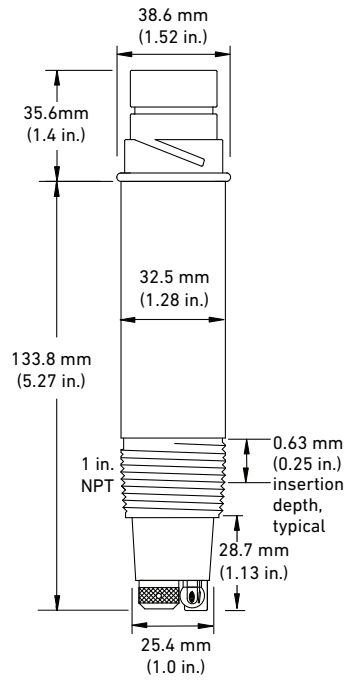
Other Products

Installation & Wiring

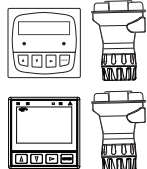
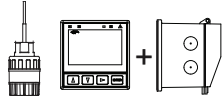





Technical Reference

Temperature/Pressure Graphs

Dimensions



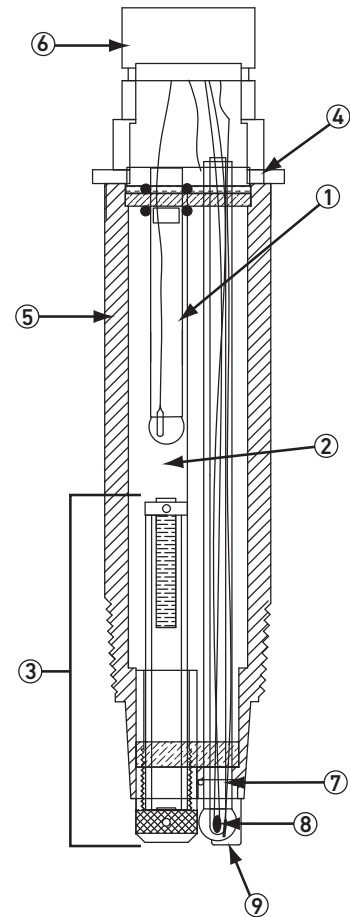
Flat and Bulb versions have the same dimensions

System Overview	Panel Mount	Pipe, Tank, Wall Mount	4 to 20 mA Output	Automation System
	Signet Instruments with 2751 Smart Sensor Electronics - 8900 - 9900 - 9950 	Signet Instruments with 2751 Smart Sensor Electronics - 9900 and Rear Enclosure 	Signet 2751 Smart Sensor Electronics with - Customer Supplied Chart Recorder or Programmable Logic Controller or - Programmable Automation Controller 	2751 Smart Sensor Electronics with - 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller 
	Signet 2764-2767 DryLoc [®] pH/ORP Electrodes 			
In-Line Installation - Threaded fittings only 		Submersible Installation - Customer supplied pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads* 		All sold separately

*Refer to the Signet Submersion Kit brochure (3-0000.707) located on our website for installation suggestions and options.

Electrode Key Features and Benefits

1. 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.
2. Large volume reference electrolyte chamber resists dilution over time for a long service life. Chamber is refillable. Holds approximately 30 ml of electrolyte.
3. 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 double porous PTFE reference junction which is highly compatible to chemicals, resists fouling and build-up of dirt.
4. Memory chip enabled for convenient data storage and access (calibration data, operational data, and manufacturing data), electrode health monitoring via glass impedance measurement when used in connection with the 2751 pH/ORP Smart Sensor Electronics.
5. Ryton® body for chemical compatibility to most harsh chemicals. Also able to withstand high temperatures.
6. DryLoc connector with corrosion resistant gold plated pins for quick and easy sensor removal.
7. Capillary TC (temperature sensor) embedded in tip of pH/ORP electrode for quick temperature response.
8. Measuring pH/ORP electrode.
9. Solution Ground electrode eliminates noisy measurements by draining electrical current away from the reference electrode.



Electrode Cut-Away View

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.

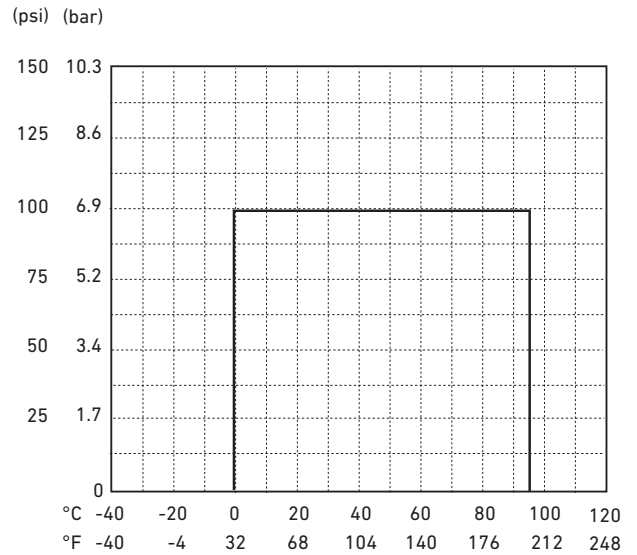
If the (Signet Models 272X, 273X or 277X) pH/ORP electrode experiences the following:	The cause and effect of the problem may be:	Use a Differential Electrode to solve the problem because:
<ul style="list-style-type: none"> • Reading slowly drifts over time • Sensor responds slowly 	<ul style="list-style-type: none"> • Chemical attack from Hg^{2+}, Cu^+, Pb^{2+}, ClO_4^- or other compounds which react with or dilute the KCl reference electrolyte. 	<ul style="list-style-type: none"> • Salt bridge will slow or stop attack. If attacking ions penetrate the salt bridge and affect the reference, simply refill reference solution.
	<ul style="list-style-type: none"> • Reference junction gets clogged from oils, grease, or dirt from the process. 	<ul style="list-style-type: none"> • 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.
<ul style="list-style-type: none"> • Reading slowly drifts over time • Sensor reading becomes erratic 	<ul style="list-style-type: none"> • Chemical attack of the Ag^+ reference from Br^-, I^-, CN^-, and S_2^- compounds. 	<ul style="list-style-type: none"> • Will not affect electrode due to Ag^+ element protected in glass encased reference electrode.
	<ul style="list-style-type: none"> • Clogged reference and slowed reading from silver compounds forming on the inside of the reference electrode from Ag^+ of reference element reacting and precipitating Ag_2S, $AgBr$, AgI, $AgCN$, or other silver compounds. 	<ul style="list-style-type: none"> • Will not affect electrode due to Ag^+ element protected in glass encased reference electrode.
<ul style="list-style-type: none"> • Reading suddenly jumps to a new value • Reading unexpectedly changes 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Will not affect electrode due to Ag^+ element protected in glass encased reference electrode; also, electrode has a built in solution ground, so if there is a stray current, it will not be seen by the electrode.

Temperature/Pressure Graph

Note:

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

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



Model 2764-2767

Ordering Notes

- 1) pH and ORP electrodes require connection to model 2751 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 2751 or 2760 threads for submersible mounting.
- 5) Reference electrode can be rebuilt with replacement electrolyte and salt bridge.

Application Tips

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

Buffer Solutions

- 3822-7004
- 3822-7007
- 3822-7010

Quinhydrone

3822-7115

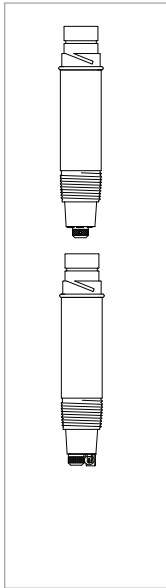
The Signet pH buffers are ideal for calibration. The liquid solutions are conveniently packaged in one pint (473 ml) bottles. pH buffer kits in powder pillows are available for mixing fresh solutions with water at the time of use.



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

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

Ordering Information



Mfr. Part No.	Code	Tip Design	Temperature Element
pH Differential Electrode			
3-2764-1	159 000 943	Flat	3 KΩ Balco ^{1,2}
3-2764-2	159 000 944	Flat	Pt1000 ¹
3-2766-1	159 000 949	Bulb with protection	3 KΩ Balco ^{1,2}
3-2766-2	159 000 950	Bulb with protection	Pt1000 RTD ¹
ORP Differential Electrode			
3-2765-1	159 000 946	Flat	10 KΩ ID ^{1,2}
3-2767-1	159 000 952	Bulb with protection	10 KΩ ID ^{1,2}

¹ For use with the Multi-Parameter instruments, and Profibus Concentrator when used with the 2751 Smart Sensor Electronics.

The 2751 Smart Sensor Electronics has a digital (S³L) output which is used with the Multi-Parameter instruments. It also has a 4 to 20 mA output for connections to PLC's, data recorders, etc.

² The 2760 preamplifier is used for connection directly to ProPoint® and ProcessPro® series pH/ORP instrumentation.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
1220-0021	198 801 000	O-ring, FKM (2 required per sensor)
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)
3864-0001	159 001 007	Replacement Salt Bridge
3864-0002	159 001 008	Replacement Reference Electrolyte Solution, 500 ml
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 Kit for all pH Instruments
3-2759.391	159 000 764	Adapter Cable for use with 2751/2760
3800-5000	159 838 107	3.0M KCl Storage Solution for pH and ORP, 1 pint (473 ml) bottle
3-2700.398	159 001 886	O-ring Lubricant Kit (5 packs of Super Lube, 1cc each)

Signet 2774-2777 DryLoc® pH/ORP Electrodes

General Purpose/High Performance



The Signet 2774-2777 pH and ORP electrodes are high performance sensors ideal for a wide range of applications. The unique foul-proof DryLoc® connector with gold-plated contacts is designed specifically for use with the Signet 2751 pH/ORP Smart Sensor Electronics or the 2760 Preamplifier. These dependable and highly responsive electrodes feature a PTFE double reference junction with potassium nitrate (KNO_3) in the front chamber to block various poisoning ions such as Copper (Cu^{2+}), Lead (Pb^{2+}), Mercury (Hg^{2+}), and a large reference chamber that combine to extend the service-life.

The positioning of the temperature element embedded 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 low temperature applications or where fast response is required. Due to the specially designed chambers which keep electrolyte in place, all sensor models can be installed at any angle, even inverted.

The quick temperature response is available in either a Pt1000 or 3K Ω temperature sensor and allows compatibility with all Signet pH/ORP instruments.

Features

- Double reference PTFE junction to block various poisoning ions and resist fouling and dirt buildup
- Ryton (PPS) body for broad range of chemical compatibility
- Memory chip enabled for access to a wide range of unique features when connected to the Signet 2751 pH/ORP Smart Sensor Electronics
- Patented DryLoc® connector with gold plated contacts*
- Special design allows for installation at any angle, even inverted or horizontal
- Temperature sensor (pH)
- Quick temperature response
- Easy sensor replacement using DryLoc electrode connector
- High temperature versions available
- Mounts into standard $\frac{3}{4}$ inch threads
- Compatible with all Signet instruments

Applications

- Water Treatment & Water Quality Monitoring
- Cooling Towers and Boiler Protection
- Aquatic Animal Life Support Systems
- Pool and Spa Control
- Neutralization Systems
- Process Control

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

Specifications

General			
Compatibility	Signet Models 2751 and 2760		
Operating Range	2774/2776	0 to 14 pH	
	2775/2777	±2000 mV (ORP)	
Process Connection	¾ in., for use in reducing tees up to 4 in.		
Reference	Electrolyte	KNO ₃ /KCl polyacrylamide gel	
	Element	Ag/AgCl	
Wetted Materials			
	Body	Ryton®	
	Reference junctions	PTFE	
	Sensing surface	pH	Glass membrane
		ORP	Platinum
	O-rings	FKM	
Max. Temperature/Pressure Rating			
Operating Temperature	0 °C to 85 °C	32 °F to 185 °F	
Max. Operating Pressure	6.9 bar	100 psi	
Higher temperature and pressure sensors are available upon request.			
Recommended Storage Temperature			
	0 °C to 50 °C	32 °F to 122 °F	
The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F)			
The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F)			
Mounting			
In-line/Vertical Mounting	Use the electrodes ¾ inch threads to install into pipe fitting. Electrode can be mounted at any angle.		
Submersible Mounting	Use threads on Model 2751 or 2760; requires ¾ inch NPT or ISO 7/1-R ¾ 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		

Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

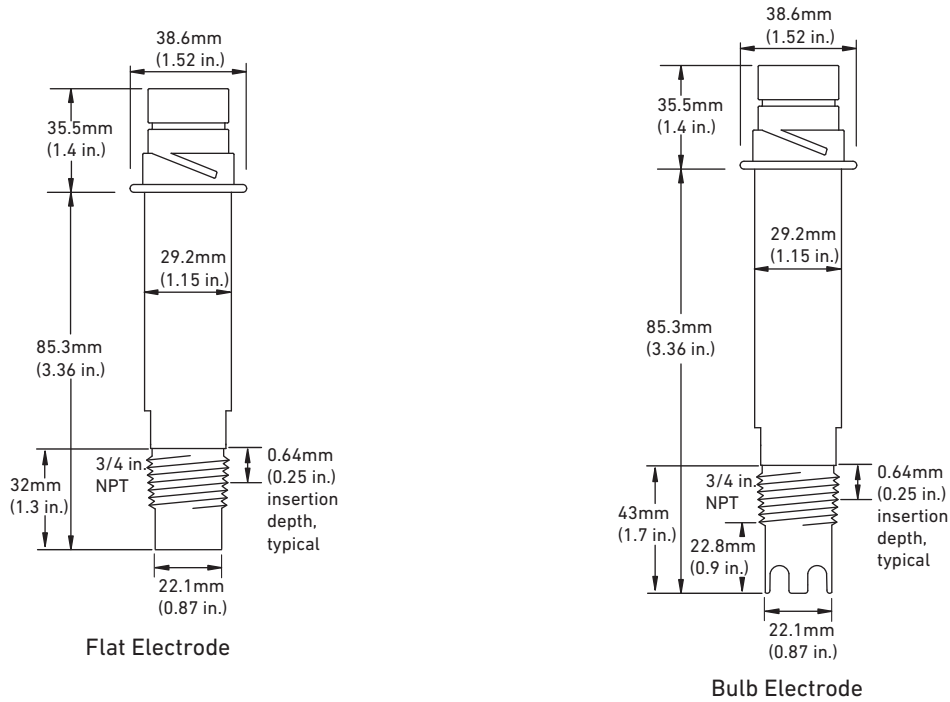
Other Products

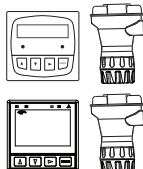
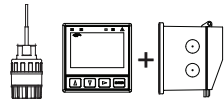
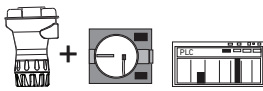




Installation & Wiring

Technical Reference

Temperature/Pressure Graphs

Dimensions



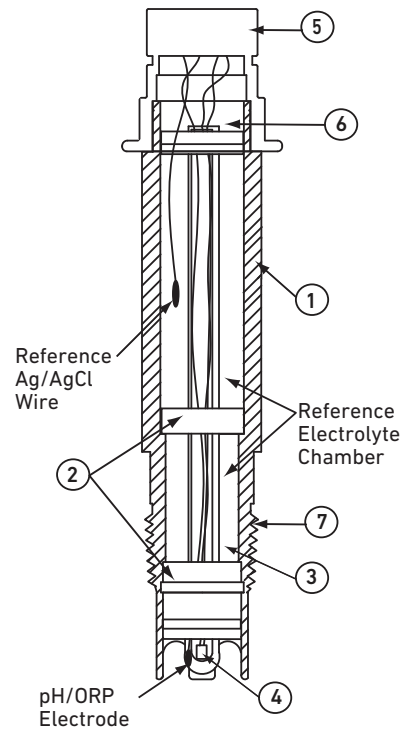
System Overview	Panel Mount	Pipe, Tank, Wall Mount	4 to 20 mA Output	Automation System
	Signet Instruments with 2751 Smart Sensor Electronics - 8900 - 9900 - 9950 	Signet Instruments with 2751 Smart Sensor Electronics - 9900 and Rear Enclosure 	2751 Smart Sensor Electronics with - Customer Supplied Chart Recorder or Programmable Logic Controller or - Programmable Automation Controller 	2751 Smart Sensor Electronics with - 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller 
	Signet 2774-2777 DryLoc [®] pH/ORP Electrodes 			
In-Line Installation - Threaded fittings only 	Submersible Installation - Customer supplied pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads and pipe assembly* 		All sold separately	

*Refer to the Signet Submersion Kit brochure (3-0000.707) located on our website for installation suggestions and options.

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

Electrode Key Features and Benefits

1. Ryton® body for chemical compatibility to resist most harsh chemicals. Also able to withstand high temperatures.
2. Porous PTFE junction resists fouling, chemicals, and build-up.
3. First reference chamber with KNO_3 protects Ag/AgCl wire for a prolonged sensor life.
4. Capillary TC (temperature sensor) embedded in tip of pH/ORP electrode for quicker temperature response.
5. DryLoc connector with corrosion resistant gold plated pins for quick and easy sensor removal.
6. Memory chip enabled for convenient data storage and access (calibration data, operational data, and manufacturing data), electrode health monitoring via glass impedance measurement when used in connection with the 2751 pH/ORP Smart Sensor Electronics.
7. Threads for NPT process connection into reducing tees. Use off the shelf GF reducing tees DN20 to DN100 (3/4 to 4 in.).



Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

Other Products

Installation & Wiring

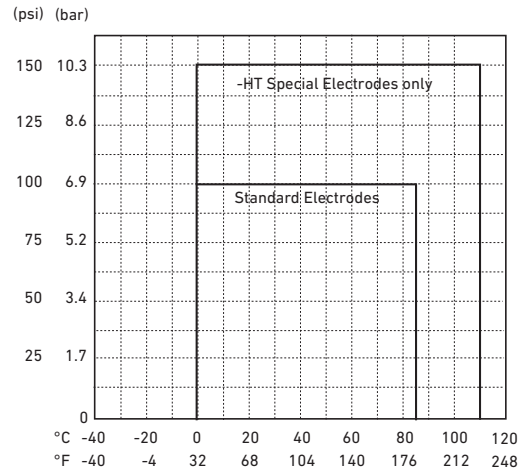
Technical Reference

Temperature/Pressure Graphs

Temperature/Pressure Graph

Note:

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



Application Tips

- Use the flat glass electrodes for in-line pH sensor applications when a self-cleaning feature is desired; especially useful in applications with abrasive chemicals in in-line applications.
- Use bulb protected electrodes for low temperature applications or where fast response is required.
- 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 2774-2777 Ordering Notes

- 1) pH and ORP sensors require connection to model 2751 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.

Buffer Solutions

- 3822-7004
- 3822-7007
- 3822-7010

Quinhydrone

3822-7115

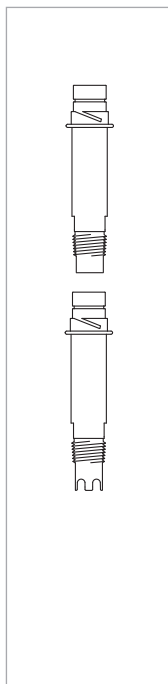
The Signet pH buffers are ideal for calibration. The liquid solutions are conveniently packaged in one pint (473 ml) bottles. pH buffer kits in powder pillows are available for mixing fresh solutions with water at the time of use.

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



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

Ordering Information



Mfr. Part No.	Code	Tip Design	Temperature Element
pH Electrodes			
3-2774	159 000 955	Flat	3KΩ Balco RTD ¹
3-2776	159 000 959	Bulb with protection	3KΩ Balco RTD ¹
3-2774-1	159 000 956	Flat	Pt1000 RTD ²
3-2776-1	159 000 960	Bulb with protection	Pt1000 RTD ²
3-2774-HT	159 001 796	Flat	3KΩ Balco RTD, High Temperature ⁴
3-2774-HT-C	159 001 795	Flat	BNC connector, 3KΩ Balco RTD, NPT, High Temperature ^{4,5}
3-2774-HT-ISO	159 001 794	Flat	3KΩ Balco, High Temperature ⁴
ORP Electrodes			
3-2775	159 000 957	Flat	10 K ID Resistor ³
3-2777	159 000 961	Bulb with protection	10 K ID Resistor ³

¹3KΩ Balco RTD for connection to ProPoint and ProcessPro pH/ORP instrument series when used with the 2760 preamplifier.

²Pt1000 RTD for connection to the 8900, 9900, 9950 or Profibus Concentrator when used with the 2751 Smart Sensor Electronics. The 2751 has a digital (S³L) output which is used with the 8900, 9900, or 9950 transmitter, and the Profibus Concentrator. It also has a 4 to 20 mA output for connection to PLC's, data recorders, etc.

³10 KΩ ID resistor for connection to the 8900, 9900 or 9950 when used with the 2751 pH/ORP Smart Sensor Electronics

⁴-HT pH electrode, flat glass, high temperature (110 °C, 230 °F), 3/4" NPT, 3KΩ TC, in-line install only.
 -HT-C pH electrode, flat glass, high temperature (110 °C, 230 °F), 3KΩ TC, BNC connector, NPT, 15 ft cable, no memory chip.
 -HT-ISO pH electrode, flat glass, high temperature (110 °C, 230 °F), 3/4" ISO, 3KΩ TC, in-line install only.

⁵Option -HT-C can only be connected to the 2751 or 2760 sensor electronics if used with the 3-2722 BNC adapter.

Special Order Options- Please consult the factory

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)
3-0700.390	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 2751/2760
3-2722	Special Order	BNC Adapter
3800-5000	159 838 107	3.0M KCl Storage Solution for pH and ORP, 1 pint (473 ml) bottle
3-2700.398	159 001 886	O-ring Lubricant Kit (5 packs of Super Lube, 1cc each)

Signet 3719 pH/ORP Wet-Tap Assembly



3719
Assembly



2756, 2757 Wet-Tap
Electrodes
(sold separately)

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.

Process isolation is achieved during electrode retraction with two sets of double O-ring seals on a unique and compact retraction assembly; no separate valve is required.

The Wet -Tap body design allows full access to the plunger and internal O-rings, to easily perform maintenance such as lubrication/replacement of O-rings and the cleaning of the internal plunger/housing to remove material build up in difficult applications.

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.

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
- Fully serviceable internal O-rings

Applications

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

NOTE:

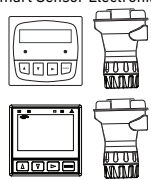
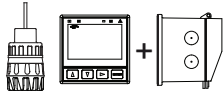
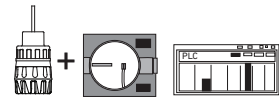


This product is assembled using Synthetic grease with PTFE.

Specifications

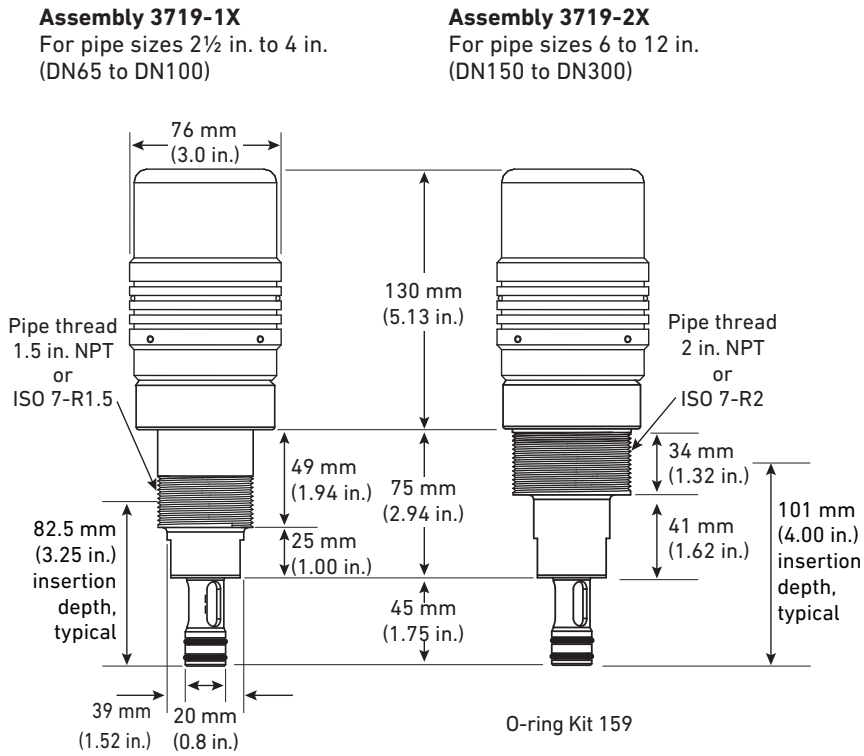
General		
Compatible DryLoc® Electrodes	2756-WTP, 2756-WTP-1	Plastic
	2757-WTP	Plastic
Process Connection	3719-11	NPT 1 ½ in.
	3719-21	NPT 2 in.
	3719-12	ISO 7/1 - R 1.5
	3719-22	ISO 7/1 - R 2
Maximum Flow Velocity	3 m/s	10 ft/s
Materials		
Retraction Housing (Wetted)	CPVC	
O-rings (Wetted)	FKM (O-rings are lubricated with Super Lube multi-purpose grease with PTFE)	
Locking Shroud	PVC	
Hardware	316 Stainless Steel	
Max. Temperature/Pressure Rating		
Operating Pressure	100 psi (6.9 bar) maximum @ 25 °C	
Shipping Weight		
	1.2 kg	2.7 lb
Standards/Approvals		
	Manufactured under ISO 9001 for Quality, ISO 14001 for Environmental Management and OHSAS 18001 for Occupational Health and Safety	

See Temperature and Pressure graphs for more information

Wet-Tap Installation

System Overview	Panel Mount Signet Instruments with 2751 Smart Sensor Electronics - 8900 - 9900 - 9950 	Pipe, Tank, Wall Mount Signet Instruments with 2751 Smart Sensor Electronics - 9900 and Rear Enclosure 	4 to 20 mA Input 2751 Smart Sensor Electronics with - Customer Supplied Chart Recorder or Programmable Logic Controller or - Programmable Automation Controller 	Automation System 2751 Smart Sensor Electronics with - 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller 
	Signet Model 3719 Wet-Tap Assembly with Wet-Tap Electrode 3-2756-WTP or 3-2757-WTP 			
	Customer supplied tees and fittings		All sold separately	

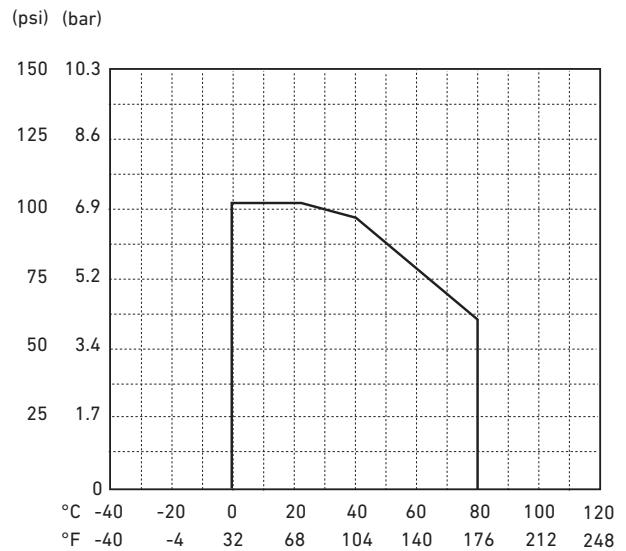
Dimensions



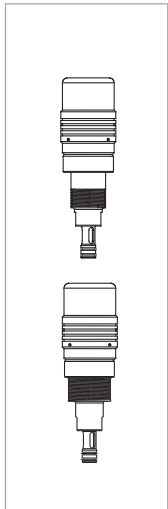
Temperature/Pressure Graph

Note:

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



Ordering Information



Wet-Tap Assembly

Mfr. Part No.	Code	Process Thread Connection	For Pipe Size
3-3719-11	159 000 804	1½ inch NPT	2½ to 4 in. (DN65-DN100)
3-3719-12	159 000 806	ISO 7/1-R 1.5	2½ to 4 in. (DN65-DN100)
3-3719-21	159 000 805	2 inch NPT	6 to 12 in. pipes (DN150-DN300)
3-3719-22	159 000 807	ISO 7/1-R 2	6 to 12 in. pipes (DN150-DN300)

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 2½ in. to 4 in. (DN65-DN100)
- 4) Use -21 or -22 versions for pipe sizes 6 in. to 12 in. (DN150-DN300)

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-3719.390	159 000 855	3719 Locking Shroud (spare part)
3-3719.392	159 310 304	O-ring Service Kit
3-2700.398	159 001 886	O-ring Lubricant Kit (5 packs of Super Lube, 1cc each)

Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

Other Products

Installation & Wiring

Technical Reference

Temperature/Pressure Graphs

Signet 2756-2757 pH/ORP Wet-Tap Electrodes



The Signet 2756-2757 Wet-Tap pH and ORP electrodes are general purpose sensors ideal for a wide range of applications where the installation and removal of the electrode can be performed without the need for system shutdown.

The Signet 3719 pH/ORP Wet-Tap Assembly 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. Process isolation is achieved during electrode retraction with two sets of double O-ring seals on a unique and compact retraction assembly; no separate valve is required.

The DryLoc connector with corrosion resistant gold plated contacts readily connects the sensor to the mating 2751 pH/ORP Smart Sensor Electronics or the 2760 Preamplifier. The robust polyarylsulphone (PAS) body and choice of bulb pH or flat ORP sensing elements allow a broad range of chemical compatibility for a wide range of applications.

The quick temperature response is available in either a Pt1000 or 3 K Ω temperature sensor and allows compatibility with all Signet pH/ORP instruments.

The Wet-Tap assembly unit can be mounted at any angle and can be used with the Signet DryLoc[®] Wet-Tap pH and ORP electrodes.

Features

- PTFE reference junction resists fouling and chemical attack
- Polyarylsulphone (PAS) body for broad range of chemical compatibility
- General purpose bulb pH glass suitable in a wide range of applications
- Patented DryLoc connector with gold plated contacts
- Pt1000 or 3 K Ω Balco temperature element for quick temperature response
- Electrode removal without process shutdown when installed in the Signet 3719 pH/ORP Wet-Tap Assembly
- Memory chip enabled for access to a wide range of unique features when connected to the Signet 2751 pH/ORP Smart Sensor Electronics
- Special design allows for installation at any angle, even inverted or horizontal

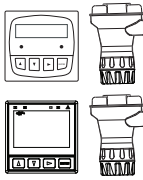
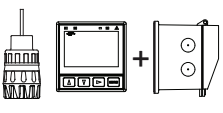



Applications

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

Specifications

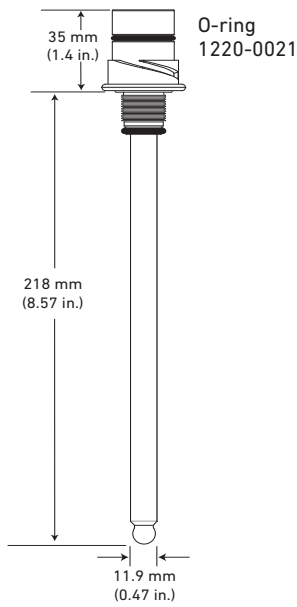
General		
Compatibility	Signet 3719 Wet-Tap Assembly, 2751 Smart Sensor Electronics or 2760 Preamplifier	
Operating Range	pH	0 to 14 pH
	ORP	±1500 mV
Connector	CPVC	DryLoc
Temperature Sensor (pH)	Pt1000 or 3K Balco for pH	
Reference Junctions	Porous PTFE	
	Electrolyte	Saturated KCl
Response Time	pH	< 5s for 95% of signal change
	ORP	Application dependent
Impedance (pH)	< 150 MΩ @ 25 °C	
Wetted Materials		
Body	PAS (Polyarylsulphone)	
Reference Junction	Porous PTFE	
Sensing Surface	pH	Glass membrane
	ORP	Platinum
O-rings	FKM	
Connector	CPVC	
Max. Temperature Rating		
Operating Temperature	0 °C to 85 °C	32 °F to 185 °F
Recommended Storage Temperature		
	0 °C to 50 °C	32 °F to 122 °F
The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F)		
The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F)		
Mounting		
	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	

Wet-Tap Installation

System Overview	Panel Mount Signet Instruments with 2751 Smart Sensor Electronics - 8900 - 9900 - 9950 	Pipe, Tank, Wall Mount Signet Instruments with 2751 Smart Sensor Electronics - 9900 and Rear Enclosure 	4 to 20 mA Input 2751 Smart Sensor Electronics with - Customer Supplied Chart Recorder or Programmable Logic Controller or - Programmable Automation Controller 	Automation System 2751 Smart Sensor Electronics with - 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller 
	Signet Model Wet-Tap Electrode 3-2756-WTP, 3-2756-WTP-1 or 3-2757-WTP with 3719 Wet-Tap Assembly 			
	Customer supplied tees and fittings		All sold separately	

Dimensions

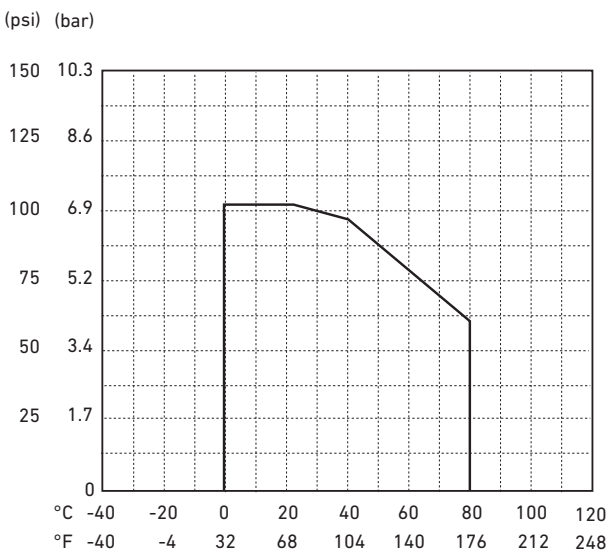
Electrodes 3-2756 Wet-Tap pH,
3-2757 Wet-Tap ORP



Temperature/Pressure Graph

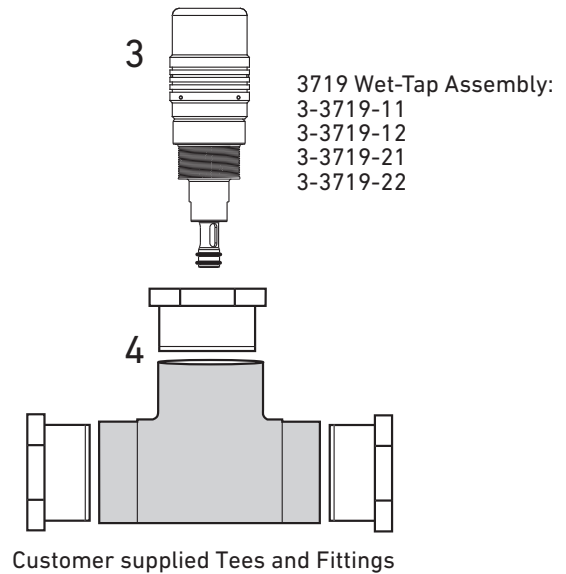
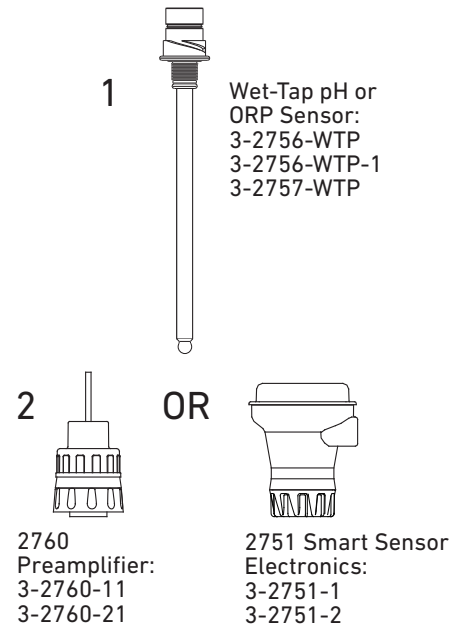
Note:

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

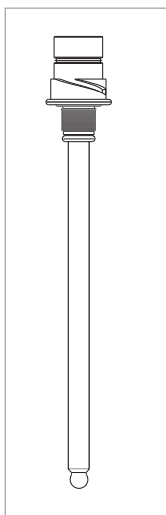


Product Selection Guide

- Step 1 - Choose sensor
- Step 2 - Choose preamplifier or sensor electronics
- Step 3 - Choose Wet-Tap assembly
- Step 4 - Choose a customer supplied mounting option



Ordering Information



Mfr. Part No.	Code	Tip design	Temperature Element	Use With
DryLoc pH Electrodes				
3-2756-WTP	159 001 390	Bulb	Pt1000	2751 Smart Sensor Electronics*
3-2756-WTP-1	159 001 384	Bulb	3 KΩ Balco	2751 or 2760 Preamplifier**
DryLoc ORP Electrodes				
3-2757-WTP	159 001 391	Flat	N/A	2751 Smart Sensor Electronics* or 2760 Preamplifier**

*The 2751 Smart Sensor Electronics has a digital (S³L) output which is used with the 8900, 9900 or 9950 instruments, and the Profibus Concentrator. 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 older Signet analog transmitters.

Model 2756-2757

Ordering Notes

- 1) pH and ORP electrodes require connection to model 2751-1 or 2751-2 or 2760-X1

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)
Other		
1220-0114	159 000 854	3719 O-ring, FKM (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
3-2759	159 000 762	pH/ORP System Tester Kit for all pH Instruments
3-2759.391	159 000 764	Adapter Cable for use with 2751 and 2760
3800-5000	159 838 107	3.0M KCl Storage Solution for pH and ORP, 1 pint (473ml) bottle
3-2700.398	159 001 886	O-ring Lubricant Kit (5 packs of Super Lube, 1cc each)

Signet 2751 DryLoc® pH/ORP Smart Sensor Electronics



In-line
2751-1

In-line EasyCal
2751-2

Submersible
2751-3 or 2751-4

DryLoc® Electrodes sold separately

The Signet 2751 pH/ORP Smart Sensor Electronics featuring the DryLoc® connector, is the solution for field-free calibration, out of range glass impedance and broken glass detection, alerting the operator to probe failure or maintenance needs.

The 2751 features two different outputs: a two-wire 4 to 20 mA loop output with optional EasyCal function or a digital (S³L) output which allows for longer cable lengths and is compatible with all Signet 8900, 9900 and 9950* instruments or in blind, 4 to 20 mA.

The pH/ORP Smart Sensor Electronics will allow for calibration of electrodes in a laboratory setting and installation of pre-calibrated probes in the field, reducing system downtime. Memory chip enabled electrodes will store operational data such as minimum and maximum pH/mV readings, runtime, minimum and maximum temperature (pH only), for troubleshooting and operational evaluation. To take full advantage of all features and benefits of the 2751, use with Signet 9900 (Generation IV or later), 9950 Transmitter or 0486 Profibus Concentrator.

The 2751 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 2751 submersible pH/ORP Smart Sensor Electronics can also be used in-line when used with the 3/4" or 1" threaded sensors including the 272X, 273X, 275X, 276X and 277X series of electrodes. The 2751 in-line sensor electronics can be used with Signet fittings up to DN100 (4 in.) and Wet-Tap assemblies.

Features

- Probe health monitoring, glass impedance and broken glass detection
- Memory chip interface that allows for transferable calibration, runtime data, and manufacturing information
- In-line integral mount and submersible installation versions
- Automatic temperature compensation
- Auto configuration for pH or ORP operation
- Optional EasyCal calibration aid with automatic pH buffer recognition for 4, 7 and 10 pH and ORP solutions: quinhydrone saturated pH 4 or 7 buffers and Light's Solution +469 mV
- Junction boxes for convenient wiring
- Patented DryLoc® connector provides a quick and secure connection to the sensor**



Applications

- Water and 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

*Users of 9950 Gen I and 9950 (Gen 2a) should update to 9950 (Gen 2b, available in Q4) to take full advantage of the 2751 features and benefits. Visit www.gfsignet.com for the latest software update.

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

Specifications

General			
Compatible Electrodes			
Signet DryLoc® pH and ORP Electrodes, Models 2724-2726, 2734-2736, 2756-2757 Wet-Tap, 2764-2767, 2774-2777			
Operating Range	pH	-1 to 15 pH	
	ORP	±2000 mV	
Response Time	pH	< 6 sec. for 95% of change	
	ORP	Application dependent	
Materials	In-line	PBT (thermal plastic polyester) and polypropylene (retaining nut)	
	Submersible	CPVC	
Electrical			
Cable	4.6 m	15 ft	3-conductor shielded (3-2751-1 in-line and the 3-2751-3 or -4 submersible sensor electronics only)
	22 AWG		
Power	12 to 24 VDC		±10%, regulated for 4 to 20 mA output
	5 to 6.5 VDC		±5% regulated recommended, 3 mA max., for digital (S ³ L) output
Current Output	pH		Fixed 4 to 20 mA, isolated, = 0 to 14 pH (custom scaling available with 0252 tool)
	ORP		Fixed 4 to 20 mA, isolated, = -1000 to +2000 mV (custom scaling available from ± 2000 mV with 0252 tool)
Max. Loop Resistance	100 Ω max. @ 12 V	325 Ω max. @ 18 V	600 Ω max. @ 24 V
Accuracy	±32 µA		
Resolution	±5 µA		
Update Rate	0.5 seconds		
Error Indication	3.6 mA, 22 mA, or none		
Digital (S ³ L) Output	Serial ASCII, TTL level 9600 bps		
Accuracy	pH	± 0.02 pH @ 25 °C	
		± 0.02 pH @ 77 °F	
		± 1.5 mV @ 25 °C	
Resolution	pH	≤ 0.4 °C	
		0.72 °F	
		≤ 0.01 pH	
Update Rate	ORP	1.5 mV	
		0.5 seconds	
Available Data	Raw mV, pH or ORP, Temperature (pH), Glass Impedance (pH), Minimum mV (pH), Maximum mV (pH), Minimum Temperature (pH), Maximum Temperature (pH), Model Number, Serial Number, Manufacturing Date, Runtime, Slope pH/mV, Measurement Offset, and Temperature		
Error Indication	Open input diagnostic, broken glass detection (pH), High Impedance		
Input Impedance, Z	>10 ¹¹ Ω		
Environmental			
Enclosure	3-2751-1 & -2		NEMA 4X/IP65 with electrode connected
	3-2751-3 & -4		NEMA 6P/IP68 with electrode and watertight conduit and/or extension pipe connected
Maximum Temperature/Pressure Rating			
Operating Temperature			
Submersible	0 °C to 85 °C		32 °F to 185 °F
	In-line		0 °C to 85 °C
Storage Temperature	-20 °C to 85 °C		-4 °F to 185 °F
Relative Humidity	0 to 95%, non-condensing (without electrode connected)		
Shipping Weight			
	2751-2	0.75 kg	1.65 lb
	2751-1, -3 & -4	0.64 kg	1.41 lb
Standards and Approvals			
	CE, FCC		
	RoHS compliant, China RoHS		
	Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management and OHSAS 18001 for Occupational Health and Safety		

Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

Other Products

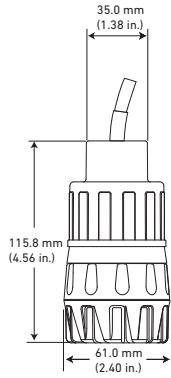
Installation & Wiring

Technical Reference

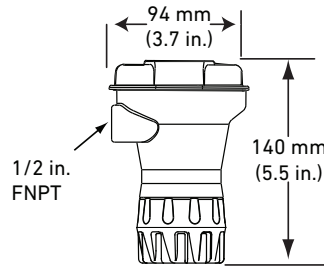
Temperature/Pressure Graphs

Dimensions

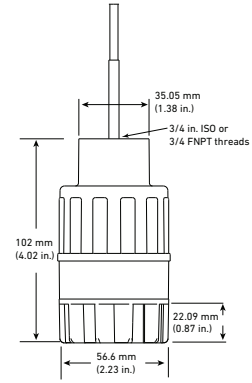
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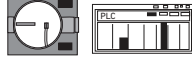
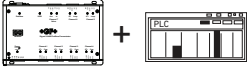



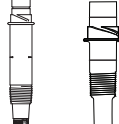
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3-2751-3, -4



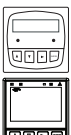
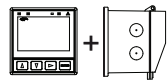

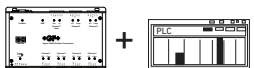

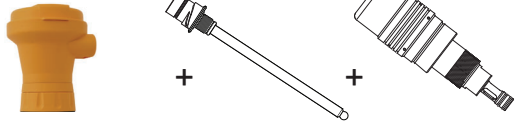
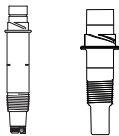
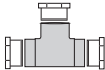
In-Line Installation

Panel Mount	Pipe, Tank, Wall	4 to 20 mA Input	Automation System
Signet Instruments - 8900 - 9900 - 9950 	Signet Instruments - 9900 and Rear Enclosure 	Signet 2751 Smart Sensor Electronics with - Customer Supplied Chart Recorder or Programmable Logic Controller or - Programmable Automation Controller 	- 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller 
Signet 2751 Smart Sensor Electronics 	Signet 2751 Smart Sensor Electronics with - Signet 3-8050-2 Universal Junction Box (EasyCal) 	Signet 2751 Smart Sensor Electronics 	
Signet Electrodes - 2724-2726 - 2734-2736 - 2764-2767 - 2774-2777 			
2724-2726 and 2734-2736 DryLoc Electrodes: Use GF fittings* or customer supplied 3/4 in. NPT fittings 2764-2767 and 2774-2777 DryLoc Electrodes: Use customer supplied 3/4 in. or 1 in. NPT fittings			All sold separately

System Overview

Submersible Installation



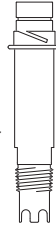
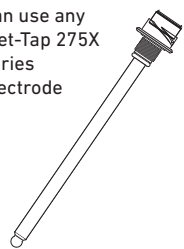
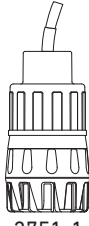
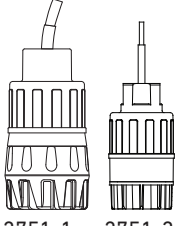
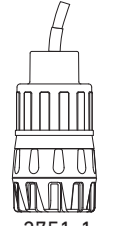
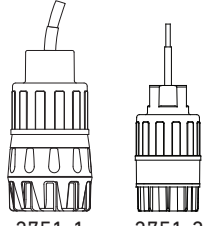
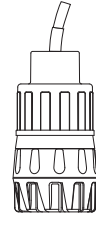
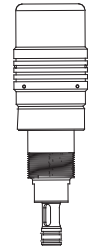
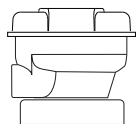
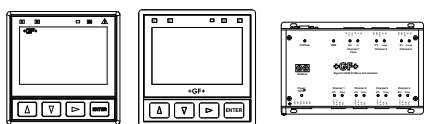
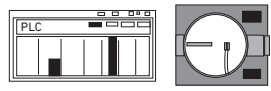
Wet-Tap Installation

Panel Mount	Pipe, Tank, Wall	4 to 20 mA Input	Automation System
Signet Instruments - 8900 - 9900 - 9950 	Signet Instruments - 9900 and Rear Enclosure 	2751 Smart Sensor Electronics with - Customer Supplied Chart Recorder or Programmable Logic Controller or - Programmable Automation Controller 	- 0486 Profibus Concentrator and Customer Supplied Programmable Logic Controller or - Programmable Automation Controller 
Signet 2751 Smart Sensor Electronics with customer supplied pipe extension or conduit, 3/4 in. NPT or ISO 7/1-R 3/4 threads** 	Signet 2751 Smart Sensor Electronics with Signet Wet-Tap Electrode 2756, 2757 and Signet 3719 Wet-Tap 		
Signet Electrodes 2724-2726 2734-2736 2764-2767 2774-2777 	GF Tees and Fittings see model 3719 for more info 		All sold separately

* See fittings section for more information.

**Refer to the Signet Submersion Kit brochure (3-0000.707) located on our website for installation suggestions and options.

2751 Product Selection Guide

<p>1. Choose the Electrode</p>	<p>2724-2726, 2734-2736</p> <p>Can use Any 3-272X or 273X series electrode</p> 	<p>2764-2767 Differential</p> <p>3-2764-1 3-2764-2 3-2766-1 3-2766-2</p> 	<p>2774-2777</p> <p>ORP electrodes must have 10K ID resistor use: 3-2775, 3-2777</p> <p>pH electrodes can be either the 1K or 3K use: 3-2774, 3-2774-1, 3-2776, 3-2776-1</p> 	<p>2756 and 2757 Wet-Tap</p> <p>Can use any Wet-Tap 275X series electrode</p> 	
<p>2. Determine the mounting style:</p> <p>In-line</p> <p>And</p> <p>-In-line fitting</p> <p>Or</p> <p>Submersible</p>	 <p>2751-1 or -2</p>	 <p>2751-1 or -2 2751-3 or -4</p>	 <p>2751-1 or -2 2751-3 or -4</p>	 <p>2751-1 or -2 2751-3 or -4</p>	 <p>2751-1 or -2</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.</p> <p>3-8050-2: Use with the submersible 2751-3 or -4 and the in-line 2751-1 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 (SⁱL)</p> <p>Or</p> <p>4 to 20 mA</p>	 <p>9900 or 9950 Instruments, Profibus Concentrator</p> <p>OR</p>  <p>PLCs or Chart Recorders</p>				

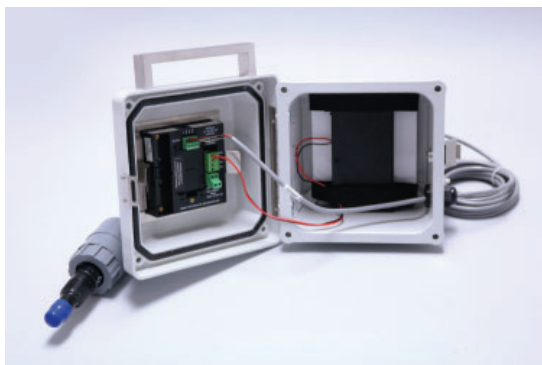
- Multi-Parameter Instruments
- Communication Protocol
- Chlorine
- Dissolved Oxygen
- Flow
- pH/ORP
- Conductivity/Resistivity
- Level
- Temperature
- Pressure
- Other Products
- Installation & Wiring
- Technical Reference
- Temperature/Pressure Graphs

Model 2751 Ordering Information

- 1) Model 2751 requires 12 to 24 VDC to function as a blind 4 to 20 mA output transmitter.
- 2) Order a 3-2751-2 or any other 2751 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 2751.
- 5) All sensor electronics, preamplifiers and connectors require a DryLoc electrode for full system installation.
- 6) The 2751 pH/ORP Smart Sensor Electronics is compatible with all Signet 8900, 9900 and 9950 instruments. To take full advantage of the advanced features use the 9900 SmartPro Transmitters (Generation IV or greater), 9950 and 0486 Profibus Concentrator.

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 or Light's Solution, +469 mV, and simplifies calibration. For EasyCal ORP only single point calibration is used.
- Frequency of calibration of electrodes is dependent upon the application.

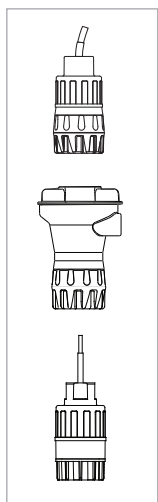


9900 pH/ORP Calibrator (150 399 007)

The 9900 battery operated calibrator is built to enhance the user experience with the new line of 2751 Smart pH/ORP sensor electronics. This unit can be kept in a lab or taken in to the field. The calibration storage capability of the pH/ORP electrodes when used with the 2751 Smart sensor electronics, allows the user the ability to rotate electrodes, meaning unplug an aged/dirty electrode replacing with a pre-calibrated electrode.

With larger installations, all collected dirty and uncalibrated electrodes can be taken to a central well organized location where proper cleaning and calibration can be performed. This improves efficiency of this process resulting more stable readings, higher sensitivity, faster response time, and overall more accurate readings. Runs on (8) AA Alkaline batteries (included).

Ordering Information



Mfr. Part No.	Code	Description
In-line pH/ORP Smart Sensor Electronics (yellow body)		
3-2751-1	159 001 804	with 4.6 m (15 ft) cable, recommended for 9900 or 9950 instruments
3-2751-2	159 001 805	with junction box and EasyCal, recommended for 4 to 20 mA use
Submersible pH/ORP Smart Sensor Electronics (gray body)		
3-2751-3	159 001 806	with 4.6 m (15 ft) cable and 3/4 in. NPT threads - when 4 to 20 mA is required use the 3-8050-2 junction box with EasyCal
3-2751-4	159 001 807	with 4.6 m (15 ft) cable and ISO 7/1-R 3/4 threads - when 4 to 20 mA is required use the 3-8050-2 junction box with EasyCal

Sensor Electronics with preamplified signal and Digital (S³L) output (for use with the SmartPro Instruments) or 4 to 20 mA output - power supplied to unit dictates output type.

Note:

The 2751 pH/ORP Smart Sensor Electronics is compatible with 8900, 9900 and 9950 SmartPro Transmitters, and Signet 0486 Profibus Concentrator. To take full advantage of the 2751 features, use 9900 (Generation IV or later), 9950 or 0486 Profibus Concentrator.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Calibration		
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 Adapter Cable for use with 2751 DryLoc Sensor Electronics
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
Mounting		
3-8050.390-3	159 310 116	Retaining Nut Replacement Kit, Black Polypropylene
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 3-2751-3 and -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 2751)
P31515-0P200	159 000 630	Universal Pipe Adapter PVC
P31515-0C200	159 000 631	Universal Pipe Adapter CPVC
P31515-0V200	159 000 459	Universal Pipe Adapter PVDF
7310-1024	159 873 004	24 VDC Power Supply, 10W, 0.42 A
7310-2024	159 873 005	24 VDC Power Supply, 24W, 1.0 A
7310-4024	159 873 006	24 VDC Power Supply, 40W, 1.7 A
7310-6024	159 873 007	24 VDC Power Supply, 60W, 2.5 A
7310-7024	159 873 008	24 VDC Power Supply, 96W, 4.0 A
3-2700.398	159 001 886	O-ring Lubricant Kit (5 packs of Super Lube, 1cc each)

Signet 2760 DryLoc® pH/ORP Preamplifiers

(Not for new designs or installations)



In-line
2760



Submersible
2760

DryLoc® Electrodes
(sold separately)

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

The 2760 preamplifier allows DryLoc pH/ORP electrodes to work with Signet ProcessPro® and ProPoint® pH/ORP instruments.

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

The 2760 submersible preamplifier can also be used as an in-line preamplifier when used with the ¾ 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.

The 2760 pH/ORP preamplifiers are compatible with the Signet 8750 and older analog transmitters. The 8900 and 9900 instruments and Profibus Concentrator require the use of the 2751 Smart Sensor Electronics, and are not compatible with the 2760 preamplifier.

Features

- In-line integral mount and submersible installation versions
- Compatible with pH or ORP sensors
- Patented DryLoc® connector provides a quick and secure connection to the sensor*



Applications

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

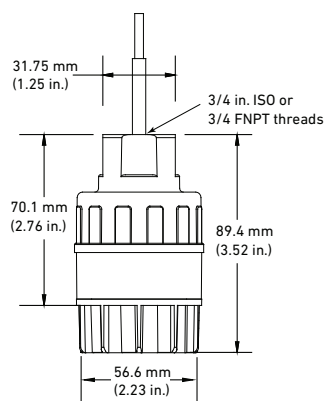
*U.S. Patent No.: 6,666,701

Specifications

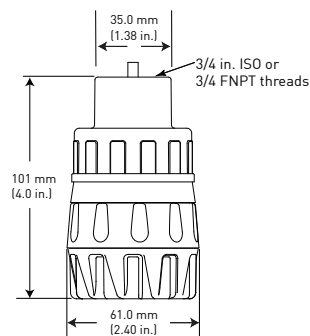
General			
Compatible Electrodes	Signet DryLoc pH and ORP Electrodes Models 2724-2726, 2756-2757 Wet-Tap, 2764-2767, 2774-2777		
	All pH sensors used with the 2760/8750 must have a 3K Temperature sensor		
Compatible Instruments	8750 and 5700		
Operating Range	pH	0 to 14 pH	
	ORP	±2,000 mV	
Response Time	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		
Max. Temperature/Pressure Rating			
Operating Temperature	Submersible	0 °C to 85 °C	32 °F to 185 °F
	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)		
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	
Shipping Weight			
	0.64 kg	1.41 lb	
Standards and Approvals			
	CE, FCC		
	RoHS compliant, China RoHS		
	Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management and OHSAS 18001 for Occupational Health and Safety		

Dimensions

3-2760-1, -2





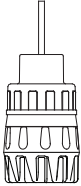
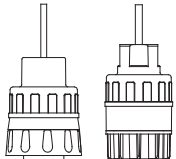
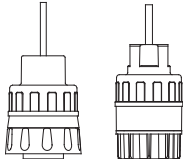
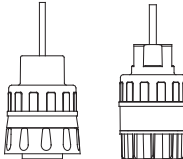
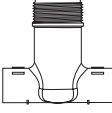
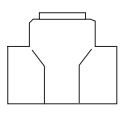
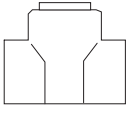
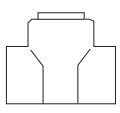
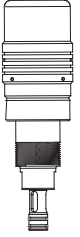
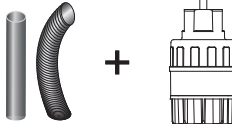
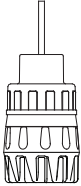
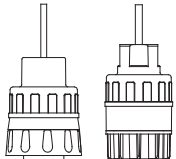
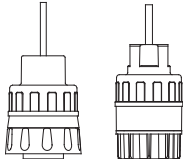
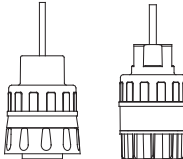
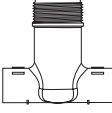
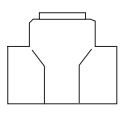
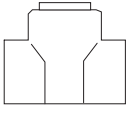
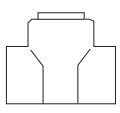
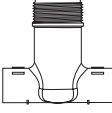
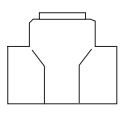
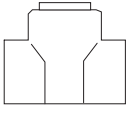
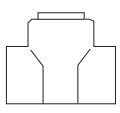
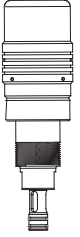
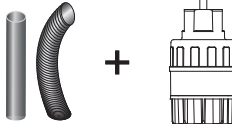
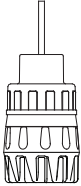
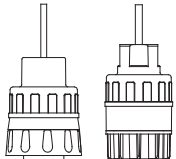
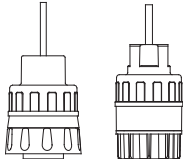
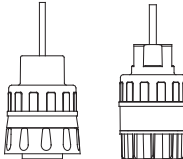
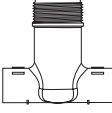
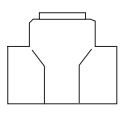
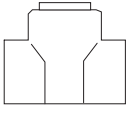
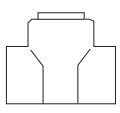
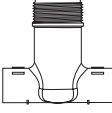
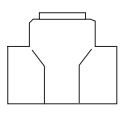
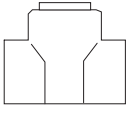
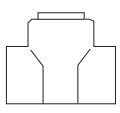
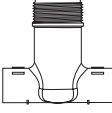
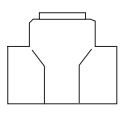
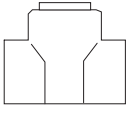
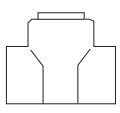
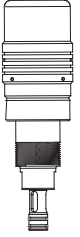
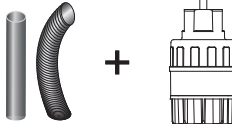


3-2760-11, -21



- Multi-Parameter Instruments
- Communication Protocol
- Chlorine
- Dissolved Oxygen
- Flow
- pH/ORP
- Conductivity/Resistivity
- Level
- Temperature
- Pressure
- Other Products
- Installation & Wiring
- Technical Reference
- Temperature/Pressure Graphs

2760 Product Selection Guide

1. Choose the Electrode	2724-2726 3-2724-10,-11 3-2724-HF-10,-11 3-2725-60, -61 3-2726-10, -11 3-2726-HF-10, -11 3-2726-LC-10, -11 	2764-2767 Differential 3-2764-1 3-2765-1 3-2766-1 3-2767-1 	2774-2777 3-2774 3-2775 3-2776 3-2777 	2756 and 2757 Wet-Tap 3-2756-WTP 3-2756-WTP-1 3-2757-WTP 																							
2. Determine the mounting style:	<table border="1"> <tr> <td data-bbox="363 497 539 784"> In-line  2760-11 or -21 </td> <td data-bbox="539 497 758 784">  2760-11 or -21 2760-1 or -2 </td> <td data-bbox="758 497 1010 784">  2760-11 or -21 2760-1 or -2 </td> <td data-bbox="1010 497 1241 784">  2760-11 or -21 2760-1 or -2 </td> </tr> <tr> <td data-bbox="363 784 539 996"> And </td> <td colspan="4" data-bbox="363 784 1241 996"> <table border="1"> <tr> <td data-bbox="363 784 539 996">  In-line fitting </td> <td data-bbox="539 784 758 996">  3/4" reducing tee </td> <td data-bbox="758 784 1010 996">  1" reducing threaded tee </td> <td data-bbox="1010 784 1241 996">  3/4" reducing tee </td> </tr> </table> </td> </tr> <tr> <td data-bbox="363 996 539 1178"> Or </td> <td colspan="4" data-bbox="363 996 1241 1178">  3719 Wet-Tap Assembly (Submersible not applicable with Wet-Tap assembly) </td> </tr> <tr> <td data-bbox="363 996 539 1178"> Submersible </td> <td colspan="4" data-bbox="363 996 1241 1178"> 2760-1 or -2 and cable conduit (customer supplied) connected to 3/4" sensor electronics  </td> </tr> </table>				In-line  2760-11 or -21	 2760-11 or -21 2760-1 or -2	 2760-11 or -21 2760-1 or -2	 2760-11 or -21 2760-1 or -2	And	<table border="1"> <tr> <td data-bbox="363 784 539 996">  In-line fitting </td> <td data-bbox="539 784 758 996">  3/4" reducing tee </td> <td data-bbox="758 784 1010 996">  1" reducing threaded tee </td> <td data-bbox="1010 784 1241 996">  3/4" reducing tee </td> </tr> </table>				 In-line fitting	 3/4" reducing tee	 1" reducing threaded tee	 3/4" reducing tee	Or	 3719 Wet-Tap Assembly (Submersible not applicable with Wet-Tap assembly)				Submersible	2760-1 or -2 and cable conduit (customer supplied) connected to 3/4" sensor electronics 			
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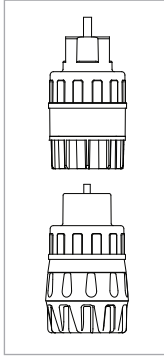
Model 2760 Ordering Information

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

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.

Ordering Information



Mfr. Part No.	Code	Description
Submersible pH/ORP Preamplifier (gray body) for use with the 8750 instrument		
3-2760-1	159 000 939	¾ in. NPT threads and 4.6 m (15 ft) cable
3-2760-2	159 000 940	¾ in. ISO threads and 4.6 m (15 ft) cable
In-line pH/ORP Preamplifier (yellow body); use with Signet fittings or Wet-Tap sensors and other manufacturer's instruments		
3-2760-11	159 001 367	¾ in. NPT threads and 4.6 m (15 ft) cable
3-2760-21	159 001 368	¾ in. ISO threads and 4.6 m (15 ft) cable

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Calibration		
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 Adapter cable for use with 2751 and 2760 DryLoc® sensor electronics
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
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)
3-8050	159 000 184	Universal Mounting Kit
3-8050.390-1	159 001 702	Retaining Nut Replacement Kit, Valox K4530

Multi-Parameter Instruments

Communication Protocol

Chlorine

Dissolved Oxygen

Flow

pH/ORP

Conductivity/Resistivity

Level

Temperature

Pressure

Other Products

Installation & Wiring

Technical Reference

Temperature/Pressure Graphs

Signet pH/ORP Instruments



	9950	9900
Description	Multi-Channel (2 Channel), Multi-Parameter Controller	Single-Channel, Multi-Parameter Transmitter
Modular Components	Yes	
Number of Flow Totalizers	2 Permanent 2 Resettable	1 Permanent 1 Resettable
Max. Sensor Inputs	2 frequency or (S ³ L) inputs	1
Mounting Options	Panel	Panel, Wall, Pipe, Tank
Display	LCD, Dot matrix	LCD with digital bar graph
Analog Output Types	(2) Passive 4 to 20 mA outputs, standard up to 6 via optional modules (optional relay module)	(2) Passive 4 to 20 mA (1) standard, (1) optional with 4 to 20 mA output module HART optional with H COMM module
Max. Relays / O.C.	4 dry contact relays or 2 mechanical and 2 solid state relays (optional relay module)	1 open collector (standard) 2 relays (optional relay module)
Derived Measurements	6 Derived Measurements Sum, Delta (Difference), Ratio, % Passage% Reject, % Recovery	N/A
Languages	English, French, German, Spanish and Simplified Chinese	English
Ambient Temperature (°C) Storage Temperature (°F)	DC -10 °C to 70 °C (14 °F to 158 °F) AC -10 °C to 60 °C (14 °F to 140 °F) -15 °C to 70 °C (5 °F to 158 °F)	-10 °C to 70 °C (14 °F to 158 °F) -15 °C to 70 °C (5 °F to 158 °F)
Relative Humidity	0 to 95%, non-condensing	
Power Requirements	DC - 24 VDC nominal (12 to 32 VDC, ±10% regulated) AC - 100 to 240 VAC, 50 to 60 Hz, 24 VA	24 VDC input range: 10.8 to 35.2 VDC regulated
Standards and Approvals	CE, FCC, UL, CUL, RoHS compliant, China RoHS, NEMA TYPE 4X/IP65 (front face only on panel mount)	CE, FCC, UL, CUL, RoHS compliant, Lloyd's Register, China RoHS, NEMA TYPE 4X/IP65 (front face only on panel mount); field mount is 100% NEMA TYPE 4X/IP65

Specification Matrix



	8900
Description	Multi-Channel, Multi-Parameter Controller
Modular Components	Yes
Number of Flow Totalizers	6 Permanent 6 Resettable
Max. Sensor Inputs	up to 2 frequency and 4 (S ³ L) or 6 (S ³ L) 6 total sensor inputs
Mounting Options	Panel
Display	LCD
Analog Output Types	(4) Passive/Active 4 to 20 mA or (2) 0 to 5/10 VDC
Max. Relays / O.C.	Up to 8 relays (via 8059)
Derived Measurements	Sum, Difference, % Recovery, % Reject, % Passage, Ratio, Power (BTU)
Languages	English, French, German, Spanish, Italian, and Portuguese
Ambient Temperature (°C) Storage Temperature (°F)	-10 °C to 55 °C (14 °F to 131 °F) -15 °C to 80 °C (5 °F to 176 °F)
Relative Humidity	0 to 95%, non-condensing
Power Requirements	12 to 24 VDC ±10%, regulated or 100 to 240 VAC ±10%, regulated, 50/60 Hz
Standards and Approvals	CE, FCC, UL, CUL, RoHS compliant, China RoHS NEMA 4X/IP65 (front face only)