Signet 2774-2777 DryLoc® pH/ORP Electrodes

General Purpose / Industrial

Flat Glass

Protected Bulb

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 Pt 1000 or 3KΩ 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 ¾ inch threads**
- **Compatible with all Signet instruments**

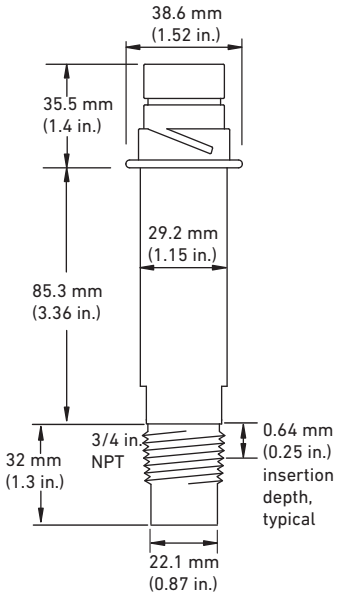
Applications

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

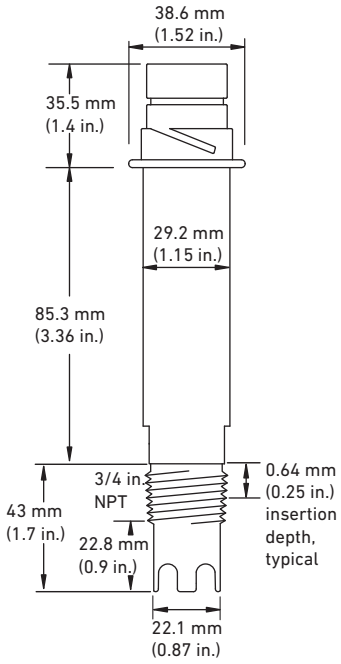
Specifications

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 3/4 male threaded extension.		
Temperature Sensor	pH	3 KΩ or Pt1000 RTD	
	ORP	none	
Shipping Weight			
	0.25 kg	0.55 lb	
Standards and Approvals			
	Manufactured under ISO 9001 for Quality		

Dimensions

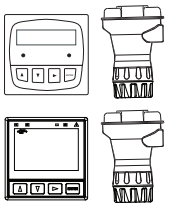
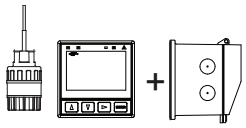
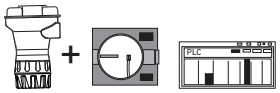
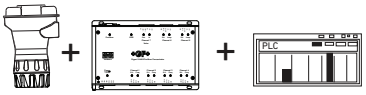


Flat Electrode



Bulb Electrode

System Overview

Panel Mount	Pipe, Tank, Wall	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 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

All sold separately

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*
	

*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. 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.

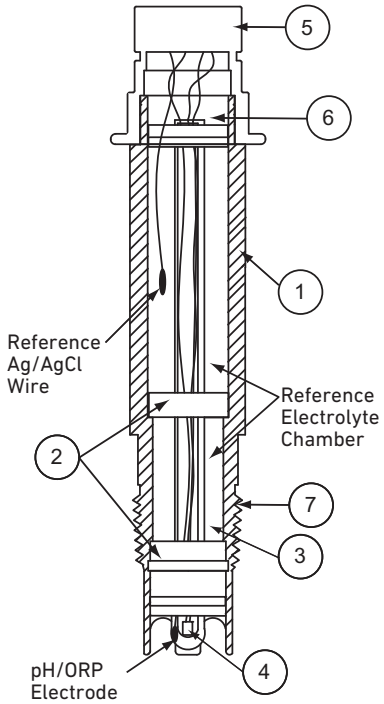
3. First reference chamber with KNO_3 protects Ag/AgCl wire for a prolonged sensor life.

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.

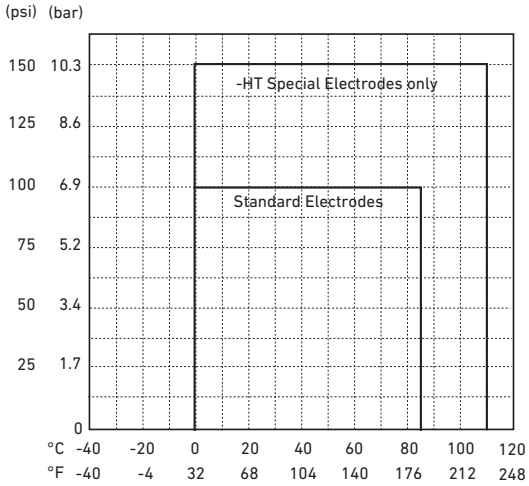
6. Memory chip enabled for convenient data storage and access (calibration data, operational data, and manufacturing data), electrode health monitoring via glass impedance measurement when used in connection with the 2751 pH/ORP Smart Sensor Electronics.

7. Threads for NPT process connection into reducing tees. Use off the shelf GF reducing tees DN20 to DN100 (3/4 to 4 in.).



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

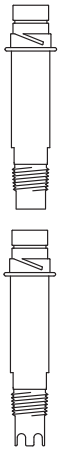
Quinhydrone

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.

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]

[1]3KΩ Balco RTD for connection to ProPoint and ProcessPro pH/ORP instrument series when used with the 2760 preamplifier.

[2]Pt1000 RTD for connection to the 8900, 9900, 9950 or Profibus Concentrator when used with the 2751 Smart Sensor Electronics. The 2751 has a digital (S^3L) 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.

[3]10 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.

[5]Option -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)