



Flat
Glass

Protected
Bulb

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

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

Features

- Patented DryLoc® connector with gold plated contacts
- Special design allows for installation at any angle, even inverted or horizontal
- 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 pH/ORP and other suppliers' instruments

Applications

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

Specifications

General

Compatibility	Signet Models 2750 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	FPM	

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

The best storage temperature for the 277x pH and ORP is

0 °C to 50 °C	32 °F to 122 °F
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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 2750 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

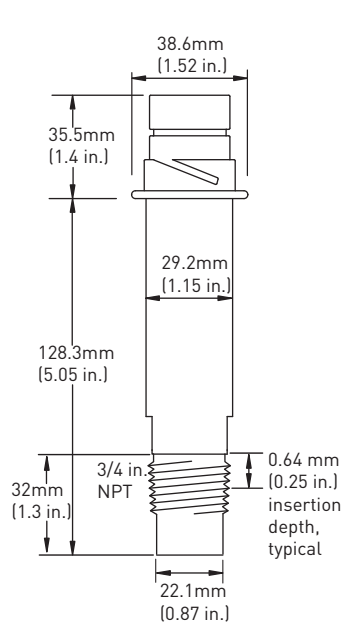
Shipping Weight

0.25 kg	0.55 lb
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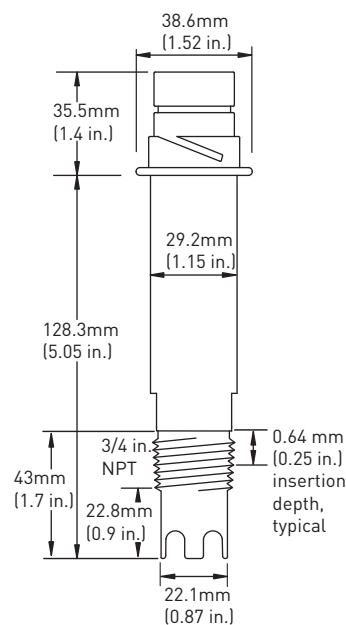
Standards and Approvals

Manufactured under ISO 9001 for Quality

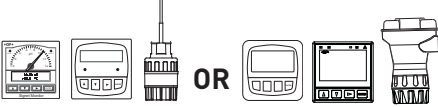

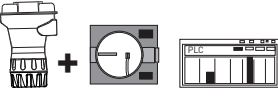
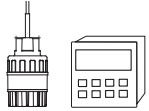

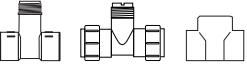

Dimensions



Flat Electrode



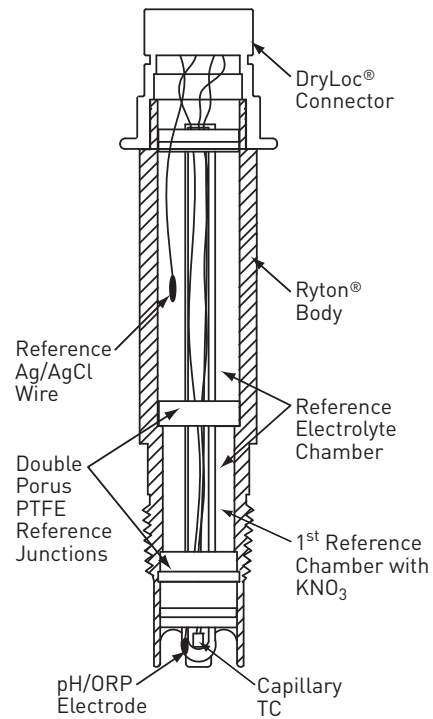
Bulb Electrode

System Overview	Panel Mount Signet Instruments 5700 8750 with 2760 Preamplifier 8900 9900 with 2750 Electronics 	Field Mount - Pipe, Tank, Wall Signet Instruments 8900 with 2750 Electronics 9900 with 2750 Electronics and 3-8050 Universal Mount kit 	4 to 20 mA Input 3-2750 Sensor Electronics and customer supplied Chart Recorder or Programmable Logic Controller 	Other Signet 2760 Preamplifier with Customer supplied Instrument 
	Signet 2774-2777 DryLoc pH/ORP Electrodes 			
	Fittings- Customer supplied for in-line installs 			All sold separately 
				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 brochure located in the K-Factors Fittings and More Kit (3-0000-709) for installation suggestions and options.

Electrode Key Features and Benefits:

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



Application Tips

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

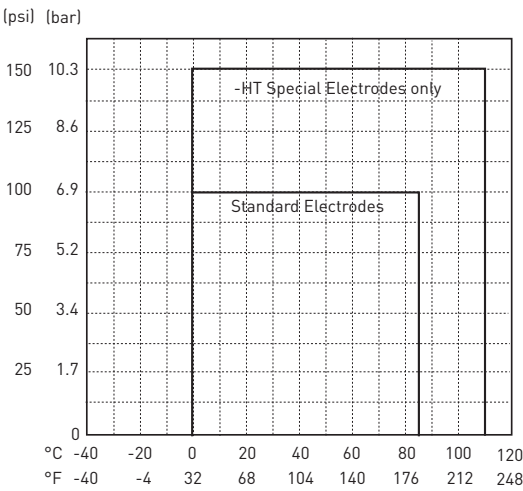
Model 2774-2777 Ordering Notes

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

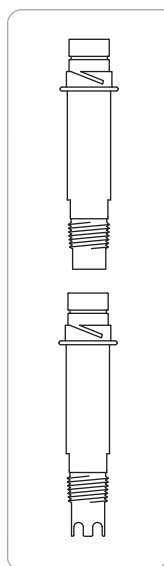
Operating Temperature/Pressure Graph

Note:

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



Ordering Information



Mfr. Part No.	Code	Tip design	Temperature Element
pH Electrodes			
3-2774	159 000 955	Flat	3K Ω RTD*
3-2776	159 000 959	Bulb with Protection	3K Ω RTD*
3-2774-1	159 000 956	Flat	PT1000 RTD**
3-2776-1	159 000 960	Bulb with Protection	PT1000 RTD**
ORP Electrodes			
3-2775	159 000 957	Flat	10 K ID resistor ¹
3-2777	159 000 961	Bulb with Protection	10 K ID resistor ¹
3-2775-1	159 000 958	Flat	No T.C ²
3-2777-1	159 000 962	Bulb with Protection	No T.C ²

*3K Ohm RTD for connection to 8750 or 5700 instruments when used with the 2760 preamplifier. The 2760 preamplifier is used for connection directly to Signet 5700 Monitor or 8750 transmitter.

**PT1000 RTD for connection to the 8900 or 9900 when used with the 2750 sensor electronics. The 2750 sensor electronics has a digital (S³L) output which is used with the 8900 Controller. It also has a 4 to 20 mA output for connections to PLC's, data recorders, etc.

¹10 K ID resistor for connection to the 8750 and 5700 when used with the 2760 preamplifier or the 8900 when used with the 2750 sensor electronics

²for use with other suppliers instruments when used with the 2760 connector

Special Order Options - Please consult the factory

for pH and ORP Electrodes - Options -HT and -C can only be used with the 3-2721 Preamplifier. These options cannot be used with the 2750 or 2760.

- HT High Temperature and Pressure options, up to 110 °C (230 °F) @ 150 psig; DryLoc® connector is removed and replaced with a 4.6 m (15 ft) cable.
- C Remove DryLoc® connector and add 4.6 m (15 ft) cable. Other cable lengths are available.
- ISO ISO 7/1-R 3/4 Threaded electrodes are available.

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 2750/2760
3-2721	198 864 610	Remote mount pH/ORP preamplifier

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

3-2774.099 Rev B (10/11)

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