

# Signet 2774-2777 Threaded DryLoc® pH/ORP Electrode



## Features

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

## Description

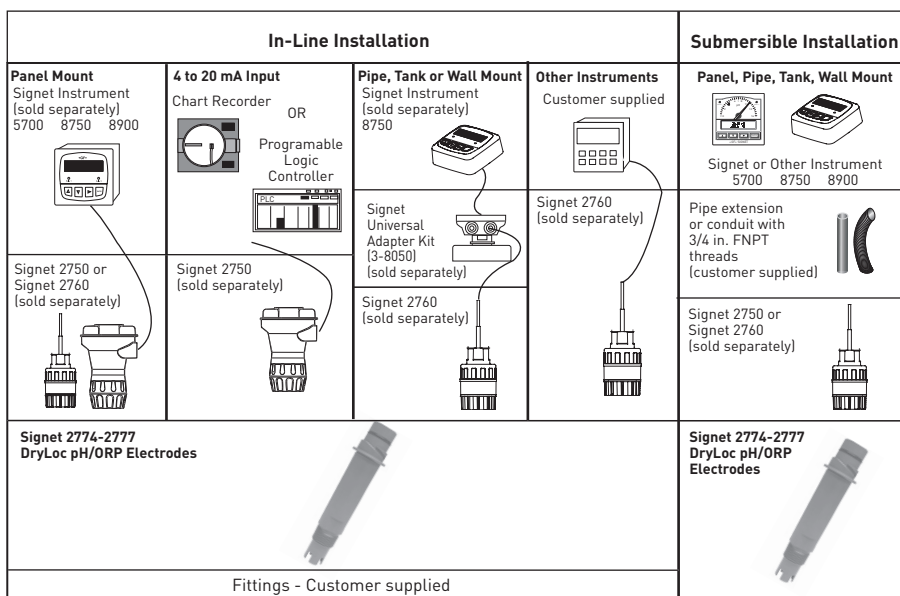
The Signet 2774 - 2777 pH and ORP Electrodes feature a unique foul-proof DryLoc® connector with gold-plated contacts designed specifically for use with the Signet 2750 and 2760 preamplifiers, sensor electronics, and connectors. These dependable and highly responsive electrodes feature a PTFE double reference junction and a large reference chamber that combine to extend the service-life. Embedded positioning of the temperature element in the pH/ORP 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.

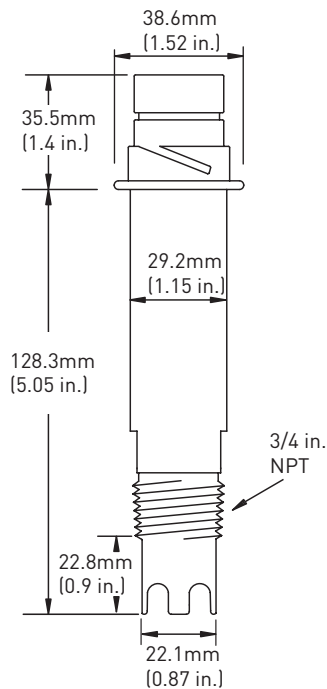
## Applications

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

## System Overview



## Dimensions



## Specifications

### General

Compatibility:  
Signet Models 2750 and 2760

Operating Range:  
 • 2774/2776: 0 to 14 pH  
 • 2775/2777: +/-2000 mV (ORP)  
 Pipe Size Range: 1 inch and up.

Reference:  
 Electrolyte:  
 KNO<sub>3</sub>/KCl acrylamide gel  
 Element: Ag/AgCl

Primary Functions:  
 • 2774 and 2775:  
 Flat surface resists fouling  
 • 2776 and 2777:  
 Bulb surface for general use

### Wetted Materials:

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

### Max. Temperature/Pressure rating:

Operating Temperature:  
 0°C to 85°C (32°F to 185°F)  
 Maximum Operating Pressure:  
 6.9 bar (100 psi)  
 Storage Temperature:  
 > 0°C (32°F)  
 Higher temperature and pressure sensors are available.

### Mounting:

- In-line/vertical mounting: Use the electrode's 3/4 in. threads to install into pipe fitting. Electrode can be mounted at any angle.
- Submersible mounting: Use threads on Model 2750 or 2760; requires 3/4 in. NPT or ISO7-R/ 3/4 in. male threaded extension.

### Temperature Sensor:

- pH: 3KΩ or PT1000 RTD
- ORP: none

Temperature response time:

$$\tau_{95\%} < 1 \text{ min.}$$

**Shipping Weight:** 0.25 kg (0.55 lbs.)

### Standards and Approvals

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

pH/ORP

## Model 2774-2777 Compatibility Selection Chart for Electronics and Instruments

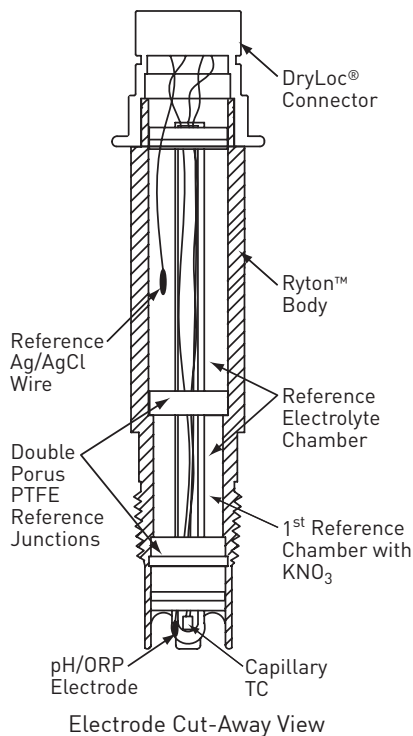
		Compatible Signet Instruments						
		Sensor Temp. Element	5700	8750	8900	PLC	Other Mfr's Instruments with internal preamplifiers*	Other Mfr's Instruments requiring external preamplified signals**
Compatible Electrodes	2774	3 KΩ	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	-	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2774-1	PT 1000	-	-	any 2750 w/ digital output	any 2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2775	10 KΩ	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	any 2750 w/ digital output	any 2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2775-1	None	-	-	-	-	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2776	3 KΩ	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	-	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2776-1	PT 1000	-	-	any 2750 w/ digital output	any 2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2777	10 KΩ	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	any 2750 w/ digital output	any 2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2777-1	None	-	-	-	-	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21

\*Must have internal preamplifier in instrument

\*\*Must use sensor with compatible temperature element; contact technical service for questions

**Electrode Key Features and Benefits:**

- Ryton™ body for chemical compatibility with 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/ORP electrode for quicker temperature response than most other electrodes on the market.
- DryLoc® connector with corrosion resistant gold pins for quick and easy sensor removal.



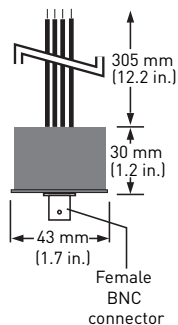
**Model 2774-2777**

**Ordering Notes:**

- 1) pH and ORP sensors require connection to model 2750 or 2760.
- 2) To replace electrodes, simply twist from pre-amplifier to replace with new electrode.
- 3) Conduit and mounting brackets for submersible installation must always be used (customer supplied).
- 4) All of these sensors can be installed upside-down.
- 5) Special order options may have longer delivery time. Consult your local George Fischer sales representative for lead times.

**2721 Remote Preamplifier**

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



**Application Tips:**

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

## Ordering Information

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

pH/ORP

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

Mfr. Part No.	Code	Mfr. Part No.	Code	Mfr. Part No.	Code	Mfr. Part No.	Code
3-2774	<b>159 000 955</b>	3-2776	<b>159 000 959</b>	3-2750-1	<b>159 000 744</b>	3-2760-1	<b>159 000 939</b>
3-2774-1	<b>159 000 956</b>	3-2776-1	<b>159 000 960</b>	3-2750-2	<b>159 000 745</b>	3-2760-2	<b>159 000 940</b>
3-2775	<b>159 000 957</b>	3-2777	<b>159 000 961</b>	3-2750-3	<b>159 000 746</b>	3-2760-3	<b>159 000 941</b>
3-2775-1	<b>159 000 958</b>	3-2777-1	<b>159 000 962</b>	3-2750-4	<b>159 000 842</b>	3-2760-4	<b>159 000 942</b>
						3-2760-11	<b>159 001 367</b>
						3-2760-21	<b>159 001 368</b>
						3-2760-31	<b>159 001 369</b>
						3-2760-41	<b>159 001 370</b>

## Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-0700.390	<b>198 864 403</b>	pH Buffer kit (includes pH 4.0, 7.0, and 10.0 buffer powder)
3-2759	<b>159 000 762</b>	pH/ORP System Tester
3-2759.391	<b>159 000 764</b>	Adapter Cable for use with 2750/2760
3-2721	<b>198 864 610</b>	Remote mount pH/ORP preamplifier

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