

# Signet 2774-2777 DryLoc® pH/ORP Electrodes



Flat Glass

Protected Bulb

## Description

The Signet 2774 - 2777 pH and ORP Electrodes feature a unique foul-proof DryLoc® connector with gold-plated contacts designed specifically for use with the Signet 2750 and 2760 preamplifiers, sensor electronics, and connectors. These dependable and highly responsive electrodes feature a PTFE double reference junction with  $\text{KNO}_3$  in the front chamber to block various poisoning ions such as Copper ( $\text{Cu}^{++}$ ), Lead ( $\text{Pb}^{++}$ ), Mercury ( $\text{Hg}^{++}$ ), and a large reference chamber that combine to extend the service-life. Embedded

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

## Features

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

## Applications

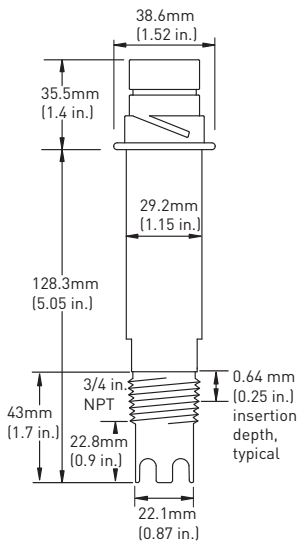
- Water Treatment & Water Quality Monitoring
- Demineralizer, Regeneration & Rinse
- Cooling Tower and Boiler Protection
- Aquatic Animal Life Support Systems
- Pool and Spa Control
- Neutralization Systems

## System Overview

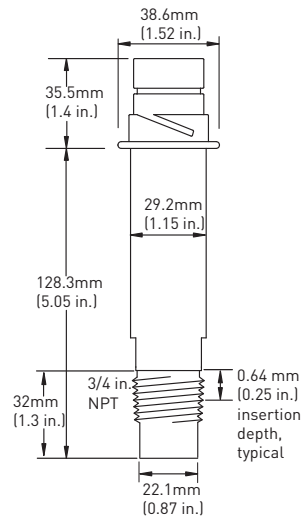
In-Line Installation				Submersible Installation		
<b>Panel Mount</b> Signet Instrument (sold separately) 5700 8750 8900 	<b>4 to 20 mA Input</b> Chart Recorder OR Programmable Logic Controller 	<b>Pipe, Tank or Wall Mount</b> Signet Instrument (sold separately) 8750  Signet Universal Adapter Kit (3-8050)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

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

## Dimensions



Bulb Electrode



Flat Electrode

## Specifications

### General

Compatibility:

Signet Models 2750 and 2760

Operating Range:

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

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

Reference:

Electrolyte:

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.

### Recommended Storage

#### Temperature

The best storage temperature for the 272X pH and ORP electrodes is 0 °C to 50 °C (32 °F to 122 °F)

- The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F)
- The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F)

### Mounting

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

Temperature Sensor:

- pH: 3 KΩ or PT1000 RTD
- ORP: none

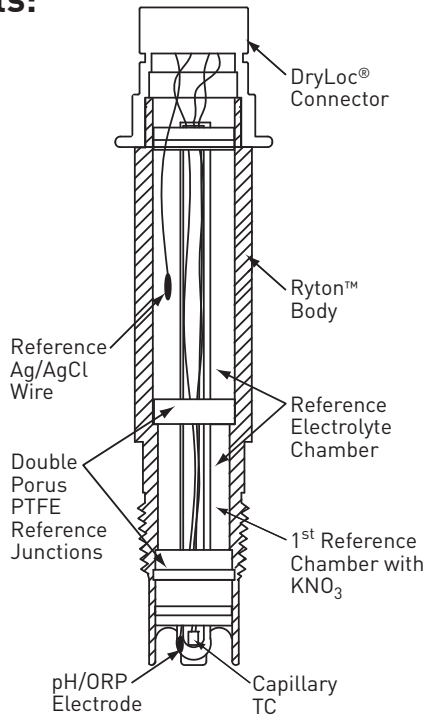
**Shipping Weight** 0.25 kg 0.55 lb

### Standards and Approvals

- Manufactured under ISO 9001 for Quality

## Electrode Key Features and Benefits:

- Ryton® body for chemical compatibility to most harsh chemicals. Also able to withstand high temperatures.
- Porous PTFE reference junctions are highly chemically resistant; resists fouling and dirt buildup.
- First reference chamber with  $\text{KNO}_3$  protects Ag/AgCl wire for a prolonged sensor life.
- Capillary TC (temperature sensor) embedded in tip of pH electrode for quicker temperature response than most other electrodes on the market.
- DryLoc® connector with corrosion resistant gold pins for quick and easy sensor removal.



Electrode Cut-Away View

## Model 2774-2777

### Ordering Notes

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

### Application Tips

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

## Ordering Information

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

\*The 2750 sensor electronics has a digital (S<sup>2</sup>L) output which is used with the 8900 Controller. It also has a 4 to 20 mA output for connections to PLC's, data recorders, etc.

\*\*The 2760 preamplifier is used for connection directly to Signet 5700 Monitor or 8750 transmitter.

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

## Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2700.395	<b>159 001 605</b>	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint pH 7.00
3822-7115	<b>159 001 606</b>	20 gm bottle Quinhydrone for ORP calibration (must use pH 4.01 and/or pH 7.00 buffer solutions)
3-0700.390	<b>198 864 403</b>	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3822-7004	<b>159 001 581</b>	pH 4 buffer solution, 1 pint (473 ml) bottle
3822-7007	<b>159 001 582</b>	pH 7 buffer solution, 1 pint (473 ml) bottle
3822-7010	<b>159 001 583</b>	pH 10 buffer solution, 1 pint (473 ml) bottle
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.

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