

# Signet 2754-2757 pH and ORP Electrodes



## Features

- Durable DryLoc® connector with gold plated contacts
- Self-cleaning flat versions reduce risk of glass breakage
- Large reference volume and solid polymer electrolyte
- Temperature sensor included in pH electrodes
- Wet-Tap electrodes available with glass or plastic bodies
- Wet-Tap electrodes can be mounted at any angle

## Description

The Signet 2754-2757 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 Sensor Electronics and preamplifiers. These dependable and highly responsive electrodes feature a large reference chamber volume and intelligent positioning of internal elements that combine to extend the service life. The electrodes are offered with either flat or bulb sensing elements. The flat versions allow sediment and particles to sweep past the measurement surface, minimizing the risks of abrasion, break-

age and coating. The bulb versions can be used for general purpose applications and are also offered with a glass or plastic body for use with the 3719 Wet-Tap assembly.

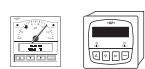
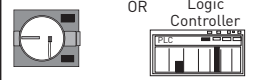
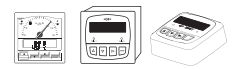
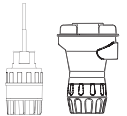


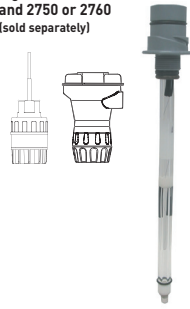
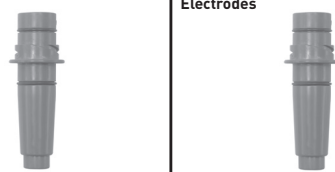


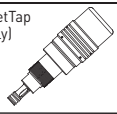


The choice of a PT-1000 or 3KΩ temperature sensor allows compatibility with all Signet pH/ORP instruments.

The 2754-2757 electrodes are the flagship sensors of the Signet pH/ORP product line. They are all-purpose sensors ideal for a wide range of universal applications.

## Applications

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

## System Overview

In-Line Installation		Submersible Installation	Wet-Tap 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>Panel, Pipe, Tank, Wall Mount</b> Signet Instrument (sold separately) 5700 8750 8900 	
Signet 2750 and 2760 (sold separately) with 	Signet 2750 Sensor Electronics (sold separately) with 	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads (customer supplied) 	<b>Signet 2756-WT or 2757-WT and 2750 or 2760 (sold separately)</b> 
<b>Signet 2754-2757 DryLoc® pH/ORP Electrodes</b> 	<b>Signet 2754-2757 DryLoc® pH/ORP Electrodes</b> 	Signet 2750 and Signet 2760 (sold separately) with <b>Signet 2754-2757 DryLoc® pH/ORP Electrodes</b> 	Signet 3719 WetTap (sold separately) 
Signet Fittings (sold separately) 		Signet Fittings (sold separately) 	



# Compatibility Matrix

		Compatible Signet Instruments				Other Mfr's Instruments with internal preamplifiers*	Other Mfr's Instruments requiring external pre-amplified signals**
		5700	8750	8900	PLC		
Compatible Electrodes	<b>2754</b>	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2754-HF</b>	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2755</b>	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2756</b>	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2756-DI</b>	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2756-WT</b>	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	<b>2756-WTP</b>	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	<b>2757</b>	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2757-WT</b>	2760-11, or -21	2760-11, or -21	2750 w/digital output	2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	<b>2757-WTP</b>	2760-11, or -21	2760-11, or -21	2750 w/digital output	2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	<b>2754-1</b>	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2754-HF-1</b>	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2756-1</b>	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2756-DI-1</b>	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	<b>2756-WT-1</b>	2760-11, or -21	2760-11, or -21	-	2750-1, -2 w/4 to 20 mA output	2760-31 or -41	2760-11, or -21
	<b>2756-WTP-1</b>	2760-11, or -21	2760-11, or -21	-	2750-1, -2 w/4 to 20 mA output	2760-31 or -41	2760-11, or -21

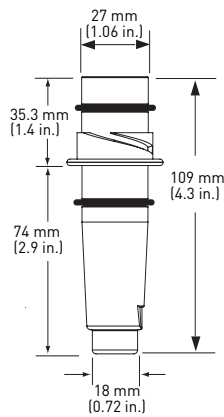
pH/ORP

\*Must have internal preamplifier in instrument

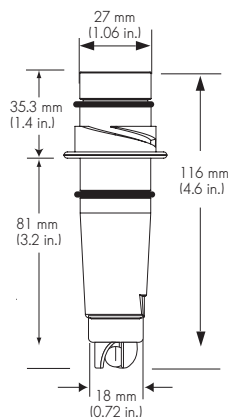
\*\*Must use sensor with compatible temperature element; contact technical service for questions

## Dimensions

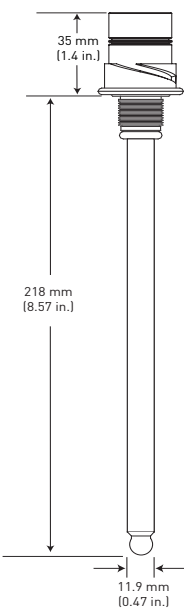
### 3-2754 Flat pH 3-2755 Flat ORP



### 3-2756 Bulb pH 3-2757 Bulb ORP



### 3-2756 Wet-Tap pH 3-2757 Wet-Tap ORP



## Specifications

### 2754 thru 2757 pH/ORP Electrodes General

#### Compatibility:

Signet 2750 and/or 2760 Sensor Electronics

#### Primary Functions:

- 2754 and 2755: Flat surface resists fouling
- 2756 and 2757: Bulb surface for general use
- 2754-HF: Extended use in applications with trace hydrofluoric acid (<2%)
- 2756-DI: Extended use in pure water (< 100  $\mu$ S)

#### Operating Range:

- 2754, 2756, 2756-DI : 0 to 14 pH
- 2754-HF: 0 to 12 pH
- 2755, 2757:  $\pm$  2,000 mV (ORP)

#### Temperature Sensor:

- PT-1000 or 3K Balco for pH; none for ORP
- Response time,  $\tau$  = 140 secs. (2754)  
196 secs. (2756)

#### Reference:

- Electrolyte: Solidified Acrylamide Gel 3.5M KCl 0.1 M KCl (2756-DI only)
- Element: Ag/AgCl

Efficiency: >97% @ 25°C (77° F)

#### pH Response Time:

< 5 secs. for 95% of signal change (for flat and bulb style electrodes)

ORP Response time: Application dependent

#### Wetted Materials:

- Body: CPVC
- Reference Junctions: Porous UHMW Polyethylene (standard) PTFE (wet-tap)
- Sensing surface: Glass
- O-rings: FPM

#### Max. Temperature and Pressure Rating

##### Operating Temperature:

- 2756/2756-DI/2757: 0°C to 85°C (32°F to 185°F)
- 2754/2755: 10°C to 85°C (50°F to 185°F)
- 2754-HF: 0°C to 50°C (32°F to 122°F)

##### Maximum Pressure:

- 6.89 bar @ 0°C to 65°C (100 psi @ 32°F to 149°F)
- 4.00 bar @ 65°C to 85°C (58 psi @ 150°F to 185°F)

##### Storage Temp.:

> -10°C (15°F) to 30°C (86°F)

##### Pipe Size Range:

- 0.5 in. and up: use Signet installation fittings from 0.5 to 4.0 in. (use pipe adapter in pipes over 4 in.)

##### Mounting:

- Pipe mounting with 2750/2760:  $\geq$ 5° to the horizontal plane
- Submersion with 2750/2760: use 3/4 in. NPT or ISO 7-1/R 3/4 in. Male threaded pipe extension

**Shipping Weight:** 0.25 kg (0.55 lb)

### 2756-WT and 2757-WT pH/ORP Wet-Tap Electrodes General

#### Compatibility:

Signet 3719 Wet-Tap Assembly, 2750 and/or 2760 Sensor Electronics

#### Operating Range:

- pH: 0 to 14 pH
- ORP: Application dependent

#### Connector (CPVC): DryLoc®

#### Temperature Sensor (pH):

PT-1000 or 3K Balco for pH; none for ORP  
Response time,  $\tau$  : 438 secs.

#### Reference junctions: Porous PTFE

- Electrolyte: 3.5M KCl
- Elements: Ag/AgCl

Efficiency: > 97% @ 25°C (77°F)

#### Response Time

- pH: < 5s for 95% of signal change
- ORP: Application dependent

Impedance (pH): < 150 M $\Omega$  @ 25°C

#### Sodium Ion Error:

< 0.05 pH in 0.1 molar Na<sup>+</sup> ion at 12.8 pH

#### Wetted Materials:

- Body: Glass or PAS (Poly Aryl Sulphone)
- Reference Junctions: Porous PTFE
- Sensing surface: Glass membrane (pH) Platinum (ORP)
- O-rings: FPM
- Connector: CPVC

#### Max. Temperature Rating

##### Operating Temperature:

0°C to 85°C (32°F to 185°F)

##### Storage Temperature:

0°C to 85°C (32°F to 185°F)

##### Mounting:

Any angle is acceptable. Use with 3719 wet-tap assembly for mounting electrodes.

**Shipping Weight:** 0.2 kg (0.4 lbs)

#### Standards and Approvals:

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

## Ordering Information

Electrode Part Number- Choose either a pH or ORP Electrode	
pH Electrode	
<b>3-2754</b>	Flat pH surface electrode
<b>3-2754-HF</b>	Flat pH surface electrode, for use in HF (hydrofluoric acid) in concentrations < 2%
<b>3-2756</b>	Bulb pH electrode with bulb protection
<b>3-2756-DI</b>	Bulb pH electrode with bulb protection, for process liquids <100 µS/cm conductivity
<b>3-2756-WT</b>	Glass electrode with DryLoc® connector; for use with the 3719 Wet-Tap Assembly only
<b>3-2756-WTP</b>	Plastic electrode iwth DryLoc® connector; for use with the 3719 Wet-Tap Assembly only
Temperature Element - Choose one	
-	PT-1000 RTD for pH, for use with the 8900 instrument when used with the 2750 sensor
-1	3KΩ for pH, for connection to 8750 or 5700 instruments when used with the 2760 preamplifier
ORP Electrode	
<b>3-2755</b>	Flat ORP surface electrode
<b>3-2757</b>	Bulb ORP electrode with bulb protection
<b>3-2757-WT</b>	Glass electrode; for use with the 3719 Wet-Tap Assembly only
<b>3-2757-WTP</b>	Plastic electrode; for use with the 3719 Wet-Tap Assembly only
<b>3-2754</b>	<b>Example Part Number</b>

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	
-1	Preamplifier with 3/4 inch NPT threads
-2	Preamplifier with 3/4 inch ISO threads
-3	Connector with 3/4 inch NPT threads
-4	Connector with 3/4 inch ISO threads
Mounting Configurations; Choose one	
-	Submersible mounting - gray body
1	In-line mounting - yellow body
<b>3-2760</b>	<b>Example Part Number</b>

### Model 2754-2757

#### Ordering Notes:

- 1) pH and ORP electrodes require connection to model 2750 or 2760.
- 2) To replace electrodes, simply untwist from preamplifier to replace with new electrode
- 3) Conduit and mounting brackets for submersible installation must always be used (customer supplied)
- 4) Use pipe adapters to install in pipes larger than 4 inches. Specify socket weld or NPT threads.

pH/ORP

#### Application Notes:

- 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.

Mfr. Part No.	Code	Mfr. Part No.	Code	Mfr. Part No.	Code
3-2750-1	<b>159 000 744</b>	3-2756-1	<b>159 001 397</b>	3-2760-1	<b>159 000 939</b>
3-2750-2	<b>159 000 745</b>	3-2756-DI	<b>159 000 751</b>	3-2760-2	<b>159 000 940</b>
3-2750-3	<b>159 000 746</b>	3-2756-DI-1	<b>159 001 382</b>	3-2760-3	<b>159 000 941</b>
3-2750-4	<b>159 000 842</b>	3-2756-WT	<b>159 000 834</b>	3-2760-4	<b>159 000 942</b>
3-2754	<b>159 000 747</b>	3-2756-WT-1	<b>159 001 383</b>	3-2760-11	<b>159 001 367</b>
3-2754-1	<b>159 001 380</b>	3-2756-WTP	<b>159 001 390</b>	3-2760-21	<b>159 001 368</b>
3-2754-HF	<b>159 000 748</b>	3-2756-WTP-1	<b>159 001 384</b>	3-2760-31	<b>159 001 369</b>
3-2754-HF-1	<b>159 001 381</b>	3-2757	<b>159 000 752</b>	3-2760-41	<b>159 001 370</b>
3-2755	<b>159 000 749</b>	3-2757-WT	<b>159 000 835</b>		
3-2756	<b>159 000 750</b>	3-2757-WTP	<b>159 001 391</b>		

## Accessories and Replacement Parts

Mfr. Part No.	Code	Description
<b>Calibration</b>		
3-2759	<b>159 000 762</b>	pH/ORP System Tester
3-0700.390	<b>198 864 403</b>	pH Buffer Kit (includes 4.0, 7.0, and 10.0 buffer powder)
<b>Mounting</b>		
P31515-0P200	<b>159 000 630</b>	PVC Pipe Adapter, 1.25 in. O.D.
P31515-0C200	<b>159 000 631</b>	CPVC Pipe Adapter, 1.25 in. O.D.
P31515-0V200	<b>159 000 459</b>	PVDF Pipe Adapter, 1.25 in. O.D.
<b>Other</b>		
1220-0021	<b>198 801 186</b>	O-ring, FPM (for electrodes)
1224-0021	<b>198 820 006</b>	O-ring, EPDM (for electrodes)
1228-0021	<b>198 820 007</b>	O-ring, Kalrez (for electrodes)
3-2759.391	<b>159 000 764</b>	Adapter Cable for use w/2750, 2760
5523-0624	<b>159 000 636</b>	Cable, 24AWG, 6 conductor (specify length)

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