

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
Panel Mount Signet Instrument (sold separately) 5700 8750 8900 	4 to 20 mA Input Chart Recorder OR Programmable Logic Controller 	Panel, Pipe, Tank, Wall Mount 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) 	Signet 2756-WT or 2757-WT and 2750 or 2760 (sold separately)
Signet 2754-2757 DryLoc® pH/ORP Electrodes 	Signet 2754-2757 DryLoc® pH/ORP Electrodes 	Signet 2750 and Signet 2760 (sold separately) with Signet 2754-2757 DryLoc® pH/ORP Electrodes 	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	2754	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2754-HF	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2755	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
	2756	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2756-DI	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2756-WT	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	2756-WTP	-	-	2750 w/digital output	2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	2757	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
	2757-WT	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
	2757-WTP	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
	2754-1	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
	2754-HF-1	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
	2756-1	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
	2756-DI-1	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
	2756-WT-1	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
	2756-WTP-1	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

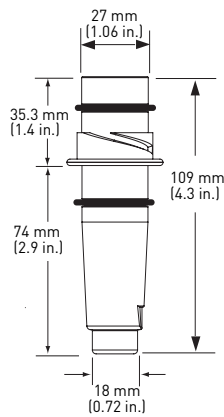
pH/ORP

*Must have internal preamplifier in instrument

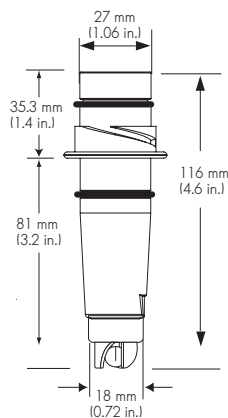
**Must use sensor with compatible temperature element; contact technical service for questions

Dimensions

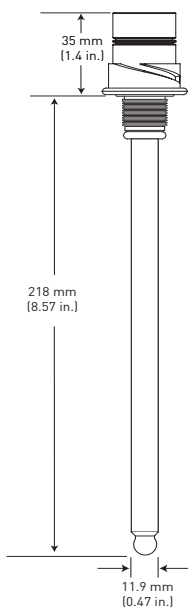
3-2754 Flat pH 3-2755 Flat ORP



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 μ 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, τ = 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, τ : 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 Ω @ 25°C

Sodium Ion Error:

< 0.05 pH in 0.1 molar Na⁺ 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	
3-2754	Flat pH surface electrode
3-2754-HF	Flat pH surface electrode, for use in HF (hydrofluoric acid) in concentrations < 2%
3-2756	Bulb pH electrode with bulb protection
3-2756-DI	Bulb pH electrode with bulb protection, for process liquids <100 µS/cm conductivity
3-2756-WT	Glass electrode with DryLoc® connector; for use with the 3719 Wet-Tap Assembly only
3-2756-WTP	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	
3-2755	Flat ORP surface electrode
3-2757	Bulb ORP electrode with bulb protection
3-2757-WT	Glass electrode; for use with the 3719 Wet-Tap Assembly only
3-2757-WTP	Plastic electrode; for use with the 3719 Wet-Tap Assembly only
3-2754	Example Part Number

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.	
3-2750-1	In-line Sensor electronics w/junction box
3-2750-2	In-line Sensor electronics w/junction box and EasyCal
3-2750-3	Submersible Sensor electronics w/4.6m (15 ft) cable and 3/4 in. NPT threads
3-2750-4	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	
3-2760	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
3-2760	Example Part Number

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	159 000 744	3-2756-1	159 001 397	3-2760-1	159 000 939
3-2750-2	159 000 745	3-2756-DI	159 000 751	3-2760-2	159 000 940
3-2750-3	159 000 746	3-2756-DI-1	159 001 382	3-2760-3	159 000 941
3-2750-4	159 000 842	3-2756-WT	159 000 834	3-2760-4	159 000 942
3-2754	159 000 747	3-2756-WT-1	159 001 383	3-2760-11	159 001 367
3-2754-1	159 001 380	3-2756-WTP	159 001 390	3-2760-21	159 001 368
3-2754-HF	159 000 748	3-2756-WTP-1	159 001 384	3-2760-31	159 001 369
3-2754-HF-1	159 001 381	3-2757	159 000 752	3-2760-41	159 001 370
3-2755	159 000 749	3-2757-WT	159 000 835		
3-2756	159 000 750	3-2757-WTP	159 001 391		

Accessories and Replacement Parts

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

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