

Signet 2750 and 2760 DryLoc® pH/ORP Sensor Electronics and Preamplifiers

Features

- In-line integral mount and submersible installation versions
- Automatic temperature compensation
- Auto configuration for pH or ORP operation
- Optional EasyCal calibration aid with automatic buffer recognition
- Junction boxes for convenient wiring
- Compatible with 3719 pH/ORP Wet-Tap



Description

The Signet 2750 and 2760 pH/ORP Sensor Electronics and Preamplifiers, featuring DryLoc® connectors, provide a variety of functions to suit various requirements.

The 2760 is a preamplifier that allows any DryLoc® pH/ORP electrode to work with most Signet instruments. It is also sold as a simple connector for use with other manufacturers' instruments that do not require a preamplified signal.

The 2750 comes with the same pre-amplified signal as the 2760, but features two different outputs: a two-wire 4 to 20 mA loop output, or a digital (S³L) output which allows for longer cable lengths and is compatible with the Signet 8900 Multi-

Parameter Controller. The 2750 devices self-configure for pH or ORP operation via automatic recognition of the electrode type. The optional EasyCal feature allows simple push-button calibration and includes an LED indicator for visual feedback.

The DryLoc® electrode connector found on both models quickly forms a robust assembly for submersible and in-line installations. NEMA 4X junction enclosures are integral parts of the 2750 in-line version and are also available as accessories for both Models 2750 (submersible version) and 2760.



Application

- Water/Wastewater Treatment
- Neutralization Systems
- Scrubber Control
- Effluent Monitoring
- Surface Finishing
- Flocculent Coagulation
- Heavy Metal Removal and Recovery
- Toxics Destruction
- Sanitization Systems
- Pool & Spa Control
- Aquatic Animal Life Support Systems

System Overview

In-Line Installation			Submersible Installation	Wet-Tap Installation
Panel Mount Signet Instrument (sold separately) 5700 8750 8900 	Pipe, Tank, Wall Mount Signet pH/ORP Transmitter (sold separately) 8750 Signet Universal Adapter Kit (3-8050) (sold separately) 	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 Sensor Electronics and Preamplifier 	Signet 2760 Preamplifier 	Signet 2750 Sensor Electronics 	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads (customer supplied) 	Signet 2750 or 2760
DryLoc® pH/ORP Electrodes 2764-2767, 2754-2757, 2774-2777 (sold separately) 			Signet 2750 and 2760 Sensor Electronics and Preamplifier 	Signet 3719 Wet-Tap with 2756 and 2757 Wet-Tap electrodes (sold separately)
2754-2757 DryLoc® Electrodes: Use Signet Fittings 2764-2767 and 2774-2777 DryLoc® Electrodes: Use 3/4 in. or 1 in. NPT fittings (customer supplied)			DryLoc® pH/ORP Electrodes 2764-2767, 2754-2757, 2774-2777 (sold separately) 	Signet Fittings* (sold separately)

*See Fittings section for more information.

Specifications

2750 Sensor Electronics and 2760 Pre-amplifier

General

Compatible Electrodes:

Signet DryLoc® pH and ORP Electrodes
Models 2754-2757, 2764-2767,
2774-2777

Operational Range:

- pH: 0 to 14 pH
- ORP: $\pm 2,000$ mV
- Temperature (submersible):
0° C to 85° C (32°F to 185°F)
- Temperature (in-line):
0° C to 110° C (32°F to 230°F)

Response Time*:

- pH: < 6 sec. for 95% of change
- ORP: application dependent
- Temp.: 140 seconds (2754),
196 seconds (2756)

* includes response time of electrodes

Materials:

- 2750 and 2760 (in-line): Valox® (PBT)
- 2750 and 2760 (submersible): CPVC

Electrical

Cable (2750):

4.6m/15 ft, 3-conductor shielded
22AWG

Cable (2760):

- 4.6m/15 ft, supplied, 120m/400 ft max
- 6 cond., foil shield with drain wire,
24AWG

Power:

- 12 to 24VDC for 4 to 20mA output
- 5VDC $\pm 5\%$ regulated, 3mA max.,
for digital (S³L) output

Current output (2750 only):

- pH:
Fixed 4 to 20mA, isolated, = 0 to 14 pH
(custom scaling available)
- ORP:
Fixed 4 to 20mA, isolated, = -1000 to
2000mV (custom scaling available from
 ± 2000 mV)
- Max Loop Resistance:
100 Ω max. @ 12V
325 Ω max. @ 18V
600 Ω max. @ 24V
- Accuracy: $\pm 32\mu$ A
- Resolution: $\pm 5\mu$ A
- Update Rate: 0.5 seconds
- Error indication: 3.6mA

Digital (S³L) output (2750 only):

- Serial ASCII, TTL level 9600 bps
- Accuracy:
pH: ± 0.03 pH @ 25° C (77°F)
ORP: ± 2 mV @ 25° C (77°F)
- Resolution:
pH: ≤ 0.01 pH
ORP: 1mV
Temp.: $\leq 0.2^\circ$ C (32.3°F)

Electrical (continued)

- Update Rate: 0.5 seconds
- Available Data:
Raw mV, pH or ORP, temperature (pH)
- Error indication:
Open input diagnostic
- Input Impedance, Z: $>10^{11}\Omega$

Environmental

Enclosure Rating:

- 3-2750-1 & -2: NEMA 4X/IP65 with
electrode connected
- 3-2750-3 & -4, 3-2760-1, -2, -3, -4:
NEMA 6P/IP68 with electrode and
watertight conduit and/or extension
pipe connected
- 2760-11, -21, -31, -41: NEMA 4 with
electrode and watertight conduit and/
or extension pipe connected

Max. Pressure and Temperature Rating

Operating Temperature:

0° C to 85° C (32°F to 185°F)

Storage Temperature:

-20° C to 85° C (-4°F to 185°F)

Relative Humidity:

0 to 95%, non-condensing (without
electrode connected)

Shipping Weight:

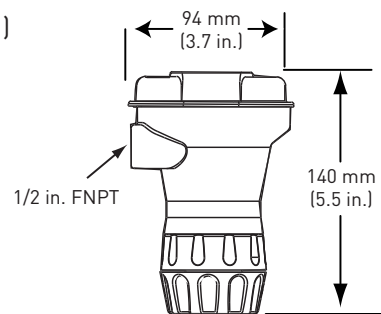
- 2750-1 & 2 (in-line): 0.75 kg (1.65 lb)
- 2750-3 & -4 and all 2760:
0.64 kg (1.41 lb.)

Standards and Approvals

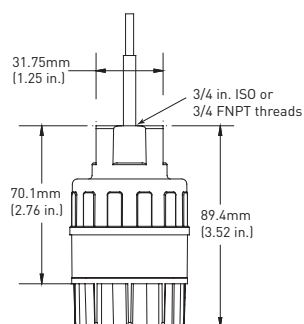
- CE
- Manufactured under ISO 9001:2000
for Quality and ISO 14001:2004 for
Environmental Management

Dimensions

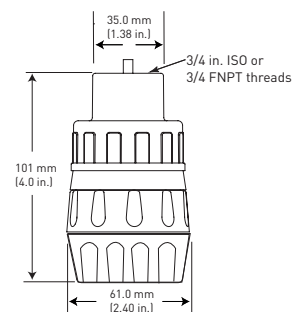
3-2750-1,-2



3-2750-3, -4 3-2760-1, -2, -3, -4



3-2760-11, -21, -31, -41



+GF+ Compatibility Matrix

		Compatible Signet Instruments						
		Sensor Temp. Element	5700	8750	8900	PLC	Other Mfg's Instruments with internal preamplifiers*	Other Mfg's Instruments requiring external preamplified signals**
Compatible Electrodes	2754	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
	2754-HF	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
	2755	None	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
	2756	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
	2756-DI	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
	2756-WT	PT 1000	-	-	any 2750 w/ digital output	any 2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	2756-WTP	PT1000	-	-	any 2750 w/ digital output	any 2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	2757	None	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
	2757-WT	None	2760-11, or -21	2760-11, or -21	any 2750 w/ digital output	any 2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	2757-WTP	None	2760-11, or -21	2760-11, or -21	any 2750 w/ digital output	any 2750 w/4 to 20 mA output	2760-31 or -41	2760-11 or -21
	2754-1	3 Kohm	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	any 2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2754-HF-1	3 Kohm	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	any 2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2756-1	3 Kohm	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	any 2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2756-DI-1	3 Kohm	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	any 2750 w/4 to 20 mA output	2760-3, -4, -31, or -41	2760-1, -2, -11, or -21
	2756-WT-1	3 Kohm	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	3 Kohm	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
	2764-1	3 Kohm	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	-	Differential sensors must use preamplifier at sensor location; otherwise, sensor signal will be too erratic due to high impedance signals	2760-1, -2, -11, or -21
	2764-2	PT 1000	-	-	any 2750 w/ digital output	any 2750 w/4 to 20 mA output		2760-1, -2, -11, or -21
	2764-3	300 ohm	-	-	-	-		2760-1, -2, -11, or -21
	2765-1	None	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		2760-1, -2, -11, or -21
	2765-2	PT 1000	-	-	-	-		2760-1, -2, -11, or -21
	2765-3	300 ohm	-	-	-	-		2760-1, -2, -11, or -21
	2766-1	3 Kohm	2760-1, -2, -11, or -21	2760-1, -2, -11, or -21	-	-		2760-1, -2, -11, or -21
	2766-2	PT 1000	-	-	any 2750 w/ digital output	any 2750 w/4 to 20 mA output		2760-1, -2, -11, or -21
	2766-3	300 ohm	-	-	-	-		2760-1, -2, -11, or -21
	2767-1	None	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		2760-1, -2, -11, or -21
	2767-2	PT 1000	-	-	-	-		2760-1, -2, -11, or -21
	2767-3	300 ohm	-	-	-	-		2760-1, -2, -11, or -21
	2774	3 Kohm	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 Kohm	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 Kohm	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 Kohm	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. For further assistance, contact your local Georg Fischer Sales Office.

Ordering Information

Sensor Electronics		
3-2750	Sensor Electronics with preamplified signal and Digital (S ³ L) output (for use with the 8900 instrument) or 4 to 20 mA output - power supplied to unit dictates output type.	
↓	-1	In-line Sensor electronics (yellow body)
	-2	In-line Sensor electronics with EasyCal (yellow body)
	-3	Submersible Sensor electronics with 4.6m (15 ft) cable and 3/4 in. NPT threads
	-4	Submersible Sensor electronics with 4.6m (15 ft) cable and ISO 7/1R 3/4 threads
↓		
	3-2750	-2 Example Part Number

Preamplifier and Connector			
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 (15 ft. cable)		
↓	Preamplifier or Connector Style; Choose one		
	-1	Preamplifier, with 3/4 in. NPT threads and 4.6m (15 ft.) cable	
	-2	Preamplifier, with 3/4 in. ISO threads and 4.6m (15 ft.) cable	
	-3	Connector with 4.6m (15 ft) cable and 3/4 in. NPT threads	
	-4	Connectors with 4.6m (15 ft) cable and ISO 7/1R 3/4 threads	
	↓	Mounting Configurations	
		-	Submersible mounting (gray body)
		1	In-line mounting (yellow body)
	↓		
		3-2760	-2 Example Part Number

Mfr. Part No.	Code	Mfr. Part No.	Code
3-2750-1	159 000 744	3-2760-1	159 000 939
3-2750-2	159 000 745	3-2760-2	159 000 940
3-2750-3	159 000 746	3-2760-3	159 000 941
3-2750-4	159 000 842	3-2760-4	159 000 942
		3-2760-11	159 001 367
		3-2760-21	159 001 368
		3-2760-31	159 001 369
		3-2760-41	159 001 370

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Calibration		
3-2759	159 000 762	pH/ORP System Tester (adapter cable sold separately)
3-2759.391	159 000 764	2759 Adapter Cable for use with 2750 and 2760 DryLoc [®] Sensor Electronics
3-0700.390	198 864 403	pH Buffer Kit
Mounting		
3-8050-1	159 000 753	Universal Mount Junction Box
3-8050-2	159 000 754	Universal Mount Junction Box w/EasyCal
3-9000.392-1	159 000 839	Liquid Tight Connector Kit, NPT (1 connector)
3-9000.392-2	159 000 841	Liquid Tight Connector Kit, PG13.5 (1 connector)
Other		
5523-0322	159 000 761	Cable, 3-cond. plus shield, 22AWG, black/red/white (for use with 2750)
5523-0624	159 000 636	Cable, 6-cond. plus shield, 24AWG, black/red/white (for use with 2760)

Model 2750 and 2760

Ordering Information:

- 1) Model 2750 requires 12 to 24VDC to function as a blind 4 to 20mA output transmitter.
- 2) Order a 3-2750-2 or any other 2750 with a junction box 3-8050-2 if the EasyCal feature is desired.
- 3) Conduit and mounting brackets for submersion installation must always be used (customer supplied).
- 4) The 3-2759 System Tester must be ordered with the adapter cable 3-2759.391 for exclusive use with the 2750 and 2760.
- 5) All sensor electronics, preamplifiers and connectors require a DryLoc[®] electrode for full system installation.
- 6) Use Models 2754-2757, 2764-2767 and 2774-2777 pH and ORP electrodes with either the 2760 or 2750.

Application Tips:

- The EasyCal feature automatically recognizes standard 4.0, 7.0, and 10.0 pH buffer or ORP Quinhydrone solutions and simplifies calibration
- Frequency of calibration of electrodes is dependent upon the application parameters.