



3-2759.090

Rev. E 04/11

English

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1. Description

The Signet 2759 pH/ORP Simulator is a battery-powered millivolt generator that simulates pH values of 4, 7 and 10, plus ORP values of ± 700 mV. This device is useful as a troubleshooting aid and for general verification of system operation. It is not a substitute for periodic system calibration with pH buffers or test solutions. Accessory adapter cables (sold separately) enable the 2759 to connect directly to 2750 pH/ORP Sensor Electronics or 2760 pH/ORP Preamplifier. The adapters include a selector switch for pH or ORP simulation. The switch triggers automatic sensor-recognition software in Signet pH/ORP instrumentation.

Features:

A) Power OFF Button

B) Output simulation buttons and indicators.

Simulate pH and ORP output at five fixed values:
 pH 4, pH 7, pH 10, -700 mV and +700 mV.
 Pressing one of these buttons turns the 2759 on.

C) Low battery indicator

D) High Ω switch:

- Adds 1000 M Ω resistance in series with output.
- Simulates high impedance of pH electrodes.
- Used to verify proper preamplifier operation.

E) Adapter cable:

PN 3-2759.391 for use with the 2750 or 2760.

F) Bypass adapter cable:

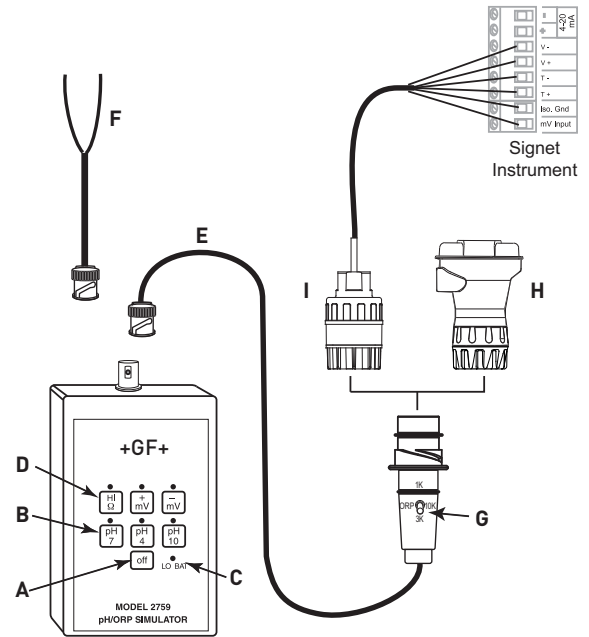
PN 3-2759.390 (included with 2759) to connect directly to an instrument.

G) Mode selector switch:

- Trigger automatic sensor recognition software in Signet pH/ORP instrumentation.
- Top = 1K for a Signet 8900 or 9900 instrument needing PT1000 temperature compensation input.
 - Middle = 10K for ORP simulation.
 - Bottom = 3K for Signet 5700 and 8750 instruments needing a 3K temperature compensation input.

H) 2750 Sensor Electronics

I) 2760 Preamplifier



2. Specifications

mV output accuracy:..... ± 0.6 mV (± 0.01 pH)

pH system temperature simulation:

w/2750 adapter: 1.1 K Ω = 25 $^{\circ}$ C (± 4 $^{\circ}$ C)

w/2760 adapter: 3 K Ω = 25 $^{\circ}$ C (± 4 $^{\circ}$ C)

High Ω resistor value: 1000 M Ω

Battery: 9V alkaline

Life: 400 hours

Dimensions: 100 x 75 x 23 mm

(3.94 x 2.95 x 0.91 in.)

Weight: 120 grams (5 oz.)

mV Value

	+177 mV
	0 mV
	-177 mV
	-700 mV
	+700 mV

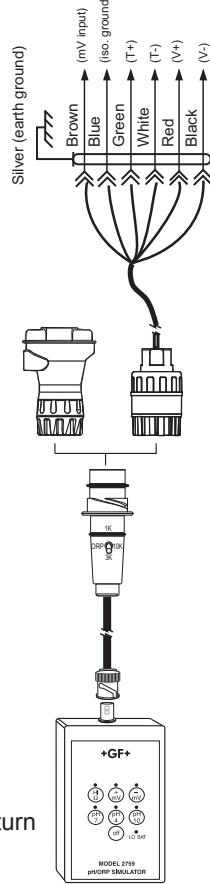
3. Troubleshooting ProcessPro, ProPoint, and 2760 Pre-amplifier

A

Connecting the 2759 output to the 3-2759.391 adapter cable then connecting to the 2760 preamplifier simulates the output of the pH/ORP electrode.

This configuration is used to verify general system operation. Every element of the system is tested except the electrode.

- Press any output simulation button to turn the 2759 on.
- Press OFF button to turn the 2759 off.



Step 1: Routine maintenance and calibration using buffers

- The most common problem in pH or ORP systems are related to electrode depletion or physical obstruction and fouling.
- Perform routine electrode maintenance, including cleaning and inspection of the electrode, then calibrate the system using buffer solutions. See the electrode and 2760 Pre-amplifier manuals for more information.

Does the meter respond to buffers correctly?

- Yes: Problem resolved by cleaning/calibration.
No: Go to next step.

Step 2: Electrode: Connect 2759 as in "A"

This step requires the 3-2759.391 adapter cable.

- Connect the 2759 to the appropriate adapter cable, then insert adapter into 2760 preamplifier.
- Slide the Mode selector switch to the proper position.
- Press output simulation buttons and then HIΩ button. (The HIΩ button must be pressed **after** each output button.)
- See Section 5: Response Chart for proper display

Does the meter read valid temp and pH/ORP?

- Yes: The electrode is at fault. Replace the electrode.
No: Go to next step.

Step 3: Verify meter calibration

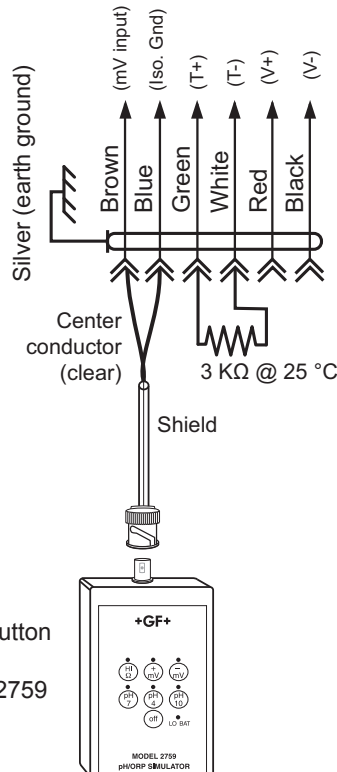
- Recalibrate the temperature, standard and slope in meter, using 2759 as input.
- Press output simulation buttons.
See Section 5: Response chart for proper display

Does the meter display valid pH or ORP?

- Yes: Problem resolved by meter calibration.
No: Go to next step.

Connecting the 2759 directly to the meter with the 3-2759.390 Bypass cable simulates the output of the 2760 preamplifier.

B



- Press any output simulation button to turn the 2759 on.
- Press OFF button to turn the 2759 off.

Step 4: Check the meter and preamplifier Connect 2759 as in "B"

- Connect the 2759 directly into the meter using the bypass adapter cable.
- Connect a 3 KΩ resistor (not supplied) to the temp input of meter.
- Press output simulation buttons.

Does the meter display a valid temperature (20 °C to 30 °C) and pH/ORP?

- Yes: If there are no cable junctions from the preamplifier to the meter, replace the preamplifier. If there are junctions, go to next step.
No: Problem is in meter. Repair or replace the meter.

Step 5: Check interconnecting cable and junctions

- Connect 2759 and bypass cable at any J-Box or cable splice between the preamplifier and the meter.
- Press output simulation buttons.
See Section 5: Response chart for proper display

Does the meter read valid temp and pH/ORP?

- Yes: Problem is preamplifier or cable from preamplifier to junction.
No: Problem is in cable.
Check all terminals and splices. Replace cable if necessary.

4. Troubleshooting 2750 pH/ORP Electronics

Before using the 2759:

- The most common cause of pH/ORP system problems is electrode depletion.
- Perform routine electrode maintenance, including cleaning and inspection of the electrode, then calibrate the system.
- See the electrode and 2750 Sensor manuals for detailed information.

If the problem persists, or to verify general system operation:

This test procedure requires the 3-2759.391 adapter cable.

Connecting the 2759 output to the 3-2759.391 adapter cable then connecting the adapter into the 2750 sensor electronics simulates the output of the pH/ORP electrode.

- Always use the HIΩ button with the 3-2759.391 adapter cable.
- Connect the 2759 to the 3-2759.391 adapter cable, then insert adapter into 2750 electronics.
- Monitor the 2750 output using current monitoring device.
- Slide the 2759 Mode selector switch to the proper position (pH or ORP).
- Press output simulation buttons and then HIΩ button.

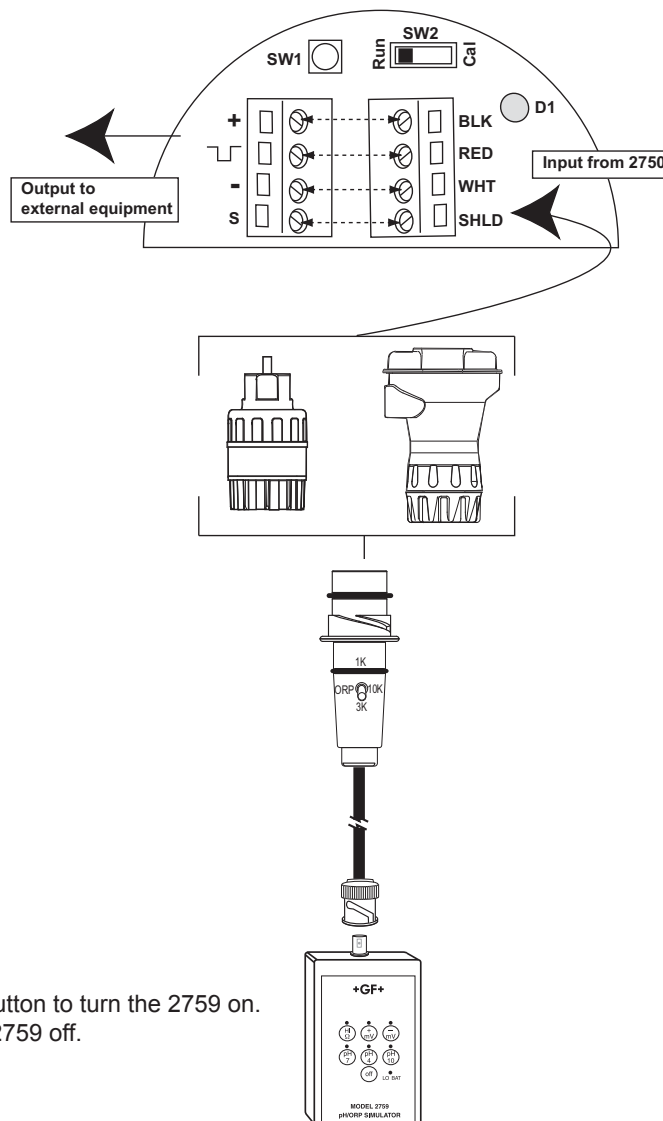
(The HIΩ button must be pressed **after** each output button.)

See Section 5: Response Chart for proper display.

Does the meter read a valid temp and pH/ORP?

Yes: The system is working fine or there is a problem with the electrode. Replace the electrode if necessary.

No: Problem is in 2750 Sensor Electronics. Replace the 2750.



- Press any output simulation button to turn the 2759 on.
- Press OFF button to turn the 2759 off.

5: pH and ORP System Response Chart

2759 Button	pH System Response	ORP System Response*
-700 mV	2750 current output: 20 mA (max. output) 5700 pH display: 15 pH 8750 pH display: 15 pH	2750 current output: 5.6 mA All ORP displays: -700 mV
10 pH (-177 mV)	2750 current output: 15.4 mA All pH displays: 10 pH	2750 current output: 8.4 mA All ORP displays: -177 mV
7 pH (0 mV)	2750 current output: 12 mA All pH displays: 7 pH	2750 current output: 9.3 mA All ORP displays: 0 mV
4 pH (+177 mV)	2750 current output: 8.6 mA All pH displays: 4 pH	2750 current output: 10.3 mA All ORP displays: +177 mV
+700 mV	2750 current output: 4 mA (min. output) 5700 pH display: 0 pH 8750 pH display: 0 pH	2750 current output: 13.1 mA All ORP displays: +700 mV

* 4 to 20 mA output values assume factory full span settings:

pH: 0 to 14 (+414 mv to -414 mV)
ORP: -1000 to +2000 mV

Ordering Information

Mfr. Part No.	Code	Description
3-2759	159 000 762	pH/ORP Simulator/System Tester (includes bypass adapter cable)

Parts and accessories

3-2759.390	159 000 763	Bypass Adapter Cable (included with 2759)
3-2759.391	159 000 764	2750/2760 Adapter Cable

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