

Signet 2759 pH/ORP Simulator and System Tester

English



3-2759.090

Rev. D 8/05

English

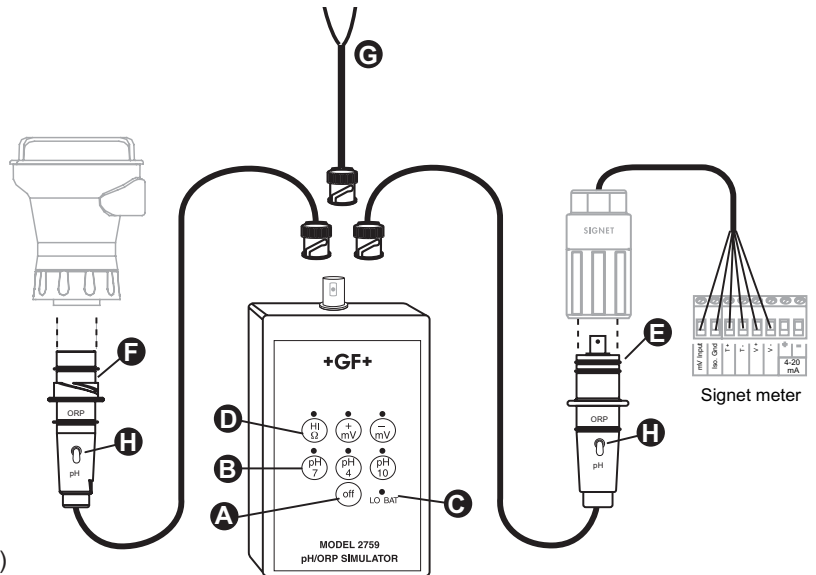
1. Description
2. Specifications
3. Troubleshooting ProcessPro, ProPoint and Intelk-Pro
4. Troubleshooting 2750 pH/ORP Electronics
5. pH and ORP system response chart

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 Signet 2720 preamplifiers or 2750 pH/ORP Sensor Electronics. 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, pH7, pH10, -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. 3-2759.393: Adapter cable for use with 2720
- F. 3-2759.391: Adapter cable for use with 2750
- G. 3-2759.390: Bypass adapter cable (included with 2759)
- H. Mode selector switch
Triggers automatic sensor recognition software in Signet pH/ORP instrumentation.



2. Specifications

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

pH system temperature simulation:

w/ 2720 adapter: 3K Ω = 25°C ($\pm 4^\circ\text{C}$)
w/2750 adapter 1.1K Ω = 25°C ($\pm 4^\circ\text{C}$)

High Ω resistor value: 1000 M Ω

Battery: 9V alkaline
Life: 400 hours

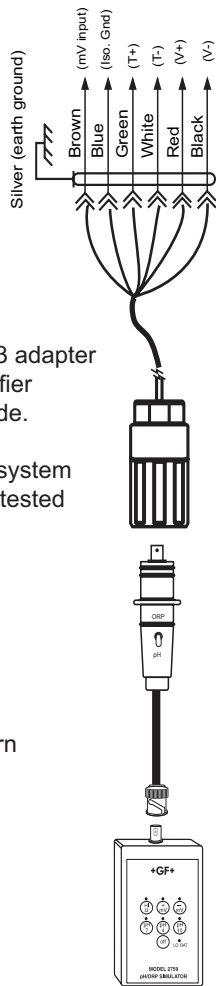
Dimensions: 100 x 75 x 23 mm
(3.94 x 2.95 x 0.91 in.)

Weight: 120 grams (5 oz.)

mV Value

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

Troubleshooting systems with 2720 Preamp



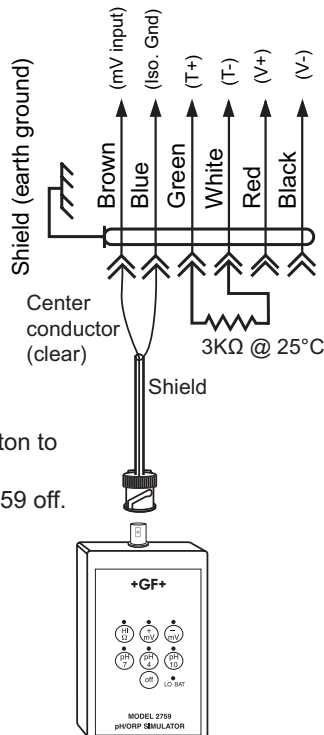
Connecting the 2759 output to the 2759.393 adapter cable then connecting to the 2720 preamplifier simulates the output of the pH/ORP electrode.

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

A

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

Connecting the 2759 directly to the meter with the 2759.390 Bypass cable simulates the output of the 2720 preamplifier.



- 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 2720 Preamp 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 3-2759.393 adapter cable.

- Connect the 2759 to the 2759.393 adapter cable, then insert adapter into 2720 preamp.
- 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 temp, Std 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.

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 3K resistor to the temp input of meter. (or leave the green and white wires from the 2720 preamp connected to the meter.)
- Press output simulation buttons.

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

- Yes: If there are no cable junctions from the preamp to the meter, replace the preamp. 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 2720 preamp 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 preamp or cable from preamp to junction.
No: Problem is in cable. Check all terminals and splices. Replace cable if necessary.

Troubleshooting 2750 pH/ORP systems

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.

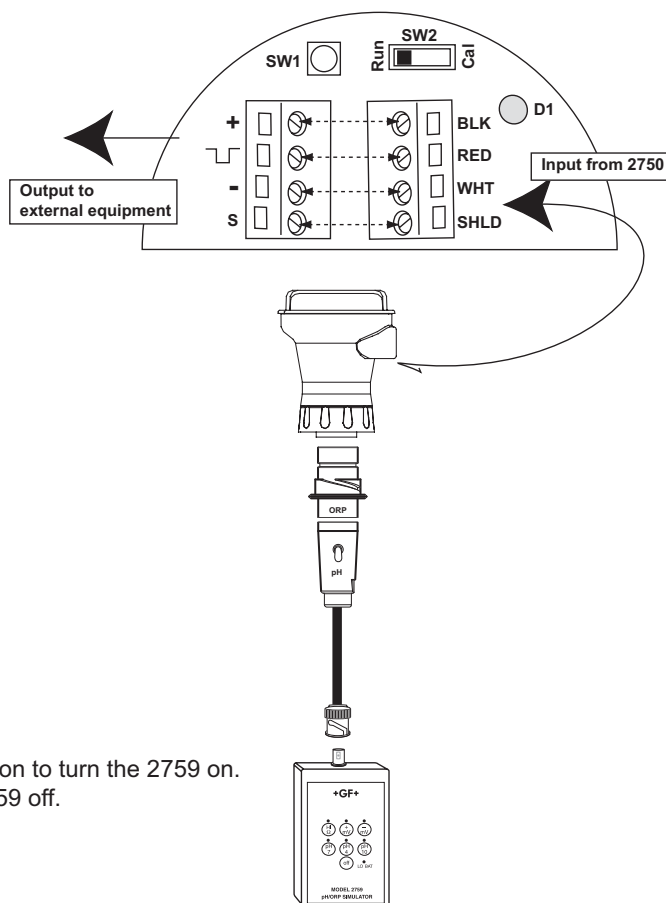
Connecting the 2759 output to the 2759.391 adapter cable, then connecting the adapter into the 2750 sensor electronics simulates the output of the 275X pH/ORP electrode.

- Always use the HIΩ button with the 2759.391 adapter cable.
- Connect the 2759 to the 2759.391 adapter cable, then insert adapter into 2750 electronics.
- Monitor the 2750 output using Signet 5091 or other 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.

