Flow
pH
ORP
Turbidity
Conductivity
Resistivity
Temperature
Pressure
Level

Click to Continue

Signet Measurement and Instrumentation Product Catalogue

+GF+

GEORG FISCHER
PIPING SYSTEMS

Individualised solutions
for a diversity of applications

Microelectronics • Life Sciences • Shipbuilding • Chemical Processing • Water Treatment • Cooling

Georg Fischer Signet, the 2005 recipient of the Georg Fischer Piping Systems Manufacturer of the Year Award, was founded as Signet Scientific in the early 1960s.
The company changed its name in 2003 to reinforce its value as a "systems solution" in combination with Georg Fischer valves and pipes. Trusted worldwide for its fluid measurement instruments and sensors, Georg Fischer Signet is a leader in flow sensor insertion technology. We patented the world's first paddlewheel sensor 40 years ago, and have sold well over 1 million units since.

We put our customers first from our focused pursuit of quality through innovative, leading-edge technology in flow control and measurement. Award winning design, ISO 9001 certification and comprehensive technical and customer support are just a few reasons why Signet products are leading the industry well into the new millennium. We pride ourselves on our Six Sigma manufacturing practices and our continuous process improvements.

Georg Fischer Signet delivers sophisticated, advanced flow and analytical technology, which offer accuracy, dependability, ease-of-use and minimal maintenance. Every sensor, transmitter, controller and monitor manufactured meets the highest of standards. Engineered for performance, our products are ideally suited for Chemical Processing, Food and Beverage, Life Sciences, Shipbuilding, Semiconductor, Water and Wastewater Treatment, and Agriculture.

Adding quality to people's lives

GF Piping Systems

Your global system provider

We are dedicated to designing, manufacturing and marketing piping systems for the safe and secure conveyance of liquids.

We put customers first
- Customer needs guide our product development
- We offer customer support and training worldwide
- We measure your satisfaction

We act fast
- Local presence worldwide
- Superior logistics
- Speed in all details

We do what we say
- Tested quality
- Always trustworthy

Customer Support

In choosing Georg Fischer, you can be assured of excellent customer service through our extensive network of distributors located throughout the world. Our staff are well qualified to assist you in every aspect of product selection thus assuring you of the right solution for your fluid control needs.

GF Quality by design

Quality Management: Our systems and products undergo rigorous testing in accredited test laboratories, and our management and production procedures are certified to ISO 9001 and ISO 14001 through ensuring that the systems and products we provide are fit for the purpose, and may be used reliably throughout the world.


Pipes


Fittings


Jointing Technologies


Valves


Actuated Valves


Measurement and Control

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To view individual product pages, click each item below or use Bookmark tab for quick reference.

Clicking tabs throughout the Catalogue, will take you to the first product page in each chapter.

New Products and Product Upgrades

The following is a brief overview of the new products and product upgrades you will find in this catalogue. For more details, please refer to the individual product pages.

2552 Magmeter Flow Sensor

Top Features:
- Hot-tap version for installation and service without system shutdown
- No moving parts
- Bi-directional flow
- Empty pipe detection
- Adjustable insertion for large pipe sizes up to DN2550 (102 in.)
- Blind 4 to 20 mA, digital (S^3L)/ frequency

Ideal for:
- Municipal water distribution
- Water inlets to process plants
- Surface, ground and ocean water
- Chemical processing
- Water and wastewater monitoring

2724-2726 pH and ORP Electrodes

Top features:
- Compatible with ALL Signet pH/ ORP instruments
- Integrated temperature sensor in pH electrodes
- Chemically resistant Ryton® body with ¾ in. threads
- Gold-plated corrosion resistant DryLoc® connector system
- Now mounts at any angle, even upside-down

Ideal for:
- Water & wastewater treatment
- Neutralisation systems
- Sanitisation systems
- Effluent monitoring
- Cooling towers
- Boiler protection
- Process control

4150 Turbidimeter

Top features:
- Simple and easy single unit installation with built-in regulator
- Compliant to U.S. EPA 180.1 and ISO 7027 for service in Europe
- Analogue signal or serial communications and two alarm relay outputs
- Inexpensive standards allow for multiple system calibration

Ideal for:
- Monitoring the performance of any type of water filtration process or system
- Raw or filtered water
- Municipal water distribution
- Wastewater reclamation and tertiary effluent
- Aquatic life support

0250 Configuration/Diagnostic Tool

Top features:
- User-friendly interface
- Configure blind sensors
- Monitor sensor data or log sensor's data to a file
- Monitor mV and temperature reading in pH/ORP sensors
- Multi-language software

Ideal for:
- Configuring sensors
- Logging data
- Diagnostics (sensor)
- Graph sensor data

New Products and Product Upgrades

The following is a brief overview of the new products and product upgrades you will find in this catalogue. For more details, please refer to the individual product pages.

Calibration Solutions

Top Features

- Available for pH, ORP, conductivity/ resistivity or turbidity
- Kit with liquid pH buffer solutions and reusable polypropylene cups
- pH/ORP electronic system tester to verify preamplifier and instrument operation
- Conductivity simulation tools for conductivity/resistivity values
- Turbidity reusable glass cuvette and EPA approved solutions

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New Fittings for Flow and pH

Top features:

- Metric Wafers with one-piece moulded design
  - PP and PVDF wetted materials
  - Use with plastic paddlewheel and magmeter flow sensors

- Electrofusion transition saddles with metal outlets
  - Sizes up to 6 inches
  - Use with metal paddlewheel and magmeter flow sensors

- Strap-on metal saddles
  - Various adjustable strap sizes to fit up to 14 inches
  - Spatula insertion tool for quick and simple process isolation
  - Use with metal paddlewheel and magmeter flow sensors

Product Retirements

Below is a list of retired products as well as their suitable replacement.
Please contact your local Georg Fischer sales office for more information.

Retired Products

Replacement Products

0232 Setup Tool (not shown)

0250 USB to Digital (S^3L) Configuration/Diagnostic Tool

2517 Brass Paddlewheel Flow Sensor (Retired by September 2009)

2540 Stainless Steel Paddlewheel Flow Sensor

2754-2757 Series pH/ORP DryLoc® Electrodes

2724-2726 Series pH/ORP DryLoc® Electrodes

2720 Twist-Lock Preamplifier (Retired on or before March 2010)

3300/3500 Ultrasonic Flow Monitor System

7000/7001 Vortex Flow Sensors (Retired by September 2009)

Select 2250 Level Sensors

Mfr. Part No.	Code
3-2250-12U	**159 001 249**
3-2250-12L	**159 001 250**
3-2250-22U	**159 001 251**
3-2250-22L	**159 001 252**
3-2250-12U-1	**159 001 480**
3-2250-12L-1	**159 001 481**
3-2250-22U-1	**159 001 484**
3-2250-22L-1	**159 001 485**

Select 2450 Pressure Sensors

Mfr. Part No.	Code
3-2450-1U	**159 001 679**
3-2450-2U	**159 001 680**
3-2450-5U	**159 001 905**

System Selection Guide

This section provides tips and suggestions on how to choose just the right measurement system for your specific liquid application needs. For specific product information, refer to the individual catalogue pages.

Step 1: Determine Application Requirements

Defining the following variables before building your system will ensure peak performance from your Signet sensors and instruments.

- Measurement range
- Installation requirements
- Pipe size and material
- Chemical compatibility of all wetted parts to process chemicals
- System specifications (such as temperature and pressure)
- Performance requirements of sensor
- Fluid particulates
- Viscosity of Fluids
- Hazardous location requirements

Step 2: Select Sensor Technology

Based on the application requirements determined in Step 1, choose a sensor. (See pages 14 - 17).

Determine your signal output requirement to allow you to match just the right instrument (see Step 3). If you're not purchasing an instrument, select the sensor electronics package that best suits your needs

Note: Please contact your local Georg Fischer sales and support office if you need assistance in choosing any one of these products.

Step 3: Choose Instrument

Choose an instrument (see pages 18 - 19). Instruments are available in 1/4 DIN size and offered in panel mount configurations. Field mount versions are also offered for certain models. Instruments are available with either digital, analogue, or analogue/digital display. Various retrofit adapters and mounting accessories are also available (see Accessories section). In cases where the sensor feeds directly to a PLC or PC system, Signet offers a wide range of instruments and sensors with 4 to 20 mA outputs.

Step 4: Determine Installation Requirements

Signet offers a wide selection of installation fittings for flow sensors and in-line pH/ORP electrodes. These fittings are specifically designed to ensure the proper placement of the flow sensor in the piping system to achieve optimum performance. Other pH/ORP electrodes as well as all temperature, pressure and conductivity/resistivity electrodes use NPT or ISO standard fittings (See pages 12 - 13). All submersion electrodes require conduit piping and fixtures not supplied by Signet.

Flow Sensors:
Features and Benefits

2536 Paddlewheel
Flow Sensor

2540 Stainless Steel
Paddlewheel
Flow Sensor

Insertion Paddlewheel Sensors:

- Four-bladed paddle design ensures optimal performance and lower flow rates than five or six-bladed rotors that have a higher weight/bearing inertia.
- The open-cell design and the controlled insertion depth work together to deliver a linear and repeatable output over a wide dynamic range, with virtually no pressure drop in the process pipe.
- Choice of corrosive resistant plastics and rugged metals enable use in many aggressive fluids.
- The widest choice of installation fitting materials, sizes and connections on the market that meet endless application needs.
- Insertion design lowers installation and maintenance costs.
- Self-powered sensors are well suited for remote locations and are FM approved which enable installation in hazardous locations.
- Paddlewheel design has no pressure drop, making it ideal for gravity flows.
- NIST traceable test certification with all plastic sensors provides superior price-to-performance.
- Hot-Tap designs are available to allow service and maintenance without shutting-down the process; saves costly downtime.

2507 Mini
Flow Sensor

Flow-Through Rotor Sensors:

- Operating flow ranges from 110 mL/min to 12110 mL/min (0.03 US gpm to 3.2 US gpm) in clean opaque or clear liquids ideal for precise low flow applications such as dosing.
- Hall-effect devices provide excellent noise immunity output signals.
- Sensor body design allows easy access for cleaning, inspection and rotor replacement without the need for powering down.
- Flexibility with end connections allow flexible tubing or rigid pipe installations.
- Four fully encapsulated magnets provide high resolution signal output.

2100 Turbine
Flow Sensor

In-line Turbine Sensors:

- Small compact design for tightly spaced installations.
- Superior ceramic bearing provides long life without the need for maintenance.
- Radio Frequency (RF) pick-up provides added advantage without rotor drag or contamination from ferrous particles.
- Detachable electronics means sensor maintenance is possible without the need to cut power to unit.
- Composed of highly chemical resistant materials.
- Mounting at any angle offers total installation flexibility.
- Wide choice of end connections in hose barb or union ends.
- Three flow ranges available for optimum measurement resolution.

Flow Sensors: Features and Benefits

2551
Display Magmeter

Insertion Magmeter Sensors:

- No moving parts.
- Insertion design provides easier installation and removal than full line magmeters.
- Model 2551 fits pipe sizes ranging from DN15 to DN900 (½ to 36 in.)
- Fluid diagnostics via LED indicators
- Bi-directional flow and empty pipe detection.
- Rugged design with good chemical resistance suitable for tough applications.
- Analogue 4 to 20 mA and frequency outputs provide signals to remote flowmeters and data acquisition.
  Also available with digital (S^3L) output for compatibility with the 8900 Multi-Parameter Controller.
- High input impedance provides low sensitivity to coating which makes it ideal for dirty liquids.
- Isolated outputs provide barrier to help prevent "ground loops."

2552
Metal Magmeter

Hot-Tap Magmeter Sensors:

- No moving parts.
- Insertion design provides easier installation and removal than full line magmeters.
- Model 2552 Metal Magmeter available for pipe sizes up to DN2550 (102 in.).
- Hot-Tap design allows for installation into full, pressurised pipes.
- Fluid diagnostics via LED indicators
- Bi-directional flow and empty pipe detection.
- Analogue 4 to 20 mA and frequency outputs provide signals to remote flowmeters and data acquisition.
  Also available with digital (S^3L) output for compatibility with the 8900 Multi-Parameter Controller.
- High input impedance provides low sensitivity to coating which makes it ideal for dirty liquids.
- Isolated outputs provide barrier to help prevent "ground loops."

Turbidity: Features and Benefits

4150
Turbidimeter

Turbidimeter:

- Simple to install with mounting holes pre-drilled on a common pattern.
- Easy and fast to calibrate.
- Programmable analogue output signal.
- Two adjustable alarm relays.
- Easy access for wiring and maintenance.
- Ultrasonic cleaning option ensures long and steady on-line measurement.
- Simple desiccant pouch keeps the measuring chamber dry.
- Easy access for replacing desiccant.
- Standard EPA 180.1 for USA and Asia. ISO 7027 for Europe.
- Quick and easy installation, calibration and maintenance.

Analytical Sensors: Features and Benefits

2350
Temperature
Sensor

Temperature Sensors:

- Unibody PVDF construction for use in either high purity or aggressive fluid conditions.
- Choice of output 4 to 20 mA or digital (S^3L) signal for long cable runs.
- Dual threaded ¾ in. NPT for easy installation.
- Options for integral mounting of instrument directly onto sensor.
- Cable and thread permits conduit for full tank submersion.

2450
Pressure
Sensor

2250
Level
Sensor

Pressure/Level Sensors:

- ¾ in. NPT or ½ in. male union process connection to suit installation needs.
- Three pressure ranges to meet specific requirements and provide optimal resolution.
- Choice of output 4 to 20 mA or digital (S^3L) signal for long cable runs.
- Option for integral mounting of instrument directly onto sensor.
- Configure with 8250 or 8450 Transmitter to provide full level measuring system (hydrostatic pressure).
- Cable end threads permit conduit for full tank submersion.

2839
Series Sensors

Conductivity/Resistivity Electrodes:

- Flow-through design ensures continuous measurement without air entrapment.
- Reversible threaded connections for in-line integral mount or tank submersion.
- Standard parts offer application flexibility for the user.
- Short length electrodes available to prevent "dead-legs".
- Every sensor uses standard electrical cable. No need to incur additional costs for "patch" type cable connections.
- NIST calibration certificate available upon request.

2850
Sensor and
Electronics

Universal
Mount

Conductivity/Resistivity Sensor Electronics:

- Blind 4 to 20 mA output or digital output for long cable runs beyond 30 m (100 ft) ensures a steady process signal resistant to electrical noise.
- EasyCal calibration available for automatic calibration solution recognition
- Integral sensor mount versions for in-line mounting.
- Remote mount with two sensor inputs for reduced cost of ownership.
- Designed to be used with all Signet conductivity/resistivity electrodes.

Analytical Electrodes: Features and Benefits

2724-2726
pH/ORP
Electrodes

Standard pH/ORP Electrodes:

- Longer reference path and larger reference volume means extended service life.
- Flat glass surface sensor design. Resistant to fouling and abrasion in dirty applications, and prevents accidental damage to extend electrode life.
- Unique DryLoc® design is robust and watertight, ensuring rugged installation.
- Designed to mount in standard Signet fittings or ¾ in. standard fittings.

2764-2767
pH/ORP
Electrode

Differential pH/ORP Electrodes:

- pH and reference signals are measured against third electrode, a solution ground, to ensure a stable reading even when the smallest of unknown stray currents are in the process liquids.
- The differential reference is designed to protect the reference element from Bromide (Br^-), Iodide (I^-), Cyanide (CN^-), Sulfides (S_2^-) and other harsh compounds that react with Silver (Ag^+). Also protects the reference electrolyte from Mercury (Hg^{++}), Copper (Cu^+), lead (Pb^+), Perchlorate (ClO_4^-), or other compounds that dilute KCl.
- Unique DryLoc® design is robust and watertight, ensuring rugged installation.
- Designed to mount in 1 in. standard pipe fittings for easy installation.
- Flat glass surface sensor design that is resistant to fouling and abrasion in dirty applications.
- Large reference volume and replaceable salt bridge allows the user to rebuild the reference and extend the service life of the electrode.

In-line
2750

Submersible
2750

pH/ORP Sensor Electronics:

- Blind 4 to 20 mA output or digital output with an amplified output ensures the process signal resists electrical noise.
- EasyCal calibration available for automatic buffer recognition.
- The sensor electronics and cable does not need to be replaced each time a sensor is removed, significantly reducing service costs.
- Unique DryLoc® design enables pH and ORP connections instantly.
- Gold plated DryLoc® connector pins are corrosion resistant for long service life.

In-line
2760

Submersible
2760

pH/ORP Preamplifiers:

- The amplified output ensures the process signal is resistant to electrical noise and allows up to 120 m (400 ft) before connection to the instrument.
- The preamplifier and cable does not need to be replaced each time a sensor is removed, significantly reducing service costs.
- Unique DryLoc® design enables pH and ORP connections instantly.
- Gold plated DryLoc® connector pins are corrosion resistant for long service life.
- Designed for use with Signet 5700 and 8750 pH/ORP instruments.

Signet Flow System Compatibility - Table 1

The chart below outlines the compatibility between Signet Flow sensors, instruments and sensor fittings. Refer to individual product pages and fittings section of the catalogue for more information.

	Flow Sensors									
Instruments	515	2536	2537	525	2000	2507	2100	2540	2551	2552
5075 Totalising Flow Monitor	•	•	•	•	•	•	•	•	•	•
5090 Sensor Powered Flow Monitor	•									
5500 Flow Monitor	•	•	•	•	•	•	•	•	•	•
5600 Batch Controller	•	•	•	•	•	•	•	•	•	•
8150 Battery Powered Flow Totaliser	•			•						
8550 Flow Transmitter	•	•	•	•	•	•	•	•	•	•
8900 Multi-Parameter Controller	•	•	•	•	•	•	•	•	•	•
Fittings										
FPSXXX Fibreglass Glue-On Saddle	•	•	•		**Uses ¼ inch flexible tubing or rigid pipe (customer supplied)**		**Wide choice of end connectors - see individual data sheet**	**Uses standard 1½ inch NPT or ISO 7/1-R 1½ threaded fitting (customer supplied)**	•	**Uses standard 1¼ and 1½ inch NPT or ISO 7/1-R 1¼ or 1½ threaded fitting (customer supplied)**
PPMTEXXX Metric PP Wafer EPR (EPDM)	•	•	•						•	
PPMTFXXX Metric PP Wafer (FPM)	•	•	•						•	
PPMT0XX Metric PP Union Tee	•	•	•						•	
SFMT0XX 20 Metric PVDF Union Tee	•	•	•						•	
SFMTFXXX Metric PVDF Wafer (FPM)	•	•	•						•	
PV8T0XXF PVC SCH 80 Tee	•	•	•						•	
PV8T0XX PVC SCH 80 Tee w/pipe	•	•	•						•	
CPV8T0XXF CPVC SCH 80 Tee	•	•	•						•	
CPV8T0XX CPVC SCH 80 Tee w/pipe	•	•	•						•	
PV8S0XX PVC Clamp-on Saddle	•	•	•						•	
FPT0XX Fibreglass Glue-On Tee	•	•	•						•	
IR4T0XX Iron Threaded Tee (NPT)	•	•	•						•	
IR8SXXX Iron Strap-On Saddle	•	•	•						•	
CUKT0XX Copper Sweat-On Tee	•	•	•						•	
BR4BXXX Brass Brazolet	•	•	•						•	
CS4T0XX Carbon Steel Tee (NPT)	•	•	•						•	
CS4WXXX Carbon Steel Weldolet	•	•	•						•	
CR4T0XX 316 SS Threaded Tee (NPT)	•	•	•						•	
CR4WXXX 316 SS Weldolet	•	•	•						•	
P526-1XXX Metalex Strap-On Saddle				•						
P526-20XX Metalex Socket Weld				•						
P526-2XXX Metalex Weld-On Mini-Tap				•						
PPS1XX PP Clamp-On Large Saddle	•	•	•						•	
PV8S1XX PVC Glue-On Large Saddle	•	•	•						•	
BR4T0XX Brass Threaded Tee (NPT)	•	•	•						•	
PVMT0XX /PVAT0XX Metric/BSP PVC Union Tee*	•	•	•						•	
PVMS0XX /PVAS0XX Metric/BSP PVC Saddle*	•	•	•						•	
Plastic Weld-On Fittings (PVC)	•	•	•						•	
Plastic Weld-On Fittings (PP)	•	•	•						•	
Plastic Weld-On Fittings (PE)	•	•	•						•	
Steel Weld-On Fittings (SS 1.4435)	•	•	•						•	
Electrofusion Transition Saddles								•	•	•
Strap-on Saddles, Threaded								•	•	•

*Available only through your local Georg Fischer sales office.

Signet pH, ORP, Conductivity, Resistivity System Compatibility - Table 2

The chart below outlines the compatibility between Signet pH/ORP and conductivity/ resistivity electrodes, instruments and sensor fittings. Refer to individual product pages and fittings section of the catalogue for more information.

	Electrodes						
	pH/ORP			Conductivity			
Instruments, Sensor Electronics, and Preamplifiers	2724-2726	2764-2767	2774-2777	2819-2821	2822-2823	2839-2841	2842
2750 pH/ORP Sensor Electronics	•	•	•				
2760 pH/ORP Preamplifier	•	•	•				
2850 Conductivity Sensor Electronics				•	•	•	•
5700 ProPoint® pH/ORP Monitor	•	•	•				
5800CR ProPoint® Conductivity Monitor				•	•	•	•
5900 ProPoint® Salinity Monitor					•		•
8750 ProcessPro® pH/ORP Transmitter	•	•	•				
8850 ProcessPro® Conductivity Transmitter				•	•	•	•
8860 ProcessPro® Dual Channel Cond Controller				•	•	•	•
8900 Multi-Parameter Controller	•	•	•	•	•	•	•
Fittings*							
FPSXXX Fibreglass Glue-On Saddle	•	**Uses 1 in. process connections (customer supplied)**		**Uses ¾ in. process connections (customer supplied)**		**Uses ¾ in. process connections or tri-clamp fittings (customer supplied)**	**Uses ¾ in. process connections (customer supplied)**
PPMT0XX Metric PP Union Tee	•						
SFMT0XX - 20 Metric PVDF Union Tee	•						
PV8T0XXF PVC SCH 80 Tee	•						
PV8T0XX PVC SCH 80 Tee w/pipe	•						
CPV8T0XXF CPVC SCH 80 Tee	•						
CPV8T0XX CPVC SCH 80 Tee w/pipe	•						
PV8S0XX PVC Clamp-on Saddle	•						
FPT0XX Fibreglass Glue-On Tee	•						
IR4T0XX Iron Threaded Tee (NPT)	•						
IR8SXXX Iron Strap-On Saddle	•						
CUKT0XX Copper Sweat-On Tee	•						
BR4BXXX Brass Brazolet	•						
CS4T0XX Carbon Steel Tee (NPT)	•						
CS4WXXX Carbon Steel Weldolet	•						
CR4T0XX 316 SS Threaded Tee (NPT)	•						
CR4WXXX 316 SS Weldolet	•						
BR4T0XX Brass Threaded Tee (NPT)	•						
PVMT0XX/PVAT0XX Metric/BSP PVC Union Tee**	•						
PVMS0XX/PVAS0XX Metric/BSP PVC Saddle**	•						
Use ¾ in. process connector (customer supplied)	•						

*For use with fittings up to DN100 (4 in.) only

**Available only through your local Georg Fischer sales office.

Signet Flow Sensor Specification Matrix - Table 3

This section provides the reader with an easy to read overview of the various products that make up our flow measurement product family. For further details, see the individual catalogue pages for each product.






		515	2536	2537	2551	525	2540
	Sensor Style	Insertion Paddlewheel	Insertion Paddlewheel	Insertion Paddlewheel	Insertion Magmeter	Insertion Paddlewheel	Insertion Paddlewheel
	Operating range m/s (ft/s)	0.3 to 6 (1 to 20)	0.1 to 6 (0.3 to 20)	0.1 to 6 (0.3 to 20)	0.05 to 10 (0.15 to 33)	0.5 to 6 (1.6 to 20)	0.1 to 6 (0.3 to 20)
	Installation Mounting Styles	Signet fittings offered in various plastic and metal for sizes 1/2 - 12 inches. Above 12 inches special order.				Metalex installation fittings for metal pipe	Customer supplied threaded saddle/weld-on fittings
	Pipe Size Range	DN15 to DN900 (½ to 36 in.)		DN50 to DN200 (½ to 8 in.)	DN15 to DN900 (½ to 36 in.)	DN15 to DN300 (½ to 12 in.)	DN40 to DN900 (1½ to 36 in.)
Wetted Materials	**Sensor body**	PP or PVDF				316 SS	
	Rotor	PVDF or Tefzel®			N/A	17-4 SS Alloy	
	Rotor Pin (choice of)	Titanium, Tantalum, Stainless Steel, Ceramic, Hastelloy-C, or PVDF			N/A	Tungsten Carbide GRP 1, 316 SS	
	O-ring	FPM or EPR (EPDM) or FFPM				N/A	FPM or EPR (EPDM)
	Other	None			316L SS Hastelloy-C, or Titanium	Rulon® B (Fluoroloy B) (bearings), Klinger sil C-4401 (525 gasket)	Rulon® B (Fluoroloy B) (bearings)
*	**Fluid Temperature (°C) Fluid Temperature (°F)**	-18 °C to 100 °C (0 °F to 212 °F)	-18 °C to 85 °C (0 °F to 185 °F)	-18 °C to 85 °C (0 °F to 185 °F)	0 °C to 85 °C (32 °F to 185 °F)	66 °C to 149 °C (150 °F to 300 °F)	100 °C (212 °F)
**	**Max. Operating Pressure**	14 bar (200 psi)		12.5 bar (180 psi)	10.3 bar (150 psi)	103 bar (1500 psi)	17 bar (250 psi)
	Approvals	FM	CE	CE, UL	CE, UL (display version only)	FM	CE
	Power Requirements	None	5 to 24 VDC, ±10%, regulated	5 to 24 VDC, ±10%, regulated	5 to 24, 24 VDC, ±10%, regulated	None	5 to 24 VDC, ±10%, regulated
	Output	AC frequency	Open collector	Open collector, 4 to 20mA, Digital (S^3L)	Frequency, digital, 4-20 mA output or relay	AC frequency	Open Collector
	Compatible Signet Flow Instruments	All	All except 5090 & 8150			All except 5090	All except 5090 & 8150
	Comments	General Purpose Sensor with installation fittings for many materials		Various output versions available to suit application needs	Features empty pipe detection, bi-directional flow, optional multi-language display	For high pressure, high temperature applications	Steel sensor, low flow capability requires no custom fittings
	Moving Parts	Yes		Yes	No	Yes	
	Suitable for High Purity Applications	Yes		Yes	for >20 µS	No	

* Derated by Pressure
** Derated by Temperature

Signet Flow Sensor and Turbidity Specification Matrix - Table 4

This section provides the reader with an easy to read overview of the various products that make up our flow measurement product family. For further details, see the individual catalogue pages for each product.




		2000	2507	2100	2552
	Sensor Style	In-line Rotor		In-line Turbine	Insertion Metal Magmeter
	Operating range lpm (US gpm)	0.11 to 12.11 (0.03 to 3.2)	0.4 to 12 (0.105 to 3.170)	0.38 to 38 (0.10 to 10)	0.05 to 10 m/s (0.15 to 33 ft/s)
	Installation Requirements	¼ in. threads		Socket, flare end, or hose barb fittings	Customer supplied threaded fittings
	Pipe Size Range DN (inch)	¼ in. tubing		DN8, DN10, DN15 (1/4 in., 3/8 in., 1/2 in.)	DN50 to DN2550 (2 to 102 in.)
Wetted Materials	**Sensor body**	PPS	PVDF		316L SS
Wetted Materials	**Rotor**	PEEK™	PVDF		N/A
Wetted Materials	**Rotor Pin**	N/A			
Wetted Materials	**O-ring**	FPM		FPM or EPR (EPDM)	FPM
Wetted Materials	**Other**	N/A	PTFE	Ceramic	PVDF insulator
*	**Fluid Temperature (°C) Fluid Temperature (°F)**	0 °C to 80 °C (32 °F to 176 °F)	-30 °C to 120 °C (-22 °F to 248 °F)	-20 °C to 70 °C (-4 °F to 158 °F)	-15 °C to 85 °C (5 °F to 185 °F)
**	**Max. Operating Pressure**	5.5 bar (80 psi)		9.3 bar (130 psi)	20.7 bar (300 psi) @ 25°C (77°F)
	Approvals	CE			
	Power Requirements	5 to 24 VDC, ±10%, regulated			5 to 24, 24 VDC, ±10%, regulated
	Output	Open collector output			Frequency, digital, or 4 to 20 mA output
	Compatible Signet Flow Instruments	All except 5090, 8150			
	Comments	Lowest flow range: 110 mL/min. PPS body for tough service, good chemical resistance	Excellent chemical resistance, note significant pressure drop.	Excellent chemical resistance, replaceable electronics, affordable package	Features empty pipe detection, hot-tap version available, bi-directional flow
	Moving Parts	Yes			No
	Used in High Purity Applications	No	Yes		No

	4150-X
Type	Turbidimeter
Mounting Options	Wall
Display	Back-Lit - LCD
Output & Types	(1) 4-20 mA, DC program-mable or (1) RS485
Relays	(2) Adjustable Range Dry-Contacts
Units of Measure	NTU or FNU
Language	English
Range for Humidity	0 - 95%
Operating Temperature	1 °C to 50 °C (34 °F to 122 °F)
Approvals	EPA 180.1, UL, CSA, CE, ISO 7027
Power Requirements	100 to 240 VAC 47 to 63 Hz, 80 VA

* Derated by pressure.
** Derated by temperature.

Signet pH/ORP Electrode Specification Matrix - Table 5

This section provides the reader with an easy to read overview of the various products that make up our analytical measurement family.
For further details, see the individual catalogue pages for each product.

		2756 Wet-Tap	2757 Wet-Tap	2724 2726	2725	2764 2766	2765 2767	2774 2776	2775 2777
Operation Range		0 - 14 pH	± 2000 mV	0 to14 pH	±2,000 mV	0 to14 pH	±2,000 mV	0 to14 pH	±1,500 mV
Connector Style		DryLoc®							
Compatible Preamps/Sensor Electronics		2750 Sensor Electronics and 2760 Sensor Preamplifiers							
Temperature Range		0 °C to 85 °C (32 °F to 185 °F)		-10 °C to 85 °C (14 °F to 185 °F)		0 °C to 95 °C (23 °F to 203 °F)		0 °C to 110 °C (32 °F to 230 °F)	
Pressure Range		6.89 bar (100 psi)		6.89 bar @ 10°C (100 psi @ 32°F to 149°F) 4.0 bar @ 85°C (58 psi @ 150°F to 185°F)		6.89 bar @ 95 °C (100 psi @ 203 °F)		10.3 bar (149 psi) maximum	
Pipe Size Range for In-line		2½ in. to 12 in.		2724-2727 pipe size range ½ in. to 4 in. Signet fittings or use ¾ in. to 4 in. threaded fittings		1 in. and up		¾ in. and up	
Process Connection for Submersible		N/A		¾ in. NPT threads or ISO 7-1/R 3/4 in. (using threads from 2750, or 2760)					
Wetted Materials	**Body**	Glass or Plastic		Ryton® (PPS)					
	Reference Junction Material	PTFE		Porous UHMW Polyethylene		PTFE			
	O-Rings	FPM				None			
	Sensing Element	Glass (pH) or Platinum (ORP)							
Mounting Position		Any angle, even upside down (except 2764-2767 series)							
Sensor Technology		Standard				Differential		Standard	
Compatible Signet Instruments		8750, 5700, 8900							
Application Usage		General purpose; sensor accessible without process shutdown	General purpose; also options available for use in HF (‹2%) and low conductivity liquids (‹100 µS), such as reverse osmosis.			Harsh Chemicals (heavy metals, Hg++, Cu+, Pb++, ClO4, Br-, I-, CN-, S_2^- and other chemicals that react with Ag+ or KCl.)		General purpose; options for higher temperatures are available	
Standards and Approvals		Manufactured under ISO 9001 and ISO 14001							

Signet Conductivity/Resistivity Electrode Specification Matrix - Table 6

This section provides the reader with an easy to read overview of the various products that make up our analytical measurement family.
For further details, see the individual catalogue pages for each product.

		2819	2820	2821	2822	2823	2839	2840	2841	2842
Cell constant		0.01	0.1	1.0	10.0	20.0	0.01	0.1	1.0	10.0
Operating range		0.055 µS to 100 µS (18.2 MΩ to 10 KΩ)	1 µS to 1000 µS (1 MΩ to 1 KΩ)	10 µS to 10,000 µS	100 µS to 200,000 µS	200 µS to 400,000 µS	0.055 µS to 100 µS (18.2 MΩ to 10 KΩ)	1 µS to 1000 µS	10 µS to 10,000 µS	100 µS to 200,000 µS
Compatible Sensor Electronics		2850								
Temperature Element		PT1000	PT1000	PT1000	PT1000	PT1000	PT1000	PT1000	PT1000	PT1000
Operating Temperature/Pressure		13.8 bar (200 psi) max., 120 °C (248 °F) max. (with optional 316 SS fitting)			6.9 bar (100 psi) @ 95 °C (203 °F)	6.9 bar (100 psi) @ 150 °C (302 °F)	-10 °C to 85 °C @ 6.9 bar (14 °F to 185 °F @ 100 psi)			
Process Connection		¾ in. NPT					¾ in. NPT or ISO 7/1-R 3/4			
Wetted Materials	**body**	316 SS or Titanium, PP			CPVC	316 SS	316 SS			
	O-rings	EPR (EPDM)					FPM (2841 & 2842 only)			
	Other	PTFE			316 SS	PTFE	PEEK™			
Compatible Signet Instruments		8850, 8860, 5800, 8900, 5900 (for 10 and 20 cell)								
Applications Usage		R.O., Ultrapure water, resistivity measurements	R.O., Deionized and distilled water	R.O., Distilled & drinking water, cooling tower water	R.O., Cooling tower water, waste water, salinity, brackish water, sea water	R.O., Salinity, brackish water, sea water, acids/bases, cleaners other concentrated chemicals	R.O., Ultrapure water, resistivity measurements	R.O., Deionized and distilled water	R.O., Distilled water, condensate, drinking water, cooling tower water	R.O., Cooling tower water, wastewater, salinity, brackish water, sea water
Standards and Approvals		Manufactured under ISO 9001 and ISO 14001								

Signet Flow Instrument Specification Matrix - Table 7

This section provides the reader with an easy to read overview of the various products that make up our flow measurement product family.
For further details, see the individual catalogue pages for each product.

Model Number	5075	5090	5500	5600	8150	8550	8900
Description	Flow Monitor	Sensor Powered Flow Monitor	Flow Monitor with Outputs and Relays	Batch Controller with Outputs and Relays	Battery Powered Flow Totalizer	Single or Dual Input Flow Transmitter	Multi-Channel, Multi-Parameter Controller
Modular Components	No						Yes
Number of Totalizers	1 Permanent 1 Resettable	None	1 Permanent 1 Resettable		1 Permanent 2 Resettable	2 Permanent 2 Resettable	6 Permanent 6 Resettable
Max. Sensor Inputs	1					1 (8550-1, -2) 2 (8550-3)	(up to 2 frequency) 6 total sensor inputs
Mounting Options	Panel				Panel, Wall, Pipe, Tank, Integral		Panel
Display	Analogue dial and LCD	Analogue dial	Analogue dial and LCD		LCD		LCD or Vacuum Fluorescent
Analogue Output Types	None	None	(1) Active 4 to 20 mA,	(1) Active 4 to 20 mA,	None	(2) Passive 4 to 20 mA,	(4) Passive/Active 4 to 20 mA or voltage
Max. Relays / O.C.	OC pulse at input freq. OC pulse at Total freq.	None	2 SPDT Relays OC pulse at input freq. OC pulse at total freq.	2 SPDT Relays OC pulse at EOB	None	2 SPDT Relays (8550-2) Programmable OC pulse 8550-1=1, 8550-3=2	up to 8 relays (via 8059)
Derived Measurements	None					Difference, Ratio, delta flow	Sum, Difference, % Recovery, % Reject, % Passage, Ratio, Power (BTU)
Languages	English						English, French, German, Spanish, Italian, and Portuguese
Operating Temperature (°C) **Operating Temperature (°F)** **Non-condensing** **0 to 95% Relative Humidity**	-10 °C to 55 °C (14 °F to 131 °F)	-10 °C to 65 °C (14 °F to 149 °F)	-10 °C to 55 °C (14 °F to 131 °F)	-10 °C to 55 °C (14 °F to 131 °F)	-10 °C to 65 °C (14 °F to 149 °F)	-10 °C to 70 °C (14 °F to 158 °F)	LCD: -10 °C to 55 °C (14 °F to 131 °F) VF: -10 °C to 50 °C (14 °F to 122 °F)
Power Requirements	12 to 24 VDC or 12 to 24 VAC, ±10%, reg. recommended	None	12 to 24 VDC or 12 to 24 VAC, ±10%, reg. recommended		3.6V Lithium Battery	12 to 24 VDC, ±10%, regulated	12 to 24 VDC ±10%, regulated or 100 to 240 VAC ±10%, reg. recommended, 50/60 Hz,
Standards and Approvals	CE, UL, NEMA 4X/IP65	FM, UL, NEMA 4X/IP65	CE, UL, NEMA 4X/IP65		CE, UL, CUL, NEMA 4X/IP65	CE, UL, NEMA 4X/IP65	

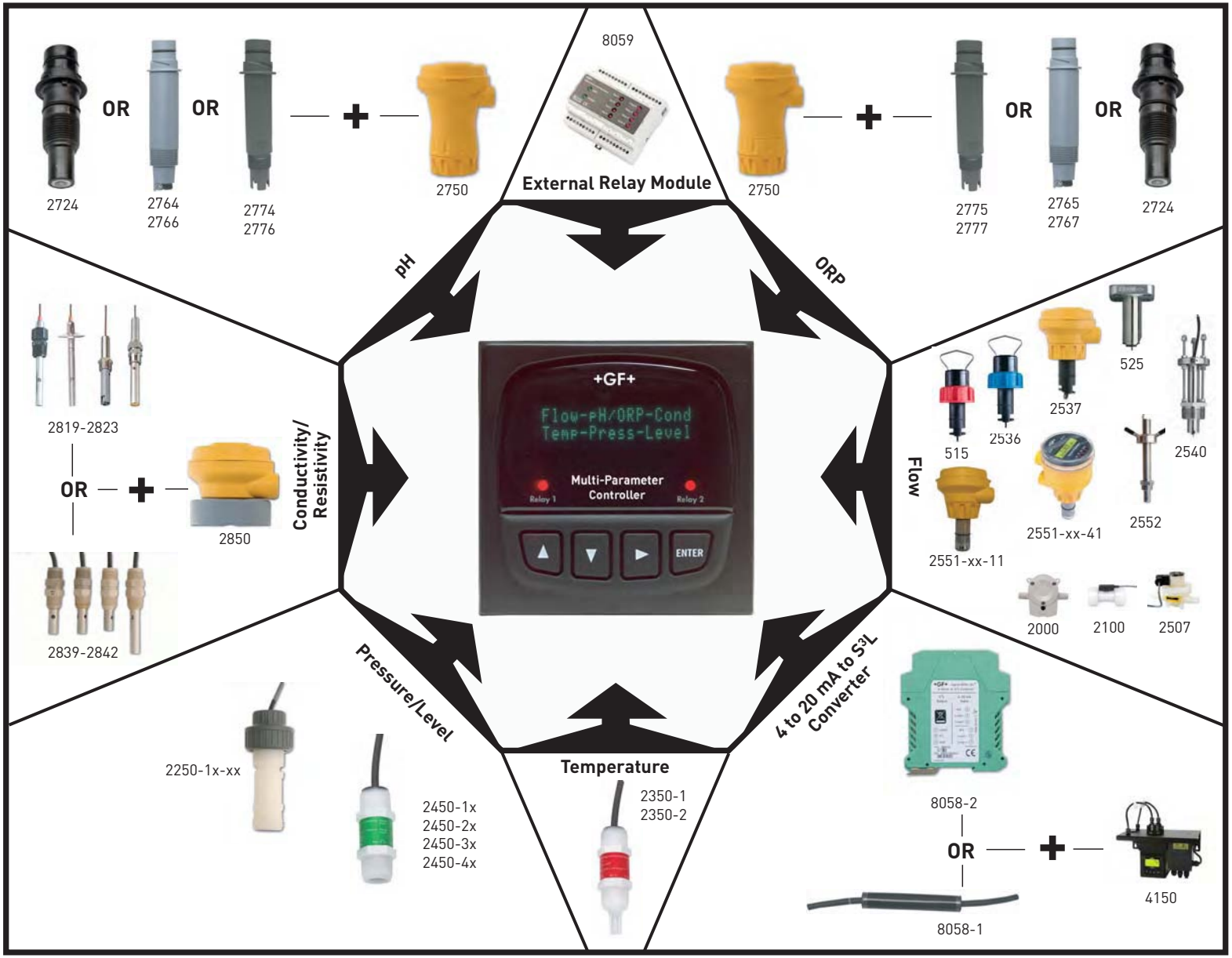
Signet Analytical Instrument Specification Matrix - Table 8

This section provides the reader with an easy to read overview of the various products that make up our Analytical Product family.
For further details, see the individual catalogue pages for each product.

Model Number	5700	8750	5800CR	5900	8850	8860	8250	8350	8450	8900
Description	pH/ORP Monitor	pH/ORP Transmitter	Cond./Resist. Monitor	Salinity Monitor	Cond./Resist. Transmitter	Dual-channel Cond./Resist. Controller	Level Transmitter	Temperature Transmitter	Pressure Transmitter	Multi-Channel, Multi-Parameter Controller
Modular Components	No									Yes
Max. Sensor Inputs	1					2				6
Mounting Options	Panel	Panel, Wall, Pipe, Tank, Integral	Panel		Panel, Wall, Pipe, Tank, Integral	Panel	Panel, Wall, Pipe, Tank, Integral			Panel
Display	Analogue dial and LCD	LCD	Analogue dial and LCD		LCD					LCD or Vacuum Fluorescent
Analogue Output Types	(1) 4 to 20 mA, Active, non-isolated	(2) 4 to 20 mA, Passive, isolated	(1) 4 to 20 mA, Active, non-isolated		(2) 4 to 20 mA, Passive, isolated	(3) 4 to 20 mA, Passive, isolated	(2) 4 to 20 mA, Passive, isolated	(2) 4 to 20 mA, Passive, isolated	(2) 4 to 20 mA, Passive, isolated	(4) Active/Passive 4 to 20 mA or voltage
Max. Relays / O.C.	2					4	2			8
Derived Measurements	None					% Rejection, Difference, Ratio	None	Delta T	Delta P	Sum, Difference, % Recovery, % Reject, % Passage, Ratio, Power (BTU)
Languages	English									English, French, German, Spanish, Italian, and Portuguese
Operating Temperature (°C) **Operating Temperature (°F)**	-10 °C to 55 °C (14 °F to 131 °F)	-10 °C to 70 °C (14 °F to 158 °F)	-10 °C to 55 °C (14 °F to 131 °F)		-10 °C to 70 °C (14 °F to 158 °F)	-10 °C to 55 °C (14 °F to 131 °F)	-10 °C to 70 °C (14 °F to 158 °F)			LCD: -10 °C to 55 °C (14 °F to 131 °F) VFD: -10 °C to 50 °C (14 °F to 122 °F)
Power Requirements	12 to 24 VDC or 12 to 24 VAC, ±10%, reg. recommended	12 to 24 VDC, ±10%, regulated	12 to 24 VDC or 12 to 24 VAC, ±10%, reg. recommended		12 to 24 VDC, ±10%, regulated	100 to 240 VAC 12 to 24 VDC, ±10%, regulated	12 to 24 VDC, ±10%, regulated			12 to 24 VDC ±10%, regulated or 100 to 240 VAC ±10%, reg. recommended, 50/60 Hz,
Standards and Approvals	CE, UL, NEMA 4X/IP65 (front)									

Signet 8900 Multi-Parameter Compatibility Overview

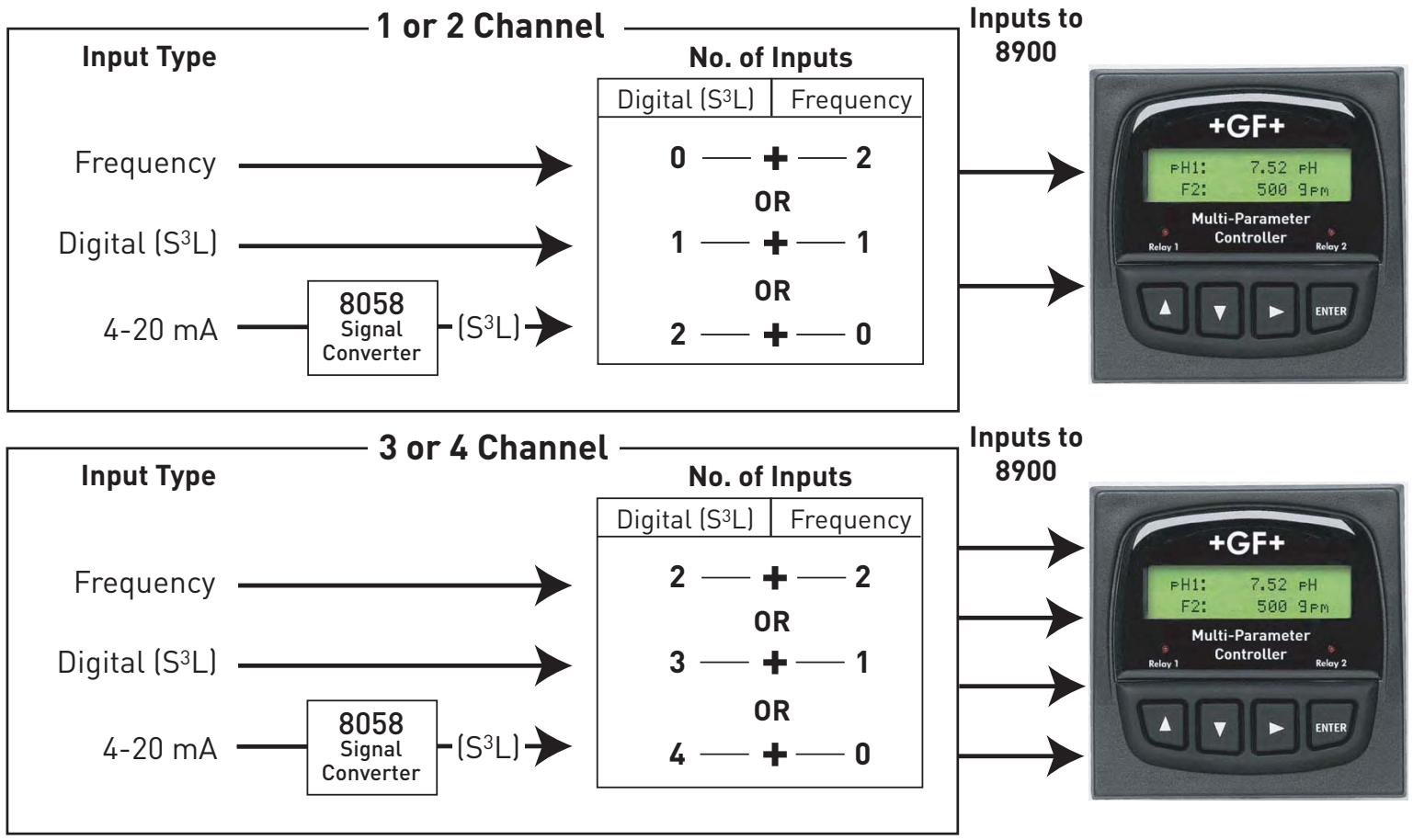
Below is an overview of the Signet sensor offering that is compatible with the 8900 Multi-Parameter Controller.
For more details, please see the individual catalogue pages for each product.



Signet 8900 Multi-Parameter Input Capability

Flow **pH** **ORP** **Conductivity** **Level**

Resistivity **Temperature** **Pressure** **Turbidity** **Other** (4-20 mA)

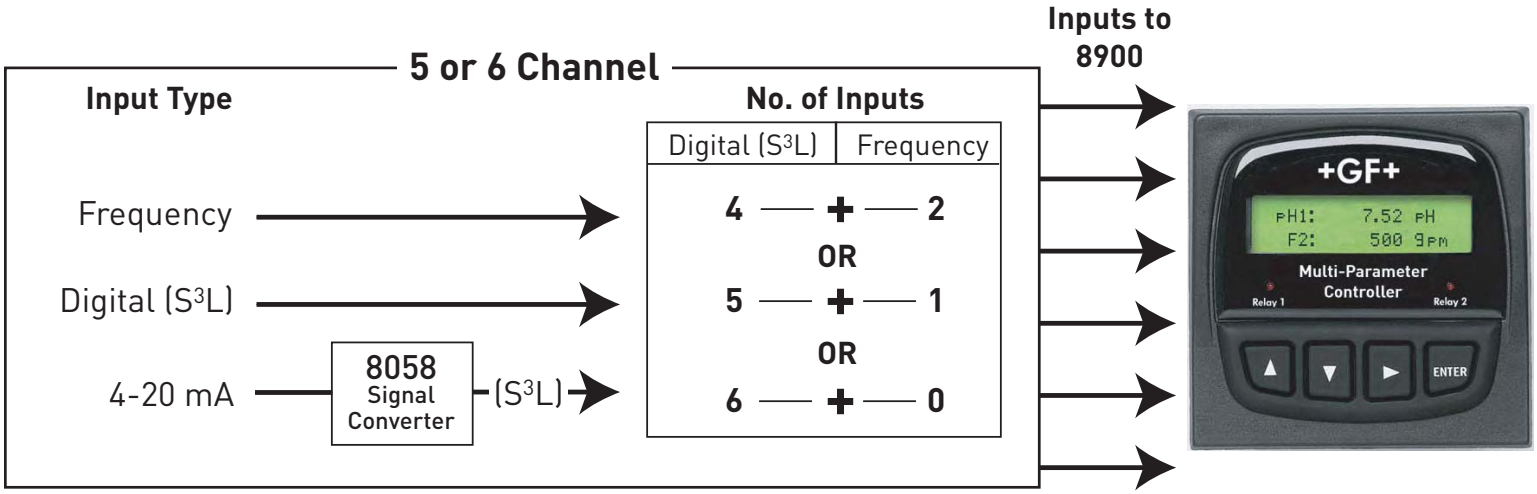


Note: The digital (S³L) inputs can come directly from digital (S³L) sensors or 4-20 mA sensors whose signal has been converted to digital (S³L) via the 8058 Signal Converter.

This chart is for reference only. Please contact your local Georg Fischer Sales Office for more information.

Signet 8900 Multi-Parameter Input Capability

Flow	pH	ORP	Conductivity	Level
Resistivity	Temperature	Pressure	Turbidity	Other (4-20 mA)

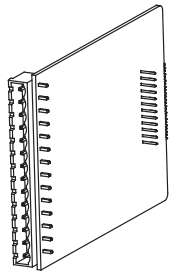


Note: The digital (S³L) inputs can come directly from digital (S³L) sensors or 4-20 mA sensors whose signal has been converted to digital (S³L) via the 8058 Signal Converter.

This chart is for reference only. Please contact your local Georg Fischer Sales Office for more information.

Signet 8900 Multi-Parameter Output Capability

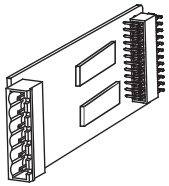
8900 I/O Module with 2 Analog Outputs



3-8900.401-X

Choose from:
- Passive Current
- Active Current
- 0 to 5/10 VDC

8900 Analog Output Module with 2 Outputs

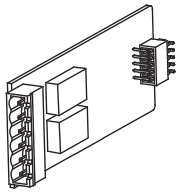


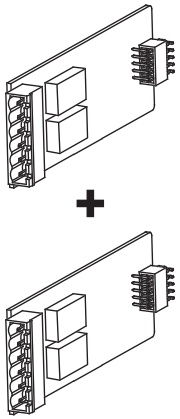
3-8900.405-X

Choose from:
- Passive Current
- Active Current
- 0 to 5/10 VDC

8900 Relay Module with up to 4 Internal Relay Outputs

2 **OR** **4**



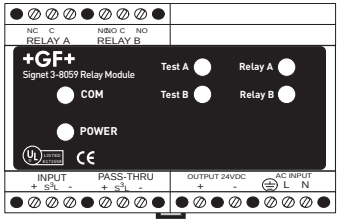


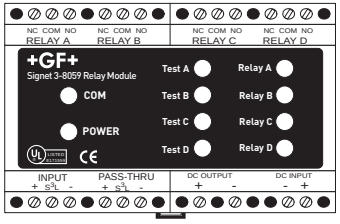
3-8900.403-1
3-8900.403-2

Choose from:
- Dry Contact
- Solid State

8900 Module with External Relay Outputs

2 **OR** **4**





3-8059-2
3-8059-2AC

3-8059-4
3-8059-4AC

Availabe option:
- Dry Contact Only

This chart is for reference only. Please contact your local Georg Fischer Sales Office for more information.

8900 Multi-Parameter Controller

Member of the ProcessPro® Family of Instruments

Customise the unit to suit any process requirement.

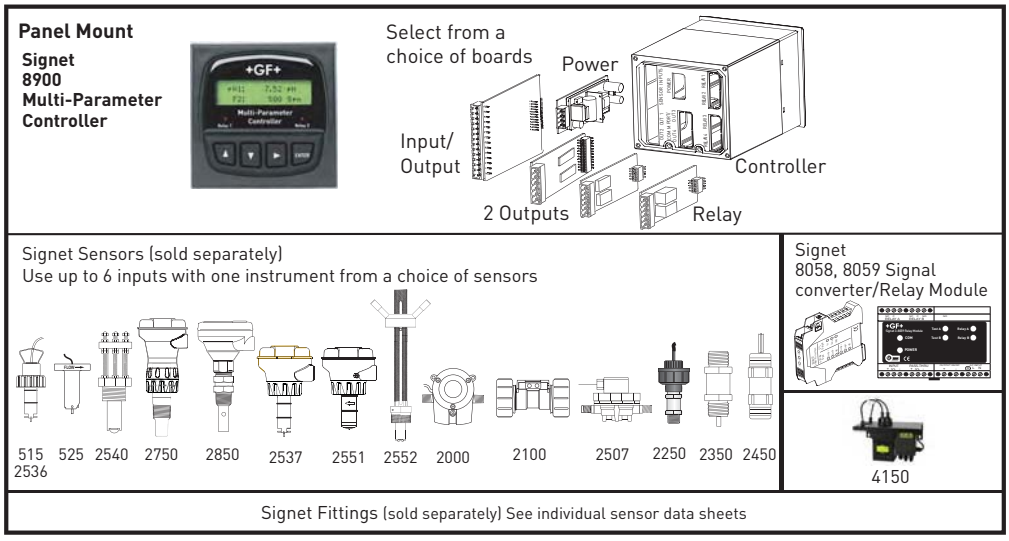
Description

The Signet 8900 Multi-Parameter Controller takes the concept of modularity to the extreme. Each 8900 is field commissioned with the users specified combination of inputs, outputs, and relays using simple-to-install modular boards into the base unit. To assemble a controller, there is a choice of two base units offered with a choice of back-lit LCD or vacuum fluorescent display. Then, continue building with a selection of plug-in modules for either two, four, or six input channels which accepts any of the Signet sensors listed below, and/or other manufacturer's sensors via a 4 to 20 mA signal converter (Signet Model 8058). To complete your unit, choose a power module with universal AC line voltage or 12 to 24 VDC ±10%, regulated.

If more features are needed, analogue output and relay modules are available and easily installed. Plus, the 8900 will support up to four additional relays via an external relay module.

There are other notable features that the 8900 offers. For instance, digital input to the 8900 enables longer cable runs and simplified wiring with minimal noise interference. Advanced relay logic allows users to select up to 3 measurement sources to trigger 1 relay. Derived measurements include difference, sum, ratio, percent recovery, percent rejection, percent passage and BTU. The menu system can be programmed to display in multi-languages including English, German, French, Spanish, Italian, and Portuguese.

System Overview



Features

- **Measures Flow, pH, ORP, Conductivity, Pressure, Level and Temperature**
- **Multi-language display**
- **¼ DIN enclosure**
- **Up to 4 analogue outputs**
- **Up to 8 relays**
- **12 to 24 VDC or 100 to 240 VAC ±10%, regulated power**
- **Digital communication allows for extended cable lengths and easy wiring**
- **Accepts 3rd party 4 to 20 mA output devices when used with 8058 signal converter**
- **Available with 1 to 6 channels**
- **Two BTU calculations**

Applications

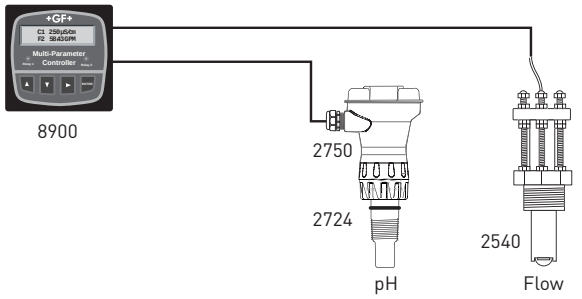
- **RO/DI System Control**
- **Media Filtration**
- **Pure Water Production**
- **Demineralisers**
- **Chemical Processing**
- **Metal & Plastics Finishing**
- **Fume Scrubbers**
- **Proportional Chemical Addition**
- **Cooling Tower & Boiler Protection**
- **Wastewater Treatment**
- **Aquatic Animal Life Support Systems**
- **Rinse Tank**

CE c UL us LISTED MEASURING EQUIPMENT 77CJ LEAD FREE Pb RoHS COMPLIANT

System Overview (continued)

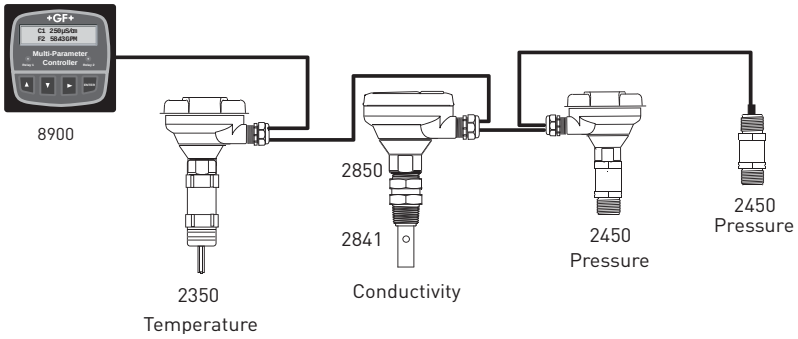
There are hundreds of system types that can be set up with the 8900. The examples below illustrate various sensors in different installation schemes. Wiring topology for point-to-point, daisy-chain, multi-drop, or a combination of these are listed in each example. Digital sensor outputs allow for long cable runs with high noise immunity. See Wiring section for allowable cable lengths.

Example 1
- 8900 input module: Two inputs
- Sensors connected: Signet 2750 with 2724 pH sensors and 2540 flow (frequency)
- Wiring configuration: Point-to-point

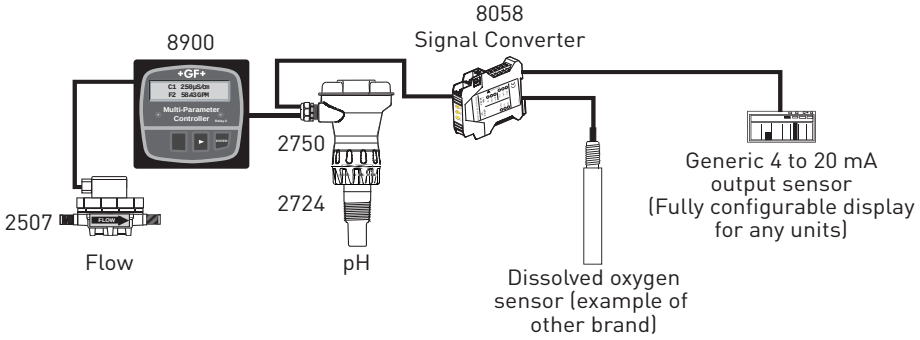


Notes
1. External relays can be used with any input module and does not consume a sensor input channel (Model 8059)
2. Model 8058 Signal Converter can be used with any input module.

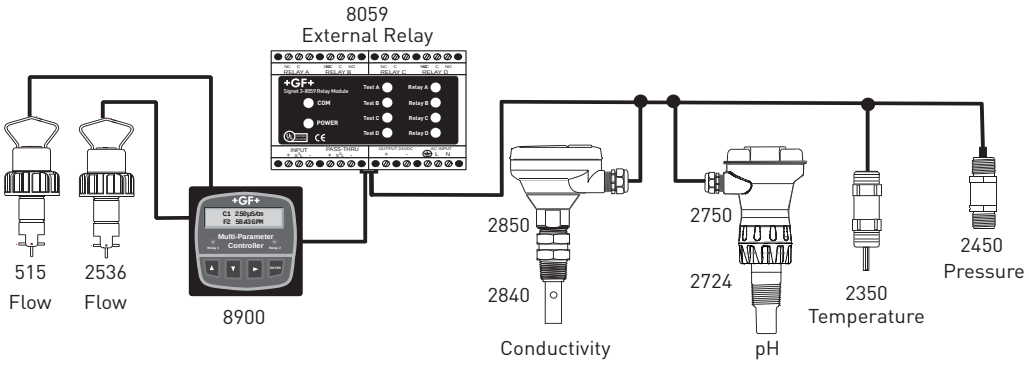
Example 2
- 8900 input module: Four inputs
- Sensors connected: Signet 2350 temperature sensor, 2850 with 2841 conductivity, and two 2450 pressure sensors
- Wiring configuration: Daisy-chain



Example 3
- 8900 input module: Four inputs
- Sensors connected: Signet 2507 flow (frequency) and 2750 with 2724 pH sensors; Other manufacturers dissolved oxygen and level sensors with 4 to 20 mA output
- External Devices: Signet 8058 signal converter - 4 to 20 mA to digital (S^3L)
- Wiring configuration: Combination of point-to-point and daisy-chain



Example 4
- 8900 input module: Six inputs
- Sensors connected: Signet 2350 temperature sensor, 2850 with 2840 conductivity, 2450 pressure, 2750 with 2724 pH, and 515 and 2536 flow (frequency) sensors
- External Devices: Signet 8059 external relay module
- Wiring configuration: Combination of Point-to-point and Multi-drop



Wiring Options

- **Point-to-point** wiring is direct wiring of individual devices into the controller. This wiring topology is applicable for all inputs.
- **Daisy-chain** wiring allows sequential connection from one device to the next by using junction boxes. This wiring topology is applicable for digital (S^3L) inputs only.
- **Multi-drop** wiring allows drops from a single bus cable. Junction boxes can be used for the 3-way junctions that are formed with this wiring scheme. This wiring topology is applicable for digital (S^3L) inputs only.

Specifications

General

Configurability: Modular (completely field-commissionable)
No. of Input Channels: 2, 4, or 6
Compatible Sensors: See System Overview
Input Signal Types:
- Digital (S^{3}L): Serial ASCII, TTL level 9600 bps
- Frequency: 0 to 1500 Hz
  Accuracy: 0.5% of reading

Measurement Types:
Flow, pH, ORP, Conductivity/Resistivity, Pressure, Temperature, Level, or 3rd party devices with a 4 to 20 mA output
Derived Measurements:
Sum, difference, ratio, % recovery, % reject, % passage, power (BTU)
No. of Relays Supported:
Available: 2, 4, 6 or 8 (8 dry-contact or 4 solid state and 4 dry-contact)
No. of analogue Outputs:
Available in pairs: 2 or 4 (active and/or passive 4 to 20 mA; and/or 0 to 5/10 VDC)

Enclosure and Display

- Enclosure Rating: NEMA 4X/IP65 (front face only)
- Case Material: PBT
- Panel Gasket: Silicone Sponge
- Window: Self-healing polyurethane-coated polycarbonate
- Keypad: 4-buttons, highly tactile and audible injection-moulded silicone rubber seal

Display:
- Alphanumeric 2 x 16 back-lit LCD or
- Vacuum Fluorescent (VF) versions
- Update Rate:1 second
- Accuracy: Sensor dependent
- VF Brightness: 4 intensity levels
- LCD Contrast: 4 settings
- Languages Available: English, French, Spanish, German Italian and Portuguese

Display Ranges (see sensor specifications for actual measurement limits):
- pH: -2.00 to 15.00 pH
- pH Temp.: -40 °C to 150 °C (-40 °F to 302 °F)
- ORP: -9999 to +9999 mV
- Flow Rate: 0.0000 to 999999 units per second, minute, hour or day
- Totaliser: 0.00 to 99999999 units
- Conductivity: 0.0000to 999999 µS, mS, PPM & PPB (TDS), kΩ, MΩ
- Conductivity Temperature: -99.9 °C to 250 °C (-148 °F to 482 °F)
- Temperature: -99.9 °C to 999.9 °C (-148 °F to 999.9 °F)
- Pressure: -99.99 to 9999 psi, kPa, bar

Display Ranges (continued)
- Level: -99999 to 99999 m, cm, ft, in., %
- Volume: -99999 to 999999 m^3, ft^3, in^3, cm^3, gal, L, kg, lb, %
- Other (4 to 20 mA): -99999 to 999999 user selectable units

Environmental

Ambient Operating Temperature:
- Back-lit LCD: -10 °C to 55 °C (14 °F to 131 °F)
- VF Display: -10 °C to 50 °C (14 °F to 122 °F)

Storage Temp.: -15 °C to 80 °C (5 °F to 176 °F)
Relative Humidity: 0 to 95%, non-condensing
Maximum Altitude:
- 2,000 m (6,560 ft)
- 4,000 m (13,123 ft); use only DC power supply and, if applicable, solid state relays to maintain UL safety standard up to this altitude.

Electrical

Power Requirements (AC or DC via Power Modules)
- Universal AC: 100 to 240 VAC ±10%, regulated 50-60 Hz, 24 VA max.
- DC: 12 to 24 VDC, ±10%, regulated recommended, 7 Watts max.

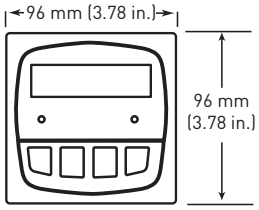
Output Power to Sensors:
5 VDC up to 40 mA total
Terminal type:
Screw-clamp, removable via plug-in modules.

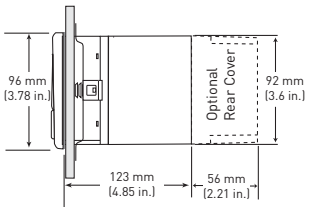
Analogue Outputs (via I/O Modules and Output Modules) All analogue outputs are freely assignable to any channel.

4 to 20 mA Output:
Endpoints are adjustable and reversible:
- Minimum default 4.0 mA; user adjustable from 3.8 to 5.0 mA
- Maximum default 20.00 mA; user adjustable from 19.0 to 21.0 mA

Test Mode:
Produces an adjustable 4 to 20 mA signal for functional verification of each output circuit
Isolation: Up to 48 VAC/DC
Error Condition:
22.1 mA (default state when output source not configured)
Update Rate: 100 ms
Accuracy:
±32 µA over entire operating temperature range

Dimensions





Specifications (continued)

Analogue Outputs (continued)

Passive 4 to 20 mA
- Voltage: 12 to 24 VDC, ±10%, regulated
- Max. Impedance:
  250 Ω @ 12 VDC
  500 Ω @ 18 VDC
  750 Ω @ 24 VDC
- Active 4 to 20 mA
- Max. Impedance: 650 Ω

0 to 5/10 VDC Output:
Output Range:
0 to 5 VDC or 0 to 10 VDC, software selectable
Endpoints are adjustable and reversible:
- Minimum default:
  0 VDC; user programmable from 0 to 0.5 VDC
- Maximum default:
  5 VDC; user programmable from 4.5 to 5.5 VDC, or 9.5 to 10.5 VDC

Output Load: 10 kΩ minimum
Test Mode:
Produces an adjustable signal for functional verification of each output circuit
Isolation: Up to 48 VAC/DC
Error Condition:
0 VDC (default state when output source not configured)
Update Rate: 100 mS
Accuracy:
±20 mV over entire operating temperature range
Resolution: 5 mV
Power Supply Rejection: 0.5 mV/V

Relay Modules

All relays are freely assignable to any channel.
- Internal relay modes of operation:
  Off, Low, High, Window, Proportional Pulse, Pulse Width Modulation, USP, Volumetric, Pulse, Totaliser Volume, Advanced, % Rejection, % Recovery, % Passage

- External relay modes of operation:
  Off, Low, High, Window, USP, Totaliser Volume, Advanced, % Rejection, % Recovery, % Passage

Hysteresis: User adjustable
Time Delay: 0 to 6400 seconds

- Advanced Relay:
  Use "AND/OR" logic along with relay sources to trigger a relay.
  High/Low modes available for each of the 3 sources.

- Solid State Relays: (non-mechanical switches)

Normally Open/Closed Operation:
Software selectable
Maximum Voltage Rating:
30 VDC or 42 VAC p-p
Current Rating:
50 mA DC or 50 mA AC RMS
On-state Impedance: 30 Ω or less
Off-state Leakage: 400 nA or less, AC or DC
Isolation: Up to 48 VAC/DC
Transient Protection:
Embedded, up to 48 V over-voltage

- Dry-contact Relays: (mechanical contacts)
  Type: SPDT
  Form: C

Maximum Pulse Pate:
- 600 pulses/min. (volumetric pulse & PWM modes)
- 400 pulses/min. (prop. pulse mode)

Maximum Voltage Rating:
30 VDC or 250 VAC
Current Rating: 5 A

Shipping Weight

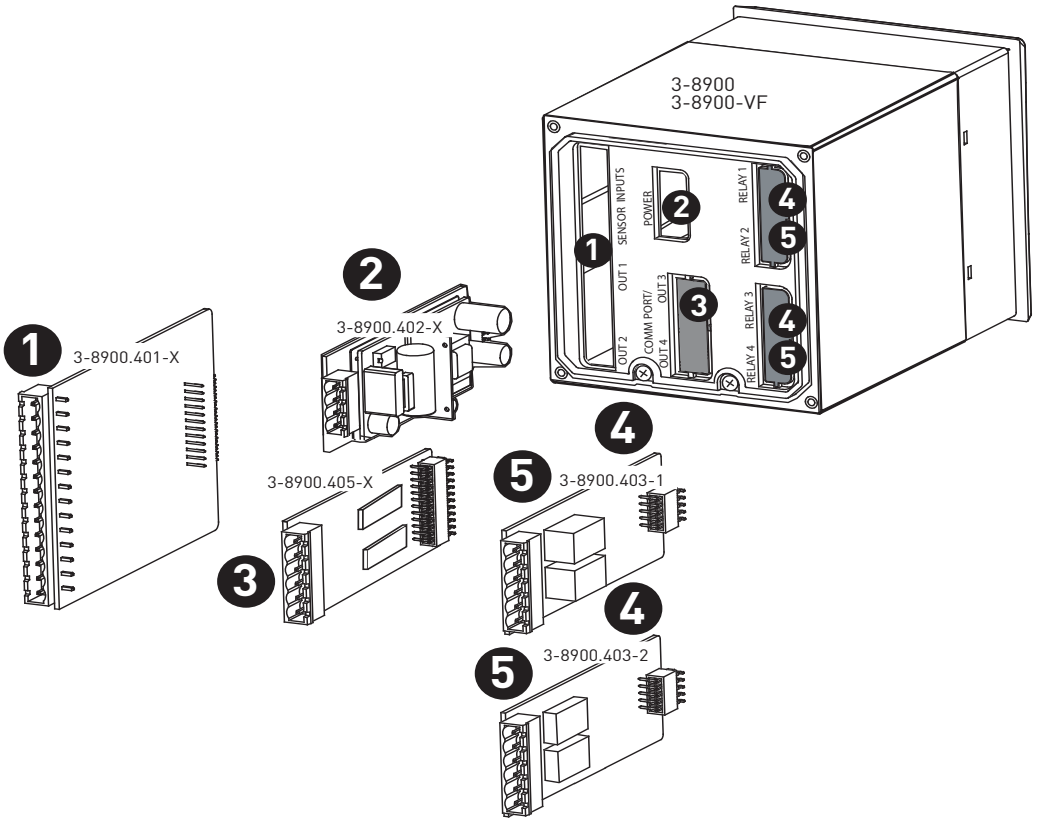
• Base Unit:	1.00 kg	2.25 lb
• Power Module:	0.12 kg	0.25 lb
• I/O Module:	0.12 kg	0.25 lb
• Output Module:	0.12 kg	0.25 lb
• Relay Module:	0.12 kg	0.25 lb

Standards and Approvals
- CE, UL
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Installation of Modules with the base unit

3-8900/3-8900-VF

One base unit is required to build a functional 8900. It is offered with a backlit LCD or a Vacuum Fluorescent Display. Programming the unit is done simply via the push-button keypad. The unit can be tailored to display in English, German, French, Spanish, Italian, and Portuguese. The two line display allows for easy programming, navigation, and viewing of each channel.



1. I/O module

One I/O module is required to build a functional 8900. I/O modules are offered for 2, 4, or 6 sensor inputs with or without 2 mA or voltage outputs. Users can select two additional outputs via the output module.

2. Power module

One power module is required to build a functional 8900. The power module is offered for universal 100/240 VAC or 12 to 24 VDC (This module can be powered by optional external relays (see ordering information for more details).

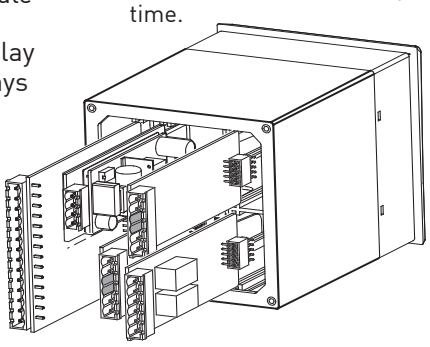
3. Output module

Output modules are optional when building an 8900. This module can be used in addition to other outputs that are available in the I/O modules. Active current and voltage outputs are powered by the 8900. Passive outputs require an outside 12 to 24 VDC power supply. All outputs are assignable to any input channel.

4 & 5 Relay modules

Relay modules are optional when building an 8900. Relay modes of operation include off, low, high, window, USP, totaliser volume, advanced, proportional pulse, pulse width modulation, volumetric pulse, % reject, % recovery and % passage. The advanced relay option for "AND/OR" logic is used for up to 3 conditions. For instance, a relay will go to high/low if "a" is true and "b" or "c" is false. One or two relay modules can be installed into the 8900. One additional external relay module can also be used at the same time (See optional external relay ordering information.) All relays are assignable to any input channel.

Installation of Modules: Modules simply plug in by sliding into the base unit on rails. They are held securely in place by the rear cover. Changes and upgrades can be made in the field at any time.



Model 8900
Ordering Notes

1) Building a functional unit requires a base unit, I/O module, and power module.
2) Output options are available on I/O modules and additional output modules can be used. The 8900 can support up to four outputs.
3) The 8900 can support up to eight relays. Up to two internal relay modules can be used simultaneously; additional external relays can also be used.
4) A maximum total of two frequency sensors can be used with any input card.
5) A total of six digit inputs or four digital inputs with two frequency inputs can be used.
6) The 8900 boards are field replaceable.
7) The 8900 can be reconfigured with new sensor types by simple reprogramming.

Ordering Information

To build a functional 8900 controller, choose a base unit, power module, and input/output (I/O) module. Additional outputs and relays are available, if needed.

Base Units, Required; Choose One		
3-8900	159 000 868	Base unit with back-lit LCD
3-8900-VF	159 000 869	Base unit with Vacuum Fluorescent display
I/O (input/output) Modules, Required; Choose One		
3-8900.401-1	159 000 870	Dual (2) Input (no outputs)
3-8900.401-2	159 000 871	Dual (2) Input with Two Passive* Loop Outputs
3-8900.401-3	159 000 872	Dual (2) Input with Two Active Loop Outputs
3-8900.401-4	159 000 873	Dual (2) Input with Two Voltage Outputs
3-8900.401-5	159 000 874	Quad (4) Input (no outputs)
3-8900.401-6	159 000 875	Quad (4) Input with Two Passive* Loop Outputs
3-8900.401-7	159 000 876	Quad (4) Input with Two Active Loop Outputs
3-8900.401-8	159 000 877	Quad (4) Input with Two Voltage Outputs
3-8900.401-9	159 000 968	Six Inputs (no outputs)
3-8900.401-10	159 000 969	Six Inputs with Two Passive* Loop Outputs
3-8900.401-11	159 000 970	Six Inputs with Two Active Loop Outputs
3-8900.401-12	159 000 971	Six Inputs with Two Voltage Outputs
Power Modules, Required; Choose One		
3-8900.402-1	159 000 878	110/220 VAC Power Module, ±10%, regulated
3-8900.402-2	159 000 879	12 to 24 VDC Power Module, ±10%, regulated
Optional Output Modules - Choose One		
3-8900.405-1	159 000 883	Two Passive* Current Loop Outputs
3-8900.405-2	159 000 884	Two Active Current Loop Outputs
3-8900.405-3	159 000 885	Two 0 to 5 and/or 0 to 10 VDC Outputs
Optional Relay Modules - Choose One or Two		
3-8900.403-1	159 000 880	Two Dry Contact Relays
3-8900.403-2	159 000 881	Two Solid State Relays
Optional External Relays - Choose One**		
3-8059-2	159 000 770	Two dry-contact relays; requires 12 to 24 VDC ±10%, regulated
3-8059-2AC	159 000 771	Two dry-contact relays; requires 100 to 240 VAC ±10%, regulated; supplies power to the 12 to 24 VDC power module, ±10%, regulated
3-8059-4	159 000 772	Four dry-contact relays; requires 12 to 24 VDC ±10%, regulated
3-8059-4AC	159 000 773	Four dry-contact relays; requires 100 to 240 VAC ±10%, regulated; supplies power to the 12 to 24VDC ±10%, regulated power host device

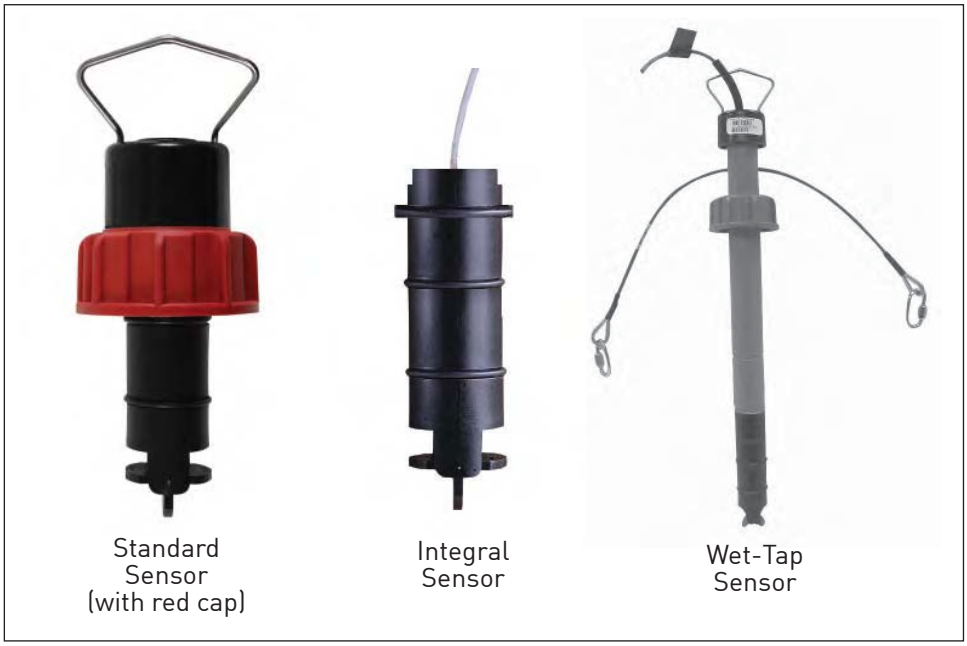
* Passive outputs require an external power source
** See individual product page for the 8059 External Relay Modules.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-8050.392	**159 000 640**	¼ DIN retrofit adapter
3-8050.395	**159 000 186**	Splashproof rear cover
3-0000.596-1	**159 000 892**	¼ DIN wall mount bracket, 6½ in. (use if no rear cover is installed)
3-0000.596-2	**159 000 893**	¼ DIN wall mount bracket, 9 in. (use if rear cover is installed)
3-5000.399	**198 840 224**	Panel adapter, 5 x 5 in. to ¼ DIN
3-5000.598	**198 840 225**	Surface mount bracket
Power Supplies		
7300-7524	**159 000 687**	24 VDC power supply 7.5W, 300 mA
7300-1524	**159 000 688**	24 VDC power supply 15W, 600 mA
7300-3024	**159 000 689**	24 VDC power supply 30W, 1.3 A
7300-5024	**159 000 690**	24 VDC power supply 50W, 2.1 A
7300-1024	**159 000 691**	24 VDC power supply 100W, 4.2 A
Miscellaneous		
3-8050.396	**159 000 617**	RC filter kit (for relay use), 2 per kit

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

Signet 515 Rotor-X Paddlewheel Flow Sensors



Features

- **Operating range 0.3 to 6 m/s (1 to 20 ft/s)**
- **Wide turndown ratio of 20:1**
- **Highly repeatable output**
- **Simple, economical design**
- **Installs into pipe sizes DN15 to DN900 (½ to 36 in.)**
- **Self-powered/no external power required**
- **Test certificate included for -X0, -X1**
- **Chemically resistant materials**

Description

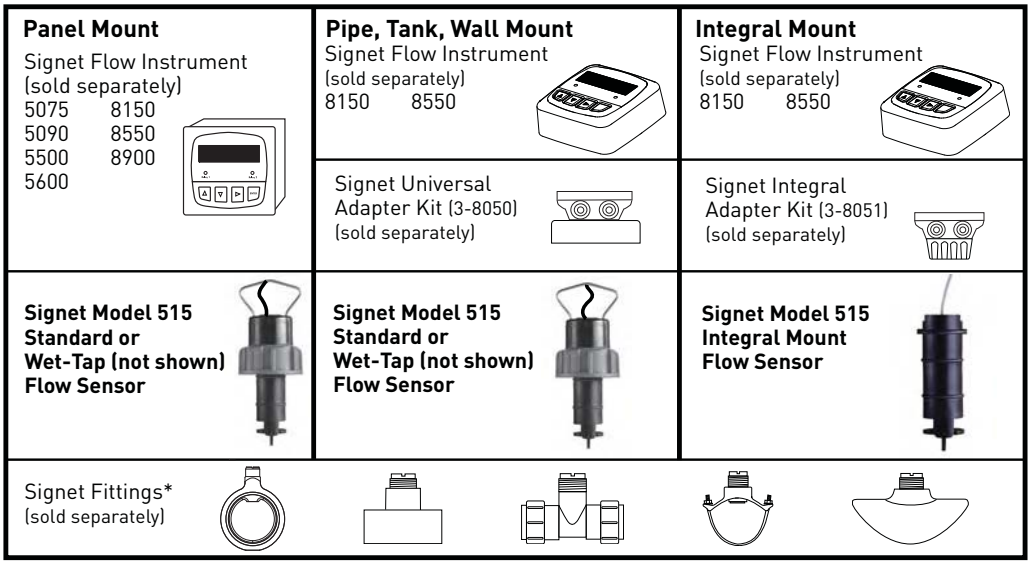
Simple to install with time-honoured reliable performance, Signet 515 Rotor-X Paddlewheel Flow Sensors are highly repeatable, rugged sensors that offer exceptional value with little or no maintenance. The output signal of the Model 515 is a sinusoidal frequency capable of driving a self-powered flowmeter (Model 3-5090). The wide dynamic flow range of 0.3 to 6 m/s (1 to 20 ft/s) allows the sensor to measure liquid flow rates in full pipes and can be used in low pressure systems.

The Model 515 sensors are offered in a variety of materials for a wide range of pipe sizes and insertion configurations. The many material choices including PP and PVDF make this model highly versatile and chemically compatible to many liquid process solutions. Sensors can be installed in up to DN900 (36 in.) pipes using Signet's comprehensive line of custom fittings. These custom fittings, which include tees, saddles, and weldolets, seat the sensor to the proper insertion depth into the process flow. The sensors are also offered in configurations for wet-tap and intrinsically safe installation requirements.

Applications

- **Pure Water Production**
- **Filtration Systems**
- **Chemical Production**
- **Liquid Delivery Systems**
- **Pump Protection**
- **Scrubber Systems**
- **Water Monitoring**
- **Not suitable for gases**

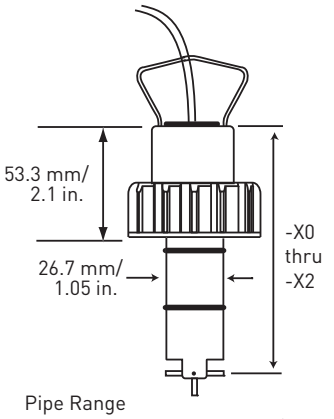
System Overview (For overview of Wet-Tap System, see 3519 product page)



* See Fittings section for more information.

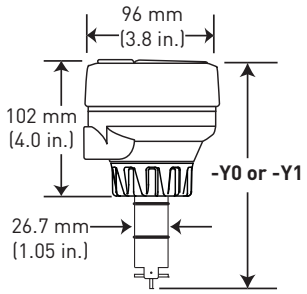
Dimensions

515 Standard Mount Sensor



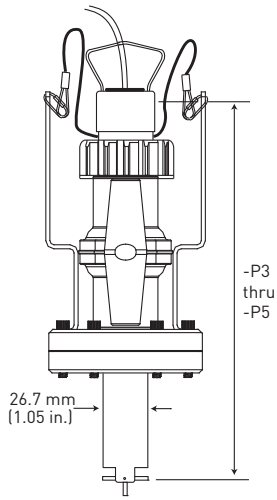
Pipe Range
½ to 4 in.: **-X0** = 104 mm (4.1 in.)
5 to 8 in.: **-X1** = 137 mm (5.4 in.)
10 in. and up: **-X2** = 213 mm (8.4 in.)

515 Integral Mount Sensor shown with Transmitter (sold separately)



Pipe Range
0.5 to 4 in. **-Y0** = 152mm (6.0 in.)
5 to 8 in. **-Y1** = 185mm (7.3 in.)

515 Wet-Tap Mount Sensor with 3519 Wet-Tap Valve
See more information on the 3519 Wet-Tap Valve, refer to the 3519 product page.



Pipe Range
½ to 4 in. **-P3** = 297 mm (11.7 in.)
5 to 8 in. **-P4** = 333 mm (13.1 in.)
10 in. and up **-P5** = 409 mm (16.1 in.)

Specifications

General

Operating Range:
0.3 to 6 m/s (1 to 20 ft/s)
Pipe Size Range:
DN15 to DN900 (½ to 36 in.)
Linearity:
±1% of max. range @ 25 °C (77 °F)
Repeatability:
±0.5% of max. range @ 25 °C (77 °F)
Min. Reynolds Number Required: 4500

Wetted Materials

- Sensor Body:
  Glass-filled PP (black) or PVDF (natural)
- O-rings:
  FPM (std)
  optional EPR (EPDM) or FFPM
- Rotor Pin:
  Titanium, Hastelloy-C or PVDF;
  optional Ceramic, Tantalum, or Stainless Steel
- Rotor:
  Black PVDF or Natural PVDF;
  optional Tefzel®, with or without Fluoroloy G® sleeve for rotor pin

Electrical

Frequency:
19.7 Hz per m/s nominal
(6 Hz per ft/s); sinusoidal
Amplitude:
3.3 V p/p per m/s nominal
(1 V p/p per ft/s)
Source Impedance: 8 KΩ
Cable Type:
2-conductor twisted pair with shield, 22 AWG
Cable Length:
7.6 m (25 ft) can be extended up to 60 m (200 ft) maximum

Max. Temperature/Pressure Rating Standard and Integral Sensor

- PP: 12.5 bar @ 20 °C,
  1.7 bar @ 90 °C
  (180 psi @ 68 °F, 25 psi @ 194 °F)
- PVDF: 14 bar @ 20 °C,
  1.4 bar @ 100 °C
  (200 psi @ 68 °F, 20 psi @ 212 °F)

Operating Temperature:

- PP: -18 °C to 90 °C (0°F to 194 °F)
- PVDF: -18 °C to 100 °C (0 °F to 212 °F)

Wet-Tap Sensor

- PP: 7 bar @ 20 °C, 1.4 bar @ 66 °C
  (100 psi @ 68 °F, 20 psi @ 150 °F)

Operating temperature:
-18 °C to 66 °C (0 °F to 150 °F)
Max. wet-tap sensor removal rating:
1.7 bar @ 22 °C (25 psi @ 72 °F)

See Temperature & Pressure Graphs for more information.

Shipping Weight

P51530-X0	0.454 kg	1.00 lb
P51530-X1	0.476 kg	1.04 lb
P51530-X2	0.680 kg	1.50 lb
P51530-X3	0.794 kg	1.75 lb
P51530-X4	0.850 kg	1.87 lb
P51530-X5	1 kg	2.20 lb
3-8510-X0	0.23 kg	.50 lb
3-8510-X1	0.23 kg	.50 lb

Standards and Approvals

- FM Class I, II, III/Div. 1/groups A-G
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Application Tips:

- Use the Conduit Adapter Kit to protect the cable-to-sensor connection when used in outdoor environments. See Accessories section for more information.
- Use a sleeved rotor in abrasive liquids to reduce wear.
- Sensor plug can be used to plug installation fitting after extraction of sensor from pipe.
- For liquids containing ferrous particles, use Signet Magmeters.
- For systems with components of more than one material, the maximum temperature/pressure specification must always be referenced to the component with the lowest rating.

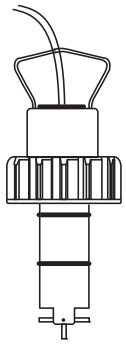
Please refer to Wiring, Installation, Accessories and Fittings sections for more information.

Ordering Information

Model 515 Standard Mount Paddlewheel

When choosing this style of sensor, the instrument can be mounted nearby on a pipe or wall or in a remote location up to 60 m/200 ft (standard cable length is 7.6 m/25 ft) by connecting the sensor through a standard 3-8050-1 universal junction box. Use Signet fittings for proper seating of the sensor into the process flow.

Model 515 Standard Paddlewheel Flow Sensor



Sensor Part Number			
P51530	Flow Sensor for use with remote mount instrument		
	Body/Rotor/Pin Material-Choose One*		
	- H	Polypropylene/Black PVDF/Hastelloy-C	
	- P	Polypropylene/Black PVDF/Titanium	
	- S	Polypropylene/Black PVDF/Natural PVDF	
	- T	Natural PVDF/Natural PVDF/Natural PVDF	
	- V	Natural PVDF/Natural PVDF/Hastelloy-C	
		Pipe Size - Choose One	
		0	½ to 4 in.
		1	5 to 8 in.
		2	10 to 36 in.
		↓	
P51530	**- P**	**0**	**Example Part Number**

Mfr. Part No.*	Code
P51530-H0	**198 801 659**
P51530-P0	**198 801 620**
P51530-P1	**198 801 621**
P51530-P2	**198 801 622**
P51530-S0	**198 801 661**

Mfr. Part No.*	Code
P51530-T0	**198 801 663**
P51530-T1	**198 801 664**
P51530-V0	**198 801 623**
P51530-V1	**198 801 624**
P51530-V2	**198 801 625**

***Model 515 Ordering Notes**

1) Most common part number combinations shown. For all other combinations contact factory.
2) Other rotor and pin materials are available for purchase from the factory and can be easily replaced in the field. See Accessories section.

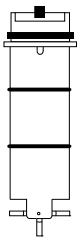
Model 515 Integral Mount Paddlewheel

When choosing this style of sensor, the instrument is mounted directly onto the sensor for a local display. See Guideline below for instructions.

Sensor Part Number			
3-8510	Flow Sensor for integral mounting on the 8150 or 8550 instrument using the 3-8051 adapter (instrument and adapter sold separately)		
	Body/Rotor/Pin Material-Choose One*		
	- P	Polypropylene/Black PVDF/Titanium	
	- T	Natural PVDF/Natural PVDF/Natural PVDF**	
	- V	Natural PVDF/Natural PVDF/Hastelloy-C**	
		Pipe Size - Choose One	
		0	½ to 4 in.
		1	5 to 8 in.
		↓	
3-8510	**- P**	**0**	**Example Part Number**

**PVDF available ½ in. to 4 in. only

Model 515 Integral Mount Paddlewheel Flow Sensor



Mfr. Part No.*	Code
3-8510-P0	**198 864 504**
3-8510-P1	**198 864 505**

Mfr. Part No.*	Code
3-8510-T0	**159 000 622**
3-8510-V0	**198 864 506**

Guideline: Combining a 515 Integral mount flow sensor with an integrally mounted instrument

Option 1

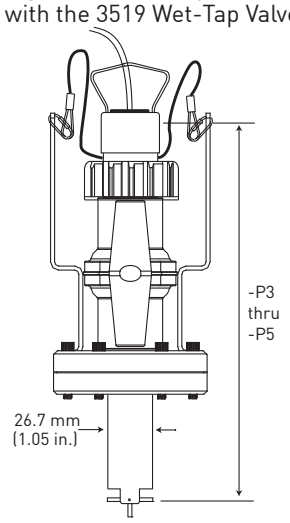
Once an integral mount sensor is chosen, it can be mounted directly to a field mount transmitter by following these guidelines:

a) Order the integral adapter kit 3-8051 (sold separately) to connect the sensor to an instrument.
b) Order a field mount transmitter (sold separately). The following part numbers are compatible: 3-8550-1, 3-8550-2, 3-8550-3, 3-8150-1.
c) Assembling the sensor with the integral adapter and instrument is quick and simple.

Option 2

These parts can also be ordered as an assembled part. See page 74 "Integral Mount" for more information.

Signet 515 Wet-Tap Sensor with the 3519 Wet-Tap Valve



Pipe Range
½ to 4 in. **-P3** = 297 mm (11.7 in.)
5 to 8 in. **-P4** = 333 mm (13.1 in.)
10 in. and up **-P5** = 409 mm (16.1 in.)

***Model 515 Ordering Notes**

1) Other rotor and pin materials are available for purchase from the factory and can be easily replaced in the field. See Accessories section.

Ordering Information (continued)

Model 515 Wet-Tap Mount Paddlewheel Flow Sensor

When choosing this style of sensor, the instrument can be mounted nearby on a pipe or wall or in a remote location up to 60 m (200 ft) by connecting the sensor through a standard 3-8050-1 universal junction box. Standard cable length is 7.6 m (25 ft). This style of sensor uses the 3519 Wet-Tap valve only (see individual product page for more information).

Sensor Part Number			
P51530	Flow Sensor for wet-tap mounting with the 3519 Wet-Tap Valve (sold separately)		
↓	Body/Rotor/Pin Material*		
↓	**- P**	Polypropylene/Black PVDF/Titanium	
↓	↓	Pipe Size - Choose One	
↓	↓	**3**	½ to 4 in.
↓	↓	**4**	5 to 8 in.
↓	↓	**5**	10 to 36 in.
↓	↓	↓	
P51530	**- P**	**3**	**Example Part Number**

Mfr. Part No.*	Code
P51530-P3	**198 840 310**
P51530-P4	**198 840 311**
P51530-P5	**198 840 312**

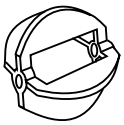
Guideline: Combining a 515 Wet-Tap Sensor with a 3519 Wet-Tap Valve

a) Sensor can be mounted in a 3519 Wet-Tap Valve (sold separately)
b) Assembling a sensor with a 3519 Wet-Tap valve is quick and simple. These parts can also be ordered as complete assemblies. See 3519 product page.

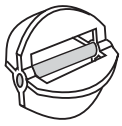
Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Rotors		
M1538-2	**198 801 181**	Rotor, PVDF Black
P51547-3	**159 000 474**	Rotor, PVDF Natural
M1538-4	**198 820 018**	Rotor, Tefzel®
P51550-3	**198 820 043**	Rotor and pin (matched set), PVDF Natural
3-0515.322-1	**198 820 059**	Sleeved rotor, PVDF Black
3-0515.322-2	**198 820 060**	Sleeved rotor, PVDF Natural
3-0515.322-3	**198 820 017**	Sleeved rotor, Tefzel®
Rotor Pins		
M1546-1	**198 801 182**	Pin, Titanium
M1546-2	**198 801 183**	Pin, Hastelloy-C
M1546-3	**198 820 014**	Pin, Tantalum
M1546-4	**198 820 015**	Pin, stainless steel
P51550-3	**198 820 043**	Rotor and pin, PVDF Natural
P51545	**198 820 016**	Pin, Ceramic
O-Rings		
1220-0021	**198 801 186**	O-ring, FPM (2 required per sensor)
1224-0021	**198 820 006**	O-ring, EPR (EPDM) (2 required per sensor)
1228-0021	**198 820 007**	O-ring, FFPM (2 required per sensor)
Miscellaneous		
P31536	**198 840 201**	Sensor plug, Polypropylene
P31542	**198 801 630**	Sensor cap, Red
P31934	**159 000 466**	Conduit cap
P51589	**159 000 476**	Conduit adapter kit
5523-0222	**159 000 392**	Cable (per foot), 2 cond. w/shield, 22 AWG
3-8051	**159 000 187**	Transmitter integral adapter (for use with 8510 and 8512) (see system overview for graphics)
6400-9001	**159 001 466**	Intrinsic safety barriers (2 required)
3-8051-1	**159 000 753**	Universal junction box

Rotor

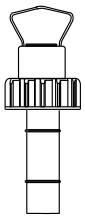


Rotor Pin

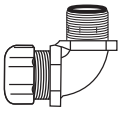


Sensor Cap

Sensor Plug



Conduit Adapter Kit



Signet 525 Metalex Paddlewheel Flow Sensor

Features

- **For up to 103 bar (1500 psi @ safety factor 1.5) pressure**
- **For up to 149 °C (300 °F) temperatures**
- **DN15 to DN300 (½ to 12 in.) pipe range**
- **Simple installation**
- **Self-powered/no external power required**
- **316 SS body (1.4401)**
- **Tungsten Carbide or SS shaft**
- **7.6 m (25 ft) cable included**
- **FM approved**
- **Operating range 0.5 to 6m/s (1.6 to 20 ft/s)**

Description

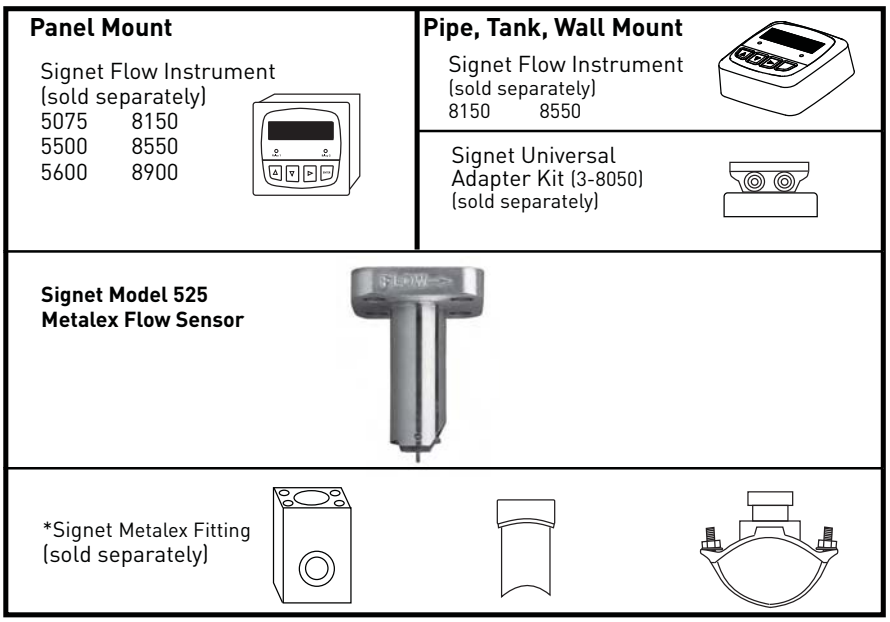
The Signet 525 Metalex Paddlewheel Flow Sensor combines stainless steel construction with insertion paddlewheel technology. The result is a highly reliable sensor suitable for operation at extreme pressures and temperatures. The Tungsten Carbide shaft and Rulon® B (Fluoroloy B/ PTFE) bearing provides excellent wear resistance for extended service.

A comprehensive fitting program allows installation in steel lines with the mini-block for small diameters, and either the mini-tap or saddle for pipes up to DN300 (12 in.). The self-generating output signal allows use with the battery operated flow totaliser 8150.

Applications

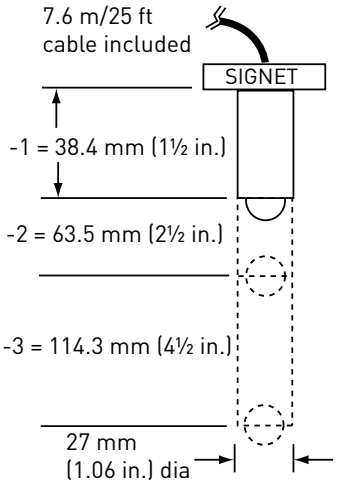
- **Boiler Feedwater Monitoring**
- **HVAC Systems**
- **Chemical Transport**
- **Heat Exchangers**
- **Reverse Osmosis**
- **Cooling systems**
- **Not Suitable for Gases**

System Overview



* See Fittings section for more information.

Dimensions



Application Tips

- Use the Conduit Adapter Kit to protect the cable-to-sensor connection when used in outdoor environments. See Accessories section.
- Use the Socket Weld or Weld-on Mini-Tap fittings for sensor installation in pressures up to 1500 psi (103 bar).
- The 525 can be used in intrinsically safe areas using an approved barrier between the sensor and instrument.

Specifications

General

Operating Range: 0.5 to 6 m/s (1.6 to 20 ft/s)
Pipe Size Range: DN15 to DN300 (½ to 12 in.)
Linearity:
±1% of max. range @ 25 °C (77 °F)
Repeatability:
±0.5% of max. range @ 25 °C (77 °F)
Min. Reynolds Number Required: 4500

Wetted Materials

Sensor Body:
316 SS (ACI type CF-8M per ASTM A351), DIN 17440
Rotor Material: CB7Cu-1 Alloy
Rotor Pin: Tungsten Carbide GRP 1 or 316 stainless steel
Retainers (2): 316 stainless steel (1.4401)
Rotor Bearings (2): Rulon® B (Fluoroloy/PTFE)
Gasket: KLINGER®sil C-4401 (supplied with fitting)

Electrical

Frequency: 12 Hz per ft/s nominal,
Amplitude: 5 to 8 mV p-p per Hz
Source Impedance: 11.6 KΩ
Cable Length:
7.6 m (25 ft), can be extended up to 60 m (200 ft)

Electrical (continued)

Cable Type:
Cable (per foot) 2 cond. w/shield, 22 AWG

Max. Temperature/Pressure Rating

- Socket Weld or Weld-On Mini-Tap fittings:
  103 bar (1500 psi @ safety factor 1.5) @ 149 °C (300 °F)
- Strap-on Saddle fitting:
  21 bar (300 psi) @ 66 °C (150 °F)

Operating Temperature:
-18 °C to 149 °C (0 °F to 300 °F)

See Temperature and Pressure graphs for more information.

Shipping Weight

P525-1/-1S	0.723 kg	1.6 lb
P525-2/-2S	0.774 kg	1.7 lb
P525-3/-3S	0.923 kg	2.0 lb

Standards and Approvals

- FM Class I (Group A, B, C, D), II (Group E,F,G), III, Division 1 (Groups A-G)
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Sensor Part Number			
P525	Metalex Flow sensor for high pressures and temperatures		
	Sensor Style		
	-1	used with ½ to 1 inch socket-weld mini-tap fittings**	
	-2	used with 1¼ to 12 inch weld-on mini-tap fittings**	
	-3	used with 2 to 12 inch strap-on saddle fittings**	
		Rotor Pin Material	
		-	Tungsten Carbide
		S	316 Stainless Steel
		↓	
P525	**-1**		**Example Part Number**

**See Fittings section.

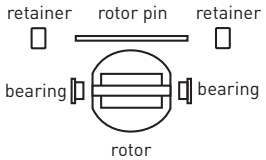
***Model 525 Ordering Notes**

1) Each sensor option is used with a different fitting based on pipe size.
2) Fittings must be ordered separately.
3) See fittings section for more information.

Mfr. Part No.*	Code
P525-1	**198 801 494**
P525-2	**198 801 495**
P525-3	**198 801 496**

Mfr. Part No.*	Code
P525-1S	**159 000 963**
P525-2S	**159 000 964**
P525-3S	**159 000 965**

Rotor Kit



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

Accessories and Replacements Parts

Mfr. Part No.	Code	Description
P52509	**198 801 501**	Rotor kit (rotors, stainless steel pin, bearings, retainers)
P52509-2	**159 000 480**	Rotor kit (rotors, tungsten carbide pin, bearings, retainers)
P52504-1	**198 801 500**	Rotor pin, Stainless Steel (1.4401)
P52504-2	**198 820 023**	Rotor pin, Tungsten Carbide
P52618	**159 000 493**	Gasket
P52503	**198 820 013**	Bearing, Rulon® B (Fluoroloy B/PTFE)
P52527	**159 000 481**	Retainers, Stainless Steel
P52628	**159 000 504**	Fitting cap kit (cap and gasket)
P51589	**159 000 476**	Conduit adapter kit
5523-3222	**159 000 393**	Cable (per foot) 2 cond. w/shield, 22 AWG
6402-9001	**159 001 486**	Intrinsic safety barrier (2 required)

Signet 2536 Rotor-X Paddlewheel Flow Sensors

Standard Sensor (with blue cap)

Integral Sensor

Wet-Tap Sensor

Features

- **Operating range 0.1 to 6 m/s (0.3 to 20 ft/s)**
- **Wide turndown ratio of 66:1**
- **Open-collector output**
- **Simple, economical design**
- **Highly repeatable output**
- **Installs into pipe sizes DN15 to DN900 (½ to 36 in.)**
- **High resolution and noise immunity**
- **Test certificate included for -X0, -X1**
- **Chemically resistant materials**

Description

Simple to install with time-honoured reliable performance, Signet 2536 Rotor-X Paddlewheel Flow Sensors are highly repeatable, rugged sensors that offer exceptional value with little or no maintenance. The Model 2536 has a process-ready open collector signal with a wide dynamic flow range of 0.1 to 6 m/s (0.3 to 20 ft/s). The sensor measures liquid flow rates in full pipes and can be used in low pressure systems.

The Signet 2536 sensors are offered in a variety of materials for a wide range of pipe sizes and insertion configurations. The many material choices including PP and PVDF make this model highly versatile and chemically compatible to many liquid process solutions. Sensors can be installed in DN15 to DN900 (½ to 36 in.) pipes using Signet's comprehensive line of custom fittings. These custom fittings, which include tees, saddles, and weldolets, seat the sensor to the proper insertion depth into the process flow. The sensors are also offered in configurations for wet-tap installation requirements.

Applications

- **Pure Water Production**
- **Filtration Systems**
- **Chemical Production**
- **Liquid Delivery Systems**
- **Pump Protection**
- **Scrubbers/Gas stacks**
- **Gravity Feed Lines**
- **Not suitable for gases**

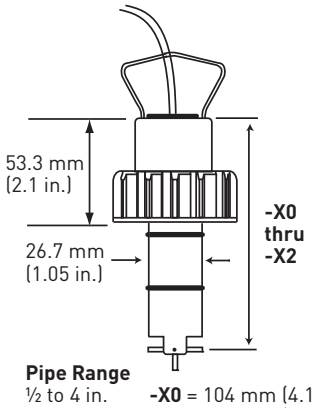
System Overview **(For overview of Wet-Tap System, see 3519 product page)**

Panel Mount	**Pipe, Tank, Wall Mount**	**Integral Mount**
Signet Flow Instrument (sold separately) 5075 8550 5500 8900 5600	Signet Flow Instrument (sold separately) 8550	Signet Flow Instrument (sold separately) 8550
	Signet Universal Adapter Kit (3-8050) (sold separately)	Signet Integral Adapter Kit (3-8051) (sold separately)
Signet Model 2536 Standard or Wet-Tap (not shown) Flow Sensor	**Signet Model 2536 Standard or Wet-Tap (not shown) Flow Sensor**	**Signet Model 2536 Integral Flow Sensor**
Signet Fittings* (sold separately)		

*See Fittings section for more information.

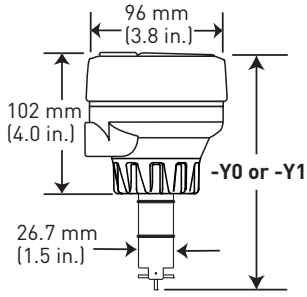
Dimensions

2536 Standard Mount Sensor



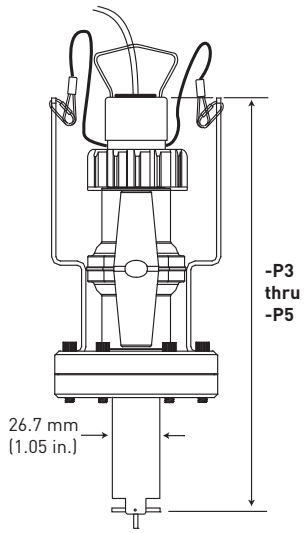
Pipe Range
½ to 4 in. **-X0** = 104 mm (4.1 in)
5 to 8 in. **-X1** = 137 mm (5.4 in.)
10 in. and up **-X2** = 213 mm (8.4 in.)

2536 Integral Mount Sensor shown with Transmitter (sold separately)



Pipe Range
½ to 4 in. **-Y0** = 152 mm (6.0 in.)
5 to 8 in. **-Y1** = 185 mm (7.3 in.)

2536 Wet-Tap Mount Sensor with 3519 Wet-Tap Valve
See 3519 product page for more information.



Pipe Range
½ to 4 in. **-P3** = 297mm (11.7 in.)
5 to 8 in. **-P4** = 333mm (13.1 in.)
10 in. and up **-P5** = 409mm (16.1 in.)

Specifications

General
Operating Range:
0.1 to 6 m/s (0.3 to 20 ft/s)
Pipe Size Range:
DN15 to DN900 (½ to 36 in.)
Linearity:
±1% of max. range @ 25 °C (77 °F)
Repeatability:
±0.5% of max. range @ 25 °C (77 °F)
Min. Reynolds Number Required: 4500

Wetted Materials
Sensor Body:
Glass-filled PP (black) or PVDF (natural)
O-rings:
FPM (std)
optional EPR (EPDM) or FFPM
Rotor Pin:
Titanium, Hastelloy-C or PVDF; optional Ceramic, Tantalum or Stainless Steel
Rotor:
Black PVDF or Natural PVDF; optional Tefzel®, with or without Fluoroloy G® sleeve for rotor pin

Electrical
Frequency: 49 Hz per m/s nominal (15 Hz per ft/s nominal)
Supply Voltage: 5 to 24 VDC ±10%, regulated
Supply Current: <1.5 mA @ 3.3 to 6 VDC
<20 mA @ 6 to 24 VDC
Output Type:
Open collector, sinking 10 mA max.
Cable Type:
2-conductor twisted pair with shield 22 AWG
Cable Length:
7.6 m (25 ft) can be extended up to 305 m (1,000 ft) maximum

Max. Temperature/Pressure Rating
Standard and Integral Sensor
- PP: 12.5 bar @ 20 °C, 1.7 bar @ 85 °C (180 psi @ 68 °F, 25 psi @185°F)
- PVDF: 14 bar @ 20 °C, 1.7 bar @ 85 °C (200 psi @ 68 °F, 25 psi @ 185 °F)

Operating Temperature:
- PP: -18 °C to 85 °C (0 °F to 185 °F)
- PVDF: -18 °C to 85 °C (0 °F to 185 °F)

Wet-Tap Sensor
PP: 7 bar @ 20 °C, 1.4 bar @ 66 °C (100 psi @ 68 °F, 20 psi @ 150 °F)
Operating Temperature:
-18 °C to 66 °C (0 °F to 150 °F)
Max. Wet-Tap Sensor Removal Rating:
1.7 bar @ 22 °C (25 psi @ 72 °F)

See Temperature and Pressure graphs for more information.

Shipping Weight

3-2536-X0	0.454 kg	1.00 lb
3-2536-X1	0.476 kg	1.04 lb
3-2536-X2	0.680 kg	1.50 lb
3-2536-X3	0.794 kg	1.75 lb
3-2536-X4	0.850 kg	1.87 lb
3-2536-X5	1 kg	2.20 lb
3-8512-X0	0.35 kg	0.77 lb
3-8512-X1	0.37 kg	0.81 lb

Standards and Approvals
- CE
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Application Tips
- Use the Conduit Adapter Kit to protect the cable-to-sensor connection when used in outdoor environments. See Accessories section for more information.
- Use a sleeved rotor in abrasive liquids to reduce wear.
- Sensor plug is used to plug installation fitting after extraction of sensor from pipe.
- For liquids containing ferrous particles, use Signet Magmeters.
- For systems with components of more than one material, the maximum temperature/pressure specification must always be referenced to the component with the lowest rating.

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

Ordering Information

Model 2536 Standard Mount Paddlewheel

When choosing this style of sensor, the instrument can be mounted nearby on a pipe or wall or in a remote location up to 305 m/1000 ft (standard cable length is 7.6 m/25 ft) by connecting the sensor through a standard 3-8050-1 universal junction box. Use Signet fittings for proper seating of the sensor into the process flow.

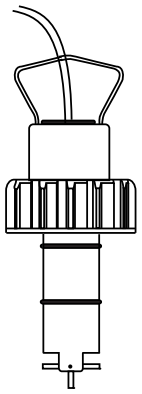
Sensor Part Number			
3-2536	Flow Sensor for use with remote mount instrument		
	Body/Rotor/Pin material - Choose One*		
	P	Polypropylene/Black PVDF/Titanium	
	T	Natural PVDF/Natural PVDF/Natural PVDF**	
	V	Natural PVDF/Natural PVDF/Hastelloy-C**	
		Pipe size - Choose One	
		0	0.5 to 4 in.
		1	5 to 8 in.
		2	10 to 36 in.
		↓	
3-2536	**- P**	**0**	**Example Part Number**

**PVDF available ½ in. to 4 in. only

Mfr. Part No.*	Code
3-2536-P0	**198 840 143**
3-2536-P1	**198 840 144**
3-2536-P2	**198 840 145**

Mfr. Part No.*	Code
3-2536-T0	**198 840 149**
3-2536-V0	**198 840 146**
3-2536-V1	**198 840 147**

Model 2536 Standard Paddlewheel Flow Sensor



***Model 2536 Ordering Notes**

1) Most common part number combinations shown. For all other combinations contact factory.
2) Other rotor and pin materials are available for purchase from the factory and can be easily replaced in the field. See Accessories section.

Model 2536 Integral Mount Paddlewheel

When choosing this style of sensor, the instrument is mounted directly onto the sensor for a local display. See Guidelines below for instructions.

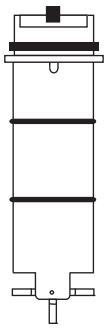
Sensor Part Number			
3-8512	Flow Sensor for integral mounting on the 8150 or 8550 instrument using the 3-8051 adapter (instrument and adapter sold separately)		
	Body/Rotor/Pin material-Choose one*		
	P	Polypropylene/Black PVDF/Titanium	
	T	Natural PVDF/Natural PVDF/Natural PVDF**	
	V	Natural PVDF/Natural PVDF/Hastelloy-C**	
		Pipe size - Choose one	
		0	½ to 4 in.
		1	5 to 8 in.
		↓	
3-8512	**- V**	**0**	**Example Part Number**

**PVDF available ½ in. to 4 in. only

Mfr. Part No.*	Code
3-8512-P0	**198 864 513**
3-8512-P1	**198 864 514**

Mfr. Part No.*	Code
3-8512-T0	**198 864 518**
3-8512-V0	**198 864 516**

Model 2536 Integral Mount Paddlewheel Flow Sensor



Guidelines: Combining a 2536 integral mount flow sensor with an integrally mounted instrument

Option 1

Once an integral mount sensor is chosen, it can be mounted directly to a field mount transmitter by following these guidelines:

a) Order the integral adapter kit 3-8051 (sold separately) to connect the sensor to an instrument.
b) Order a field mount transmitter (sold separately). The following part numbers are compatible: 3-8550-1, 3-8550-2, 3-8550-3.
c) Assembling the sensor with the integral adapter and instrument is quick and simple.

Option 2

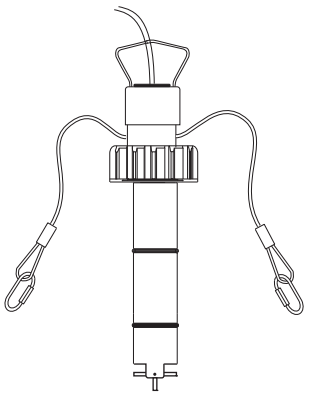
These parts can also be ordered as an assembled part. See page 74 "Integral Mount" for more information.

Ordering Information (continued)

Model 2536 Wet-Tap Mount Paddlewheel Flow Sensor

When choosing this style of sensor, the instrument can be mounted nearby on a pipe or wall or in a remote location up to 1000 ft (305 m) by connecting the sensor through a standard 3-8050-1 universal junction box. Standard cable length is 7.6 m (25 ft). This style of sensor uses the 3519 Wet-Tap valve only (see individual product page for more information).

Model 2536 Wet-Tap sensor



Sensor Part Number - Choose One			
3-2536	Flow Sensor for wet-tap mounting with the 3519 Wet-Tap Valve (sold separately)		
	Body/Rotor/Pin Material*		
	P	Polypropylene/Black PVDF/Titanium	
		Pipe Size - Choose One	
		3	½ to 4 in.
		4	5 to 8 in.
		5	10 to 36 in.
		↓	
3-2536	**- P**	**3**	**Example Part Number**

***Model 2536 Ordering Notes**

1) Other rotor and pin materials are available for purchase from the factory and can be easily replaced in the field. See Accessories section.

Mfr. Part No.*	Code
3-2536-P3	**159 000 758**
3-2536-P4	**159 000 759**
3-2536-P5	**159 000 760**

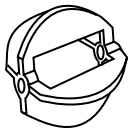
Guideline: Combining a 2536 Wet-Tap Sensor with a 3519 Wet-Tap Valve

a) Once a sensor is chosen, it can be mounted in a 3519 Wet-Tap Valve (sold separately)

b) Assembling a sensor with a 3519 Wet-Tap valve is quick and simple. These parts can also be ordered as complete assemblies. See 3519 product page.

Accessories and Replacement Parts

Rotor

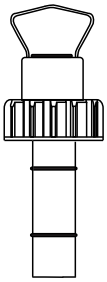


Rotor Pin

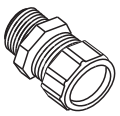
Sleeved Rotor (pin not included)

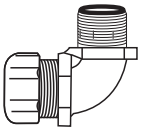
Sensor Cap

Sensor Plug



Conduit Adapter Kit





Mfr. Part No.	Code	Description
Rotors		
3-2536.320-1	**198 820 052**	Rotor, PVDF Black
3-2536.320-2	**159 000 272**	Rotor, PVDF Natural
3-2536.320-3	**159 000 273**	Rotor, Tefzel®
3-2536.321	**198 820 054**	Rotor and pin (matched set), PVDF Natural
3-2536.322-1	**198 820 056**	Sleeved rotor, PVDF Black
3-2536.322-2	**198 820 057**	Sleeved rotor, PVDF Natural
3-2536.322-3	**198 820 058**	Sleeved rotor, Tefzel®
Rotor Pins		
M1546-1	**198 801 182**	Pin, Titanium
M1546-2	**198 801 183**	Pin, Hastelloy-C
M1546-3	**198 820 014**	Pin, Tantalum
M1546-4	**198 820 015**	Pin, Stainless Steel
P51545	**198 820 016**	Pin, Ceramic
O-Rings		
1220-0021	**198 801 186**	O-ring, FPM (2 required per sensor)
1224-0021	**198 820 006**	O-ring, EPR (EPDM) (2 required per sensor)
1228-0021	**198 820 007**	O-ring, FFPM (2 required per sensor)
Miscellaneous		
P31536	**198 840 201**	Sensor plug, Polypropylene
P31542-3	**159 000 464**	Sensor cap, Blue
P31934	**159 000 466**	Conduit cap
P51589	**159 000 476**	Conduit adapter kit
5523-0222	**159 000 392**	Cable (per foot), 2 cond. w/shield, 22 AWG
3-8050	**159 000 184**	Universal mount kit
3-8051	**159 000 187**	Transmitter integral adapter (for use with 8510 and 8512)
3-8050-1	**159 000 753**	Universal junction box

Signet 2537 Paddlewheel Flow Sensor

Description

The Signet 2537 Flow Sensor is the next generation in fluid measurement technology from the inventor of the original paddlewheel flowmeter. This sensor is an improvement on what's already an industry standard. It has the added functionality of various output options including flow switch, multi-functional pulse, digital (S^3L) or 4 to 20 mA. Additionally, it offers low flow, low power and high resolution and can be configured on-site directly through the built-in user interface. Installation is simple because the Signet 2537 utilises the same fittings as the popular Signet 515 and 2536 Paddlewheel Sensors and fits into pipe sizes ranging from DN15 to DN200 (½ to 8 inches). Available in Polypropylene and PVDF, it is ideal for a variety of applications including chemical processing, water and wastewater monitoring and scrubber control.

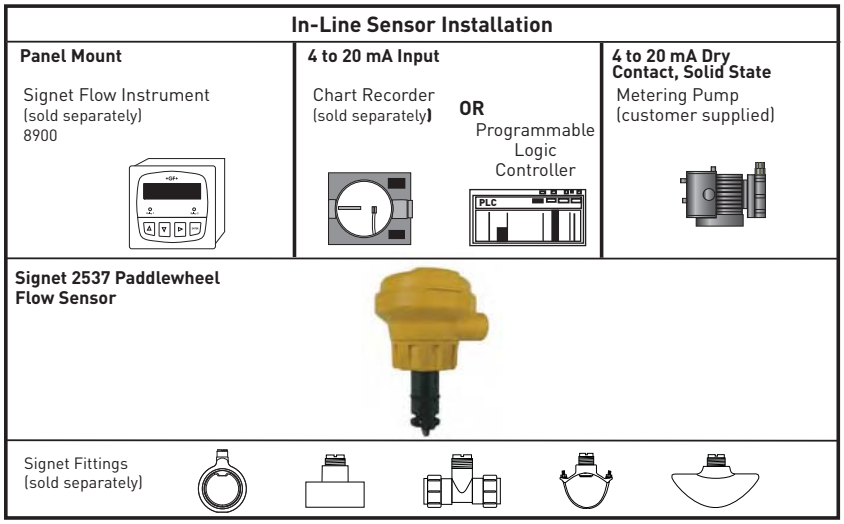
Features

- **Digital (S^3L), or 4 to 20 mA outputs, or Flow Switch, or Pulse output (multi-function)**
- **Allows for up to six sensors to Signet 8900 Controller**
- **Low flow capabilities down to 0.1m/s (0.3 ft/s)**
- **Polypropylene or PVDF sensor bodies**
- **Installs into pipe sizes DN15 to DN200 (½ to 8 in.)**
- **Test certificate included for -X0, -X1**
- **Low power and high resolution**

Applications

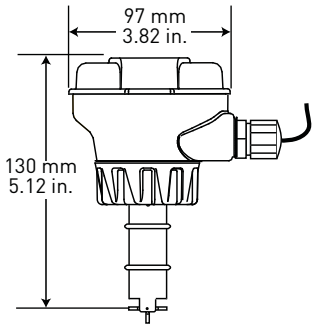
- **Process Flow Monitoring**
- **Pump Protection**
- **Pure Water Production**
- **Filtration Systems**
- **Chemical Production**
- **Reverse Osmosis**
- **Demineralisation/ Regeneration**
- **Fume Scrubbers**
- **Cooling Towers**
- **Proportional Metering Pump**

System Overview

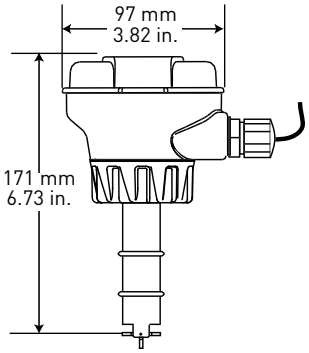


Dimensions

2537 Paddlewheel Flow Sensor for ½ in. to 4 in. pipe



2537 Paddlewheel Flow Sensor for 5 to 8 in. pipe



Specifications

General

Operating Range:
0.1 m/s to 6 m/s (0.3 ft/s to 20 ft/s)
Linearity:
±1% of max. range @ 25 °C (77 °F)
Repeatability:
±0.5% of max. range @ 25 °C (77 °F)
System Response:
100 ms update rate nominal

Wetted Materials

Sensor Body:
Glass-filled PP (black) or PVDF (natural)
O-rings:
FPM (std)
optional EPR (EPDM) or FFPM
Rotor Pin:
Titanium, Hastelloy-C or PVDF; optional Ceramic, Tantalum or Stainless Steel
Rotor:
Black PVDF or Natural PVDF; optional Tefzel®, with or w/o Fluoroloy G® sleeve for rotor pin

Electrical

Pulse Version:
- With dry-contact relay: 24 VDC regulated, ±10%, regulated 30 mA max current
- With solid-state relay: 5 to 24 VDC nominal, ±10%, regulated 30 mA max current
- Maximum Pulse Rate: 300 Hz
- Maximum Pulse Width: 50 ms
- Compatible with PLC, PC or similar equipment

Flow Switch Version:
- With dry-contact relay: 24 VDC regulated, ±10%, regulated 30 mA max current
- With solid-state relay: 5 to 24 VDC nominal, ±10%, regulated 30 mA max current
- Compatible with customer supplied metering pump

Digital (S^3L) Version:
- 5 VDC nominal, ±10%, regulated 3 mA max current
- Type: Serial ASCII, TTL level 9600 bps
- Max. Cable Length: Refer to Signet 8900 wiring specifications.
- Compatible with Model Signet 8900 controller

Electrical (continued)

4 to 20 mA Version:
- 12 VDC to 32 VDC nominal, ±10%, regulated 21 mA max current
- Loop Accuracy: ±32 µA @ 25 °C @ 24 VDC)
- Loop Resolution: 5 µA
- Temp. Drift: ±1 µA per °C max.
- Power Supply Rejection: ±1 µA per V
- Max. Cable: 300 m (1000 ft)
- Maximum Loop Resistance: 600 Ω @ 24 VDC, 1 KΩ @ 32 VDC
- Load impedance 375 Ω

Reverse Polarity and short circuit protected:
- Up to 40 V, 1 hour

Over-voltage protection:
- › 40 VDC over 1 hour

Relay Specifications
- Mechanical SPDT: 5 A @ 30 VDC, 5 A @ 250 VAC
- Solid-State Relay: 100 mA @ 40 VDC, 70 mA @ 33 VAC
- Relay Modes: Low, High
- Time Delay: 0.0 to 6400.0 seconds
- Hysteresis: Adjustable for exiting alarm condition

Max. Temperature/Pressure Rating

Storage Temperature:
-10 °C to 75 °C (14 °F to 167 °F)
Operating Temperature:
0 °C to 65 °C (32 °F to 149 °F)
Relative Humidity:
0 to 90%, non-condensing

Flow Sensor
- PP: 12.5 bar @ 20 °C, 1.7 bar @ 85 °C (180 psi @ 68 °F, 25 psi @ 185 °F)
- PVDF: 14 bar @ 20 °C, 1.7 bar @ 85 °C (200 psi @ 68 °F, 25 psi @ 185 °F)

Operating Temperature:
- PP: -18 °C to 85 °C (0 °F to 185 °F)
- PVDF: -18 °C to 85 °C (0 °F to 185 °F)

Environmental

Enclosure: NEMA 4X/IP65

Standards & Approvals

- CE
- Enclosure rating: NEMA 4X/IP65
- UL, CUL
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Sensor Part Number - Choose One					
3-2537	Paddlewheel Flow Sensor				
	Sensor Output Type				
	-1	Pulse Divider via Dry Contact Relay			
	-2	Pulse Divider via Solid-State Relay			
	-3	Flow Switch via Dry-Contact Relay			
	-4	Flow Switch via Solid-State Relay			
	-5	Digital (S^3L) output			
	-6	4 to 20 mA output			
		C	Integral Mount (8512 sensors)		
			Material Options		
			-P	Polypropylene body, black PVDF rotor, Titanium pin, FPM O-rings	
			-T	Natural PVDF body, rotor and pin, FPM O-rings	
				Pipe Size	
				0	DN15 to DN100 (½ to 4 inch)
				1	DN125 to DN200 (5 to 8 inch pipes)*
3-2537	**-1**	**C**	**-P**	**0**	**Example Part Number**

*PVDF available ½ in. to 4 in. only

Mfr. Part No.	Code
3-2537-1C-P0	**159 001 291**
3-2537-2C-P0	**159 001 292**
3-2537-3C-P0	**159 001 293**
3-2537-4C-P0	**159 001 294**
3-2537-5C-P0	**159 001 295**
3-2537-6C-P0	**159 001 296**
3-2537-1C-P1	**159 001 303**
3-2537-2C-P1	**159 001 304**
3-2537-3C-P1	**159 001 305**

Mfr. Part No.	Code
3-2537-4C-P1	**159 001 306**
3-2537-5C-P1	**159 001 307**
3-2537-6C-P1	**159 001 308**
3-2537-1C-T0	**159 001 315**
3-2537-2C-T0	**159 001 316**
3-2537-3C-T0	**159 001 317**
3-2537-4C-T0	**159 001 318**
3-2537-5C-T0	**159 001 319**
3-2537-6C-T0	**159 001 320**

Application Tips

- Select PVDF Rotor Pin for use in Deionized Water.
- Use a sleeved rotor in abrasive liquids to reduce wear.
- Sensor plug is used to plug installation fitting after extraction of sensor from pipe.
- For liquids containing ferrous particles, use Signet Magmeters.
- For systems with components of more than one material, the maximum temperature/pressure specification must always be referenced to the component with the lowest rating.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Rotors		
3-2536.320-1	**198 820 052**	Rotor, PVDF Black
3-2536.320-2	**159 000 272**	Rotor, PVDF Natural
3-2536.320-3	**159 000 273**	Rotor, Tefzel®
3-2536.321	**198 820 054**	Rotor and pin (matched set), PVDF Natural
3-2536.322-1	**198 820 056**	Sleeved rotor, PVDF Black
3-2536.322-2	**198 820 057**	Sleeved rotor, PVDF Natural
3-2536.322-3	**198 820 058**	Sleeved rotor, Tefzel®
Rotor Pins		
M1546-1	**198 801 182**	Pin, Titanium
M1546-2	**198 801 183**	Pin, Hastelloy-C
M1546-3	**198 820 014**	Pin, Tantalum
M1546-4	**198 820 015**	Pin, Stainless Steel
P51545	**198 820 016**	Pin, Ceramic
O-Rings		
1220-0021	**198 801 186**	O-ring, FPM (2 required per sensor)
1224-0021	**198 820 006**	O-ring, EPR (EPDM) (2 required per sensor)
1228-0021	**198 820 007**	O-ring, FFPM (2 required per sensor)
Miscellaneous		
P31536	**198 840 201**	Sensor plug, Polypropylene
3-8050.396	**159 000 617**	RC Filter kit (for relay use)
3-9000.392-1	**159 000 839**	Liquid tight connector kit, NPT (1 piece)
3-9000.392-2	**159 000 841**	Liquid tight connector kit, PG13.5 (1 piece)
7300-7524	**159 000 687**	24 VDC power supply 7.5W, 300 mA
7300-1524	**159 000 688**	24 VDC power supply 15W, 600 mA
7300-3024	**159 000 689**	24 VDC power supply 30W, 1.3 A
7300-5024	**159 000 690**	24 VDC power supply 50W, 2.1 A
7300-1024	**159 000 691**	24 VDC power supply 100W, 4.2 A

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

Signet 2540 Stainless Steel High Performance Paddlewheel Flow Sensor

Standard Sensor

Hot-Tap Sensor

Description

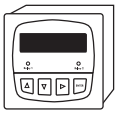
The Signet 2540 Paddlewheel Flow Sensor offers the strength and corrosion resistance of stainless steel for liquid applications with low velocity measurements. Unique internal circuitry eliminates the need for magnets in the process fluid, enabling flow measurement of 0.1 to 6 m/s (0.3 to 20 ft/s) while maintaining the advantages of insertion sensor design. Rulon® B (Fluoroloy B®/PTFE) bearings and Tungsten Carbide pin provide exceptional wear resistance. The Signet 2540 offers field replaceable electronics and transient voltage suppression (TVS) to provide greater immunity to large voltage disturbances (ie. lightning) sometimes encountered in field wiring. Sensors can be installed in DN40 to DN600 (1½ to 24 inch) pipes using the 1½ inch or ISO 7/1-R 1.5 threaded process connection.

The sensors are also offered in a hot-tap configuration with a bleed valve service without process shutdown in pipes up to DN900 (36 in.). Both styles of sensors must be used in full pipes and can be used in low pressure systems.

System Overview

Panel Mount

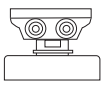
Signet Flow Instrument
(sold separately)
5075 8550
5500 8900
5600



Pipe, Tank, Wall Mount

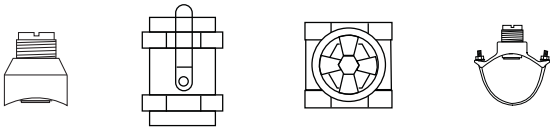
Signet Flow Instrument
(sold separately)
8550

Signet Universal
Adapter Kit (3-8050)
(sold separately)



Signet 2540 Standard or Hot-tap (not shown) Flow Sensor

Customer Supplied Fittings



Features

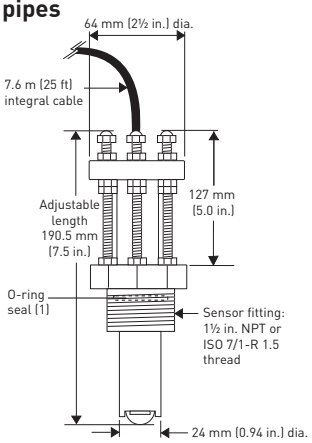
- **Operating range 0.1 to 6 m/s (0.3 to 20 ft/s)**
- **Field replaceable electronics**
- **Non-magnetic RF detection**
- **Standard NPT or ISO process connections**
- **Hot-tap versions for installation/service without system shutdown**
- **For pipe sizes up to DN900 (36 in.)**
- **Adjustable sensor - one size for entire pipe range**
- **7.6 m (25 ft) cable**

Applications

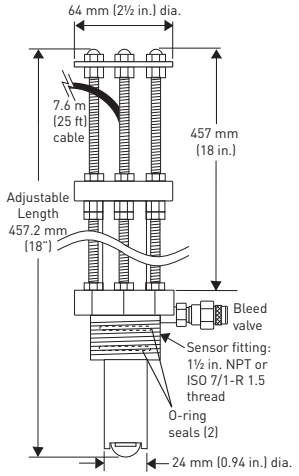
- **HVAC**
- **Turf Irrigation**
- **Cooling Systems**
- **Filtration Systems**
- **Water Distribution**
- **Leak Detection**
- **Pump Protection**
- **Clarified Effluent Totalisation**
- **Ground Water Remediation**
- **Gravity Feed Line**

Dimensions

2540 High Performance Flow Sensor for 1½ to 24 in. pipes



2540 Hot-Tap for 1½ to 36 in. pipes



Model 2540 Ordering Notes
Installation fittings and Hot-Tap valves are customer supplied.

Application Tips
- For systems with components of more than one material, the maximum temperature/pressure specification must always be referenced to the component with the lowest rating.
- Use the Conduit Adapter Kit to protect the cable-to-sensor connection when used in outdoor environments.
- Sensor electronics can be easily replaced by 3-2541.260-1 or 3-2541.260-2.

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

Specifications

General
Operating Range:
0.1 to 6 m/s (0.3 to 20 ft/s)
Pipe size range:
- Standard Version: DN40 to DN600 (1½ to 24 in.)
- Hot-Tap Version: DN40 to DN900 (1½ to 36 in.)

Sensor Fitting Options:
- 1½ in. NPT threads
- ISO 7/1-R 1.5 threads

Linearity: ±1% of full range
Repeatability: ±0.5% of full range
Min. Reynolds Number Required: 4500

Wetted Materials
- Body: 316 stainless steel (1.4401)
- Fitting: 316 stainless steel (1.4401)
- Fitting O-rings: FPM, optional EPR (EPDM)
- Rotor: 17-4 SS Alloy
- Rotor Pin: Tungsten Carbide GRP 1 (standard) stainless steel (optional)
- Retainers (2): 316 stainless steel (1.4401)
- Rotor Bearings (2): Rulon® B (Fluoroloy B/PTFE)

Electrical
Frequency: 15 Hz per ft/s nominal

Electrical (continued)
Power: 5 to 24 VDC ±10%, regulated, 1.5 mA max.
Output Type: Open collector, sinking, max 10.0 mA
Cable Length: 7.6 m (25 ft), can be extended up to 300 m (1,000 ft)
Cable Type: 2-conductor twisted-pair with shield, 22AWG

Max. Temperature/Pressure Rating
- Sensor with standard FPM sensor fitting O-rings: 17 bar @ 82 °C (250 psi @ 180 °F)
- Sensor with optional EPR (EPDM) sensor fitting O-rings: 17 bar @ 100 °C (250 psi @ 212 °F)

See Temperature and Pressure graphs for more information.

Operating Temperature:
-18 °C to 100 °C (0 °F to 212 °F)

Shipping Weight
3-2540-1/-2/-1S/-2S: 1.79 kg 3.9 lb
3-2540-3/-4/-3S/-4S: 2.15 kg 4.7 lb

Standards and Approvals
- CE
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Sensor Part Number			
3-2540	Stainless Steel High Performance flow sensor with removable electronics		
	Mounting Option - Choose One		
	-1	1½ inch NPT thread	
	-2	1½ inch ISO thread	
	-3	1½ inch NPT thread, Hot-Tap design*	
	-4	1½ inch ISO thread, Hot-Tap design*	
		Rotor Pin Material	
		-	Tungsten Carbide
		-S	Stainless Steel
3-2540	**-1**		**Example Part Number**

*Must use 3-1500.663 Hot-Tap installation tool (ordered separately)

Mfr. Part No.	Code	Mfr. Part No.	Code
3-2540-1	**198 840 035**	3-2540-1S	**159 001 501**
3-2540-2	**198 840 036**	3-2540-2S	**159 001 502**
3-2540-3	**198 840 037**	3-2540-3S	**159 001 503**
3-2540-4	**198 840 038**	3-2540-4S	**159 001 504**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-1500.663	**198 820 008**	Hot-Tap Installation Tool (see Installation for more info)
1220-0021	**198 801 186**	O-ring, FPM (2 required per sensor)
1224-0021	**198 820 006**	O-ring, EPR (EPDM) (2 required per sensor)
1228-0021	**198 820 007**	O-ring, FFPM (2 required per sensor)
3-2540.320	**198 820 040**	Rotor kit, 2540 Peek Bearing (old version)
3-2540.321	**159 000 623**	Rotor kit, 2540 Tungsten Carbide Pin (new version since January 1, 2000)
3-2540.322	**159 000 864**	Rotor kit, stainless steel pin and rotor
P52504-3	**159 000 866**	Rotor pin, Tungsten Carbide
P52504-4	**159 000 867**	Rotor pin, 316 SS
P52503	**198 820 013**	Bearing, Rulon® B (Fluoroloy B/PTFE)
P52527	**159 000 481**	Retainers, SS (1.4401)
3-2541.260-1	**159 000 849**	Standard replacement electronics module
3-2541.260-2	**159 000 850**	Hot-Tap replacement electronics module
5523-0222	**159 000 392**	Cable (per foot), 2 cond. w/shield, 22 AWG
P51589	**159 000 476**	Conduit adapter kit
P31934	**159 000 466**	Conduit cap

Signet 3519 Flow Wet-Tap Valve

Description

The Signet 3519 Flow Wet-Tap Valve serves as a unique interface between the installation fitting and the wet-tap style Signet 515 or 2536 Rotor-X flow sensor. It provides a fast method of removing the sensor from the pipe under specified operating pressures. The PVC and stainless steel design of the Wet-Tap makes it resistant to corrosion and chemical attack by acids, alkalies, salt, and a number of other harsh chemicals.

The Signet 3519 Wet-Tap Valve mounts directly onto standard Signet installation fittings. The 3519 Wet-Tap consists of a flange and support plate that threads onto the pipe fitting insert, and a PVC ball valve through which an extended length sensor is inserted into the pipe.

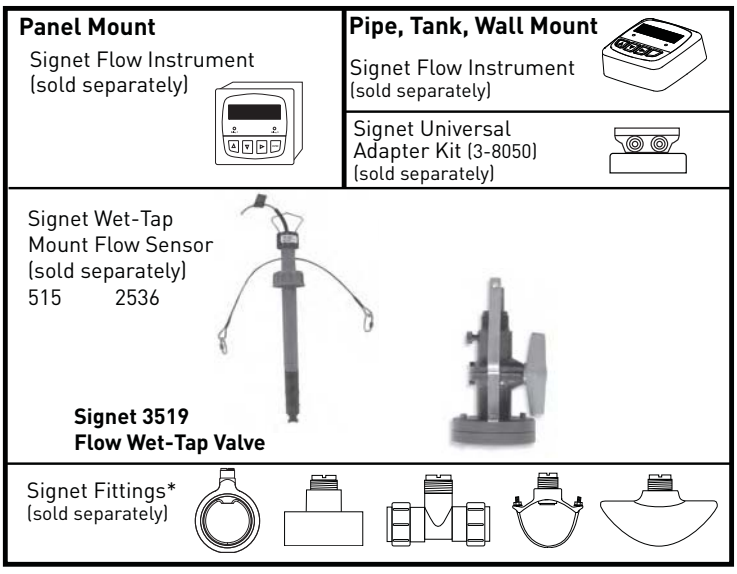
Features

- **Allows sensor removal without process shutdown**
- **Pressure release valve for safe sensor removal**
- **Dual safety lanyards**
- **Rugged corrosion-resistant PVC construction and stainless steel hardware**
- **Compatible with Signet 515 or 2536 Rotor-X Wet-Tap Flow Sensors**
- **Eliminates process downtime**

Applications

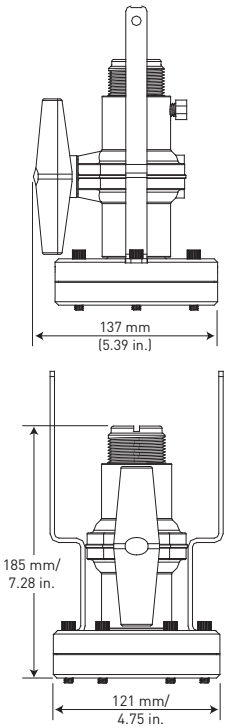
- **Filtration Systems**
- **Chemical Production**
- **Pump Protection**
- **Scrubbers**
- **Water Distribution**
- **Effluent Totalisation**
- **Process Cooling Loops**

System Overview

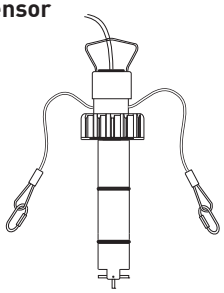


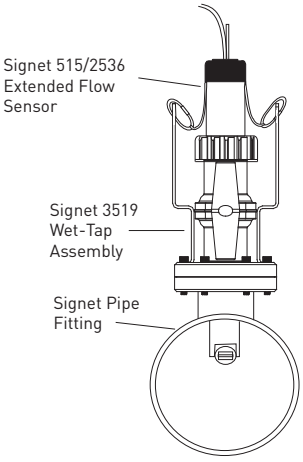
*See Fittings section for more information.

Dimensions



Model 515 or 2536 Wet-Tap Sensor





Specifications

General

Body:	PVC
Ball Seat:	PTFE
Seals:	FPM (std) or EPR (EPDM) also available, contact factory
Hardware:	302/304SS (brackets), 18/8SS (nuts & bolts)

Max. Pressure/Temperature Rating

- 7 bar max. @ 20 °C (100 psi max. @ 68 °F)
- 1.4 bar max. @ 66 °C (20 psi max. @ 150 °F)

Wet-Tap Maximum Installation/Removal Rating:
1.7 bar @ 22 °C (25 psi @ 72 °F)

Shipping Weight 1.3 kg 2.86 lb

Standards & Approvals

- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

See Temperature and Pressure graphs for more information.

Application Tips

- Once installed, sensor insertion and removal can be performed without process shutdown; see installation/removal pressure specifications page.
- Use the Conduit Adapter Kit when used in outdoor environments. See Accessories section.
- For liquids containing ferrous particles, use Signet Magmeters.
- Use sensors with sleeved rotors in abrasive liquids to reduce wear.
- For systems with components of more than one material, maximum temperature and pressure specifications must always be referenced to the component with the lowest rating.

Ordering Information

Part Number		
3-3519	Wet-Tap Valve for 515 and 2536 Wet-Tap flow sensors	
	Flow Range	
	N/C	Valve only
	515-P3*	Valve with Model 515 sensor for ½ to 4 inch pipes
	515-P4*	Valve with Model 515 sensor for 5 to 8 inch pipes
	515-P5*	Valve with Model 515 sensor for 10 to 36 inch pipes
	2536-P3**	Valve with Model 2536 sensor for ½ to 4 inch pipes
	2536-P4**	Valve with Model 2536 sensor for 5 to 8 inch pipes
	2536-P5**	Valve with Model 2536 sensor for 10 to 36 inch pipes
3-3519		**Example Part Number - Valve Only**
3-3519	**/515-P3**	**Example Part Number - Valve with Sensor**

Model 3519 Ordering Notes

1) N/C = no code needed.
2) *See model 515 data sheet for sensor specifications.
3) **See model 2536 data sheet for sensor specifications.
4) Models 515 and 2536 Wet-Tap sensors can be ordered separately.

Components	Mfr. Part No./Code
3-3519	**159 000 757**
3519/515-P3	**159 000 819**
3519/515-P4	**159 000 820**
3519/515-P5	**159 000 821**

Components	Mfr. Part No./Code
3519/2536-P3	**159 000 822**
3519/2536-P4	**159 000 823**
3519/2536-P5	**159 000 824**

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

Signet 2551 Magmeter Flow Sensor

Available in a variety of wetted materials and ideal for pipe sizes up to DN900 (36 in.)

Description

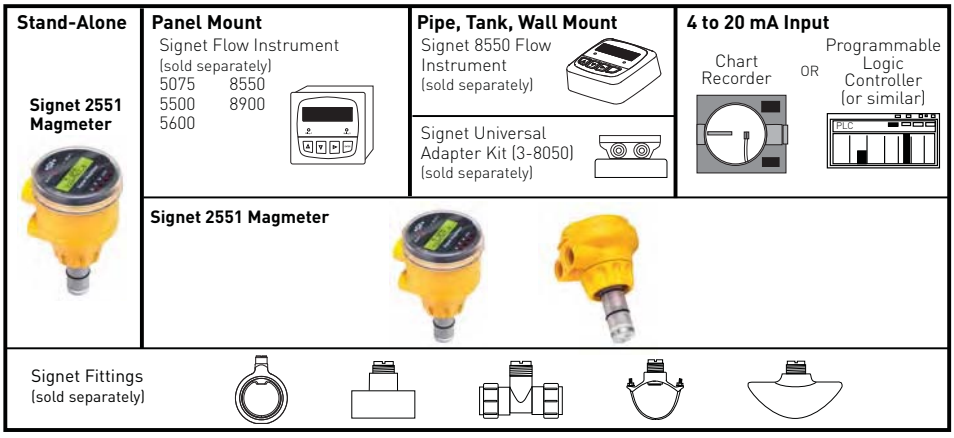
The Signet 2551 Magmeter is an insertion style magnetic flow sensor that features no moving parts. The patented* sensor design is available in corrosion-resistant materials to provide long-term reliability with minimal maintenance costs. Material options include PP with stainless steel, PVDF with stainless steel, PVDF with Hastelloy-C, or PVDF with Titanium. Utilizing the comprehensive line of Signet installation fittings, sensor alignment and insertion depth is automatic. These versatile, simple-to-install sensors deliver accurate flow measurement over a wide dynamic range in pipe sizes ranging from DN15 to DN900 (½ to 36 inches), satisfying the requirements of many diverse applications.

Signet 2551 Magmeters offer many output options of frequency/digital (S^3L) or 4 to 20 mA which are available on both the blind and display versions.

The frequency or digital (S^3L) sensor output can be used with Signet's extensive line of flow instruments while the 4 to 20 mA output can be used for a direct input to PLCs, chart recorders, etc. Both the 4 to 20 mA output and digital (S^3L) sensor interface is available for long distance signal transmission. An additional benefit is the empty pipe detection which features a zero flow output when the sensors are not completely wetted. Also, the frequency output is bi-directional while the 4 to 20 mA output can be set for uni- or bi-directional flow using the display or the 3-0250 USB to Digital (S^3L) Configuration/Diagnostic setup tool which connects to PCs for programming capabilities.

In addition the display version of the 2551 Magmeter is available with relays and features permanent and resettable totaliser values which can be stored and seen on the display. Also, the display contains multi-languages with English, Spanish, German, French, Italian and Portuguese menu options.

System Overview



Features

- **Test certificate included for -X0, -X1**
- **Patented Magmeter technology**
- **No moving parts**
- **Bi-directional flow**
- **Empty pipe detection**
- **Installs into pipe sizes DN15 to DN900 (0.5 to 36 in.)**
- **Operating range 0.05 to 10 m/s (0.15 to 33 ft/s)**
- **Accurate measurement even in dirty liquids**
- **Blind 4 to 20 mA, digital/frequency, relay output**
- **No pressure drop**
- **Corrosion resistant materials; PP or PVDF with SS, Hastelloy-C, or Titanium**
- **Multi-language display menu available**

Applications

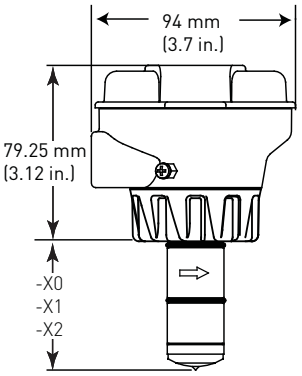
- **Chemical Processing**
- **Water and Waste Water Monitoring**
- **Metal Recovery and Landfill Leachate**
- **Commercial Pools, Spas, and Aquariums**
- **HVAC**
- **Irrigation**
- **Scrubber Control**
- **Neutralisation Systems**
- **Industrial Water Distribution**

CE c UL us LISTED MEASURING EQUIPMENT 77CJ

* U.S. Patent No: 7,055,396 B1

Dimensions

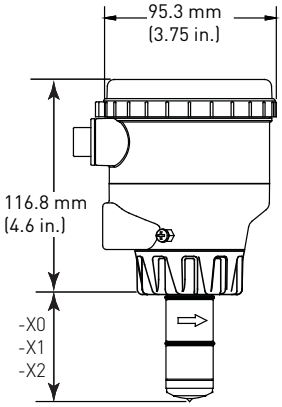
Blind Version



Pipe Range
1/2 to 4 in. -X0 = 58 mm (2.3 in.)
5 to 8 in. -X1 = 91 mm (3.6 in.)
10 to 12 in. -X2 = 167 mm (6.6 in.)

X = Sensor Body P, T, V, or W

Display Version



Pipe Range
1/2 to 4 in. -X0 = 58 mm (2.3 in.)
5 to 8 in. -X1 = 91 mm (3.6 in.)
10 to 12 in. -X2 = 167 mm (6.6 in.)

X = Sensor Body P, T, V, or W

Specifications

General

Operating Range:
0.05 to 10 m/s (0.15 to 33 ft/s)
Pipe Size Range: DN15 to DN900
(½ in. to 36 in.)
Linearity: ±1% reading plus 0.01 m/s
(0.033 ft/s)
Repeatability: ±0.5% of reading @ 25 °C
(77 °F)
Minimum Conductivity: 20 µS/cm

Wetted Materials

Sensor body/Electrodes and
Grounding ring:
- -P0, -P1, -P2: PP/316L SS
- -T0, -T1, -T2: PVDF/Titanium
- -V0, -V1, -V2: PVDF/Hastelloy-C
- -W0, -W1, -W2: PVDF/316L SS

O-rings:
- FPM (standard)
- EPR (EPDM), FFPM (optional)

Case: PBT
Display Window: Polyamide
Protection Rating: NEMA 4X/IP65

Power Requirements
- 4 to 20 mA: 24 VDC ±10%, regulated, 22.1 mA max.
- Frequency: 5 to 24 VDC ±10%, regulated, 15 mA max.
- Digital (S^3L): 5 to 6.5 VDC, 15 mA max.
- Auxiliary (only required for units with relays): 9 to 24 VDC, 0.4 A max

Reverse polarity and short circuit protected

Current output (4 to 20 mA):
- Loop Accuracy:
  32 µA max. error (25 °C @ 24 VDC)
- Isolation: Low voltage < 48 VAC/DC from electrodes and auxiliary power
- Maximum Cable: 300 m (1000 ft)
- Error condition: 22.1 mA
- Max. Loop Resistance: 300 Ω
- Compatible with PLC, PC or similar equipment
- 4 to 20 mA load needed

Frequency Output:
- Output Modes: Freq., or Mirror Relay (display version only)
- Max. Pull-up Voltage: 30 VDC
- Max. Current Sink: 50 mA, current limited
- Maximum Cable: 300 m (1000 ft)
- Compatible with Signet Model 5075, 5500, 5600, 8550, 8900

Digital (S^3L) Output:
- Serial ASCII, TTL level 9600 bps
- Compatible with Model Signet 8900 instrument

Relay Specifications
- #1, #2 Type: Mechanical SPDT
  Rating: 5 A @ 30 VDC max.,
  5 A @ 250 VDC max.
- #3 Type: Solid State
  Rating: 50 mA @ 30 VDC,
  50 mA @ 42 VAC

Hysteresis:
User adjustable for exiting alarm condition
Alarm On Trigger Delay:
Adjustable (0 to 9999.9 sec.)

Relay Modes:
Off, Low, High, Window, and Proportional Pulse
Relay Source:
Flow Rate, Resettable Totaliser
Error Condition:
Selectable; Fail Open or Closed

Display

Characters: 2 x 16
Contrast: User-set in four levels
Backlighting (only on relay versions):
Requires external 9-24 VDC, 0.4 mA max.

Max. Temperature/Pressure Rating

Storage Temperature:
-20 °C to 70 °C (-4 °F to 158 °F)
Relative Humidity:
0 to 95% (non-condensing)
Operating Temperature:
- Ambient: -10 °C to 70 °C (14 °F to 158 °F)
- Media: 0 °C to 85 °C (32 °F to 185 °F)

Maximum Operating Pressure:
10.3 bar @ 25 °C (150 psi @ 77 °F)
1.4 bar @ 85 °C (20 psi @ 185 °F)

See Temperature and Pressure Graphs for more information

Standards and Approvals
- CE
- UL, CUL (for display versions with relays)
- NEMA 4X / IP65 Enclosure (with cap installed)
- U.S. Patent No. 7,055,396 B1

Ordering Information

Sensor Part No.					
3-2551					
	Sensor Body (Transducer) and Electrodes/Grounding Ring Materials - Choose One				
	-P	Polypropylene and 316L SS			
	-T	PVDF and Titanium			
	-V	PVDF and Hastelloy-C			
	-W	PVDF and 316L SS			
		Pipe Size - Choose One			
		0	DN15 to DN100 (½ to 4 in.)		
		1	DN125 to DN200 (5 to 8 in.)		
		2	DN250 to DN900 (10 to 36 in.)		
			Display Options - Choose One		
			-1	No Display	
			-2	With Display, two SPDT relays, one solid state relay	
			-4	With Display	
				Output Options - Choose One	
				1	Frequency, Digital (S^3L), programmable open collector; for use with any Signet Flow Instrument or the 8900 Multi-Parameter Controller
				2	4 to 20 mA output; for use with PLC, PC or similar equipment
3-2551	**-P**	**0**	**-2**	**2**	**Example Part Number**

Application Tips
- Note minimum process liquid conductivity requirement is 20 µS/cm
- Install sensor using standard Signet installation fittings for best results
- Sensor is capable of retrofitting into existing 515 and 2536 fittings.

**This option is a programmable open collector output that is available with display versions only.

Mfr. Part No.	Code
3-2551-P0-11	**159 001 105**
3-2551-P0-12	**159 001 110**
3-2551-P0-21	**159 001 267**
3-2551-P0-22	**159 001 273**
3-2551-P0-41	**159 001 261**
3-2551-P0-42	**159 001 279**
3-2551-P1-11	**159 001 106**
3-2551-P1-12	**159 001 111**
3-2551-P1-21	**159 001 268**
3-2551-P1-22	**159 001 274**
3-2551-P1-41	**159 001 262**
3-2551-P1-42	**159 001 280**
3-2551-P2-11	**159 001 107**
3-2551-P2-12	**159 001 112**
3-2551-P2-21	**159 001 435**
3-2551-P2-22	**159 001 438**
3-2551-P2-41	**159 001 432**
3-2551-P2-42	**159 001 441**
3-2551-T0-11	**159 001 108**
3-2551-T0-12	**159 001 113**
3-2551-T0-21	**159 001 436**
3-2551-T0-22	**159 001 439**
3-2551-T0-41	**159 001 433**
3-2551-T0-42	**159 001 442**
3-2551-T1-11	**159 001 109**
3-2551-T1-12	**159 001 114**
3-2551-T1-21	**159 001 437**
3-2551-T1-22	**159 001 440**
3-2551-T1-41	**159 001 434**
3-2551-T1-42	**159 001 443**
3-2551-T2-11	**159 001 448**
3-2551-T2-12	**159 001 449**
3-2551-T2-21	**159 001 454**
3-2551-T2-22	**159 001 455**
3-2551-T2-41	**159 001 460**
3-2551-T2-42	**159 001 461**

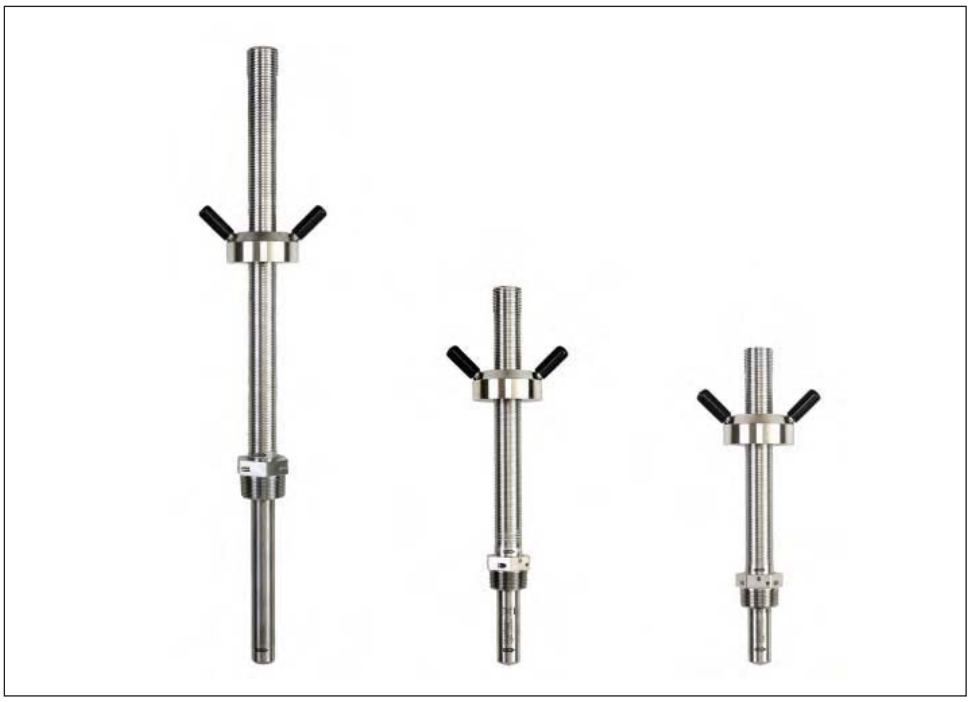
Mfr. Part No.	Code
3-2551-V0-11	**159 001 257**
3-2551-V0-12	**159 001 259**
3-2551-V0-21	**159 001 269**
3-2551-V0-22	**159 001 275**
3-2551-V0-41	**159 001 263**
3-2551-V0-42	**159 001 281**
3-2551-V1-11	**159 001 258**
3-2551-V1-12	**159 001 260**
3-2551-V1-21	**159 001 270**
3-2551-V1-22	**159 001 276**
3-2551-V1-41	**159 001 264**
3-2551-V1-42	**159 001 282**
3-2551-V2-11	**159 001 450**
3-2551-V2-12	**159 001 451**
3-2551-V2-21	**159 001 456**
3-2551-V2-22	**159 001 457**
3-2551-V2-41	**159 001 462**
3-2551-V2-42	**159 001 463**
3-2551-W0-11	**150 001 230**
3-2551-W0-12	**159 001 231**
3-2551-W0-21	**159 001 271**
3-2551-W0-22	**159 001 277**
3-2551-W0-41	**159 001 265**
3-2551-W0-42	**159 001 283**
3-2551-W1-11	**159 001 232**
3-2551-W1-12	**159 001 233**
3-2551-W1-21	**159 001 272**
3-2551-W1-22	**159 001 278**
3-2551-W1-41	**159 001 266**
3-2551-W1-42	**159 001 284**
3-2551-W2-11	**159 001 452**
3-2551-W2-12	**159 001 453**
3-2551-W2-21	**159 001 458**
3-2551-W2-22	**159 001 459**
3-2551-W2-41	**159 001 464**
3-2551-W2-42	**159 001 465**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
O-Rings		
1220-0021	**198 801 186**	O-ring, FPM (2 required per sensor)
1224-0021	**198 820 006**	O-ring, EPR (EPDM) (2 required per sensor)
1228-0021	**198 820 007**	O-ring, FFPM (2 required per sensor)
Replacement Transducers		
3-2551-P0	**159 001 211**	PP/316L SS, DN15 to DN100 (½ to 4 in.) pipe
3-2551-P1	**159 001 212**	PP/316L SS, DN125 to DN200 (5 to 8 in.) pipe
3-2551-P2	**159 001 444**	PP/316L SS, DN250 to DN900 (10 to 36 in.) pipe
3-2551-T0	**159 001 213**	PVDF/Titanium, DN15 to DN100 (½ to 4 in.) pipe
3-2551-T1	**159 001 214**	PVDF/Titanium, DN125 to DN200 (5 to 8 in.) pipe
3-2551-T2	**159 000 445**	PVDF/Titanium, DN250 to DN900 (10 to 36 in.) pipe
3-2551-V0	**159 001 376**	PVDF/Hastelloy-C, DN15 to DN100 (½ to 4 in.) pipe
3-2551-V1	**159 001 377**	PVDF/Hastelloy-C, DN125 to DN200 (5 to 8 in.) pipe
3-2551-V2	**159 000 446**	PVDF/Hastelloy-C, DN250 to DN900 (10 to 36 in.) pipe
3-2551-W0	**159 001 234**	PVDF/316L SS, DN15 to DN100 (½ to 4 in.) pipe
3-2551-W1	**159 001 235**	PVDF/316L SS, DN125 to DN200 (5 to 8 in.) pipe
3-2551-W2	**159 001 447**	PVDF/316L SS, DN250 to DN900 (10 to 36 in.) pipe
Replacement Electronics Module		
3-2551-11	**159 001 215**	Magmeter electronics, frequency or digital (S^3L) output
3-2551-12	**159 001 216**	Magmeter electronics, 4 to 20 mA output
3-2551-21	**159 001 372**	Magmeter display electronics, frequency or digital (S^3L) output, with relays
3-2551-22	**159 001 373**	Magmeter display electronics, 4 to 20 mA output w/relays
3-2551-41	**159 001 374**	Magmeter display electronics, frequency or digital (S^3L) output
3-2551-42	**159 001 375**	Magmeter display electronics, 4 to 20 mA output
Other		
P31536	**198 840 201**	Sensor plug, Polypropylene
7300-7524	**159 000 687**	24 VDC power supply 7.5W, 300 mA
7300-1524	**159 000 688**	24 VDC power supply 15W, 600 mA
7300-3024	**159 000 689**	24 VDC power supply 30W, 1.3 A
7300-5024	**159 000 690**	24 VDC power supply 50W, 2.1 A
7300-1024	**159 000 691**	24 VDC power supply 100W, 4.2 A
3-8551.521	**159 001 378**	Clear plastic cap for display
1222-0042	**159 001 379**	O-ring for clear plastic cap, EPR (EPDM)
3-0250	**159 001 538**	USB to digital (S^3L) Configuration/Diagnostic tool

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

Signet 2552 Metal Magmeter Flow Sensor



Description

The Signet 2552 Metal Magmeter from Georg Fischer features all-stainless steel construction. The PVDF nosepiece and FPM O-rings are the only other wetted materials. The 2552 installs quickly into standard 1¼ in. or 1½ in. pipe outlets, and is adjustable to fit pipes from DN50 to DN2550 (2 to 102 inches). Three sensor lengths allow maximum flexibility to accommodate a variety of hardware configurations, including ball valves for hot-tap installations.

When equipped with the frequency output, the 2552 is compatible with any externally powered Signet flow instrument, while the S^{3}L Digital output enables multi-channel compatibility with the Signet 8900 Multi-Parameter Controller. Select the blind 4 to 20 mA current output to interface directly with dataloggers, PLCs or telemetry systems. Key features include Empty Pipe Detection, LED-assisted troubleshooting, and bi-directional span capability (in 4 to 20 mA models).

The Signet 3-0250 USB to Digital (S^{3}L) Configuration/Diagnostic Tool is available to customise every performance feature in the 2552 so it can be adapted to the user's application requirements.

Features

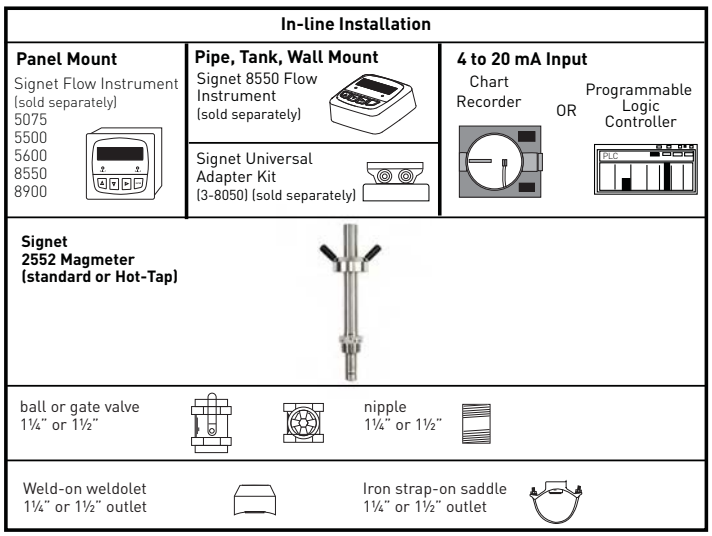
- **Test certificate included for -X0, -X1**
- **Award winning hot-tap magnetic flow sensor up to DN2550 (102 in.)**
- **Patented Magmeter technology***
- **Operating range 0.05 to 10 m/s (0.15 to 33 ft/s)**
- **Reliable operation in harsh environments**
- **Repeatable: ±0.5% of reading @ 25°C**
- **Three output options: 4 to 20 mA, Frequency, Digital (S^{3}L)**
- **ISO or NPT Threads**

Applications

- **Municipal Water Distribution**
- **Process and Coolant Flow**
- **Chemical Processing**
- **Waste Water**
- **Mining Applications**
- **Water Process Flow**

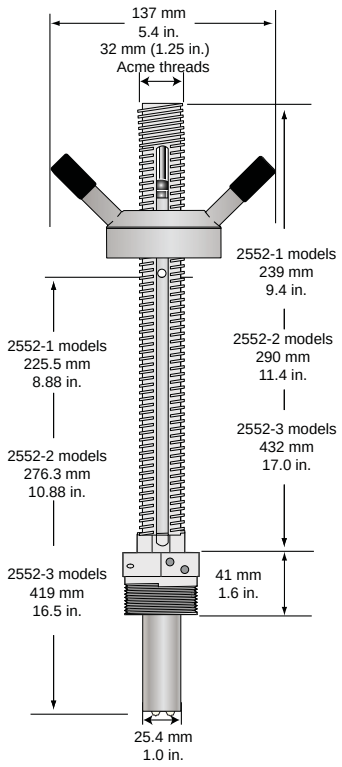
CE

System Overview



*U.S. Patent No.: 7,055,396 BI

Dimensions



Specifications

General

Operating Range:
- Minimum: 0.05 m/s (0.15 ft/s)
- Maximum: 10 m/s (33 ft/s) for pipes to DN1200 (48 in.)
  3 m/s (10 ft./s) for pipes over DN1200 (48 in.)

Pipe Size Range:
DN50 to DN2550 (2 in. to 102 in.)

Linearity: ±(1% reading + 0.01 m/s)
±(1% reading + 0.033 ft/s)

Repeatability: ±0.5% of reading @ 25°C

Accuracy: ±2% of measured value*
*(in reference conditions where the fluid is water at ambient temperature, the sensor is inserted at the correct depth and there is a fully developed flow profile which is in compliance with ISO 7145-1982 (BS 1042 section 2.2))

Minimum Conductivity: 20 µS/cm

Wetted Materials
- 316L stainless steel body and electrodes
- PVDF Insulator
- O-rings: FPM (standard)
- Cable: 4-cond + shield, PVC jacket (Fixed cable models) or Water-resistant rubber cable assembly with Turck® NEMA 6P connector

Power Requirements
- 4 to 20 mA:
  24 VDC ±10%, regulated,
  22.1 mA maximum
- Frequency:
  5 to 24 VDC ±10%, regulated,
  15 mA maximum
- Digital (S^3L):
  5 to 6.5 VDC 15 mA maximum
- Reverse polarity and short circuit protected

Cable Options
- Fixed 7.6 m (25 ft) cable
- Detachable water tight sensor cable with Turck® connector sold separately, two lengths: 4 m (13 ft) or 6 m (19.5 ft)

Electrical

Current Output (4 to 20 mA)
- Programmable and reversible
- Loop Accuracy:
  32 µA max. error (@ 25°C @ 24 VDC)
- Temp. Drift: ±1 µA per °C max.
- Power Supply Rejection: ±1 µA per V
- Isolation: Low voltage < 48 VAC/DC from electrodes and auxiliary power
- Maximum Cable: 300 m (1000 ft)
- Max. Loop Resistance: 300 Ω
- Error Condition: 22.1 mA

Electrical (continued)

Frequency Output:
- Compatible with Signet 5075, 5500, 5600, 8550 and 8900
- Max. Pull-up Voltage: 30 VDC
- Short Circuit Protected:
  ≤ 30 V @ 0 Ω pull-up for one hour
- Reverse Polarity Protected to -40 V for 1 hour
- Over-voltage Protected to +40 V for 1 hour
- Max. Current Sink:
  50 mA, current limited
- Maximum cable: 300 m (1000 ft)

Digital (S^3L) Output:
- Compatible with Signet 8900
- Serial ASCII, TTL level 9600 bps
- Maximum Cable: Application dependent (See 8900 manual)

Max. Temperature/Pressure Rating

Storage Temperature:
-15 °C to 70 °C (5 °F to 158 °F)
in non-icing conditions

Operating Temperature
- Ambient:
  -15 °C to 70 °C (5 °F to 158 °F)
  in non-icing conditions
- Media:
  -15 °C to 85 °C (5 °F to 185 °F)

Maximum Operating Pressure
20.7 bar @ 25 °C (300 psi @ 77 °F)

Hot-Tap Installation Requirements
- Maximum Installation Pressure:
  20.7 bar (300 psi)
- Maximum Installation Temp (Insertion/Removal):
  40 °C (104 °F)

Do not use hot-tap installation where temperatures will exceed 40 °C or if hazardous liquids are present.

Standards and Approvals
- CE
- U.S. Patent No.: 7,055,396 BI
- NEMA 4 (IP65) (fixed cable models)
- NEMA 6P (IP68) (Submersible cable models only)
  Signet recommends maximum 3 m (10 ft) submersion depth for maximum 10 days continuous submersion.
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Sensor Selection Guide

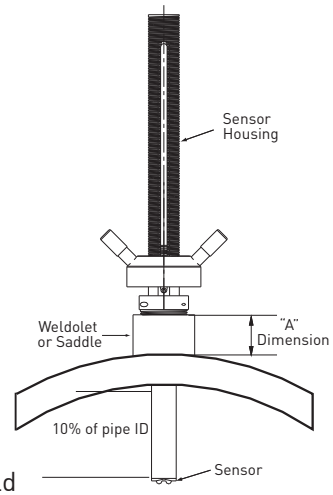
The 2552 Magmeter can be installed into a variety of pipe sizes. Follow the steps below to ensure that you choose the right sensor for your application.

Step 1: Determine how the sensor will be installed

A. <u>For standard (non Hot-Tap) installations</u>:
The height of the weldolet (threadolet) and pipe adapter) should be determined before the sensor is purchased.

- For retrofit installations, the stack height, or "A" dimension (see Fig. 1), is the overall height from the top of the pipe to the highest point of the stack.
- Sensor tip must be positioned at 10% of pipe ID
- For new installations, Signet recommends a weldolet (threadolet) and an adapter to accommodate the 1¼ in. (or 1½ in. for 2552-3) sensor process threads. The stack height, or "A" dimension (see Fig. 1), is the overall height from the top of the pipe to the highest point of the stack before the sensor is connected

Fig. 1
Standard installation with "A" dimension using a weldolet (threadolet)



B. <u>For Hot-Tap installations</u>:
The stack height of the ball valve, nipple weldolet (threadolet) and pipe adapters should be determined before the sensor is purchased.

- For retrofit installations, the ball valve must be at least a 1¼ in. (or 1½ in. for 2552-3) valve. The stack height, or "A" dimension (see Fig. 2), is the overall height from the top of the pipe to the top of the ball valve.
- Sensor tip must be positioned at 10% of pipe ID
- For new installations, Signet recommends a 1¼ in. or 1½ in. full port ball valve, a short nipple and a weldolet (threadolet). The stack height or "A" dimension (see Fig. 2) is the overall height from the top of the pipe to the top of the ball valve before the sensor is connected.

Fig. 2
Hot-Tap installation with "A" dimension using a ball valve, short nipple and weldolet (threadolet)

Step 2: Determine how the sensor will be installed

Once the "A" dimension is determined, go to the sensor selection table and find your "A" dimension on the left column. Next, find the appropriate pipe size at the top of the chart. To determine the correct sensor size locate where the pipe size column meets the max "A" dimension row.

Max. "A" Dim			Pipe Size																																
			inches	2	2.5	3 to 31/2"	4	5	6 to 8"	10	12 to 14"	16	18	20	22	24	26 to 28"	30 to 32"	34	36 to 38"	40 to 42"	48	54	60	66	72	78	84	102							
			DN	50	65	80 to 90	100	125	150 to 200	250	300 to 350	400	450	500	550	600	650 to 700	750 to 800	850	900 to 950	1000 to 1100	1200	1400	1500	1700	1800	2000	2100	2550							
	mm	inches																																	
	50.8	2		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3							
	63.5	2.5		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	3	3	3	3							
	76.2	3		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3							
	88.9	3.5		1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	2	2	3	3	3	3	3	3	3							
	101.6	4		1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	2	2	3	3	3	3	3	3	3							
	114.3	4.5		1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3							
	127	5		1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3							
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	152.4	6		1	1	1	1	1	1	2	2	2	2	2	3	3	2	3	3	3	3	3	3	3	3	3	3								
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	177.8	7		1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3									
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	266.7	10.5		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3															
	279.4	11		3	3	3	3	3	3	3	3	3	3	3	3			3	3	3															
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	304.8	12		3	3	3	3	3	3	3	3	3	3																						
	317.5	12.5		3	3	3	3	3	3	3	3																								
	330.2	13		3	3	3	3	3	3	3																									
	342.9	13.5		3	3	3	3	3	3																										
	355.6	14		3	3	3	3	3																											
	375.9	14.8		3	3																														
	381	15																																	

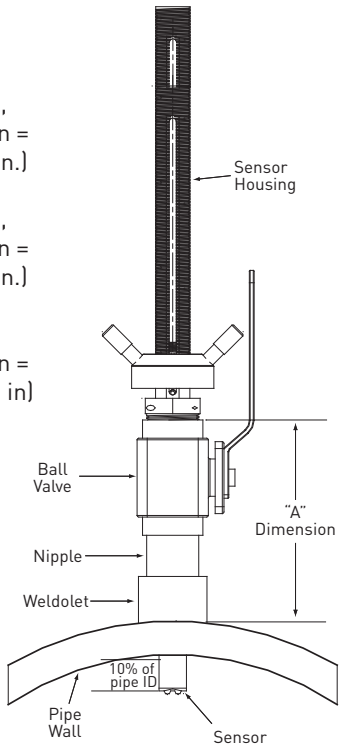
This chart is based on the thickest commonly available pipe.

Legend:

1: Use 3-2552-1, max. insertion = 185 mm (7.3 in.)

2: Use 3-2552-2, max. insertion = 236 mm (9.3 in.)

3: Use 3-2552-3 max. insertion = 368 mm (14.8 in)



Step 3: Refer to Ordering Information to select corresponding part numbers

Model 2552
Ordering Notes

1) Sensor insertion depth is the distance from the bottom of the sensor housing to the tip of the sensor.
2) Hot-Tap installations require a 1¼ in. or 1½ in. ball valve.
3) See Sensor Selection Guide on previous page to determine the sensor length required.

Application Tips

- Minimum process liquid conductivity requirement is 20 µS/cm.
- 1½ x 1¼ inch and 2 x 1¼ inch (2552-1 and 2552-2 only) retrofit adapters are available for replacement installations of Signet 2550 and 2540 sensors.

Ordering Information

Model 2552 Metal Magmeter Ordering Matrix					
3-2552	Mounting Depth Options - Choose One*				
	-1	Sensor insertion depth = 7.3 inches*			
	-2	Sensor insertion depth = 9.3 inches*			
	-3	Sensor insertion depth = 14.8 inches*			
		Process Connection Options - Choose One			
		1	1¼ inch NPT process connection threads**		
		2	1¼ inch ISO process connection threads**		
		3	1½ inch (2552-3 only) NPT process connection threads**		
		4	1½ inch (2552-3 only) ISO process connection threads**		
			Cable and Connector Options - Choose One		
			-A	Fixed Cable, 7.6 m (25 ft); no connector	
			-B	Watertight sensor connector; cable sold separately	
				Output Options - Choose One	
				-11	Frequency or Digital (S^3L); for use with any Signet Flow Instrument or the 8900 Multi-Parameter Controller
				-12	4 to 20 mA output; for use with PLC, PC or similar equipment
3-2552	**-1**	**1**	**-A**	**-12**	**Example Part Number**

* Customer must determine stack height (ball valve, nipple, weldolet, etc.). Refer to Sensor Selection on previous page to determine "A" dimension. Sensor tip must be positioned at 10% of pipe ID.

** 1¼ inch process connection is the standard thread size on the 2552-1 and -2: For the 2552-3 the 1½ inch process connection is standard and the 1¼ inch is available as a special order.

Mfr. Part No.	Code
3-2552-11-A-11	**159 001 505**
3-2552-11-A-12	**159 001 506**
3-2552-11-B-11	**159 001 507**
3-2552-11-B-12	**159 001 508**
3-2552-12-A-11	**159 001 509**
3-2552-12-A-12	**159 001 510**
3-2552-12-B-11	**159 001 511**
3-2552-12-B-12	**159 001 512**

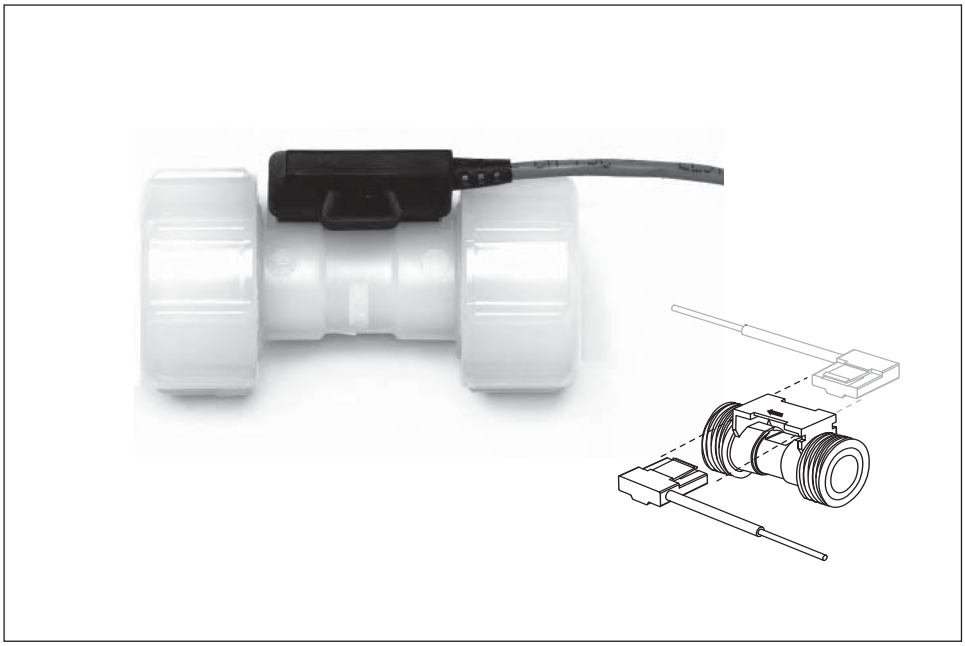
Mfr. Part No.	Code
3-2552-21-A-11	**159 001 513**
3-2552-21-A-12	**159 001 514**
3-2552-21-B-11	**159 001 515**
3-2552-21-B-12	**159 001 516**
3-2552-22-A-11	**159 001 517**
3-2552-22-A-12	**159 001 518**
3-2552-22-B-11	**159 001 519**
3-2552-22-B-12	**159 001 520**

Mfr. Part No.	Code
3-2552-33-A-11	**159 001 521**
3-2552-33-A-12	**159 001 525**
3-2552-33-B-11	**159 001 523**
3-2552-33-B-12	**159 001 527**
3-2552-34-A-11	**159 001 522**
3-2552-34-A-12	**159 001 526**
3-2552-34-B-11	**159 001 524**
3-2552-34-B-12	**159 001 528**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
2120-1512	**159 001 425**	1½ x 1¼ inch NPT adapter for retrofitting 2540 installation to 2552 - 316 SS
2120-2012	**159 001 426**	2 x 1¼ inch NPT adapter for retrofitting 2550 installation to 2552 - 316 SS
3-2552.392	**159 001 530**	1¼ inch NPT full port stainless steel ball valve and nipple kit
3-2552.393	**159 001 531**	1¼ inch NPT full port brass ball valve & nipple kit
3-2552.394	**159 001 532**	1½ inch NPT conduit adapter, aluminium for -1 and -2 units
4301-2125	**159 001 533**	1¼ inch NPT full port ball valve - brass
4301-3125	**159 001 387**	1¼ inch NPT full port ball valve - stainless steel
5541-4184	**159 001 388**	4-conductor, 22 AWG, water-tight connector, 4 m (13 ft)
5541-4186	**159 001 389**	4-conductor, 22 AWG, water-tight connector, 6 m (19.5 ft)
special order	**special order**	4-conductor, 22 AWG, water-tight connector, cable length in 25 ft increments
special order	**special order**	1¼ in. NPT or ISO process connection threads to replace 1½ in. NPT or ISO threads
3-0250	**159 001 538**	USB to digital (S^3L) Configuration/Diagnostic tool

Signet 2100 Turbine Flow Sensor



Description

Engineered specifically for small pipe diameter applications, the Signet 2100 Turbine Flow Sensor provides accurate readings in two flow ranges: 0.3 to 3.8 lpm and 3 to 38 lpm (0.1 to 1 gpm and 0.8 to 10 gpm).

The injection-moulded PVDF body and ceramic bearings provide excellent chemical compatibility and long service in dosing and batching applications. Union piping and tubing connections along with removable NEMA 4X electronics allow for easy assembly and field replaceability. The 2100 can be used with DN8 (¼ in.), DN10 (⅜ in.), DN15 (½ in.) tubing, or DN15 (½ in.) piping for simple installation. End connections are available in PVDF for hose barbs, fusion socket or IR/ butt fusion, and in PVC for socket or NPT thread.

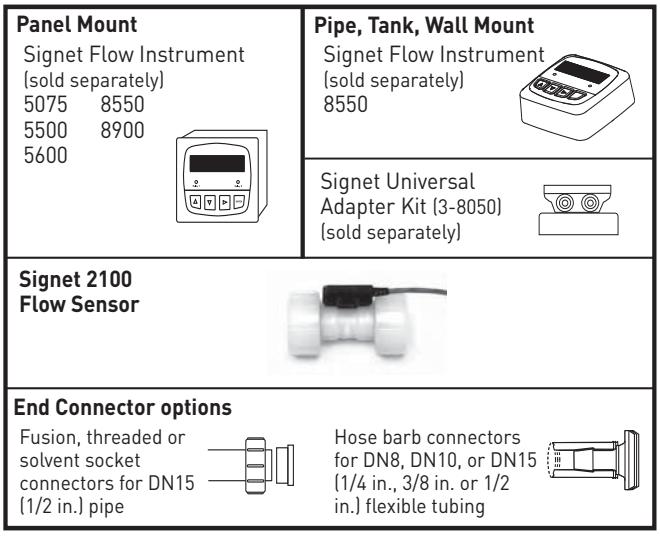
Features

- **Operating range of 0.38 to 38 lpm (0.10 to 10 U.S. gpm)**
- **Non-magnetic turbine**
- **Union ends for various connector types**
- **End connector kits for rigid or flexible tubing or DN15 (½ in.) pipe**
- **PVDF & ceramic wetted parts provide superior chemical compatibility**
- **For use with both clear and opaque fluids**
- **Small and compact design**
- **4.6 m (15 ft) cable**
- **Features removable electronics that installs from either side of the sensor**
- **Sensor mounts at any angle**

Applications

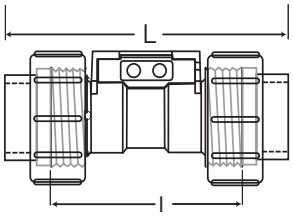
- **Chemical Addition**
- **Textile dyeing**
- **High-purity Chemical Dispensing**
- **Water Addition**
- **Fertigation**
- **Dosing**
- **Pump Protection**
- **Not suitable for gases**

System Overview



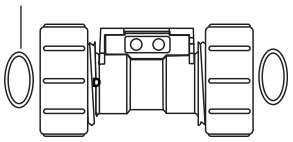
Dimensions

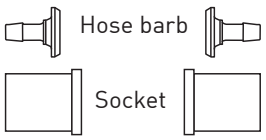
L = overall length
All sockets: 102 mm (4 in.)
Butt fusion/IR: 170 mm (6.7 in.)
1/4 in. Barb: 124 mm (4.9 in.)
3/8 in. Barb: 127 mm (5 in.)
1/2 in. Barb: 132 mm (5.2 in.)



l = 64 mm (2½ in.) Electronics module

O-ring





Application Tips
- All socket and hose barb connector kits are sold individually. Two kits are required for each sensor.
- Mount at any angle.
- Junction block, 3-8050-1 recommended if standard cable is extended to maximum 300 m (1000 ft)

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

Specifications

General
Operating Range:
- -L = 0.38 to 3.8 lpm (0.10 to 1 U.S. gpm)
- -H = 3 to 38 lpm (0.8 to 10 U.S. gpm)

Linearity: ±3% of reading
Repeatability: ±0.5% of reading
Pipe size range: DN15 (½ in.)
Hose size: DN8 (¼ in.), DN10 (3/8 in.), DN15 (½ in.)

Wetted Materials
Sensor Body/Rotor: PVDF
Shaft/Bearings: Ceramic
O-rings: -1 = FPM, -2 = EPR (EPDM)
Electronics:
PBT (polybutylene terephthlate)
EVA (ethylene vinyl acetate)

Electrical
Power:
5 to 24 VDC ±10%, regulated, 1.5 mA max.
Reverse polarity protected

Electrical (continued)
Output:
Open collector, sinking, max 30 mA
Cable Length: 4.6 m (15 ft) can be extended up to 300 m (1000 ft)
Cable Type:
PVC jacketed, 2 conductor twisted pair with shield (22 AWG)

Max. Temperature/Pressure Rating
16 bar @ 20 °C, 9.3 bar @ 70 °C (232 psi @ 68 °F, 130 psi @ 158 °F)
Operating Temperature:
-20 °C to 70 °C (-4 °F to 158 °F)
Storage Temperature:
-15 °C to 80 °C (5 °F to 176 °F)

See Temperature and Pressure graphs

Shipping Weight 0.15 kg 0.33 lb

Standards and Approvals
- CE
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Sensor Part Number			
3-2100	Turbine flow sensor, PVDF body and rotor, for use with various end-connectors		
	O-ring Material - Choose One		
	-1	FPM	
	-2	EPR (EPDM)	
		Flow Range	
		L	low, 0.38 to 3.8 lpm (0.10 to 1 gpm)
		H	high, 3 to 38 lpm (0.8 to 10 gpm)
3-2100	**-1**	**L**	**Example Part Number**

*Note: To install this flow sensor, end fittings must be installed on both ends of the sensor. See selection below

Fitting Part Number		
3-2100	End fitting for Model 2100 sensor	
	Type of End Fitting	
	-31	Hose barb connector kit, PVDF, ½ inch (1-hose barb and 1-ring nut)
	-32	Hose barb connector kit, PVDF, 3/8 inch (1-hose barb and 1-ring nut)
	-33	Hose barb connector kit, PVDF, ¼ inch (1-hose barb and 1-ring nut)
	-34	Fusion socket connector, PVDF, DN15 ½ inch (1-fusion socket and 1 ring nut)
	-35	Butt Fusion/IR connector kit, PVDF, DN15 ½ inch (1-IR socket and 1 ring nut)
	-36	Metric socket connector kit, PVC, ½ inch (1-solvent socket and 1 ring nut)
	-37	SCH 80 socket connector kit, PVC, ½ inch (1-solvent socket and 1 ring nut)
	-38	NPT thread socket connector kit, PVC, ½ inch (1-threaded socket and 1 ring nut)
3-2100	**-33**	**Example Part Number**

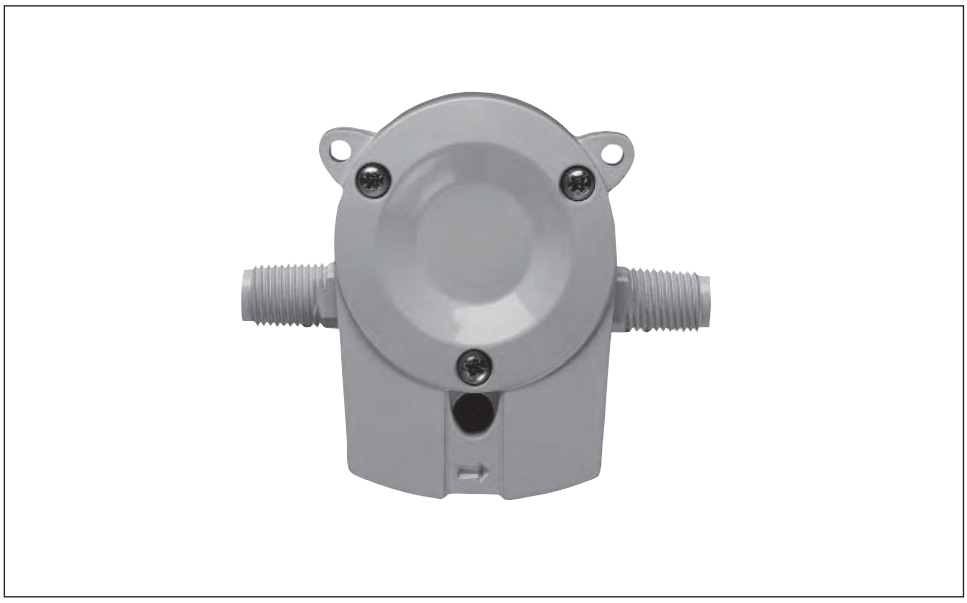
Mfr. Part No.	Code
3-2100-1L	**159 000 001**
3-2100-2L	**159 000 003**
3-2100-1H	**159 000 002**
3-2100-2H	**159 000 004**
3-2100-31	**159 000 005**
3-2100-32	**159 000 006**
3-2100-33	**159 000 007**

Mfr. Part No.	Code
3-2100-34	**159 000 008**
3-2100-35	**159 000 009**
3-2100-36	**159 000 010**
3-2100-37	**159 000 011**
3-2100-38	**159 000 012**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
1220-0018	**159 000 019**	O-rings FPM (2 required per sensor)
1224-0018	**159 000 020**	O-rings EPR (EPDM) (2 required per sensor)
3-2100.390-1L	**159 000 015**	Turbine Lo Flow with FPM O-rings (replacement body)
3-2100.390-1H	**159 000 016**	Turbine Hi Flow with FPM O-rings (replacement body)
3-2100.390-2L	**159 000 017**	Turbine Lo Flow with EPR (EPDM) O-rings (replacement body)
3-2100.390-2H	**159 000 018**	Turbine Hi Flow with EPR (EPDM) O-rings (replacement body)
3-2100.390	**159 000 014**	Electronics Module with 15 ft (4.6 m) cable
3-8050-1	**159 000 753**	Universal junction box

Signet 2000 MicroFlow Rotor Sensor



Features

- **Operating range 0.11 to 12.11 lpm (0.03 to 3.2 U.S. gpm)**
- **Simple mounting**
- **¼ in. NPT or ISO threads for simple pipe or tubing connection**
- **Measures opaque and transparent liquids**
- **Low pressure drop**
- **Standard cable 7.6 m (25 ft)**

Description

The Signet 2000 MicroFlow Rotor Sensor is constructed of Polyphenylene Sulfide (PPS) which provides high material strength. The 2000 offers two flow ranges starting at 0.11 or 1.13 lpm (0.03 or 0.3 gpm), for clean process liquids, regardless of fluid colour or opacity.

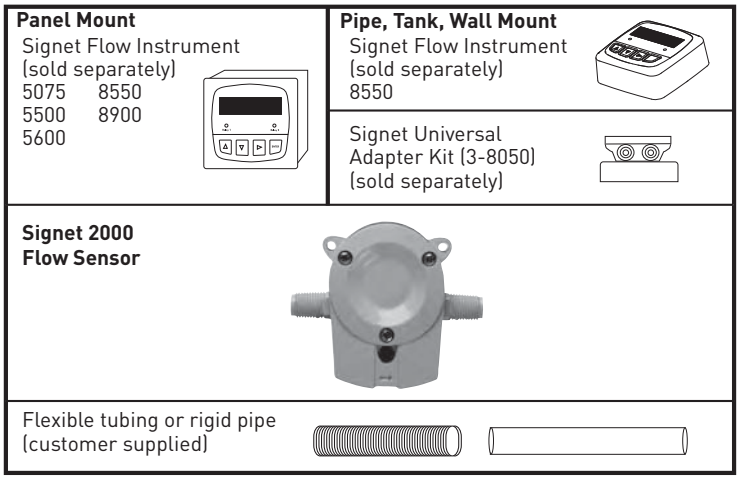
This sensor can be connected to flexible tubing or rigid pipe, and uses standard hardware for mounting. Only one moving part and a low pressure drop across the sensor reduces operating costs and maintenance requirements.

Applications

- **Coolant Flow**
- **Dosing**
- **Batch Dispensing**
- **Not recommended for Strong Oxidisers**

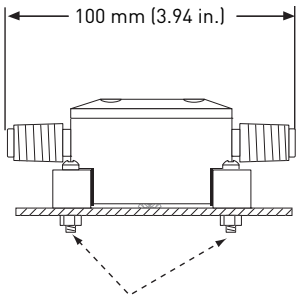
CE

System Overview



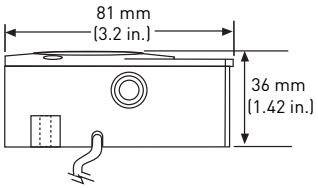
Dimensions

Top View



Mounting tabs for metric M3 or standard #6 screws on 68 mm (2.68 in.) bolt circle

Side View



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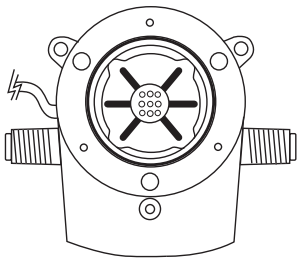


Specifications

General

Operating Range:
- -11 & -12 version:
  0.11 to 2.6 lpm (0.03 to 0.7 U.S. gpm)
- -21 & -22 version:
  1.13 to 12.11 lpm (0.3 to 3.2 U.S. gpm)

Linearity: ±1.2% of full range
Repeatability: ± 0.5% of full range
Connections: ¼ in. NPT (male) or ISO 7/1 - R1/4 (male)

Wetted Materials

- Sensor body and cover:
  40% glass filled Polyphenylene Sulfide (PPS)
- Rotor: PEEK™, natural, unfilled
- Cover O-ring: FPM

Electrical

Power:
5 to 24 VDC ±10%, regulated, 10 mA max.
Output Type:
Open-collector, sinking, 10 mA max.
Cable Length: 7.6 m (25 ft), can be extended up to 300 m (1000 ft)
Cable Type:
2-conductor twisted pair w/shield, 22 AWG

Max. Temperature/Pressure Rating

0 °C to 80 °C @ 5.5 bar max.
(32 °F to 176 °F @ 80 psi max.)

See Temperature and Pressure Graphs for more information

Shipping Weight 0.3 kg 0.7 lb

Standards and Approvals

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

Ordering Information

Sensor Part Number			
3-2000	MicroFlow rotor flow sensor		
	Flow Range		
	1	Low flow, 0.11 to 2.61 lpm (0.03 to 0.7 gpm)	
	2	High flow, 1.13 to 12.11 lpm (0.3 to 3.2 gpm)	
		End Fittings	
		1	¼ NPT threads
		2	ISO 7/1-R1/4 threads
		↓	
3-2000	**-1**	**1**	**Example Part Number**

Mfr. Part No.	Code
3-2000-11	**198 822 000**
3-2000-12	**198 822 001**

Mfr. Part No.	Code
3-2000-21	**198 822 002**
3-2000-22	**198 822 003**

Application Tips
- For use in clean fluids - no suspended solids.
- Use the mounting tabs to secure the sensor to a flat surface, ±30°.
- Verify chemical compatibility before installation.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2000.390	**159 000 248**	Replacement rotor kit
1220-0029	**198 820 049**	Cover O-ring
2450-0620	**198 820 051**	Cover screw
5523-0222	**159 000 392**	Cable (per foot), 2 cond. w/shield, 22 AWG
3-8050-1	**159 000 753**	Universal junction box

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

Signet 2507 Mini Flow Rotor Sensor

Features

- **Operating range 400 to 12,000 ml/m (0.1 to 3.2 U.S. gpm)**
- **Detachable signal connector for easy servicing**
- **Simple installation with a G 1/4 in. (¼ in. NPT) threaded connection**
- **Standard 7.6 m (25 ft) cable**
- **PVDF construction**
- **Compact assembly**

Description

The Signet 2507 Mini Flow Rotor Sensor contains a free-running rotor that is driven by the fluid flow. Within the given measurement range, the rotational speed of the rotor is proportional to the fluid flow rate.

Magnets built into the rotor trigger an electronic switch in the top of the sensor creating a square-wave output. Both opaque and transparent fluids can be measured with kinematic viscosities between 0.2 to 20.0 centistokes.

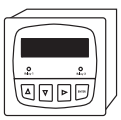
Applications

- **Fluid Dispensing**
- **Laboratory and Clinical Wet Benches**
- **Chemical Dosing**
- **Batch Processes**

System Overview

Panel Mount

Signet Flow Instrument (sold separately)
5075 8550
5500 8900
5600



Pipe, Tank, Wall Mount

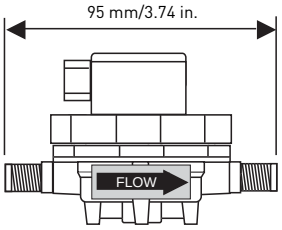
Signet Flow Instrument (sold separately)
8550

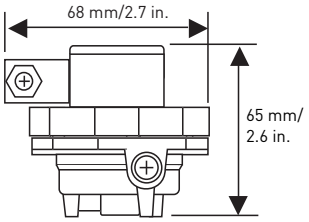
Signet Universal Adapter Kit (3-8050) (sold separately)

Signet 2507 Mini Flow Sensor

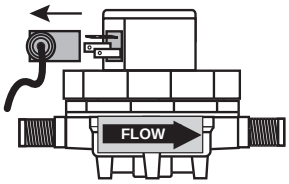
Signet Pipe Fitting Adapters (two included)
Used to convert the sensor's G1/4 in. straight threads into 1/4 in. NPT threads

Dimensions

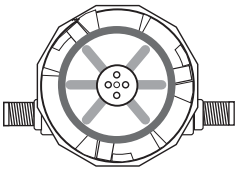




Detachable Signal Connector



Top View
(cover removed)



Application Tips

- Use the threaded ports on bottom of sensor to secure the sensor to any flat surface.
- The range of any sensor can be changed by replacing the flow insert.
- Suitable only for clean fluids without particles.

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

Specifications

General

Operating Range:

- -2V sensor: 400 to 2800 mL/m (0.105 to 0.740 U.S. gpm)
- -3V sensor: 700 to 4200 mL/m (0.185 to 1.123 U.S. gpm)
- -4V sensor: 1300 to 6000 mL/m (0.343 to 1.585 U.S. gpm)
- -6V sensor: 3200 to 12000 mL/m (0.845 to 3.170 U.S. gpm)

Linearity: ±0.25% of full range
Repeatability: ±0.25% of full range
Viscosity range: 0.2 to 20.0 centistokes
Connections:
G 1/4 in. ports, ¼ in. NPT pipe adapters (2 included)

Wetted Materials

- Housing: PVDF
- Flow insert: PTFE
- Quad ring seal: FPM
- Rotor: PVDF
- Pipe thread adapters: PVDF

Electrical

Power:
5 to 24 VDC ±10%, regulated, 10 mA max
Output Type:
Open-collector, sinking, 10 mA max.
Cable Length:
7.6 m (25 ft), can be extended up to 300 m (1000 ft)
Cable Type:
2-conductor twisted pair w/shield, 22 AWG

Max. Temperature/Pressure Rating

- 5.5 bar @ -18 °C (80 psi @ 0 °F)
- 5.5 bar @ 24 °C (80 psi @ 75 °F)
- 3 bar @ 120 °C (45 psi @ 248 °F)

See Temperature and Pressure graphs for more information

Shipping Weight 0.115 kg 0.25 lb

Standards and Approvals

- CE
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Sensor Part Number		
3-2507.100	Mini-flow low flow sensor with free-running rotor	
	Insert Option	
	-2V	With 2 mm insert; for 0.15 to 0.740 gpm (400 to 2800 mL/m)
	-3V	With 3 mm insert, for 0.185 to 1.123 gpm (700 to 4200 mL/m)
	-4V	With 4 mm insert, for 0.343 to 1.585 gpm (1300 to 6000 mL/m)
	-6V	With 6 mm inlet, no insert, for 0.845 to 3.170 gpm (3200 to 12000 mL/m)
	↓	
3-2507.100	**-2V**	**Example Part Number**

Mfr. Part No.	Code
3-2507.100-2V	**198 801 732**
3-2507.100-3V	**198 801 733**

Mfr. Part No.	Code
3-2507.100-4V	**198 801 734**
3-2507.100-6V	**198 801 736**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2507.080-2	**198 801 550**	Rotor, 2507
3-2507.080-3	**198 801 547**	Quad ring, 2507
3-2507.080-5	**198 801 508**	DIN connector, 2507
3-2507.081-2	**198 801 502**	2 mm insert
3-2507.081-3	**198 801 503**	3 mm insert
3-2507.081-4	**198 801 558**	4 mm insert
5523-0222	**159 000 392**	Cable (per foot), 2 cond. w/shield, 22 AWG

Signet 5075 Totalising Flow Monitor

Member of the ProPoint® Family of Monitors

Analogue and Digital Display

Description

The Signet 5075 Totalising Flow Monitor features a traditional analogue dial for flow rate at a glance while the backlit LCD provides precision flow rate, total volume and programming information.

Significant features of this 5075 include user selectable analogue dials, permanent and resettable totalisers and pulse outputs at sensor frequency and at totaliser scale, The 5075 is powered by virtually any 12 to 24 VDC or VAC ±10%, regulated power source.

Connect to any of Signet's flow sensors for a classic flow meter system.

Features

- **Permanent and resettable totalisers**
- **Tamper proof security code**
- **Non-volatile memory**
- **Simple push-button operation**
- **Pulse outputs at sensor frequency and at total volume**
- **1/4 DIN, NEMA 4X/IP65**
- **Remote totaliser reset**

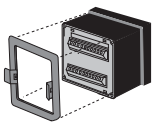
Applications

- **Waste Water Flow Accumulation**
- **Water Treatment Systems**
- **Filtration Systems**
- **Feed Pump Pulsing**
- **Fertigation**
- **Irrigation**
- **Commercial Pools & Spas**
- **Groundwater Remediation**
- **HVAC**
- **Process Flow Monitoring**
- **UPW Distribution**
- **Demineraliser Regeneration**
- **Process Cooling Water**
- **Neutralisation Systems**

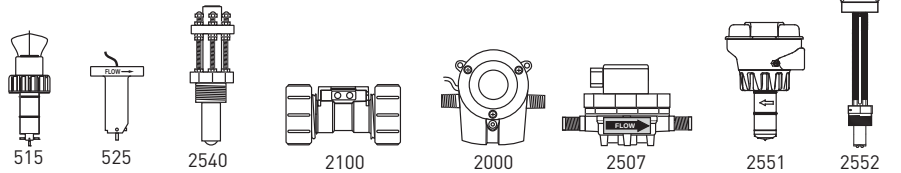
System Overview

Panel Mount

Signet 5075 Flow Instrument
includes mounting bracket and panel gasket



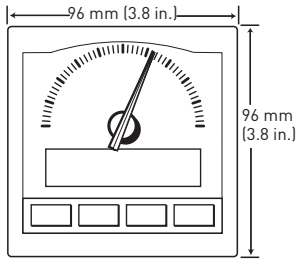
Signet Flow Sensor
(sold separately)



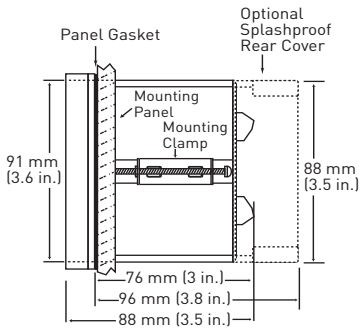
Signet Fittings
or end connectors
as required (sold separately)

See individual sensor catalog pages for required sensor mounting accessories.

Dimensions



Front View



Side View

Specifications

General

Operating Range: 0.5 Hz to 10 kHz
Accuracy: ± 0.5% of reading
Display:

- Analogue:
  Six slide-in dial ranges - 0 to 2, 4, 6, 8, 10 & 100 w/multipliers
- Digital:
  Backlit LCD, 2x16 alphanumeric character

Additional Functions:
Sensor pulse output, volumetric pulse output, Remote totaliser reset

Materials

- Enclosure: ABS Plastic
- Keypad: Silicone Rubber
- Panel and case gasket: Neoprene
- Window: Hard-coated polycarbonate

Electrical

Power Requirements:
12 to 24 VAC or VDC ±10%, regulated recommended, 50 to 60 Hz, 10W max.

Environmental

Operating Temperature:
-10 °C to 55 °C (14 °F to 131 °F)
Relative Humidity:
0 to 95%, non-condensing
Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.8 kg 1.8 lb

Standards and Approvals

- UL, CE, CUL
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Model 5075
Ordering Notes

1) Panel cutout should be 92 x 92 mm (3.62 x 3.62 in.)
2) Reversible dials are included and are scaled from 0 to 2, 0 to 4, 0 to 6, 0 to 8, 0 to 10, and 0 to 100.
3) Optional splash proof rear cover can be ordered separately.
4) Flow rate unit tags are provided for labelling dials appropriately in units of gpm, lpm, etc.

Ordering Information

Mfr. Part No.	Code	Description
3-5075	**198 825 007**	5075 Totalising Flow Monitor

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-5000.395	**198 840 227**	Splashproof rear cover kit
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.399	**198 840 224**	5 x 5 inch adapter plate to retrofit older Signet installations
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit (includes 3 connectors)
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, PG 13.5 (1 connector)
Replacement Parts		
3-5000.390	**159 000 323**	Installation kit (ProPoint® screws, clamps, mounting brackets)
3-5000.525-1	**198 840 226**	Bezel, 5000 series
3-5500.390	**159 000 347**	Dial kit
3-5500.611	**159 000 348**	Unit tags
3-5000.397	**159 000 326**	5000 series window (window, keypad, & screw)
Other		
3-5000.398	**159 000 646**	Protective overlay kit (10 pcs.)
3-5000.075	**159 000 321**	110V/24 VAC transformer
6400-9001	**159 001 466**	Intrinsic safety barrier (2 required)

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

Signet 5090 Sensor-Powered Flow Monitor

Member of the ProPoint® Family of Monitors

Sensor Powered - external power not required.

Features

- **High visibility analogue display**
- **Sensor-powered flow rate indication up to 60 m (200 ft) from sensor installation**
- **Wide flow range: 1 to 20 ft/s in pipe sizes DN15 to D900 (½ to 36 in.)**
- **Single-point calibration from front panel**
- **Factory Mutual (FM) approved for intrinsic safety in Classes I, II and III, Division I**

Description

The Signet 5090 Sensor Powered Flow Monitor is the simplest and most economical instrument in the Signet offering. It features a balanced-spring meter movement that is powered by the AC output of the Signet 515 Paddlewheel Flow Sensor. No additional power source is required.

This unique system is suitable for a wide range of flow rates, and is Factory Mutual (FM) approved for intrinsic safety without the need for barriers. Packaged in a ¼ DIN housing with a NEMA 4X/IP65 front panel, the 5090 is the first choice for simple flow monitoring, even in the most demanding industrial environments.

Applications

- **Filtration Systems**
- **Hazardous Locations**
- **Remote Flow Monitoring**
- **Process Cooling Water**
- **Distribution Systems**
- **HVAC**
- **Process Flow Monitoring**

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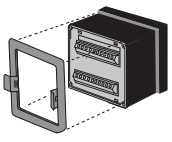
System Overview

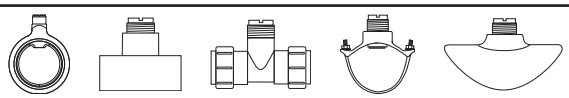
Panel Mount

Signet Flow Instrument
(includes mounting bracket and panel gasket)

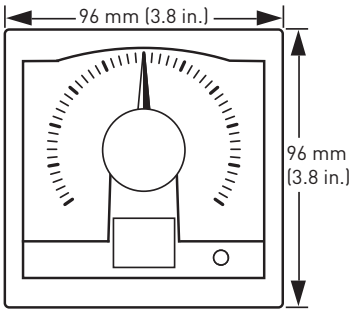


Signet 515 Flow Sensor only
(sold separately)

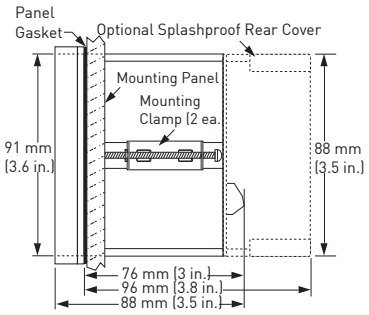
Signet Fittings
(sold separately)



Dimensions



Front View



Side View

Specifications

General

Operating Range:

- 0.3 to 6 m/s (1 to 20 ft/s) in pipes DN15 to DN900 (½ to 36 in.)
- 7 ft/s (min. full scale range)

Reversible dial face kit includes ranges 0 to 2, 4, 6, 8 and 100.

Display:
Taut-band suspension meter movement, 250° deflection (not suitable for prolonged exposure to vibration)

Repeatability: ±1% of full scale

Materials

- Enclosure: ABS Plastic
- Panel and case gasket: Neoprene
- Window: Hard-coated polycarbonate

Electrical

Power Requirements: None

Environmental

Operating Temperature:
-10 °C to 65 °C (14 °F to 149 °F)

Relative Humidity:
0 to 95%, non-condensing

Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.45 kg 1 lb

Standards and Approvals

- FM, UL, CUL
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Model 5090
Ordering Notes

1) Panel cutout should be 92 x 92 mm (3.62 x 3.62 in.)
2) Reversible dials are included and are scaled from 0 to 2, 0 to 4, 0 to 6, 0 to 8, 0 to 10, and 0 to 100.
3) An optional splash proof rear cover can be ordered separately if needed for most environments.
4) Flow rate unit tags are provided for labelling dials appropriately in units of gpm, lpm, etc.

Ordering Information

Mfr. Part No	Code	Description
3-5090	**198 825 000**	5090 Sensor-Powered Flow Monitor

Accessories and Replacement Parts

Mfr. Part No	Code	Description
Mounting		
3-5000.395	**198 840 227**	Splashproof rear cover kit
3-5000.399	**198 840 224**	5 x 5 inch adapter plate to retrofit older Signet installations
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-0000.596	**198 000 641**	Heavy duty wall mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit (includes 3 connectors)
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, PG 13.5 (1 connector)
Replacement parts		
3-5000.390	**159 000 323**	Installation kit (ProPoint® screws, clamps, and mounting brackets)
3-5000.396	**159 000 325**	5090 window kit
3-5000.525-1	**198 840 226**	Bezel, 5000 series
3-5090.390	**159 000 334**	Dial kit
3-5090.611	**198 840 228**	Unit tags
3-5000.396	**159 000 325**	5090, 5091 window Kit

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

Signet 5500 Flow Monitor

Member of the ProPoint® Family of Monitors

Featuring Analogue and digital displays and a remote resettable totaliser.

Description

The Signet 5500 Flow Monitor is an instrument that comes fully equipped with all of the basic tools needed for monitoring and controlling a flow system. The analogue dial enables the user to easily read instantaneous flow rate, while the backlit LCD is useful for calibration, setup, and displaying totalised flow volume. The 5500 features a standard ¼ DIN package and removable wiring terminals. Power the instrument with virtually any standard 24-volt power supply (AC or DC).

Connect any one of Signet's wide array of flow sensors, then consider which output features are best for your application.

Two dry-contact relays can be configured for High or Low alarm operation, or they can be set to pulse operation for chemical dosing applications.

Use the internally powered 4 to 20 mA output, programmable from the front keypad, to send the flow information to any PLC or data logger.

If you use all of these output features, you still have two more output pulse terminals, one at sensor frequency, the other triggered by the totaliser. And just for added convenience, the resettable totaliser can be reset by a remote hard-wired switch, up to 30 m (100 ft), or from the front keypad.

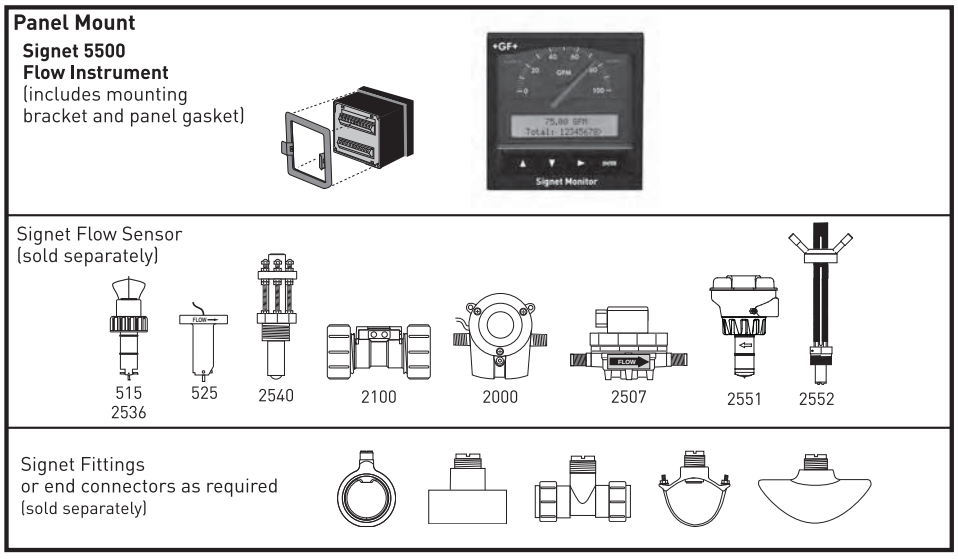
Features

- **Permanent and resettable totalisers**
- **Two programmable relays**
- **Fully scaleable active (internally powered) 4 to 20 mA output**
- **Tamper proof security code**
- **Non-volatile memory**
- **Intuitive software design**
- **Programmable pulse outputs**

Applications

- **Waste Water Flow Accumulation**
- **Water Treatment Systems**
- **Filtration Systems**
- **Feed Pump Pulsing**
- **Fertigation**
- **Irrigation**
- **Commercial Pools & Spas**
- **Groundwater Remediation**
- **HVAC**
- **Process Flow Monitoring**
- **UPW Distribution**
- **Demineraliser Regeneration**
- **Process Cooling Water**
- **Neutralisation Systems**

System Overview



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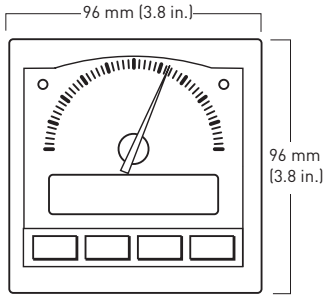
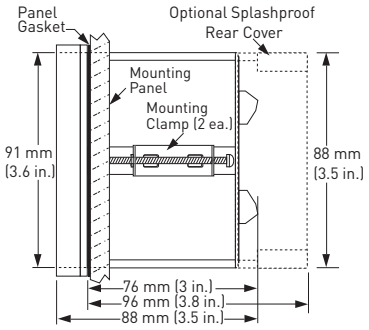
Dimensions



Front View



SIDE VIEW

Specifications

General

Operating Range: 0.5 Hz to 10kHz
Accuracy: ± 0.5% of reading
Display:

- Analogue:
  Six slide-in dial ranges - 0 to 2, 4, 6, 8, 10 & 100 w/multipliers
- Digital:
  Backlit LCD, 2x16 alphanumeric character
- Additional Functions:
  Sensor pulse output, volumetric auxiliary pulse output, remote totaliser reset

Materials

- Enclosure: ABS Plastic
- Keypad: Silicone Rubber
- Panel and case gasket: Neoprene
- Window: Hard-coated polycarbonate

Electrical

Power Requirements:
12 to 24 VAC or DC ±10%, regulated recommended, 50 to 60 Hz, 10W max.
Current Output:

- 4 to 20 mA, non-isolated, active, internally powered

Electrical (continued)

- Loop Impedance:
  350 Ω max. @ 12 V
  950 Ω max. @ 24 V
- Accuracy: ± 0.1%
- Update Rate: 100 msec

Alarm Contacts:

- Two SPDT relays: High/Low/Pulse programmable with adj. hysteresis for exiting alarm condition
  5 A @ 30 VDC
  5 A @ 125 VAC
  3 A @ 250 VAC max.

Environmental

Operating Temperature:
-10 °C to 55 °C (14 °F to 131 °F)
Relative Humidity:
0 to 95%, non-condensing
Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.8 kg 1.8 lb

Standards and Approvals

- UL, CE, CUL
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Model 5500
Ordering Notes

1) Panel cutout should be 92 x 92 mm (3.62 x 3.62 in.)
2) Reversible dials are included and are scaled from 0 to 2, 0 to 4, 0 to 6, 0 to 8, 0 to 10, and 0 to 100.
3) An optional splash proof rear cover can be ordered separately if needed.
4) Flow rate unit tags are provided for labelling dials appropriately in units of gpm, lpm, etc.

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

Ordering Information

Mfr. Part No	Code	Description
3-5500	**198 825 002**	5500 Flow Monitor

Accessories and Replacement Parts

Mfr. Part No	Code	Description
Mounting		
3-5000.395	**198 840 227**	Splashproof rear cover kit
3-5000.399	**198 840 224**	5 x 5 inch adapter plate to retrofit older Signet installations
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-0000.596	**198 000 641**	Heavy duty wall mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit (includes 3 connectors)
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, PG 13.5 (1 connector)
Replacement parts		
3-5000.390	**159 000 323**	Installation kit (ProPoint® screws, clamps, mounting brackets)
3-5000.525-1	**198 840 226**	Bezel, 5000 series
3-5500.390	**159 000 347**	Dial kit
3-5500.611	**198 840 230**	Unit tags
3-5000.397	**159 000 326**	5000 series window (window, keypad, & screws)
Other		
3-5000.398	**159 000 646**	Protective overlay kit (10 pcs.)
3-5000.075	**159 000 321**	110V/24 VAC transformer
3-8050.396	**159 000 617**	RC filter kit (for relay use)

Signet 5600 Batch Controller

Member of the ProPoint® Family of Monitors

Analogue dial displays batch process; Digital LCD Displays Totaliser

Description

The Signet 5600 Batch Controller provides control capability and process fine-tuning in a familiar package. The programming interface uses a four-button keypad and an intuitive procedure for adjusting a batching system to the best performance possible.

The standard ¼ DIN package houses an analogue display panel that features a batch status indicator with count-up or count-down dials. The backlit LCD displays flow rate and volume information and batch status, as well as calibration and setup instructions. The front of the unit is NEMA 4X/IP65 and is hard-coated, high-impact and UV resistant polycarbonate.

The 5600 operates on 12 to 24 volts ±10%, regulated, either AC or DC. Removable terminal connections make wiring the 5600 easy. Connect any Signet flow sensor with a frequency output, then add connections to two relays for two-stage shutdown or overrun alarm functions, connect a remote start-stop switch and use the end-of-batch pulse to trigger the next step in the process. A 4 to 20 mA output is also available. Advanced features include a user-set security code, an automatic calibration option, and overrun compensation.

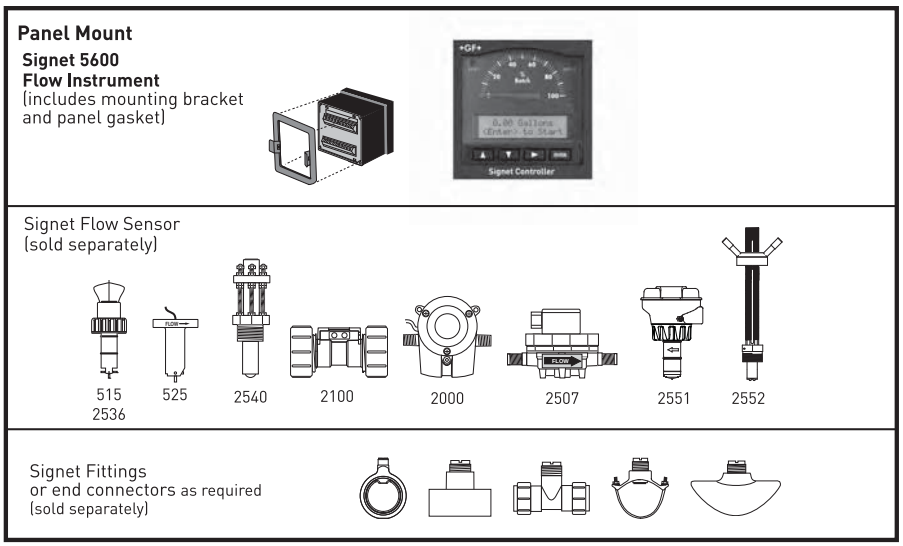
Features

- **Permanent and resettable totalisers**
- **Non-volatile memory**
- **Easy batch volume entry**
- **Remote start, stop & resume**
- **Two-stage shutdown control**
- **Manual or automatic overrun compensation**
- **Estimates time to batch completion**
- **Overrun alarm and missing signal alarm**
- **Advanced valve control**
- **End-of-batch trigger**
- **Count-up or count-down to batch completion**

Applications

- **Batch Processes**
- **Filter Backwash Initiation**
- **Chemical Addition**
- **Canning & Bottling**

System Overview



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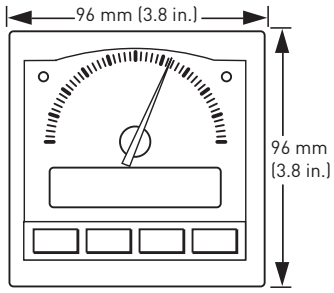
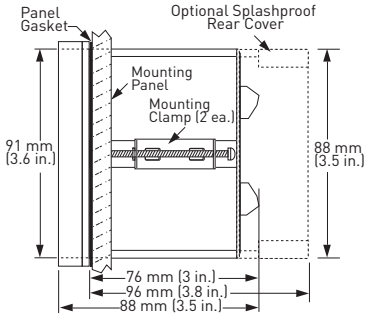
Dimensions



Front View



SIDE VIEW

Specifications

General

Operating Range:
0.5 Hz to 10 kHz, optically isolated
Accuracy: ± 0.5% of reading
Display:

- Analogue:
  Reversible dial - 0 to 100% or 100 to 0%
- Digital:
  Backlit LCD, 2 x 16 alphanumeric character
- Batch Size:
  0 to 999,999 engineering units
- Dual Totaliser: 8-digit resettable and non-resettable
- Additional Functions:
  End of batch pulse, remote start, stop & resume. Batch in progress. Batch completion, valve control or end of batch
- Option:
  Two-stage shutdown, overrun alarm, end of batch, or missing signal alarm

Materials

- Enclosure: ABS Plastic
- Keypad: Silicone Rubber
- Panel and case gasket: Neoprene
- Window: Hard-coated polycarbonate

Electrical

Power Requirements:
12 to 24 VAC or DC ±10%, regulated recommended, 50 to 60 Hz, 10W max.

Current Output

- 4 to 20 mA, non-isolated, active, internally powered
- Loop Impedance:
  350 Ω max. @ 12 V
  950 Ω max. @ 24 V
- Accuracy: ± 0.1%

Alarm Contacts

- Two SPDT relays:
  5 A @ 30 VDC
  5 A @ 125 VAC
  3 A @ 250 VAC max.

Environmental

Operating Temperature:
-10 °C to 55 °C (14 °F to 131 °F)
Relative Humidity:
0 to 95%, non-condensing
Enclosure: NEMA 4X/IP65

Shipping Weight 0.8 kg 1.8 lb

Standards and Approvals

- CE, UL, CUL
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Mfr. Part No	Code	Description
3-5600	**198 825 006**	Batch Controller

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-5000.395	**198 840 227**	Splashproof rear cover kit
3-5000.399	**198 840 224**	5 x 5 inch adapter plate to retrofit older Signet installations
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-0000. 596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (includes 3 connectors)
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, PG 13.5 (1 connector)
Replacement Parts		
3-5000.390	**159 000 323**	Installation kit (ProPoint® screws, clamps and mounting brackets)
3-5000.397	**159 000 326**	5000 series window kit (window, keypad and screw)
3-5000.525-1	**198 840 226**	Bezel, 5000 series
3-5600.360	**159 000 887**	Replacement dial
3-5500.611	**198 840 230**	Unit tags
Other		
3-5000.398	**159 000 646**	Protective overlay kit (10 pcs.)
3-5000.075	**159 000 321**	110V/24 VAC transformer
3-8050.396	**159 000 617**	RC filter kit (for relay use)

Model 5600

Ordering Notes

1) Panel cutout should be 92 x 92 mm (3.62 x 3.62 in.)
2) A reversible dial is included and is scaled from 0 to 100 and 100 to 0.
3) An optional splash proof rear cover can be ordered separately if needed.

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

Signet 8150 Battery Powered Flow Totaliser

Member of the ProcessPro® Family of Instruments

Panel Mount

Pipe, Wall, and Tank Mount

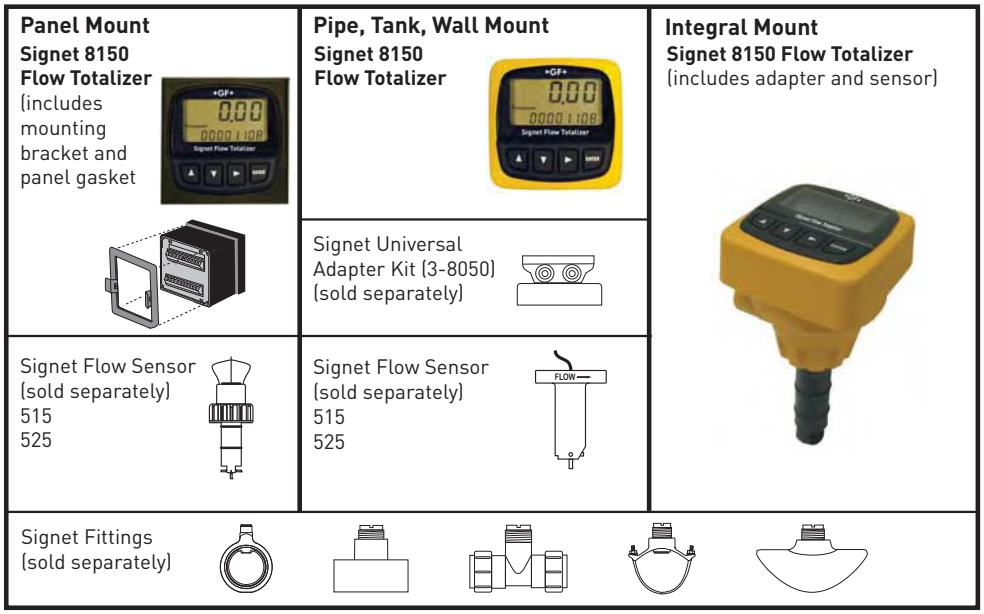
Integral Mount

Description

The Signet 8150 Battery Operated Flow Totaliser is compatible with the Signet 515 and 525 flow sensors, and will provide years of dependable operation. The large digital display indicates flow rate and totalised flow volume simultaneously. One of the three totalisers is resettable from the front panel or a remote location, while the second resettable totaliser can only be reset by entering a user-selectable security code. The third is a permanent non-resettable totaliser.

Our intuitive software design and four-button keypad provide for simple operation while setting screen displays and programming the system. Calibration can be easily performed by entering the Auto-Cal feature and entering a value to match an external reference. Screen displays can be modified to suit the user's needs; along with the flow rate, any of the three totalisers can be selected as the displayed totaliser. Customers can quickly scroll through the totalisers simply by pressing any key on the keypad. A display averaging feature is included for applications where the flow in the pipe fluctuates. For applications where flow stops and starts due to production needs, a no-flow indicator will display the hours of non-flow.

System Overview



Features

- **Three totalisers: 2 resettable and 1 permanent, user selectable**
- **Long-lasting lithium batteries**
- **Mounting versatility**
- **No-flow indicator**
- **Large digital display with averaging**
- **Simple push-button operation**
- **User selectable access code prevents unwanted changes**
- **Auto-calibration**

Applications

- **Wastewater Flow Accumulation**
- **Water Treatment Systems**
- **Remote or Mobile Treatment/Distribution Systems**
- **Irrigation Systems**
- **Filtration Systems**
- **Commercial Pools & Spas**
- **Groundwater Remediation**
- **RO Concentrate**
- **Process Flow Monitoring**
- **UPW Distribution**
- **Demineraliser Regeneration**
- **Process Cooling Water**

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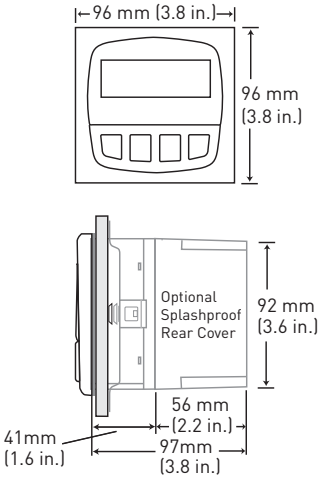
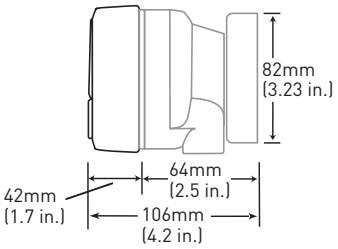
Dimensions

3-8150-1P

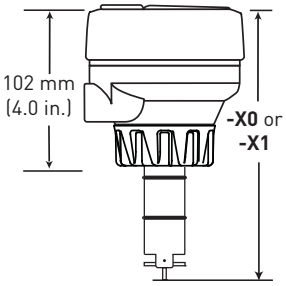
Panel Mount



3-8150-1 with universal mount



Model 515 Integral Mount Sensors - see pages 30-33 for sensor specifications



-X0 = 152mm (6.0 in.)
-X1 = 185mm (7.3 in.)

Model 8150
Ordering Notes

1) For panel version, cutout must be 92 x 92 mm (3.62 x 3.62 in.)
2) To mount the panel version on a wall, use the heavy duty wall mount bracket.
3) Use the Universal mounting kit with the Field mount instrument to mount to a pipe, tank or wall.
4) An optional splash proof rear cover can be ordered separately if needed.

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

Specifications

General

Compatibility:
Signet 515 and 525 flow sensors
Input Freq. Range: 0 to 400Hz
Accuracy: ±0.5% of reading
Display: LCD type

- 4-digit upper line - flow rate
- 8-digit lower line - volume totaliser count, either resettable or permanent

Averaging: 0 to 120 secs.
Contrast: Automatic
Low Battery Indication:
Battery symbol appears on LCD display
8-digit resettable totalisers:
Stored until user resets; continues to be stored even after batteries are removed
8-digit permanent:
Kept permanently, even when batteries are removed

Materials

- Enclosure: PBT resin
- Keypad Material: Sealed 4-key silicon rubber
- Panel Case Gasket: Neoprene
- Window: Polyurethane coated polycarbonate

Electrical

Battery:
Two 3.6V Lithium thionyl chloride, A-size
Battery life:
4 years nominal @ 50 °C (122 °F)

Environmental

Operating Temperature:
-10 °C to 65 °C (14 °F to 149 °F)
Storage Temperature:
-40 °C to 100 °C (-40 °F to 212 °F)
Relative Humidity
0 to 95% Non-condensing
Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.5 kg 1.1 lb

Standards and Approvals

- CE
- CUL, UL
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Instrument Part Number		
3-8150	Battery Operated Flow Totaliser	
	Field, Panel, or Integral Sensor mount - Choose One	
	-1	Field mount for pipe, tank, and wall mounting
	-1P	Panel mount; includes mounting bracket and panel gasket
	-P0*	3-8150-1 integrally mounted on Model 515 Paddlewheel (Part No. 3-8510-P0) for ½ to 4 in. pipes, with a polypropylene body, Black PVDF rotor, and Titanium pin
	-P1*	3-8150-1 integrally mounted on Model 515 Paddlewheel (Part No. 3-8510-P1) for 5 to 8 in. pipes, with a polypropylene body, Black PVDF rotor, and Titanium pin
	-T0*	3-8150-1 integrally mounted on Model 515 Paddlewheel (Part No. 3-8510-T0) for ½ to 4 in. pipes, with a natural PVDF body, rotor, and pin
	-V0*	3-8150-1 integrally mounted on Model 515 Paddlewheel (Part No. 3-8510-V0) for ½ to 4 in. pipes, with a natural PVDF body, rotor, and Hastelloy pin
	↓	
3-8150	**- 1**	**Example Part Number**

* See individual sensor sheets for more sensor information.

Mfr. Part No.	Code
3-8150-1	**159 000 929**
3-8150-1P	**159 000 930**
3-8150-P0	**159 000 931**

Mfr. Part No.	Code
3-8150-P1	**159 000 932**
3-8150-TO	**159 001 011**
3-8150-V0	**159 001 012**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-8050	**159 000 184**	Universal mounting kit
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-8050.395	**159 000 186**	Splashproof rear cover (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit (includes 3 connectors)
3-9000.392-1	**159 000 839**	Liquid tight connector, NPT (1 connector)
3-9000.392-2	**159 000 841**	Liquid tight connector, PG 13.5 (1 connector)
Other		
7400-0011	**159 000 935**	Lithium battery, 3.6 V, size AA (2 required)
5523-0222	**159 000 392**	Cable (per foot), 2 cond. w/shield, 22 AWG
Replacement Parts for Integral Mount Units - see Model 515 catalogue pages for information		
3-8051	**159 000 187**	Flow integral mounting kit, NPT (replacement)
3-8510-P0	**198 864 504**	Sensor for ½ to 4 in. pipes, Polypropylene body
3-8510-PI	**198 864 505**	Sensor for 5 to 8 in. pipes, Polypropylene body
3-8510-T0	**159 000 622**	Sensor for ½ to 4 in. pipes, all natural PVDF
3-8510-V0	**198 864 506**	Sensor for ½ to 4 in. pipes, PVDF body

Signet 8550 Flow Transmitters

Member of the ProcessPro® Family of Instruments

Panel Mount

Pipe, Wall, Tank and Integral Mount

Features

- 2 or 4 wire power
- Available with single or dual input/output
- 4 to 20 mA scaleable outputs
- Permanent & resettable totalisers
- Relay options available
- NEMA 4X enclosure with self-healing window
- Output simulation for complete system testing

Description

Signet 8550 Flow Transmitters are advanced instruments that convert the signal from all Signet flow sensors into a 4 to 20 mA signal for long distance transmission. Configuration flexibility is maximized with single or dual input/output, two optional relays for process control, two packaging options for integral/pipe mount or panel installation, and scalability for virtually any flow range or engineering unit. State-of-the-art electronic design ensures long-term reliability, signal stability, and simple user setup and operation.

Applications

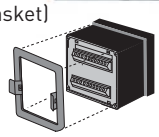
- Flow control and monitoring
- Filtration or softener regeneration
- Effluent totalisation
- Pump protection
- Feed pump pulsing
- Ratio control
- Water distribution
- Leak detection

LISTED
MEASURING EQUIPMENT
77CJ

System Overview

Panel Mount

Signet 8550 Flow Instrument (Includes mounting bracket and panel gasket)



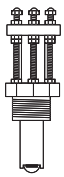
Signet Flow Sensor (sold separately)
515 2507 2540
525 2536 2551
2000 2552
2100

Pipe, Tank, Wall Mount

Signet 8550 Flow Transmitter

Signet Universal Adapter Kit (3-8050) (sold separately)

Signet Flow Sensor (sold separately)
515 2507 2540
525 2536 2551
2000 2552
2100



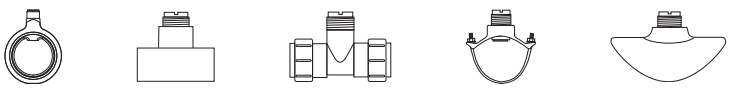
Integral Mount

Signet 8550 Flow Transmitter

Signet Integral Adapter Kit (3-8051) (sold separately)

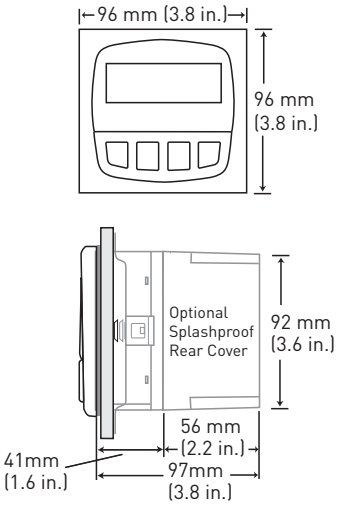
Signet Integral Mount Flow Sensor (sold separately)
3-8510-XX
3-8512-XX

Signet Fittings (sold separately)

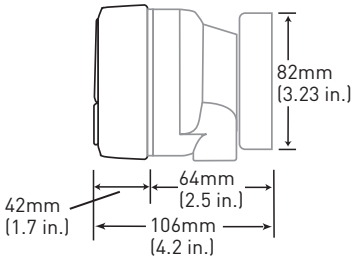


Dimensions

3-8550-XP



Field version with universal mount



Model 8550
Ordering Notes

1) Use the field mount version to directly mount the instrument to the Model 515 or 2536 integral mount sensor. See sensor data sheet for more information.
2) Field mount and sensor can be ordered in a package. See Integral Mount for more information.
3) Panel Cutout should be 92 mm X 92 mm (3.62 in X 3.62 in.).
4) An optional splash proof rear cover for the panel mount version can be ordered separately if needed.

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

Specifications

General
Compatibility:
Signet Flow Sensors with frequency outputs
Accuracy: ± 0.5% of reading
Display: Alphanumeric 2 x 16 LCD
Update Rate: 1 second
Contrast: User selectable, 5 levels

Materials
- Enclosure: PBT
- Panel Case Gasket: Neoprene
- Window: Polyurethane coated polycarbonate
- Keypad: Sealed 4-key silicone rubber

Electrical
Power: 12 to 24 VDC ±10%, regulated
(-1) 90 mA max.
(-2) 220 mA max.
(-3) 100 mA max.
Sensor Input Range: 0.5 to 1500 Hz
Sensor Power:
- 2-wire: 5 VDC ± 1% @ 1.5 mA
- 3 or 4 wire: 5 VDC ± 1% @ 20 mA
  Optically isolated from current loop
  Short circuit protected

Current Output
- 4 to 20 mA, isolated, passive, fully adjustable and reversible
- Max. Loop Impedance:
  50 Ω max. @ 12 V
  325 Ω max. @ 18 V
  600 Ω max. @ 24 V
- Update Rate: 100 ms
- Accuracy: ±0.03 mA

Electrical (continued)
Relay Output
- Mechanical SPDT contacts: High, Low, Pulse, Off
- Maximum Voltage Rating: 30 VDC @ 5 A , 250 VAC @ 5 A resistive load
- Hysteresis: User selectable
- Maximum 400 pulses/min.

Open-Collector Output :
- High, Low, Pulse, Off
- Optically isolated, 50 mA max. sink, 30 VDC max. pull-up voltage.
- Hysteresis: User selectable for exiting alarm condition
- Maximum 400 pulses/min.

Environmental
Operating Temperature:
-10 °C to 70 °C (14 °F to 158 °F)
Storage Temperature:
-15 °C to 80 °C (5 °F to 176 °F)
Relative Humidity:
0 to 95%, non-condensing
Enclosure: NEMA 4X/IP65 (front)

Shipping Weight 0.325 kg 0.8 lb

Standards and Approvals
- CE, UL, CUL listed
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Instrument Part Number			
3-8550	ProcessPro® Flow Transmitter		
	Sensor Input, Sensor Power, Outputs - Choose One		
	-1	One input, 2 or 4 wire, 4 to 20 mA and open collector for Hi, Lo, Pulse, or Frequency	
	-2	One input, 4 wire, 4 to 20 mA and 2 relays for Hi, Lo, or Pulse	
	-3	Two inputs, 2 or 4 wire, two 4 to 20 mA outputs and 2 open collectors for Hi, Lo, Pulse, or Frequency	
		Field or Panel Mount - Choose One	
		-	Field mount
		P	Panel mount; includes mounting bracket and panel gasket
		↓	
3-8550	**- 1**		**Example Part Number - Field mount**

Mfr. Part No.	Code
3-8550-1	**159 000 047**
3-8550-1P	**159 000 048**
3-8550-2	**159 000 049**

Mfr. Part No.	Code
3-8550-2P	**159 000 050**
3-8550-3	**159 000 051**
3-8550-3P	**159 000 052**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting Accessories		
3-8050	**159 000 184**	Universal mounting kit
3-8051	**159 000 187**	Flow integral mount NPT
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-8050.395	**159 000 186**	Splashproof rear cover (panel mount only)
Liquid Tight Connectors and Other		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (includes 3 connectors)
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, PG 13.5 (1 connector)
3-8050.396	**159 000 617**	RC filter kit (for relay use)

Flow Integral Systems with ProcessPro® Instruments

Member of the ProcessPro® Family of Instruments

Battery Powered

24 VDC Powered

Features

- **Battery or 24 VDC Powered**
- **Local display for sensor mounted instruments**
- **Provides 4 to 20 mA output (8550 model)**
- **Relay options available**
- **NEMA 4X/IP65**

Applications

- **RO/DI System Control**
- **Cooling Tower Control**
- **Environmental Monitoring**
- **Water Quality Monitoring**
- **Filtration Systems**
- **Chemical Production**
- **Liquid Delivery Systems**
- **Pump Protection**
- **Scrubber Systems**
- **Semiconductor Water Production**
- **Chemical Concentration Monitoring**

Description

Signet has combined ProcessPro® instruments with Models 515 and 2536 paddlewheel flow sensors to create integral systems that are easy to order and simple to install. Also available in conductivity, level, temperature, and pressure configurations, each integral system features a local and easy to read LCD display. The push button keypad makes it easy to navigate through the instrument's menu for performing calibrations and setting outputs and relays. The 24 VDC powered Model 8550 flow instruments offer a scalable 4 to 20 mA output and optional relays for process control.

Battery powered Model 8150 instruments are also available for use in locations where line power is unavailable.

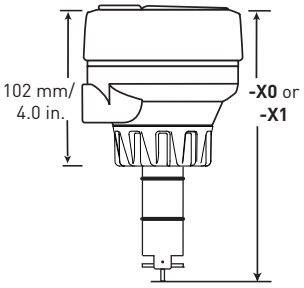
The integral 8550 systems are combined with Signet's field-proven Models 515 and 2536. These sensors reliably perform in flow ranges from 0.3 to 6 m/s (1 to 20 ft/s) and 0.1 to 6 m/s (0.3 to 20 ft/s) respectively for pipe sizes from ½ to 8 inches. They are available in a variety of materials including polypropylene and PVDF and are easily mounted in the pipe using Signet's comprehensive line of standard fittings.

System Overview

	Battery powered Flow	Flow
Integral Mount Signet Instrument	 8150	 8550
Signet Integral Adapter Kit	 8051	 8051
Signet Sensors and Electrodes	 8510	 8510 or 8512
Signet Fittings (sold separately)		

Refer to Models 515, 2536, 8150, or 8550 technical specifications for more details on these products.

Dimensions



-X0 = 152 mm/6.0 in.
-X1 = 185 mm/7.3 in.

Specifications

See individual instrument and sensor catalogue pages for more information.

Ordering Information

Flow Instrument, Battery Operated		
3-8150	Battery Operated Flow Totaliser	
↓	Model 515 integral paddlewheel sensor with pipe size, body material, rotor/pin material listed - Choose one	
↓	**-P0**	½ to 4 in. polypropylene/Black PVDF/Titanium
↓	**-P1**	5 to 8 in. polypropylene/Black PVDF/Titanium
↓	**-T0**	½ to 4 in. natural PVDF/natural PVDF/natural PVDF
↓	**-V0**	½ to 4 in. natural PVDF/natural PVDF/Hastelloy-C
↓	↓	
3-8150	**- P0**	**Example Part Number**

Mfr. Part No.	Code
3-8150-P0	**159 000 931**
3-8150-P1	**159 000 932**

Mfr. Part No.	Code
3-8150-T0	**159 001 011**
3-8150-V0	**159 001 012**

Integral Instruments Ordering Notes

1) Model 8150 is available with all parts conveniently assembled.
2) Model 8550 systems are broken down in three parts: instrument, sensor, and mounting kit. Order systems by selecting the Mfr. Part Number/Code.
3) See individual instrument and sensor pages for more information.

Flow Instrument, Line Powered - Choose One			
3-8550-1	Flow instrument, 4 to 20 mA and open collector for high, low, pulse, or frequency output		
3-8550-2	Flow instrument 4 to 20 mA and 2 relays for high, low, pulse, or frequency output		
↓	Paddlewheel Flow Sensors with Pipe Size, Body Material, and Rotor/Pin Material Listed - Choose One from the Models 515 or 2536 Listed		
↓	Model 515 Integral Paddlewheel Sensors - Choose One		
↓	**3-8510-P0**	½ to 4 in., Polypropylene, Black PVDF/Titanium	
↓	**3-8510-H0**	½ to 4 in., Polypropylene, Black PVDF/Hastelloy-C	
↓	**3-8510-S0**	½ to 4 in., Polypropylene, Black PVDF/Natural PVDF	
↓	**3-8510-P1**	5 to 8 in., Polypropylene, Black PVDF/Titanium	
↓	**3-8510-T0**	½ to 4 in., Natural PVDF, Natural PVDF/Natural PVDF	
↓	**3-8510-V0**	½ to 4 in., Natural PVDF, Natural PVDF/Hastelloy-C	
↓	Model 2536 Integral Paddlewheel Sensors - Choose One		
↓	**3-8512-P0**	½ to 4 in., Polypropylene, Black PVDF/Titanium	
↓	**3-8512-H0**	½ to 4 in., Polypropylene, Black PVDF/Hastelloy-C	
↓	**3-8512-S0**	½ to 4 in., Polypropylene, Black PVDF/Natural PVDF	
↓	**3-8512-P1**	5 to 8 in., Polypropylene, Black PVDF/Titanium	
↓	**3-8512-T0**	½ to 4 in., Natural PVDF, Natural PVDF/Natural PVDF	
↓	**3-8512-V0**	½ to 4 in., Natural PVDF, Natural PVDF/Hastelloy-C	
↓	↓	Mounting Kit-Mounts the Instrument to the Sensor	
↓	↓	**3-8051**	Integral mounting kit
↓	↓	↓	
3-8550-1	**3-8510-P0**	**3-8051**	**Example of Three Part Numbers Required to Assemble Integral Unit if Parts Purchased Separately**

Code	Components*
198 864 800	3-8550-1 + 3-8510-P0
198 864 801	3-8550-1 + 3-8510-H0
198 864 802	3-8550-1 + 3-8510-S0
198 864 803	3-8550-1 + 3-8510-V0
198 864 804	3-8550-1 + 3-8510-T0
198 864 805	3-8550-1 + 3-8510-P1
198 864 810	3-8550-2 + 3-8510-P0
198 864 811	3-8550-2 + 3-8510-H0
198 864 812	3-8550-2 + 3-8510-S0
198 864 813	3-8550-2 + 3-8510-V0
198 864 814	3-8550-2 + 3-8510-T0
198 864 815	3-8550-2 + 3-8510-P1

Code	Components*
198 864 830	3-8550-1 + 3-8512-P0
198 864 831	3-8550-1 + 3-8512-H0
198 864 832	3-8550-1 + 3-8512-S0
198 864 833	3-8550-1 + 3-8512-V0
198 864 834	3-8550-1 + 3-8512-T0
198 864 835	3-8550-1 + 3-8512-P1
198 864 840	3-8550-2 + 3-8512-P0
198 864 841	3-8550-2 + 3-8512-H0
198 864 842	3-8550-2 + 3-8512-S0
198 864 843	3-8550-2 + 3-8512-V0
198 864 844	3-8550-2 + 3-8512-T0
198 864 845	3-8550-2 + 3-8512-P1

***8051 Integral Mount Kit Included**

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

Signet 4150 Turbidimeter

Description

The Signet 4150 Turbidimeter system provides accurate and reliable compliant water quality monitoring for municipal and industrial applications.

The 4150 measures turbidity via a 90 degree light which reflects particles as they flow through a small volume, low flow glass cuvette. Air bubbles are eliminated from the cuvette by adjusting the backpressure valve on the outlet tube. The cuvette is located in a watertight dark chamber for continuously accurate on-line measurement. A replaceable desiccant pack provides a dry-stable environment to ensure reliable measurements.

Simple and fast calibration can be accomplished in under five minutes by placing the In-line glass cuvette from the measuring chamber into the cuvette holder while still in service and the inlet and outlet tubing remains connected. The inexpensive calibration standard allows for dry and multiple system calibrations without mixing chemicals. After calibration, the unit is up and running with simple re-insertion of the glass cuvette back into the measuring chamber.

Additional features include a message indicator when the desiccant needs replacing and as an option, auto/ultrasonic cleaning of the glass In-line cuvette for longer runs between maintenance.

The 4150 is available in two measuring ranges. The 0 to 100 NTU/FNU version is for low range applications such as drinking water. The 0 to 1000 NTU/FNU range can be used for various applications including raw water and wastewater reclamation.

Features

- **Simple and easy single unit installation with built-in pressure regulator**
- **Versions compliant with either U.S. EPA 180.1 for North and South America and Asia or ISO 7027 for Europe**
- **Time saving and efficiencies of cuvette technology simplifies calibration**
- **Spannable 4-20 mA output**
- **Two adjustable alarm relays**
- **Bright backlit display**
- **Convenient holder for In-line cuvette**
- **Easy access for wiring and maintenance**
- **Ultrasonic cleaning option ensures long and steady on-line measurement**
- **Inexpensive standards allow for multiple system calibrations**

Applications

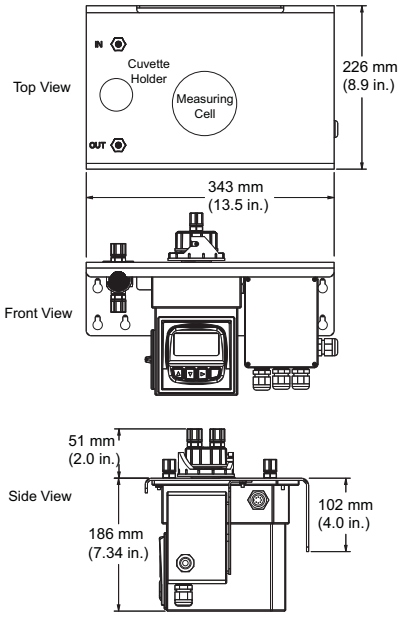
- **Monitor Filter Performance**
- **Raw or Filtered Water**
- **Municipal Water Distribution**
- **Wastewater Reclamation and Tertiary Effluent**
- **Aquatic Life Support**

Systems Overview

4150 Turbidimeter

1 - Mounting Bracket
2 - Power Supply and Wiring Terminals
3 - Operator Interface with Display
4 - Desiccant Access (not shown)
5 - In-line Glass Cuvette (with Ultrasonic option)
6 - Backpressure Valve
7 - Cuvette Holder
8 - Shutoff Clamp
9 - Tubing and Fittings
10 - Measuring Cell Chamber

Dimensions



Specifications

General
Flow Rate Range: 0.1 L/min to 1 L/min (0.026 GPM to 0.26 GPM)
Measurement Range:
0 to 100.0 NTU/FNU or
0 to 1000.0 NTU/FNU
Accuracy:
- ±2% of reading or ±0.02 NTU/FNU below 40 NTU/FNU whichever is greater
- ±5% of reading above 40 NTU/FNU
- NTU = FNU = FTU

Mounting
- Horizontal plane, integral mounting bracket (with standard hole pattern)
- Use 4.75 mm (3/16") ID, 8 mm (5/16") OD flexible tubing for the water supply/outlet (customer supplied)

Resolution
up to 0.0001 NTU/FNU (below 10 NTU/FNU)

Display
Two-Line LCD w/backlight

Alarm Relays
120-240 VAC, 2A Form C Relay

Analogue Signal w/Field Selectable Range
Active 4-20 mA, 600 Ω or RS485

Wetted Materials
- Tubing: Vinyl
- Measuring cuvette: Borosilicate Glass
- Glass washer seal: Silicone
- Pressure regulator:
  Polypropylene
  316 stainless steel
  Delrin® by Dupont™
- Inlet tube: 316 stainless steel

Maximum Inlet Pressure
- Integral pressure regulator rated 1380 kPa (200 psig)

Maximum Outlet Pressure
- 100 kPa (15 psig)

Operating Temperature/Pressure
- 1 °C to 50 °C (34 °F to 122 °F)
- (5 to 15 psig) 35 to 105 kPa

Power Supply
100 – 240 VAC,
47 – 63 Hz, 80 VA

Insulation Rating
- Double Insulated
- Pollution Degree 2
- Overvoltage Category II

Altitude
2000 meters (6,561 ft) maximum

Relative Humidity
Maximum 95% RH non-condensing

Enclosure Rating
IP 66 /NEMA 4X

Environmental Conditions
Not recommended for outdoor use

Shipping Weight 2.5 kg 5.5 lb

Standards and Approvals
- CE
- Compliant to U.S. EPA 180.1
- Compliant to ISO 7027
- ETL Listed
  UL 61010-1 and CSA C22.2 No. 61010-1

4150-0004
Glass cuvette with ultrasonic transducer

4150-0007
Glass cuvette without ultrasonic transducer
(not shown)

Ordering Information

Part Number		
3-4150	Measurement Range and Self Cleaning Options	
	-1	White Light, 0 to 1000 NTU/FNU, no self cleaning U.S. EPA 180.1
	-2	Infrared, 0 to 1000 NTU/FNU, no self cleaning ISO 7027
	-3	White Light, 0 to 100 NTU/FNU, with ultrasonic auto self cleaning U.S. EPA 180.1
	-4	Infrared, 0 to 100 NTU/FNU with ultrasonic auto self cleaning ISO 7027
	-5	White Light, 0 to 1000 NTU/FNU, with ultrasonic auto self cleaning U.S. EPA 180.1
	-6	Infrared, 0 to 1000 NTU/FNU with ultrasonic auto self cleaning ISO 7027
3-4150	**-3**	**Example Part Number**

Mfr. Part No.	Code
3-4150-1	**159 001 596**
3-4150-2	**159 001 597**
3-4150-3	**159 001 598**

Mfr. Part No.	Code
3-4150-4	**159 001 599**
3-4150-5	**159 001 600**
3-4150-6	**159 001 601**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3822-4001	**159 001 585**	Calibration kit, turbidity, 100, 10 & 0.02 NTU/FNU
3822-4003	**159 001 586**	Calibration kit, turbidity, 1000, 10 & 0.02 NTU/FNU
3-4150.380	**159 001 588**	Replacement desiccant
3822-4002	**159 001 591**	Formazin stock kit
3822-4000	**159 001 592**	Formazin stock solution, 4000 NTU/FNU, 500 ml
4150-0007	**159 001 602**	Replacement cuvette set (3 glass cuvettes)
4150-0004	**159 001 589**	Replacement cuvette with ultrasonic transducer
3-4150.386	**159 001 652**	O-ring kit for cuvette

Signet 2724-2726 pH and ORP Electrodes

Compatible with ALL Signet pH/ORP Instruments

Flat Glass

Protected Bulb

Description

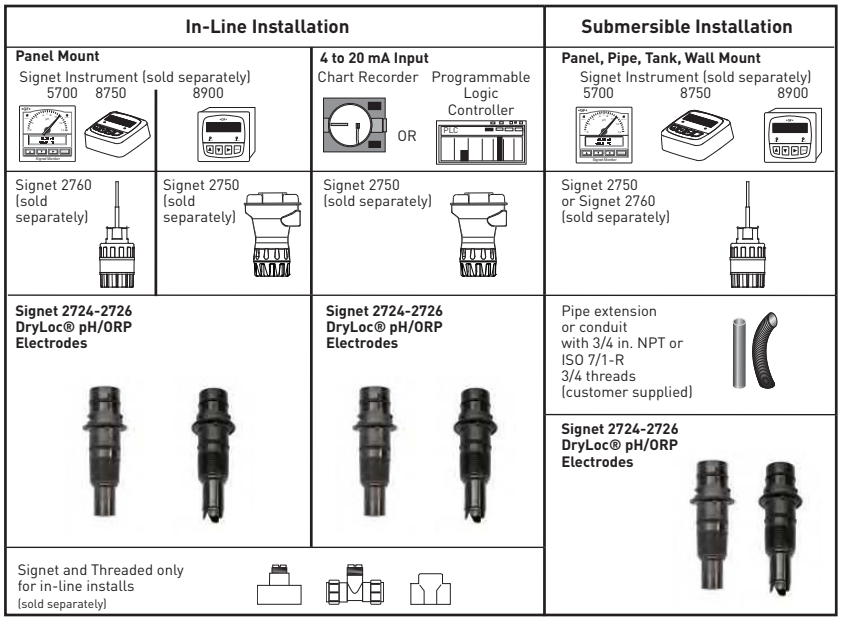
The Signet 2724-2726 pH and ORP Electrodes features a patented reference electrode design and uses the unique foul-proof patented DryLoc® connector. The large area PE reference junction and pathway is constructed to increase the total reference effectiveness and ensures long service life.

The DryLoc® connector with corrosion resistant gold plated contacts readily connects the sensor to the mating 2760 preamplifier or the 2750 sensor electronics. The robust Ryton® threaded sensor body and choice of flat pH, bulb pH, or flat ORP sensing elements provides broad range of chemical compatibility for a wide variety of applications.

There are two optional pH sensing versions available, HF and LC. The HF version is for applications where traces of hydrofluoric acid (2% or less) will attack standard pH glass in levels of pH 6 and below. The LC version can be used for low conductivity fluids (20 - 100 µS/cm recommended).

The quick temperature response is available in either a PT1000 or 3 KΩ temperature sensor and allows compatibility with all Signet pH/ORP instruments. The 2724-2726 electrodes are general-purpose sensors ideal for a wide range of applications. The sensors incorporate ¾" NPT or ISO 7/1-R 3/4 threads for installing into standard pipe-tees. They can also be mounted directly into Signet standard fittings, ½ to 4 inch.

System Overview



Ryton (PPS) is a registered trademark of Chevron Phillips Chemical Co. LLC
Go to www.cpchem.com for more information on Ryton

Features

- **Patented DryLoc® connector with gold plated contacts**
- **Mounts in Signet standard fittings from DN15 to DN100 (½ to 4 in.)**
- **¾" NPT or ISO 7/1-R 3/4 threaded sensors for use with reducing tees up to 4 in.**
- **Special design allows for installation at any angle, even inverted**
- **Ryton® (PPS) body for broad range of chemical compatibility**
- **Patented* reference design for exceptional performance**
- **Quick temperature response**
- **HF resistant glass available for trace HF of ≤2%**
- **Optional Low conductivity sensor for liquids down to 20 µS/cm**

Applications

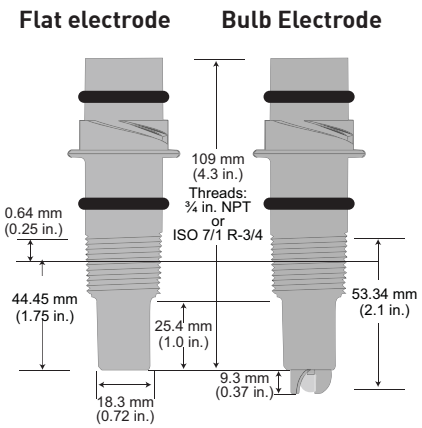
- **Water & Wastewater Treatment**
- **Neutralisation Systems**
- **Effluent Monitoring**
- **Sanitisation Systems**
- **Pool & Spa Control**
- **Aquatic Animal Life Support Systems**
- **Process Control**
- **Cooling Towers**

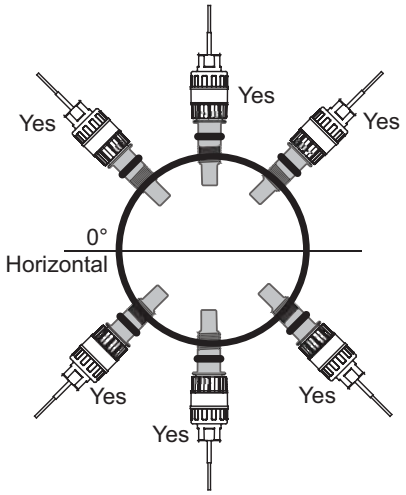
See Technical Reference section for assistance in choosing the correct sensor.

U.S. Patent No.: 6,666,701

*Patents pending

Dimensions





Mounting Angle
Models 2724-2726 may be mounted at any angle without affecting the performance. Avoid locations with air pockets and sediment.

Specifications

General
Performance
- Efficiency: ›97% @ 25 °C (77 ° F)

Operating Range:
- pH: 0 to 14 pH
- ORP: ±2000 mV
- 3-2726-LC: Low Conductivity fluids; 20 - 100 µS/cm recommended
- 3-2726-HF: Hydrofluoric acid resist glass, pH 6 or below; trace HF ‹2%

Compatibility:
2750 Electronics, 2760 Preamplifier
pH Temperature Sensor:
- PT1000 versions are compatible with Signet 2750 pH/ORP Sensor electronics for connection to a PLC or to the Signet 8900 Multi-Parameter Controller.
- 3 KΩ Balco versions are compatible with the Signet 2760 pH/ORP preamplifier for connection to the Signet 5700 pH/ORP Monitor and the Signet 8750 pH/ORP Transmitter.

Process Connection:
- ¾ in. NPT
- ISO 7/1-R 3/4
- Mounts into Signet fittings

Wetted Materials
- pH: Ryton® (PPS), glass, UHMW PE, FPM
- ORP: Ryton® (PPS), glass, UHMW PE, FPM, Platinum

Max. Temperature/Pressure Rating
Operating Temperature Range:*
-10 °C to 85 °C (14 °F to 185 °F)
Operating Pressure Range:
-10 °C to 65 °C (14 °F to 149 °F):
0 to 100 psi
65 °C to 85 °C (149 °F to 185 °F),
linearity derated 100 psi to 58 psi

*Best performance for 2726-HF sensors is above 10 °C (50 °F)

See Temperature and Pressure Graphs for more information for more information

Recommended Storage Temperature
The best storage temperature for the 272X pH and ORP electrodes is 0 °C to 50 °C (32 °F to 122 °F)
- The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F)
- The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F)

Mounting
In-line Mounting:
- Use the sensor threads
- Use a Signet standard fitting up to 4 in.
- Sensor can be mounted at any angle

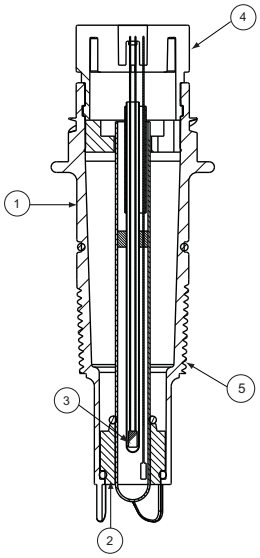
Submersible Mounting:
- Use threads on models 2750 or 2760
- Requires ¾ inch NPT or ISO 7/1-R 3/4 male threaded liquid tight extension conduit.

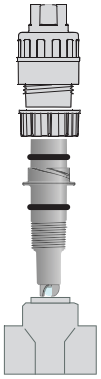
Shipping Weight 0.25 kg 0.55 lb

Standards and Approvals
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Electrode Key Features and Benefits:

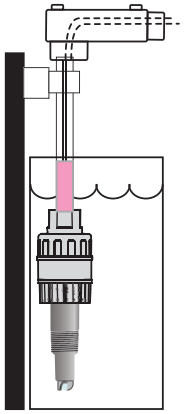
1. Ryton® body for chemical compatibility with most harsh chemicals.
2. Porous UHMW PE (ultra high molecular weight polyethylene) junction resists fouling and build-up.
3. Internal temperature sensor located in the glass stem for a quick temperature response.
4. DryLoc® connector with corrosion resistant gold pins for quick and easy sensor removal.
   - Resists moisture and dirt intrusion.
5. Threads for NPT or ISO process connection into reducing tees
   - Use off-the-shelf GF reducing tees DN20 to DN100 (¾ to 4 in.).
6. Mounts directly into Signet fittings (½ in. 4 in.) for easy sensor retrofitting.
7. Mount submersed into a tank via the 2750 or 2760 back threads.





5 Sensor in threaded reducing tee

6 Sensor in Signet fitting



7 Sensor submersible installation

Accessories

Buffer Solutions

The Signet pH buffers are ideal for routine calibration requirements. The liquid solutions are conveniently packaged in one pint (473 ml) bottles. pH buffer kits in powder pillows are available for mixing fresh solutions with water at the time of use.

All pH buffers are colour coded for easy identification; 4.01 pH is red, 7.00 pH is yellow, and 10.00 pH is blue.
All pH buffers are traceable to NIST standards.
These buffer solutions can be used to calibrate ORP sensors when saturated with quinhydrone.

Model 2724-2726
Ordering Notes

1) pH and ORP electrodes require connection to model 2750 sensor electronics or 2760 preamplifier.
2) Use the flat glass electrodes when a self-cleaning feature is desired; especially useful in applications with abrasive chemicals.
3) Use bulb protected electrodes for general purpose applications.
4) ORP electrodes are generally used for chemical reaction monitoring, not control.
5) The 2750 "EasyCal" feature recognises common pH and ORP buffer values of 4, 7 and 10 pH and 87 and 264 mV for ORP.

Application Tips

- 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.
- Ensure that sensor materials are chemically compatible with the process liquid.
- Keep electrode tip wet, avoid air pockets and sediment.

Ordering Information

pH Electrodes			
3-2724	Flat glass pH		
3-2726	Bulb glass pH		
3-2726-HF	Bulb glass pH, HF resistant ≤2% HF		
3-2726-LC	Bulb glass pH, Low conductivity applications, 20 - 100 µS/cm recommended		
↓	Temperature Element - Choose One		
↓	**-0**	PT1000; use with 2750 sensor electronics*	
↓	**-1**	3 KΩ Balco; use with 2760 preamplifier**	
↓	↓	Threaded Process Connection	
↓	↓	**0**	¾ in. MNPT, Thread
↓	↓	**1**	ISO 7/1-R 3/4 Thread
3-2726	**-1**	**1**	**Example Part Number**
ORP Electrodes			
3-2725-6	Flat ORP with 10 k Ohm ID Resistor		
↓	Threaded Process Connection		
↓	**0**	¾ in. MNPT, Thread	
↓	**1**	ISO 7/1-R 3/4 Thread	
3-2725-6	**0**	**Example Part Number**	

*The 2750 sensor electronics has a digital (S^3L) output which is used with the 8900 Controller. It also has a 4 to 20 mA output for connections to PLC's, data recorders, etc.

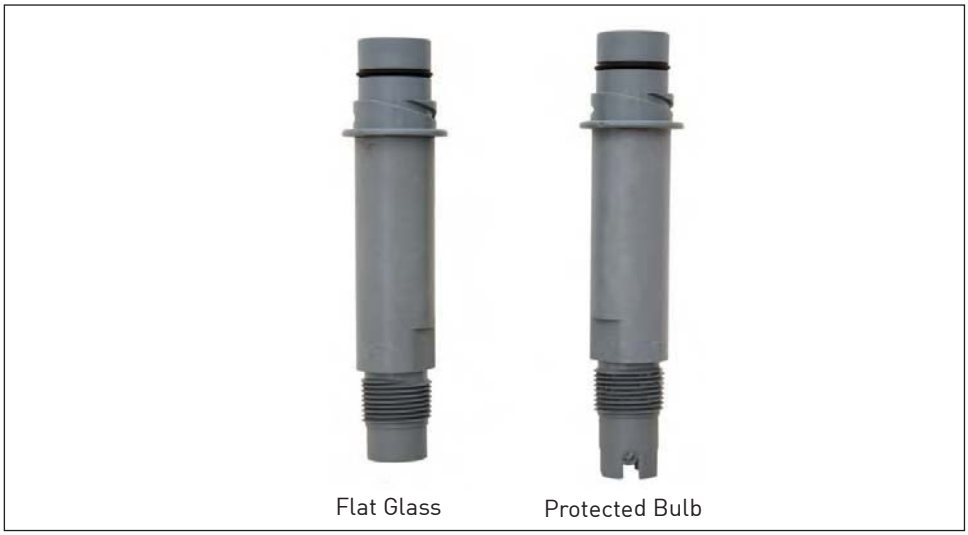
**The 2760 preamplifier is used for connection directly to Signet 5700 Monitor or 8750 transmitter.

Mfr. Part No.	Code	Mfr. Part No.	Code	Mfr. Part No.	Code
3-2724-00	**159 001 545**	3-2726-10	**159 001 555**	3-2726-LC-00	**159 001 557**
3-2724-01	**159 001 546**	3-2726-11	**159 001 556**	3-2726-LC-01	**159 001 558**
3-2724-10	**159 001 547**	3-2726-HF-00	**159 001 549**	3-2726-LC-10	**159 001 559**
3-2724-11	**159 001 548**	3-2726-HF-01	**159 001 550**	3-2726-LC-11	**159 001 560**
3-2726-00	**159 001 553**	3-2726-HF-10	**159 001 551**	3-2725-60	**159 001 561**
3-2726-01	**159 001 554**	3-2726-HF-11	**159 001 552**	3-2725-61	**159 001 562**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2700.395	**159 001 605**	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint pH 7.00
3822-7115	**159 001 606**	20 gm bottle Quinhydrone for ORP calibration (must use pH 4.01 and/or pH 7.00 buffer solutions)
3-2759	**159 000 762**	pH/ORP System Tester (adapter cable sold separately)
3-2759.391	**159 000 764**	2759 DryLoc® Adapter Cable (for use with 2750 and 2760)
3-0700.390	**198 864 403**	pH Buffer Kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3822-7004	**159 001 581**	pH 4.01 buffer solution, 1 pint (473 ml) bottle
3822-7007	**159 001 582**	pH 7.00 buffer solution, 1 pint (473 ml) bottle
3822-7010	**159 001 583**	pH 10.00 buffer solution, 1 pint (473 ml) bottle

Signet 2774-2777 DryLoc® pH/ORP Electrodes



Description

The Signet 2774 - 2777 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 preamplifiers, sensor electronics, and connectors. These dependable and highly responsive electrodes feature a PTFE double reference junction with KNO_3 in the front chamber to block various poisoning ions such as Copper (CU^{++}), Lead (Pb^{++}), Mercury (Hg^{++}), and a large reference chamber that combine to extend the service-life. Embedded positioning of the temperature element in the pH sensing tip allows, the temperature response to be quick and accurate. The electrodes are offered with either flat or bulb style sensing elements. The flat versions allow sediment and particles to sweep past the measurement surface, minimizing risks of abrasion, breakage and coating. The bulb versions can be used for general-purpose applications. Due to the specially designed chambers which keep electrolyte in place, all versions can be installed at any angle, even inverted.

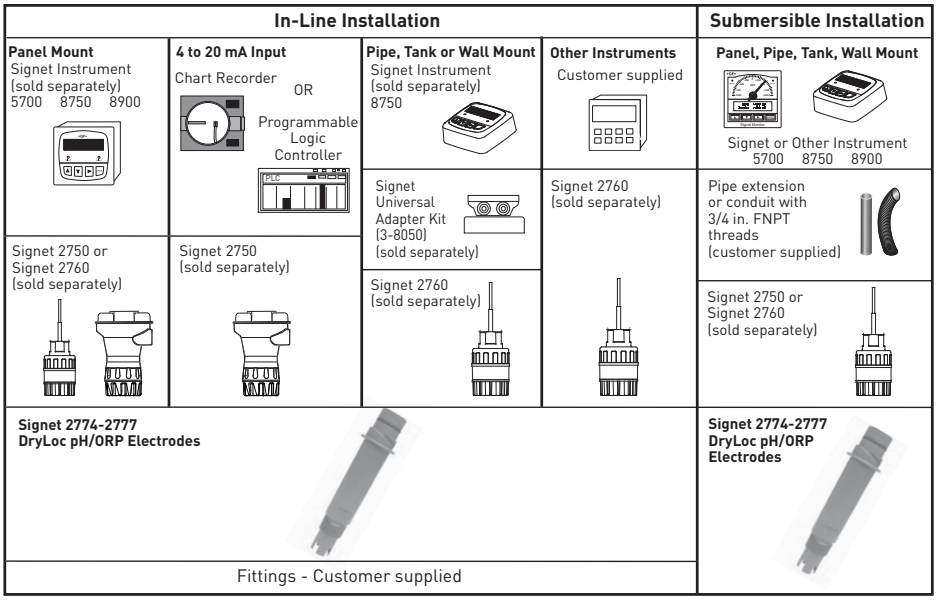
Features

- **Durable DryLoc® connector with gold plated contacts**
- **Special design allows for installation at any angle, even inverted**
- **Quick temperature response**
- **Easy sensor replacement using DryLoc® electrode connector**
- **High temperature versions available**
- **Mounts into standard ¾ inch threads**
- **Compatible with all Signet pH/ORP instruments**

Applications

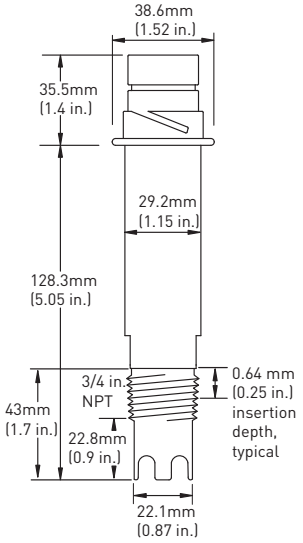
- **Water Treatment & Water Quality Monitoring**
- **Demineraliser, Regeneration & Rinse**
- **Cooling Tower and Boiler Protection**
- **Aquatic Animal Life Support Systems**
- **Pool and Spa Control**
- **Neutralisation Systems**

System Overview

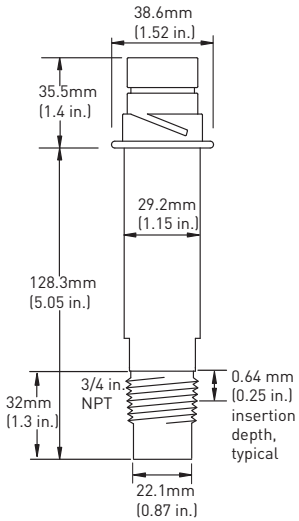


See Technical Reference section for assistance in choosing the correct sensor.

Dimensions



Bulb Electrode



Flat Electrode

Specifications

General

Compatibility:
Signet Models 2750 and 2760

Operating Range:
- 2774/2776: 0 to 14 pH
- 2775/2777: +/-2000 mV (ORP)

Process Connection: ¾ in., for use in reducing tees up to 4 in

Reference:

Electrolyte:
KNO_3/KCl acrylamide gel

Element: Ag/AgCl

Primary Functions:
- 2774 and 2775:
  Flat surface resists fouling
- 2776 and 2777:
  Bulb surface for general use

Wetted Materials
- Body: Ryton®
- Reference junctions: PTFE
- Sensing surface:
  Glass membrane: (pH)
  Platinum: (ORP)
- O-rings: FPM

Max. Temperature/Pressure Rating

Operating Temperature:
0 °C to 85 °C (32 °F to 185 °F)

Maximum Operating Pressure:
6.9 bar (100 psi)

Storage Temperature:
> 0°C (32 °F)

Higher temperature and pressure sensors are available.

Recommended Storage Temperature

The best storage temperature for the 272X pH and ORP electrodes is 0 °C to 50 °C (32 °F to 122 °F)
- The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F)
- The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F)

Mounting
- In-line/vertical mounting: Use the electrodes ¾ inch threads to install into pipe fitting. Electrode can be mounted at any angle.
- Submersible mounting: Use threads on Model 2750 or 2760; requires ¾ inch NPT or ISO 7/1-R 3/4 male threaded extension.

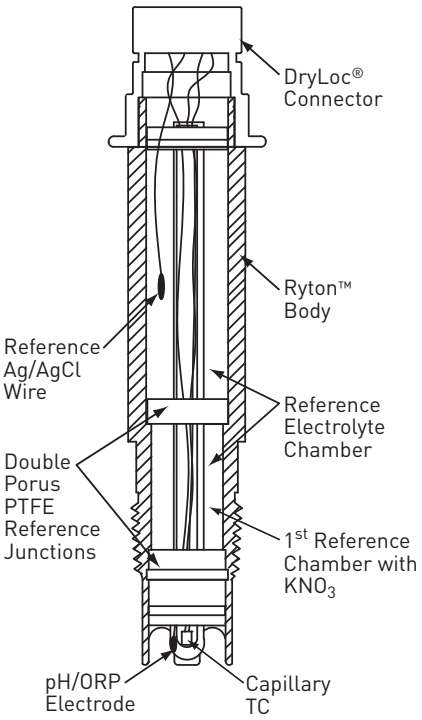
Temperature Sensor:
- pH: 3 KΩ or PT1000 RTD
- ORP: none

Shipping Weight 0.25 kg 0.55 lb

Standards and Approvals
- Manufactured under ISO 9001 for Quality

Electrode Key Features and Benefits:

- Ryton® body for chemical compatibility to most harsh chemicals. Also able to withstand high temperatures.
- Porous PTFE reference junctions are highly chemically resistant; resists fouling and dirt buildup.
- First reference chamber with KNO_3 protects Ag/AgCl wire for a prolonged sensor life.
- Capillary TC (temperature sensor) embedded in tip of pH electrode for quicker temperature response than most other electrodes on the market.
- DryLoc® connector with corrosion resistant gold pins for quick and easy sensor removal.



Electrode Cut-Away View

Model 2774-2777
Ordering Notes

1) pH and ORP sensors require connection to model 2750 or 2760.
2) Conduit and mounting brackets for submersible installation must always be used (customer supplied).
3) All of these sensors can be installed upside-down.
4) Special order options may have longer delivery time. Consult your local Georg Fischer sales representative for lead times.

Application Tips

- Use the flat glass electrodes for in-line pH sensor applications 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.
- Ensure that sensor materials are chemically compatible with the process liquid.
- Keep electrode tip wet, avoid air pockets and sediment.

Ordering Information

Electrode Part Number- Choose Either a pH or ORP Electrode		
pH Electrodes		
3-2774	Flat pH surface electrode	
3-2776	Bulb pH electrode with bulb protection	
	Temperature Element - Choose One	
	-	3K Ohm RTD for pH for connection to 8750 or 5700 instruments when used with the 2760 preamplifier**
	-1	PT1000 RTD for pH for connection to the 8900 when used with the 2750 sensor electronics*
		Special Order Options for pH Electrodes - Options -HT and -C can only be used with the 3-2721 Preamplifier. (These options cannot be used with the 2750 or 2760)
		-HT For high temperature and high pressure applications, up to 110 °C (230 °F) @ 150 psig; DryLoc® connector is removed and replaced with a 4.6 m (15 ft) cable.
		-C Remove DryLoc® connector and add 4.6m (15 ft) cable. Other cable lengths are available
		-ISO ISO 7/1-R 3/4 Threaded electrodes are available.
ORP Electrodes		
3-2775	Flat ORP surface electrode	
3-2777	Bulb ORP electrode with bulb protection	
	Temperature Element - Choose One	
	-	10 K ID resistor for ORP electrodes for connection to the 8750 and 5700 when used with the 2760 preamplifier or the 8900 when used with the 2750 sensor electronics
	-1	No T.C. for ORP electrodes for use with other suppliers instruments when used with the 2760 connector
		Special Order Options for ORP Electrodes - Options -HT and -C can only be used with the 3-2721 Preamplifier (These options cannot be used with the 2750 or 2760
		-HT For high temperature and high pressure applications, up to 110 °C (230 °F) @ 150 psig; DryLoc® connector is removed and replaced with a 4.6 m (15 ft) cable.
		-C Remove DryLoc® connector and add 4.6 m (15 ft) cable. Other cable lengths are available
		-ISO ISO 7/1-R 3/4 Threaded electrodes are available.
3-2775		**Example Part Number**

*The 2750 sensor electronics has a digital (S^3L) output which is used with the 8900 Controller.
It also has a 4 to 20 mA output for connections to PLC's, data recorders, etc.

**The 2760 preamplifier is used for connection directly to Signet 5700 Monitor or 8750 transmitter.

Mfr. Part No.	Code	Mfr. Part No.	Code
3-2774	**159 000 955**	3-2776	**159 000 959**
3-2774-1	**159 000 956**	3-2776-1	**159 000 960**
3-2775	**159 000 957**	3-2777	**159 000 961**
3-2775-1	**159 000 958**	3-2777-1	**159 000 962**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2700.395	**159 001 605**	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint pH 7.00
3822-7115	**159 001 606**	20 gm bottle Quinhydrone for ORP calibration (must use pH 4.01 and/or pH 7.00 buffer solutions)
3-0700.390	**198 864 403**	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3822-7004	**159 001 581**	pH 4 buffer solution, 1 pint (473 ml) bottle
3822-7007	**159 001 582**	pH 7 buffer solution, 1 pint (473 ml) bottle
3822-7010	**159 001 583**	pH 10 buffer solution, 1 pint (473 ml) bottle
3-2759	**159 000 762**	pH/ORP system tester
3-2759.391	**159 000 764**	Adapter cable for use with 2750/2760
3-2721	**198 864 610**	Remote mount pH/ORP preamplifier

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

Signet 2764-2767 Differential DryLoc® pH/ORP Electrodes

Description

The Signet 2764-2767 Differential pH & ORP electrodes are built with the DryLoc® connector, a Ryton® body, and PTFE reference junction to handle the most extreme and harshest of chemical applications.

These differential electrodes use a field-proven 3-electrode differential technique: the pH and reference electrodes are measured against a ground electrode, insuring a steady and stable signal. A key feature is the reference electrode, which is housed in a glass half-cell embedded in the reference chamber and is protected from compounds that may contain sulfides (S_2^-) and metals. To ensure long service life, the reference features a refillable electrolyte chamber and a replaceable equitransferant salt bridge, both easily serviced in the field. The patented porous PTFE reference junction resists fouling, clogging and chemical attack.

Other elements of the design are the solution ground, the pH/ORP electrodes, and the temperature element. The solution ground eliminates noisy measurements by draining electrical current away from the reference electrode. The pH/ORP electrodes are designed with a flat or bulb measurement surface, and a temperature device that is positioned at the tip of the measurement surface, making the temperature response of $T_{95\%}$ less than 1 minute. Various temperature devices offered include 3 KΩ, 300 Ω, or PT1000 RTD.

The electrodes are used with the Signet 2750 Sensor Electronics, which provide a blind 4 to 20 mA output or use the digital (S^3L) output to connect the Signet 8900 Multi-Parameter Controller. The electrodes can also be used with the Model 2760 preamplifier to connect to the Signet 5700 or 8750.

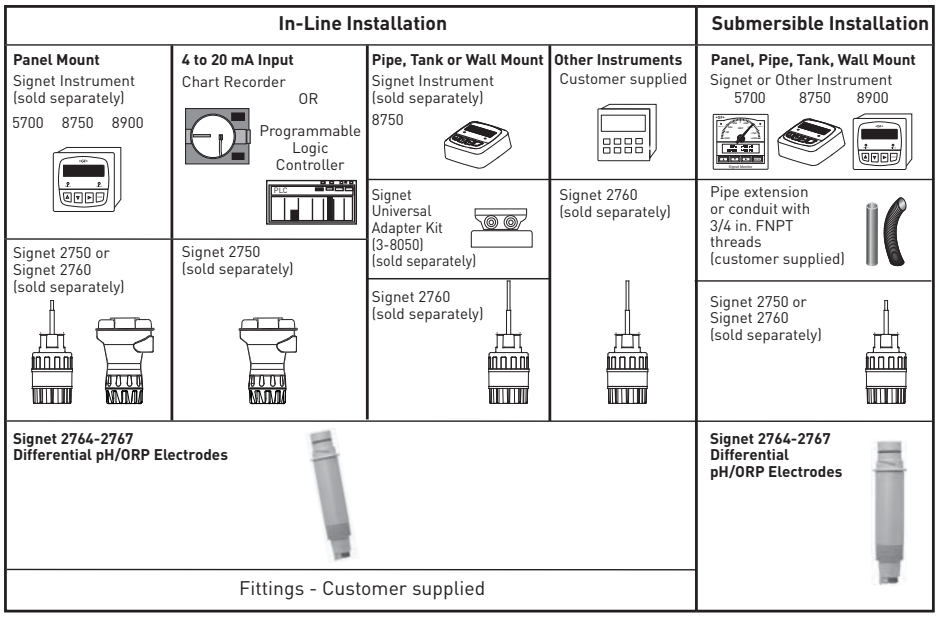
Features

- **Differential design for stable measurements in the most aggressive applications**
- **Long service life even in severe or difficult chemical applications**
- **Water-tight DryLoc® connector with foul-proof gold contacts**
- **Porous PTFE reference junction**
- **Rebuildable reference electrode**
- **Solution ground**
- **Temperature sensor (pH)**
- **Easy sensor replacement using DryLoc® electrode connector**
- **Quick temperature response**
- **Compatible with all pH/ORP and other suppliers' instruments**

Applications

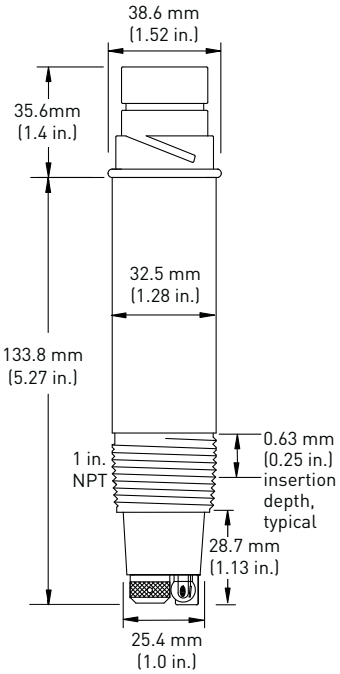
- **Water and Waste Water Treatment**
- **Coagulation and Flocculation**
- **Plant Effluent**
- **Plating Baths**
- **Scrubbers**
- **Textile Dye Process**
- **Harsh Chemical Applications**
- **Heavy metal Removal and Recovery**
- **Toxics Destruction**
- **Surface Finishing**

System Overview



See Technical Reference section for assistance in choosing the correct sensor.

Dimensions



Flat and Bulb versions have the same dimensions

Specifications

General
Compatibility: Signet 2750 and 2760
Operating Range:
- 2764/2766: 0 to 14 pH
- 2765/2767: +/-1500 mV (ORP)

Process Connection: 1 in., for use in reducing tees up to 4 in.

Wetted Materials
Body: Ryton®
Reference Junctions: PTFE
Sensing Surface:
- Glass membrane: (pH)
- Platinum: (ORP)

O-rings: FPM
Solution Ground: carbon graphite

Max. Temperature/Pressure Rating
Operating Temperature:
0 °C to 95 °C (32 °F to 203 °F)
Max. Operating Pressure:
6.89 bar (100 psi) @ 95 °C (203 °F)
Storage Temperature: > 0 °C (32 °F)

Recommended Storage Temperature
The best storage temperature for the 276X pH and ORP electrodes is 0 °C to 50 °C (32 °F to 122 °F)
- The electrode glass will shatter if shipped or stored at temperature below 0 °C (32 °F)
- The performance life of the electrode will shorten if stored at temperatures above 50 °C (122 °F)

Mounting
- In-line/vertical mounting: Use sensor 1 inch threads. Sensor must be mounted at least 15 degrees above the horizontal axis.
- Submersible mounting: Use threads on Model 2750 or 2760; requires ¾ inch NPT or ISO 7/1-R 3/4 inch male threaded extension.

Reference:
Electrolyte:
3.5 M KCl, solidified acrylamide gel
Element: Ag/AgCl
Temperature Sensor:
- pH: 3 KΩ, PT1000 RTD, or 300 Ω
- ORP: 10K ID Resistor, PT1000 RTD, or 300 Ω

Primary Functions:
- 2764 and 2765:
  Flat surface resists fouling
- 2766 and 2767:
  Bulb surface for general use

Shipping Weight 0.25 kg 0.55 lb

Standards & Approvals
- Manufactured under ISO 9001 for Quality

A Differential electrode solves many common problems typically experienced by standard pH/ORP electrodes at troublesome measuring points. See the table below to find the common problem, cause and effect, and the Differential pH/ORP electrode solution.

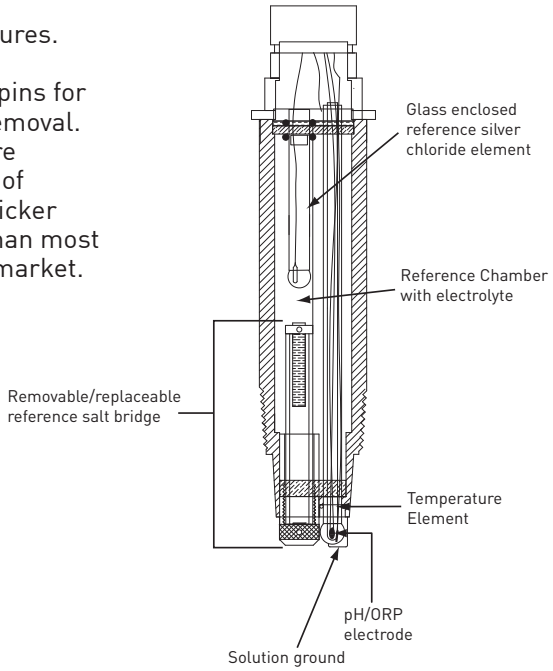
If the standard (Signet Models 272X or 277X) pH/ORP electrode experiences the following:	The cause and effect of the problem may be:	Use a Differential Electrode to solves the problem because:
*Reading slowly drifts over time *Sensor responds slowly	*Chemical attack from Hg^{++}, Cu^{+}, Pb^{++}, ClO_4^- or other compounds which dilute the KCl reference electrolyte concentration.	*Salt bridge will slow or stop attack. If attacking ions penetrate the salt bridge and affect the KCl, simply refill KCl solution
	*Reference junction gets clogged from oils, grease, and dirt from the process.	*Readings do not drift due to stable Differential reference design, however may require cleaning or replacement of the salt bridge if electrode gets too dirty.
*Reading slowly drifts over time *Sensor reading becomes erratic	*Chemical attack of the Ag+ reference billet from Br^-, I^-, CN^-, and S_2^- compounds.	*Will not affect electrode due to Ag^+ element protected in glass encased reference electrode.
	*Clogged reference and slowed reading from silver compounds forming on the inside of the reference electrode from Ag^+ of reference element reacting and precipitating AgS, AgBr, AgI, AgCN, or other silver compounds.	*Will not affect electrode due to Ag^+ element protected in glass encased reference electrode
*Reading suddenly jumps to a new value *Reading unexpectedly changes	*Stray electrical currents in the process liquid; Ag^+ reference element picks up current and shifts reference reading, resulting in shifted pH reading. The Ag^+ element will eventually become totally stripped. Process must be properly grounded or place metal rod close to electrode.	*Will not affect electrode due to Ag^+ element protected in glass encasement; also, electrode has a built in solution ground, so if there is a stray current, it will not be seen by the electrode

Ion	Ion name	Ion	Ion name	Compound	Compound name
Br^-	Bromide	Hg^{++}	Mercury	KCl	Potassium Chloride
Cu^+	Copper iron	ClO_4^-	Perchlorate	AgS	Silver sulfide
CN^-	Cyanide	Ag^+	Silver	AgBr	Silver bromide
I^-	Iodide	S_2^-	Sulfide	AgI	Silver iodide
Pb^{++}	Lead			AgCN	Silver cyanide

Electrode Key Features and Benefits:

- Glass encased reference electrode protects the Ag/AgCl (silver/silver chloride) element from reacting with certain chemical compounds that typically leach into the reference chambers. Keeps the pH/ORP reading stable.
- Large volume reference electrolyte chamber resists dilution over time for a long service life. Chamber is refillable. Holds approximately 30 ml of electrolyte
- Salt Bridge serves as a double reference junction and is the first line of defence to keep out process chemicals from the reference electrolyte chamber. It is built with a porous PTFE reference junction which is highly compatible to chemicals, resists fouling and build-up of dirt.
- Ryton® body for chemical compatibility to most harsh chemicals. Also able to withstand high temperatures.
- DryLoc® connector with corrosion resistant gold pins for quick and easy sensor removal.
- Capillary TC (temperature sensor) embedded in tip of pH/ORP electrode for quicker temperature response than most other electrodes on the market.

Electrode Cut-Away View



Application Tips

- 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.
- Ensure that sensor materials are chemically compatible with the process liquid.
- Keep electrode tip wet, avoid air pockets and sediment.

Model 2764-2767
Ordering Notes

1) pH and ORP electrodes require connection to model 2750 or 2760.
2) Conduit and mounting brackets for submersible installations must always be used (customer supplied)
3) Adapters from 1 - 1½ in. are available.
4) Use sensor threads for in-line mounting; Model 2750 or 2760 threads for submersible mounting.
5) Reference electrode can be rebuilt with replacement electrolyte and salt bridge.

Ordering Information

Electrode Part Number- Choose Either a pH or ORP Electrode		
pH Electrode		
3-2764	Flat pH surface differential electrode	
3-2766	Bulb pH differential electrode with bulb protection	
	Temperature Element - Choose One	
	-1	3K Ω for pH for connection to 8750 or 5700 instruments when used with the 2760 preamplifier**
	-2	PT1000 RTD for pH for use with the 8900 instrument when used with the 2750 sensor electronics*
	-3	300 Ω for connection to other instruments when used with the 2760 preamplifier or connector**
ORP Electrode		
3-2765	Flat ORP surface differential electrode	
3-2767	Bulb ORP differential electrode with bulb protection	
	Temperature Element - Choose One	
	-1	10 KΩ ID resistor for connection to 8750 or 5700 when used with the 2760 preamplifier or connection to the 8900 with the 2750 sensor electronics
	-2	PT1000 RTD for connection to other instruments using the 2760 preamplifier or connector
	-3	300 Ω for connection to other instruments using the 2760 preamplifier or connector**
3-2765	**-1**	**Example Part Number**

*The 2750 sensor electronics has a digital (S^3L) output which is used with the 8900 Controller. It also has a 4 to 20 mA output for connections to PLC's, data recorders, etc.

**The 2760 preamplifier is used for connection directly to Signet 5700 Monitor or 8750 transmitter.

Mfr. Part No.	Code
3-2764-1	**159 000 943**
3-2764-2	**159 000 944**
3-2764-3	**159 000 945**
3-2765-1	**159 000 946**
3-2765-2	**159 000 947**
3-2765-3	**159 000 948**

Mfr. Part No.	Code
3-2766-1	**159 000 949**
3-2766-2	**159 000 950**
3-2766-3	**159 000 951**
3-2767-1	**159 000 952**
3-2767-2	**159 000 953**
3-2767-3	**159 000 954**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2700.395	**159 001 605**	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint pH 7.00
3822-7115	**159 001 606**	20 gm bottle Quinhydrone for ORP calibration (must use pH 4.01 and/or pH 7.00 buffer solutions)
3864-0001	**159 001 007**	Replacement salt bridge
3864-0002	**159 001 008**	Replacement reference electrolyte solution, 500 mls
2120-0015	**159 001 009**	CPVC adapter: 1.5 in. MNPT to 1 in. FNPT
2122-0015	**159 001 010**	PVDF adapter: 1.5 in. MNPT to 1 in. FNPT
3-0700.390	**198 864 403**	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3822-7004	**159 001 581**	pH 4 buffer solution, 1 pint (473 ml) bottle
3822-7007	**159 001 582**	pH 7 buffer solution, 1 pint (473 ml) bottle
3822-7010	**159 001 583**	pH 10 buffer solution, 1 pint (473 ml) bottle
3-2759	**159 000 762**	pH/ORP system tester
3-2759.391	**159 000 764**	Adapter cable for use with 2750/2760

Signet 3719 pH/ORP Wet-Tap Assembly

3719 Assembly

Wet-Tap Electrode
(sold separately)

Description

The Signet 3719 pH/ORP Wet-Tap allows installation and removal of pH or ORP electrodes, even under process pressure, without the need for process shutdown during routine electrode maintenance and calibration. Automatic process isolation is achieved during electrode retraction with a double O-ring seal on a unique and compact retraction assembly; no separate valve is required. A patented cam-activated automatic locking mechanism, SafeLoc™, and the short stroke design help to assure operator safety. The wet-tap unit can be mounted at any angle and can be used with the Signet DryLoc® Wet-Tap electrodes.

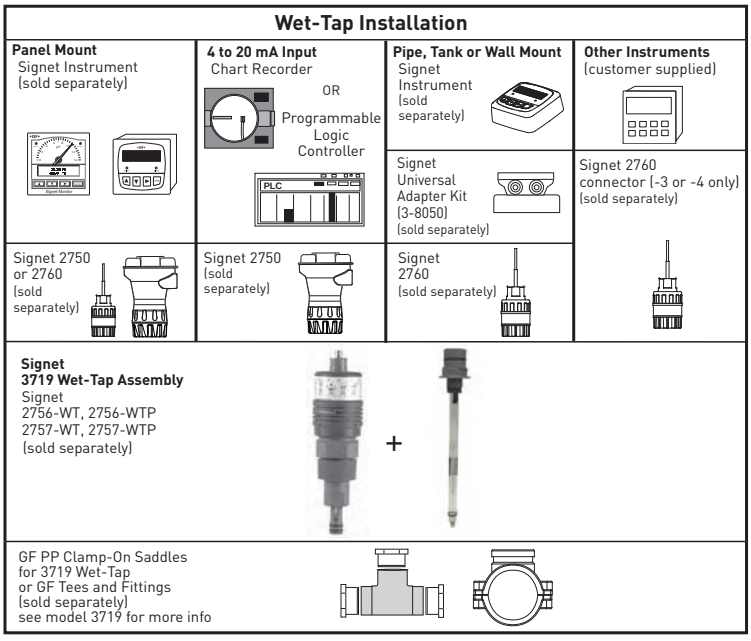
Features

- **Electrode removal without process shutdown**
- **Space saving 45 mm (1.75 in.) short-stroke design**
- **Sealed pneumatic dampening for smooth and safe operation**
- **SafeLoc™: Cam- activated automatic locking mechanism**
- **Protects electrode sensing surface from breakage**
- **Suitable for mounting in any orientation**
- **Process threaded connection NPT or ISO**
- **Low profile clamp-on saddle fittings for convenient installation in ASTM pipe sizes 2½ to 12 in.**

Applications

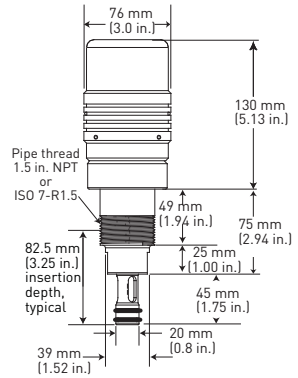
- **Aquatic Animal Life Support Systems**
- **Recreational Water Monitoring**
- **Water & Wastewater Treatment**
- **Effluent Monitoring**
- **Neutralisation Systems**
- **Sanitisation Systems**
- **Pool and Spa Control**

System Overview

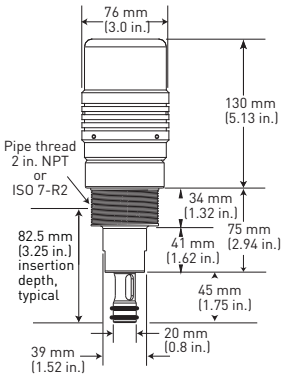


Dimensions

3719-1X
For pipe sizes up to 4 in.



3719-2X
For pipe sizes 6 to 12 in.



Model 3719
Ordering Information

1) Use a mounting saddle or a standard threaded part to mount Wet-Tap assembly.
2) ASTM fittings are available to order; metric fittings are customer supplied.
3) Use -11 or -12 versions for pipe sizes up to 4 in.
4) Use -21 or -22 versions for pipe sizes 6 to 12 inches.

Specifications

3719 Wet-Tap
General
Compatible DryLoc® Electrodes:
- 2756-WT, 2756-WT-1 (glass)
- 2756-WTP, 2756-WTP-1 (plastic)
- 2757-WT (glass)
- 2757-WTP (plastic)

Process Connection:
- 3719-11: NPT 1½ in.
- 3719-21: NPT 2 in.
- 3719-12: ISO 7/1 - R 1.5
- 3719-22: ISO 7/1 - R 2

Maximum Flow Velocity: 3 m/s (10 ft/s)

Materials
- Retraction Housing (Wetted): CPVC
- O-rings (Wetted): FPM
- Locking Shroud: PVC
- Hardware: 316 stainless steel

Low Profile Clamp-on Saddle Fittings
Materials
- Saddle body (Wetted): Polypropylene (Grade 8, ASTM D2565, 1-8, UV stabilized)
- Gasket (Wetted): FPM
- Saddle Hardware: 316 stainless steel
- Reinforcement Ring: 430 stainless steel
- Size range: 2½ to 12 in. (ASTM)

Max. Temperature/Pressure Rating
Operating Pressure:
100 psi (6.9 bar) maximum
Operating Temperature:

See Temperature/Pressure graphs for more information

Shipping Weight 1.2 kg 2.7 lb

Standards/Approvals
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Wet-Tap Part Number		
3-3719	Wet-Tap Assembly	
	Mounting Options - Choose one	
	-11	1½ inch NPT process threads for 2½ to 4 in. pipes
	-12	ISO 7/1-R 1.5 process threads for 2½ to 4 in. pipes
	-21	2 inch NPT process threads for 6 to 12 in. pipes
	-22	ISO 7/1-R 2 process threads for 6 to 12 in. pipes
	↓	
3-3719	**-11**	**Example Part Number**

Mfr. Part No.	Code	Mfr. Part No.	Code
3-3719-11	**159 000 804**	3-3719-21	**159 000 805**
3-3719-12	**159 000 806**	3-3719-22	**159 000 807**

Specifications

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

General

Compatibility:
Signet 3719 Wet-Tap Assembly, 2750 sensor electronics or 2760 preamplifier

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

Connector (CPVC): DryLoc®

Temperature Sensor (pH):
PT1000 or 3K Balco for pH
Response time, τ : 438 secs.

Reference junctions: Porous PTFE
- Electrolyte: 3.5M KCl
- Elements: Ag/AgCl

Performance
- Efficiency: > 97% @ 25 °C (77 °F)

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

Impedance (pH): < 150 MΩ @ 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)

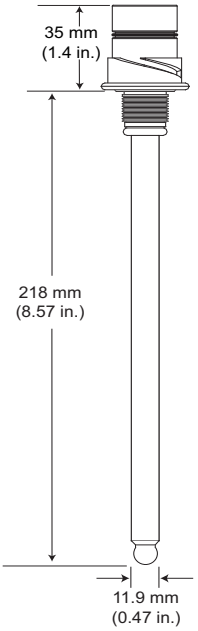
Mounting:
Any angle is acceptable. Use with 3719 wet-tap assembly for mounting electrodes.

Shipping Weight 0.2 kg 0.4 lb

Standards and Approvals
- Manufactured under ISO 9001 for Quality

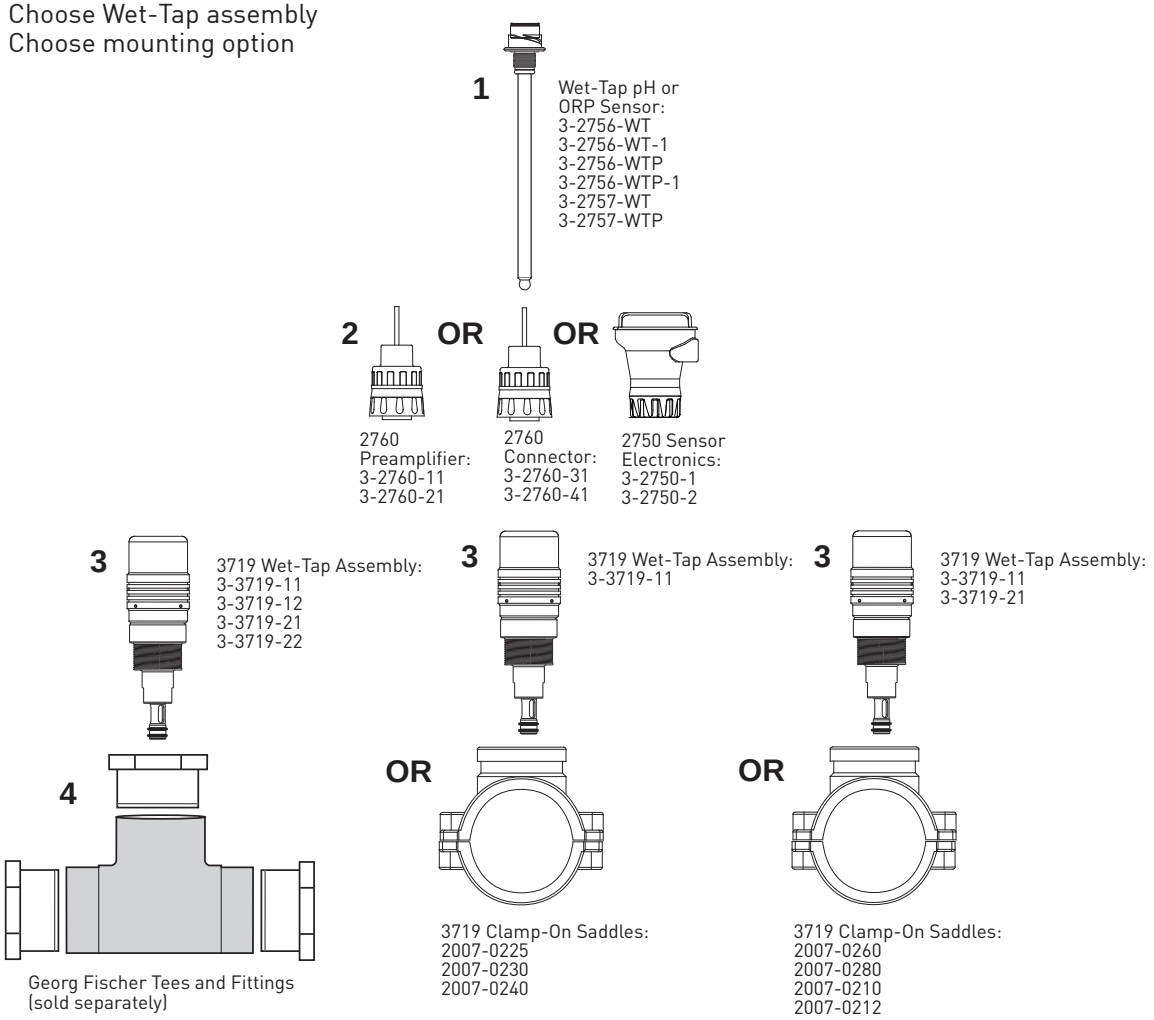
Dimensions

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



Product selection Guide:

Step 1 - Choose Sensor
Step 2 - Choose preamplifier or sensor electronics
Step 3 - Choose Wet-Tap assembly
Step 4 - Choose mounting option



Model 2756-2757
Ordering Notes

1) pH and ORP electrodes require connection to model 2750-1 or -2 or 2760-X1.

Ordering Information

Wet-Tap Assembly Compatible Electrodes	
3-2756-WT	DryLoc® pH (glass) Electrode (Used with 2750 sensor electronics) - PT1000
3-2756-WT-1	DryLoc® pH (glass) Electrode (Used with 2760 Preamplifier) - 3 KΩ
3-2757-WT	DryLoc® ORP (glass) Electrode (Used with 2750 sensor electronics or 2760 preamplifier)
3-2756-WTP	DryLoc® pH (plastic) Electrode (Used with 2750 sensor electronics) - PT1000
3-2756-WTP-1	DryLoc® pH (plastic) Electrode (Used with 2760 Preamplifier) - 3 KΩ
3-2757-WTP	DryLoc® ORP (plastic) Electrode (Used with 2750 sensor electronics or 2760 preamplifier)

*The 2750 sensor electronics has a digital (S^3L) output which is used with the 8900 Controller.
It also has a 4 to 20 mA output for connections to PLC's, data recorders, etc.

**The 2760 preamplifier is used for connection directly to Signet 5700 Monitor or 8750 transmitter.

Mfr. Part No.	Code	Mfr. Part No.	Code
3-2756-WT	**159 000 834**	3-2756-WTP-1	**159 001 384**
3-2756-WT-1	**159 001 383**	3-2757-WT	**159 000 835**
3-2756-WTP	**159 001 390**	3-2757-WTP	**159 001 391**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2700.395	**159 001 605**	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint pH 7.00
3822-7115	**159 001 606**	20 gm bottle Quinhydrone for ORP calibration (must use pH 4.01 and/or pH 7.00 buffer solutions)
Mounting Saddles		
2007-0225	**159 000 812**	PP Clamp-on Saddle, 2.5 x 1.5 in. (ASTM, NPT)
2007-0230	**159 000 813**	PP Clamp-on Saddle, 3 x 1.5 in. (ASTM, NPT)
2007-0240	**159 000 814**	PP Clamp-on Saddle, 4 x 1.5 in. (ASTM, NPT)
2007-0260	**159 000 815**	PP Clamp-on Saddle, 6 x 2 in. (ASTM, NPT)
2007-0280	**159 000 816**	PP Clamp-on Saddle, 8 x 2 in. (ASTM, NPT)
2007-0210	**159 000 817**	PP Clamp-on Saddle, 10 x 2 in. (ASTM, NPT)
2007-0212	**159 000 818**	PP Clamp-on Saddle, 12 x 2 in. (ASTM, NPT)
Other		
1220-0114	**159 000 854**	3719 O-ring, FPM (spare part)
1224-0205	**159 000 836**	O-ring, EPR (EPDM)
3-3719.390	**159 000 855**	3719 Locking Shroud (spare part)
3-0700.390	**198 864 403**	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3822-7004	**159 001 581**	pH 4 buffer solution, 1 pint (473 ml) bottle
3822-7007	**159 001 582**	pH 7 buffer solution, 1 pint (473 ml) bottle
3822-7010	**159 001 583**	pH 10 buffer solution, 1 pint (473 ml) bottle

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

Signet 2750 DryLoc® pH/ORP Sensor Electronics

For Signet fittings up to 4 in. and wet tap assemblies.

In-line 2750

Submersible 2750

In-line when electrode has ¾ in. or 1 in. process connection

DryLoc® Electrodes sold separately.

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**

Description

The Signet 2750 pH/ORP Sensor Electronics featuring the DryLoc® connector, provides a variety of functions to suit various requirements.

The 2750 has a preamplified signal and features two different outputs: a two-wire 4 to 20 mA loop output with EasyCal function or a digital (S^3L) output which allows for longer cable lengths and is compatible with the Signet 8900 Multi-Parameter Controller.
The 2750 self-configures 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 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 the submersible 2750.

The 2750 submersible preamplifier can also be used as an In-line preamplifier when used with the 3/4" or 1" threaded sensors including the 2724, 2774 and 2764 series electrodes. The 2750 In-line preamplifier can be used with Signet fittings up to DN100 (4 in.) and wet-tap assemblies.

Applications

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

CE

System Overview

<table>
<tr><th colspan="3">In-Line Installation</th><th>Submersible Installation</th><th>Wet-Tap Installation</th></tr>
<tr>
<td>Panel Mount
Signet 8900 Multi-Parameter Controller (sold separately)</td>
<td colspan="2">4 to 20 mA Input
Chart Recorder OR Programmable Logic Controller</td>
<td>Panel Mount
Signet 8900 Multi-Parameter Controller (sold separately)</td>
<td>4 to 20 mA Input
Chart Recorder OR Programmable Logic Controller</td>
</tr>
<tr>
<td>Signet 2750 Sensor Electronics</td>
<td>Signet Universal junction box (3-8050-2) EasyCal (sold separately)
Signet 2750 Sensor Electronics</td>
<td>Signet 2750 Sensor Electronics</td>
<td>Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads (customer supplied)</td>
<td>Signet 2750 Sensor Electronics with Signet Wet-Tap Electrode 2756, 2757 (each sold separately)</td>
</tr>
<tr>
<td colspan="3">DryLoc® pH/ORP Electrodes 2724-2726, 2764-2767, 2774-2777 (sold separately)</td>
<td>Signet 2750 Sensor Electronics</td>
<td>Signet 3719 Wet-Tap (sold separately)</td>
</tr>
<tr>
<td colspan="3">2724-2726 DryLoc® Electrodes: Use GF Fittings* or 3/4 in. NPT fittings (customer supplied)
2764-2767 and 2774-2777 DryLoc® Electrodes: Use 3/4 in. or 1 in. NPT fittings (customer supplied)</td>
<td>DryLoc® pH/ORP Electrodes 2724-2726, 2764-2767, 2774-2777 (sold separately)</td>
<td>GF PP Clamp-On Saddles for 3719 Wet-Tap or GF Tees and Fittings (sold separately) see model 3719 for more info</td>
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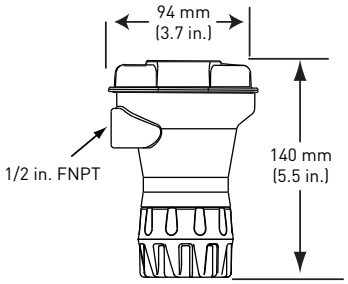
</table>

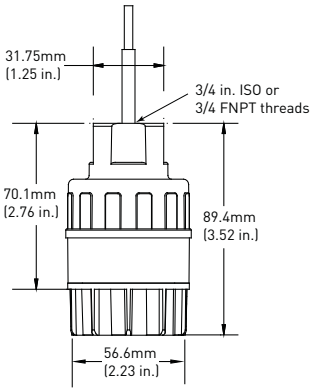
*See Fittings section for more information.

Dimensions

3-2750-1,-2



3-2750-3, -4



Specifications

General

Compatible Electrodes:
Signet DryLoc® pH and ORP Electrodes Models 2724-2726, 2756-2757 Wet-Tap, 2764-2767, 2774-2777,

Operating Range:
- pH: 0 to 14 pH
- ORP: ± 2,000 mV

Response Time:
- pH: < 6 sec. for 95% of change
- ORP: application dependent

Materials:
- In-line: Valox® (PBT)
- submersible: CPVC

Electrical

Cable:
4.6 m/15 ft, 3-conductor shielded 22 AWG, 100 ft max.

Power:
- 12 to 24 VDC ±10%, regulated for 4 to 20 mA output
- 5 to 6.5 VDC ±5% regulated recommended, 3 mA max., for digital (S^3L) output

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

Digital (S^3L) output:
- 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: 1 mV
  Temp.: ≤ 0.2 °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:
- 3-2750-1 & -2: NEMA 4X/IP65 with electrode connected
- 3-2750-3 & -4: NEMA 6P/IP68 with electrode and watertight conduit and/or extension pipe connected

Max. Temperature/Pressure Rating

Operating Temperature:
- 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)

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: 0.75 kg 1.65 lb
- 2750-3 & -4: 0.64 kg 1.41 lb

Standards and Approvals
- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

2750 Product Selection Guide

1. Choose the Electrode

2724-2726	2764-2767 Differential	2774-2777	2756 and 2757 Wet-Tap
3-2724-00, -01 3-2725-60, -61 3-2726-00, -01 3-2726-HF-00, -01 3-2726-LC-00, -01	3-2764-2 3-2765-1 3-2766-2 3-2767-1	3-2774-1 3-2775-1 3-2776-1 3-2777-1	3-2756-WT 3-2756-WTP 3-2757-WT 3-2757-WTP

2. Determine the mounting style:

	2724-2726		2764-2767 Differential		2774-2777		2756 and 2757 Wet-Tap
In-line	2750-1 or -2	2750-3 or -4	2750-1 or -2	2750-3 or -4	2750-1 or -2	2750-3 or -4	2750-1 or -2
-In-line fitting	Signet fitting	¾" reducing tee	1" threaded tee		¾" reducing tee		3719 Wet-Tap Assembly
Submersible	2750-3 or -4 and cable conduit (customer supplied) connected to ¾" sensor electronics +						(Submersible not applicable with Wet-Tap assembly)

3. Junction Boxes

3-8050-1: Use when extending the submersible cable over long distance.
3-8050-2: Use with the submersible 2750-3 or -4 and the in-line 2750-1 for best calibration results with the EasyCal function when using the blind 4 to 20 mA output.

4. Choose the output instrument

Digital (S^3L)
4 to 20 mA

8900 Multi-Parameter Controller

OR

PLCs or Chart Recorders

Ordering Information

Model 2750
Ordering Information

1) Model 2750 requires 12 to 24 VDC to function as a blind 4 to 20 mA 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.
5) All sensor electronics, preamplifiers and connectors require a DryLoc® electrode for full system installation.

3-2750	Sensor Electronics with preamplified signal and Digital (S^3L) output (for use with the 8900 controller) or 4 to 20 mA output - power supplied to unit dictates output type.	
	-1	In-line Sensor electronics (yellow body) - recommended for 8900 Controller
	-2	In-line Sensor electronics with EasyCal (yellow body) - recommended for 4 to 20 mA use
	-3	Submersible Sensor electronics with 4.6 m (15 ft) cable and ¾ in. NPT threads - when 4 to 20 mA is required use the 3-8050-2 junction box with EasyCal
	-4	Submersible Sensor electronics with 4.6 m (15 ft) cable and ISO 7/1R 3/4 threads - when 4 to 20 mA is required use the 3-8050-2 junction box with EasyCal
3-2750	**-2**	**Example Part Number**

Mfr. Part No.	Code
3-2750-1	**159 000 744**
3-2750-2	**159 000 745**
3-2750-3	**159 000 746**
3-2750-4	**159 000 842**

Application Tips

- The EasyCal feature automatically recognises standard 4.0, 7.0, and 10.0 pH buffer or ORP Quinhydrone solutions of 87 and 264 mV and simplifies calibration
- Frequency of calibration of electrodes is dependent upon the application.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Calibration		
3-2700.395	**159 001 605**	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint pH 7.00
3822-7115	**159 001 606**	20 gm bottle Quinhydrone for ORP calibration (must use pH 4.01 and/or pH 7.00 buffer solutions)
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 DryLoc® sensor electronics
3-0700.390	**198 864 403**	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3822-7004	**159 001 581**	pH 4 buffer solution, 1 pint (473 ml) bottle
3822-7007	**159 001 582**	pH 7 buffer solution, 1 pint (473 ml) bottle
3822-7010	**159 001 583**	pH 10 buffer solution, 1 pint (473 ml) bottle
Mounting		
3-8050-1	**159 000 753**	Universal mount junction box
3-8050-2	**159 000 754**	Universal mount junction box w/EasyCal (for submersible applications, use with 3-2750-3/4 where 4 to 20 mA is required)
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, PG 13.5 (1 connector)
Other		
5523-0322	**159 000 761**	Sensor cable (per ft), 3-cond. plus shield, 22 AWG, black/red/white (for use with 2750)

Signet 2760 DryLoc® pH/ORP Preamplifiers & Connectors

For Signet fittings up to 4 in. and wet tap assemblies.

In-line 2760

In-line when electrode has ¾ in. or 1 in. process connection

Submersible 2760

DryLoc® Electrodes sold separately.

Features

- **In-line integral mount and submersible installation versions**
- **Automatic temperature compensation**
- **Auto configuration for pH or ORP operation**
- **Junction boxes for convenient wiring**

Applications

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

CE

Description

The Signet 2760 pH/ORP Preamplifiers features the DryLoc® connector, providing a robust connection to Signet DryLoc® electrodes.

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

The DryLoc® electrode connector system quickly forms a robust assembly for submersible and in-line installations. NEMA 4X junction enclosures are to extend the preamplifier cable to long distances.

The 2760 submersible preamplifier can also be used as an In-line preamplifier when used with the ¾ in. or 1 in. threaded sensors including the 2724, 2774 and 2764 series electrodes. The 2760 In-line preamplifier can be used with Signet fittings up to DN100 (4 in.) and wet-tap assemblies.

System Overview

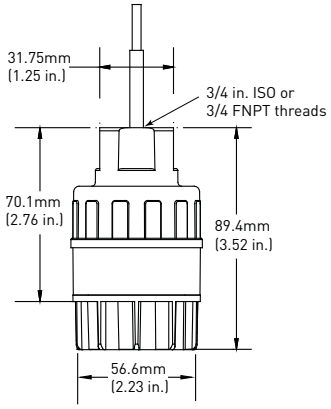
<table>
<tr><th colspan="2">In-Line Installation</th><th>Submersible Installation</th><th colspan="2">Wet-Tap Installation</th></tr>
<tr><td>Panel Mount
Signet Instrument
(sold separately)
5700, 8750</td><td>Pipe, Tank, Wall Mount
Signet pH/ORP Transmitter
(sold separately)
8750

Signet Universal Adapter Kit (3-8050)
(sold separately)</td><td>Panel, Pipe, Tank, Wall Mount
Signet Instrument (sold separately)
5700 8750</td><td>Panel Mount
Signet Instrument
(sold separately)
5700, 8750</td><td>Pipe, Tank, Wall Mount
Signet pH/ORP Transmitter
(sold separately)
8750

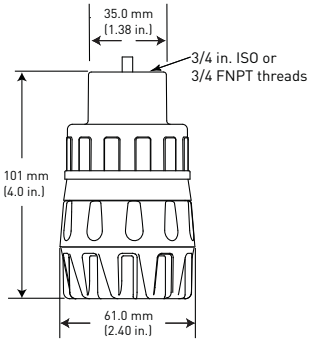
Signet Universal Adapter Kit (3-8050)
(sold separately)</td></tr>
<tr><td>Signet 2760 Preamplifier</td><td>Signet 2760 Preamplifier</td><td>Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads (customer supplied)</td><td colspan="2">Signet 2760 Preamplifier
with Signet Wet-Tap Electrode 2756, 2757
(each sold separately)</td></tr>
<tr><td colspan="2">DryLoc® pH/ORP Electrodes
2724-2726, 2764-2767, 2774-2777
(sold separately)</td><td>Signet 2760 and Preamplifier</td><td colspan="2">Signet
3719 Wet-Tap
(sold separately)</td></tr>
<tr><td colspan="2">2724-2726 DryLoc® Electrodes: Use GF Fittings* or 3/4 in. NPT fittings (customer supplied)
2764-2767 and 2774-2777 DryLoc® Electrodes: Use 3/4 in. or 1 in. NPT fittings (customer supplied)</td><td>DryLoc® pH/ORP Electrodes 2724-2726, 2764-2767, 2774-2777
(sold separately)</td><td colspan="2">GF PP Clamp-On Saddles for 3719 Wet-Tap or GF Tees and Fittings
(sold separately)
see model 3719 for more info</td></tr>
</table>

Dimensions

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



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



Specifications

General

Compatible Electrodes:
Signet DryLoc® pH and ORP Electrodes Models 2724-2726, 2756-2757 Wet-Tap 2764-2767, 2774-2777
All pH sensors used with the 2760 must have a 3K Temperature sensor

Operating Range:
- pH: 0 to 14 pH
- ORP: ± 2,000 mV

Response Time*:
- pH: < 6 sec. for 95% of change
- ORP: application dependent

Materials:
- In-line: Valox® (PBT)
- Submersible: CPVC

Electrical

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

Environmental

Enclosure:
- Submersible: NEMA 6P/IP68 with electrode and watertight conduit and/or extension pipe connected
- In-line: NEMA 4 with electrode and watertight conduit and/or extension pipe connected

Max. Temperature/Pressure Rating

Operating Temperature:
- 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)

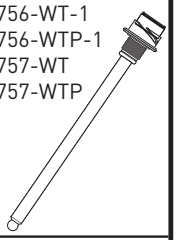
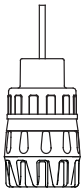
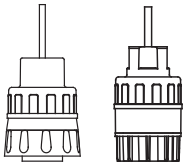
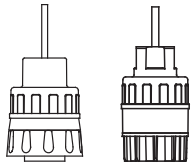
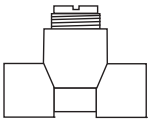
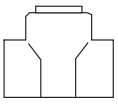
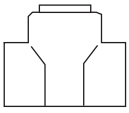
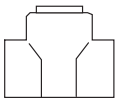
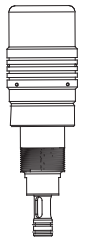
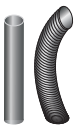
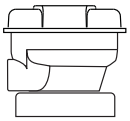
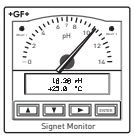
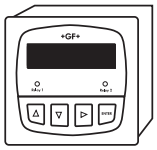
Storage Temperature:
-20 °C to 85 °C (-4 °F to 185 °F)

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

Shipping Weight 0.64 kg 1.41 lb

Standards and Approvals
- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

2760 Product Selection Guide

1. Choose the Electrode	2724-2726 3-2724-10,-11 3-2725-60, -61 3-2726-10, -11 3-2726-HF-10, -11 3-2726-LC-10, -11 	2764-2767 Differential 3-2764-1 3-2765-1 3-2766-1 3-2767-1 	2774-2777 3-2774 3-2775 3-2776 3-2777 	2756 and 2757 Wet-Tap 3-2756-WT-1 3-2756-WTP-1 3-2757-WT 3-2757-WTP 
2. Determine the mounting style: In-line	 2760-11 or -21	 2760-1 or -2	 2760-11 or -21 / 2760-1 or -2	 2760-11 or -21 / 2760-1 or -2	 2760-11 or -21
-In-line fitting	 Signet fitting	 ¾" reducing tee	 1" threaded tee	 ¾" reducing tee	
Submersible	2760-1 or -2 and cable conduit (customer supplied) connected to ¾" sensor electronics  + 				3719 Wet-Tap Assembly (Submersible not applicable with Wet-Tap assembly)
3. Junction Boxes	3-8050-1: Use when extending the submersible cable over long distance. 3-8050-2: Use with the submersible 2760-1 or -2. For simple calibration with the EasyCal function. 				
4. Choose the Signet instrument	 5700	**OR**	 8750		

Ordering Information

Model 2760
Ordering Information

1) 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 2760.
5) All sensor preamplifiers and connectors require a DryLoc® electrode for full system installation.
6) Use Models 2724-2726, 2756-WT, 2757-WT, 2764-2767 and 2774-2777 pH and ORP electrodes with the 2760.

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 4.6 m (15 ft cable)		
	Preamplifier		
	-1	Preamplifier, with ¾ in. NPT threads and 4.6 m (15 ft) cable	
	-2	Preamplifier, with ¾ in. ISO threads and 4.6 m (15 ft) cable	
	Connectors (for use with other manufacturer's instruments)		
	-3	Connector with 4.6 m (15 ft) cable and ¾ in. NPT threads	
	-4	Connector with 4.6 m (15 ft) cable and ISO 7/1R 3/4 threads	
		Mounting Configurations	
		-	Submersible mounting (gray body)
		1	In-line mounting (yellow body); use for wet-tap sensors
		↓	
3-2760	**-2**		**Example Part Number**

Mfr. Part No.	Code
3-2760-1	**159 000 939**
3-2760-2	**159 000 940**
3-2760-3	**159 000 941**
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

Application Tips
- The EasyCal feature automatically recognises standard 4.0, 7.0, and 10.0 pH buffer or ORP Quinhydrone solutions of 87 and 264 mV and simplifies calibration
- Frequency of calibration of electrodes is dependent upon the application.

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 (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3822-7004	**159 001 581**	pH 4 buffer solution, 1 pint (473 ml) bottle
3822-7007	**159 001 582**	pH 7 buffer solution, 1 pint (473 ml) bottle
3822-7010	**159 001 583**	pH 10 buffer solution, 1 pint (473 ml) bottle
3-2700.395	**159 001 605**	Calibration kit: includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint pH 7.00)
3822-7115	**159 001 606**	20 gm bottle Quinhydrone for ORP calibration (must use pH 4.01 and/or pH 7.00 buffer solutions)
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, PG 13.5 (1 connector)
Other		
5523-0624	**159 000 636**	Cable, 6-cond. plus shield, 24 AWG, black/red/white (for use with 2760, orders must specify length per foot)

Signet 5700 pH/ORP Monitor

Member of the ProPoint® Family of Monitors

Analogue and Digital Display

Description

The Signet 5700 pH/ORP Monitor is a versatile and intelligent instrument that recognises the type of sensor connected, either pH or ORP, then automatically sets itself for the corresponding display and functionality. Also, during EasyCal operation, the monitor automatically recognises standard buffers/test solutions, thereby shortening and simplifying routine calibration procedures. Two programmable relays and one scaleable 4 to 20 mA output are included, and the four-button keypad arrangement with intuitive software design is very user-friendly. The monitors require 12 to 24 volts ±10%, regulated, AC or DC, and can be used with many Signet pH/ORP electrodes and preamplifiers, or with electrodes from other manufacturers by using the 2721 Preamplifier. Several useful accessories are available, including the optional splashproof rear cover kit.

Features

- **Displays pH/temp/mV or ORP/mV**
- **EasyCal simplifies routine calibration**
- **Simple push-button operation**
- **Intuitive software design**
- **Scaleable 4 to 20 mA output internally powered (active)**
- **Two programmable relays**
- **Dual proportional control capability**
- **Non-volatile memory**
- **Versatile low voltage power requirement**

Applications

- **Water & Wastewater Treatment**
- **Neutralisation**
- **Scrubber Control**
- **Effluent Monitoring**
- **Surface Finishing**
- **Heavy Metal Removal and Recovery**
- **Toxics Destruction**
- **Sanitisation Systems**
- **Pool & Spa Control**
- **Aquatic Animal Life Support Systems**
- **Process Control**

CE

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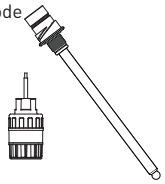
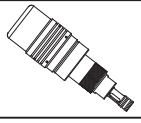
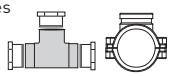
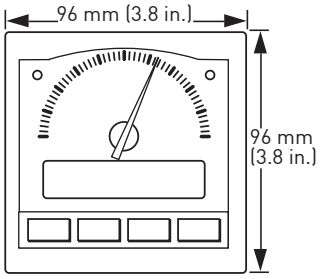
System Overview

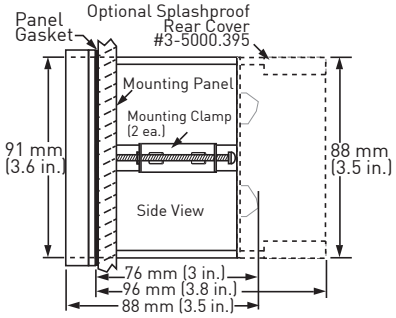
In-Line Sensor Installation	Submersible Sensor Installation	WetTap Sensor Installation
Panel Mount Signet 5700 Instrument 	**Panel Mount Signet 5700 Instrument** 	**Panel Mount Signet 5700 Instrument** 
Signet compatible pH/ORP Electrode with Preamplifier 2724-2726, 2764-2767, 2774-2777, 2760 (each sold separately) 	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads 	Signet Wet-Tap Electrode 2756, 2757 with Preamplifier 2760 (each sold separately) 
GF Fittings* (sold separately) 	Signet compatible pH/ORP Electrode with Preamplifier 2724-2726, 2764-2767, 2774-2777, 2760 (each sold separately) 	Signet 3719 WetTap (sold separately) 
		GF PP Clamp-On Saddles for 3719 Wet-Tap or GF Tees and Fittings (sold separately) see model 3719 for more info 

*See Fittings Section for more information.

Dimensions



Front View



Side View

Specifications

General

Operating Range:
- pH: 0 to 14 pH, optically isolated
- Temp: -25 °C to 120 °C (-13 °F to 248 °F)
- ORP: -2,000 to +2,000 mV, optically isolated

Accuracy: ± 0.2% of scale

Display
- Analogue: Reversible dial: 0 to 14 pH or ±1000 mV
- Digital: Backlit LCD, 2x16 alphanumeric character

Materials
- Enclosure: ABS Plastic
- Keypad: Silicone Rubber
- Panel and case gasket: Neoprene
- Window: Hard-coated polycarbonate

Electrical

Power Requirements:
12 to 24 VAC or DC ±10%, regulated recommended, 50 to 60 Hz, 10W max.

Current Output:
- 4 to 20 mA, non-isolated, active, internally powered

Electrical (continued)
- Loop Impedance: 350 Ω max. @ 12V, 950 Ω max. @ 24V
- Accuracy: ± 0.1%

Alarm Contacts:
- Two SPDT relays:
  - 5A @ 30 VDC
  - 5A @ 125 VAC
  - 3A @ 250 VAC max.
- High/low/pulse programmable with adjustable hysteresis
- Dual proportional control capability, maximum pulse rate 300 pulses/min.

Environmental

Operating Temperature: -10 °C to 55 °C (14 °F to 131 °F)

Relative Humidity: 0 to 95%, non-condensing

Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.82 kg 1.81 lb

Standards and Approvals
- CE, UL, CUL
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Model 5700

Ordering Information

1) Panel cutout should be 92 x 92mm (3.62 x 3.62 in.)
2) Reversible dials with standard ranges for pH and ORP are included with the instrument
3) An optional splashproof rear cover can be ordered separately if needed.
4) Protective overlays are available for the front panel.
5) Order RC filter kits to protect relays from voltage spikes.
6) To mount the unit onto a wall, use the heavy duty wall mount bracket.

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

Ordering Information

Mfr. Part No.	Code	Description
3-5700	**198 825 003**	pH/ORP Monitor

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-5000.395	**198 840 227**	Splashproof rear cover kit
3-5000.399	**198 840 224**	5 x 5 inch adapter plate to retrofit older Signet installations
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-8050.392	**159 000 640**	¼ DIN retrofit adapter
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (3 connectors)
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, PG 13.5 (1 connector)
Other		
3-5000.390	**159 000 323**	Installation kit
3-5000.397	**159 000 326**	5000 series window kit
3-5000.525-1	**198 840 226**	Bezel, 5000 series
3-0700.390	**198 864 403**	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, makes 50 ml of each)
3-5000.398	**159 000 646**	Protective overlay kit (10 pcs)
3-8050.396	**159 000 617**	RC filter kit (for relay use), 2 per kit

Signet 8750 pH/ORP Transmitters

Member of the ProcessPro® Family of Instruments

Panel Mount

Pipe, Tank, Wall Mount

Features

- **Automatic temperature compensation**
- **Temperature display in °C or °F**
- **Hold and simulate functions**
- **Relay options available**
- **Output scaleability**
- **Optional Dual output**
- **NEMA 4X/IP65 enclosure with self-healing window**
- **EasyCal option available**

Description

The Signet 8750 pH/ORP Transmitter is designed for broad application and ease of setup and use. The unit auto-configures for either pH or ORP use when connected to Signet pH or ORP electrodes. Multiple mounting options allow for installation best suited to your particular application.

The EasyCal menu features automatic buffer recognition for mistake-proof pH or ORP electrode calibrations. Intuitive software and the four button keypad arrangement make it easy to access important information such as pH or ORP, mV input, temperature, calibration, relay setup menus and more.

Applications

- **Neutralisation Systems**
- **Heavy Metals Recovery**
- **Plating Control**
- **Scrubber Control**
- **Pool and Spa Control**
- **Environmental Study**
- **Water Treatment**
- **Water Quality Monitoring**
- **Waste Treatment**
- **Disinfection**

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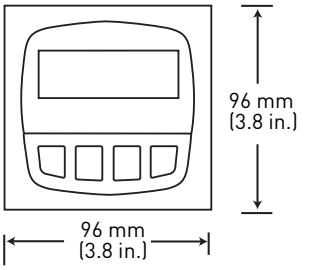
System Overview

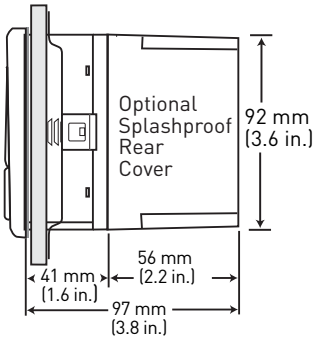
In-Line Sensor Installation		Submersible Sensor Installation	Wet-Tap Sensor Installation	
Panel Mount **Signet 8750 pH/ORP Instrument**	**Pipe, Tank, Wall Mount** **Signet 8750 pH/ORP Instrument**	**Panel, Pipe, Tank, Wall Mount** **Signet 8750 pH/ORP Instrument**	**Panel Mount** **Signet 8750 pH/ORP Instrument**	**Pipe, Tank, Wall Mount** **Signet 8750 pH/ORP Instrument**
	Signet 3-8050 Universal Adapter Kit (sold separately)	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads		Signet 3-8050 Universal Adapter Kit (sold separately)
Signet 2760 Preamplifier (sold separately)		Signet 2760 Preamplifier (sold separately)	Signet Wet-Tap Electrode 2756, 2757 with Preamplifier 2760 (each sold separately)	
Signet pH/ORP electrode (sold separately) 2724-2726 2764-2767 2774-2777		Signet pH/ORP electrode (sold separately) 2724-2726 2764-2767 2774-2777	Signet 3719 Wet-Tap (sold separately)	
GF Fittings* (sold separately) or customer supplied fittings			GF PP Clamp-On Saddles for 3719 Wet-Tap or GF Tees and Fittings (sold separately) see model 3719 for more info	

*See Fittings Section for more information.

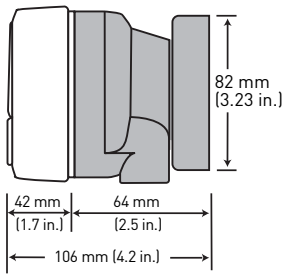
Dimensions

3-8750-XP Panel Mount





Field version with Universal Mounting Kit



Model 8750
Ordering Information

1) For panel version, cutout should be 92 x 92 mm (3.62 x 3.62 in.)
2) To mount the panel version on a wall, use the heavy duty wall mount bracket.
3) An optional splashproof rear cover can be ordered separately if needed - panel mount version only.
4) Use the universal mounting kit with the field mount instrument to mount to a pipe, tank or wall.
5) Order RC filter kits to protect relays from voltage spikes.

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

Specifications

General
Accuracy: ±0.03 pH, ±2 mV ORP
Display:
Alphanumeric 2 x 16 LCD
Contrast: User selectable, 5 levels

Material
- Case: PBT
- Panel case gasket: Neoprene
- Window: Polyurethane coated polycarbonate
- Keypad: Sealed 4-key silicone rubber

Electrical
Power:
12 to 24 VDC ±10% regulated
- (-1) 21 mA max.
- (-2) 220 mA max.
- (-3) 60 mA max.

Electrode Input Range:
- pH: 0 to 14 pH
- Temp.: 3K Balco, -25 °C to 120 °C (-13 °F to 248 °F)
- ORP: -2000 to +2000 mV, isolated (10 KΩ I.D. resistance T+, T-)

Current Output:
- 4 to 20 mA, isolated, passive, fully adjustable and reversible
- Max. Loop Impedance:
  50 Ω max. @ 12 V
  325 Ω max. @ 18 V
  600 Ω max. @ 24 V
- Update rate: 0.5 seconds
- Accuracy: ±0.03 mA @ 25 °C, 24 V

Electrical (continued)
Relay Output:
- Mechanical SPDT contacts: High, Low, Pulse, Off
- Maximum Voltage Rating: 5 A @ 30 VDC, or 5 A @ 250 VAC resistive load
- Hysteresis: User-adjustable Max 400 pulses/min.
  Open-Collector Output: High, Low, Pulse, Off
- Optically isolated, 50 mA max, sink, 30 VDC max.
  pull-up voltage.
- Hysteresis: User-adjustable Max. 400 pulses/min.

Environmental
Operating Temperature:
-10 °C to 70 °C (14 °F to 158 °F)
Storage Temperature:
-15 °C to 80 °C (5 °F to 176 °F)
Relative Humidity:
0 to 95%, non-condensing
Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.6 kg 1.3 lb

Standards and Approvals
- CE, UL listed, CUL
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Part Number			
3-8750	pH/ORP Transmitter		
	Input(s), Outputs, and Power - Choose One		
	-1		One input with 4 to 20 mA output and one open collector; uses 2 wire power
	-2		One input with 4 to 20 mA output and two relays; uses 4 wire power
	-3		One input with two 4 to 20 mA outputs and 2 open collectors; uses 4 wire power
		Field or Panel Mount - Choose One	
		-	Field mount for pipe, wall, or tank mounting
		P	Panel mount; including mounting bracket and panel gasket
3-8750	**-1**	**P**	**Example Part Number**

Mfr. Part No.	Code
3-8750-1	**159 000 053**
3-8750-1P	**159 000 054**
3-8750-2	**159 000 055**

Mfr. Part No.	Code
3-8750-2P	**159 000 056**
3-8750-3	**159 000 057**
3-8750-3P	**159 000 058**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-8050	**159 000 184**	Universal mounting kit
3-8050.392	**159 000 640**	¼ DIN retrofit adapter
3-8050.395	**159 000 186**	Splashproof rear cover (panel mount only)
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (3 connectors)
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, PG 13.5 (1 connector)
Other		
3-8050.396	**159 000 617**	RC filter kit (for relay use), 2 per kit
3-0700.390	**198 864 403**	pH buffer kit
3-8050.625-70	**159 001 654**	Clear window display with adhesive

Signet 2819-2823 Conductivity/Resistivity Electrodes

Reversible threads for in-line or submersible installation.

Sanitary tri-clamp flange version.

Features

- **Standard process connections**
  - **- ¾ in. NPT Polypro**
  - **- Tri-clamp 1 -1½ in., 2"**
  - **- Opt. ½ in. NPT 316 SS**
- **316 SS or Titanium standard electrode**
- **Alternative electrode materials available**
  - **- Hastelloy-C**
  - **- Monel**
- **In-line or submersible mounting**
- **NIST traceable certified cells ±1% meet USP requirements**

Applications

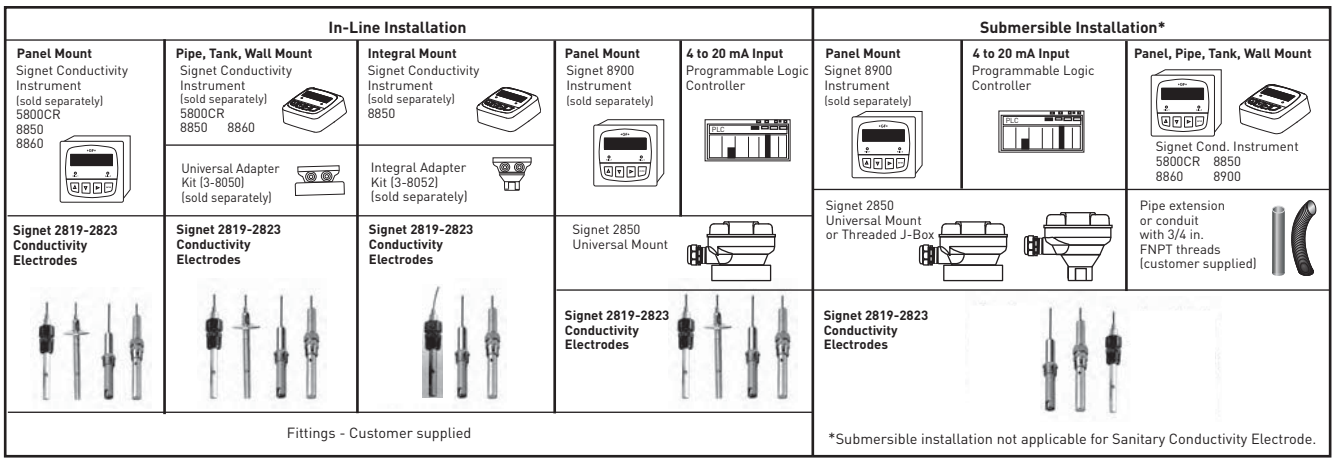
- **Pure Water Treatment**
  - **- Reverse Osmosis**
  - **- Deionisation**
  - **- Distillation**
- **Boiler Condensate**
- **Semiconductor Water Production**
- **Rinse Water Monitoring and Control**
- **Chemical Concentrations**
- **Cleaner and Degreaser Concentrations**
- **TDS (Total Dissolved Solids)**
- **Salinity**
- **USP Purified Water**
- **WFI Water Production**
- **Ultra Pure Water**

LEAD FREE Pb RoHS COMPLIANT

Description

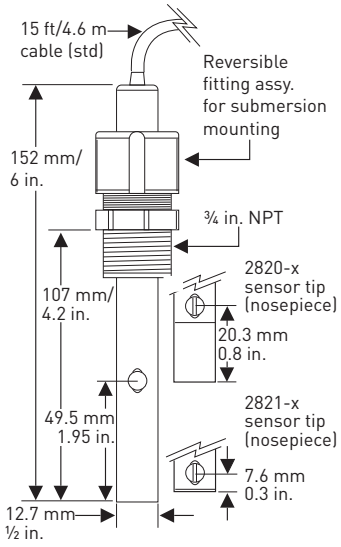
Signet 2819-2823 Conductivity/Resistivity Electrodes are designed to provide versatile installation and accurate sensing across a very broad dynamic range. These electrodes are built with a controlled surface finish to ensure accuracy and repeatability. The standard electrode is constructed 316 SS or Titanium, but there are other materials available for maximum chemical compatibility. Reversible threads or sanitary flanges allow for maximum installation versatility. Sanitary flange versions are available with an optional NIST Traceability Certificate to meet USP requirements. Coupled with Signet patented measuring circuitry, a three decade measurement range is achieved without the need for troublesome electrode platinisation. A platinum RTD (PT1000) located within the electrode allows optimal temperature sensing.

System Overview

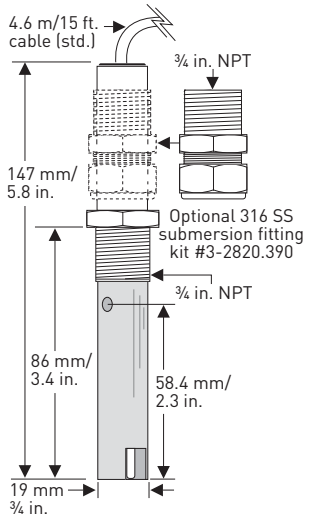


Dimensions

2819, 2820, 2821



2822



Specifications

Models 3-2819-1* (0.01 cm^{-1} Cell)
Models 3-2820-1* (0.1 cm^{-1} Cell)
Models 3-2821-1* (1.0 cm^{-1} Cell)
***** Certified versions available (add "C" suffix to part no.)

General

Operating Range:
- 3-2819: 0.055 to 100 µS (18.2 MΩ to 10 KΩ) (0.02 to 50 ppm)
- 3-2820: 1 to 1000 µS (1 MΩ to 1 KΩ) (0.5 to 500 ppm)
- 3-2821: 10 to 10,000 µS (5 to 5,000 ppm)

Cell Constant Accuracy: ±2% of reading (certified cells ±1%)
Temp. Comp. Device: PT1000
Cable Length:
- 4.6 m/15 ft (standard)
- 30 m/100 ft (maximum)
- 7.6 m/25 ft for > 10 MΩ application (no splices) for 2819 sensors

Wetted Materials
- O-rings: EPR (EPDM)
- Insulator Material: PTFE
- Electrodes: 316 stainless steel (1.4408, DIN 17440) or Titanium

Max. Temperature/Pressure Rating
- Standard Polypro Fitting: 6.9 bar (100 psi) @ 100 °C (212 °F)
- Optional 316 SS fitting (3-2820.392): 13.8 bar (200 psi) @ 120 °C (248 °F)
- Sanitary Connection: 6.9 bar (100 psi) @ 120 °C (248 °F)

Temperature Response, τ:
- 7 sec. (0.01 cell)
- 53 sec. (0.1 cell)
- 21 sec. (1.0 cell)

Temperature Accuracy: 0.3 °C

Shipping Weight 0.4 kg 0.8 lb

Standards and Approvals
- RoHS compliant

Model 3-2822-1 (10.0 cm^{-1} Cell)

General

Operating Range:
100 to 200,000 µS (50 to 100,000 ppm)
Cell Constant Accuracy:
±2% of reading (certified cells ±1%)
Temp. Comp. Device: PT1000
Cable Length:
- 4.6 m/15 ft (standard)
- 30 m/100 ft (maximum)

Wetted Materials
- O-rings: EPR (EPDM)
- Body: CPVC
- Electrodes: 316 stainless steel (1.4408, DIN 17440)

Process Connection:
- Standard 316 SS fitting: ¾ in. NPT threads
- Optional 316 SS submersion adapter fitting (3-2820.390): ¾ in. NPT threads

Max. Temperature/Pressure Rating
6.9 bar (100 psi) @ 95 °C (203 °F)
Temp. Response, τ: 5 seconds
Temp. Accuracy: 0.3 °C

See Temperature and Pressure graphs for more information.

Shipping Weight 0.4 kg 0.8 lb

Standards and Approvals
- RoHS compliant

Specifications

Model 3-2823-1 (20.0 cm^{-1} Cell)
General
Operating Range:
200 to 400,000 µS
(100 to 200,000 ppm)
Cell Constant Accuracy:
±2% of reading
Temp. Comp. Device: PT1000
Cable Length:
- 4.6 m/15 ft (standard)
- 30 m/100 ft (maximum)

Wetted Materials
- O-rings: EPR (EPDM)
- Insulator Material: PTFE

Process Connection
- Electrodes: 316 stainless steel (1.4408, DIN 17440)
- Standard 316 SS fitting: ¾ in. NPT thread

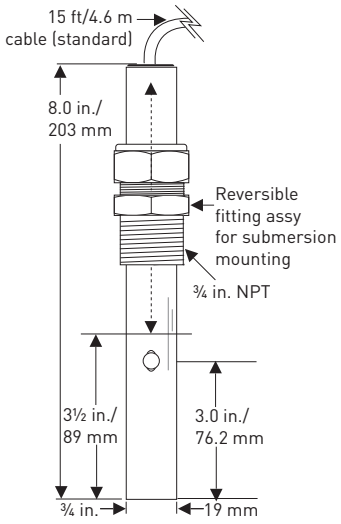
Max. Temperature/Pressure Rating
6.9 bar (100 psi) @ 150 °C (302 °F)
Temp. Response, τ: 120 seconds
Temp. Accuracy: ±0.3 °C

Shipping Weight 0.3 kg 0.6 lb

Standards and Approvals
- RoHS compliant

Dimensions

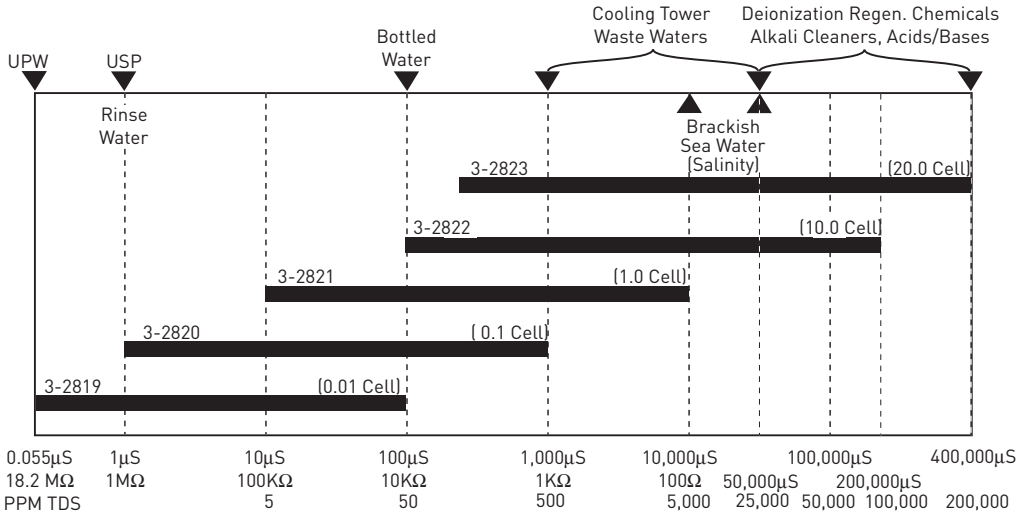
2823

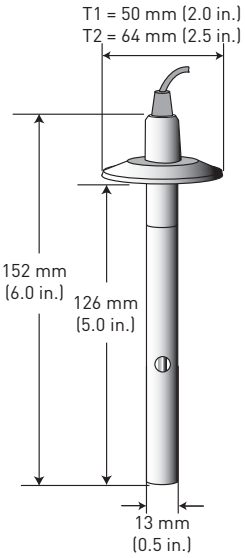


Sanitary

Note
Tri-clamp is available for 2819, 2820, 2821 only. T1 or S1 is for 1 to 1½ in. tees or flanges.
T2 or S2 is for 2 in. tees or flanges.

Operating Range Chart





Model 2819-2823
Ordering Notes

1) Alternate wetted materials and sensor lengths are available through special order.
2) Cable lengths of up to 30m (100 ft) are available - consult factory.
3) Use PN 3-2820.390 or 3-2820.391 for a submersible threaded connection.
4) Use the Conductivity Certification Tool (PN 3-2830) for NIST traceable conductivity values per USP requirements. The tool is compatible with the 8850, 8860, and 5800CR instruments.

Example of NIST Traceability Certificate

CERTIFICATE

Date: November 10, 2003

Sensor Part Number:	3-2819-T1C
Sensor Serial Number:	980159-04
Sensor Cell Constant:	0.0102
Temp. Element Offset:	0.1 °C
Measured at:	24.8 °C

NIST Certified

Application Tips

- Liquid levels must be high enough to cover orifice on sensor body.
- Threads on models 2819, 2820, 2821, and 2823 can be reversed in the field.
- Use Model 2819 with the 2850-6x/8900 for low conductivity applications requiring multiple measurement points.
- Install sensors in an area that will remain free of air bubbles and sediment build-up.
- Conductivity measurements are affected if electrodes are coated by process substances.

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

Ordering Information

Sensor Part Number			
3-2819	0.01 cm-1 cell constant		
3-2820	0.1 cm-1 cell constant		
3-2821	1.0 cm-1 cell constant		
3-2822	10 cm-1 cell constant		
3-2823	20 cm-1 cell constant		
	Sensor Material and Mounting - Choose One		
	1	316 SS electrode with ¾ in. reversible threads (except 2822 which has fixed ¾ in. threads) for in-line or submersible mounting	
	S1*	316 SS electrode with Sanitary Tri-clamp flange; for insertion into 1 to 1½ in. tees	
	S2*	316 SS electrode with Sanitary Tri-clamp flange; for insertion into 2 inch tees	
	T1*	Titanium electrode with Sanitary Tri-clamp flange; for insertion into 1 to 1½ in. tees	
	T2*	Titanium electrode with Sanitary Tri-clamp flange; for insertion into 2 inch tees	
		NIST Traceable Certificate - Optional	
		C*	NIST Certified
		Special Order Options	
			High Temperature and Pressure options available by special request - consult factory
			Wetted materials (Hastelloy-C and Monel) and sensor lengths are available by special request - consult factory
			Cable length extensions of up to 30 m (100 ft) are available. For resistivity measurements above 10 MΩ, the maximum cable length is 7.6 m (25 ft) - consult factory
			Wet-Tap, ball valve retractable sensor for long insertion length are available by special request- consult factory
3-2820	**-S1**	**C**	**Example Part Number**

*Available for 0.01 cm-1, 0.1 cm-1, and 1.0 cm-1 cells only

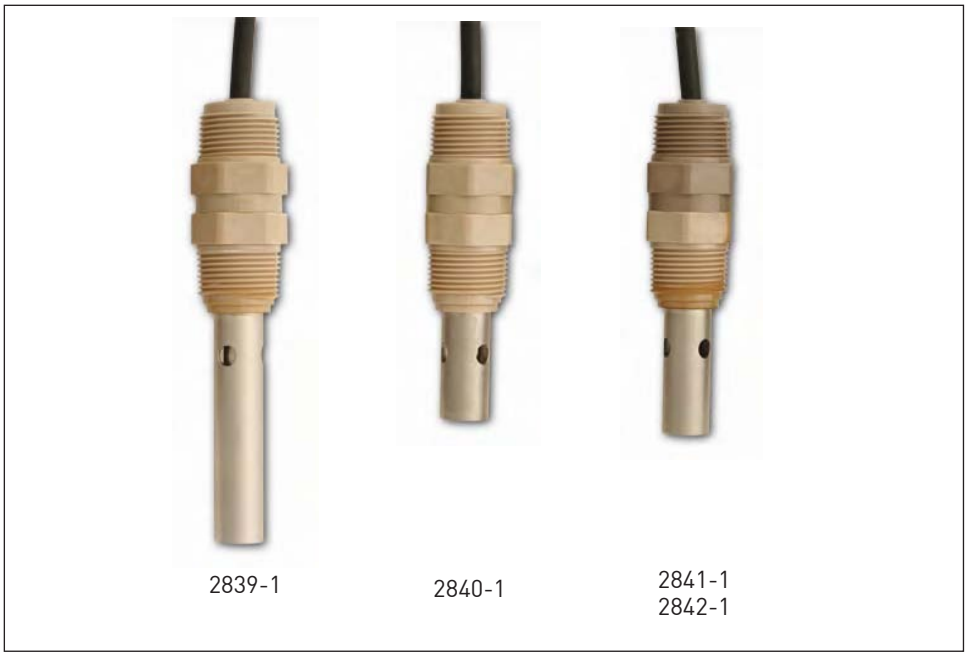
Mfr. Part No.	Code
3-2819-1	**198 844 010**
3-2819-S1	**159 000 085**
3-2819-S1C	**159 000 087**
3-2819-S2	**159 000 086**
3-2819-S2C	**159 000 088**
3-2819-T1	**159 000 081**
3-2819-T1C	**159 000 083**
3-2819-T2	**159 000 082**
3-2819-T2C	**159 000 084**
3-2820-1	**198 844 000**
3-2820-S1	**159 000 089**
3-2820-S1C	**159 000 091**
3-2820-S2	**159 000 090**
3-2820-S2C	**159 000 092**

Mfr. Part No.	Code
3-2820-T1	**159 000 624**
3-2820-T2	**159 000 625**
3-2821-1	**198 844 001**
3-2821-S1	**159 000 093**
3-2821-S1C	**159 000 095**
3-2821-S2	**159 000 094**
3-2821-S2C	**159 000 096**
3-2821-T1	**159 000 626**
3-2821-T2	**159 000 627**
3-2822-1	**198 844 002**
3-2823-1	**198 844 003**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2820.390	**198 840 223**	¾ in. NPT Fitting, 316 SS for use with 2822-1 for submersible mounting
3-2820.391	**198 840 221**	¾ in. NPT Fitting, Polypro replacement for 2819-1, 2820-1 or 2821-1
3-2820.392	**198 840 222**	½ in. NPT Fitting, 316 SS for use with 2819-1 or 2821
3-2830	**159 000 628**	Conductivity Certification Tool; simulates 1 µS/cm and 2.5 µS/cm
5523-0322	**159 000 761**	Sensor cable (per ft), 3 cond. plus shield, 22 AWG (for cable extension through a junction box for the following sensors: 3-2820, 3-2821, 3-2822, 3-2823
3-8050-1	**159 000 753**	Universal mount junction box

Signet 2839-2842 Conductivity Electrodes



2839-1 2840-1 2841-1 2842-1

Features

- **Dual-threaded**
- **Compact electrode length for easy in-line installation in small pipe sizes**
- **Triple orifice flow-through design reduces clogging and bubble entrapment**
- **316 SS electrodes with injection moulded PEEK™ process connections and insulators**
- **Cell constants may be traceable to NIST and certified to within ±1% of value - meets USP requirements**

Description

The Signet 2839-2842 Conductivity/ Resistivity Electrodes are available in four cell constants from 0.01 to 10.0 cm^{-1}, and are suitable for a wide variety of applications from high purity water quality monitoring to weak acids and bases. 316 SS electrode surface finishes are controlled in a precision bead blasting operation to ensure measurement accuracy and repeatability.

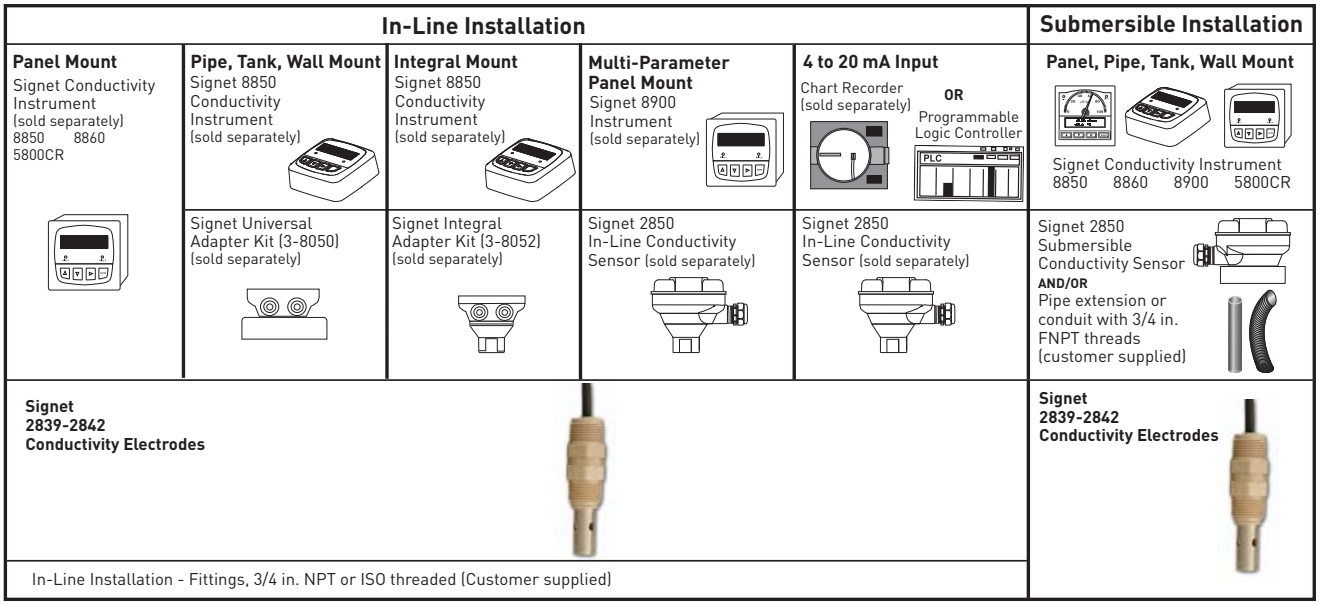
The PEEK™ insulator and process connections are injection over-moulded to minimize variance between electrodes. Double threaded connections in either ¾ in. NPT or ISO 7/1-R 3/4 enable quick and easy installation in submersible or in-line configurations. Transmitter integral mounting kit and junction boxes are available as accessories.

Applications

- **Water Treatment & Water Quality Monitoring**
- **Reverse Osmosis**
- **Deionisation**
- **Cooling tower and Boiler Protection**
- **Distillation**
- **Desalination**
- **Demineraliser**
- **Semiconductor**
- **Aquatic Animal Life Support Systems**

LEAD FREE Pb RoHS COMPLIANT

System Overview



Specifications

General

Operating Range:

- 2839:
  0.055 to 100 µS (18.2 MΩ to 10 KΩ)
  (0.02 to 50 ppm)
- 2840:
  1 to 1,000 µS (1 MΩ to 1 KΩ)
  (0.5 to 500 ppm)
- 2841:
  10 to 10,000 µS (5 to 5,000 ppm)
- 2842:
  100 to 200,000 µS (50 to 100,000 ppm)

Cell Constant Accuracy:
±2% of cell constant value (standard). Cell constants can be traceable to NIST and certified to within ±1% of value (contact factory)

Dual-Threaded Process Connection:

- -1 versions: ¾ in. NPT
- -1D versions: ISO 7/1-R 3/4

Cable:

- 4.6 m/15 ft, 3-cond. w/shield (standard)
- 30 m/100 ft (maximum) for 0.1, 1.0 and 10.0 cells
- 15 ft maximum for 0.01 cells

Temperature Element: PT1000
Temp. Response, τ:

- 5 sec. (0.01 cell)
- 10 sec. (0.10 cell)
- 20 sec. (1.0 cell)
- 30 sec. (10.0 cell)

Temp. Accuracy: ±0.5 °C (±0.9 °F)

Wetted Materials

- Internal O-ring (2841 and 2842): FPM
- Insulator material: PEEK™
- Electrode material: 316 SS
- Threaded process connection: PEEK™

Max. Temperature/Pressure Ratings

Operating temperature/pressure:

- -10 °C to 100 °C @ 6.9 bar
  (14 °F to 212 °F @ 100 psi)
- -10 °C to 131 °C @ 2.76 bar
  (14 °F to 268 °F @ 40 psi)
  Storage temperature:
  -20 °C to 131 °C (-4 °F to 268 °F)

See Temperature and Pressure graphs for more information.

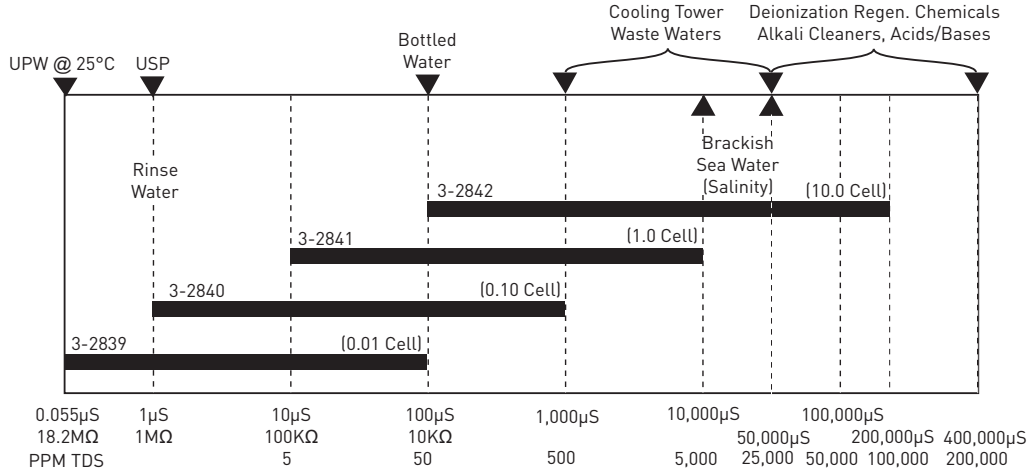
Shipping Weight

- 2839: 0.34 kg 0.74 lb
- 2840, 2841, 2842: 0.30 kg 0.66 lb

Standards and Approvals

- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

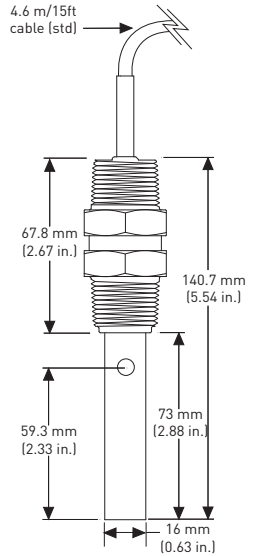
Operating Range Chart



Dimensions

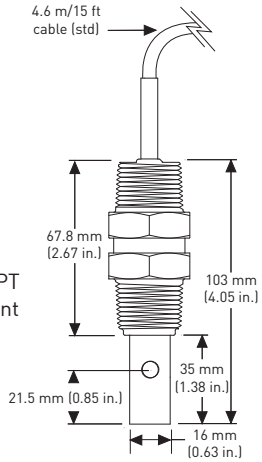
Dual-Threaded Electrodes

3-2839-1 (0.01 cell)

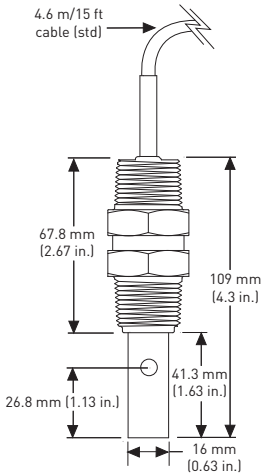


Dual threads 3/4 NPT or ISO 7/1-R 3/4 front and back

3-2840-1 (0.1 cell)

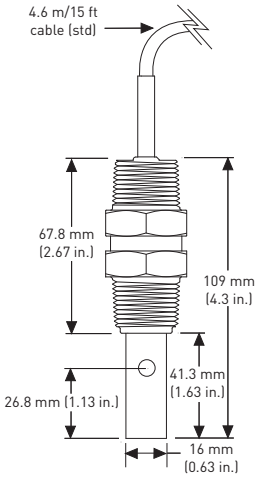


3-2841-1 (1.0 cell)*



Dual threads 3/4 NPT or ISO 7/1-R 3/4 front and back

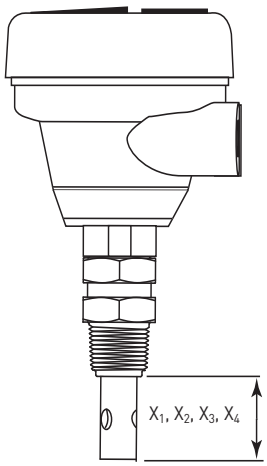
3-2842-1 (10.0 cell)*



* Although these electrodes look similar in design, there is an inherent difference. From the bottom view, the 2841 electrode features a simple plastic insert. However, the 2842 electrode features a complex plastic insert with four holes through which liquid flows.

Integral Mount Sensor

The 2839-2842 Dual Threaded Conductivity Electrodes can be directly mounted to an integral version transmitter, using the 8052 Integral Mount Kit.



X1 (3-2839-1) = 73 mm (2.88 in.)
X2 (3-2840-1) = 35 mm (1.38 in.)
X3 (3-2841-1) = 41.3 mm (1.63 in.)
X4 (3-2842-1) = 41.3 mm (1.63 in.)

Model 2839-2842
Ordering Notes

1) Cell constants can be traceable to NIST and certified within ±1% of value (contact factory).
2) The Conductivity Certification tools are compatible with the following Signet Instrument:
   5800CR 8860
   8850 8900
3) Threaded sensors can be directly mounted to an instrument by doing the following:

- Order integral adapter 3-8052 to connect the sensor to a field mount transmitter.
- Order a field mount transmitter designed for integral mounting: 3-8850-1, 3-8850-2, 3-8850-3.

4) The sensor cable can be extended up to 30 m (100 ft) for 0.1, 1.0 and 10.0 cells only.

Example of NIST Traceability Certificate

CERTIFICATE

Date: November 10, 2003

Sensor Part Number:	3-2839-1
Sensor Serial Number:	980159-04
Sensor Cell Constant:	0.0098
Temp. Element Offset:	0.1°C
Measured at:	24.8°C

NIST Certified

Application Tips

- Liquid levels must be high enough to cover orifice on sensor body.
- Install sensors in an area that will remain free of air bubbles and sediment build-up.
- Conductivity measurements are affected if electrodes are coated by process substances.
- Use Model 2839 with the 2850/8900 for low conductivity applications requiring multiple measuring points.

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

Ordering Information

Sensor Part Number			
3-2839	0.01 cm-1 cell constant		
3-2840	0.1 cm-1 cell constant		
3-2841	1.0 cm-1 cell constant		
3-2842	10 cm-1 cell constant		
	Sensor Style - Choose One		
	-1	Dual threaded connection with 4.6 m (15 ft) cable; for use with Models 8850, 8860, 5800CR, and 5900 Conductivity Instruments	
		Thread Size(s) - Choose One	
		-	¾ inch NPT
		D	ISO 7/1-R 3/4
			Special Order Options
			NIST Traceable and certified within +/- 1% of the value (contact factory)
			Cable length extensions of up to 30 m (100 ft) are available. For resistivity measurements above 10 MΩ, the maximum cable length is 7.6 m (25 ft) - consult factory
3-2840	**-1**	**D**	**Example Part Number**

Mfr. Part No.	Code
3-2839-1	**159 000 921**
3-2839-1D	**159 000 923**
3-2840-1	**159 000 786**
3-2840-1D	**159 000 788**

Mfr. Part No.	Code
3-2841-1	**159 000 790**
3-2841-1D	**159 000 792**
3-2842-1	**159 000 794**
3-2842-1D	**159 000 796**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2830	**159 000 628**	Conductivity certification tool; simulates 1 µS/cm and 2.5 µS/cm
3-2842.390	**159 000 925**	2842 replacement insulator, PEEK™ with FPM O-ring
3-8052	**159 000 188**	¾ in. integral mounting kit
5523-0322	**159 000 761**	Sensor cable (per ft), 3 cond. plus shield, 22 AWG (for cable extension through a junction box for the following sensors: 3-2840, 3-2841, 3-2842
3-8050-1	**159 000 753**	Universal mount junction box

Signet 2850 Conductivity/Resistivity Sensor Electronics and Integral Systems

Universal Mount

Threaded J-Box

2850 Integral Conductivity System for in-line installations

Features

- **Integral mount systems for quick and easy installation**
- **Compact design for maximum installation flexibility**
- **Digital (S^3L) interface or two-wire 4 to 20 mA output**
- **EasyCal with automatic test solution recognition**
- **Dual channel unit available for low cost installation with Signet 8900 Multi-Parameter Controller**
- **For use with ALL Signet conductivity electrodes**

Description

The Signet 2850 Conductivity/Resistivity Sensor Electronics are available in various configurations for maximum installation flexibility. The universal mount version is for pipe, wall, or tank mounting and enables single or dual (digital versions only) inputs using any standard Signet conductivity / resistivity sensor. The threaded j-box version can be used with these same Signet sensors for submersible sensor mounting. It is also available as a combined integral system configuration for in-line mounting and includes a conductivity electrode in a choice of 0.01, 0.1, 1.0, or 10.0 cm^{-1} cell constants. The 2850 is ideal for applications with a conductivity range of 0.055 to 400,000 µS or a resistivity range of 18.2 MΩ to 10 kΩ.

All 2850 units are available with a choice of two outputs, digital (S^3L) or 4 to 20 mA.

The digital (S^3L) output version allows for up to six sensor inputs directly into the Signet 8900 Multi-Parameter Controller. The two-wire 4 to 20 mA output version is available with eight 4 to 20 mA output ranges for each electrode cell constant. Each range can be inverted and are field selectable.

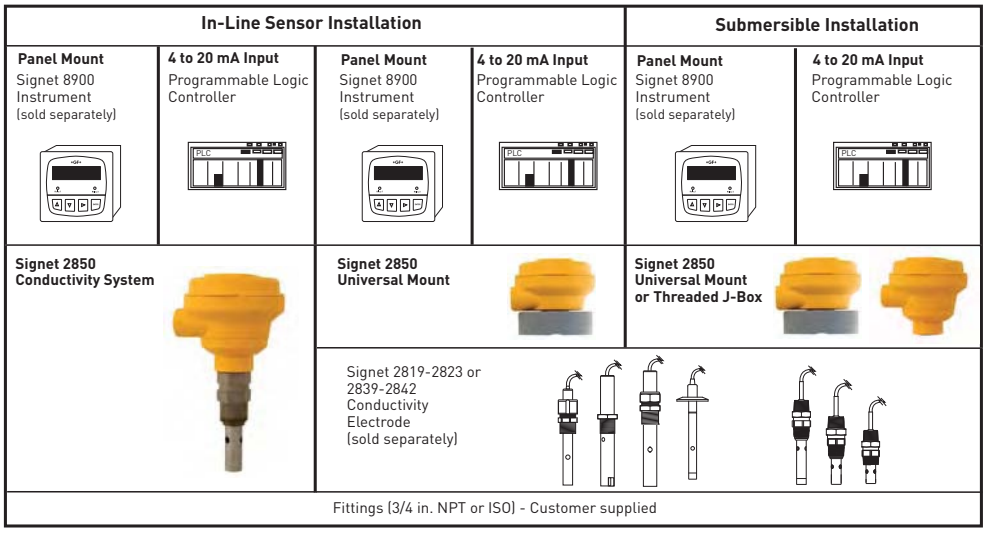
All 2850 units are built with NEMA 4X/IP 65 enclosures which allow output wiring connections with long cable runs of up to 1,000 feet (305 m). EasyCal is a standard feature that automatically recognises conductivity test solution values for simple field calibration. A certification tool is available for validation of the sensor electronics according to USP requirements.

Applications

- **Water Treatment & Water Quality Monitoring**
- **Reverse Osmosis**
- **Deionisation**
- **Demineraliser, Regeneration & Rinse**
- **Scrubber, Cooling tower and Boiler Protection**
- **Aquatic Animal Life Support Systems**

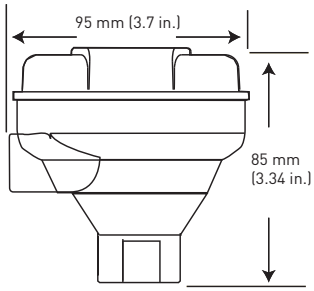
CE

System Overview

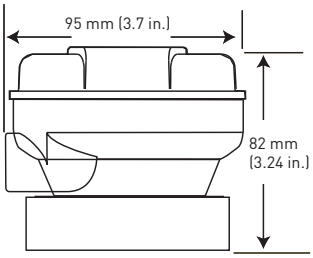


Dimensions

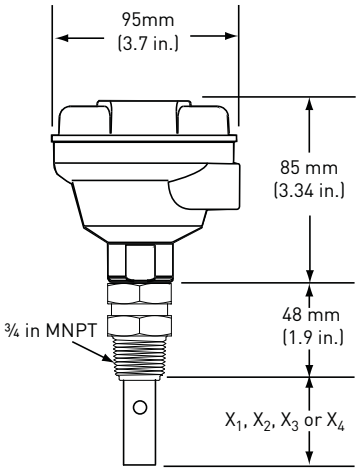
2850-5X Threaded J-Box



2850-6X Universal Mount Systems



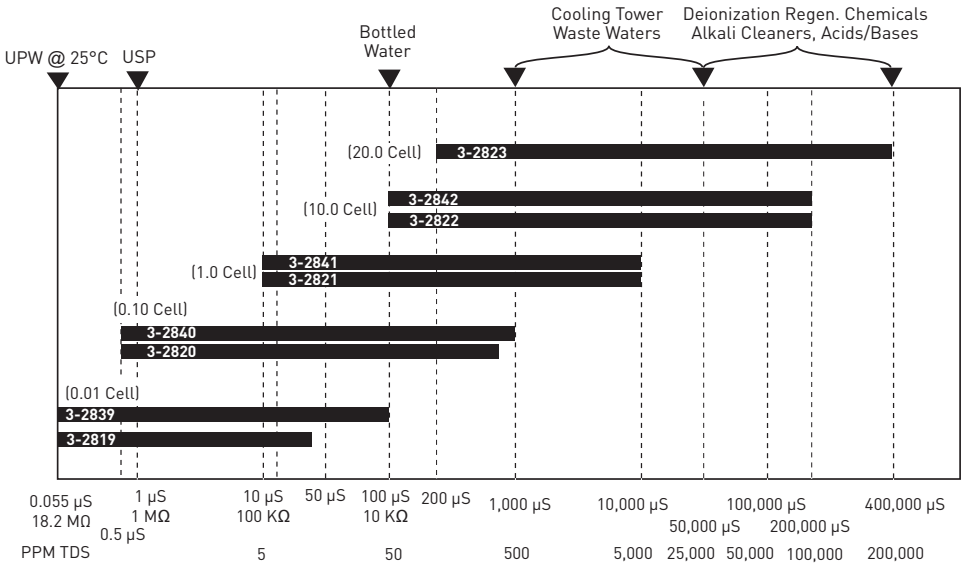
2850-5X-XX Integral Mount Systems



X_1 (3-2839) = 73 mm (2.88 in.)
X_2 (3-2840) = 35 mm (1.38 in.)
X_3 (3-2841) = 41.3 mm (1.63 in.)
X_4 (3-2842) = 41.3 mm (1.63 in.)

Operating Range Chart

The 2850 is capable of measuring conductivity and resistivity values over a wide range. Below is a chart of Signet Conductivity/Resistivity electrodes (listed in each range box) that is recommended for the specified measurement range.



Specifications:

General
Compatible Electrodes: All Signet models with PT1000 RTD

Materials
- Threaded j-box for Integral mount: PBT
- Universal/Remote mount: PBT, CPVC

Temperature Compensation: PT1000 RTD

EasyCal: Automatic recognition of the following conductivity values:
- 146.93 µS, 1408.8 µS, 12856 µS (@25 °C) (Test solutions Per ASTM D1125-95)
- 10 µS, 100 µS, 200 µS, 500 µS, 1000 µS, 5000 µS, 10,000 µS, 50,000 µS, 100,000 µS (@ 25 °C) (Standard test solutions)

Electrical
Power:
- 12 to 24 VDC ±10%, regulated for 4 to 20 mA output (typically called "Loop Powered")
- 5 to 6.5 VDC ±5% regulated recommended (provided by the Signet 8900), 3.0 mA max for Digital (S^3L) output (Reverse polarity and short circuit protected)

Digital (S^3L) Output: Serial ASCII, TTL level 9600 bps
- Accuracy:
  Conductivity: ±2% of reading
  Temperature: ±0.5 °C
- Resolution:
  Conductivity: 0.1% of reading
  Temperature: < 0.2 °C
- Update Rate:
  Single channel models: < 600 ms
  Dual channel models: < 1200 ms

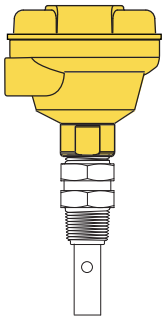
Electrical (continued)
Available data via Digital (S^3L) Output:
- Raw conductivity
- Calibrated conductivity
- Calibrated temperature-compensated conductivity
- Temperature

Max. Pressure/Temperature Ratings
Operating Temperature:
-10 °C to 85 ° C (14 °F to 185 °F)
Storage Temperature:
-20 °C to 85 ° C (-4 °F to 185 °F)
Relative Humidity:
0 to 95%, non-condensing
Enclosure: NEMA 4X/IP65

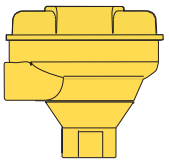
Current Output:
- Field-selectable ranges
- Factory set Span:
  0.01 cell (2819, 2839):
  4 to 20 mA = 0 to 100 µS
  0.10 cell (2820, 2840):
  4 to 20 mA = 0 to 1000 µS
  1.0 cell (2821, 2841):
  4 to 20 mA = 0 to 10,000 µS
  10.0 cell (2822, 2842):
  4 to 20 mA = 0 to 200,000 µS
  20.0 cell (2823):
  4 to 20 mA = 0 to 400,000 µS
- Max. Loop Resistance:
  50 Ω @ 12 VDC
  325 Ω @ 18 VDC
  600 Ω @ 24 VDC
- Accuracy: ±2% of output span
- Resolution: 7 µA
- Update Rate: ‹600 ms
- Error Indication: 22 mA
- Pure Water Compensation:
  When using 0.01-cm cell and raw conductivity value ‹ 0.5 µS, the 2850 auto-switches to compensate for non-linear temperature effects found in this low conductivity (high resistivity) range

Shipping Weight
- Threaded J-Box:
  0.75 kg 1.75 lb
- Universal mount:
  0.75 kg 1.75 lb

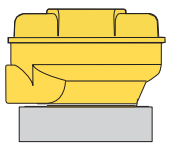
Standards and Approvals
- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management



Integral System includes the 2850 sensor electronics and a choice of Conductivity/ Resistivity electrode.



-5X Threaded J-Box



-6X Universal/Remote Mount

Field Selectable Ranges for 4 to 20 mA Operation

The chart below indicates the field selectable ranges in which the 2850 sensor electronics can be set via internal switches. All ranges can be inverted if required. Signet Models listed below are compatible Conductivity/Resistivity electrodes.

0.01 Cell	0.10 Cell	1.0 cell	10.0 Cell	20.0 Cell
Signet Model 2819 or 2839	Signet Model 2820 or 2840	Signet Model 2821 or 2841	Signet Model 2822 or 2842	Signet Model 2823
10 to 20 MΩ	0 to 2 µS	0 to 20 µS	0 to 200 µS	0 to 400 µS
2 to 10 MΩ	0 to 5 µS	0 to 50 µS	0 to 500 µS	0 to 1,000 µS
0 to 2 MΩ	0 to 10 µS	0 to 100 µS	0 to 1,000 µS	0 to 2,000 µS
0 to 1 MΩ	0 to 50 µS	0 to 500 µS	0 to 5,000 µS	0 to 10,000 µS
0 to 5 MΩ	0 to 100 µS	0 to 1000 µS	0 to 10,000 µS	0 to 20,000 µS
0 to 10 MΩ	0 to 200 µS	0 to 2000 µS	0 to 50,000 µS	0 to 100,000 µS
N/A	0 to 500 µS	0 to 5,000 µS	0 to 100,000 µS	0 to 200,000 µS
N/A	0 to 1,000 µS	0 to 10,000 µS	0 to 200,000 µS	0 to 400,000 µS
The 4 to 20 output ranges shown in this chart can be inverted using the internal switch **Resistivity Ranges are in BOLD**				

Model 2850
Ordering Notes

1) All 2850 units can be used with any Signet Conductivity/Resistivity electrode
2) Integral systems are only offered with Signet models 2839-2842 electrodes.
3) Dual channel units are only available in the universal/remote mount configuration and with digital (S^3L) output for use with the 8900 instrument.

Application Tips

- Maximum distance between sensor and 2850 electronics is 4.6 m (15 ft).
- Longer cable runs may result in small temperature compensation offsets, but can be adjusted through calibration in the 8900. (Not available for 4 to 20 mA versions)

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

Ordering Information

2850 Integral Systems

Use this ordering matrix when an integral 2850 system is desired (uses 2839-2842 series electrodes). Integral systems are shipped with a sensor and 2850 combined. Other 2850 systems are available with Signet 2819 to 2823 electrodes upon request. See individual electrode product pages for more information.

Integral Mount System (includes Sensor Electronics and electrodes)				
3-2850	Conductivity and Resistivity Sensor Electronics			
	Output Type			
	-51	Digital (S^3L) output with EasyCal		
	-52	4 to 20 mA output with EasyCal		
		Sensor Option		
		-39	2839 Electrode, 0.01 cell	
		-40	2840 Electrode, 0.1 cell	
		-41	2841 Electrode, 1.0 cell	
		-42	2842 Electrode, 10.0 cell	
			Process Threaded Connection Types	
			D	ISO threads
			-	NPT threads
3-2850	**-52**	**-39**		**Example Part Number**

2850 Sensor Electronics

Use this ordering matrix when remote sensor mounting is desired. The 2850-5X and 2850-6X are compatible with ALL Signet conductivity electrodes. See individual electrode product pages for more information.

Sensor Part Number			
3-2850	Conductivity Sensor Electronics with 4 to 20 mA or digital output		
	Mounting Configurations		
	-5	¾ inch threaded j-box for standpipe mounting, single input only	
	-6	Universal mount Junction Box for remote mount, single or dual input	
		Output Choices	
		1	One input/one Digital (S^3L) output
		2	One input/one 4 to 20 mA output
		3	Two inputs/two Digital (S^3L) outputs (available for -6X versions only)
3-2850	**-5**	**2**	**Example Part Number**

Mfr. Part No.	Code
3-2850-51	**159 001 398**
3-2850-51-39	**159 001 339**
3-2850-51-40	**159 001 340**
3-2850-51-41	**159 001 341**
3-2850-51-42	**159 001 342**
3-2850-51-39D	**159 001 343**
3-2850-51-40D	**159 001 344**

Mfr. Part No.	Code
3-2850-51-41D	**159 001 345**
3-2850-51-42D	**159 001 346**
3-2850-52	**159 001 399**
3-2850-52-39	**159 001 347**
3-2850-52-40	**159 001 348**
3-2850-52-41	**159 001 349**
3-2850-52-42	**159 001 350**

Mfr. Part No.	Code
3-2850-52-39D	**159 001 351**
3-2850-52-40D	**159 001 352**
3-2850-52-41D	**159 001 353**
3-2850-52-42D	**159 001 354**
3-2850-61	**159 001 400**
3-2850-62	**159 001 401**
3-2850-63	**159 001 402**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2850.101-1	**159 001 392**	Plug-in NIST traceable recertification tool, 1.0 µS simulated
3-2850.101-2	**159 001 393**	Plug-in NIST traceable recertification tool, 2.5 µS simulated
3-2850.101-3	**159 001 394**	Plug-in NIST traceable recertification tool, 10.0 µS simulated
3-2850.101-4	**159 001 395**	Plug-in NIST traceable recertification tool, 18.2 MΩ simulated
3-2850.101-5	**159 001 396**	Plug-in NIST traceable recertification tool, 10.0 MΩ simulated
3-2839-3	**159 001 355**	Electrode - 0.01 µS/cm, 6 in. cable, NPT
3-2839-3D	**159 001 359**	Electrode - 0.01 µS/cm, 6 in. cable, ISO
3-2840-3	**159 001 356**	Electrode - 0.1 µS/cm, 6 in. cable, NPT
3-2840-3D	**159 001 360**	Electrode - 0.1 µS/cm, 6 in. cable, ISO
3-2841-3	**159 001 357**	Electrode - 1.0 µS/cm, 6 in. cable, NPT
3-2841-3D	**159 001 361**	Electrode - 1.0 µS/cm, 6 in. cable, ISO
3-2842-3	**159 001 358**	Electrode - 10.0 µS/cm, 6 in. cable, NPT
3-2842-3D	**159 001 362**	Electrode - 10.0 µS/cm, 6 in. cable, ISO
5523-0322	**159 000 761**	Sensor cable (per ft), 3 cond. plus shield, 22 AWG

Signet 5800CR Conductivity/Resistivity Monitor

Member of the ProPoint® Family of Monitors

Analogue and Digital Display

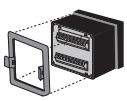
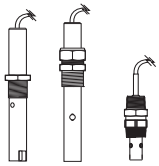
Description

The Signet 5800CR ProPoint® Conductivity/Resistivity Monitor features a unique analogue/digital display, making it the preferred measurement instrument for applications requiring routine monitoring. The digital display guides the user through the simple menu system and provides precision information, while the analogue dial serves as a quick, at-a-glance indicator of the measurement process.

The 5800CR offers 2 fully programmable dry contact relays and a 4 to 20 mA current. The monitor requires 12 to 24 VAC or VDC ±10%, regulated and is packaged in a convenient ¼ DIN, NEMA 4X/IP65 front panel. The enclosure is hard-coated, high-impact, UV resistant polycarbonate.

In addition to programmable outputs and relays, the unit can also be set up to measure raw conductivity values, hence meeting USP requirements.

System Overview

In-line Sensor Installation	Submersible Sensor Installation
Panel Mount **Signet 5800CR Conductivity/Resistivity Monitor**  	**Panel Mount** **Signet 5800CR Conductivity/Resistivity Monitor** 
	Pipe extension or conduit with 3/4 in. FNPT threads (customer supplied) 
Signet 2822-2823, & 2842 Conductivity Electrodes (sold separately) 	
Note: Submersible installation not applicable for Sanitary Electrode.	
In-Line Installation - Fittings (Customer supplied)	

Features

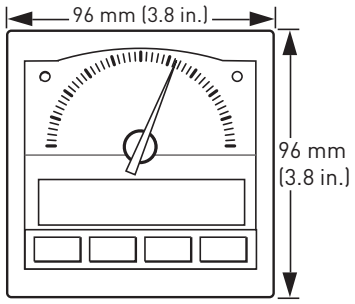
- **Display units: µS, mS, kΩ, MΩ, PPM (TDS)**
- **Temperature compensation**
- **Two programmable relays**
- **Dual proportional control capability**
- **Scaleable 4 to 20 mA output**
- **Simple push-button operation**
- **Intuitive software**
- **Non-volatile memory**
- **Compatible with ALL Signet conductivity electrodes**
- **12 to 24 VAC or VDC power**
- **NEMA 4X/IP65**

Applications

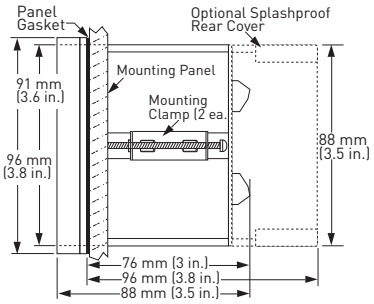
- **Water Quality Monitoring**
- **Reverse Osmosis**
- **Demineraliser Regeneration and Rinse**
- **Cooling Tower & Boiler Protection**
- **Chemical Concentration**
- **Rinse Tanks**
- **Desalination**
- **Artificial Saltwater Production**
- **Aquatic Animal Life Support Systems**
- **Aquaculture**
- **Environmental Studies**

CE c UL us LISTED MEASURING EQUIPMENT 77CJ

Dimensions



Front View



Side View

Model 5800CR
Ordering Notes

1) Panel cutout should be 92 x 92 mm (3.62 x 3.62 in.)
2) Reversible dials are included and are scaled from 0 to 2, 0 to 4, 0 to 6, 0 to 8, 0 to 10, and 0 to 100.
3) An optional splash proof rear cover can be ordered separately if needed.
4) Unit tags are provided for labelling dials.
5) Use RC filter kits to protect relays from voltage spikes.

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

Specifications

General

Operating Range:
- Conductivity: 0.055 to 400,000 µS/cm
- Resistivity: 10 kΩ•cm to 18.2 MΩ•cm (0.055 to 100 µS/cm)

Solution temperature must be greater than 20 °C for Resistivity above 10 MΩ•cm
- Temperature: 0 °C to 100 °C (32 °F to 212 °F) using PT1000

Display
- Analogue: Reversible dials: 0 to 2, 4, 6, 8, 10 and 100
- Digital: Backlit LCD, 2x16 alpha-numeric character

Materials
- Enclosure: ABS Plastic
- Keypad: Silicone Rubber
- Panel and case gasket: Neoprene
- Window: Hard-coated polycarbonate

Electrical

Power Requirements:
12 to 24 VAC or VDC ±10%, regulated recommended, 50 to 60 Hz, 10W max.

Current Output
- 4 to 20 mA, non-isolated, active, internally powered
- Loop Impedance:
  350 Ω max. @ 12V
  950 Ω max. @ 24V
- Accuracy: ± 0.1%

Electrical (continued)

Alarm Contacts:
- Two SPDT relays: 5A @ 30 VDC, 5 A @ 125 VAC, or 3A @ 250 VAC max.
- High/low/pulse programmable with adjustable hysteresis

Environmental

Operating Temperature:
-10 °C to 55 °C (14 °F to 131 °F)
Relative Humidity:
0 to 95%, non-condensing
Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.8 kg 1.76 lb

Standards and Approvals
- CE, UL, CUL
- Manufactured under ISO 9001 for Quality & ISO 14001 for Environmental Management

Ordering Information

Mfr. Part No.	Code	Description
3-5800CR	**198 825 005**	Conductivity/Resistivity Monitor

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-5000.395	**198 840 227**	Splashproof rear cover kit
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.399	**198 840 224**	5 x 5 inch adapter plate to retrofit older Signet installation
3-8050.392	**159 000 640**	¼ DIN retrofit adapter
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (3 connectors)
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 PG 13.5 (1 connector)
Replacement Parts		
3-5000.390	**159 000 323**	Installation kit
3-5000.525-1	**198 840 226**	Bezel, 5000 series
3-5500.390	**159 000 347**	Dial kit
3-5500.611	**198 840 230**	Unit tags
3-5000.397	**159 000 326**	5000 series window (window, keypad, and screws)
Other		
3-5000.398	**159 000 646**	Protective overlay kit (10 pcs)
3-8050.396	**159 000 617**	RC filter kit (for relay use), 2 per kit

Signet 5900 Salinity Monitor

Member of the ProPoint® Family of Monitors

Description

The Signet 5900 Salinity Monitor utilises conductivity sensors to provide direct reading, including calibration, of salinity in parts per thousand (PPT). Equipped with a scaleable 4 to 20 mA output and two programmable relays, the monitor requires 12 to 24 volts ±10%, regulated, AC or DC, and is compatible with Signet 10 cm^{-1} or 20 cm^{-1} conductivity cells. Temperature is selectable for display in either °C or °F, and compensation is automatic.

Calibration is simplified with single-point salinity and temperature entry via the wet-cal menu sequence. The four-button keypad arrangement with intuitive software design is user-friendly, and is offered with a hard-coated, high impact, and UV resistant polycarbonate front face. The front panel is rated NEMA 4X/IP65 and an optional splashproof cover is available to protect the back of the instrument.

Features

- **Direct reading and calibration in PPT**
- **Dual proportional control capability**
- **Scaleable 4 to 20 mA output (active) internally powered**
- **Two programmable relays**
- **Tamper-proof security code**
- **Analogue and digital display**
- **Non-volatile memory**
- **Compatible with ALL Signet conductivity electrodes**
- **Versatile low voltage power requirement**
- **NEMA 4X/IP65**

Applications

- **Desalination**
- **Saltwater Production**
- **Aquatic Animal Life Support Systems**
- **Aquaculture**
- **Environmental Studies**

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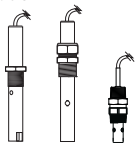
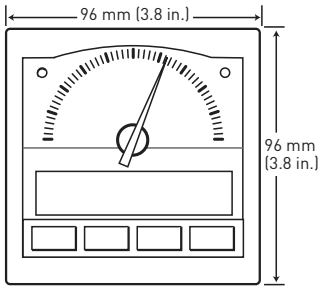
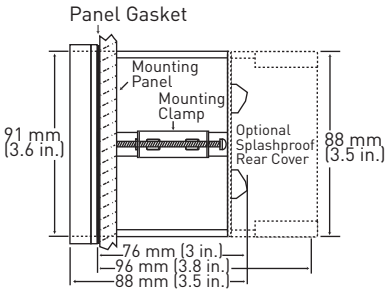
System Overview

In-Line Sensor Installation	Submersible Sensor Installation
Panel Mount **Signet 5900 Instrument** 	**Panel Mount** **Signet 5900 Instrument** 
	Pipe extension or conduit with 3/4 in. NPT or ISO 7/1-R 3/4 threads 
Signet Conductivity Electrode (sold separately) 	
In-Line Installation - Fittings (Customer supplied)	

Dimensions



Front View



Side View

Specifications

General

Operating Range:
- Salinity: 1 to 80 ppt (parts per thousand)
- Temp.: -5 °C to 100 °C (23 °F to 212 °F)

Accuracy: ± 2% of reading

Display:
- Analogue: Reversible dials: 0 to 2, 4, 6, 8, 10 and 100
- Digital: Backlit LCD, 2x16 alphanumeric characters

Materials
- Enclosure: ABS Plastic
- Keypad: Silicone Rubber
- Panel and case gasket: Neoprene
- Window: Hard-coated polycarbonate

Electrical

Power Requirements:
12 to 24 VAC or VDC ±10%, regulated recommended, 50 to 60 Hz, 10W max.

Current Output:
- 4 to 20 mA, non-isolated, active, internally powered
- Loop Impedance:
  350 Ω max. @ 12 V
  950 Ω max. @ 24 V
- Accuracy: ± 0.1%

Electrical (continued)

Alarm Contacts:
- Two SPDT relays:
  5 A @ 30 VDC
  5 A @ 125 VAC
  3 A @ 250 VAC max.
- High/low/pulse programmable with adjustable hysteresis
- Dual proportional control capability, up to 300 pulses per minute

Environmental

Operating Temperature:
-10 °C to 55 °C (14 °F to 131 °F)

Relative Humidity:
0 to 95%, non-condensing

Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.8 kg 1.76 lb

Standards and Approvals
- CE, UL, CUL
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Model 5900
Ordering Notes

1) Panel cutout should be 92 x 92 mm (3.62 x 3.62 in.)
2) Reversible dials are included and are scaled from 0 to 2, 0 to 4, 0 to 6, 0 to 8, 0 to 10, 0 to 100.
3) An optional splash proof rear cover can be ordered separately if needed for outdoor environments.
4) Use RC filter kits to protect relays from voltage spikes.

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

Ordering Information

Mfr. Part No.	Code	Description
3-5900	**198 825 008**	Salinity Monitor with 4 to 20 mA output and two relays

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-5000.395	**198 840 227**	Splashproof rear cover kit
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-5000.399	**198 840 224**	5 x 5 inch adapter plate to retrofit older Signet installation
3-8050.392	**159 000 640**	¼ DIN retrofit adapter
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (3 connectors)
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, PG 13.5 (1 connector)
Miscellaneous		
3-5000.390	**159 000 323**	Installation kit
3-5000.397	**159 000 326**	5000 series window kit (window, keypad and screws)
3-5000.525-1	**198 840 226**	Bezel, 5000 series
3-5500.390	**159 000 347**	Dial kit
3-5500.612	**198 840 230**	Unit tags
3-5000.398	**159 000 646**	Protective overlay kit (10 pcs)
3-8050.396	**159 000 617**	RC filter kit (for relay use), 2 per kit

Signet 8850 Conductivity/Resistivity Transmitters

Member of the ProcessPro® Family of Transmitters

Panel Mount

Pipe, Tank, Wall and Integral Mount

Description

The Signet 8850 Conductivity/ Resistivity Transmitter is designed for multiple installation capabilities, simple set-up and easy operation, thus satisfying a broad range of application requirements.

Full microprocessor based electronics allow for a wide operating range and long term signal stability in three different instrument versions: the 8850-1 for a traditional two-wire current loop, the 8850-2 features current loop plus two dry contact relays, or the 8850-3 with two-wire current loop, one sensor input signal and two current loop outputs.
The 8850 is offered with a NEMA 4X/ IP65 front panel with a self-healing window in a convenient ¼ DIN package for easy mounting. The 8850 can be configured via a simple menu system.

In addition to programmable outputs and relays, the unit can also be set up to measure raw conductivity values.

Features

- **Display choices of µS, mS, KΩ, MΩ, PPM (TDS)**
- **Simulate function**
- **Programmable temperature compensation**
- **Relay and open collector options**
- **Dual output option allows temperature and process signal transmission**
- **NEMA 4X/IP65 enclosure with self-healing window**
- **Compatible with ALL Signet conductivity electrodes**

Applications

- **RO/DI System Control**
- **Rinse Tank Control**
- **Cooling Tower, Scrubber or Blowdown Control**
- **Environmental Study (TDS)**
- **Desalination Monitor**
- **Water Quality Monitoring**
- **Leak Detection**
- **Chemical Concentration**

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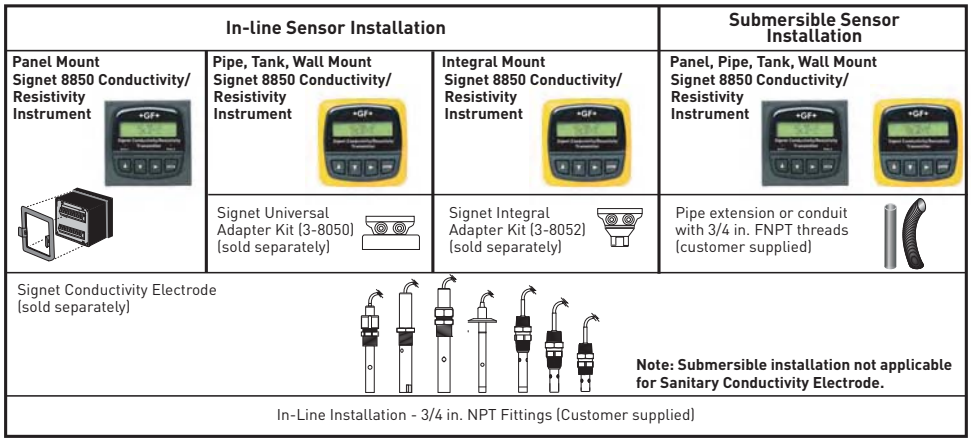
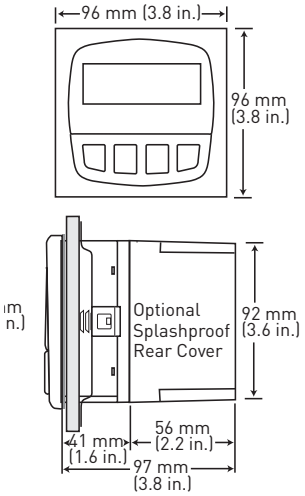
System Overview

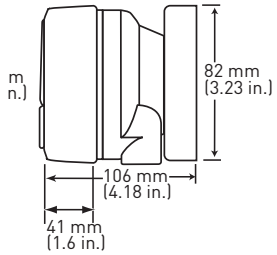


Dimensions

3-8850-XP Panel Mount



Field version with universal mounting kit.



Specifications

General

Compatible Electrodes:
All Signet conductivity/resistivity electrodes

Sensor input range:
- Conductance: 0.055 to 400,000 µS/cm
- Resistivity: 10 KΩ•cm to 18.2 MΩ•cm
- TDS: 0.023 to 200,000 ppm
- Temperature: PT1000, -25 °C to 120 °C (-13 °F to 248 °F)

Accuracy:
- Conductivity/Resistivity: ±2% of reading
- Temperature: ±0.75 °C

Display:
- Alphanumeric 2 x 16 LCD
- Contrast: User selected, 5 levels
- Update Rate: 1.8 seconds

Materials
- Case: PBT
- Panel case gasket: Neoprene
- Window: Polyurethane coated polycarbonate
- Keypad: Sealed 4-key silicone rubber

Electrical

Power:
- 12 to 24 VDC ±10% regulated
  (-1) 90 mA max.
  (-2) 290 mA max.
  (-3) 100 mA max.

Current output:
- 4 to 20 mA, isolated, passive, fully adjustable and reversible

Electrical (continued)
- Max Loop Impedance:
  50 Ω max. @ 12 V,
  325 Ω max. @ 18 V,
  600 Ω max. @ 24 V
- Update Rate: 200 ms
- Accuracy: ±0.03 mA @ 25°C, 24 V

Relay Output:
- Mechanical SPDT contacts: High, Low, Pulse, Off
- Maximum Voltage Rating: 5A @ 30 VDC, or 5 A @ 250 VAC resistive load
- Hysteresis: User Adjustable
- Max 400 pulses/min.

Environmental

Operating Temperature:
-10 °C to 70 °C (14 °F to 158 °F)

Storage Temperature:
-15 °C to 80 °C (5 °F to 176 °F)

Relative Humidity:
0 to 95%, non-condensing

Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.6 kg 1.32 lb

Standards and Approvals
- CE, UL listed, CUL
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Instrument Part Number			
3-8850	Conductivity/Resistivity Transmitter		
	Select the Model Suited to the Application		
	-1	One input with 4 to 20 mA output and one open collector; uses 4-wire power	
	-2	One input with 4 to 20 mA output and two relays; uses 4-wire power	
	-3	One input with two 4 to 20 mA outputs and 2 open collectors; uses 4-wire power	
		Field or Panel Mount- Choose One	
		-	Integral mount package
		P	Panel mount package
		↓	
3-8850	**-2**	**P**	**Example Part Number**

Mfr. Part No.	Code
3-8850-1	**159 000 228**
3-8850-1P	**159 000 229**
3-8850-2	**159 000 230**

Mfr. Part No.	Code
3-8850-2P	**159 000 231**
3-8850-3	**159 000 232**
3-8850-3P	**159 000 233**

Model 8850
Ordering Notes

1) Instruments can be mounted directly to a sensor by choosing the following:
- Order integral adapter kit 3-8052 (sold separately) to connect the sensor to an instrument.

2) Use the universal mount kit (3-8050) with the field mount instrument to mount to a pipe, tank or wall.
3) To mount the panel version to a wall, use the heavy duty wall mount bracket
4) Order RC filter kits to protect relays from voltage spikes.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-8050	**159 000 184**	Universal mounting kit
3-8050.395	**159 000 186**	Splashproof rear cover (panel mount only)
3-8052	**159 000 188**	¾ in. integral mounting kit
3-8052-1	**159 000 755**	¾ in. NPT mount junction box
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
3-8050.392	**159 000 640**	¼ DIN retrofit adapter
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (3 connectors)
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, PG 13.5 (1 connector)
Other		
3-8050.396	**159 000 617**	RC filter kit (for relay use), 2 per kit

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

Signet 8860 Two-Channel Conductivity/Resistivity Controller

Member of the ProcessPro® Family of Instruments

Description

The Signet 8860 Two-Channel Conductivity/Resistivity Controller is packed with a set of features and capabilities ideal for the real needs of water treatment applications. It accommodates two separate and independent input sources and can be powered with AC/DC voltage. The 8860 programs via a simple and intuitive menu system. The unit can also be programmed to measure a raw conductivity value by turning off the temperature compensation mode.

To control the process, the 8860 is equipped with four dry contact relays and three 4 to 20mA output loops. Calculated measurement include Difference, Ratio or % Rejection. Two of the relays may be converted into open collector outputs with the flip of a switch. Operating modes for the relays and open collector outputs are high, or low alarm, pulse, or special USP alarm mode. The 8860 is offered with a NEMA 4X/IP65 front panel with a self-healing window in a ¼ DIN package for easy panel installation.

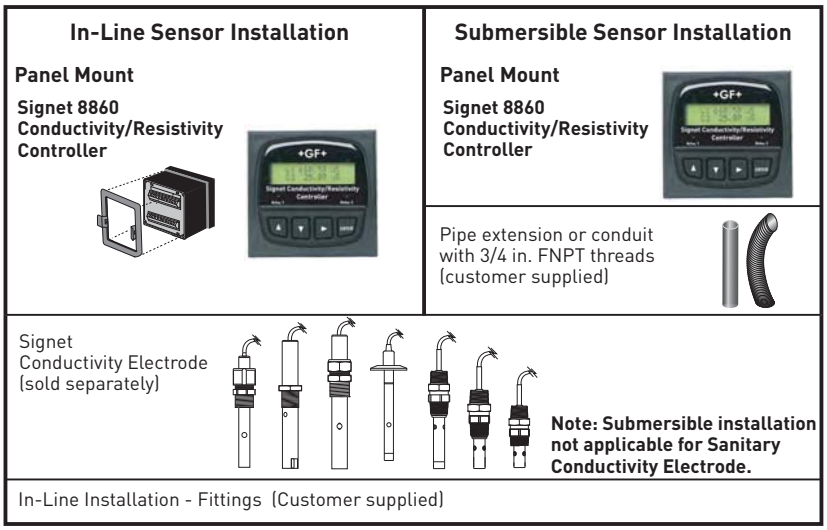
Features

- **Meets USP requirements for measuring raw conductivity, USP alarm mode**
- **Dual sensor input**
- **AC or DC powered**
- **Display and/or control: µS, mS, PPM or PPB (TDS), kΩ, MΩ, % rejection, difference, ratio, °C or °F**
- **Three fully scaleable 4 to 20 mA outputs**
- **Two open collector outputs**
- **Four programmable relays**
- **Time delay relay function**
- **Proportional pulse control capability**
- **Compatible with ALL Signet conductivity electrodes**
- **Programmable temperature compensation**
- **NEMA 4X/IP65**

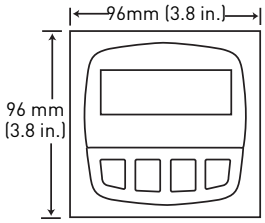
Applications

- **RO/DI System Control**
- **Demineraliser Regeneration and Rinse**
- **Scrubber, Cooling Tower & Boiler Protection**
- **Chemical Concentration**
- **Rinse Tank Water Quality**
- **Desalination**
- **Leak Detection**
- **Aquatic Animal Life Support Systems**
- **Aquaculture**
- **Environmental Studies**

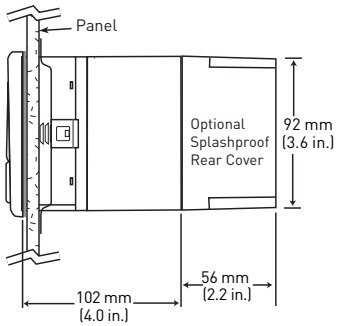
System Overview



Dimensions



Front View



Side View

Specifications

General

Compatible Electrodes:
All Signet conductivity/resistivity electrodes

Operating Range:
- Conductivity: 0.055 to 400,000 µS/cm
- Resistivity: 10 KΩ•cm to 18.2 MΩ•cm (0.055 to 100 µS/cm)
- TDS: 0.001 to 999999 ppm or ppb (display limit)
- Temperature: PT 1000: -25 °C to 120 °C (-13°F to 248°F)

Accuracy:
- Conductivity/Resistivity: ±2% of reading
- Temperature: ±0.5 °C

Materials
- Case: PBT
- Window: Polyurethane coated polycarbonate
- Keypad: Sealed 4-key silicone rubber

Electrical

Power Requirements
- 3-8860-AC: 100 to 240 VAC ±10%, regulated 50-60 Hz, 20 VA
- 3-8860: 12 to 24 VDC ±10%, regulated, 0.5 A max.

Display: Alphanumeric 2 x 16 LCD
Contrast: User selected, 5 levels
Update Rate: 1.5 seconds

Current Outputs:
- (3 each) 4 to 20 mA, isolated, passive, fully adjustable and reversible
- Max. Loop Impedance:
  150 Ω @ 12 V
  450 Ω @ 18 V
  750 Ω @ 24 V
- Update Rate: Approx. 100 mS
- Accuracy: ±0.03 mA @ 25 °C, 24 VDC

Electrical (continued)

Open-Collector Outputs:
- (2 each) Isolated, 50 mA sink or source, 30 VDC max. with pull-up resistor
- Operational Settings:
- High, Low, USP, Pulse, Off
- Hysteresis: User adjustable
- Time Delay: 0 to 6400 seconds
- Maximum Pulse Rate: 400 pulses/min.

Alarm Contacts: (up to 4 each) SPDT Relays
- Max. Voltage Ratings: 5 A @ 30 VDC or 5 A @ 250 VAC
- Operational Settings: High, Low, USP, Pulse, Off
- Hysteresis: User adjustable
- Time Delay: 0 to 6400 seconds
- Maximum Pulse Rate: 400 pulses/min.

Environmental

Ambient Operating Temperature:
-10 °C to 55 °C (14 °F to 131 °F)
Storage Temperature:
15 °C to 80 °C (5 °F to 176 °F)
Relative Humidity:
0 to 95%, non-condensing
Max. Altitude: 2,000 m (6,560 ft)
Enclosure: NEMA 4X/IP65 front

Shipping Weight
- 8860-AC: Approx. 0.581 kg 1.3 lb
- 8860: Approx. 0.544 kg 1.2 lb

Standards and Approvals
- CE, UL, CUL
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Instrument Part Number		
3-8860	Two-channel Conductivity/Resistivity Controller with three 4 to 20 mA outputs and 4 relays or 2 relays with 2 open collectors (switch selectable)	
	Power - Choose One	
	-	12 to 24 VDC
	-AC	100 to 240 VAC
	↓	
3-8860	**-AC**	**Example Part Number**

Model 8860 Ordering Notes
1) An optional splashproof rear cover can be ordered separately if needed.
2) Use the heavy duty wall mount bracket to mount instrument on a wall
3) Order RC filter kits to protect relays from voltage spikes.

Mfr. Part No.	Code
3-8860	**159 000 677**
3-8860-AC	**159 000 678**

Accessories and Replacement Parts

Mfr. Part No	Code	Description
Mounting		
3-8050.395	**159 000 186**	Splashproof rear cover (panel mount only)
3-8050.392	**159 000 640**	¼ DIN retrofit adapter
3-5000.399	**198 840 224**	5 x 5 in. adapter plate to retrofit older Signet installations
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (3 connectors)
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, PG 13.5 (1 connector)
Other		
3-8050.396	**159 000 617**	RC filter kit (for relay use), 2 per kit
3-2830	**159 000 628**	Conductivity Certification Tool (see individual product page for more information)

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

Signet Conductivity/Resistivity Integral Systems with Instruments

Instrument is a Member of the ProcessPro® Family

Features

- **Local display for sensor mounted instruments**
- **Provides 4 to 20 mA output**
- **Relay options available**
- **NEMA 4X/IP65 enclosures**
- **2 or 4 wire power options**

Description

Signet has combined ProcessPro® instruments with conductivity and resistivity sensors to create integral systems that are easy to order and simple to install. Also available in flow, level, temperature, and pressure configurations, each integral system features Model 8850 conductivity/ resistivity instrument which provides a local and easy to read LCD display. The push button keypad makes it easy to navigate through the instrument's menu. The DC-powered Model 8850 features a scalable 4 to 20 mA output and optional relays for process control.

The integral system is also offered with a choice of Signet conductivity and resistivity sensors Models 2839, 2840, 2841, and 2842 in 0.01, 0.1, 1.0, or 10.0 cm-1 cell constants, respectively. These sensors are field proven and reliably perform in ranges from 18.2 MΩ (0.055 µS) to 200,000 µS. They are ideal for installation into standard pipes via the ¾ inch sensor threaded (NPT or ISO) process connection. The sensors are available with stainless steel and PEEK™ wetted materials.

Applications

- **RO/DI System Control**
- **Cooling Tower Control**
- **Environmental Monitoring**
- **Water Quality Monitoring**
- **Filtration Systems**
- **Chemical Production**
- **Scrubber Systems**
- **Boiler Condensate**
- **Semiconductor Water Production**
- **Leak detection**
- **Chemical Concentration Monitoring**

CE

System Overview

Integral Mount Signet 8850 Instrument

8850

Signet Integral Adapter Kit

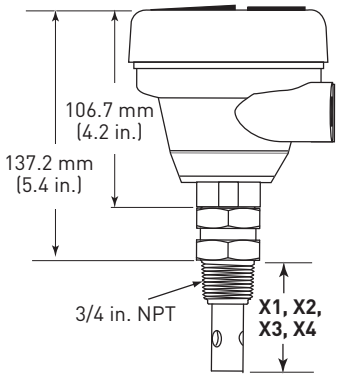
8052

Signet Dual-Threaded Conductivity Electrodes

2839, 2840, 2841 or 2842

Standard 3/4 in. fittings (customer supplied)

Dimensions



X1 (3-2839-1, -1D): 73mm (2.88 in.)
X2 (3-2840-1, -1D): 35mm (1.38 in.)
X3 (3-2841-1, -1D): 41.3mm (1.63 in.)
X4 (3-2842-1, -1D): 41.3mm (1.63 in.)

Integral Instruments Ordering Notes

1) Model 8850, is available with all parts conveniently assembled (instrument, sensor, and mounting kit) to build an integrally mounted system. Alternatively, all three parts can be purchased separately.
2) See individual instrument and sensor pages for more information.

Specifications

See individual instrument and sensor/electrode catalogue pages for more information. Refer to Models 2839, 2840, 2841, 2842, and 8850 technical specifications for more details on these products.

Ordering Information

Conductivity/Resistivity Instrument - Choose One			
3-8850-1	Conductivity Instrument, 4 to 20 mA and one open collector		
3-8850-2	Conductivity Instrument, 4 to 20 mA and 2 relays		
3-8850-3	Conductivity Instrument, 4 to 20 mA and 2 relays and open collectors		
↓	Conductivity Sensors - Choose One		
	3-2839-1	Cell constant: 0.01 cm-1, ¾ in. NPT	
	3-2839-1D	Cell constant: 0.01 cm-1, ISO 7/1-R 3/4	
	3-2840-1	Cell constant: 0.1 cm-1, ¾ in. NPT	
	3-2840-1D	Cell constant: 0.1 cm-1, ISO 7/1-R 3/4	
	3-2841-1	Cell constant: 1.0 cm-1, ¾ in. NPT	
	3-2841-1D	Cell constant: 1.0 cm-1, ISO 7/1-R 3/4	
	3-2842-1	Cell constant: 10.0 cm-1, ¾ in. NPT	
	3-2842-1D	Cell constant: 10.0 cm-1, ISO 7/1-R 3/4	
	↓	Mounting Kit - Mounts the Instrument to the Sensor	
		3-8052	Integral mounting kit
		↓	
3-8850-1	**3-2839-1**	**3-8052**	**Example of three part numbers required to assemble integral unit if purchased separately**

Mfr. Part No./Code	Components*
159 001 043	3-8850-1 + 3-2839-1
159 001 044	3-8850-1 + 3-2840-1
159 001 045	3-8850-1 + 3-2841-1
159 001 046	3-8850-1 + 3-2842-1
159 001 487	3-8850-1 + 3-2839-1D
159 001 488	3-8850-1 + 3-2840-1D
159 001 489	3-8850-1 + 3-2841-1D
159 001 490	3-8850-1 + 3-2842-1D
159 001 047	3-8850-2 + 3-2839-1
159 001 048	3-8850-2 + 3-2840-1
159 001 049	3-8850-2 + 3-2841-1
159 001 050	3-8850-2 + 3-2842-1
159 001 491	3-8850-2 + 3-2839-1D
159 001 492	3-8850-2 + 3-2840-1D
159 001 493	3-8850-2 + 3-2841-1D
159 001 494	3-8850-2 + 3-2842-1D
159 001 051	3-8850-3 + 3-2839-1
159 001 052	3-8850-3 + 3-2840-1
159 001 053	3-8850-3 + 3-2841-1
159 001 054	3-8850-3 + 3-2842-1
159 001 495	3-8850-3 + 3-2839-1D
159 001 496	3-8850-3 + 3-2840-1D
159 001 497	3-8850-3 + 3-2841-1D
159 001 498	3-8850-3 + 3-2842-1D

***8052 Integral Mount Kit Included**

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

Signet pH and ORP Buffer Solutions

Features

- **NIST Traceable**
- **Easily identifiable colour coded buffer solutions**
- **Liquid or powder versions**
- **Temperature compensated values**
- **Kits for easy use**

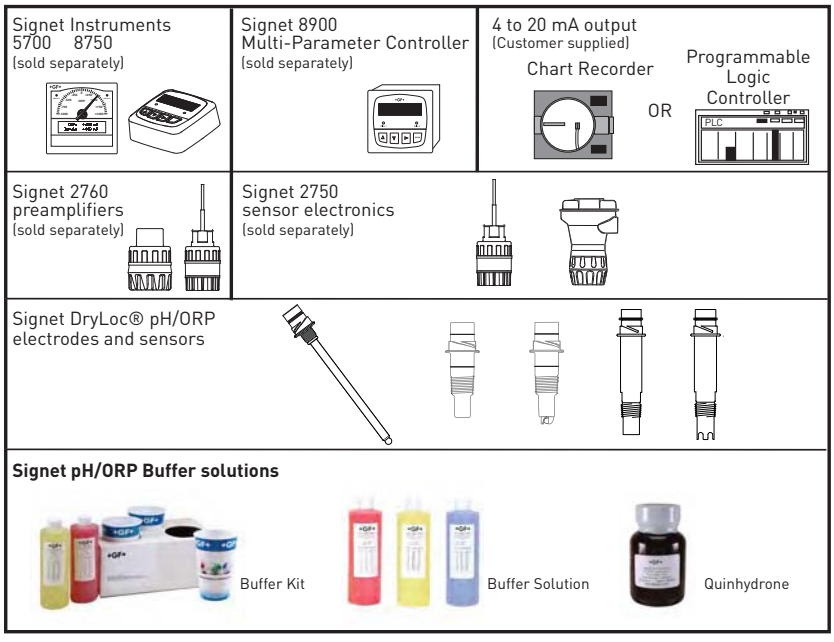
Description

The Signet pH buffers are ideal for many calibration requirements. The liquid solutions are conveniently packaged in one pint bottles; the powder pillows are packaged in low weight, single-use containers which can be mixed with water. All pH buffers are colour coded for easy identification; 4.01 pH is red, 7.00 pH is yellow, and 10.00 pH is blue.

The pH buffers are traceable to NIST standards and certificates are available upon request. They are accurate to within ± 0.01 pH units @ 25 °C and have long term stability.

These solutions are temperature sensitive and are provided with temperature correction values for the most accurate calibration. For applications that require ORP calibration, the pH 4 and pH 7 buffers can be mixed with quinhydrone powder for the correct measurement values of 87 mV and 264 mV respectively.

System Overview



Calibration Tips

1) The pH and ORP solutions can be used for calibrating more than one sensor within a day. However, the solutions must remain free of debris and must not be diluted by rinse water from previous calibrations.
2) ORP solutions made with quinhydrone are very unstable and may not read properly once exposed to air for a prolonged time. These solutions must be disposed within an hour.
3) All other calibration solutions must be disposed at the end of one day. Proper disposal is simply done by running tap water while pouring the used solutions slowly down the drain or per local requirements.
4) Tap or deionised water is acceptable for use as rinsing the solutions off of the sensors.

*Sensors are good when a new electrode reads very close to the theoretical value (±0.25 pH). A used pH electrode may read as far off as ±0.85 pH before it needs to be replaced. If the pH readings in all buffers have shifted greater than 0.85 pH units (for example, electrode is reading 4.85 in a 4 buffer and 7.85 in a 7 buffer) or if the millivolt offset for pH/ORP sensors is extreme (outside of ±50 mV) in both pH/ORP solutions), a problem with the reference electrode is indicated and the electrode should be replaced.

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-2700.395	**159 001 605**	Calibration kit; includes 3 PP cups, cup stand, 1 pint pH 4.01, 1 pint pH 7.00
3822-7115	**159 001 606**	20 gram bottle Quinhydrone for ORP calibration
3822-7004	**159 001 581**	pH 4.01 buffer solution, 1 pint (473 ml) bottle
3822-7007	**159 001 582**	pH 7.00 buffer solution, 1 pint (473 ml) bottle
3822-7010	**159 001 583**	pH 10.00 buffer solution, 1 pint (473 ml) bottle
3-0700.390	**198 864 403**	pH buffer kit (1 each 4, 7, 10 pH buffer in powder form, 50 ml of each)
Special Request		NIST Traceable Certificate

Understanding pH and ORP Calibration

Why do electrodes need to be calibrated?
Calibration ensures the pH or ORP electrode continues to function properly and accurately. pH and ORP electrode readings vary over time due to changes in reference voltage or aging of the pH glass. pH electrode output decreases with age, coating, elevated temperatures and pH glass erosion (by abrasion, and strong sodium hydroxide (NaOH), potassium hydroxide (KOH) or hydrofluoric acid (HF) solutions).
Calibration helps to identify when the electrode is worn-out and needs to be replaced.

How often should an electrode be calibrated?
• **New applications:** Once a week calibration is recommended for a new process where a pH or ORP electrode has never been installed. If the electrode calibrates within acceptable limits* over the next few weeks, change the calibration schedule to once-every-two-weeks and continue to extend the schedule to meet your needs.
• **Existing applications:** It is recommended the electrode be calibrated at least every one to two months to ensure proper function* of the electrode.
• **Critical applications:** In locations where measurement accuracy is extremely critical, the electrode should be calibrated as frequently as required for proper performance*, even twice a week if necessary.
• **Dirty applications:** In applications where the electrode needs frequent cleaning, the electrode should be calibrated after each cleaning to ensure proper functionality*.

Why do some electrodes need frequent calibration while others need calibration every few months?
If a process plant has a variety of processes within the facility, a calibration schedule needs to be determined for sensors placed in each type of process liquid.
- Clean applications, like drinking water, are rarely a problem for pH or ORP measurements and calibration is typically required every few months.
- If the process solution contains high concentrations of chemicals, elevated temperature and/or pressure, or has many suspended solids, it is common to calibrate once every one or two weeks.
- For dirty process liquid applications, an electrode should be cleaned before calibrating.

What calibration solutions should be used?
For pH calibration:
- Two pH buffer solutions should be used and need to be at least 3 pH units apart
- Use pH 7.00 and pH 4.01 solutions if the normal measurement value is less than 7 pH
- Use pH 10 and pH 7 if the normal measurement value is greater than 7 pH

ORP two point calibration:
- ORP calibrations are performed similar to pH calibrations using one or two solutions at different values.
- A pH 4 buffer solution saturated with quinhydrone will generate 264 mV while a pH 7 buffer saturated with quinhydrone will generate 87 mV.
  Note: Quinhydrone solutions will last for a short time only (one hour or less). Also note that Signet EasyCal function only works with these two values.

Calibration Kits for Signet 4150 Turbidimeter

Calibration Kit, 100, 10 & 0.02 NTU/FNU

Calibration Kit, 1000, 10 & 0.02 NTU/FNU

Features

- **Stable pre-mixed standards that are certified accurate**
- **Sealed calibration cuvettes**
- **Shelf life - 1 year**
- **Easy to follow instructions**
- **Kits for easy use**

Applications

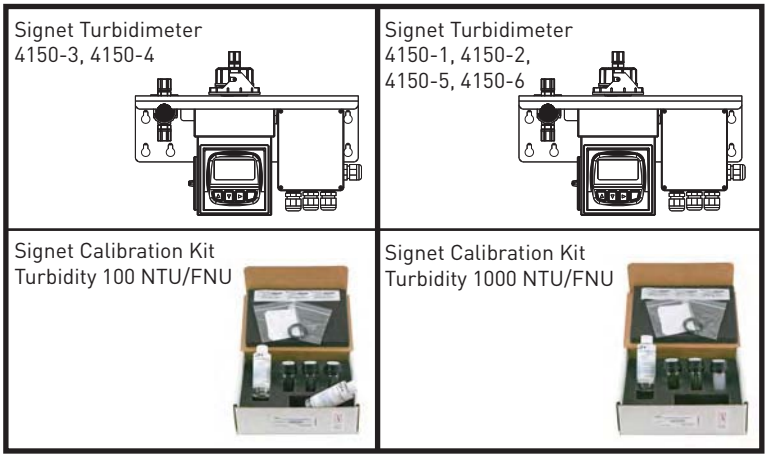
- **Potable Water Filtration**
- **Water Reclamation**
- **Food and Beverage Plants**

Description

The Calibration Standard kits contain fluids in special cuvette bottles that are used to compare the clarity of the process water against the standard to calibrate the turbidity instrument. The standard kits come in two pre-mixed, calibrated ranges.

The 0-100 version is generally used for measuring the turbidity of clean, potable water applications. The 0-1,000 version is used to measure water that has a turbidity which may exceed 100, such as water in a reclamation plant.

System Overview



Ordering Information

Mfr. Part No.	Code	Description
3822-4001	**159 001 585**	*Calibration Kit, Turbidity, 100, 10 & 0.02 NTU/FNU
3822-4003	**159 001 586**	*Calibration Kit, Turbidity, 1000, 10 & 0.02 NTU/FNU
4150-0007	**159 001 602**	Replacement cuvette set (3 glass cuvettes)
4150-0004	**159 001 589**	Replacement cuvette with ultrasonic transducer

Formazin Stock Kit for Signet 4150 Turbidimeter

Features

- **Turbidity Standard for most any value**
- **Three different graduated pipettes included**
- **Four Glass cuvettes with light shield caps**
- **Easy to follow instructions**

Description

The Formazin Stock kit contains all chemicals and instructions to dilute/mix calibration standards between 1.0 and 1980 NTU/FNU.

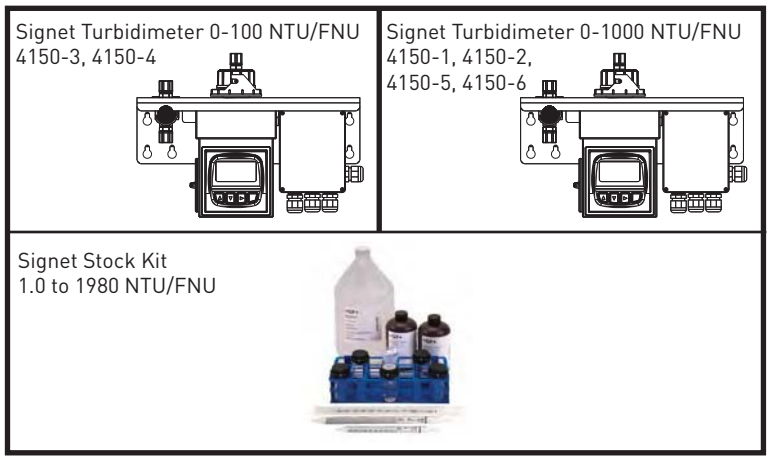
The Formazin Stock kit can be used to calibrate third party turbidity instruments as well as the Signet 4150 Turbidimeter.

Contents P/N 3822-4002	Units	Qty.
0.02 NTU/FNU Standard	ea.	1
Instruction sheet	ea.	1
Formazin 4000 NTU/FNU Stock Solution	500 mL	2
Turbidity-free 0.02 NTU/FNU water	1 gal (4 L)	1
Selected Cuvettes with cuvette stand	ea.	4
Light shield caps with O-rings	ea.	4
Pipettes (1 mL, 10 mL, 25 mL with graduated scales)	set	1

Applications

- **Potable Water Filtration**
- **Water Reclamation**
- **Food and Beverage Plants**

System Overview



Ordering Information

Mfr. Part No.	Code	Description
4150-0007	**159 001 602**	Replacement cuvette set (3 glass cuvettes)
4150-0004	**159 001 589**	Replacement cuvette with ultrasonic transducer
3822-4002	**159 001 591**	*Formazin Stock Kit
3822-4000	**159 001 592**	*Formazin Stock Solution, 4000 NTU/FNU, 500 ml

* Material Safety Data Sheets (MSDS) are available online at www.gfsignet.com/msds.htm.

Signet 2759 pH/ORP System Tester

Features

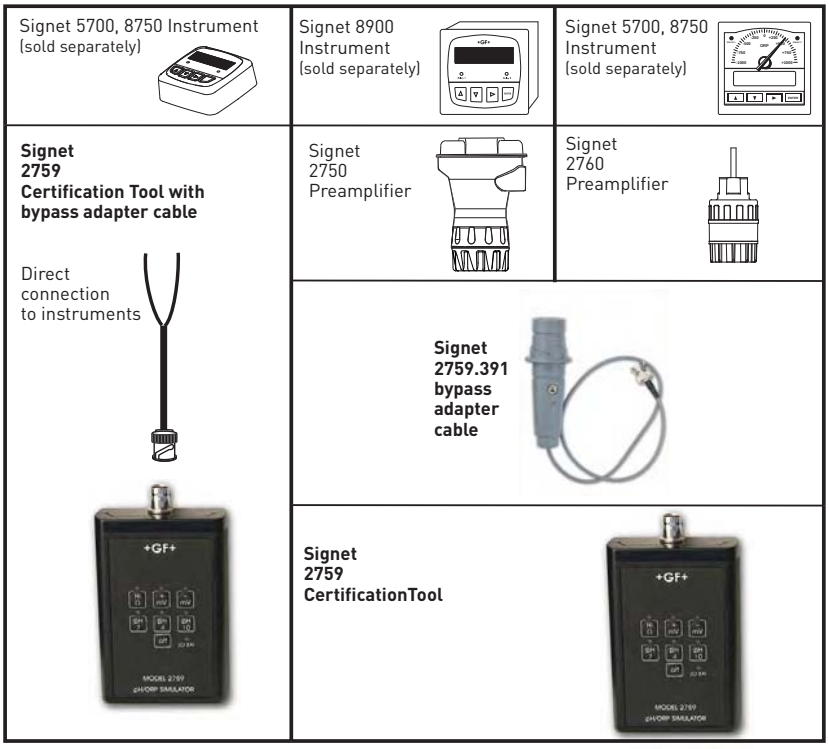
- **Battery powered millivolt generator**
- **Simulates pH and ORP values**
- **High impedance input simulates preamplified signal**
- **Verifies system functionality**
- **Compatible with 2750 and 2760 preamplifiers**
- **Connects to any Signet pH/ORP instrument**
- **Verifies preamplifier or instrument electronics**

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.

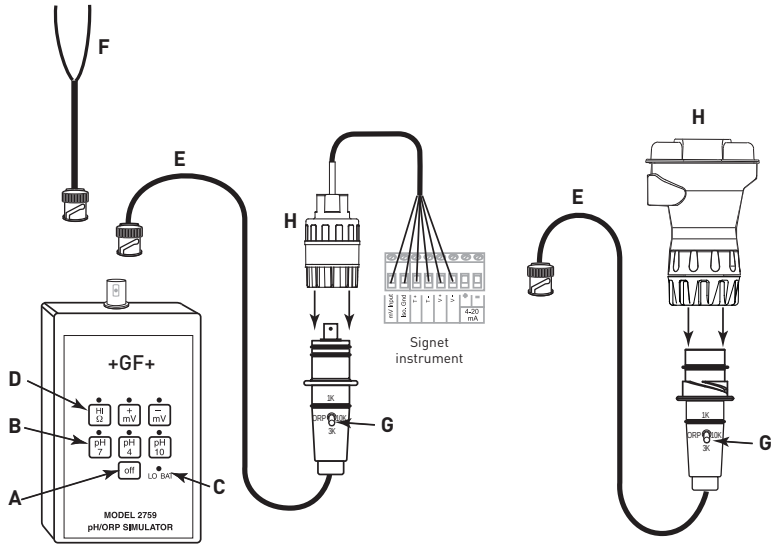
Accessory adapter cables (sold separately) enable the 2759 to connect directly to Signet 2760 preamplifiers, or 2750 pH/ORP Sensor Electronics. The adapters include a selector switch for pH (3K or PT1000 Temperature Compensation) or ORP simulation. The switch triggers automatic sensor-recognition software in Signet pH/ORP instrumentation.

System Overview



Features

A) Power OFF Button
B) Output simulation buttons and indicators. Simulate pH and ORP output at 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 MΩ resistance in series with output. Simulates high impedance of pH electrodes. Used to verify proper preamplifier operation.
E) Adapter cable: use PN 3-2759.391 for use with the 2750 or 2760.
F) 3-2759.390: Bypass adapter cable (included with 2759) to connects directly to an instrument.
G) Mode selector switch: Trigger automatic sensor recognition software in Signet pH/ORP instrumentation. the three-way toggle switch positions are:
   - Top = 1K for a Signet 8900 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



Ordering Information

Part Number		
3-2759	pH and ORP system tester; includes bypass cable 3-2759.390 for direct connection to Signet 5700 or 8750 instruments.	
	Additional Accessory Items - Optional	
	3-2759.391	For use with the Signet 2750 sensor electronics or the 2760 preamplifier
3-2759		Example Part Number
3-2759	**Plus 3-2759.391**	Example Part Number

Mfr. Part No.	Code	Description
3-2759	**159 000 762**	pH/ORP System Tester for all pH Instruments (includes bypass adapter cable)
3-2759.390	**159 000 763**	Bypass Adapter Cable for Signet 5700 and 8750 pH/ORP
3-2759.391	**159 000 764**	Adapter Cable for use with 2750 and 2760

Signet Conductivity/Resistivity Tools

2830 2850-101-X

Features

- **Simulates five different values**
- **Compatible with all Signet Conductivity/ Resistivity instruments**
- **Verifies electronics independent of electrode**
- **NIST traceable units**
- **Temperature compensated to 25 °C**
- **All units ship with NIST traceable certificates**

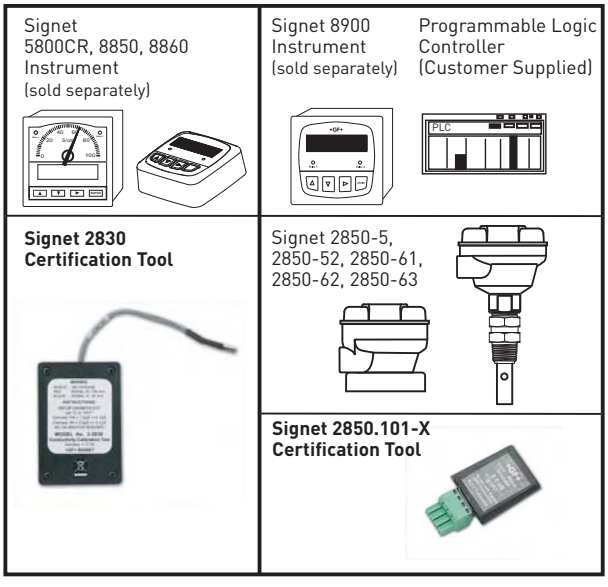
Description

The Signet conductivity/resistivity tools are available for certification or validation of electronics that are independent of the electrode. Because there are no available liquid standards for calibration in low conductivity and resistivity applications, these tools are ideal for various installations. All tools are built to conform to the ASTM D 1125-95 Standard (Standard Test Methods for Electrical Conductivity and Resistivity of Water), which is also commonly used for USP 24 applications.

Signet tools simulate, within ±0.1% precision (accuracy), various values: 1.0 µS, 2.5 µS, 10.0 µS, 10.0 MΩ, 18.2 MΩ. These tools also temperature compensated to 25 °C and enable the user to accurately validate or certify the electronics.

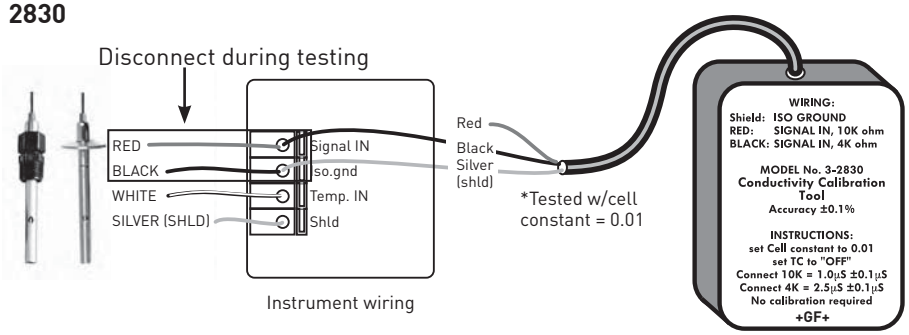
Model 2830 can be used with Signet Models 5800CR, 8850, and 8860 instruments. The 2850-101-X simulators are used with the Model 2850 electronics and simply plugs into the same terminals as the sensor cables.

System Overview



Wiring

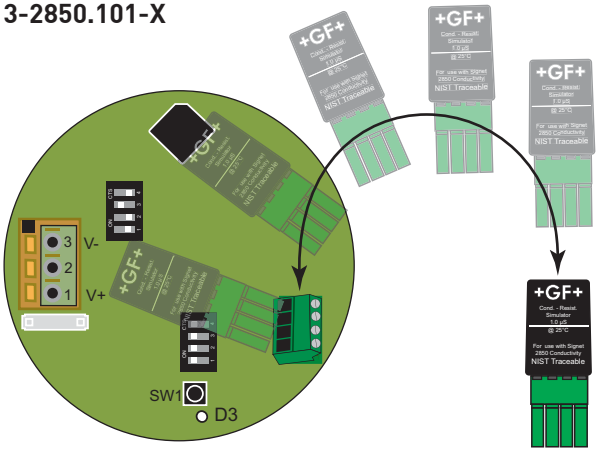
2830



Instrument wiring

2830 Conductivity Certification Tool

3-2850.101-X



Ordering Information

Mfr. Part No.	Code	Description
3-2830	**159 000 628**	Conductivity Certification Tool, for Signet Models 5800CR, 8850, 8860
3-2850.101-1	**159 001 392**	Plug-in NIST traceable tool, 1.0 µS simulated for Signet Models 2850-5X, 2850-6X
3-2850.101-2	**159 001 393**	Plug-in NIST traceable tool, 2.5 µS simulated for Signet Models 2850-5X, 2850-6X
3-2850.101-3	**159 001 394**	Plug-in NIST traceable tool, 10.0 µS simulated for Signet Models 2850-5X, 2850-6X
3-2850.101-4	**159 001 395**	Plug-in NIST traceable tool, 18.2 MΩ simulated for Signet Models 2850-5X, 2850-6X
3-2850.101-5	**159 001 396**	Plug-in NIST traceable tool, 10.0 MΩ simulated for Signet Models 2850-5X, 2850-6X

Signet 2250 Submersible Hydrostatic Pressure Sensor For Level and Depth Control

Blind Transmitter or Digital (S^3L) Sensor

Features

- **Level and depth measurement**
- **4 to 20 mA or digital (S^3L) output**
- **Flush ceramic diaphragm**
- **Easy submersible installation**
- **Choice of two pressure ranges**
- **Standard union connection and extended cable and capillary tubing (10 m)**

Description

The Signet 2250 Hydrostatic Level Sensor for level and depth control has a one-piece injection moulded PVDF body and ceramic diaphragm for superior compatibility in corrosive liquids. Utilizing hydrostatic pressure, the 2250 disregards false level signals from steam vapours, foam or any other debris on the liquid surface. Two pressure ranges allow for optimal resolution matched to your sensing needs. Solid state circuitry eliminates drift (no internal potentiometers).

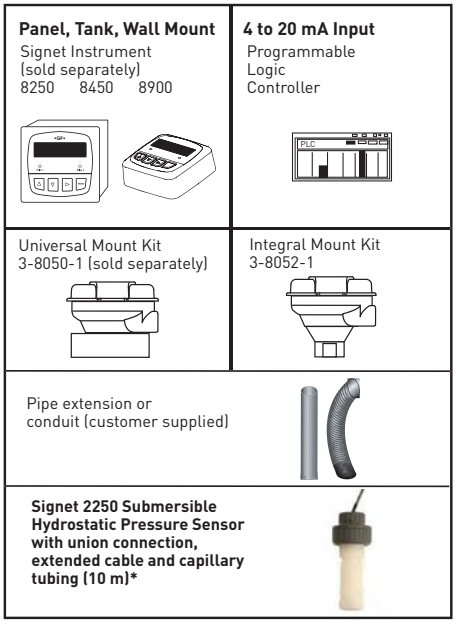
Built-in temperature compensation provides outstanding accuracy over wide temperature ranges. These sensors are available with a proprietary digital output (S^3L), or 4 to 20 mA output. The extended cable and capillary tubing with the union connection and a customer supplied conduit, allow submersion in process vessels.

Applications

- **Inventory Management**
- **Storage Tank Monitoring**
- **Neutralisation Tanks**
- **Plating Lines**
- **Waste Sumps**
- **Clarifiers**
- **Overflow Protection**

CE

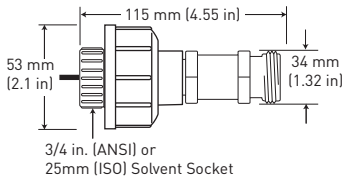
System Overview

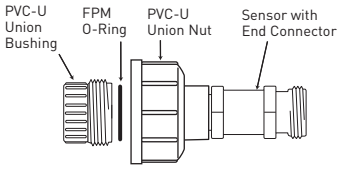


* Cable must be exposed to the atmosphere.

Dimensions

3-2250-1X
3-2250-2X





Pressure/Level ranges*:
• 3-2250-XU: 0 to 10 psi = 0 to 7.03 m = 0 to 23.06 ft
• 3-2250-XL: 0 to 50 psi = 0 to 35.15 m = 0 to 115.32 ft

*Ranges calculated using specific gravity of water. Maximum ranges may vary for other liquids.

Signet 2250
Ordering Notes

1) Instrument is sold separately. The following instrument part numbers are compatible with the 2250: 3-8250, 3-8450, 3-8900
2) Union mount installs into pipe w/end connector and union nut.
3) An isolation manual ball valve between the tank and sensor allows for installation and removal of the sensor without having to empty the tank.

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

Specifications

General
Output: Digital (S^3L) or 4 to 20 mA
Accuracy:
- From Factory: ±1% of full scale
- -XU = 0.001 psi
- -XL = 0.01 psi

Response Time: <100ms

Wetted Material
- Union and Union Bushing: PVC-U
- Sensor Housing: PVDF
- Diaphragm: Ceramic
- Diaphragm Seal: FPM

Electrical
Power Requirements:
- Digital (S^3L): 5 to 6.5 VDC ‹1.5 mA
- 4 to 20 mA: 12 to 24 VDC ±10%, regulated

Cable Type:
3 cond. plus shield, 22AWG, PVC jacketed, Blk/Red/White/Shld with capillary tube
Cable Length:
- 10 m (32.8 ft)

Digital (S^3L) Output:
- Serial ASCII, TTL level 9600 bps.
- Reverse polarity and short circuit protected.

Electrical (continued)
4 to 20 mA Output:
- Accuracy: ±32 µA
- Resolution: <5 µA
- Span: 4 to 20 mA factory calibrated to operating ranges shown below:
- Max. Loop Impedance:
  100 Ω @ 12 V
  325 Ω @ 18 V
  600 Ω @ 24 V

Max. Temperature/Pressure Rating
Operating Temperature:
15 °C to 85 °C (5 °F to 185 °F)
Storage Temperature.:
-20 °C to 100 °C (-4 °F to 212 °F)
Operating Pressure:
- -XU: 0 to 0.7 bar (0 to 10psig)
- -XL: 0 to 3.4 bar (0 to 50 psig)

Proof Pressure:
- -XU: 1.4 bar (20 psig)
- -XL: 5.2 bar (75 psig)

Burst Pressure: 82 bar (1,200 psig)

Standards and Approvals:
- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Sensor Part Number					
3-2250	Hydrostatic Level Sensor				
	Sensor Output				
	-1	Digital (S^3L), 10 m (32.8 ft)			
	-2	Current (4 to 20 mA), 10 m (32.8 ft)			
		Threaded Connection			
		1	½ in. union connector		
			Operating Pressure Range		
			U	0 - 0.7 bar (0-10 psi)	
			L	0 - 3.4 bar (0-50 psi)	
				PVC-U Union Connection	
				-	¾ in. pipe connection
				-1	Metric pipe connector
3-2250	**-1**	**1**	**U**		**Example Part Number**

Mfr. Part No.	Code
3-2250-11L	**159 001 241**
3-2250-11U	**159 001 242**
3-2250-21L	**159 001 247**
3-2250-21U	**159 001 248**

Mfr. Part No.	Code
3-2250-11U-1	**159 001 478**
3-2250-11L-1	**159 001 479**
3-2250-21U-1	**159 001 482**
3-2250-21L-1	**159 001 483**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
5523-0322	**159 000 761**	Sensor cable (per ft), 3 cond. plus shield, 22 AWG***
3-8052	**159 000 188**	¾ in. Integral mounting kit
3-8052-1	**159 000 755**	¾ in. NPT mount junction box with one liquid tight connector and cap with junction terminals
3-8050	**159 000 184**	Universal mount kit
3-8050-1	**159 000 753**	Universal mount junction box
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, PG 13.5 (1 connector)

***Contact factory if extended cable is required.

Signet 2350 Temperature Sensor

Blind Transmitter or Digital (S^3L) Sensor

Features

- **4 to 20 mA or digital (S^3L) output**
- **Standard ¾ in. NPT process connection**
- **One-piece injection moulded PVDF body**
- **PT1000 platinum RTD in extended tip for quick response**
- **Easy installation**
- **Threaded for in-line or submersible installation**

Description

The Signet 2350 Temperature Sensor has a one piece injection moulded PVDF body that is ideal for use in high purity applications. It also outlasts metal sensors in aggressive liquids and eliminates the need for costly custom thermowells. These sensors are available with a proprietary digital output (S^3L) or field-scaleable 4 to 20 mA output.

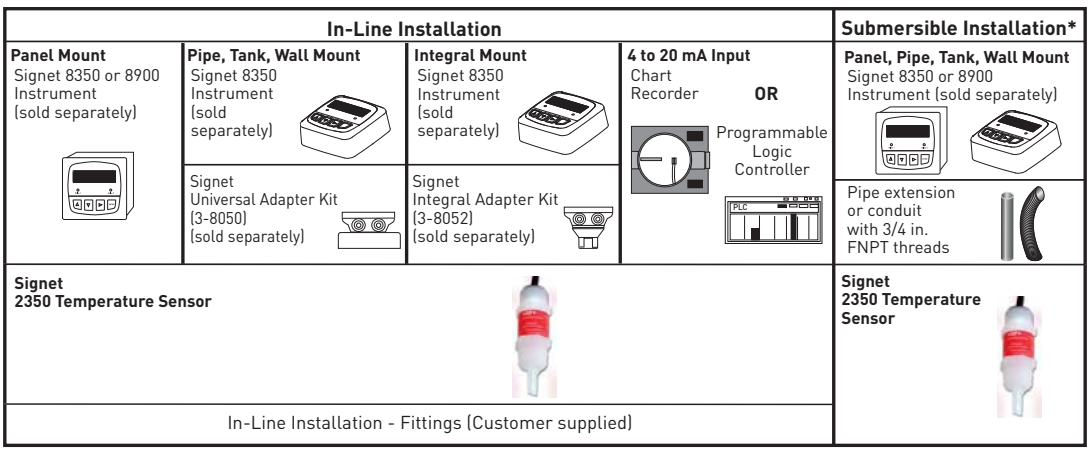
Dual threaded ends (¾ in. NPT) allow submersion in process vessels, or in-line installation with conduit connection. An integral adapter kit (sold separately) may be used to create a compact assembly with field mount versions of the Signet 8350 Temperature Transmitter.

Applications

- **Plating Bath Temperature Control**
- **Heat Exchange Monitor**
- **R.O. and DI. System Monitor**
- **Hot/Cold Mixing System Monitor**
- **Data Acquisition**
- **Cooling Loops**
- **Effluent Monitoring**
- **HVAC**
- **Chemical Processing**

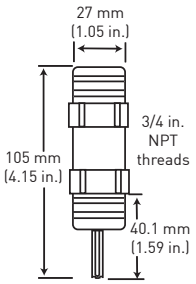
CE

System Overview

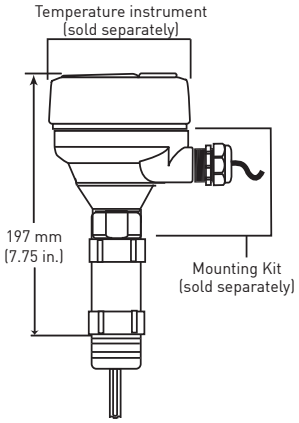


* For tank or wall mount installations, user must use the Universal Adapter Kit (3-8050).

Dimensions



2350-X



Model 2350
Ordering Notes
Any sensor can be mounted with an instrument in an integral configuration by doing the following:

1) Order Integral adapter kit 3-8052 (sold separately) to connect the instrument (sold separately) directly onto the sensor.
2) Order an instrument (sold separately). The following instrument part numbers are compatible with the 2350 for integral mounting: 3-8350-1, 3-8350-2

Application Tips
- For submersible sensor mounting, always use a water tight conduit and a cable gland to prevent moisture intrusion.
- To extend the cable, use a 3-conductor shielded cable and junction box.

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

Specifications

General
Output: Digital (S^3L) output or 4 to 20 mA
Accuracy: ±0.5 °C (±0.9 °F)
Response Time, τ: 10 secs.
Repeatability: ±0 °C (±0.2 °F)
Resolution: 0.01 °C (0.02 °F)
Sensing-End Connection:
¾ in. NPT male thread
Cable-End Connection:
¾ in. NPT male thread

Wetted Material
- Sensor Housing: PVDF

Electrical
Power Requirements:
Type of output is automatically selected when appropriate power is applied.
- Digital (S^3L): 5 to 6.5 VDC ‹1 .5 mA
- 4 to 20 mA: 12 to 24 VDC ±10%, regulated

Cable Type:
PVC jacketed, 3-conductor with shield 22 AWG, Blk/Red/White/Shld
Cable Length:
- 4.6 m (15 ft)
- 15.2 cm (6 in.); cable length can also be extended up to 121 m (400 ft)

Digital (S^3L) output:
- Serial ASCII, TTL Level 9600 bps.
- Reverse polarity and short circuit protected.

Electrical (continued)
4 to 20 mA Output:
- Accuracy: ±32 µA
- Resolution: <5 µA
- Span:
  4 to 20 mA factory calibrated
  0 °C to 100 °C (32 °F to 212 °F)
- Max. Loop Impedance:
  50 Ω @ 12 V
  325 Ω @ 18 V
  600 Ω @ 24 V
- Update Rate: <100 µS

Max. Temperature/Pressure Rating
Operating Temperature:
- In-line Mounting:
  -10 °C @ 16 bar to 100 °C @ 7.5 bar
  (14 °F @ 232 psi to 212 °F @ 108 psi)
- Submersible Mounting:
  -10 °C @ 16 bar to 85 °C @ 7.5 bar
  (14 °F @ 232 psi to 185 °F @ 108 psi)

Storage Temperature:
-55 °C to 100 °C (-67 °F to 212 °F)
Relative Humidity:
0 to 95% non-condensing

See Temperature and Pressure graphs for more information.

Shipping Weight 0.151kg 0.33 lb

Standards & Approvals
- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Sensor Part Number		
3-2350	Temperature Sensor	
	Output and Cable Length - Choose One	
	-1	Digital (S^3L) and 4.6 m (15 ft) cable
	-2	Digital (S^3L) and 15.2 cm (6 in.) cable for use with 3-8052 or 3-8052-1 (sold separately)
	-3	Current (4 to 20 mA) and 4.6 m (15 ft) cable
	↓	
3-2350	**-1**	**Example Part Number**

Mfr. Part No.	Code
3-2350-1	**159 000 021**
3-2350-2	**159 000 022**
3-2350-3	**159 000 920**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
5523-0322	**159 000 761**	Sensor cable (per ft), 3 cond. plus shield, 22 AWG
3-8052	**159 000 188**	¾ in. Integral mounting kit
3-8052-1	**159 000 755**	¾ in. NPT mount junction box with one liquid tight connector and cap with junction terminals
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, PG 13.5 (1 connector)

Signet 2450 Pressure Sensors

3/4 in. NPT 1/2 in. union mount

Blind transmitter or digital (S^3L) sensor

Features

- **Test certificate included**
- **4 to 20 mA or digital (S^3L) output**
- **Standard ¾ in. NPT or ½ in. male union process connection**
- **One-piece injection moulded PVDF body**
- **Flush ceramic diaphragm**
- **Easy installation**
- **Choice of three pressure ranges**
- **Pressure or level measurement**

Description

The 2450 Pressure Sensor has a one-piece injection moulded PVDF body and ceramic diaphragm for superior compatibility in corrosive liquids. Three pressure versions allow for optimal resolution matched to your sensing needs. Solid state circuitry eliminates drift (no internal potentiometers). Built-in temperature compensation provides outstanding accuracy over wide temperature ranges.

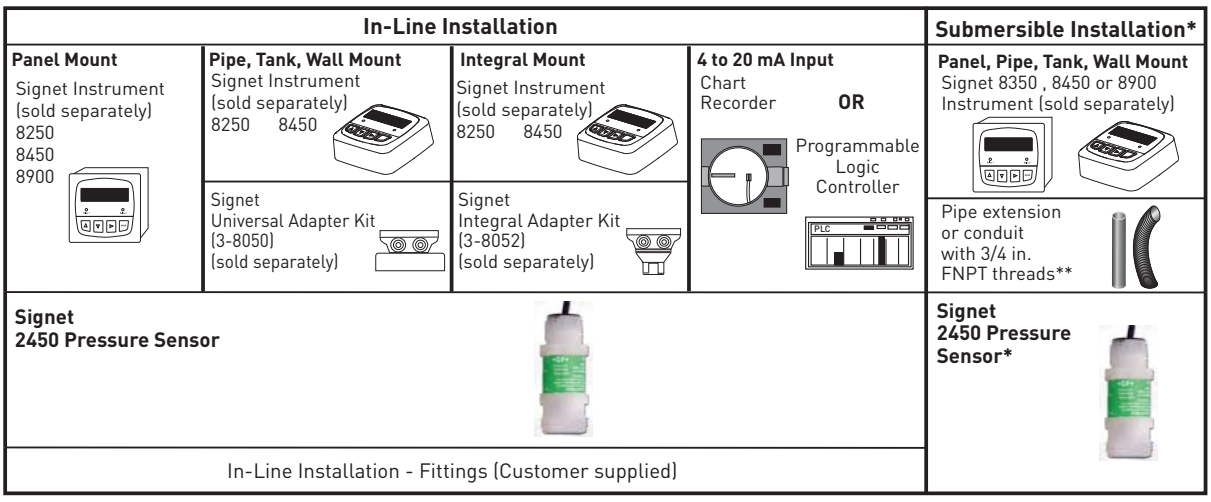
These sensors are available with a proprietary digital output (S^3L), or field-scaleable 4 to 20 mA output. Dual-threaded ends allow submersion in process vessels, or in-line installation with conduit connection. Integral adapters (sold separately) may be used to create a compact assembly with a field mount version of the Signet 8250 Level or 8450 Pressure Transmitter.

Applications

- **Level or Depth Sensing**
- **HVAC**
- **Scrubber Systems**
- **Pump Protection**
- **Water Management**
- **Irrigation Systems**
- **Wastewater**
- **Chemical Processing**
- **Pressure Regulation/ Monitoring**

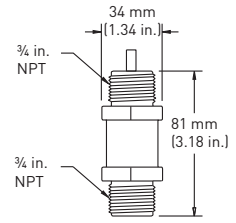
CE

System Overview

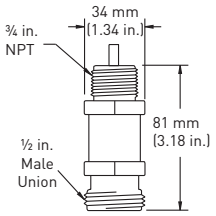


* For pipe, tank or wall mount installations, user must use the Universal Adapter Kit (3-8050). An alternative to the Signet 2450 submersible is to use the Signet 2250 Hydrostatic Pressure Sensor.
** Cable must be exposed to the atmosphere.

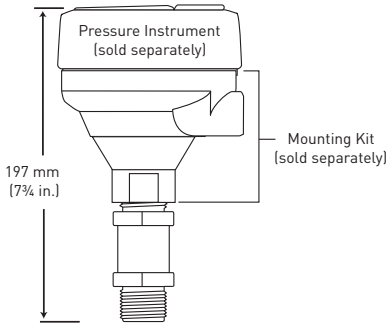
Dimensions



3-2450-1X, -2X, -5X



3-2450-3X, -4X, -7X



3-8250, 3-8450

Model 2450 Ordering Notes
Any sensor can be mounted with an instrument in an integral configuration by doing the following:

1. Order Integral adapter kit PN 3-8052 or 3-8052-1 (sold separately) to connect the instrument (sold separately) directly on to the sensor.
2. Order an instrument (sold separately). The following instrument part numbers are compatible with the 2450 for integral mounting: 3-8450-1, 3-8450-2, 3-8250-2
3. Union mount version installs into pipe w/end connector and union nut. See Installation and Wiring section for more information.

Application Tips
- These sensors can also be used for tank level measurements.
- For submersible sensor mounting, always use a water tight conduit and a cable gland to prevent moisture intrusion.
- Cable end of sensor must be exposed to atmospheric pressure.
- To extend the cable, use a 3-conductor shielded cable & junction box.

Specifications

General
Output: Digital (S^3L) or 4 to 20 mA
Accuracy:
- For all pressure ranges: ±1% of full scale @ 25 °C
- 0 to 10 psig: ±1% of reading when unit is field calibrated

Vacuum Range: 0 to -10 psig
Response Time: <100 ms
Sensing-End Connection:
- ¾ in. NPT male thread
- ½ in. union male thread (requires end connector and union nut)

(See installation section for end connector and nut recommendation)
Cable-end connection:
¾ in. NPT male thread

Wetted Material
- Sensor housing: PVDF
- Diaphragm: Ceramic
- Diaphragm seal: FPM

Electrical
Power Requirements:
- Digital (S^3L): 4.5 to 6.5 VDC ‹1.5 mA
- 4 to 20 mA: 12 to 24 VDC ±10%, regulated

Cable Type:
3 cond. + shield, 22 AWG, PVC jacketed, Blk/Red/White/Shld
Cable Length:
- 4.6 m (15 ft)
- 15.2 cm (6 in.)

Digital (S^3L) Output:
- Serial ASCII, TTL level 9600 bps.
- Reverse polarity and short circuit protected.

Electrical (continued)
4 to 20 mA Output:
- Accuracy: ±32 µA
- Resolution: <5 µA
- Span:
  4 to 20 mA factory calibrated to operating ranges shown below
- Max. Loop Impedance:
  100 Ω @ 12 V
  325 Ω @ 18 V
  600 Ω @ 24 V

Max. Temperature/Pressure Rating
Operating Temp.: -15 °C to 85 °C (5 °F to 185 °F)
Storage Temp. : -20 °C to 100 °C (-4 °F to 212 °F)
Operating Pressure:
- -XU: 0 to 0.7 bar (0 to 10 psig)
- -XL: 0 to 3.4 bar (0 to 50 psig)
- -XH: 0 to 17 bar (0 to 250 psig)

Proof Pressure:
- -XU: 1 .4 bar (20 psig)
- -XL: 5.2 bar (75 psig)
- -XH: 20.7 bar (300 psig)

Burst Pressure: 82 bar (1,200 psig)

See Temperature and Pressure graphs for more information.

Standards and Approvals
- CE
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Sensor Part Number			
3-2450	Pressure Sensor		
	Output, Process Connection and Cable Length - Choose One		
	-1	Digital (S^3L), ¾ in. male NPT, 4.6 m (15 ft) cable	
	-2	Digital (S^3L), ¾ in. male NPT, 15.2 cm (6 in.) cable used with 3-8052 or 3-8052-1 (sold separately)	
	-3	Digital (S^3L), ½ in. male union, 4.6 m (15 ft.) cable	
	-4	Digital (S^3L), ½ in. male union, 15.2 cm (6 in.) cable used with 3-8052 or 3-8052-1 (sold separately)	
	-5	Current (4 to 20 mA), ¾ in. male NPT, 4.6m (15 ft) cable	
	-7	Current (4 to 20 mA), ½ in. male union, 4.6 m (15 ft) cable	
		Operating Pressure Range - Choose One	
		U	0 to 10 psi
		L	0 to 50 psi
		H	0 to 250 psi
3-2450	**-1**	**L**	**Example Part Number**

Mfr. Part No	Code
3-2450-3U	**159 000 683**
3-2450-4U	**159 000 686**
3-2450-7U	**159 000 906**
3-2450-1L	**159 000 024**
3-2450-2L	**159 000 025**
3-2450-3L	**159 000 682**
3-2450-4L	**159 000 685**

Mfr. Part No	Code
3-2450-5L	**159 000 907**
3-2450-7L	**159 000 908**
3-2450-1H	**159 000 026**
3-2450-2H	**159 000 027**
3-2450-4H	**159 000 684**
3-2450-5H	**159 000 909**
3-2450-7H	**159 000 910**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
5523-0322	**159 000 761**	Sensor cable (per ft), 3 cond. plus shield, 22 AWG
3-8052	**159 000 188**	¾ in. Integral mounting kit
3-8052-1	**159 000 755**	¾ in. NPT mount junction box with one liquid tight connector and cap with junction terminals
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, PG 13.5 (1 connector)

Signet 8250 Level Transmitters

Member of the Process Pro® Family of Transmitters

Panel Mount

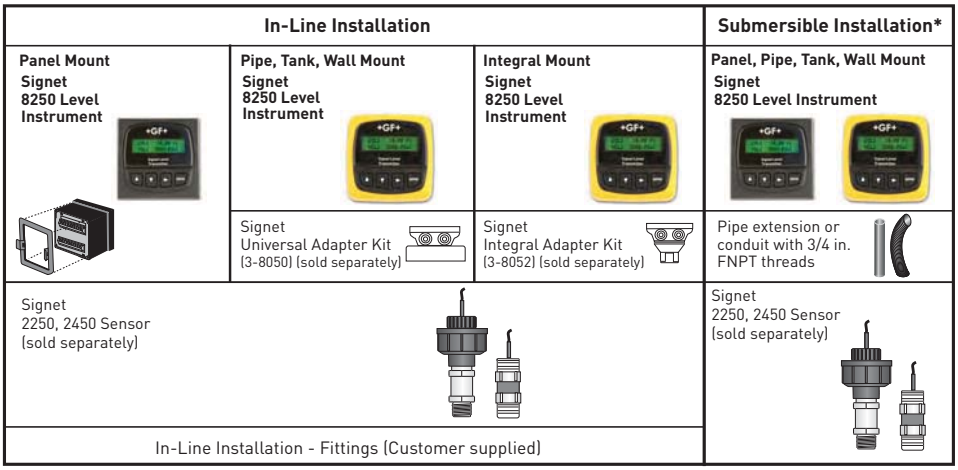
Pipe, Wall, Tank and Integral Mount

Description

Signet 8250 Level Transmitters are compatible with the Signet 2250 Level sensor and 2450 Pressure Sensor. The instrument is available in field and panel mount configurations, single or dual-channel input and equipped with one 4 to 20 mA output, fully scaleable and reversible for each input channel. The unit also features two relays, plus the ability to support two additional externally mounted relays (for a total of four). Relay operation is selectable for High, Low, Window or Off, and includes fully adjustable hysteresis and trigger time delay.

The unit also has the ability to accept other level sensors with 4 to 20 mA output via the Signet 8058 Signal Converter. Automatic level-to-volume conversion allows display and control of tank volume and/or level in units such as gallons, kilograms, feet or meters. Simply enter the dimensions of your tank or vessel, and the instrument will calculate volume from the level measurement.

System Overview



8058 signal converter & 8059 external relay module also compatible

*For pipe, tank or wall mount installations, user must use the Universal Adapter Kit (3-8050)

Features

- **Level units for: ft, in., m, cm, %**
- **Volume units for: gal., in³, lbs., l, m³, kg, %**
- **Available with single or dual input**
- **Advanced relay control supports up to 4 relays**
- **Output simulation**
- **Manual (up to 10 pts.) and automatic level-to-volume conversion**
- **Display level, volume or both**
- **Specific gravity entry for use with pressure sensors and mass unit conversion**
- **User-selectable averaging for display and output**
- **Accepts other level sensors with 4 to 20 mA output (via 8058 signal converter)**
- **NEMA 4X/IP65**

Applications

- **Continuous Level and/or Volume Monitoring**
- **Local or remote display**
- **Fill start/stop control**
- **Pump Protection**
- **Inventory Management**
- **Storage Tank Monitoring**
- **Pump Station Control**
- **Waste Sumps**
- **Clarifiers**
- **Plating Lines**
- **Neutralisation Tanks**
- **Overflow Protection**
- **Leak Detection**

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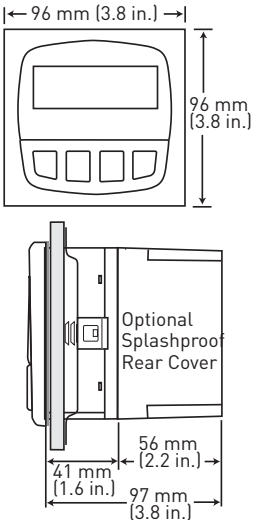
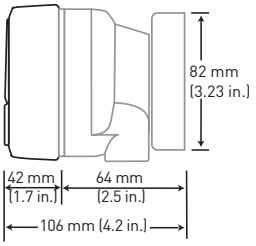
Dimensions

3-8250-XP



Field version with universal mount



Specifications

General

Compatible Sensors:
- Signet 2250 level sensor
- Signet 2450 pressure sensor versions with digital (S^3L) output or other sensors with 4 to 20 mA output (via Model 8058)

Accuracy: ± 1% full scale (based on 2250/2450)

Display:
- Alphanumeric 2 x 16 LCD
- Sealed 4-button keypad
- Display update rate: 1 second
- Contrast: User selected, 5 levels

Materials
- Case: Polybutylene (PBT)
- Panel Case Gasket: Neoprene
- Window: Polyurethane-coated polycarbonate
- Keypad: Silicone rubber

Electrical

Power: 12 to 24 VDC ±10% regulated, 250 mA max. current

Current Output:
- 4 to 20 mA, isolated, passive, fully adjustable and reversible
- Max. Loop Impedance: 50 Ω max. @ 12 V; 325 Ω max. @ 18 V; 600 Ω max. @ 24 V
- Update Rate: 300 ms
- Output Accuracy: ± 0.03 mA

Electrical (continued)

Relay Outputs:
- 2 mechanical SPDT contacts standard with all units
- Software supports 2 additional relays via optional external relay module (3-8059)
- Maximum Voltage Rating: 5 A @ 30 VDC; 5 A @ 250 VAC, resistive load
- Programmable: High, Low, Window
- Hysteresis: User adjustable Open-collector output: High, Low, Off
- Time delay: programmable from 0 to 6400 sec

Environmental

Operating Temperature: -10 °C to 70 °C (14 °F to 158 °F)

Storage Temperature: -15 °C to 80 °C (5 °F to 176 °F)

Relative Humidity: 0 to 95%, non-condensing

Maximum Altitude: 2,000 m (6,562 ft)

Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.325 kg 0.8 lb

Standards and Approvals
- CE, UL listed, CUL
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Model 8250
Ordering Notes

1) Field mount instruments can be mounted with a sensor in an integral configuration by choosing the following:
- Order integral adapter kit 3-8052 (sold separately) to connect the instrument directly onto the sensor.
2) An optional splashproof rear cover can be ordered separately if needed.
3) Use the universal mounting kit with the field mount instrument to mount to a pipe, tank or wall.
4) Two additional relays can be used with this product. See part numbers 3-8059-2 or 3-8059-2AC
5) To mount the panel version on a wall, use heavy duty wall mount bracket.
6) Order RC filter kit to protect relays from voltage spikes.
7) Panel cutout should be 92 mm X 92 mm (3.62 in X 3.62 in.).

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

Ordering Information

Instrument Part Number			
3-8250	Level Transmitter		
	Input(s), Outputs, and Power - Choose One		
	2	One input with 4 to 20 mA output and two relays; uses 4 wire power	
	3	Two inputs with two 4 to 20 mA outputs and two relays; uses 4 wire power	
		Field or Panel Mount - Choose One	
		-	Field mount for pipe, wall, tank, or integral mounting
		P	Panel mount with mounting bracket and panel gasket
		↓	
3-8250	**-2**	**P**	**Example Part Number**

Mfr. Part No	Code
3-8250-2	**159 000 766**
3-8250-2P	**159 000 767**

Mfr. Part No	Code
3-8250-3	**159 000 768**
3-8250-3P	**159 000 769**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-8050	**159 000 184**	Universal mounting kit
3-8050.395	**159 000 186**	Splashproof rear cover (panel mount only)
3-8052	**159 000 188**	¾ in. integral mounting kit
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (3 connectors)
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, PG 13.5 (1 connector)
Other		
3-8050.396	**159 000 617**	RC filter kit (for relay use), 2 per kit
3-8058-1S	**special order**	4 to 20 mA to digital signal converter, single input, loop powered
3-8058-2S	**special order**	4 to 20 mA to digital signal converter, dual input, loop powered
3-8059-2	**159 000 770**	External relay module, 2 relays; requires 12 to 24 VDC
3-8059-2AC	**159 000 771**	External relay module, 2 relays; w/power supply, 100 to 240 VAC

Signet 8350 Temperature Transmitters

Member of the Process Pro® Family of Transmitters

Panel Mount

Pipe, Wall, Tank and Integral Mount

Features

- **Digital (S³L) input for stable & reliable reading**
- **Available with single or dual input**
- **Field scaleable 4 to 20 mA output**
- **Displays temperature and mA output**
- **Temperature display in degrees Celsius (°C) or Fahrenheit (°F)**
- **Choice of relay or open collector output**
- **NEMA 4X/IP65**

Description

The Signet 8350 Temperature Transmitter offers local or remote display with current and relay outputs. This model offers exceptional repeatability and accuracy over a wide operating temperature range. Configurations include open collector outputs or mechanical relays with status indicators for process control or alarming. The unit also has the ability to accept other temperature sensors which have 4 to 20 mA output via the Signet 8058 Signal Converter.

The chemical resistant NEMA 4X/IP65 front face is found on both the highly visible field mount or black panel mount instruments with a self-healing window and a standard 1/4 DIN cutout. Dual input version allows difference calculation (ΔT) and offers cost savings with independent dual outputs. All models offer an output simulation function for complete system testing.

Applications

- **Process Temperature Monitoring**
- **Plating Bath Temperature Control**
- **Heat Exchange Monitor**
- **R.O. or DI. Monitoring**
- **Hot/Cold Mixing System Monitoring**
- **Data Acquisition**
- **Cooling Loops**
- **Effluent Monitoring**
- **HVAC**
- **Chemical Processing**

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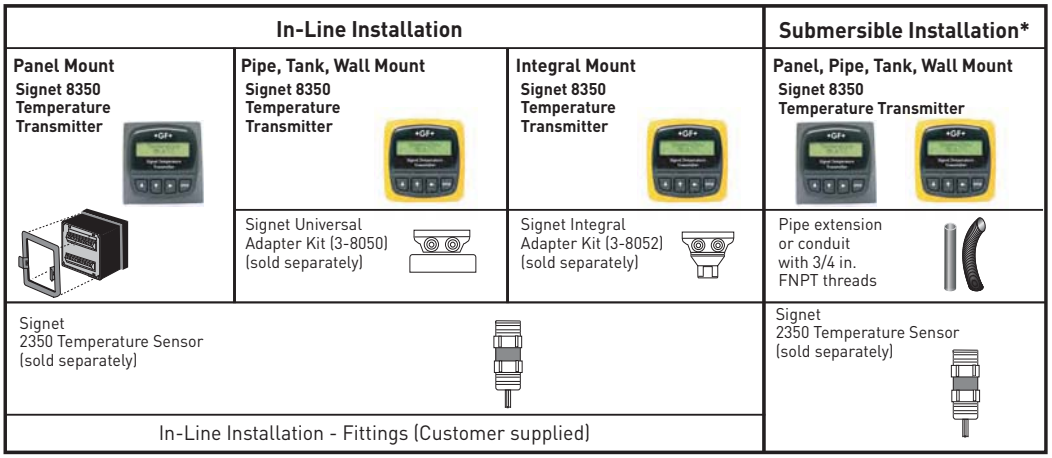
System Overview

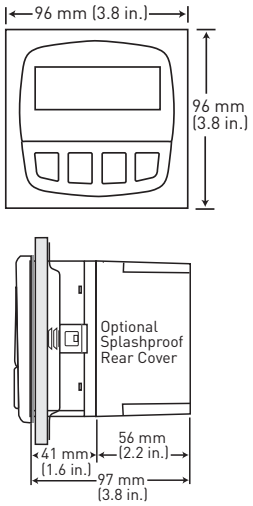


8058 signal converter also compatible

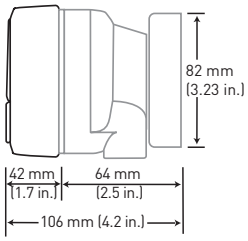
*For pipe, tank or wall mount installations, user must use the Universal Adapter Kit (3-8050).

Dimensions

3-8350-XP



Field version with universal mount



Model 8350
Ordering Notes

1) Field mount instruments can be mounted with a sensor in an integral configuration by choosing the following:
- Order integral adapter kit PN 3-8052 (sold separately) to connect the transmitter directly onto the sensor.
2) An optional splashproof rear cover can be ordered separately if needed.
3) Use the universal mounting kit with the field mount transmitter to mount to a pipe, tank or wall.
4) To mount panel version on a wall, use heavy duty wall mount bracket.
5) Order RC filter kits to protect relays from voltage spikes.
6) Panel cutout should be 92 mm X 92 mm (3.62 in X 3.62 in.).

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

Specifications

General

Compatibility:
Signet 2350 Temperature Sensor versions w/digital output or other sensors with 4 to 20 mA output (via Model 8058)

Accuracy: ±0.5 °C (±0.9 °F) (based on 2350)

Display
- Alphanumeric, 2 x 16 dot matrix LCD
- Update Rate: 1 second
- Contrast: User selected, 5 levels

Materials
- Case: PBT
- Panel Case Gasket: Neoprene
- Window: Polyurethane coated polycarbonate
- Keypad: Sealed 4-key silicone rubber

Electrical

Power:
- 12 to 24 VDC ±10% regulated
  (-1) 21 mA max.
  (-2) 200 mA max.
  (-3) 31 mA max.

Current Output
- 4 to 20 mA, isolated, passive, fully adjustable and reversible
- Max. Loop Impedance:
  50 Ω max. @ 12 V
  325 Ω max. @ 18 V
  600 Ω max. @ 24 V
- Update Rate: 200 ms
- Accuracy: ±0.03 mA

Electrical (continued)

Relay Output
- Mechanical SPDT contacts: High, Low, Pulse, Off
- Maximum Voltage Rating: 5 A @ 30 VDC, 5 A @ 250 VAC resistive load
- Hysteresis: User adjustable
- Maximum 400 pulses/min.

Open-Collector Output
- High, Low, Pulse, Off
- Optically isolated, 50 mA max, sink, 30 VDC max. with pull-up resistor
- Hysteresis: User adjustable
- Maximum 400 pulses/min.

Environmental

Enclosure Rating: NEMA 4X/IP65 front

Operating Temperature:
-10 ° C to 70 °C (14 °F to 158 °F)

Storage Temperature:
-15 °C to 80 °C (5 °F to 176 °F)

Relative Humidity:
0 to 95%, non-condensing

Shipping Weight 0.325 kg 0.8 lb

Standards and Approvals
- CE, UL listed, CUL
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Instrument Part Number			
3-8350	Temperature Transmitter		
	Input(s), Outputs, and Power - Choose One		
	-1	One input with 4 to 20 mA output and one open collector; uses 2 wire power	
	-2	One input with 4 to 20 mA output and two relays; uses 4 wire power	
	-3	Two inputs with two 4 to 20 mA outputs and 2 open collectors; uses 4 wire power	
		Field or Panel Mount - Choose One	
		-	Field mount for pipe, wall, tank, or integral mounting
		P	Panel mount with mounting bracket and panel gasket
3-8350	**-1**	**P**	**Example Part Number**

Mfr. Part No	Code
3-8350-1	**159 000 192**
3-8350-1P	**159 000 193**
3-8350-2	**159 000 194**
3-8350-2P	**159 000 195**
3-8350-3	**159 000 196**
3-8350-3P	**159 000 197**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-8050	**159 000 184**	Universal mounting kit
3-8050.395	**159 000 186**	Splashproof rear cover (panel mount only)
3-8052	**159 000 188**	¾ in. Integral mounting kit
3-8052-1	**159 000 755**	¾ in. NPT mount junction box w/one liquid tight connector and cap with terminal block
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (3 connectors)
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, PG 13.5 (1 connector)
Other		
3-8050.396	**159 000 617**	RC filter kit (for relay use) - 2 per kit
3-8058-1S	**special order**	4 to 20 mA to digital signal converter, single input, loop powered
3-8058-2S	**special order**	4 to 20 mA to digital signal converter, dual input, loop powered

Signet 8450 Pressure Transmitters

Member of the Process Pro® Family of Transmitters

Panel Mount

Pipe, Wall, Tank and Integral Mount

Features

- **Digital (S³L) input for stable and reliable reading**
- **Available with single or dual sensor input**
- **Pressure can be displayed in psi, bar or kPa**
- **Field scaleable 4 to 20 mA output**
- **Choice of relay or open collector output**
- **NEMA 4X/IP65**
- **Chemical resistant enclosure and self-healing window**

Description

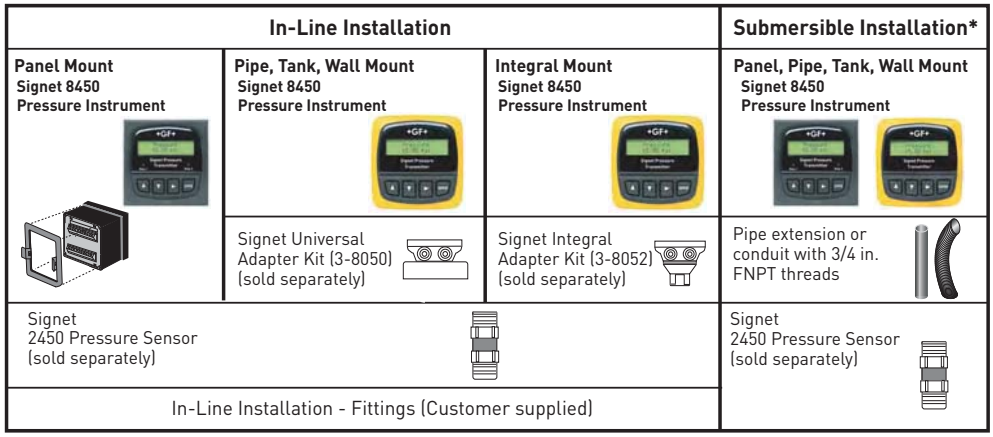
The Signet 8450 Pressure Transmitter is a unique instrument that offers local or remote display with current and relay outputs. This model offers exceptional repeatability and accuracy over a wide operating pressure range. The instrument is available in field and panel mount configurations, single or dual channel input and is equipped with a 4 to 20 mA output, fully scaleable and reversible for each input channel. Configurations include open collector outputs or relays with status indicators for process control or alarming. The unit also has the ability to accept other sensors with 4 to 20 mA output, via the Signet 8058 Signal Converter. The chemical resistant NEMA 4X/IP65 front face is found in both the highly visible field mount or black panel mount instrument, both featuring a self healing window, a standard ¼ DIN cutout and large push buttons for easy navigation. Programming capabilities are available for single point calibration, setting of relays and outputs, and output simulation function for complete system testing. The dual input version allows difference calculation (ΔP) and offers significant cost savings with independent dual outputs.

Applications

- **Pump, Filter or Pipe Protection**
- **Pressure Regulation/ Monitoring**
- **Over or Under Pressure Alarm**
- **Pump Servicing**
- **HVAC**
- **Chemical Processing**
- **Scrubber Systems**
- **Water Management**
- **Irrigation Systems**
- **Wastewater**

CE c UL us LISTED MEASURING EQUIPMENT 77CJ LEAD FREE RoHS COMPLIANT

System Overview

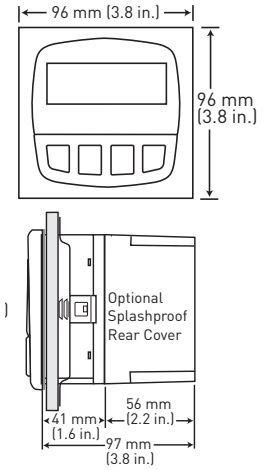


8058 Signal converter also compatible

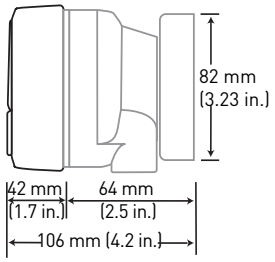
*For pipe, tank or wall mount installations, user must use the Universal Adapter Kit (3-8050)

Dimensions

3-8450-XP



Field version with universal mount



Specifications

General

Compatibility:
Signet 2450 Pressure Sensor versions with digital output or other sensors with 4 to 20 mA output (via Model 8058)

Accuracy: ±1% of full scale (based on 2450)

Display:
Alphanumeric 2 x 16 dot matrix LCD
Update rate: 1 second
Contrast: User selected, 5 levels

Materials

- Case: PBT
- Panel case gasket: Neoprene
- Window: Polyurethane coated polycarbonate
- Keypad: Sealed 4-key silicone rubber

Electrical

Power:
- 12 to 24 VDC ±10% regulated
  (-1) 21 mA max.
  (-2) 220 mA max.
  (-3) 60 mA max.

Current Output:
- 4 to 20 mA, isolated, passive, fully adjustable and reversible
- Max. Loop Impedance:
  50 Ω max. @ 12 V
  325 Ω max. @ 18 V
  600 Ω max. @ 24 V
- Update Rate: 100 ms
- Accuracy: ±0.03 mA

Electrical (continued)

Relay output
- Mechanical SPDT contacts: High, Low, Off
- Maximum voltage rating: 5 A @ 30 VDC, 5 A @ 250 VAC resistive load
- Hysteresis: User adjustable
  Open-collector output: High, Low, Off
- Optically isolated, 50 mA max, sink, 30 VDC max. with pull-up resistor.
- Hysteresis: User adjustable

Environmental

Operating Temperature:
-10 °C to 70 °C (14 °F to 158 °F)

Storage Temperature:
-15 °C to 80 °C (5 °F to 176 °F)

Relative Humidity:
0 to 95%, non-condensing

Enclosure: NEMA 4X/IP65 front

Shipping Weight 0.325 kg 0.8 lb

Standards and Approvals
- CE, UL listed, CUL
- RoHS compliant
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Instrument Part Number			
3-8450	Pressure Transmitter		
	Input(s), Outputs, and Power - Choose One		
	-1	One input with 4 to 20 mA output and one open collector; uses 2 wire power	
	-2	One input with 4 to 20 mA output and two relays; uses 4 wire power	
	-3	Two inputs with two 4 to 20 mA outputs and 2 open collectors; uses 4 wire power	
		Field or panel mount - Choose One	
		-	Field mount for pipe, wall, tank, or integral mounting
		P	Panel mount with mounting bracket and panel gasket
		↓	
3-8450	**-1**	**P**	**Example Part Number**

Mfr. Part No	Code
3-8450-1	**159 000 041**
3-8450-1P	**159 000 042**
3-8450-2	**159 000 043**
3-8450-2P	**159 000 044**
3-8450-3	**159 000 045**
3-8450-3P	**159 000 046**

Model 8450
Ordering Notes

1) Field mount instruments can be mounted with a sensor in an integral configuration by choosing the following:
- Order integral adapter kit PN 3-8052 (sold separately) to connect the transmitter directly onto the sensor.
2) An optional splashproof rear cover can be ordered separately if needed.
3) Use the universal mounting kit with the field mount transmitter to mount to a pipe, tank or wall.
4) To mount the panel version on a wall, use the heavy duty wall mount bracket.
5) Order RC filter kits to protect relays from voltage spikes.
6) Panel cutout should be 92 mm X 92 mm (3.62 in X 3.62 in.).

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

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-8050	**159 000 184**	Universal mounting kit
3-8052	**159 000 188**	¾ in. Integral mounting kit
3-8052-1	**159 000 755**	¾ in. NPT mount junction box with liquid tight connector and cap with terminal block
3-8050.395	**159 000 186**	Splashproof rear cover (panel mount only)
3-0000.596	**159 000 641**	Heavy duty wall mount bracket (panel mount only)
3-5000.598	**198 840 225**	Surface mount bracket (panel mount only)
Liquid Tight Connectors		
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (3 connectors)
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, PG 13.5 (1 connector)
Other		
3-8050.396	**159 000 617**	RC filter kit (for relay use), 2 per kit
3-8058-1S	**special order**	4 to 20 mA to digital signal converter, single input, loop powered
3-8058-2S	**special order**	4 to 20 mA to digital signal converter, dual input, loop powered

Signet Temperature Integral Systems with ProcessPro® Instruments

Features

- **Local display for sensor mounted instruments**
- **Provides 4 to 20 mA output**
- **Relay options available**
- **NEMA 4X/IP65**
- **2 or 4 wire power options**

Applications

- **Cooling Tower Control**
- **Environmental Monitoring**
- **Water Quality Monitoring**
- **Filtration Systems**
- **Chemical Production**
- **Liquid Delivery Systems**
- **Pump Protection**
- **Scrubber Systems**
- **Boiler Condensate**
- **Semiconductor Water Production**
- **Leak Detection**
- **Chemical Concentration Monitoring**

Description

Signet has combined ProcessPro® instruments with Model 2350 temperature sensors to create integral systems that are easy to order and simple to install. Also available in conductivity, flow, level, and pressure configurations, each integral system features Model 8350 instruments with a local and easy to read LCD display. The push button keypad makes it easy to navigate through the instrument's menu. The line-powered Model 8350 pressure instruments offer a scalable 4 to 20 mA output and optional relays for process control.

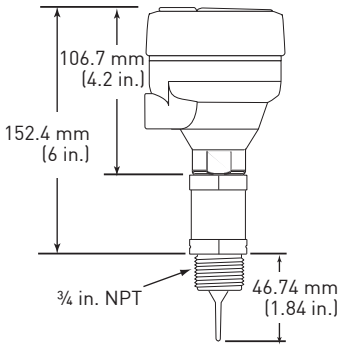
The integral system is also offered with a choice of Signet temperature sensor Model 2350 and is available in a range of -10 to 100 °C (14 to 212 °F). Sensor installation is achieved into standard pipes via the ¾ inch sensor threaded (NPT or ISO) process connection. The sensor is available with PVDF wetted materials.

System Overview

Integral Installation	
Signet 8350 Temperature Transmitter	
Signet Integral Adapter Kit (3-8052)	
Signet 2350 Temperature Sensor	
Standard 3/4 in. fittings (customer supplied)	

CE

Dimensions



Specifications

See individual transmitter and sensor product pages for more information.

Ordering Information

Temperature - Choose One			
3-8350-1	Temperature Instrument, 4 to 20 mA and one open collector		
3-8350-2	Temperature Instrument, 4 to 20 mA and 2 relays		
↓	Temperature Sensor		
	3-2350-2	Temperature sensor	
	↓	Mounting Kit - mounts the instrument to the sensor	
		3-8052	Integral mounting kit
		↓	
3-8350-1	**3-2350-2**	**3-8052**	**Example of three part numbers required to assemble integral unit**

Mfr. Part No./Code	Components*
198 864 880	3-8350-1 + 3-2350-2
198 864 881	3-8350-2 + 3-2350-2

***8052 Integral Mount Kit Included**

Integral Instruments Ordering Notes

Model 8350 is available with all parts conveniently assembled (instrument, sensor, and mounting kit) to build an integrally mounted system. Alternatively, all three parts can be purchased separately.

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

Signet Level/Pressure Integral Systems with ProcessPro® Instruments

Features

- **Utilises the 2450 Sensor for pressure or hydrostatic level measurement**
- **Local display for sensor mounted instruments**
- **Provides 4 to 20 mA output**
- **Relay options available**
- **NEMA 4X/IP65**
- **2 or 4 wire power options**

Description

Signet has combined a ProcessPro® instrument with Model 2450 pressure sensors to create integral systems for level applications that are easy to order and simple to install. Also available in conductivity, pressure, temperature, and flow configurations, each integral system features a Model 8250 or 8450 instrument with a local and easy to read LCD display. The push button keypad makes it easy to navigate through the instrument's menu. The instrument offers a scalable 4 to 20 mA output and optional relays for process control.

Sensor installation is achieved into standard pipes via the ¾ inch sensor threaded (NPT) process connection or by using a ½ inch male union fitting. The sensors are available with PVDF and ceramic wetted materials. The integral system is also offered with a choice of Signet pressure sensor Models 2450 and is available in various pressure ranges for hydrostatic level measurement.

Applications

- **Water Quality**
- **Filtration Systems**
- **Chemical Production**
- **Liquid Delivery Systems**
- **Level Management**
- **Media Filtration**
- **Reverse Osmosis Systems**

CE

System Overview

Integral Installation

Signet 8250
Level Transmitter

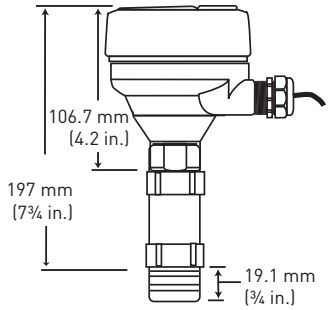
Signet 8450
Pressure Transmitter

Signet Integral
Adapter Kit (3-8052)

Signet 2450
Pressure Sensor

Standard 3/4 in. fittings (customer supplied)

Dimensions



Specifications

See individual transmitter and sensor product pages for more information.

Pressure/Level ranges*:
• **3-2450-XU**: 0 to 10 psi = 0 to 7.03 meters = 0 to 23.06 ft
• **3-2450-XL**: 0 to 50 psi = 0 to 35.15 meters = 0 to 115.32 ft
• **3-2450-XH**: 0 to 250 psi = 0 to 175.77 meters = 0 to 576.67 ft

(X = 2 or 4) *Ranges calculated using specific gravity of water. Maximum ranges may vary for other liquids

Ordering Information

Pressure or Level Transmitter - Choose One			
3-8250-2	Level Transmitter with 4-20 mA and 2 relays		
3-8450-1	Pressure Transmitter with 4-20 mA and open collector		
3-8450-2	Pressure Transmitter with 4-20 mA and 2 relays		
	Pressure Sensors - Choose One		
	3-2450-4U	0 - 10 psi, ½ in. union process connection	
	3-2450-2L	0 - 50 psi, ¾ in. NPT process connection	
	3-2450-4L	0 - 50 psi, ½ in. union process connection	
	3-2450-2H	0 - 250 psi, ¾ in. NPT process connection	
	3-2450-4H	0 - 250 psi, ½ in. union process connection	
		Mounting Kit - Mounts the Instrument to the Sensor	
		3-8052	Integral mounting kit
3-8450-2	**3-2450-2L**	**3-8052**	**Example of three part numbers required to assemble integral unit**

Integral Instruments Ordering Notes

1) Models 8250/8450, are available with all parts conveniently assembled (transmitter, sensor, and mounting kit) to build an integrally mounted system. Alternatively, all three parts can be purchased separately.
2) See individual transmitter and sensor pages for more information.

Mfr. Part No./Code	Components*
159 001 026	3-8250-2 + 3-2450-2H
159 001 029	3-8250-2 + 3-2450-2L
159 001 035	3-8250-2 + 3-2450-4H
159 001 038	3-8250-2 + 3-2450-4L
159 001 041	3-8250-2 + 3-2450-4U
198 864 860	3-8450-1 + 3-2450-2H
198 864 870	3-8450-1 + 3-2450-2L
159 001 016	3-8450-1 + 3-2450-4H
159 001 019	3-8450-1 + 3-2450-4L
159 001 022	3-8450-1 + 3-2450-4U
198 864 861	3-8450-2 + 3-2450-2H
198 864 871	3-8450-2 + 3-2450-2L
159 001 017	3-8450-2 + 3-2450-4H
159 001 020	3-8450-2 + 3-2450-4L

***8052 Integral Mount Kit Included**

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

Signet 3-0250 USB to Digital (S^3L) Configuration / Diagnostic Tool

Description

The new 3-0250 USB to (S^3L) configuration/diagnostic tool interfaces with Signet's various digital sensors to allow users to select all parameters available for modification, monitor the sensor's data on the PC/Laptop, or log the sensor's data to a file. Multi-language Software in English, German, French, Italian, Portuguese and Spanish.

System Overview

Modifiable Parameters

2250, 2350, 2450, 2750:

- Modify 4 mA and 20 mA Set Points
- Select units and Specific Gravity (2250 only) for improved accuracy and to eliminate the need for additional calculations.

2551 and 2552:

- Unit Selection
- 4 mA and 20 mA Set Points
- Low-Flow Cut-Off
- Quick Response Sensitivity
- Averaging Time
- Noise Rejection Frequency

Control Functionality

- Read the parameters from the sensor and display on the screen
- Write new settings on the screen to the sensor
- Load a previously saved configuration
- Save new settings to a file
- Restore parameters to Factory Settings

Graphing Functionality

- Monitor sensor data on screen.
- Log sensor data to a file.
- Start, Stop, and Resume monitoring/logging.
- Set Monitor/Logging Time in seconds: 1 to 86400 (24 hours)
- Primary values such as Level, Temperature, pH, ORP, Flow Rate/Velocity, are displayed/logged.
- Additional values such as Temperature and mV for pH are also displayed. The mV reading can allow users to monitor the life of a pH/ORP electrode.

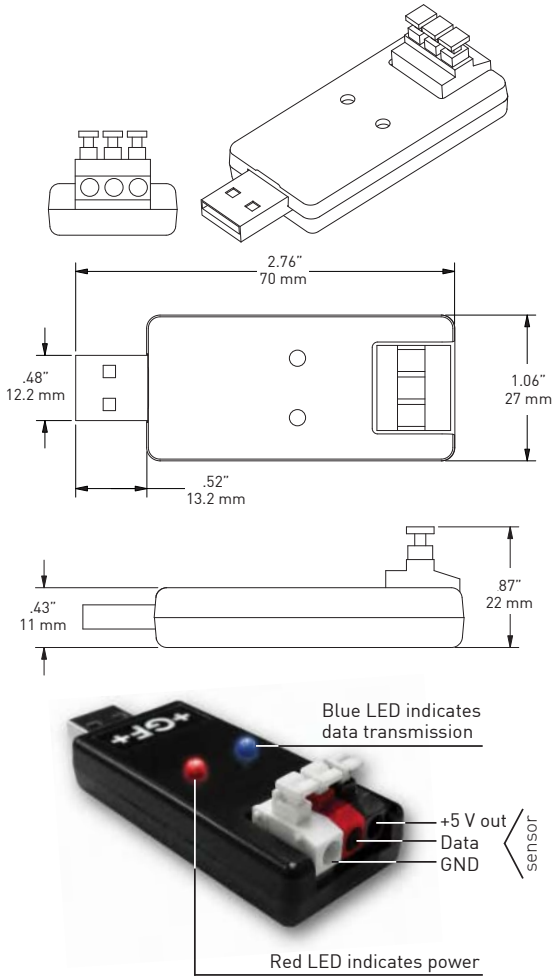
Features

- **User-friendly interface**
- **Configure blind sensors**
- **Configure all modifiable parameters in the sensor**
- **Monitor sensor data or log sensors data to a file**
- **Monitor mV and Temperature reading in pH/ORP sensors**
- **Graph sensor data**
- **Red and Blue LED indicators for power and data transmission**
- **6 ft USB extension cable**

Compatibility

- **2250 Hydrostatic Level Sensor**
- **2350 Temperature Sensor**
- **2450 Pressure Sensor**
- **2750 DryLoc® pH/ORP Sensor Electronics**
- **2551 Magmeter Flow Sensor**
- **2552 Metal Magmeter Flow Sensor**

Dimensions



* for wiring reference please see manual

Specifications

Materials:

- ABS Body

Power Requirements

- Supplied by USB port on PC/Laptop

Inputs

- 3-wire (S^3L) input

Output Specifications

- USB 1.0, 2.0

Standards and Approvals

- CE
- RoHS complaint

Ordering Information

Model 0250 USB (S^3L) Configuration/Diagnostic Tool	
Mfr. Part No.	**Code**
3-0250	**159 001 538**

COOL-FIT® Easy Flow

Standard Sensor (with red cap)

Description

The COOL-FIT® Easy Flow enables professional hydronic system technicians to balance the flow of water based coolants through a new or existing hydronic system quickly and easily.

A COOL-FIT® system includes the Model 6500 COOL-FIT® Easy Flow hand held monitor, and a simple paddlewheel flow sensor, each part sold separately.

Features

- **Backlit display**
- **Fluids and concentrations pre-calibrated**
- **High reliability**
- **Simple configuration**
- **Velocity from 0.1 m/s to 6 m/s (0.3 fps to 20 fps)**
- **Easy to use 6 button operation**
- **Battery life up to 1,000 hours**
- **Dust and moisture resistant**
- **Protected cover a rubber boot**

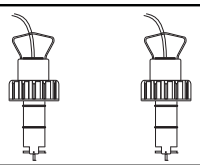
Applications

- **Initial start up of hydronic secondary cooling systems**
- **Balancing hydronic secondary cooling systems**

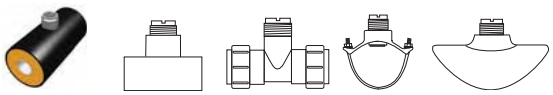
System Overview

Signet 6500 COOL-FIT Easy Flow

Signet COOL-FIT Flow Sensor (Sold Separately)
515 2536



Installation Fittings, COOL-FIT or Signet (sold separately)

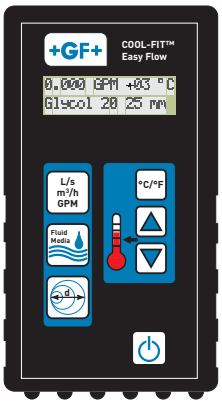


CE

LEAD FREE Pb RoHS COMPLIANT

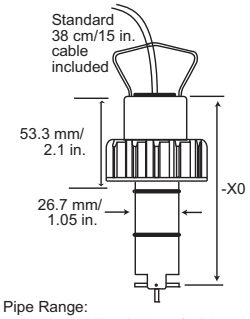
Dimensions

Including Boot
Length 21.5cm (8 ¾ in.)
Width 11.5cm (4 ½ in.)
Depth 4.25cm (1 ¾ in.)



3-6500
159 001 537
COOL-FIT® Easy Flow

Standard Mount Sensor



Specifications

General
Instrument Temperature Accuracy
± 1 °C
Cable Type: RJ 45
Cable Length:
Easy flow hand held monitor cable 102.5 cm (36 in.)
Sensor cable 37 cm (14 ½ in.)

Power Requirements
Four AA batteries
Battery life up to 1,000 hours

Units of Measurement Flow

L/s	Litres per second
L/m	Litres per minute
m3h	Cubic Meters per hr
m/s	Meters per second
GPM	Gallons per minute
GPH	Gallons per hour
fps	Feet per second

Fluid Media Pre-Programmed
Water
HC Marine
Propylene glycol 10%
Propylene glycol 20%
Propylene glycol 35%

Max. Pressure/Temperature Rating
Operating Temperature Range:
-10 °C to +40 °C
Storage Temperature:
-40 °C to +40 °C

Environmental Requirements
Dust and moisture resistant

Shipping Weight 1 kg, 2 lb 3 oz.

Standards and Approvals
- CE
- RoHS compliant

Flow Sensor Specifications

General
Flow Rate Range:
- 6515: 0.3 to 6 m/s (1 to 20 ft/s)
- 6536: 0.1 to 6 m/s (0.3 to 20 ft/s)

Pipe Size Range:
DN15 to DN50 (0.5 to 2 in.)
Linearity: ±1% of full range @ 25 °C (77 °F)
Repeatability: ±0.5% of full range @ 25 °C (77 °F)

Electrical (6515)
Frequency:
19.7 Hz per m/s nominal
(6 Hz per ft/s); sinusoidal
Amplitude:
3.3 V p/p per m/s nominal
(1 V p/p per ft/s)
Source Impedance: 8 KΩ

Electrical (6536)
Frequency:
49 Hz per m/s nominal
(15 Hz per ft/s) nominal)
Supply Voltage: 3.3 to 24 VDC regulated
Supply Current: <1.5 mA @ 3.3 to 6 VDC
<20 mA @ 6 to 24 VDC
Output Type:
Open collector transistor, sinking
Output Current: 10 mA max.

Max. Pressure/Temperature Ratings
12.5 bar @ 20 °C, 1.7 bar @ 85 °C:
(180 psi @ 68 °F, 25 psi @ 185 °F)

Operating Temperature:
-18 °C to 66 °C, (0 °F to 150 °F)

Pipe Diameters, Fittings, ABS COOL-FIT
Use 3-6515-P0 or 3-6536-P0 with:
25 mm, 32 mm, 40 mm, 50 mm, 63 mm
DN20, DN25, DN32, DN40, DN50
¾ in, 1 in, 1¼ in, 1½ in, 2 in

Wetted Materials
- Sensor Body: Glass-filled PP (black)
- O-rings: FPM
- Rotor Pin: Titanium
- Rotor: Black PVDF

Shipping Weight

3-6500	0.840 kg	
6-6515-P0	0.454 kg	1.0 lb
3-2536-P0	0.454 kg	1.0 lb

Ordering Information

Mfr. Part No.	Code	Description
3-6500	**159 001 537**	COOL-FIT® Easy Flow Hand Held Monitor Kit
3-6515-P0	**159 001 535**	COOL-FIT® Rotor-X Flow Sensor, pipe range P0 is ½ to 4 in, or approximately 12½ mm to 104 mm
3-6536-P0	**159 001 536**	COOL-FIT® high res low flow sensor, pipe range P0 is ½ to 4 in., or approximately 12½ mm to 104 mm

Signet 6400 Intrinsic Safety Barriers

Features

- **One step, snap-on 35 mm DIN rail mounting and grounding**
- **Replaceable 160 mA fuse**
- **Lowest internal resistance**
- **Common ½ in. wide housing for single channel versions**
- **Short-circuit proof connections**
- **FM, UL, CSA approved**
- **Compatible with Signet 515 and 525 flow sensors**

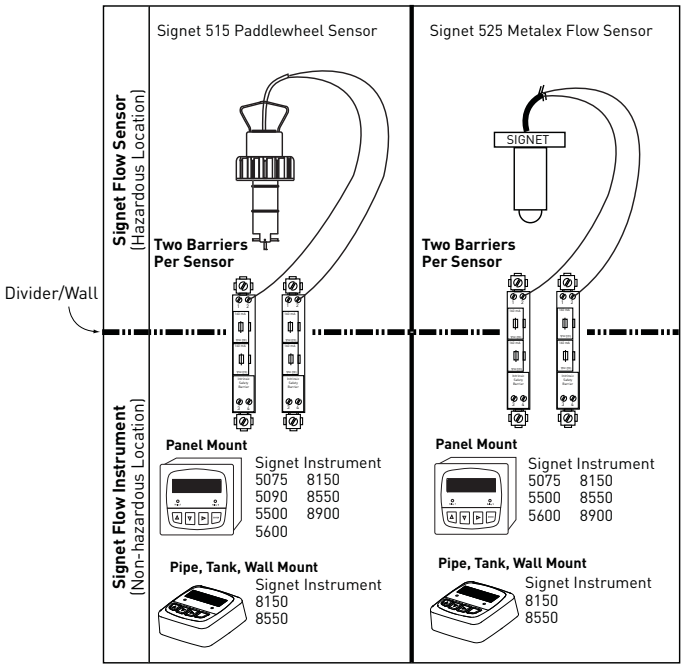
Description

Georg Fischer Signet offers single channel intrinsic safety barriers for use with the 515 and 525 paddlewheel flow sensors.

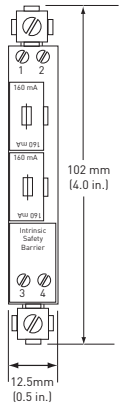
Both versions use a ½ inch wide housing which snaps directly to a 35 mm DIN rail. Once mounted, an electrical connection is formed between the barrier and the rail. The rail serves as the intrinsic safety ground bus when connected to the designated grounding point. Two additional ground lugs are provided and may be used as a redundant grounding method or for terminating shields.

Each barrier also contains a replaceable 160mA fuse cartridge for each channel. Safety barriers are polarity sensitive devices and are available in +DC and AC voltage ratings.

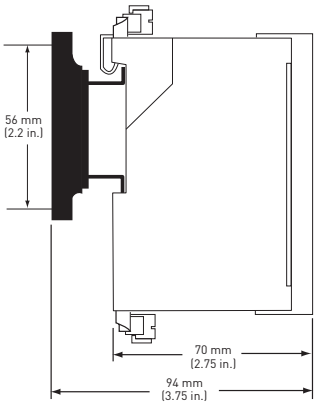
System Overview



Dimensions



Front View



Side View

Specifications

General

Housing Material: Polyamide
Mounting Method:

- NS35/15 DIN Rail (standard)
- Surface Mount (with adaptor)

Screw terminal size:

- Four #14 AWG (1.5 mm^2) captured, self-opening
- Two #12 AWG (4.0 mm^2) for ground and shield

Electrical

Rated Voltage:
6400-9001

- Voltage Range: 16-18 V
- Internal Resistance: 2220 Ω
- Short-circuit proof at rated voltage
- Open circuit voltage: 19.9 V
- Short circuit current: 9.1 mA
- Max. power transfer: 0.045W
- Allowed capacitance: 0.34 µA

6402-9001:

- Voltage Range: 6-7.7 V
- Internal Resistance: 338 Ω
- Short-circuit proof at rated voltage
- Open circuit voltage: 9.6 V
- Short circuit current: 29.2 mA
- Max. power transfer: 0.070W
- Allowed capacitance: 3.70 µA

Environmental

Operating Temperature:
-20 ° to 60 °C (-4 ° to 140 °F)
Storage Temperature:
-40 ° to 75 °C (-40 ° to 167 °F)
Relative Humidity:
Up to 95%, non-condensing

Shipping Weight 100 g 0.22 lb

Standards and Approvals

- UL, CSA
- FM Class I, II, III/groups A-G

Ordering Information

Mfr. Part No.	Code	Description
6400-9001	**159 001 466**	Intrinsic Safety Barrier for use with Signet 515 flow sensor (2 per sensor required)
6402-9001	**159 001 486**	Intrinsic Safety Barrier for use with Signet 525 flow sensors (2 per sensor)

Signet 7300 Switching Power Supplies

Features

- **Regulated 24 VDC output voltage**
- **Five output capacities: 300 mA, 600 mA, 1.3 A, 2.1 A and 4.2 A**
- **DIN rail or surface mount**
- **Universal AC input (85 to 264 VAC)**
- **DC compatible input (105 to 370 VDC)**
- **Fused input**
- **Auto resetting output over-current protection**
- **Unique spring-up, finger-safe terminals**
- **Short-circuit protection**
- **Output voltage adjust (+/- 10%)**
- **Light-weight plastic housing**

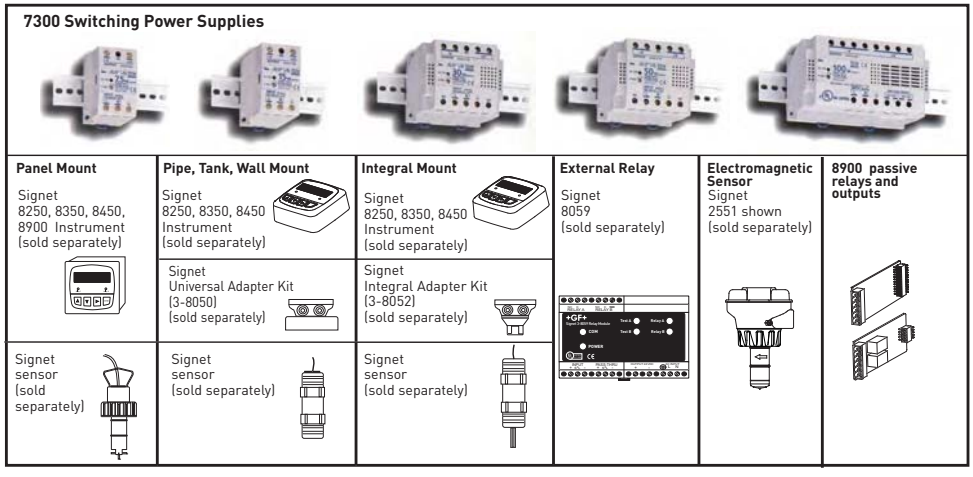
Description

Signet 7300 Switching Power Supplies provide regulated output voltage in compact and lightweight plastic housings that can be DIN Rail or surface mounted. The series includes five different output capacities from 300 mA to 4.2 A (7.5W to 100W), all of which accept universal AC line voltage input and meet worldwide standards for performance and safety. These units meet the power requirements for a single system, multiple Signet instruments or other devices requiring 24 VDC operation.

Applications

- **Signet Instruments**
- **Electromagnetic Flow Sensors**
- **Suitable for Electric Actuated Valves, including Solenoid**
- **Suitable for powering passive outputs and relays**

System Overview



E177168

Specifications

	7300-7524	7300-1524	7300-3024	7300-5024	7300-1024
Output Capacity	300 mA	600 mA	1.3 A	2.1 A	4.2 A
General					
Operation Indicator	LED				
Dielectric Strength	Between input and output terminals: 3,000 VAC, 1 minute				
	Between input terminals and housing: 2,000 VAC, 1 minute				
	Between output terminals and housing: 500 VAC, 1 minute				
Insulation Resistance	Between input and output terminals/input terminals and housing: 100 MΩ min. (500 VDC megger)				
Termination	Spring-up, fingersafe terminals with captive M3.5 screws				
Materials	Housing: PPHOX (polyphenylene oxide)				
Mounting	DIN Rail or Surface Mount				
Dimensions (L/W/H)	75/45/70 mm	75/45/95 mm	75/90/95 mm	75/90/95 mm	75/145/95 mm
	2.9/1.7/2.7 in.	2.9/1.7/3.7 in.	2.9/3.5/3.7 in.	2.9/3.5/3.7 in.	2.9/5.7/3.7 in.
Package Dimensions (L/W/H)	108/82/51 mm	133/89/51 mm	133/95/89 mm	133/95/89 mm	209/101/89 mm
	4.25/3.25/2.0 in.	5.25/3.5/2.0 in.	5.25/3.75/3.5 in.	5.25/3.75/3.5 in.	8.25/4.0/3.5 in.
Input					
Input Voltage	100 to 240 VAC nominal (85 to 264 VAC), ±10% regulated, 50/60 Hz (47 to 63 Hz)				
Input Current (typical)	0.17 A @ 100 VAC	0.3 A @ 100 VAC	0.68 A @ 100 VAC	1.15 A @ 100 VAC	2.5 A @ 100 VAC
Internal Fuse Rating	2 A	2 A	3.15 A	3.15 A	4 A
Inrush Current	50 A maximum (at cold start at 200 VAC				
Leakage Current (at no load)	0.75 mA maximum (60 Hz, measured in conformance with UL, CSA, VDE)				
Typical Efficiency	75% at 24 V	79% at 24 V	75% at 24 V	79% at 24 V	85% at 24 V
Over-voltage Protection	Outputs turn off at 105% (typical)				
Output					
Voltage & Current Ratings	24 V, 0.3 A	24 V, 0.6 A	24 V, 1.3 A	24 V, 2.1 A	24 V, 4.2 A
Voltage Adjustments	± 10% (V.ADJ screw on top)				
Output Holding Time	20 minutes maximum (at full rated input and output)				
Rise Time	200 minutes maximum (at full rated input and output)				
Fluctuation due to Input Voltage change	0.4% maximum				
Fluctuation due to Load Change	1.5% maximum				
Fluctuation due to Ambient Temperature Change	0.05% maximum				
Ripple Voltage	2% peak to peak maximum (including noise)				
Overload Protection	120% typical (Zener-limiting)		120% typical, auto reset		

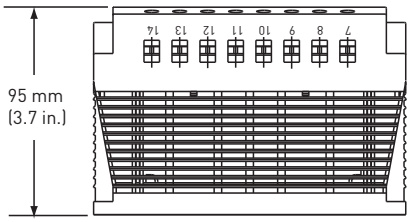
Shipping Weight	.40 lb (.18 kg)	.48 lb (.22 kg)	.92 lb (.42 kg)	.98 lb (.44 kg)	1.54 lb (.70 kg)
Environmental					
Operating Temperature	-10 °C to 60 °C (14 °F to 140 °F) - see derating curves				
Storage Temperature	-30 °C to 85 °C (-22 °F to 185 °F)				
Operating Humidity	20% to 90% relative humidity (no condensation)				
Vibration Resistance	45m/s^2, 10 to 55 Hz, 2 hours on each of 3 axes				
Shock Resistance	294 m/s^2, 3 shocks in each of 6 directions				

Standards and Approvals

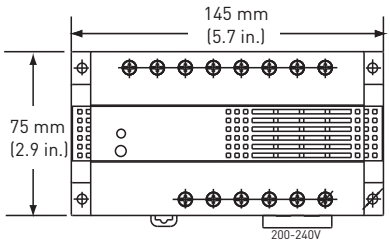
- CE, UL, UL508 Listed

Dimensions

7300-1024

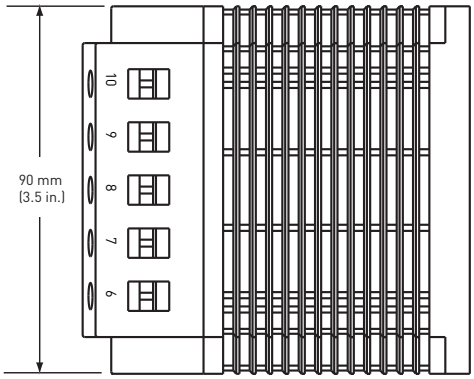


Front View

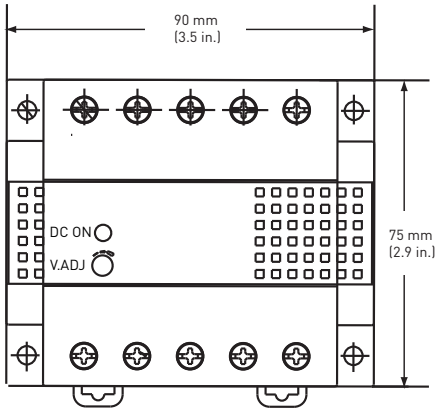


Side View

7300-3024
7300-5024

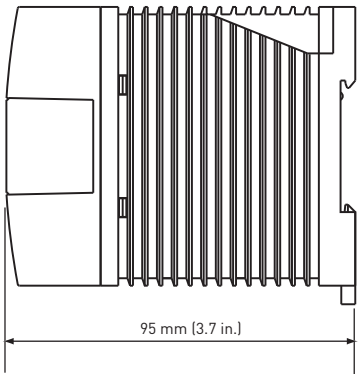


Front View

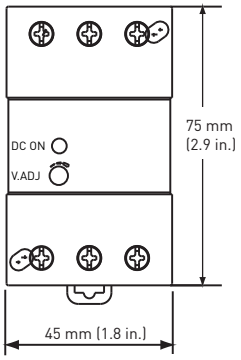


Side View

7300-1524

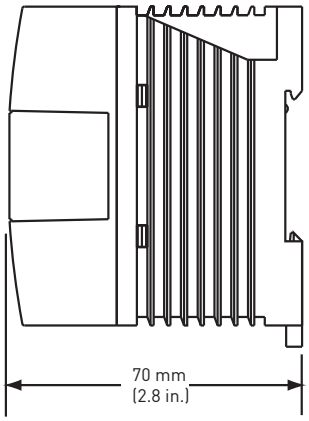


Front View

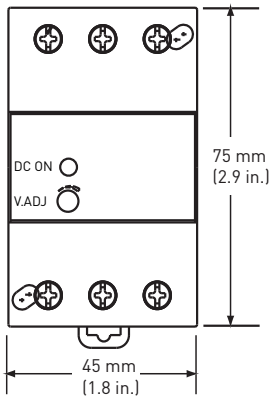


Side View

7300-7524



Front View



Side View

Ordering Information

Part Number		
7300	24 VDC Power Supply	
	Power and Input Current Options - Choose One	
	-7524	7.5W, 300 mA
	-1524	15W, 600 mA
	-3024	30W, 1.3 A
	-5024	50W, 2.1 A
	-1024	100W, 4.2 A
	↓	
7300	**-3024**	**Example Part Number**

Mfr. Part No.	Description
7300-7524	**159 000 687**
7300-1524	**159 000 688**
7300-3024	**159 000 689**

Mfr. Part No.	Description
7300-5024	**159 000 690**
7300-1024	**159 000 691**

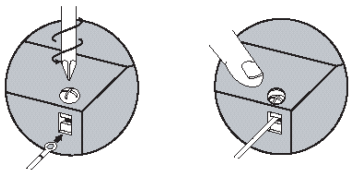
Accessories and Replacement Parts

DIN rail, in one meter lengths (1000 mm), and DIN rail clips are available. The standard packaging of these power supplies are to be fastened to DIN rails, and accessory clips will keep the supplies from sliding if the rail itself is mounted vertically, for example. Contact the factory for more details.

Mfr. Part No.	Code	Description
6205-0002	**159 000 858**	1-meter length DIN Rail
6205-0003	**159 000 859**	End clip for DIN Rail

Installation

The innovative terminals on these Signet power supplies use a special spring-loaded screw. This makes installation as easy as pushing down and turning with a screwdriver. Installation time is cut in half since the screws do not need to be backed out to install wiring. The screws are held captive once installed and are 100% finger-safe. Screw terminals accept bare wire or ring or fork connectors.



1) Insert the wire connector into the slot on the side of the power supply.
2) Using a Phillips screwdriver, push down and turn the screw.

Signet i-Go™ 8058 Signal Converter

3-8058-1

3-8058-2

Features

- **Connects with level, temperature, pressure and multi-parameter Signet instruments and other manufacturers transmitters**
- **Up to two 4 to 20 mA sensor inputs**
- **Connects additional measurement parameters to Signet 8900 Multi-Parameter instrument**
- **Wire or DIN rail mountable**

Description

The Signet i-Go™ 8058 Signal Converter accepts any 4 to 20 mA signal and converts it into the Signet digital (S^3L) format, the serial data format used by the Signet 8250, 8350, 8450 and 8900 instruments. When used with the 8900 Multi-Parameter Controller, the measurement type and operating range are defined in the 8900 setup menu. When used with level, temperature and pressure transmitters, the 8058 is configured at the factory to the user's specifications.

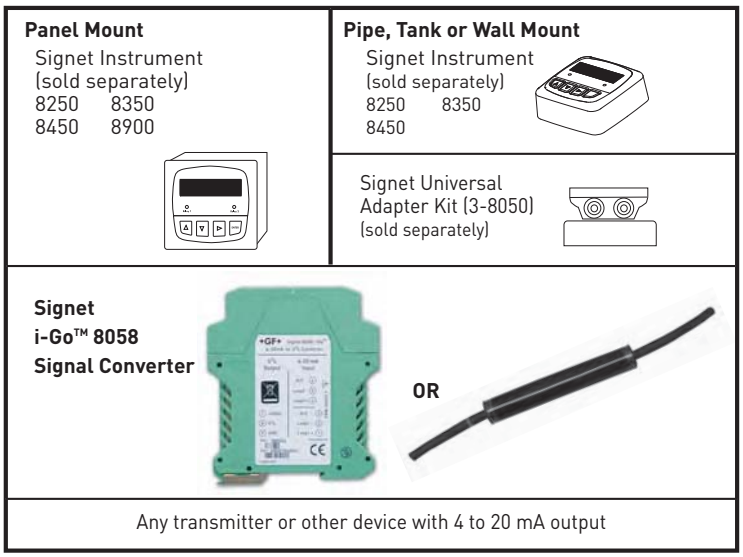
The wire-mount single-channel version is easily mounted anywhere in the interconnecting wiring between the sensor and the instrument.

The DIN rail mounted dual-channel version can convert one or two separate
4 to 20 mA inputs into a digital (S^3L) output.

Applications

- **Dissolved Oxygen Monitoring and Control in Wastewater**
- **Chlorine Dioxide for Disinfection**
- **Specific Ion**
- **BOD**
- **TOC**
- **Alkalinity**
- **Ozone Monitoring**
- **Conductivity**
- **Chlorine Injection Control**
- **Tank Level Monitoring**
- **Turbidity and Suspended Solids Monitoring**

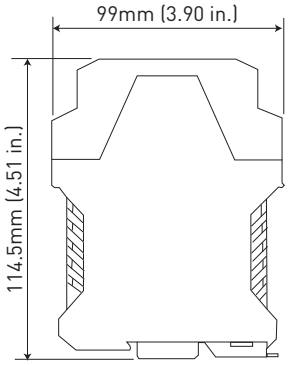
System Overview



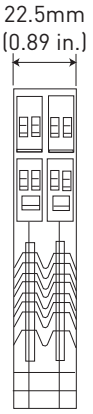
CE

Dimensions

3-8058-2 DIN Rail mount



Front View



Side View

Model 8058
Ordering Notes

1) For the -S special option, customer must specify at time of order the actual process value at 4 mA and the actual process value at 20 mA for factory span calibration.
2) For the -SC special option, customer must specify the required length of cable in increments of feet or meters.

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

Specifications

General

Input:
4 to 20 mA current loop, passive (external power required)
Input range: 3.6 to 22.1 mA
Output: Digital (S^3L) output
3-8058-2: calibrated mA
Accuracy: ± 32 µA @ 25 °C
Resolution: < 16 µA
Update rate: 500mS
Temp. Drift: ± 1 µA per °C, max.

Electrical

Power .: 5 to 6.5 VDC < 3.0 mA
Max. Voltage: 40 VDC
Max. Current: 40 mA
Isolation: Up to 48 VAC/DC
Voltage Drop: 5 VDC max.
Reverse polarity protected

Cable:
- 3-8058-1: 400 mm (15 in.) input, 200 mm (8 in.) output
- 3-8058-2: No cable provided (customer supplied)

Max. Recommended Cable Extensions:
- Loop in: 300 m (1000 ft)
- Digital (S^3L) out: per Digital (S^3L) guidelines

Environmental

Operating Ambient Temperature:
-10 °C to 55 °C (14 °F to 131 °F)
Storage Temperature:
-20 °C to 85 °C (-4 °F to 185 °F)
Relative Humidity:
- 3-8058-1: 0 to 100%, condensing
- 3-8058-2: 0 to 90%, non-condensing

Shipping Weight

- 3-8058-1: 40 g 0.80 lb
- 3-8058-2: 80 g 0.17 lb

Standards and Approvals

- CE

3-8058-1 wire mount

Ordering Information

Signal Converter			
3-8058	4 to 20 mA output converted to a digital (S^3L) output		
	Options - Choose One		
	-1	Single input wire-mount converter with short cable; for use with the 8900	
	-2	Two input DIN rail mount converter (customer supplied cable) for use with the 8900	
		Special Options-Contact Technical Service for More Ordering Information	
		-S	Converter configured for use with Signet 8250, 8350, or 8450. Customer must specify 4 and 20 mA designations. See ordering notes.
		-SC	Special cable length for the -1 version
		↓	
3-8058	**-1**	**-S**	**Example Part Number**

Mfr. Part No.	Code
3-8058-1	**159 000 966**
3-8058-2	**159 000 967**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
6205-0002	**159 000 858**	1-Meter Length DIN Rail
6205-0003	**159 000 859**	End Clip for DIN Rail
5523-0222	**159 000 392**	Cable (per foot), 2 cond. w/shield, 22 AWG
5523-0322	**159 000 761**	Sensor cable (per ft), 3 cond. plus shield, 22 AWG

Signet 8059 External Relay Modules

Description

Signet 8059 External Relay Modules supplement the output capabilities of certain host instruments such as the Signet 8900 Multi-Parameter Controller. AC-powered versions accept universal line voltage, and also provide 24 VDC output that can be used to power the host instrument or other device(s).

The host instrument controls relay operation by way of a single digital (S^3L) connection. The compact plastic housing is DIN rail mountable and includes LED annunciators for each relay, plus one each for power-on and data transfer or test mode.

Features

- **External relays controlled by host instrument**
- **AC and DC powered versions**
- **DC power output (AC versions)**
- **DC power pass-through (DC versions) to simplify wiring**
- **Digital (S^3L) pass-through to simplify sensor wiring**
- **Red LED annunciators for each relay**
- **Green LED indicators for power and digital (S^3L) data transfer**
- **Relays may be tested locally, and also via the host instrument**

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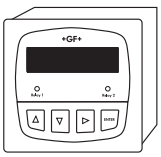
System Overview

Signet 8059
External Relay Module

Panel Mount

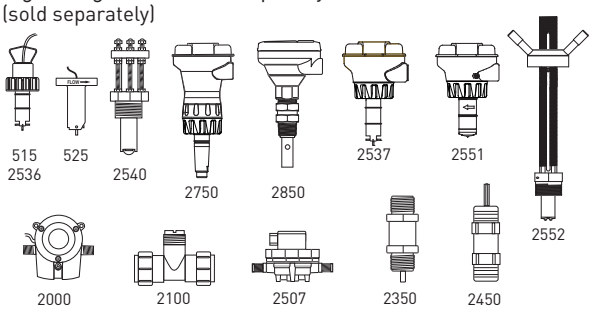
Signet 8900
Multi-Parameter Controller
(sold separately)



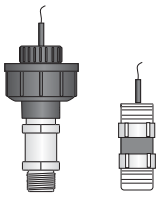
Pipe, Tank, Wall Mount

Signet 8250
Level Transmitter
(sold separately)

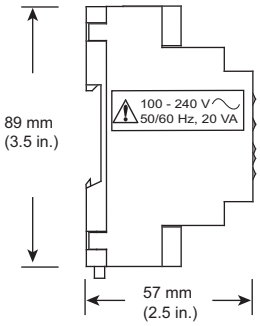
Signet digital (S^3L) or frequency sensor
(sold separately)



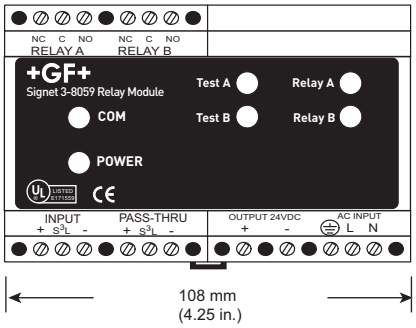
Signet Pressure and Level sensors
(sold separately)



Dimensions



Side View



Face View (3-8059-2 shown)

Model 8059
Ordering Notes

1) Use an RC filter kit to protect relays from voltage spikes.
2) DIN railing and clips are available for mounting a relay module.
3) The -AC version will supply enough voltage to power the 8900 when using the 12-24 VDC power module.

Specifications

General

Input: Digital (S^3L) via host instrument
Type: DIN rail mountable
Terminals: Standard screw-type

Material

Enclosure: Noryl® UL 94 V-0

Electrical

Power Requirements:
- 8059-2 AC, -4 AC: 100-240 VAC ±10% regulated, 50/60 Hz, 20 VA
- 8059-2, -4: 12 to 24 VDC ±10% regulated

DC Output:
- 8059-2 AC, -4 AC: 24 VDC regulated, 300 mA
- 8059-2: Pass-through: DC input minus 0.7 volts (12 VDC in =11.3 VDC out)

Electrical (continued)

Isolation: > 5,000 Vrms
Relays:
- Type: SPDT 250 VAC/30 VDC/5 A
- Resolution: 2 ms (in pulse mode)
- Response Time: < 100 ms
- Annunciators: Red LED, 1 per relay

Environmental

Operating Temperature:
-10 °C to 55 °C (14 °F to 131 °F)
Storage Temperature:
-20 °C to 85 °C (-4 °F to 185 °F)
Relative Humidity:
0 to 90% (non-condensing)
Maximum Altitude: 2,000 m (6,561 ft)

Shipping Weight 0.37 kg 0.8 lb

Standards and Approvals

- CE, UL listed, CUL
- Manufactured under ISO 9001 for Quality and ISO 14001 for Environmental Management

Ordering Information

Part Number			
3-8059	External Relay Module		
	Relay Options - Choose One		
	-2	2 Relay module	
	-4	4 Relay module	
		Power Input and Output Options - Choose One	
		-	12 to 24 VDC ±10% regulated with pass-through DC output (minus 0.7 volts)
		-AC	100 to 240 VAC with 24 VDC output ±10% regulated
		↓	
3-8059	**-2**	**-**	**Example Part Number**

Mfr. Part No.	Code
3-8059-2	**159 000 770**
3-8059-2AC	**159 000 771**

Mfr. Part No.	Code
3-8059-4	**159 000 772**
3-8059-4AC	**159 000 773**

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
3-8050.396	**159 000 617**	RC filter kit for relay use (2 per kit)
6205-0002	**159 000 858**	DIN Rail, 1 meter
6205-0003	**159 000 859**	End Clip, DIN Rail

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

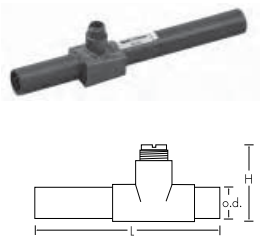
Installation Fittings

PVC TEES SCH 80 - Fitting only

Part No.	Code	Size	L	H	i.d	Sensor Type
PV8T005F	159 000 527	0.50 in.	3.75	3.6	0.85	Flow -X0, pH -XX
PV8T007F	159 000 529	0.75 in.	3.75	3.8	1.06	Flow -X0, pH -XX
PV8T010F	159 000 531	1.00 in.	4.26	4.0	1.33	Flow -X0, pH -XX
PV8T012F	159 000 533	1.25 in.	4.36	4.4	1.67	Flow -X0, pH -XX
PV8T015F	159 000 535	1.50 in.	4.90	4.6	1.91	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-X0-XX, 3-272X-XX

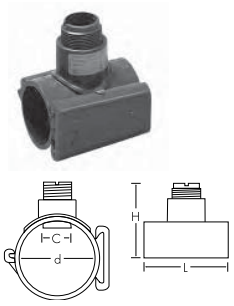
PVC TEES SCH 80 - with Pipe[1]



Part No.	Code	Size	L	H	o.d.	Sensor Type
PV8T005	159 000 526	0.50 in.	14	3.6	0.84	Flow -X0, pH -XX
PV8T007	159 000 528	0.75 in.	14	3.8	1.05	Flow -X0, pH -XX
PV8T010	159 000 530	1.00 in.	17	4.0	1.32	Flow -X0, pH -XX
PV8T012	159 000 532	1.25 in.	20	4.4	1.66	Flow -X0, pH -XX
PV8T015	159 000 534	1.50 in.	24	4.6	1.90	Flow -X0, pH -XX
PV8T020	198 801 415	2.00 in.	24	5.0	2.38	Flow -X0, pH -XX
PV8T025	198 801 573	2.50 in.	24	5.4	2.88	Flow -X0, pH -XX
PV8T030	198 801 416	3.00 in.	24	6.0	3.50	Flow -X0, pH -XX
PV8T040	198 801 436	4.00 in.	24	7.0	4.50	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-X0-XX, 3-272X-XX

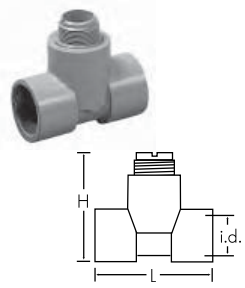
PVC Clamp-on Saddles SCH 80



Part No.	Code	Size	L	H	d	C	Sensor Type
PV8S020	159 000 637	2.00 in.	4.00	5.0	2.375	1.43	Flow -X0, pH -XX
PV8S025	159 000 638	2.50 in.	4.75	5.4	2.875	1.43	Flow -X0, pH -XX
PV8S030	198 150 577	3.00 in.	5.00	6.0	3.500	1.43	Flow -X0, pH -XX
PV8S040	198 150 578	4.00 in.	5.00	7.0	4.500	1.43	Flow -X1
PV8S060	198 150 579	6.00 in.	5.00	10.0	6.625	2.25	Flow -X1
PV8S080	159 000 639	8.00 in.	5.00	11.5	8.625	2.25	Flow -X1

- For use with P51530-X0/-X1, 3-2536-X0/-X1, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX, 3-272X-XX
- Mounts on PVC pipe
- C - Clearance dimension
- EPR (EPDM) O-ring

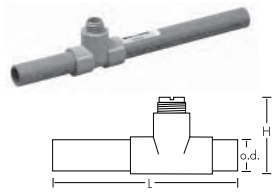
CPVC Tees SCH 80 - Fitting only



Part No.	Code	Size	L	H	i.d	Sensor Type
CPV8T005F	159 000 409	0.50 in.	3.75	3.6	0.85	Flow -X0, pH -XX
CPV8T007F	159 000 411	0.75 in.	3.75	3.8	1.06	Flow -X0, pH -XX
CPV8T010F	159 000 413	1.00 in.	4.26	4.0	1.33	Flow -X0, pH -XX
CPV8T012F	159 000 415	1.25 in.	4.36	4.4	1.67	Flow -X0, pH -XX
CPV8T015F	159 000 417	1.50 in.	4.90	4.6	1.91	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-X0-XX, 3-272X-XX

CPVC Tees SCH 80 - with Pipe[1]



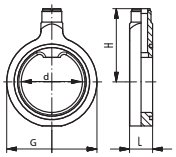
Part No.	Code	Size	L	H	o.d	Sensor Type
CPV8T005	159 000 408	0.50 in.	14	3.6	0.84	Flow -X0, pH -XX
CPV8T007	159 000 410	0.75 in.	14	3.8	1.05	Flow -X0, pH -XX
CPV8T010	159 000 412	1.00 in.	17	4.0	1.32	Flow -X0, pH -XX
CPV8T012	159 000 414	1.25 in.	20	4.4	1.66	Flow -X0, pH -XX
CPV8T015	159 000 416	1.50 in.	24	4.6	1.90	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-X0-XX, 3-272X-XX

[1]Pipe lengths included with these fittings do not satisfy straight-run requirements for all installation configurations.

Installation Fittings

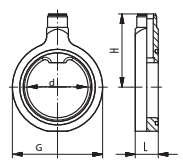
Metric PP Wafer Fittings (EPR/EPDM gaskets)



Part No.	Code	DN	G	H	d	Sensor Type
PPMTE025	727 311 012	65 mm	122	133	75	Flow -X1
PPMTE030	727 311 013	80 mm	138	140	90	Flow -X1
PPMTE040	727 311 014	100 mm	158	149	110	Flow -X1
PPMTE050	727 311 016	125 mm	188	149	140	Flow -X1
PPMTE060	727 311 017	150 mm	212	156	160	Flow -X1
PPMTE080	727 311 020	200 mm	268	178	225	Flow -X1
PPMTE100	727 311 022	250 mm	320	273	280	Flow -X2
PPMTE120	727 311 023	300 mm	370	285	315	Flow -X2

- For use with P51530-X1/-X2, 3-2536-X1/-X2, 3-8510-X1, 3-8512-X1, 3-2537-XC-X1, 3-2551-X1-XX/X2-XX
- "L" dimension for all wafers is 48 mm

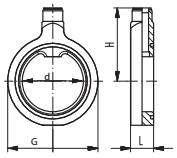
Metric PP Wafer fittings (FPM gaskets)



Part No.	Code	DN	G	H	d	Sensor Type
PPMTF025	727 311 042	65 mm	122	133	75	Flow -X1
PPMTF030	727 311 043	80 mm	138	140	90	Flow -X1
PPMTF040	727 311 044	100 mm	158	149	110	Flow -X1
PPMTF050	727 311 046	125 mm	188	149	140	Flow -X1
PPMTF060	727 311 047	150 mm	212	156	160	Flow -X1
PPMTF080	727 311 050	200 mm	268	178	225	Flow -X1
PPMTF100	727 311 052	250 mm	320	273	280	Flow -X2
PPMTF120	727 311 053	300 mm	370	285	315	Flow -X2

- For use with P51530-X1/-X2, 3-2536-X1/-X2, 3-8510-X1, 3-8512-X1, 3-2537-XC-X1, 3-2551-X1-XX/X2-XX
- "L" dimension for all wafers is 48 mm

Metric PVDF Wafer Fitting (FPM gaskets)

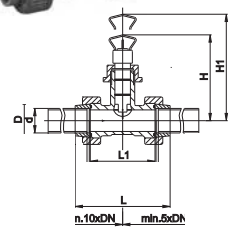


Part No.	Code	DN	G	H	d	Sensor Type
SFMTF025	735 311 042	65 mm	122	135	75	Flow -X1
SFMTF030	735 311 043	80 mm	138	141	90	Flow -X1
SFMTF040	735 311 044	100 mm	158	152	110	Flow -X1
SFMTF050	735 311 046	125 mm	188	153	140	Flow -X1
SFMTF060	735 311 047	150 mm	212	161	160	Flow -X1
SFMTF080	735 311 050	200 mm	268	185	225	Flow -X1

- For use with P51530-X1, 3-2536-X1, 3-8510-X1, 3-8512-X1, 3-2537-XC-X1, 3-2551-X1-XX
- "L" dimension for all wafers is 48 mm

Installation Fittings

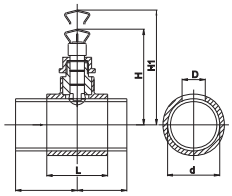
BSP PVC-U Tee Fittings



Part No.	Code	Size	H	H1	L	L1	d	Sensor Type
PVAT005	721 310 336	0.50 in.	145	225	131	90	20	Flow -X0, pH -XX
PVAT007	721 310 337	0.75 in.	148	228	147	100	25	Flow -X0, pH -XX
PVAT010	721 310 338	1.00 in.	151	231	164	110	32	Flow -X0, pH -XX
PVAT012	721 310 339	1.25 in.	155	235	171	110	40	Flow -X0, pH -XX
PVAT015	721 310 340	1.50 in.	159	239	188	120	50	Flow -X0, pH -XX
PVAT020	721 310 341	2.00 in.	164	244	212	130	63	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- FPM O-ring
- These fittings are only available from your local Georg Fischer sales office

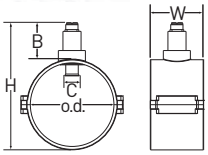
BSP PVC-U Saddle Fittings



Part No.	Code	Size	D	H	H1	L	d	Sensor Type
PVAS030	198 150 550	3.0 in.	39	175	225	105	90	Flow -X0, pH -XX
PVAS040	198 150 551	4.0 in.	39	184	264	105	110	Flow -X0, pH -XX
PVAS060	198 150 554	6.0 in.	39	224	339	120	160	Flow -X1

- For use with P51530-X0/-X1, 3-2536-X0/-X1, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX, 3-272X-XX
- EPR (EPDM) Gasket
- These fittings are only available from your local Georg Fischer sales office

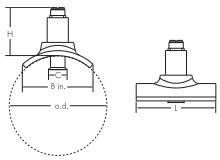
PP Clamp-On Saddle Fittings



Part No.	Code	Size	L	H	o.d.	C	Sensor Type
PPS100	159 000 693	10 in.	7.04	16.75	10.75	2.25	Flow -X2
PPS120	159 000 694	12 in.	9.68	18.18	12.75	2.25	Flow -X2

- For use with P51530-X2, 3-2536-X2, 3-2551-X2-XX
- Buna-N O-ring

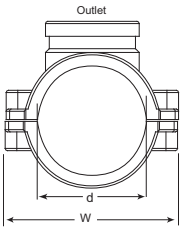
PVC Glue-On Saddle Fittings SCH 80



Part No.	Code	Size	W	H	o.d.	C	Sensor Type
PV8S100	159 000 695	10 in.	9.0	5.43	10.75	2.25	Flow -X2
PV8S120	159 000 696	12 in.	9.0	5.15	12.75	2.25	Flow -X2

- For use with P51530-X2, 3-2536-X2, 3-2551-X2-XX

PP Clamp-on Saddle Fittings

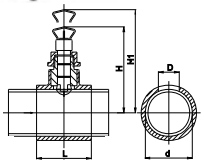


Mfr. Part No.	Code	Size Range	Outlet	d	W	L	H
2007-0225	159 000 812	2.50 in.	1.50 in.	2.875	4.84	3.11	4.29
2007-0230	159 000 813	3.00 in.	1.50 in.	3.50	5.43	3.43	4.84
2007-0240	159 000 814	4.00 in	1.50 in.	4.50	5.98	3.90	5.90
2007-0260	159 000 815	6.00 in.	2.00 in.	6.625	8.90	4.49	8.46
2007-0280	159 000 816	8.00 in.	2.00 in.	8.625	11.3	5.71	11.3
2007-0210	159 000 817	10.00 in.	2.00 in.	10.75	12.5	7.04	13.25
2007-0212	159 000 818	12.00 in.	2.00 in.	12.75	16.0	9.68	14.00

- For use with 3-2540-XX, 3-2552-3X, 3-3719-11/-21 Wet-Tap assembly with the 3-275X-WTX Wet-Tap Electrode

Installation Fittings

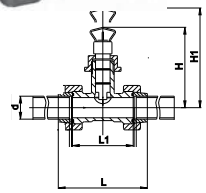
Metric PVC-U Saddle Fittings



Part No.	Code	DN	D	H	H1	L	d	Sensor Type
PVMS025	198 150 538	65 mm	30	170	250	105	75	Flow -X0, pH -XX
PVMS030	198 150 539	80 mm	39	175	255	105	90	Flow -X0, pH -XX
PVMS040	198 150 540	100 mm	39	184	264	105	110	Flow -X0, pH -XX
PVMS060	198 150 543	150 mm	39	224	339	120	160	Flow -X1
PVMS080	198 150 545	200 mm	39	251	366	120	225	Flow -X1

- For use with P51530-X0/-X1, 3-2536-X0/-X1, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX, 3-272X-XX
- EPR (EPDM) Gasket
- These fittings are only available from your local Georg Fischer sales office

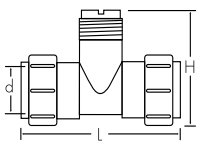
Metric PVC-U Tee Fittings



Part No.	Code	DN	H	H1	L	L1	d	Sensor Type
PVMT005	721 310 036	15 mm	145	225	128	90	20	Flow -X0, pH -XX
PVMT007	721 310 037	20 mm	148	228	144	100	25	Flow -X0, pH -XX
PVMT010	721 310 038	25 mm	151	231	160	110	32	Flow -X0, pH -XX
PVMT012	721 310 039	32 mm	155	235	168	110	40	Flow -X0, pH -XX
PVMT015	721 310 040	40 mm	159	239	188	120	50	Flow -X0, pH -XX
PVMT020	721 310 041	50 mm	164	244	212	130	63	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- FPM O-ring
- These fittings are only available from your local Georg Fischer sales office
- EPR (EPDM) O-ring now available by special order

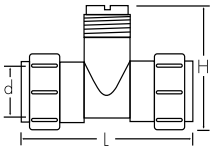
Metric PP Union Tee Fittings



Part No.	Code	DN	L	H	d	Sensor Type
PPMT005	727 310 036	15 mm	128	97	20	Flow -X0, pH -XX
PPMT007	727 310 037	20 mm	142	105	25	Flow -X0, pH -XX
PPMT010	727 310 038	25 mm	156	110	32	Flow -X0, pH -XX
PPMT012	727 310 039	32 mm	160	120	40	Flow -X0, pH -XX
PPMT015	727 310 040	40 mm	176	130	50	Flow -X0, pH -XX
PPMT020	727 310 041	50 mm	194	146	63	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- Socket fusion equipment is required to install PP union tees.
- FPM O-rings

Metric PVDF Union Tee Fittings

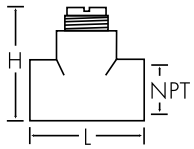


Part No.	Code	DN	L	H	d	Sensor Type
SFMT005	735 310 036	15 mm	128	97	20	Flow -X0, pH -XX
SFMT007	735 310 037	20 mm	142	105	25	Flow -X0, pH -XX
SFMT010	735 310 038	25 mm	156	110	32	Flow -X0, pH -XX
SFMT012	735 310 039	32 mm	160	120	40	Flow -X0, pH -XX
SFMT015	735 310 040	40 mm	176	130	50	Flow -X0, pH -XX
SFMT020	735 310 041	50 mm	194	146	63	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- Socket fusion equipment is required to install PVDF union tees.
- FPM O-rings

Installation Fittings

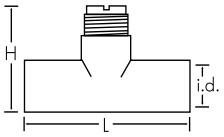
Carbon Steel Threaded Tees with NPT Threads



Part No.	Code	Size	L	H	Sensor Type
CS4T005	198 801 459	0.50 in.	3.6	4.0	Flow -X0, pH -XX
CS4T007	198 801 460	0.75 in.	3.6	4.2	Flow -X0, pH -XX
CS4T010	198 801 461	1.00 in.	3.6	4.2	Flow -X0, pH -XX
CS4T012	198 801 462	1.25 in.	3.8	4.5	Flow -X0, pH -XX
CS4T015	198 801 419	1.50 in.	4.1	4.8	Flow -X0, pH -XX
CS4T020	198 801 463	2.00 in.	4.9	5.3	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- PVDF insert - all sizes
- For use with SCH 40 metal pipe(ASTM)
- PTFE wetted material. Contact factory for available options.

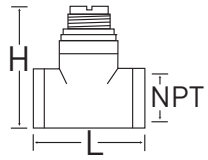
Copper Sweat-on Tee with PVDF insert



Part No.	Code	Size	L	H	i.d.	Sensor Type
CUKT005	198 801 687	0.50 in.	3.15	3.57	0.62	Flow -X0, pH -XX
CUKT007	198 801 688	0.75 in.	2.96	3.52	0.87	Flow -X0, pH -XX
CUKT010	198 801 689	1.00 in.	3.23	3.80	1.12	Flow -X0, pH -XX
CUKT012	198 801 690	1.25 in.	4.16	4.12	1.38	Flow -X0, pH -XX
CUKT015	198 801 691	1.50 in.	4.43	4.34	1.63	Flow -X0, pH -XX
CUKT020	198 801 418	2.00 in.	5.31	4.86	2.11	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- No insert up to 1 in., over 1 in. - PVDF insert
- For use with copper pipe (SCH K)
- PTFE wetted material. Contact factory for available options.

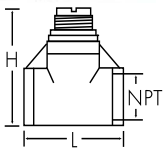
Galvanized Iron Threaded Tee with NPT Threads and PVDF insert



Part No.	Code	Size	NPT	L	H	Sensor Type
IR4T010	198 801 421	1.00 in.	1.00	3.4	4.1	Flow -X0, pH -XX
IR4T012	198 801 422	1.25 in.	1.25	3.56	4.34	Flow -X0, pH -XX
IR4T015	198 801 423	1.50 in.	1.50	3.75	4.67	Flow -X0, pH -XX
IR4T020	198 801 424	2.00 in.	2.00	3.90	5.05	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- PVDF insert - all sizes
- For use with SCH 40 metal pipe (ASTM)
- PTFE wetted material. Contact factory for available options.

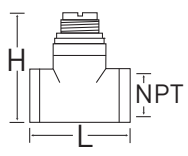
316 SS (1.4401) Threaded Tees with NPT Threads with PVDF insert



Part No.	Code	Size	L	H	Sensor Type
CR4T005	198 801 554	0.50 in.	3.6	4.0	Flow -X0, pH -XX
CR4T007	198 801 555	0.75 in.	3.6	4.2	Flow -X0, pH -XX
CR4T010	198 801 556	1.00 in.	3.6	4.2	Flow -X0, pH -XX
CR4T012	198 801 783	1.25 in.	3.8	4.5	Flow -X0, pH -XX
CR4T015	198 801 784	1.50 in.	4.1	4.8	Flow -X0, pH -XX
CR4T020	198 801 785	2.00 in.	4.9	5.3	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- PVDF insert - all sizes
- For use with SCH 40 metal pipe (ASTM)
- PTFE wetted material. Contact factory for available options.

Brass Threaded Tee with NPT Threads and PVDF insert

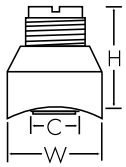


Part No.	Code	Size	NPT	L	H	Sensor Type
BR4T010	198 801 770	1.00 in.	1.00	3.36	4.09	Flow -X0, pH -XX
BR4T012	198 801 771	1.25 in.	1.25	3.42	4.42	Flow -X0, pH -XX
BR4T015	198 801 772	1.50 in.	1.50	3.46	4.70	Flow -X0, pH -XX
BR4T020	198 801 773	2.00 in.	2.00	3.68	5.19	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- PVDF insert - all sizes
- For use with SCH 40 metal pipe (ASTM)
- PTFE wetted material. Contact factory for available options.

Installation Fittings

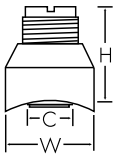
Carbon Steel Weld-on Weldolets for use with SCH 40 metal pipe (ASTM)



Part No.	Code	Size	W	H	C	Sensor Type
CS4W025	198 801 464	2.50 in.	2.60	2.50	1.44	Flow -X0, pH -XX
CS4W030	198 801 557	3.00 in.	2.60	2.50	1.44	Flow -X0, pH -XX
CS4W040	198 801 552	4.00 in.	2.60	2.50	1.44	Flow -X0, pH -XX
CS4W050	198 801 465	5.00 in.	3.50	3.00	2.25	Flow -X1
CS4W060	198 801 553	6.00 in.	3.50	3.00	2.25	Flow -X1
CS4W080	198 801 574	8.00 in.	3.50	3.00	2.25	Flow -X1
CS4W100	198 801 575	10.0 in.	3.50	5.75	2.25	Flow -X2
CS4W120	198 801 576	12.0 in.	3.50	5.40	2.25	Flow -X2

- For use with P51530-X0/-X1/-X2, 3-2536-X0/-X1/-X2, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX/-X2-XX, 3-272X-XX
- C - Clearance dimension
- Up to 8 in. - PVDF insert, over 8 in. - PVC insert
- PTFE wetted material. Contact factory for available options.

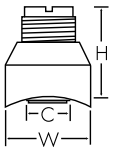
Brass Brazolet with PVDF insert for use with copper pipe (SCH 40 ASTM)



Part No.	Code	Size	W	H	C	Sensor Type
BR4B025	198 801 794	2.5 in.	2.50	2.50	1.44	Flow -X0, pH -XX
BR4B030	198 801 795	3.0 in.	2.50	2.50	1.44	Flow -X0, pH -XX
BR4B040	198 801 796	4.0 in.	2.50	2.50	1.44	Flow -X0, pH -XX
BR4B050	198 801 797	5.0 in.	3.50	3.40	2.25	Flow -X1
BR4B060	198 801 798	6.0 in.	3.50	3.20	2.25	Flow -X1
BR4B080	198 801 799	8.0 in.	3.50	3.00	2.25	Flow -X1
BR4B100	198 801 800	10.0 in.	3.50	5.75	2.25	Flow -X2
BR4B120	198 801 801	12.0 in.	3.50	5.40	2.25	Flow -X2

- For use with P51530-X0/-X1/-X2, 3-2536-X0/-X1/-X2, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX/-X2-XX, 3-272X-XX
- C - Clearance dimension
- Up to 8 in. - PVDF insert, over 8 in. - PVC insert
- PTFE wetted material. Contact factory for available options.

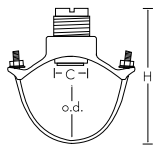
316 SS (1.4401) Weldolets with PVDF insert for use with SCH 40 metal pipe (ASTM)



Part No.	Code	Size	W	H	C	Sensor Type
CR4W025	198 801 786	2.5 in.	2.50	2.45	1.44	Flow -X0, pH -XX
CR4W030	198 801 787	3.0 in.	2.50	2.50	1.44	Flow -X0, pH -XX
CR4W040	198 801 788	4.0 in.	2.50	3.25	1.44	Flow -X0, pH -XX
CR4W050	198 801 789	5.0 in.	3.50	3.50	2.25	Flow -X1
CR4W060	198 801 790	6.0 in.	3.50	3.50	2.25	Flow -X1
CR4W080	198 801 791	8.0 in.	3.50	3.00	2.25	Flow -X1
CR4W100	198 801 792	10.0 in.	3.50	5.50	2.25	Flow -X2
CR4W120	198 801 793	12.0 in.	3.50	5.40	2.25	Flow -X2

- For use with P51530-X0/-X1/-X2, 3-2536-X0/-X1/-X2, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX/-X2-XX, 3-272X-XX
- Up to 8 in. - PVDF insert, over 8 in. - PVC insert
- C - Clearance dimension
- PTFE wetted material. Contact factory for available options.

Iron Strap-on Saddle for use with SCH 80 metal pipe (ASTM)

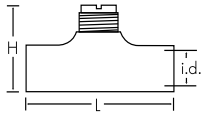


Part No.	Code	Size	H	o.d min	o.d max	C	Sensor Type
IR8S020	198 801 425	2.0 in.	5.5	2.35	2.56	1.44	Flow -X0, pH -XX
IR8S025	198 801 426	2.5 in.	5.5	2.44	2.91	1.44	Flow -X0, pH -XX
IR8S030	198 801 427	3.0 in.	6.5	2.97	3.54	1.44	Flow -X0, pH -XX
IR8S040	198 801 420	4.0 in.	7.5	3.74	4.55	2.25	Flow -X0, pH -XX
IR8S050	198 801 429	5.0 in.	9.0	4.74	5.63	2.25	Flow -X1
IR8S060	198 801 430	6.0 in.	10.5	5.94	6.70	2.25	Flow -X1
IR8S080	198 801 431	8.0 in.	12.0	7.69	8.72	2.25	Flow -X1
IR8S100	198 801 432	10.0 in.	18.0	10.64	12.12	2.25	Flow -X2
IR8S120	198 801 433	12.0 in.	20.0	12.62	14.32	2.25	Flow -X2

- For use with P51530-X0/-X1/-X2, 3-2536-X0/-X1/-X2, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX/-X2-XX, 3-272X-XX
- C - Clearance dimension
- Up to 8 in. - PVDF insert, over 8 in. - PVC insert
- Buna-N O-ring
- Larger sizes may be available and PTFE wetted material. Contact factory.

Installation Fittings

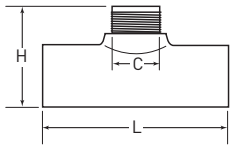
Fibreglass Glue-on Tees



Part No.	Code	Size	L	H	i.d.	Sensor Type
FPT015	159 000 446	1.50 in.	5.5	4.7	1.92	Flow -X0, pH -XX
FPT020	159 000 447	2.00 in.	7.7	8.0	2.38	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- PVDF insert - all sizes
- PTFE wetted material. Contact factory for available options.

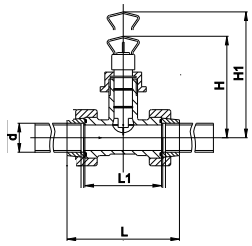
Fibreglass Glue-on Saddles



Part No.	Code	Size	L	H	o.d.	C	Sensor Type
FPS030	159 000 441	3.00 in.	5.9	4.5	3.50	1.44	Flow -X0, pH -XX
FPS040	159 000 442	4.00 in.	8.0	4.5	4.50	1.44	Flow -X0, pH -XX
FPS060	159 000 443	6.00 in.	8.0	6.5	6.62	2.25	Flow -X1
FPS080	198 801 417	8.00 in.	10.0	8.0	8.62	2.25	Flow -X1
FPS100	159 000 444	10.0 in.	12.0	8.5	10.75	2.25	Flow -X2
FPS120	159 000 445	12.0 in.	12.0	8.5	12.75	2.25	Flow -X2

- For use with P51530-X0/-X1/-X2, 3-2536-X0/-X1/-X2, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX/-X2-XX, 3-272X-XX
- C - Clearance dimension
- Up to 8 in. - PVDF insert, over 8 in. - PVC
- Mounts on fibreglass pipe
- PTFE wetted material. Contact factory for available options.
- Custom sizes available

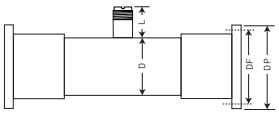
JIS PVC-U Tee Fittings



EPR (EPDM)	FPM	DN	H	H1	L	L1	d	Sensor Type
200 072 063	200 070 933	15 mm	145	225	468	90	22	Flow -X0, pH -XX
200 072 064	200 070 934	20 mm	148	228	144	100	26	Flow -X0, pH -XX
200 072 065	200 070 935	25 mm	151	231	160	110	32	Flow -X0, pH -XX
200 072 066	200 070 936	32 mm	155	235	168	110	38	Flow -X0, pH -XX
200 072 067	200 070 937	40 mm	159	239	188	120	48	Flow -X0, pH -XX
200 072 068	200 070 902	50 mm	164	244	212	130	60	Flow -X0, pH -XX

- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- Choice FPM or EPR (EPDM) O-ring
- These fittings are only available from the Georg Fischer sales office in Japan.
- Appearance varies in DN15 mm

JIS PVC-U Tee Fittings (Flange Type)

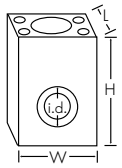


Code	DN	D	DF	DP	L	Sensor Type
200 070 892	65 mm	76	175	140	57.2	Flow -X0, pH -XX
200 070 893	80 mm	89	185	150	56.8	Flow -X0, pH -XX
200 070 894	100 mm	114	210	175	56.9	Flow -X0, pH -XX
200 070 895	125 mm	140	250	210	82.0	Flow -X1
200 070 896	150 mm	165	280	240	77.8	Flow -X1
200 070 897	200 mm	216	330	290	71.6	Flow -X1

- For use with P51530-X0/-X1, 3-2536-X0/-X1, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX, 3-272X-XX
- These fittings are only available from the Georg Fischer sales office in Japan.

Installation Fittings

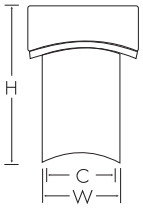
Metalex Socket Weld Mini-Tap (1.4401)



Part No.	Code	Size	L	W	H	i.d.
P526-2005	198 840 501	0.50 in.	2.0	2.4	3.0	0.850
P526-2007	198 840 502	0.75 in.	2.0	2.4	3.0	1.060
P526-2010	198 840 503	1.00 in.	2.0	2.4	3.0	1.325

- For use with P525-1 and P525-1S only
- For use with SS pipe

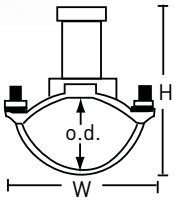
Metalex Weld-On Mini-Tap (1.4401)



Part No.	Code	Size	W	H	C
P526-2012	159 000 494	1.25 in.	1.66	2.25	1.062
P526-2015	198 840 506	1.50 in.	1.66	2.20	1.062
P526-2020	159 000 495	2.00 in.	1.66	2.17	1.062
P526-2025	159 000 496	2.50 in.	1.66	2.10	1.062
P526-2030	159 000 497	3.00 in.	1.66	2.00	1.062
P526-2040	159 000 498	4.00 in.	1.66	1.95	1.062
P526-2050	159 000 499	5.00 in.	1.66	1.83	1.062
P526-2060	159 000 500	6.00 in.	1.66	1.75	1.062
P526-2080	159 000 501	8.00 in.	1.66	1.56	1.062
P526-2100	159 000 502	10.0 in.	1.66	1.35	1.062
P526-2120	159 000 503	12.0 in.	1.66	1.15	1.062

- For use with P525-2 and P525-2S only
- For use with SS pipe
- Gasket Klinger C4401 Thermoseal

Metalex Strap-On Saddle (1.4401)



Part No.	Code	Size	W	H	o.d min.	o.d max.
P526-1020	159 000 484	2.00 in.	5.5	7.0	2.35	2.56
P526-1025	159 000 485	2.50 in.	5.5	7.0	2.44	2.91
P526-1030	159 000 486	3.00 in.	6.0	7.5	2.97	3.54
P526-1040	159 000 487	4.00 in.	7.0	8.0	3.74	4.55
P526-1050	159 000 488	5.00 in.	8.0	10.0	4.74	5.63
P526-1060	159 000 489	6.00 in.	9.5	10.5	5.94	6.70
P526-1080	159 000 490	8.00 in.	12.0	12.75	7.69	8.72
P526-1100	159 000 491	10.00 in.	15.0	14.5	10.64	12.12
P526-1120	159 000 492	12.00 in.	17.0	17.0	12.62	14.32

- For use with P525-3 and P525-3S only
- Buna-N O-ring

Installation Fittings

Iron Multi/Saddle Plus 201

Code	Inch	PN Water	Sensor Type
709 613 736	1.25 in.	16.0	2552-1 or 2552-2
709 613 738	1.50 in.	16.0	2552-3, 2540-XX, 3719-11

- For use with 3-2552-1X/-2X/-3X, 3-2540-XX, 3-3719-11 Wet-Tap assembly with the 3-275X-WTX Wet-Tap electrode
- These fittings are only available from your local Georg Fischer sales office

Multi/Saddle Plus Spatula for use with Iron Multi/Saddle Plus 201

Code	Description
709 613 904	Spatula for saddle outlet 1¼
709 613 905	Spatula for saddle outlet 1½ / d40 + d50

- These fittings are only available from your local Georg Fischer sales office

Multi/Saddle Straps for use with Iron Multi/Saddle Plus 201

Code	Strap Range		DN min	DN max
709 613 930	2.375 in.	3.25 in.	60 mm	80 mm
709 613 932	2.75 in.	3.625 in.	70 mm	90 mm
709 613 934	3.625 in.	4.375 in.	90 mm	110 mm
709 613 936	4.375 in	5.25 in.	110 mm	130 mm
709 613 938	5.25 in.	6.00 in.	130 mm	150 mm
709 613 940	5.75 in.	6.625 in.	145 mm	165 mm
709 613 942	6.375 in.	7.25 in.	160 mm	180 mm
709 613 944	7.00 in.	7.75 in.	175 mm	195 mm
709 613 946	7.625 in.	8.375 in.	190 mm	210 mm
709 613 948	8.25 in.	9.00 in.	205 mm	225 mm
709 613 950	8.75 in.	9.625 in.	220 mm	240 mm
709 613 952	9.375 in.	10.25 in.	235 mm	255 mm
709 613 954	10.00 in.	10.75 in.	250 mm	270 mm
709 613 956	10.75 in.	11.625 in.	270 mm	290 mm
709 613 958	11.375 in.	12.25 in.	285 mm	305 mm
709 613 960	12.00 in.	12.75 in.	300 mm	320 mm
709 613 962	12.625 in.	13.375 in.	315 mm	335 mm
709 613 964	13.375 in.	14.25 in.	335 mm	355 mm

- Ready to install, studs and nuts in one package
- These fittings are only available from your local Georg Fischer sales office

Electrofusion Fittings for PE pipes: Transition Saddles with Stainless Outlet

1¼" outlet

Part No.	Size	L	H	d	Sensor Type
10004673	2.0 in.	3.6	3.18	N/A	2552-1
10004686	3.0 in.	4.6	3.18	N/A	2552-1
10004700	4.0 in.	6.26	3.8	N/A	2552-1
10004717	6.0 in.	8.68	4.96	N/A	2552-1
10004740	8.0 in.	5.92	2.96	N/A	2552-1
Special request	10.0 in.	Call	Call	N/A	2552-1 or -2
Special request	12.0 in.	Call	Call	N/A	2552-1 or -2

- Transition saddle with 1¼ FNPT branch/outlet
- These fittings are only available from your local Georg Fischer sales office

1½" outlet

Part No.	Size	L	H	d	Sensor Type
10004676	2.0 in.	3.6	3.18	N/A	2552-3, 2540-XX, 3719-11
10004689	3.0 in.	4.6	3.18	N/A	2552-3, 2540-XX, 3719-11
10004703	4.0 in.	6.26	3.8	N/A	2552-3, 2540-XX, 3719-11
10004720	6.0 in.	8.68	4.96	N/A	2552-3, 2540-XX, 3719-11
10004743	8.0 in.	5.92	2.96	N/A	2552-3, 2540-XX, 3719-11
Special request	10.0 in.	Call	Call	N/A	2552-3, 2540-XX, 3719-11
Special request	12.0 in.	Call	Call	N/A	2552-3, 2540-XX, 3719-11

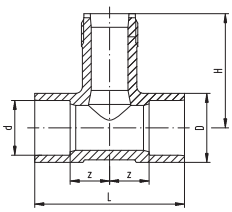
- Transition saddle with 1½ FNPT branch/outlet
- These fittings are only available from your local Georg Fischer sales office

Installation Fittings

ABS Installation Fittings

Code	DN	d	L	H	Z	D	Sensor Type
729 310 007	DN20	25	100	78	32	35	Flow -X0, pH -XX
729 310 008	DN25	32	110	81	33	44	Flow -X0, pH -XX
729 310 009	DN32	40	110	85	29	51	Flow -X0, pH- XX
729 310 010	DN40	50	120	89	29	63	Flow -X0, pH -XX
729 310 011	DN50	63	130	95	28	78	Flow -X0, pH -XX

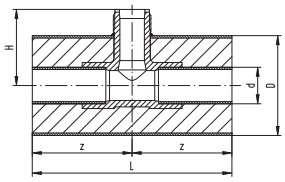
- For use with P51530-X0, 3-2536-X0, 3-8510-X0, 3-8512-X0, 3-2537-XC-X0, 3-2551-X0-XX, 3-272X-XX
- Please contact your local Georg Fischer sales office for availability.



COOL-FIT® Installation Fittings

Code	DN	d	L	H	Z	D
738 310 107	DN20	25	220	78	110	90
738 310 108	DN25	32	220	81	110	90
738 310 109	DN32	40	220	85	110	110
738 310 110	DN40	50	220	89	110	110
738 310 111	DN50	63	220	95	110	125

- For use with only Georg Fischer COOL-FIT® systems and with Signet 6515 or 6536 Flow Sensors
- Please contact your local Georg Fischer sales office for availability.



Installation Fittings (Plastic and Steel weld-on Fittings)

PVC Weld-on Fittings

Part No.	Code	DN	D	PN bar	Sensor Type	d x s mm
N/A	**198 801 230**	110.8 mm	39	6	Flow -X0, pH -XX	125 x 7.1
N/A	**198 801 232**	114.4 mm	39	10	Flow -X0, pH -XX	140 x 12.8
N/A	**198 801 232**	141.8 mm	39	6	Flow -X0, pH -XX	160 x 9.1
N/A	**198 801 232**	150 mm	39	3.2	Flow -X0, pH -XX	160 x 5.0
N/A	**198 801 233**	192 mm	39	4	Flow -X0, pH -XX	200 x 4.0
N/A	**198 801 231**	211 mm	39	3.2	Flow -X0, pH -XX	225 x 7.0
N/A	**198 801 251**	203 mm	39	10	Flow -X1	225 x 10.8
N/A	**198 801 234**	235.4 mm	39	6	Flow -X1	250 x 7.3
N/A	**198 801 235**	248.2 mm	39	6	Flow -X1	280 x 15.9
N/A	**198 801 235**	279.2 mm	39	6	Flow -X1	315 x 17.9

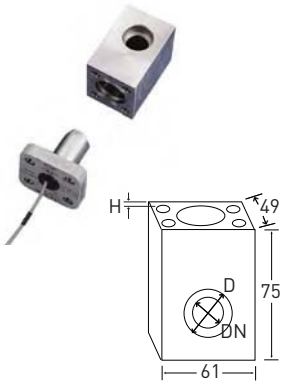
- For use with P51530-X0/-X1, 3-2536-X0/-X1, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX, 3-272X-XX
- Please contact your local Georg Fischer sales office for availability.

PP Weld-on Fittings

Part No.	Code	DN	D	PN bar	Sensor Type	d x s mm
N/A	**198 801 254**	61.2 mm	39	10	Flow -X0, pH -XX	75 x 6.9
N/A	**198 801 254**	79.8 mm	39	6	Flow -X0, pH -XX	90 x 5.1
N/A	**198 801 257**	102.2 mm	39	10	Flow -X0, pH -XX	125 x 11.4
N/A	**198 801 257**	124 mm	39	6	Flow -X0, pH -XX	140 x 8.0
N/A	**198 801 257**	131.2 mm	39	3.2	Flow -X0, pH -XX	140 x 4.4
N/A	**198 801 256**	159.6 mm	39	6	Flow -X0, pH -XX	180 x 10.2
N/A	**198 801 248**	199.4 mm	39	6	Flow -X0, pH -XX	225 x 12.8
N/A	**198 801 253**	248.2 mm	39	6	Flow -X1	280 x 15.9
N/A	**198 801 253**	290.6 mm	39	4	Flow -X1	315 x 12.2
N/A	**198 801 252**	315 mm	39	6	Flow -X1	355 x 120.0

- For use with P51530-X0/-X1, 3-2536-X0/-X1, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX, 3-272X-XX
- Please contact your local Georg Fischer sales office for availability.

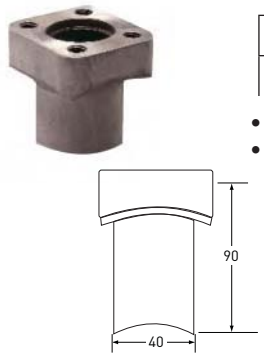
SS Mounting Blocks (1.4401)



Part No.	Code	DN	Inch	D	H
525-2005	**198 840 501**	15	0.5	21.8	8.4
525-2007	**198 840 502**	20	0.75	27.2	12.7
525-2010	**198 840 503**	25	1.0	33.9	12.7

- For use with P525-1 and P525-1S
- Please contact your local Georg Fischer sales office for availability.

SS Weld-On Fittings (1.4401)



Part No.	Code	DN	Inch
N/A	**198 150 346**	40-800	1.5 - 30

- For use with P525-2 and P525-2S
- Please contact your local Georg Fischer sales office for availability.

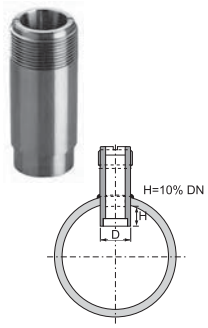
Installation Fittings (Plastic and Steel weld-on Fittings)

PE Weld-on Fittings

Part No.	Code	DN	D	PN bar	Sensor Type	d x s mm
N/A	**198 801 249**	61.2 mm	39	10	Flow -X0, pH -XX	75 x 6.9
N/A	**198 801 249**	79.8 mm	39	6	Flow -X0, pH -XX	90 x 5.1
N/A	**198 801 236**	97.4 mm	39	6	Flow -X0, pH -XX	110 x 6.3
N/A	**198 801 237**	102.2 mm	39	10	Flow -X0, pH -XX	125 x 11.4
N/A	**198 801 236**	110.8 mm	39	6	Flow -X0, pH -XX	125 x 7.1
N/A	**198 801 237**	131.2 mm	39	3.2	Flow -X0, pH -XX	140 x 4.4
N/A	**198 801 238**	114.4 mm	39	10	Flow -X0, pH -XX	140 x 12.8
N/A	**198 801 237**	124 mm	39	6	Flow -X0, pH -XX	140 x 8.0
N/A	**198 801 239**	130.8 mm	39	10	Flow -X0, pH -XX	160 x 14.6
N/A	**198 801 238**	141.8 mm	39	6	Flow -X0, pH -XX	160 x 9.1
N/A	**198 801 240**	147.2 mm	39	10	Flow -X0, pH -XX	180 x 16.4
N/A	**198 801 238**	150 mm	39	3.2	Flow -X0, pH -XX	160 x 5.0
N/A	**198 801 239**	159.6 mm	39	6	Flow -X0, pH -XX	180 x 10.2
N/A	**198 801 241**	163.6 mm	39	10	Flow -X0, pH -XX	200 x 18.2
N/A	**198 801 240**	177.2 mm	39	6	Flow -X0, pH -XX	200 x 11.4
N/A	**198 801 239**	187.6 mm	39	3.2	Flow -X0, pH -XX	200 x 6.2
N/A	**198 801 241**	199.4 mm	39	6	Flow -X0, pH -XX	225 x 12.8
N/A	**198 801 242**	184 mm	39	10	Flow -X1	225 x 20.5
N/A	**198 801 242**	221.6 mm	39	6	Flow -X1	250 x 14.2
N/A	**198 801 243**	248.2 mm	39	6	Flow -X1 Flow -X1	280 x 15.9
N/A	**198 801 244**	279.2 mm	39	6	Flow -X1	315 x 17.9
N/A	**198 801 243**	290.6 mm	39	4	Flow -X1	315 x 12.2
N/A	**198 801 245**	314.8 mm	39	6	Flow -X1	355 x 20.1
N/A	**198 801 246**	354.6 mm	39	6	Flow -X1	400 x 22.7
N/A	**198 801 245**	369.2 mm	39	4	Flow -X1 Flow -X1	400 x 15.4
N/A	**198 801 247**	399 mm	39	6	Flow -X1	450 x 25.5
N/A	**198 801 250**	443.4 mm	39	6	Flow -X2	500 x 28.3
N/A	**198 801 255**	581.4 mm	39	4	Flow -X2	630 x 24.3

- For use with P51530-X0/-X1/-X2, 3-2536-X0/-X1/-X2, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX/-X2-XX, 3-272X-XX
- Please contact your local Georg Fischer sales office for availability.

SS Weld-on Fittings (1.4435)



Part No.	Code	DN	D	PN bar	Sensor Type	d x s mm
N/A	**198 801 268**	≥50 mm	37	N/A	Flow -X0, pH -XX	N/A
N/A	**198 801 269**	≥300 mm	37	N/A	Flow -X1	N/A

- For use with P51530-X0/-X1, 3-2536-X0/-X1, 3-8510-X0/-X1, 3-8512-X0/-X1, 3-2537-XC-X0/-X1, 3-2551-X0-XX/-X1-XX, 3-272X-XX
- Please contact your local Georg Fischer sales office for availability.

Fitting Insert Reference

The following inserts can be used to replace inserts in Signet fittings:

Fitting Accessories

Fitting	Insert Part No.	Description
P31515-0V200	**159 000 459**	Pipe Adapter Insert, PVDF
P31515-0C200	**159 000 631**	Pipe Adapter Insert, CPVC
P31515-0P200	**159 000 630**	Pipe Adapter Insert, PVC
P31520-1V	**159 000 460**	Pipe Adapter Insert, PVDF
P31520-2P	**159 000 461**	Pipe Adapter Insert, PVC
P31536	**198 840 201**	Sensor Plug, Polypro
P31536-2	**159 000 649**	Sensor Plug, PVDF
P31671-1	**159 000 465**	Insert, PVDF 1½ in.

Brazolet Fittings

Fitting	Insert Part No.	Description
BR4B025	P31515-0V200	Brazolet, Brass
BR4B030	P31515-0V200	Brazolet, Brass
BR4B040	P31515-0V200	Brazolet, Brass
BR4B050	P31520-1V	Brazolet, Brass
BR4B060	P31520-1V	Brazolet, Brass
BR4B080	P31520-1V	Brazolet, Brass
BR4B100	P31520-2P	Brazolet, Brass
BR4B120	P31520-2P	Brazolet, Brass

Tee Fittings

BR4T010	P31515-0V200	Tee, Brass
BR4T012	P31515-0V200	Tee, Brass
BR4T015	P31515-0V200	Tee, Brass
BR4T020	P31515-0V200	Tee, Brass
CUKT005	Not applicable	Tee, Copper
CUKT007	Not applicable	Tee, Copper
CUKT010	Not applicable	Tee, Copper
CUKT012	P31515-0V200	Tee, Copper
CUKT015	P31671-1	Tee, Copper
CUKT020	P31520-1V	Tee, Copper
CR4T005	P31515-0V200	Tee, SS
CR4T007	P31515-0V200	Tee, SS
CR4T010	P31515-0V200	Tee, SS
CR4T012	P31515-0V200	Tee, SS
CR4T015	P31671-1	Tee, SS
CR4T020	P31520-1V	Tee, SS
CS4T005	P31515-0V200	Tee, Carbon Steel
CS4T007	P31515-0V200	Tee, Carbon Steel
CS4T010	P31515-0V200	Tee, Carbon Steel
CS4T012	P31515-0V200	Tee, Carbon Steel
CS4T015	P31515-0V200	Tee, Carbon Steel
CS4T020	P31515-0V200	Tee, Carbon Steel
FPT015	P31515-0V200	Tee, Fibreglass
FPT020	P31515-0V200	Tee, Fibreglass

Ordering Notes

1) If insert is intended for use with Signet installation fittings, specify fitting part number at the time of purchase.

2) If insert is not for use with Signet installation fittings, specify the following at the time of purchase:

- Outside diameter (o.d.) of pipe
- Thickness of pipe
- Dimension from top of pipe to top of installation fitting when installed.

WARNING!

FOR YOUR SAFETY: Always confirm the chemical compatibility and the maximum pressure/temperature specifications for fitting and sensor selection prior to purchase. Failure to do so may result in property damage and/or serious personal injury.

Fitting Insert Reference

Ordering Notes
1) If insert is intended for use with Signet installation fittings, specify fitting part number at the time of purchase.

2) If insert is not for use with Signet installation fittings, specify the following at the time of purchase:
- Outside diameter (o.d.) of pipe
- Thickness of pipe
- Dimension from top of pipe to top of installation fitting when installed.

Tee Fittings

Fitting	Insert Part No.	Description
IR4T010	P31515-0V200	Tee, Iron
IR4T012	P31515-0V200	Tee, Iron
IR4T015	P31515-0V200	Tee, Iron
IR4T020	P31515-0V200	Tee, Iron

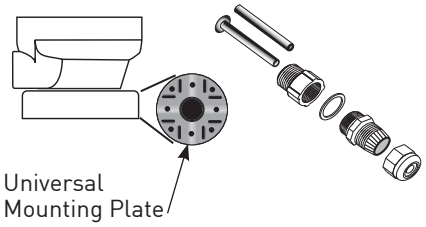
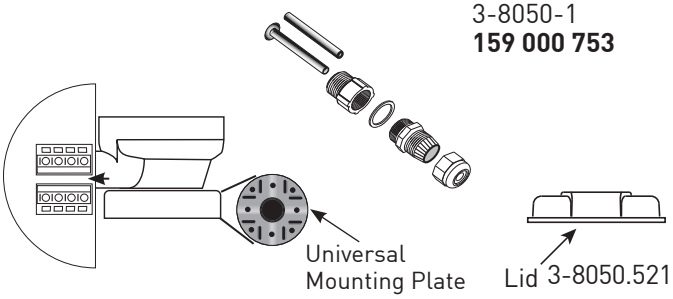
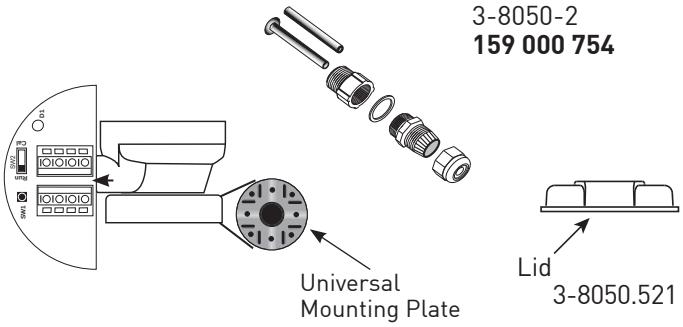
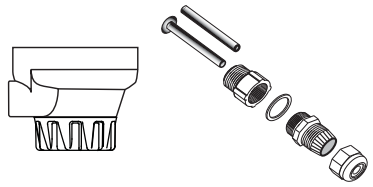
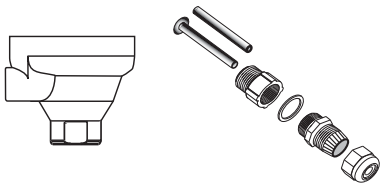
Weldolet Fittings

CR4W025	P31515-0V200	Weldolet, SS
CR4W030	P31515-0V200	Weldolet, SS
CR4W040	P31515-0V200	Weldolet, SS
CR4W050	P31520-1V	Weldolet, SS
CR4W060	P31520-1V	Weldolet, SS
CR4W080	P31520-1V	Weldolet, SS
CR4W100	P31520-2P	Weldolet, SS
CR4W120	P31520-2P	Weldolet, SS
CS4W025	P31515-0V200	Weldolet, Carbon Steel
CS4W030	P31515-0V200	Weldolet, Carbon Steel
CS4W040	P31515-0V200	Weldolet, Carbon Steel
CS4W050	P31520-1V	Weldolet, Carbon Steel
CS4W060	P31520-1V	Weldolet, Carbon Steel
CS4W080	P31520-1V	Weldolet, Carbon Steel
CS4W100	P31520-2P	Weldolet, Carbon Steel
CS4W120	P31520-2P	Weldolet, Carbon Steel
CR4T005		

Saddle Fittings

FPS030	31515-0V200	Saddle, Fibreglass
FPS040	P31520-1V	Saddle, Fibreglass
FPS060	P31520-1V	Saddle, Fibreglass
FPS080	P31520-1V	Saddle, Fibreglass
FPS100	P31520-2P	Saddle, Fibreglass
FPS120	P31520-2P	Saddle, Fibreglass
IR8S020	P31515-0V200	Saddle, Iron
IR8S025	P31515-0V200	Saddle, Iron
IR8S030	P31515-0V200	Saddle, Iron
IR8S040	P31515-0V200	Saddle, Iron
IR8S050	P31520-1V	Saddle, Iron
IR8S060	P31520-1V	Saddle, Iron
IR8S080	P31520-1V	Saddle, Iron
IR8S100	P31520-2P	Saddle, Iron
IR8S120	P31520-2P	Saddle, Iron
PPS100	P31520-2P	10" Clamp-on Fitting, PP
PPS120	P31520-2P	12" Clamp-on Fitting, PP
PV8S020	Not applicable	Saddle, PVC
PV8S025	Not applicable	Saddle, PVC
PV8S030	Not applicable	Saddle, PVC
PV8S040	Not applicable	Saddle, PVC
PV8S060	Not applicable	Saddle, PVC
PV8S080	Not applicable	Saddle, PVC
PV8S100	Not applicable	10" Glue-on Saddle, PVC
PV8S120	Not applicable	12" Glue-on Saddle, PVC

Instrument Accessories - Junction Boxes

	Mfr. Part No./Code	Description
	3-8050 **159 000 184**	The Universal Mount Kit mounts a ProcessPro® field mount instrument onto a wall, pipe, or tank via a universal mounting plate. Compatible with: • 8250-2 • 8350-1 or -2 • 8450-1 or -2 • 8550-1 or -2 • 8750-1 or -2 • 8850-1 or -2
	3-8050-1 **159 000 753**	The Universal Mount Junction Box contains two terminal blocks that enable cable extensions for pH, ORP, flow, temperature, pressure, and conductivity sensors/electrodes (DO NOT extend resistivity electrode cable when resistivity value is above 10 MΩ). This kit mounts on a wall, pipe, or tank via a universal mounting plate.
	3-8050-2 **159 000 754**	The pH/ORP Universal Mount Junction Box contains two terminal blocks that enable cable extension of pH or ORP sensors. It features an EasyCal board for simple, push-button pH or ORP calibration. This kit mounts on a wall, pipe, or tank via a universal mounting plate. Compatible ONLY with: • 2750-1, • 2750-3 • 2750-4
	3-8051 **159 000 187**	The Integral Mount Kit is designed to mount a ProcessPro® field mount instrument directly on top of a flow sensor. Compatible flow instruments • 8150-1 • 8550-1 • 8550-2 Compatible flow sensors: • 8510-P0, -P1, -T0, or -V0 • 8512-P0, -P1, -T0, or -V0.
	3-8052 **159 000 188**	The Integral Mount Kit is designed to mount a ProcessPro® field mount instrument directly on top of a conductivity/resistivity, temperature, or pressure or level sensor. Compatible instruments: • 8250-2 • 8250-3 • 8850-1 • 8850-2 • 8850-3 • 8350-1 • 8350-2 • 8450-1 • 8450-2 Compatible sensors/electrodes: • 2839-2842 Electrodes (-1, -1D versions) • 2350-2 • 2450 (-2U, -4U, -2L, -4L, 2H, -4H versions)

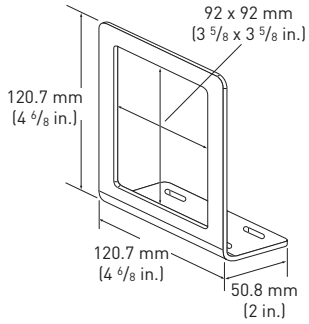
Instrument Accessories and Replacement Parts

Note: Not all accessories shown pictorially.

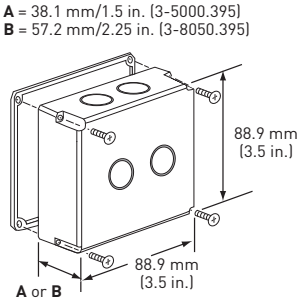
Instrument mounting

Mfr. Part No.	Code	Description	Compatibility
3-0000.596	**159 000 641**	Heavy Duty Wall Mount Bracket	for all instruments (panel mount version)
3-0000.596-1	**159 000 892**	Heavy Duty Wall Mount when used with back cover 3-5000.395 or when used with back cover 3-8050.395	5075, 5090, 5500, 5600, 5700, 5800CR, 5900, 8250, 8350, 8450, 8550, 8750, 8850 (panel mount versions)
3-0000.596-2	**159 000 893**	Heavy Duty Wall Mount Bracket when used with back cover 3-8050.395	8860 and 8900
3-5000.390	**159 000 323**	Installation Kit	5075, 5090, 5500, 5600, 5700, 5800CR, 5900
3-5000.395	**198 840 227**	Splashproof Back Cover Kit	5075, 5090, 5500, 5600, 5700, 5800CR, 5900
3-5000.399	**198 840 224**	5" x 5" Adapter Kit	5075, 5090, 5500, 5600, 5700, 5800CR, 5900, 8900
3-5000.598	**198 840 225**	Mounting Bracket	all instruments (panel mount version)
3-8050	**159 000 184**	Universal Mount Kit	8550, 8750, 8850, 8350, 8450, 8250 (pipe, wall, tank mount version)
3-8050.575		Metal Frame with Clips	8000 series
3-8050-1	**159 000 753**	Universal Mount Junction Box	8550, 8750, 8850, 8350, 8450, 8250 (pipe, wall, tank mount version)
3-8050.560		8000 Series Gasket	
3-8050.392	**159 000 640**	¼ DIN Retrofit Adapter	5075, 5090, 5500, 5600, 5700, 5800CR, 5900, 8900
3-8050.395	**159 000 186**	Splashproof rear cover	8550, 8750, 8850, 8860, 8350, 8450, 8250, 8900 (panel mount version)
3-8051	**159 000 187**	Flow sensor Integral Mount Kit	8550 (integral version)
3-8052	**159 000 188**	¾ in. Integral Mount Kit	8350, 8450, 8850 (integral version)
3-8052-1	**159 000 755**	¾ in. Junction Box	8350, 8450, 8850

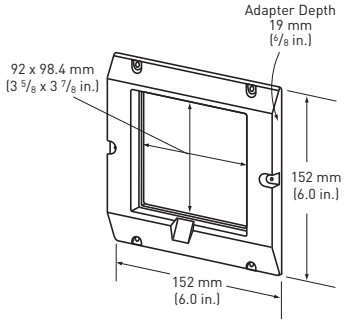
Mounting Bracket (3-5000.598)



Splashproof Back Cover (3-5000.395, 3-8050.395)



5 x 5 Adapter Kit (3-5000.399)

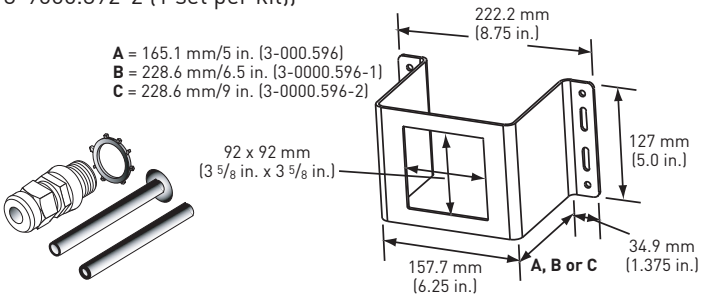


Heavy Duty Wall Mount Brackets (3-0000.596, 3-0000.596-1, 3-0000.596-2)

Liquid Tight Connector Kits (for all instruments and junction boxes)

Mfr. Part No.	Code	Description	Compatibility
3-9000.392	**159 000 368**	Liquid tight connector kit for rear cover (includes 3 connectors)	All instruments
3-9000.392-1	**159 000 839**	Liquid tight connector kit, NPT (1 pc.)	All instruments
3-9000.392-2	**159 000 841**	Liquid tight connector kit, PG13.5 (1 pc.)	All instruments

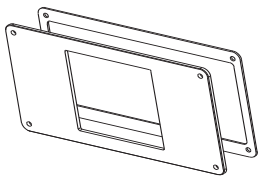
Liquid Tight Connectors 3-9000.392 (3 sets per kit), 3-9000.392-1 (1 set per kit), 3-9000.392-2 (1 set per kit))



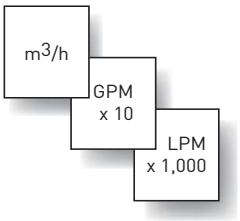
Other Products

Instrument Accessories and Replacement Parts

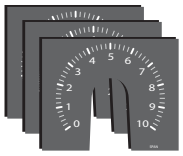
200 Retrofit Adapter (3-8050.392)



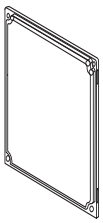
Unit Tags (3-5090.611 shown)



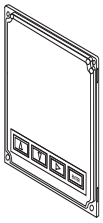
Dial kit (3-5090.390)



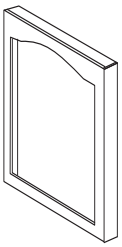
5090 and 5091 Window Kit (3-5000.396)



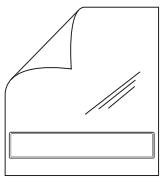
5000 series Window Kit (3-5000.397)



Bezel (3-5000.525.1)



Protective Overlay Kit (3-5000.398)



Power Supply, RC Filter, Batteries, and 4 to 20 mA to Digital Signal Converter

Mfr. Part No.	Code	Description	Compatibility
7300-7524	**159 000 687**	24 VDC Power Supply 7.5 W, 300 mA	See instrument specifications
7300-1524	**159 000 688**	24 VDC Power Supply 15 W, 600 mA	See instrument specifications
7300-3024	**159 000 689**	24 VDC Power Supply 30 W, 1.3 A	See instrument specifications
7300-5024	**159 000 690**	24 VDC Power Supply 50 W, 2.1 A	See instrument specifications
7300-1024	**159 000 691**	24 VDC Power Supply 100 W, 4.2 A	See instrument specifications
3-8050.396	**159 000 617**	RC Filter Kit - 2 per kit (for use with relays)	8550, 8750, 8850, 8860, 8250, 8350, 8450
3-5000.075	**159 000 321**	Power Supply 110V/24V	5000 Series Instruments
7400-0011	**159 000 935**	Lithium Replacement Battery (2 required)	8150
3-8058-1	**159 000 966**	4 to 20 mA to Digital	8900 Converter (Wire Mount)
3-8058-2	**159 000 967**	4 to 20 mA to Digital	8900 Converter (DIN Mount)
3-8058-1S	**special order**	4 to 20 mA to Digital	8250, 8350, 8450 Converter (Wire Mount)
3-8058-2S	**special order**	4 to 20 mA to Digital	8250, 8350, 8450 Converter (DIN Mount)

Instrument Tags

Mfr. Part No.	Code	Description	Compatibility
3-5090.611	**198 840 228**	Unit tags	5090
3-5500.611	**159 840 230**	Unit tags	5075, 5500, 5600, 5800CR

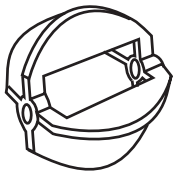
Instrument Dial and Window Kits

Mfr. Part No.	Code	Description	Compatibility
3-5500.390	**159 000 347**	Dial Kit	5075, 5500, 5600, 5800CR
3-5090.390	**159 000 334**	Dial Kit	5090
3-5000.396	**159 000 325**	Window Kit	5090
3-5000.397	**159 000 326**	5000 Series Window Kit	5075, 5090, 5500, 5600, 5700, 5800CR, 5900
3-5000.398	**159 000 646**	Protective overlay kit (10 pieces)	5075, 5090, 5500, 5600, 5700, 5800CR, 5900
3-5000.525-1	**198 840 226**	Bezel	5075, 5090, 5500, 5600, 5700, 5800CR, 5900

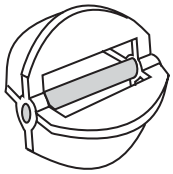
Multi-Parameter Accessories and Replacement Parts

Mfr. Part No.	Code	Description	Compatibility
3-8900.391	**159 000 918**	Real Panel w/captive screws	8900
3-8900.561	**159 000 919**	Front face panel gasket	8900
3-8900.602	**159 000 904**	2 two-terminal plug	8900
3-8900.604	**159 000 903**	4-terminal plug	8900
3-8900.606	**159 000 937**	6-terminal plug	8900
3-8900.614	**159 000 902**	14-terminal plug	8900

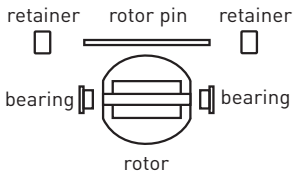
Flow Sensor Accessories and Replacement Parts



Sleeved Rotor
(pin not included)



Rotor Kit (P52509)



Rotors and Rotor Kits

Mfr. Part No.	Code	Description	Compatibility
M1538-2	**198 801 181**	Rotor only, PVDF Black	515
P51547-3	**159 000 474**	Rotor only, PVDF Natural	515
P51550-3	**198 820 043**	Rotor and Pin, PVDF Natural	515
M1538-4	**198 820 018**	Rotor, Tefzel®	515
3-0515.322-1	**198 820 059**	Sleeved Rotor, PVDF Black	515
3-0515.322-2	**198 820 060**	Sleeved Rotor, PVDF Natural	515
3-0515.322-3	**198 820 017**	Sleeved Rotor, Tefzel®	515
3-2507.080-2	**159 000 254**	Rotor	2507
P52509	**198 801 501**	Rotor kit (rotor, stainless steel pin, bearings, retainers)	525
P52509-2	**159 000 480**	Rotor kit (rotor, tungsten carbide pin, bearings, retainers)	525
3-2540.320	**198 820 040**	Rotor Kit, 2540 Peek Bearing (old version)	2540
3-2540.321	**159 000 623**	Rotor Kit, 2540 Tungsten Carbide Pin (new version since 1.1.2000)	2540
3-2536.320-1	**198 820 052**	Rotor, PVDF Black	2536, 2537
3-2536.320-2	**159 000 272**	Rotor, PVDF Natural	2536, 2537
3-2536.320-3	**159 000 273**	Rotor, Tefzel®	2536, 2537
3-2536.321	**198 820 054**	Rotor and Pin (matched set), PVDF Natural	2536, 2537
3-2536.322-1	**198 820 056**	Sleeved Rotor, PVDF Black	2536, 2537
3-2536.322-2	**198 820 057**	Sleeved Rotor, PVDF Natural	2536, 2537
3-2536.322-3	**198 820 058**	Sleeved Rotor, Tefzel®	2536, 2537
3-2000.390	**159 000 248**	Replacement Rotor Kit	2000

Rotor Pins

Mfr. Part No.	Code	Description	Compatibility
M1546-1	**198 801 182**	Pin, Titanium	515, 2536, 2537
M1546-2	**198 801 183**	Pin, Hastelloy-C	515, 2536, 2537
M1546-3	**198 820 014**	Pin, Tantalum	515, 2536, 2537
M1546-4	**198 820 015**	Pin, Stainless Steel	515, 2536, 2537
P51545	**198 820 016**	Pin, Ceramic	515, 2536, 2537

Rotor Shafts

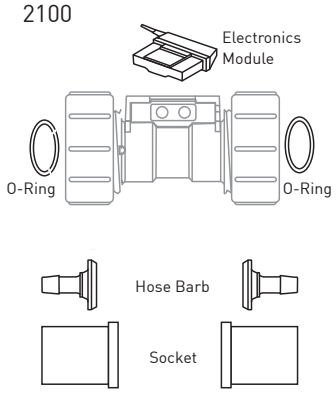
Mfr. Part No.	Code	Description	Compatibility
P52504-1	**198 801 500**	Rotor Shaft, Stainless steel 316 (optional)	525
P52504-2	**198 820 023**	Rotor Shaft, Tungsten Carbide (standard)	525

Bearings

Mfr. Part No.	Code	Description	Compatibility
P52503	**198 820 013**	Bearing, Rulon® B (Fluoroloy B)	525, 2540

Flow Sensor Accessories and Replacement Parts

2100



Turbines

Mfr. Part No.	Code	Description	Compatibility
3-2100.390-1L	**159 000 015**	Turbine Lo Flow with FPM O-rings (replacement body)	2100
3-2100.390-1H	**159 000 016**	Turbine Hi Flow with FPM O-rings (replacement body)	2100
3-2100.390-2L	**159 000 017**	Turbine Lo Flow with EPR (EPDM) O-rings (replacement body)	2100
3-2100.390-2H	**159 000 018**	Turbine Hi Flow with EPR (EPDM) O-rings (replacement body)	2100
3-2100.390	**159 000 014**	Electronics Module with cable	2100

In-line Rotors

Mfr. Part No.	Code	Description	Compatibility
3-2507.081-2	**198 801 502**	2 mm Insert	2507
3-2507.081-3	**198 801 503**	3 mm Insert	2507
3-2507.081-4	**198 801 558**	4 mm Insert	2507
3-2507.080-5	**159 000 256**	DIN Connector	2507

Flow Sensor Accessories and Replacement Parts

Magmeter Flow Sensor Accessories

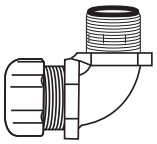
Mfr. Part No.	Code	Description	Compatibility
Replacement Transducers			
3-2551-P0	**159 001 211**	PP/316L SS, DN15 to DN100 (½ to 4 in.) pipe	2551
3-2551-P1	**159 001 212**	PP/316L SS, DN125 to DN200 (5 to 8 in.) pipe	2551
3-2551-P2	**159 001 444**	PP/316L SS, DN250 to DN300 (10 to 12 in.) pipe	2551
3-2551-T0	**159 001 213**	PVDF/Titanium, DN15 to DN100 (½ to 4 in.) pipe	2551
3-2551-T1	**159 001 214**	PVDF/Titanium, DN125 to DN200 (5 to 8 in.) pipe	2551
3-2551-T2	**159 000 445**	PVDF/Titanium, DN250 to DN300 (10 to 12 in.) pipe	2551
3-2551-V0	**159 001 376**	PVDF/Hastelloy-C, DN15 to DN100 (½ to 4 in.) pipe	2551
3-2551-V1	**159 001 377**	PVDF/Hastelloy-C, DN125 to DN200 (5 to 8 in.) pipe	2551
3-2551-V2	**159 000 446**	PVDF/Hastelloy-C, DN250 to DN300 (10 to 12 in.) pipe	2551
3-2551-W0	**159 001 234**	PVDF/316L SS, DN15 to DN100 (½ to 4 in.) pipe	2551
3-2551-W1	**159 001 235**	PVDF/316L SS, DN125 to DN200 (5 to 8 in.) pipe	2551
3-2551-W2	**159 001 447**	PVDF/316L SS, DN250 to DN300 (10 to 12 in.) pipe	2551
Replacement Electronics Module			
3-2551-11	**159 001 215**	Magmeter electronics, frequency or digital (S^3L) output	2551
3-2551-12	**159 001 216**	Magmeter electronics, 4 to 20 mA output	2551
3-2551-21	**159 001 372**	Magmeter display electronics, frequency or digital (S^3L) output, w/ relays	2551
3-2551-22	**159 001 373**	Magmeter display electronics, 4 to 20 mA output w/relays	2551
3-2551-41	**159 001 374**	Magmeter display electronics, frequency or digital (S^3L) output	2551
3-2551-42	**159 001 375**	Magmeter display electronics, 4 to 20 mA output	2551
Other			
3-8551.521	**159 001 378**	Clear plastic cap for display	2551
2120-1512	**159 001 425**	1½ in. x 1¼ in. NPT adapter	2552
2120-2012	**159 001 426**	2 in. x 1¼ in. NPT adapter	2552
4301-3125	**159 001 387**	1¼ in. NPT, female to female full port ball valve, 316 SS	2552
5541-4184	**159 001 388**	Cable, 4 cond., 22 AWG, 4 m (13 ft)	2552
5541-4186	**159 001 389**	Cable, 4 cond., 22 AWG, 6 m (19.5 ft)	2552
3-2552.392	**159 001 530**	1¼ in. NPT, full port SS ball valve and nipple kit	2552
3-2552.393	**159 001 531**	1¼ in. NPT, full port brass ball valve and nipple kit	2552
3-2552.394	**159 001 532**	1½ in. NPT, conduit adapter, aluminium	2552

Flow Sensor Accessories and Replacement Parts

O-Rings and Gaskets

Mfr. Part No.	Code	Description	Compatibility
1220-0018	**159 000 019**	O-rings FPM (2 required per sensor)	2100
1220-0021	**198 801 186**	O-ring, FPM (2 per sensor)	515, 2536, 2537
1220-0029	**198 820 049**	Cover O-ring	2000
1220-0121	**159 000 852**	O-ring, FPM (2 required per sensor)	2540
1224-0018	**159 000 020**	O-rings EPR (EPDM) (2 required per sensor)	2100
1224-0021	**198 820 006**	O-ring, EPR (EPDM) (2 required per sensor)	515, 2536, 2537, 2540
1224-0205	**159 000 836**	O-ring, EPR (EPDM) (2 required per sensor)	3719
1228-0021	**198 820 007**	O-ring, FFPM (2 required per sensor)	515, 2536, 2537, 2540
3-2507.080-3	**159 000 255**	Quad Ring	2507
P52618	**159 000 493**	Gasket	525
1222-0032	**159 000 234**	PTFE Coated O-ring	
1222-0042	**159 001 379**	O-ring for clear plastic cap, EPR (EPDM)	2551

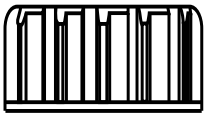
Conduit Adapter Kit



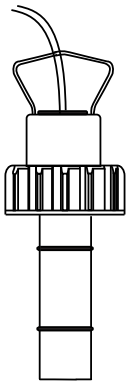
Miscellaneous

Mfr. Part No.	Code	Description	Compatibility
3-1500.663	**198 820 008**	Hot-Tap Installation Tool (See page Installation for more information)	2540
P31520-1V	**159 000 460**	Pipe Adapter Insert, PVDF	5 in. to 8 in. pipe fittings
P31520-2P	**159 000 461**	Pipe Adapter Insert, PVC	5 in. to 8 in. pipe fittings
P31536	**198 840 201**	Sensor Plug, Polypro	515, 2536, 2537
P31542	**198 801 630**	Sensor Cap, Red	515
P31542-3	**159 000 464**	Sensor Cap, Blue	2536
P31671-1	**159 000 465**	Pipe Adapter Insert, PVDF 1½ in.	1½ in. pipe fittings
P31934	**159 000 466**	Conduit Cap	515, 2536, 2540
2450-0620	**198 820 051**	Cover screw	2000
3-2541.260-1	**159 000 849**	Standard replacement electronics module	2540
3-2541.260-2	**159 000 850**	Hot-Tap replacement electronics module	2540
P52527	**159 000 481**	Retainers, SS (1.4401)	525, 2540
P52628	**159 000 504**	Fitting cap kit (cap and gasket)	525
P51589	**159 000 476**	Conduit Adapter Kit	515, 525, 2536, 2540
5523-0222	**159 000 392**	Cable (per foot), 2 cond., w/shield, 22 AWG	515, 2507, 2000, 2540
5523-0322	**159 000 761**	Cable (per foot), 3 cond., w/shield, 22 AWG	8058
5523-3222	**159 000 393**	Cable (per foot), 2 cond., w/shield 22 AWG	525

Sensor Cap



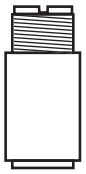
Sensor Plug



pH/ORP Sensor Accessories and Replacement Parts

pH/ORP Electrode Mounting

Pipe Adapter, 1¼ in. OD.
For use with:
Signet 2724, 2725 and 2726 pH/ORP



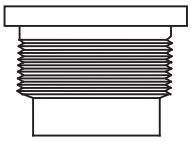
Mfr. Part No.	Code	Description	Compatibility
P31515-0P200	**159 000 630**	PVC Pipe Adapter, 1¼ in. o.d.	2724, 2725, 2726
P31515-0C200	**159 000 631**	CPVC Pipe Adapter, 1¼ in. o.d.	2724, 2725, 2726
P31515-0V200	**159 000 459**	PVDF Pipe Adapter, 1¼ in. o.d.	2724, 2725, 2726
P31542	**198 801 630**	Red sensor cap for in-line sensor installations	2724, 2725, 2726
P31542-3	**159 000 464**	Blue sensor cap for in-line sensor installations	2724, 2725, 2726

pH/ORP Miscellaneous

Sensor Cap

Mfr. Part No.	Code	Description	Compatibility
1220-0021	**198 801 186**	O-ring, FPM	2724, 2725, 2726
1224-0021	**198 820 006**	O-ring, EPR (EPDM)	2724, 2725, 2726
1228-0021	**198 820 007**	O-ring, FFPM	2724, 2725, 2726
5523-0624	**159 000 636**	Cable, 24 AWG, 6-conductor (specify length in feet or meters)	2724, 2725, 2726
3864-0001	**159 001 007**	Replacement Salt Bridge	2764-2767
3864-0002	**159 001 008**	Replacement Reference Electrolyte Solution 500 ml	2764-2767
2120-0015	**159 001 009**	CPVC Adapter, 1½ in. MNPT to 1 in. FNPT	2764-2767
2122-0015	**159 001 010**	316 SS (1.4401) Adapter, 1½ in. MNPT to 1 in. FNPT	2764-2767
3822-7004	**159 001 581**	pH 4.01 buffer solution, 1 pint (473 ml) bottle	
3822-7007	**159 001 582**	pH 7.00 buffer solution, 1 pint (473 ml) bottle	
3822-7010	**159 001 583**	pH 10.00 buffer solution, 1 pint (473 ml) bottle	

Pipe Adapter, 1½ in. to 1 in. FNPT. For use with:
Signet 2764-2767

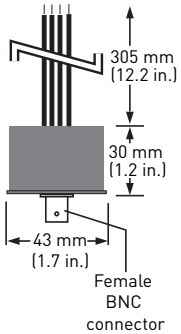


2714-2717 Twist-Lock pH/ORP Electrode

Mfr. Part No.	Code	Description	Compatibility
3-2714	**198 844 300**	Flat pH electrode	2720
3-2714-HF	**198 844 305**	Flat pH electrode, HF resistant	2720
3-2715	**198 844 301**	Flat ORP electrode	2720
3-2716	**198 844 302**	Bulb pH electrode	2720
3-2716-DI	**198 844 306**	Bulb pH electrode, < 100 µS/cm	2720
3-2716-WT	**159 000 809**	Bulb pH electrode, wet-tap	2720
3-2717	**198 844 303**	Bulb ORP electrode	2720
3-2717-WT	**159 000 811**	Bulb ORP electrode, wet-tap	2720

2720 Twist-Lock Preamplifiers

Mfr. Part No.	Code	Description	Compatibility
3-2721	**198 864 610**	Remote pH/ORP preamplifier	2724, 2725, 2726
3-2720	**198 864 602**	Preamplifier, ¾ inch FNPT	2714-2717
3-2720-2	**198 864 603**	Preamplifier, ISO 7/1 R-3/4 in. FNPT	2714-2717



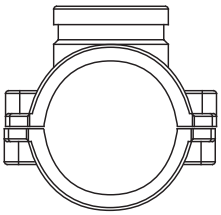
2721 Remote Preamplifier

The 2721 remote preamplifier should be used with special order sensors that are built with cables (Signet Models 277X-HT, 277X-1-HT, or other Signet sensors ordered with cables). It can also be used for applications where another manufacturer's sensor is used with a Signet 5700 or 8750 instrument.

Wet-Tap and Miscellaneous Accessories and Replacement Parts

Mounting Saddles for Wet-Tap

PP Clamp-on Saddle



Mfr. Part No.	Code	Description	Compatibility
2007-0225	**159 000 812**	PP Clamp-on Saddle, 2½ in. x 1½ in. (ASTM, NPT)	3719 Wet-Tap
2007-0230	**159 000 813**	PP Clamp-on Saddle, 3 in. x 1½ in. (ASTM, NPT)	3719 Wet-Tap
2007-0240	**159 000 814**	PP Clamp-on Saddle, 4 in. x 1½ in. (ASTM, NPT)	3719 Wet-Tap
2007-0260	**159 000 815**	PP Clamp-on Saddle, 6 in. x 2 in. (ASTM, NPT)	3719 Wet-Tap
2007-0280	**159 000 816**	PP Clamp-on Saddle, 8 in. x 2 in. (ASTM, NPT)	3719 Wet-Tap
2007-0210	**159 000 817**	PP Clamp-on Saddle, 10 in. x 2 in. (ASTM, NPT)	3719 Wet-Tap
2007-0212	**159 000 818**	PP Clamp-on Saddle, 12 in. x 2 in. (ASTM, NPT)	3719 Wet-Tap

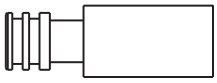
Wet-Tap Replacement Parts

NPT Fitting

Mfr. Part No.	Code	Description	Compatibility
1224-0205	**159 000 836**	3719 O-ring, EPR (EPDM) (2 required per sensor	3719 Wet-Tap
1220-0114	**159 000 854**	3719 O-ring, FPM (spare part)	3719 Wet-Tap
3-3719.390	**159 000 855**	3719 Locking Shroud (spare part)	3719 Wet-Tap

Miscellaneous

2842 Replacement Insulator



Mfr. Part No.	Code	Description	Compatibility
3-2842.390	**159 000 925**	2842 Replacement Insulator	2842
3-2820.392	**198 840 222**	½ in. NPT fitting, 316 SS	2820-1, 2821-1
3-2820.390	**198 840 223**	¾ in. NPT fitting, 316 SS	2822-1, 2823-1
3-2820.391	**198 840 221**	¾ in. NPT fitting, Polypro	2819-1, 2820-1, 2821-1
6205-0002	**159 000 858**	DIN Rail (1 m length)	8058, 8059, 7300
6250-0003	**159 000 859**	End Clips for DIN Rail	8058, 8059, 7300
5523-0222	**159 000 392**	Cable (per foot), 2 cond. w/ shield, 22 AWG (Red/Black)	8058, 8059, 7300
3-8050-2	**159 000 754**	Universal Mount Junction Box with EasyCal	2750
3-8052-2	**159 000 756**	¾ in. NPT Mount Junction Box with EasyCal	2750

Turbidity Accessories and Replacement Parts

Turbidimeter

Mfr. Part No.	Code	Description
3822-4001	**159 001 585**	*Calibration Kit, Turbidity, 100, 10 & 0.02 NTU/FNU
3822-4003	**159 001 586**	*Calibration Kit, Turbidity, 1000, 10 & 0.02 NTU/FNU
3-4150.380	**159 001 588**	Replacement Desiccant
3-4150.381	**159 001 613**	Replacement Desiccant Cap with Gasket
4150-0007	**159 001 602**	Replacement Cuvette set (3 glass cuvettes)
4150-0004	**159 001 589**	Replacement cuvette with ultrasonic transducer
3822-4002	**159 001 591**	*Formazin Stock Kit
3822-4000	**159 001 592**	*Formazin Stock Solution, 4000 NTU/FNU, 500 ml
4150-0001	**159 001 593**	Pressure Regulator
4150-0003	**159 001 587**	Stilling/Bubble Chamber
4150-0005	**159 001 595**	Tubing Kit: Shut-off clamp, backpressure valve, two lengths connecting tubing with fittings for flow through assembly drain vent
3.4150.386	**159 001 652**	O-ring kit for cuvette

* Material Safety Data Sheets (MSDS) are available online at www.gfsignet.com/msds.htm

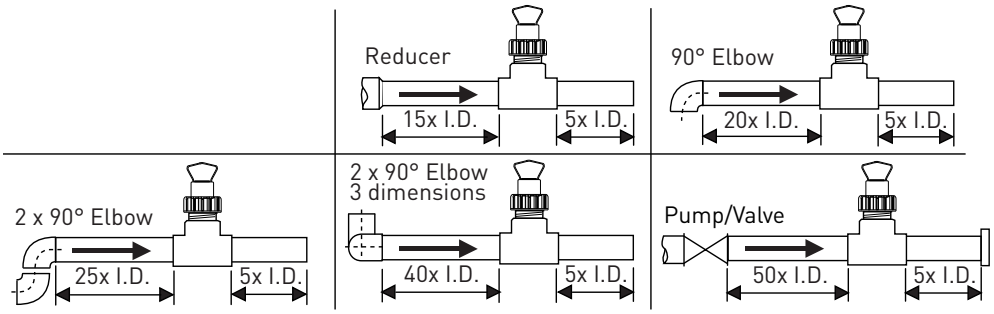
Flow Installation Tips

- Use Signet fittings for proper insertion into the process flow.
- Recommended upstream distances are stated as a multiplier of the I.D. (inner diameter) dimension of the pipe. Note that these multipliers are different for each example and depend upon the upstream obstruction.
- Paddlewheel sensors can be used for all water-like fluids with little or no particulates (<100 micron in diameter/length), and non-ferrous, non-fouling in nature.
- Always use these sensors in full pipes.
- Always maximize the distance between sensors and pump sources.

Installation of Flow Sensors: Paddlewheel

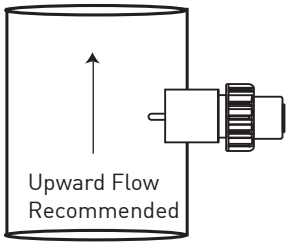
I. Piping Location

- The correct location of the sensor in the piping system helps to ensure a proper flow profile in the pipe. It is important to have sufficient straight pipe immediately upstream of the sensor to create "fully developed turbulent flow." Such a flow profile provides the stability required for the paddlewheel to measure accurately.
- The diagrams below illustrate the minimum distances that are recommended to mount plastic and metal paddlewheel sensors.
- In all scenarios, it is recommended to choose a location with as much straight, uninterrupted pipe length upstream of the sensor as possible.



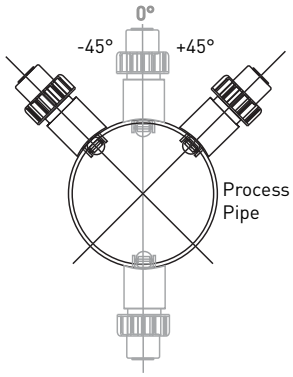
II. Mounting Angle

Paddlewheel sensors are affected by the mounting angle due to the effect of gravity increasing the friction between rotor and bearing surfaces. Air entrapment and sediments within the pipe may also adversely affect sensing accuracy and/or impede operation.



Paddlewheels in Vertical pipes:

- Mount the sensor in a pipe with an upward flow. This position is recommended for all scenarios, as it ensures a full pipe.
- Vertical installations with downward flow are not recommended.



Paddlewheels in Horizontal pipes:

- ±45° from vertical is the recommended sensor mounting angle to avoid air bubbles (pipe must be full). With the sensor at greater angles, the drag created by the rotor resting against the sensor body may compromise performance at the lower end of the operating range.
- Straight up installations may experience interference from entrained air at the top of the pipe.
- Inverted installations are often subject to blockage due to sediments in the pipe. Mounting sensors in the bottom of the pipe is NOT recommended if sediments are likely to be in the pipe.

Note that K-factors are published for pipe sizes of DN15 to DN300 (½ in. to 12 in.). For other pipe sizes, statistical K-factors may be available. Contact Technical Support for more information.

K-Factors

K-factors are calibration values (pulses per unit of volume) used to convert flow sensor output frequencies to flow rates. Signet publishes K-factors for water only in gallons (pulses per gallon) and litres (pulses per litre) for all sensors, in all applicable pipe sizes and materials, and/or all applicable installation fitting sizes and materials. K-factors for fluids other than water must be determined empirically, typically on-site using a secondary standard.

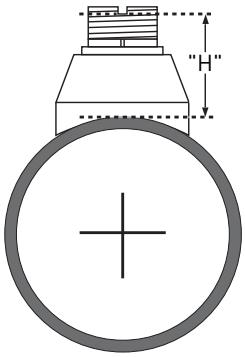
Installation of Flow Sensors: Paddlewheel

Flow Installation Tips

- Ensure that all wetted materials are chemically compatible with the process liquid.
- Pressure and temperature ratings are reduced when plastic flow sensors are mounted in metal piping systems.
- The flow sensor is designed to fit tightly into the fittings. Lightly lubricate o-rings with a non-petroleum based lubricant to ease the installation.
- Cut the cable to the desired length if too long. Do not coil extra cable.

Fixed Depth

The insertion depth of a paddlewheel in a flow stream is critical and must be achieved and maintained to ensure accurate flow measurements. Signet installation fittings for Rotor-X and Metalex paddlewheel flow sensors set this depth automatically and facilitate the use of convenient K-factors (calibration values) published in individual sensor instruction manuals.



The H-dimension controls the insertion depth and they are critical for proper seating of the flow sensor into the pipe. These dimensions can be found listed in the flow sensor instruction manuals.

III. Installation Fittings

515, 2536 and 2537 Rotor-X

- This section outlines the installation fittings available from Signet for the 515, 2536 and 2537 Rotor-X family of flow sensors. The fitting controls the location of the paddlewheel inside the pipe, which in turn determines the calibration constant (K-factor).
- Refer to the Fittings section of this catalogue for a complete listing of part numbers.

Type	Description
Plastic tees	• 0.5 to 4 inch versions • PVC or CPVC • Available with or without pipe extensions
PVC Glue-on Saddles	• Available in 10 and 12 inch sizes only • Cut 2-1/2 inch hole in pipe • Weld in place using solvent cement
Clamp-on Saddles	• 2 to 4 inch, cut 1-7/16 inch hole in pipe • 6 to 8 inch, cut 2-1/8 inch hole in pipe
PP Clamp-on Saddles	• Available in 10 and 12 inch sizes only • Cut 2-1/8 inch hole in pipe
Iron Strap-on saddles	• 2 to 4 inch, cut 1-7/16 inch hole in pipe • Over 4 inch, cut 2-1/8 inch hole in pipe • Special order 12 in. to 36 in. • 2 inch to 8 in. PVDF insert • ›8 in. PVC insert

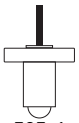
Type	Description
Iron, Carbon Steel, 316 SS Threaded tees	• 0.5 to 2 in. versions • Mounts on threaded pipe ends • wetted PVDF insert
Carbon steel & stainless steel Weld-on Weldolets	• 2 to 4 inch, cut 1-7/16 inch hole in pipe • Over 4 inch, cut 2-1/8 inch hole in pipe • 1.5 in. to 8 in. PVDF insert • ›8 in. PVC insert
Fiberglass tees & saddles:	• 1.5 in. to 8 in. PVDF insert • › 8 in. PVC insert • Special order 12 in. to 36 in.
Metric Union Fitting	• For pipes from DN 15 to 50 mm • PP or PVDF • Scoket fusion equipment required

525 Metalex

- This section outlines the installation fittings available from Signet for the 525 Metalex family of flow sensors. The fitting controls the location of the paddlewheel inside the pipe, which in turn determines the calibration constant (K-factor).
- Refer to the Fittings section of this catalogue for a complete listing of part numbers.

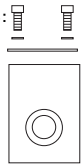
<u>525-1 Metalex Flow Sensor</u>

The smallest Metalex Flow Sensor (525-1) must be installed into a specially constructed tee fitting with socket-weld piping connections.



525-1 Sensor

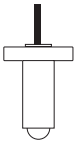
Wetted fitting materials: 316 SS (1.4401)



Tee Fitting, hardware included

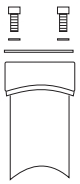
<u>525-2 Metalex Flow Sensor</u>

Use the 525-2 and one of these weld-on fittings for stainless steel pipes from DN32 (1¼ inches) up to DN300 (12 inches) in diameter.



525-2 Sensor

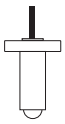
Wetted fitting materials: 316 SS (1.4401) & 347 SS



Mini-Tap Fitting, hardware included

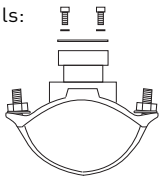
<u>525-3 Metalex Flow Sensor</u>

The 525-3 is the longest Metalex Flow Sensor. It requires one of the strap-on saddles for pipes from 2 inches up to 12 inches in diameter.



525-3 Sensor

Wetted fitting materials: Ductile Iron, 347 SS, Carbon steel, Buna-N/Neoprene

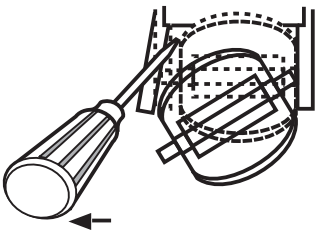


Saddle Fitting, hardware included

Consult a qualified welder to install metalex fittings.
Use of saddle fittings reduces the pressure rating for the 525 sensor.

Installation of Flow Sensors: Paddlewheel

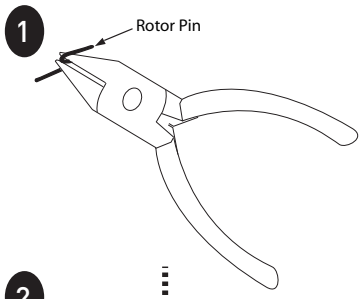
IV. Rotor replacement



Procedure for plastic paddlewheel sensors

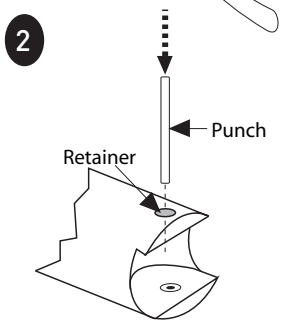
1) Hold the sensor upside down and hold the rotor still.
2) Place the tip of a medium blade screwdriver between the rotor and the sensor body.
3) Turn the screwdriver blade 90° to flex the "ear" back just enough to angle the rotor pin out of one side.

NOTE:
Do not flex the ear more than required to remove the pin. If it cracks, it cannot be repaired!

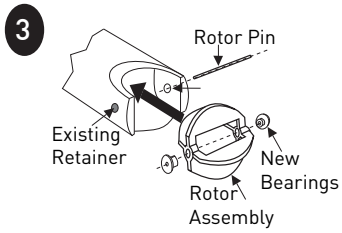


Procedure for metal paddlewheel sensors

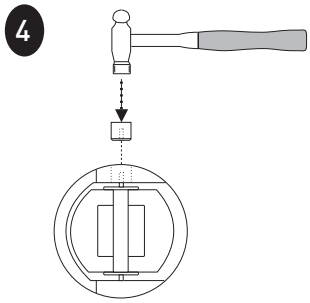
1) With a small pair of needle-nose pliers, firmly grip the centre of the rotor pin (shaft) and with a twisting motion, bend the rotor pin into an "S" shape. This should pull the ends of the pin out of the retainers and free the rotor assembly.



2) Remove retainer from each side by gently tapping it inwards using a punch. Install a new retainer with its rotor pin clearance hole inward. Only install one retainer at this time.



3) Insert the new rotor assembly and bearings into the rotor housing of the sensor and place the new rotor pin (shaft) through the open end of the rotor housing, through the rotor and bearings, and into the previously installed retainer.



4) Tap the second retainer (rotor pin clearance hole inwards) into the hole while lining up the rotor pin with the centre of the retainer hole. This completes the rotor replacement procedure.

Installation of Flow Sensors: Paddlewheel

V. Cable glands and conduit adapter kits

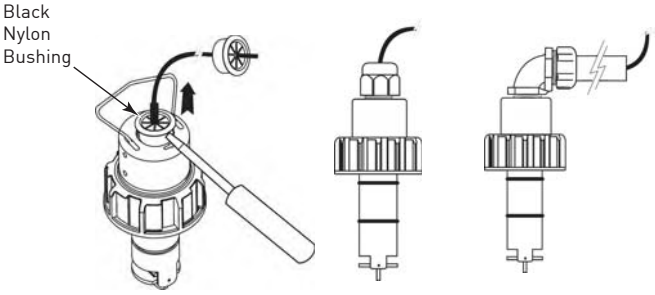
Cable Glands and Conduit adapter kits are available to install on Models 515, 2536 and 525 when used in wet environments. These items protect against moisture entering the back end of the sensor. Follow these simple instructions to prolong the life of the sensor. Conduit adapters are included with the 2540 sensors.

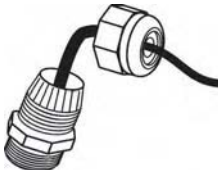
1) Remove the black Nylon® bushing to expose the female threads at the back end of the flow sensor. Use a standard medium size screwdriver to pry the bushing up and out of the port. Slide it up and off the entire length of the cable, or cut it away carefully so as not to kink the cable jacket.

2) Thread the gland or conduit adapter over the cable and screw the ½ in. NPT male threads into the top of the sensor in place of the bushing.

3) For liquid-tight glands, tighten the compression fitting onto the fitting sufficiently to achieve a seal around the cable.

4) For conduit adapters, thread the cable through the adapter and tighten the adapter into the sensor fitting.

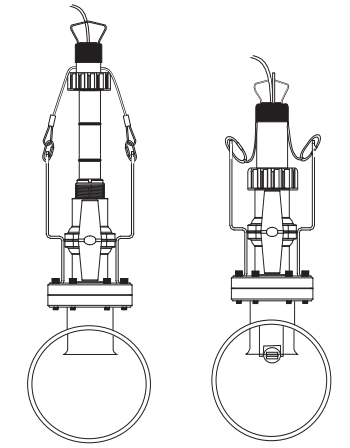




Cable Gland 3-9000.392-1
(Liquid Tight Connector)

Conduit Adapters P51589
(suitable for all plastic and
metal Paddlewheel Sensors)

Installation of Flow Sensors: Wet-Tap and Hot-Tap



Before insertion After insertion

3719 Wet-Tap valve with a 515 Paddlewheel Sensor

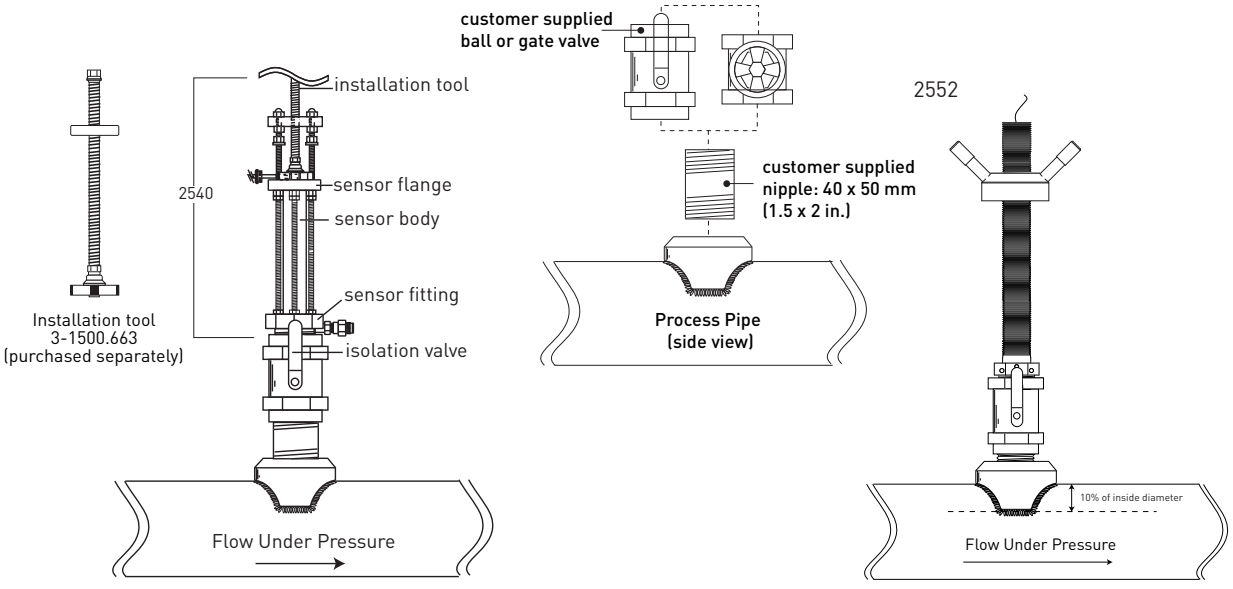
VI. Wet-Tap and Hot-Tap Installation

3519 Wet-Tap Valve

- The 3519 Wet-Tap consists of a flange and support plate that threads onto the pipe fitting insert, and a PVC ball valve through which an extended length, wet-tap style sensor is inserted into the pipe.
- No special tools are required to install the 3519.
- The Signet 3519 Wet-Tap Valve mounts directly onto standard Signet installation fittings for the 515 and 2536 flow sensors. The wet-tap sensors are identified in their part number as -P3, -P4 and -P5, depending on the pipe size.
- The 3519 Wet-Tap valve can only be installed in an empty pipe. Once installed, the sensor can be removed and re-inserted while the process is active.
- Pressure must be reduced prior to insertion and removal of sensor (please see individual product page for more information).

2540 and 2552 Hot-Tap

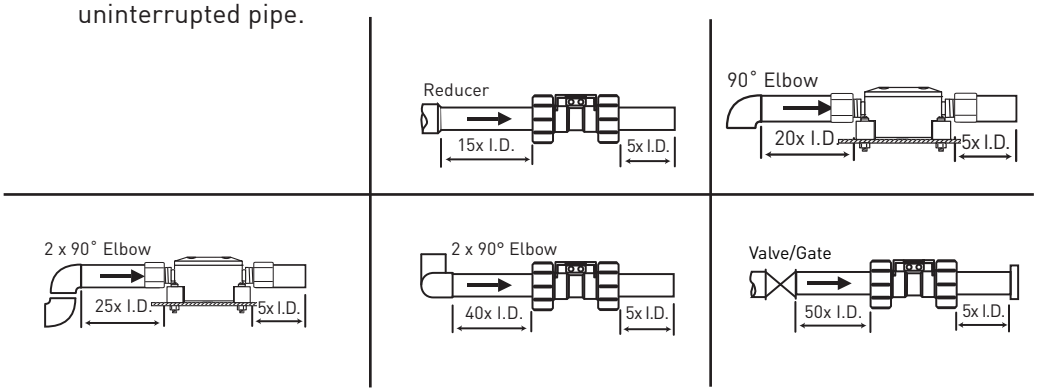
- The Signet 2540 and 2552 Metal High performance flow sensors accommodate hot-tap installations. One sensor can be installed in various pipe sizes.
- The valve for Hot-Tap sensors can be installed while the pipe is full if a hot-tap drill is used.
- To install a Hot-tap sensor, you will need a hot-tap drilling machine, a metal ball or gate valve, a metal pipe nipple with 1½ inch threads and the Signet Hot-Tap installation tool (2540 only).
  Consult with your piping supplier for information regarding drills.
- The necessary metal valve and pipe nipple are <u>not</u> available from Signet. You can purchase these standard hardware items from a local supplier.
- Hot-Tap sensors can be installed and removed without process shutdown.
- Care must be taken while removing sensor under process conditions.
- The installation tool serves to hold the sensor against the line pressure as it is retracted or inserted into the pipe (2540 only).
- The Hot-Tap installation fitting has a bleed valve to relieve the pressure when retracting the sensor (2540 only.



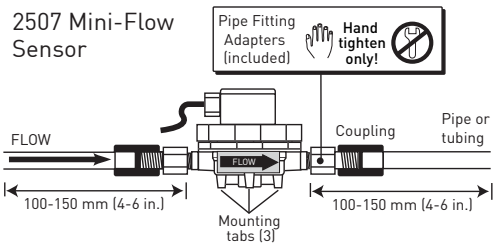
Installation of Flow Sensors: In-Line Rotors, and Turbines

I. Piping Location

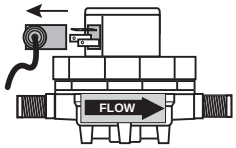
- The location of the sensor in the piping system determines the flow profile that the sensor is monitoring. The ideal location is to have sufficient straight pipe immediately upstream of the sensor to create "fully developed turbulent flow." Such a flow profile provides the stability required for the paddlewheel to measure accurately.
- The diagrams below illustrate the minimum distances recommended from various obstructions.
- In all scenarios, it is recommended to choose a location with the maximum length of straight, uninterrupted pipe.
- Six common installation configurations are shown below as guidelines to help you select the best location in your piping system for the flow sensor. Always maximize distance between sensors and pump sources.
- Never install immediately downstream of valves, fittings, etc.
- Observe minimum Reynolds Number (see Technical Reference section).
- The flow sensors are not for bi-directional operation.



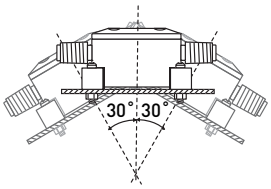
- For optimal performance of the 2507, a straight flow run of at least 100 to 150mm (4 to 6 in.) should be allowed before and after the sensor.



2507 In-Line Rotor

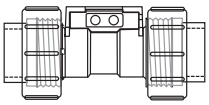


2000 Micro Flow Sensor



Vertical mounting is NOT recommended

2100 Turbine Flow Sensor



II. Mounting Angle

The mounting angle of the sensor may affect the performance of the system.

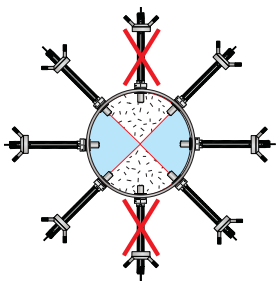
In-line Rotors:

- Signet Models 2507 and 2000 flow sensors are designed to be mounted on a flat surface, although the sensors may be tilted up to ±30° if necessary.
- Installation in excess of 30° will affect the accuracy of the sensor.
- For Model 2507, two pipe fitting adapters (included) convert the straight threads G-¼ in. to ¼ in. NPT.
- These sensors should be installed securely to their supporting surface to prevent vibrations from affecting the performance.

Turbine Flow Sensors

- All mounting angles are acceptable for these sensors if the basic parameters are met: the pipe must be full with no entrapped air.
- Install the sensor with the arrow pointing in the direction of the flow of liquid.

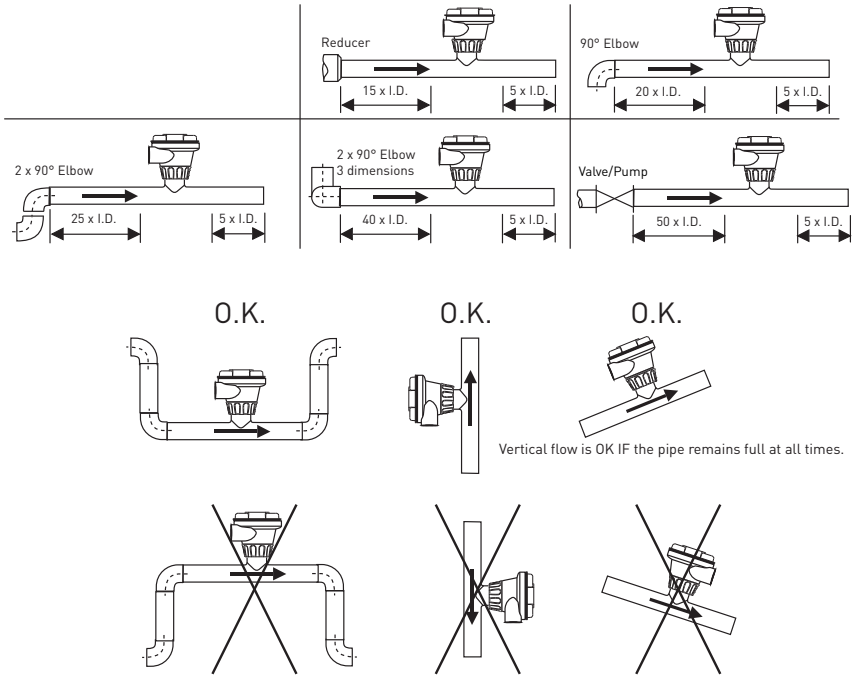
Installation of Flow Sensors: Magnetic



12 o' clock and 6 o' clock position not recommended

Magnetic Flow Sensors

- All mounting angles are acceptable for these sensors if the basic parameters are met: the pipe must be full with no entrained air.
- On horizontal pipe runs sensor may be mounted in any position around the pipe. If air bubbles or sediments are expected; mount at a slight angle.
- On vertical pipe runs sensor may be mounted in any orientation with UPWARD flow preferred to ensure a full pipe.

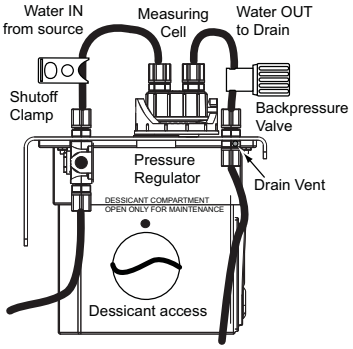


Installation of Turbidity

Turbidity Installation

An owner's manual is included with every instrument that ships. Please refer to this manual for detail instructions regarding installation and operation.

The instrument includes a mounting bracket, designed for the instrument to mount on a vertical surface. This was made simpler by having pre-drilled mounting holes on a pattern common with instruments used for this measurement.
A pattern hole template is also included with the instrument when new mounting holes are required.



Plumbing:

- Use 4.75 mm (3/16 in.) ID, 8 mm (5/16 in.) OD flexible tubing for the water supply connections.
- Opaque tubing (not supplied) should be used if the tubing will be exposed to sunlight, to prevent algae growth.
- The 4150 requires only 1 psi head pressure to operate.
- The flow through cuvette is rated for a flow of 100 mL/m to 1 L/m (0.026 - 0.26 GPM).
- The integral pressure regulator is rated for a maximum pressure of 200 psi. It is factory adjusted. Do not tamper with the regulator.
- Inlet water pressure should not exceed 50 psi to avoid damage to the tubing connection to the regulator.
- Fluid temperature must not exceed 50 °C (122 °F).
- The shutoff clamp is used to interrupt the flow during cuvette maintenance.
- Route the sensor drain tubing to a suitable drain. Do not reintroduce the drain sample to the process stream.

Power:
The power required is 100 – 240 volts AC at 47 - 63 Hz.

The output is a single programmable 4 – 20 mA DC instrument signal that is in direct proportion to the turbidity. Also provided are two programmable alarm relay outputs, one for high process alarm and the other for low process alarm sense. Note, both alarms are used in common to indicate an instrument malfunction, i.e. High Humidity.

Calibration and Operation:
Please refer to the owner's manual for details.

Installation of pH/ORP Electrodes

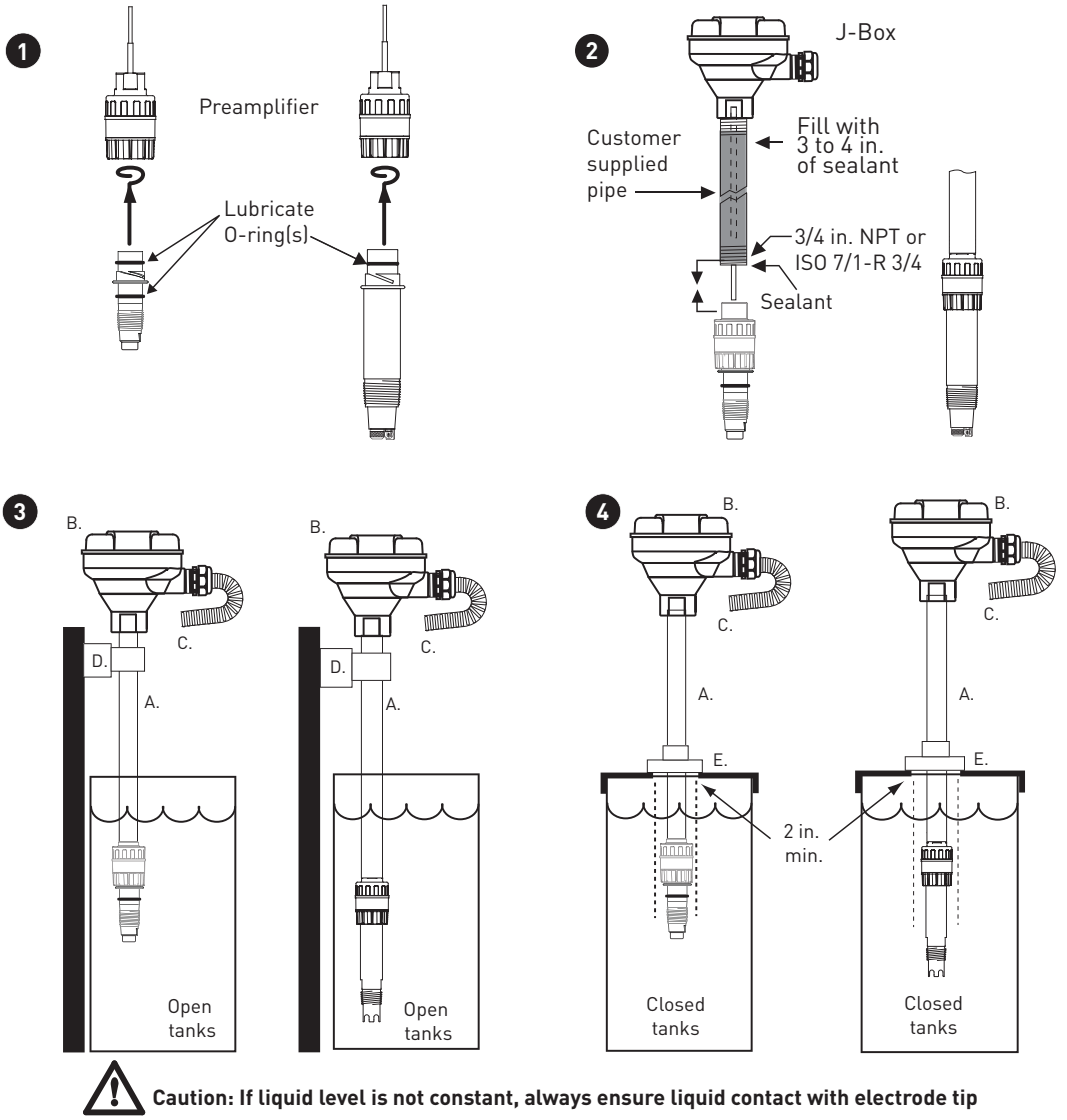
Installation Tips
- Mount the electrode near tank outlet away from reagent addition areas.
- Place the electrode tip in pH 4 buffer during system maintenance or storage to avoid dehydration.
- Sensor should be below the drain level to prevent the sensor from drying out.

I. Submersible Installation

2724-2726/2764-2767/2774-2777 with 2750/2760 preamplifier

Sensors are designed to install in tanks by attaching conduit to the ¾ inch threads at the top of the accompanying preamplifier or sensor electrodes. Installing a sensor can simply be done by following these steps:

1) The dual O-ring set at the top of the electrode fits very tightly into the preamplifier. Use a small amount of lubricant (non-petroleum based) to assist the assembly.
2) To prevent moisture from migrating into the preamplifier, backfill the conduit with 3 to 4 inches of sealant.
3) Mount electrodes in a location with ample clearance to remove them for periodic cleaning and recalibration.
4) Choose a location that keeps the electrode glass completely submerged at all times.

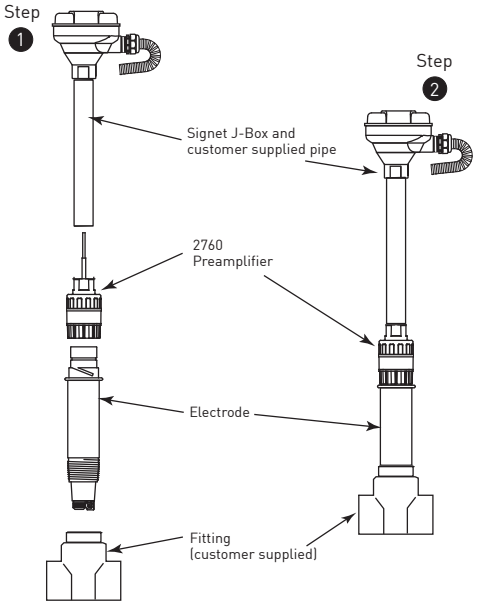


Caution: If liquid level is not constant, always ensure liquid contact with electrode tip

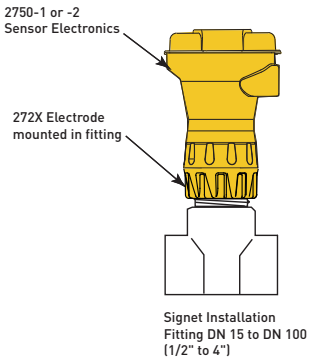
Customer supplied:
A) ¾ in. NPT threaded pipe
B) Signet threaded J-box
C) Flex conduit
D) Quick release pipe clamp
E) Tank flange

Installation of pH/ORP Electrodes

2724-2726/2764-2767/2774-2777 pH/ORP Electrodes with 2750 or 2760 Preamplifier



In-line Installation



- These sensors feature a thread close to the sensor end which allows the sensor to thread directly into a standard NPT pipe tee.
- Electrodes must be immersed in liquid. Keep pipe full at all times to avoid dehydration.
- Observe mounting angle requirements for models 2724-2726 and 2764-2767.
- Any mounting angle is acceptable for Models 2774-2777.
- Models 2724-2726 can utilises cap from sensor electronics to mount into Signet installation fittings for pipes from DN15 to DN100 (½ in. to 4 in.).

Installation Tips

- Use pipe adapters to install electrodes into pipe sizes larger than DN100 (4 inches)
- Adapters are designed to either glue into a plain socket tee (specify socket) or thread into a 1¼ inch threaded tee (specify threaded).

II. Installation Fittings compatible with Models 2724-2726 pH/ORP Electrodes

See Fittings Section for more information

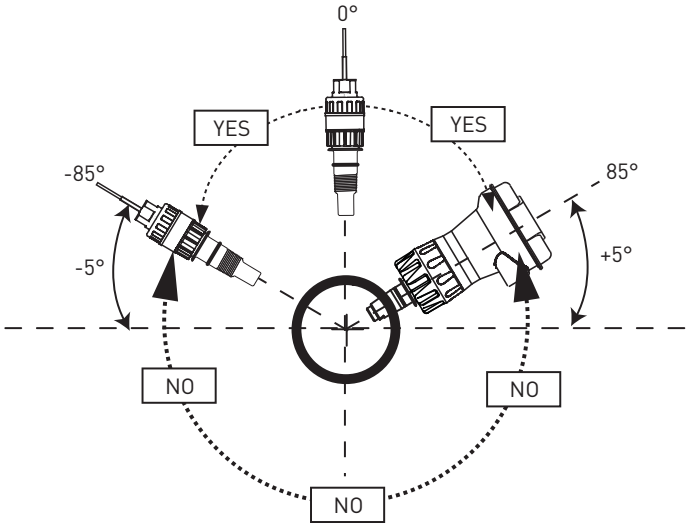
Type	Description
Plastic tees	• Available in ½ in. to 4 in. sizes • PVC, CPVC w/solvent cement socket • PVDF and PP w/union end fittings
PVC saddles	• Available in 2 in. to 4 in. sizes • Requires 1-7/16 in. hole in pipe
Iron strap-on saddles	• Available in 2 in. to 4 in. sizes • Requires 1-7/16 in. hole in pipe

Type	Description
Carbon steel weldolets	• Available in 2 in. to 4 in. sizes • Requires 1-7/16 in. hole in pipe • Install by certified welder only
Carbon steel threaded tees	• Available in ½ in. to 2 in. sizes • Female NPT ends
Universal pipe adapters	• Use for installation in pipes › 4 in. (1-¼ in. NPT) • PVC, CPVC, or PVDF versions • Specify socket or 1-¼ inch NPT male threads (socket version shown here)

Installation of pH/ORP Electrodes

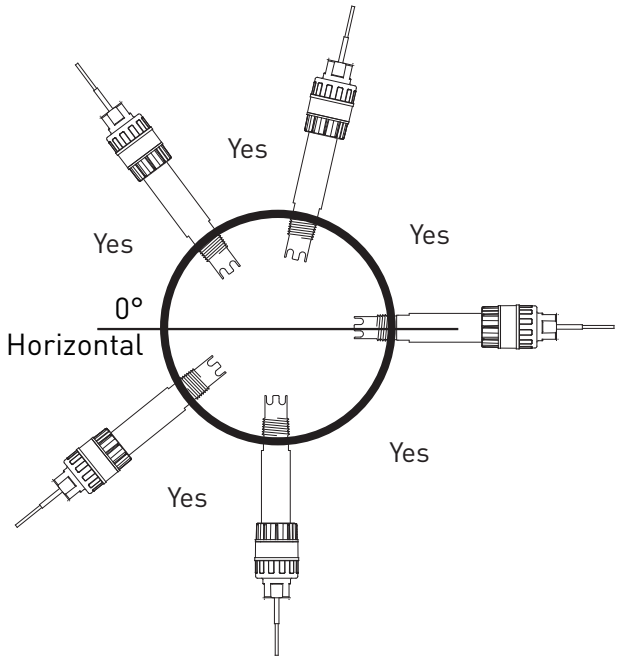
IV. Mounting Angle

Sensor Mounting - Models 2764-2767



- pH electrodes must be mounted at least 5° from the horizontal to ensure proper sensing. Sensors mounted at less than 5° will impede performance.
- ORP electrodes may be mounted at any angle without affecting the performance.

Sensor Mounting - Models 2724-2726, 2774-2777



- Models 2724-2726 and 2774-2777 may be mounted at any angle without affecting the performance.
- In the presence of air bubbles, avoid the 12 o'clock position.
- In the presence of sediment, avoid the 6 o'clock position.

Installation Tips

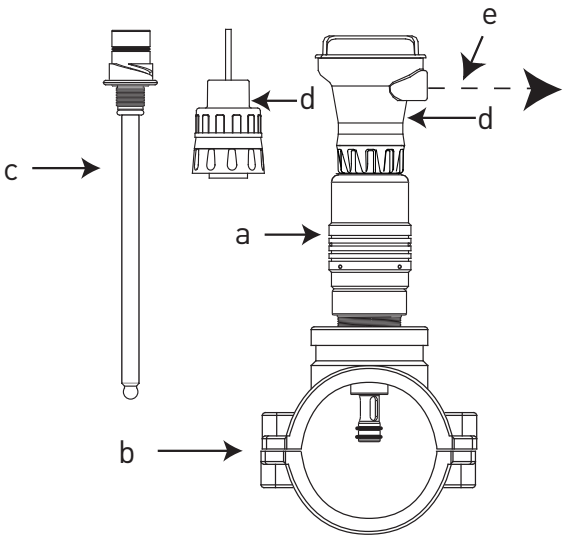
- Provide 0.5 m (20 in.) minimum clearance from the top of the pipe for electrode removal.
- The 3719 can be mounted in any orientation, including horizontal and inverted.
- Use caution when removing inverted sensors. Residual fluid may be present in the retraction housing.
- Keep electrode connector clean and dry at all times.
- For reliable in-line measurements of pH and ORP, it is imperative to position the electrode tip into the process stream.
- Because of its compact "short stroke" design, the 3719 requires low-profile fittings to assure proper positioning in pipe sizes DN65 to DN300 (2½ to 12 inches).
- It is strongly recommended to use the low profile PP clamp-on saddle fittings.

Installation of pH/ORP Electrodes

V. 3719 Wet-Tap Overview

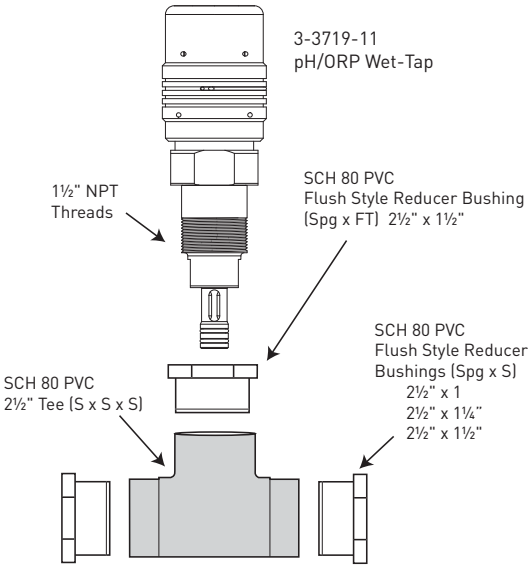
a) 3719 pH/ORP Wet-Tap
b) Low Profile PP Clamp-on Saddle Fitting (ASTM sizes 2½ to 12 in.)
c) 275X-WT and 275X-WTP DryLoc® pH or ORP Electrode ("DryLoc" refers to the electrode connector style)
d) 2750/2760 DryLoc® pH/ORP Sensor with J-Box
e) Output signal options:
- digital (S³L)
- 4 to 20 mA

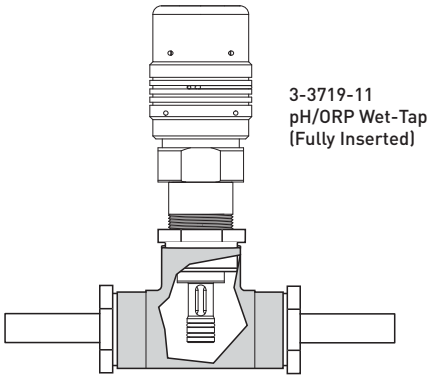
All of these components are sold separately.



3719 pH/ORP Wet-Tap Installation

- Initial installation must be performed under non-pressurised conditions.
- The 3719-11 has a 1½ in. NPT process connection for use with accessory saddle fittings from 2½ to 4 in.
- The 3719-21 has a 2 in. NPT process connection for use with accessory saddle fittings from 6 to 12 in.
- It is possible to install the 3719 into pipe sizes below 2½ inches by creating a "flow cell" with standard piping components.
- One simple solution, using a GF SCH 80 PVC tee and reducer bushings, is illustrated here.
- Avoid the entrapment of air inside the flow cell.
- Model 3719-12 has an ISO 7/1-R1.5 process connection to fit pipe sizes DN65 to DN100. Installation fittings are customer supplied.
- Model 3719-22 has an ISO 7/1-R2 process connection to fit pipe sizes DN150 to DN300. Installation fittings are customer supplied.



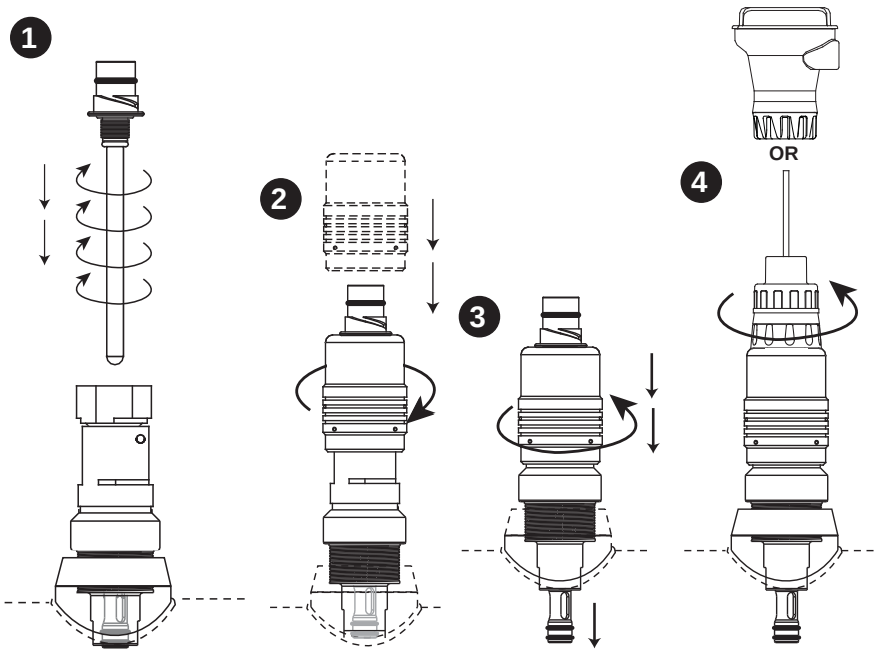


For installation into pipe sizes below 2½ inch, insertion depth of electrode requires use of 2½ inch fitting with reducers.

Installation of pH/ORP Electrodes

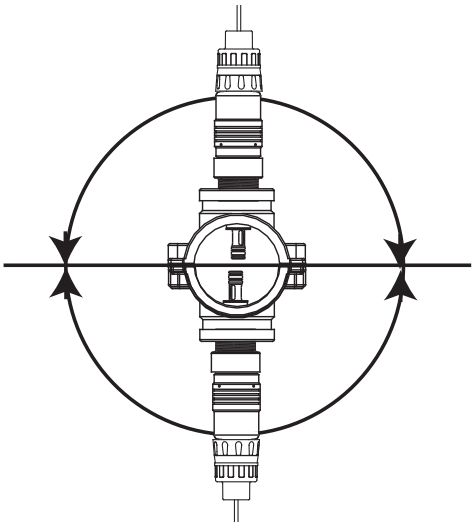
VI. 3719 pH Wet-Tap Electrode Installation

The 3719 can be mounted in any orientation, including horizontal and inverted (shown here with both 2760-11 preamplifier and 2750-1 or -2 Sensor).



1. Slide electrode (DryLoc®) straight down into electrode piston. Thread electrode into place until connector shoulder is flush with top of electrode piston. Hand tighten only.
2. Place the Locking Shroud over electrode; turn 1/4-turn clockwise to unlock the piston, then press down firmly on the locking shroud to lower the electrode piston into the pipe.
3. Turn the Locking Shroud 1/4-turn counterclockwise to lock the piston.
4. Install the 2750 or 2760 DryLoc® pH/ORP Sensor electronics onto the electrode connector (see individual operation manuals for more detail).

VII. 3719 Wet-Tap mounting angle



- The 3719 can be mounted in any orientation, including horizontal and inverted.
- In the presence of air bubbles, avoid the 12 o'clock position.
- In the presence of sediment, avoid the 6 o'clock position.

Installation of Conductivity/Resistivity Electrodes

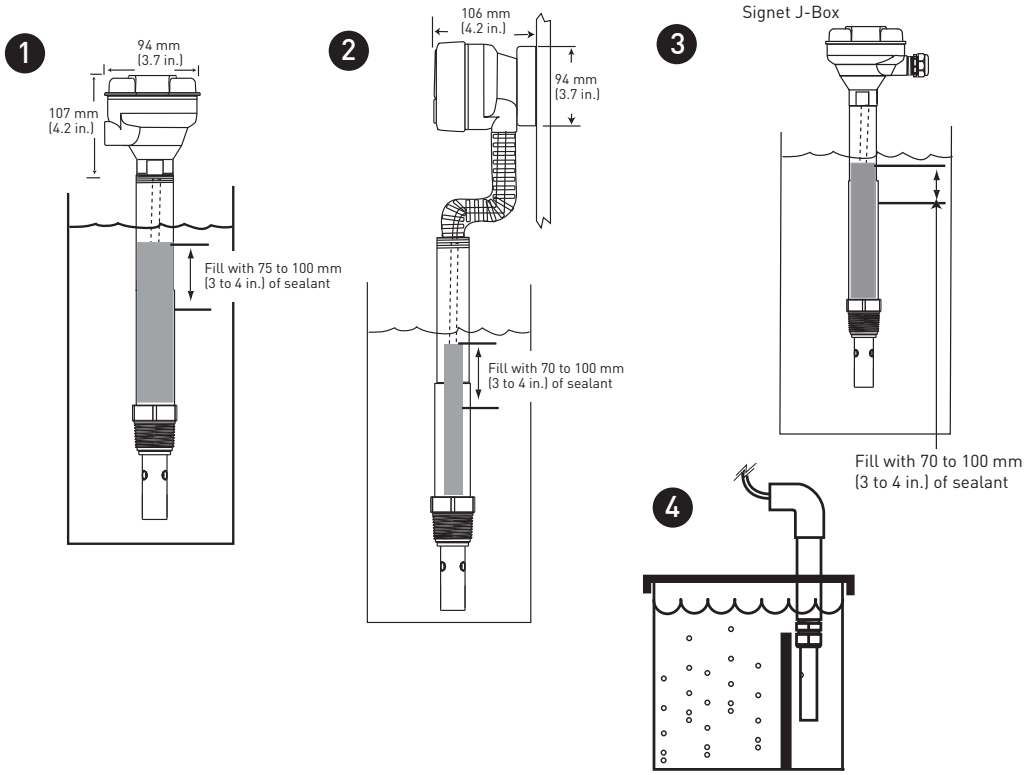
Installation Tips

- Use standard installation hardware to connect the submersible 2850-3 or -4 directly to external equipment.
- In aerated vessels install the electrode in a stilling well to prevent air from being trapped inside the electrode.

I. Submersible Installation

2819 to 2823/2839-1 to 2842-1 with 2850 Sensor Electronics

- Electrode with 2850 Sensor Electronics shown below.
- All mounting brackets, electrical conduits, and pipe extensions are customer supplied.
- Sensor Models 2819-2823 are mounted similarly, except use a ¾" MNPT Thread to mount to a ¾" FNPT pipe thread (customer supplied).

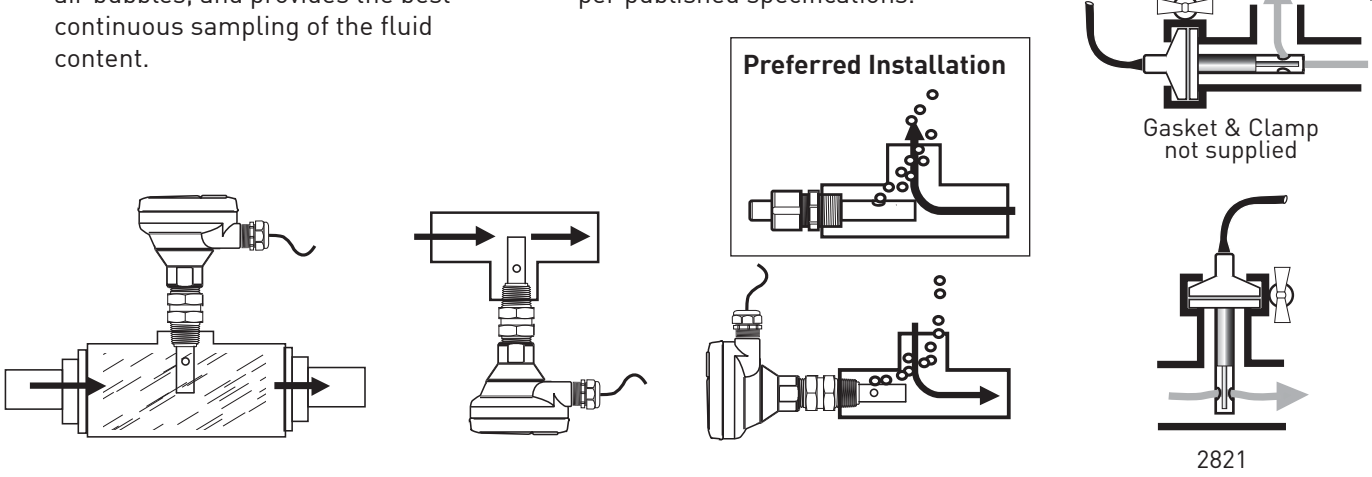


II. In-Line Installation

- Conductivity/Resistivity electrodes can be installed into standard ¾ inch NPT fittings or ISO 7/1-R 3/4 threaded fittings.
- The preferred installation for in-line applications directs flow straight into the electrode. This configuration reduces the probability of entrapped air bubbles, and provides the best continuous sampling of the fluid content.
- If the electrode is mounted vertically in a tee, do not recess the orifices inside the tee. Mounting upside down may help prevent air entrapment.
- An oversized tee or flow cell may be helpful for in-line installations.
- At least 4 threads (ANSI B1.20.1) must be engaged to meet pressure rating per published specifications.

Tri-clamp Connections

- Models 2819-2821 are offered with 1 to 1½ inch and 2 inch sanitary fittings.



Installation of Pressure/Level Sensors

Installation Tips
- 8050-1 and 8050-2 junction boxes can be useful for this installation option.

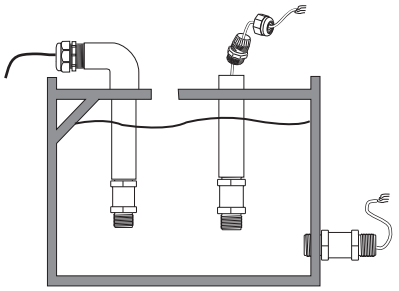
I. Submersible Installation

- Use the 2450 and 2250 sensors with 4.6 m (15 ft) cable and 10 m (32.8 ft).
- Mount the sensor to an extension pipe or watertight conduit using thread sealant.
- Use a cable gland at the top of the extension to prevent moisture accumulation inside the pipe.
- For 2450 sensors: DO NOT hermetically seal (i.e. applying silicone sealant or epoxy) the back of sensor. This may introduce measurement errors resulting from changes in atmospheric pressure and/or temperature. Instead, use a 2250 which has an extended atmospheric breather tube (same length of sensor cable). Do not to pinch breather tube.

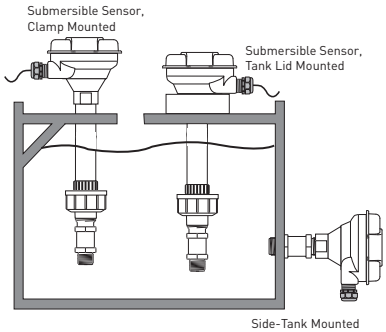
II. In-Line Installation

- The 2450 can be mounted in a pipe-tee using the threads closest to the sensing end.
- The sensor can be mounted with or without an integral mount kit. This kit mounts a junction box or an instrument.
- See below for more information on instrument integral mount and junction box/remote mount examples.

Signet 2450 Pressure Sensor



Signet 2250 Hydrostatic Level Sensor



The Signet 2450 Pressure Sensor with union connection or ¾ in. NPT can be mounted side-tank. (Side mount not recommended)

Installation Tips
- Sensors can be mounted into any DN20 (¾ in) FNPT pipe tee (customer supplied)

Integral Assembly

The 3-8052 Integral Kit connects the 8450 Pressure Transmitter and 8250 Level Transmitter directly onto the 2450 sensors.

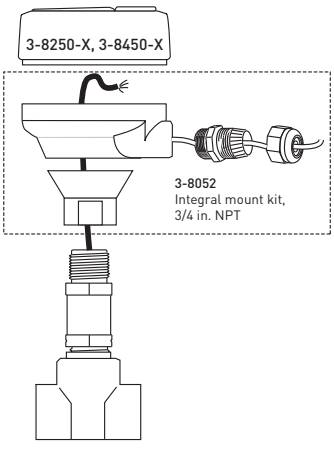
- Use the 2450 sensor with 0.15 m (6 in.) cable and digital (S^3L) output.
- Apply sealant or PTFE tape to the process connection threads, after inspecting threads to ensure integrity. Do not install a sensor with damaged threads.
- Tighten the sensor 1½ turns past finger tight into the process connection.

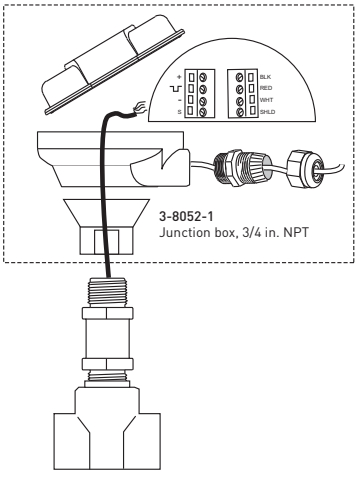
Remote Assembly

The optional 3-8052-1 Integral kit with Junction box and ¾ in. NPT sensor connection provides a convenient terminal point to extend the 2450 and 2250 cable over a distance.

The kit includes:

- ¾ in. NPT sensor connection
- Conduit base and cap with junction terminals
- 3-9000.392-1 liquid tight connector, ½ in. NPT





Installation of Pressure/Level Sensors

The in-line 2450 pressure sensor with union connection can be mounted using GF parts. See below for list of GF Part Numbers.

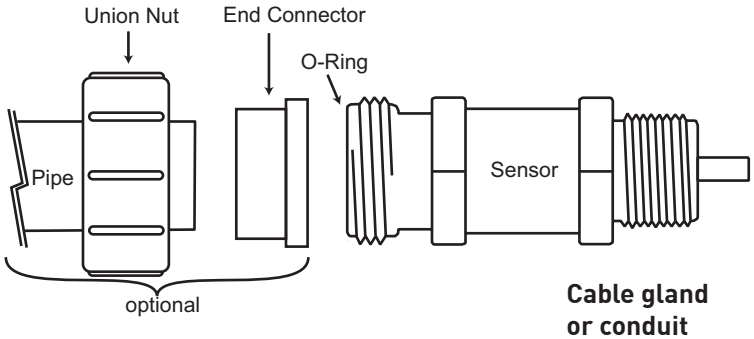
Union Matrix for Pressure Sensor 3-2450 ½ in. Union Connection

Nuts

Material	Part Number
PVC	**721 690 006**
PVDF	**735 690 406**
PP	**727 690 406**

End Connector

Material	Part Number	Description
PVC	**721 600 106**	Union end Metric socket
PVC	**721 602 006**	Union end IPS socket
PVC	**721 602 656**	Union end NPT thread
PP-B	**727 608 506**	Union end butt
PP-B	**727 600 106**	Union end socket
PP-B	**198 203 603**	Union end threaded NPT
PP-N	**728 608 506**	Union end butt
PVDF	**735 608 606**	Union end butt
PVDF	**735 600 106**	Union end socket
PVDF	**198 203 611**	Union end threaded NPT



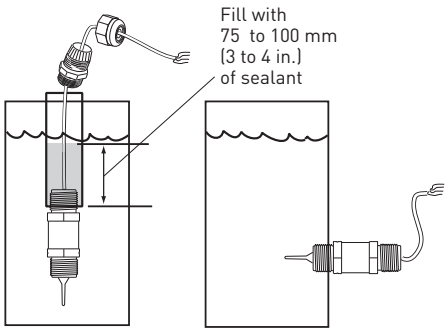
Cable gland or conduit connection

Installation of Temperature Sensors

Installation Tips
- 8050-1 and 8052-1 junction boxes can be useful for this installation option.

I. Submersible Installation

- Use the 2350 sensor with 4.6 m (15 ft) cable.
- Mount the sensor to an extension pipe or watertight conduit using thread sealant.
- Use a cable gland at the top of the extension to prevent moisture intrusion/accumulation inside the pipe.
- For additional defence against possible accumulation of condensation at the back seal area of the sensor, fill the lower 75-100 mm (3-4 inches) of conduit or extension pipe with a flexible sealant such as silicone.



Installation Tips
- Sensors can be mounted into any DN20 (¾ in.) FNPT pipe tee (customer supplied)

II. In-Line Installation

- The 2350 can be mounted in a pipe-tee using the threads closest to the sensing end.
- The sensor can be mounted with or without an integral kit. This kit mounts a junction box to an instrument.
- See below for more information on instrument integral mount and junction box/remote mount examples.

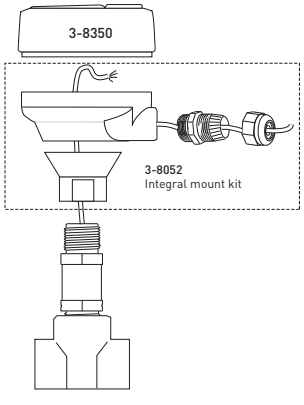
Integral Assembly

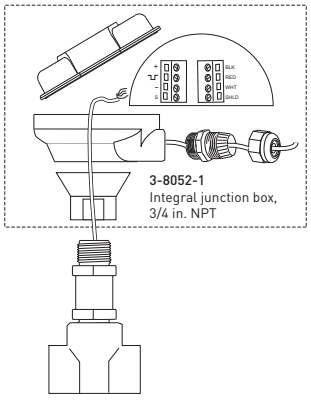
- The 3-8052 Integral Kit connects the 8350 Temperature Transmitter directly onto the 2350 sensor.
- Apply sealant or PTFE tape to the process connection threads, after inspecting threads to ensure integrity. Do not install a sensor with damaged threads.
- Tighten the sensor 1½ turns past finger tight into the process connection.

Remote Assembly

- The optional 3-8052-1 Integral Junction box with ¾ in. process connection offers a convenient terminal point to extend the 2350 cable over a distance.

The kit includes:
- ¾ in. NPT process connection
- Conduit base and cap with junction terminals
- 3-9000.392-1 liquid tight connector, ½ in. NPT
- Apply sealant or PTFE tape to the process connection threads, after inspecting threads to ensure integrity. Do not install a sensor with damaged threads.
- Tighten the sensor 1½ turns past finger tight into the process connection.





Wiring Information: Turbidity

I. 4150 Turbidimeter

Power

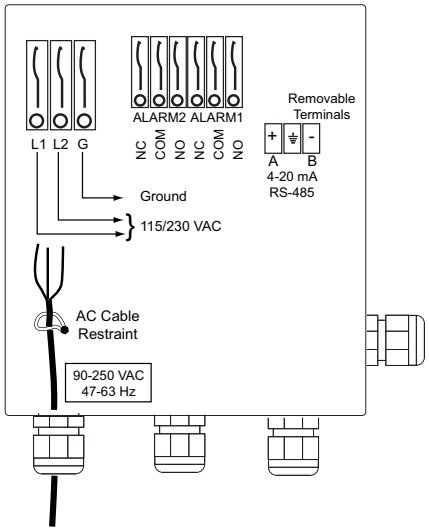
- Install a circuit breaker in the AC line before the 4150 power connection to allow for service.
- The 4150 is not supplied with a power cord.
- The power cable bulkhead will accept cable diameters from 5.8 mm (0.230 in.) up to 10 mm (0.395 in.).
- All terminals are designed to accept wires in the range of 14-28 AWG.
- All wires should be stripped to a length of 6 mm (¼ in.).
- A strain relief strap is provided to reduce tension on the AC power terminals.

RS485

- The RS485 half-duplex (2-wire) digital interface operates with differential levels that are not susceptible to electrical interferences.
- The last device on each bus may require terminating with a 120-ohm resistor to eliminate signal reflection on the line.
- Do not run RS485 cables in the same conduit as power.

4-20 mA

- The active 4-20 mA output is driven by a 15 VDC power source and can drive external loads up to 600 ohms.
- Do not run 4-20 mA cables in the same conduit as power.



Wiring Information: Sensors

II. Flow sensor cable details and connection to instrumentation

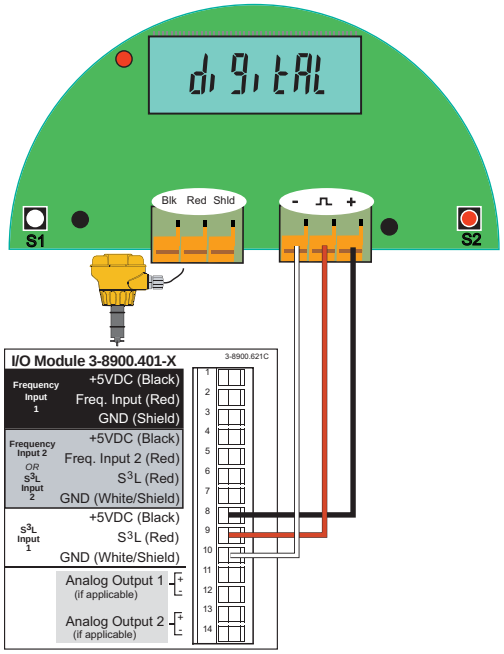
- Most Signet Flow sensors are supplied with a standard 7.6 m (25 ft) length of cable except the 2100 Turbine, which has 4.6 m (15 ft)
- 2551 Magmeters are not supplied with cable.
- 2552 Magmeters supplied with 7.6 m (25 ft) or submersible version with optional 3.9 m (13 ft) or 5.9 m (19.5 ft).
- Sensors with AC sine wave outputs (515, 525) may extend cable to a maximum 60 m (200 ft)
- Sensors with open collector outputs (2000, 2100, 2507, 2536, 2537, 2540, 2551, 2552) may extend cable to a maximum 300 m (1000 ft)
- Maintain all cable shielding through splices or terminal connections.
- Cable should be 2 conductor twisted pair with shield, 18 to 22 AWG.
- Signet Flow sensors use cable with Black, Red and Shield conductors. To facilitate wiring, most Signet instruments have wiring terminals that are labelled with these same colours.

Instrument Marking	Sine Wave Output	Sensor Wire Color	Open Collector Output	Instrument Marking
Freq. In Black	Frequency	Black	DC Power +	Sensor Pwr Sensor V+
Freq. In Red	Frequency	Red	Signal Out	Freq. In Sensor In
Iso. Gnd Shld	Ground	Shield (White)	DC Power -	Iso. Gnd Sensor Gnd
	515 525	Sensor models	2000 2100 2507 2536 2537 2540 2551 2552	

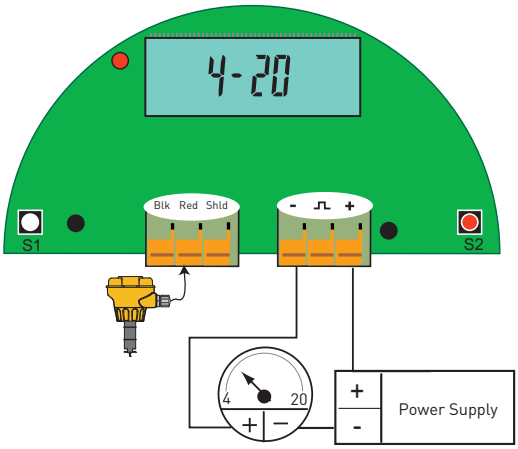
Wiring Information: Sensors

II. Flow sensor wiring details for 2537 Flowmeter

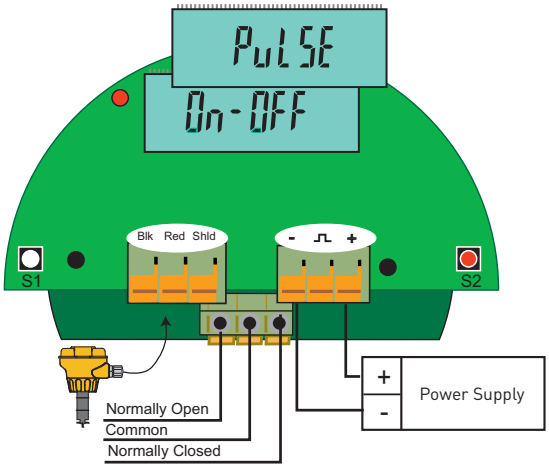
Digital (S^3L) Wiring:
The digital (S^3L) output is compatible with the Signet 8900 Multi-Parameter Controller



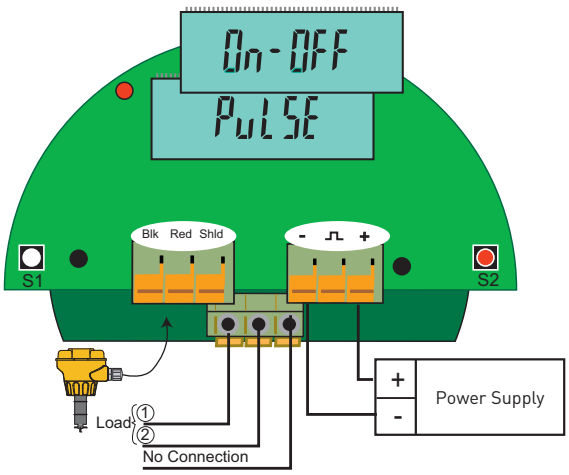
Loop Wiring:
The 4 to 20mA output can be connected to Chart Recorders, PLCs or any device that requires a 4 to 20 mA signal.



On-Off/Pulse:
Provide a single dry-contact relay output that can be programmed as a HIGH alarm or a LOW alarm or that represents a volumetric pulse or pulse divided output.



Pulse/On-Off:
Provide a single solid-state relay output that can be programmed as a HIGH alarm or a LOW alarm or that represents a volumetric pulse or pulse divided output.



Wiring Information: Sensors

II. Flow sensor wiring details for 2551 Magmeter

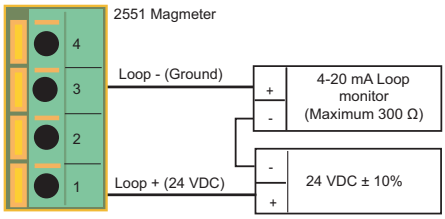
Loop Wiring:

The 2551-XX-12 Magmeter is a traditional 2-wire passive 4 to 20 mA loop transmitter. External loop power (24 VDC ±10% regulated) is required.

⚠ The maximum loop resistance the Magmeter can accommodate is 300 Ω.

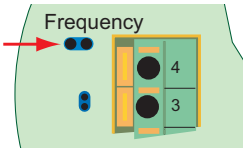
All 2551-XX-12 Magmeters are shipped from the factory with the 4 to 20 mA output scaled for 0 to 5 m/s (0 to 16.4 ft/s). If this operating range is suitable, no adjustments are necessary.

The 3-0250 USB to Digital (S^3L) Configuration / Diagnostic Tool is required to change the operating range.



Blue Jumper ON = FREQ OUT

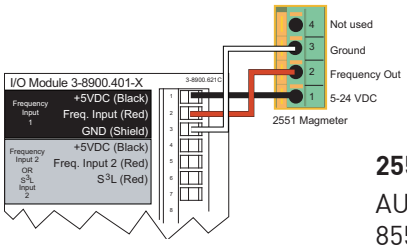
Factory default position



Frequency Wiring:

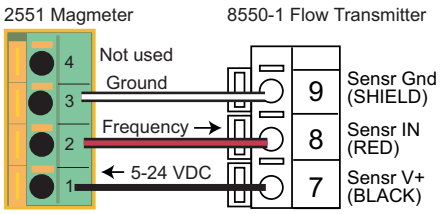
- When the blue jumper illustrated here is placed over both pins, the 2551-XX-11 outputs an open collector frequency signal that can be connected to any powered Signet flow meter. (Models 5075, 5500, 5600, 8550, 8900.)
- 5 VDC power is provided to the 2551 Magmeter by all Signet flow instruments. No additional power is required.
- If connecting the 2551 Magmeter to a flow instrument from another manufacturer, 5 to 24 VDC ±10% regulated power must be provided to the 2551. A 10 KΩ pull up resistor must also be connected between terminals 1 and 2.
- The frequency output will be displayed as positive flow regardless of the flow direction.

2551 Frequency Out to Signet 8900

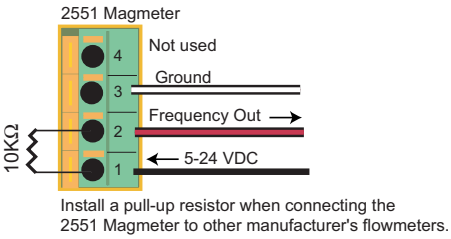


2551 Frequency Out to Signet 8550-1

AUX power MUST be connected on the 8550 to provide power to the 2551.

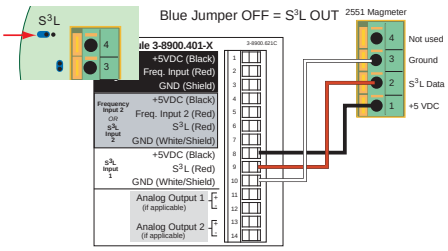


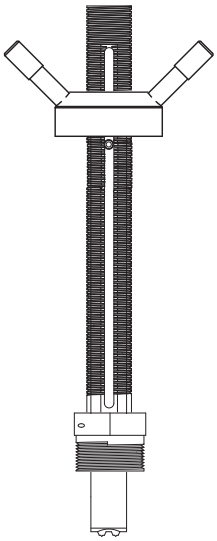
2551 Frequency Out to other Manufacturer's equipment



Digital (S^3L) Wiring:

- When the blue jumper illustrated here is removed (or placed over one pin for storage) the 2551-XX-11 outputs a digital (S^3L) signal compatible with the Signet 8900.
- The 2551 receives 5 VDC power from the 8900. No additional power is required.
- The 8900 will display 0 (Zero) flow rate during periods of reverse flow.
- The maximum cable length from the 2551 to the 8900 depends on the 8900 configuration. Refer to the 8900 manual for complete information.





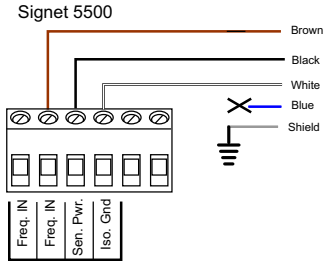
2552 Metal Magmeter

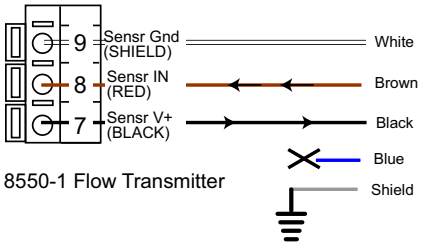
Wiring Information: Sensors

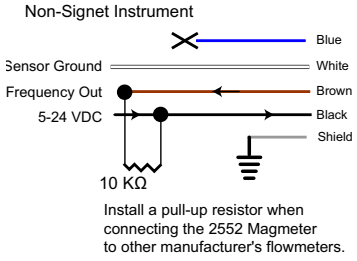
II. Flow sensor wiring details for 2552 Magmeter

Frequency Wiring:

- The 2552 outputs an open collector frequency signal that can be connected to any powered Signet flow meter. (Models 5075, 5500, 5600, 8550, 8900.)
- DC power is provided to the 2552 Magmeter by all Signet flow instruments. No additional power is required.
- If connecting the 2552 Magmeter to a flow instrument from another manufacturer, 5 to 24 VDC power must be provided to the 2552. A 10 KΩ pull up resistor must also be connected between the +V (Black) and the Freq. Out (Red) wires.
- ALWAYS connect AUX power on the 8550 to provide power for the 2552 output signal.



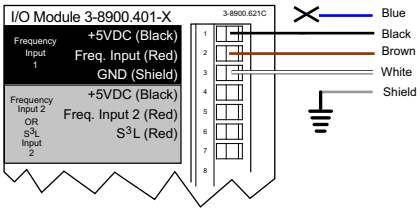




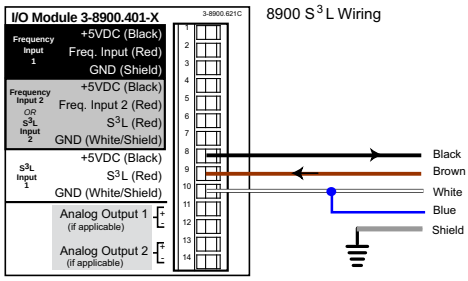
Digital (S³L) Wiring:

The 2552 receives 5 VDC power from the 8900. No additional power is required.

8900 Frequency Wiring



8900 S³L Wiring



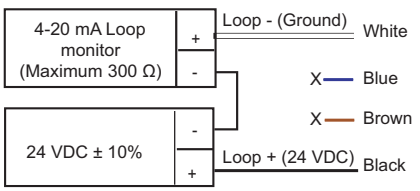
NOTE:
The maximum cable length from the 2552 to the 8900 depends on the 8900 configuration. Refer to the 8900 manual for complete information.

Loop Wiring:

The 2552 is a traditional 2-wire passive 4 to 20 mA loop transmitter. External loop power (24 VDC ±10% regulated) is required. Please refer to the Model 7300 Power Supplies.

⚠ The maximum loop resistance the Magmeter can accommodate is 300 Ω.
⚠ The cable length from the Magmeter to the loop monitor cannot exceed 300 m (1000 ft)

All 2552 Magmeters are shipped from the factory with the 4 to 20 mA output scaled for 0 to 5 m/s (0 to 16.4 ft/s). If this operating range is suitable, no adjustments are necessary.

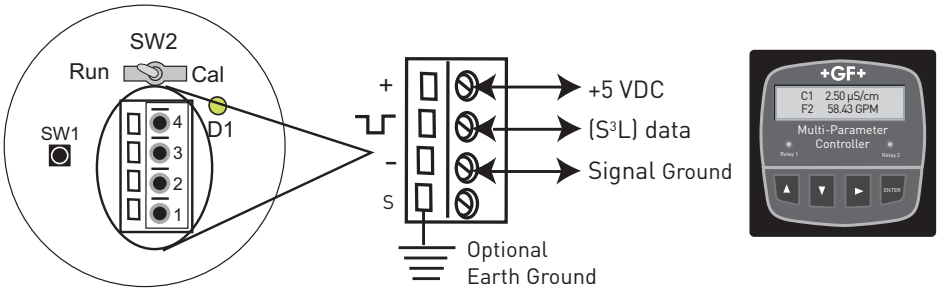


Wiring Information: Electrodes

III. Wiring Connections for pH/ORP

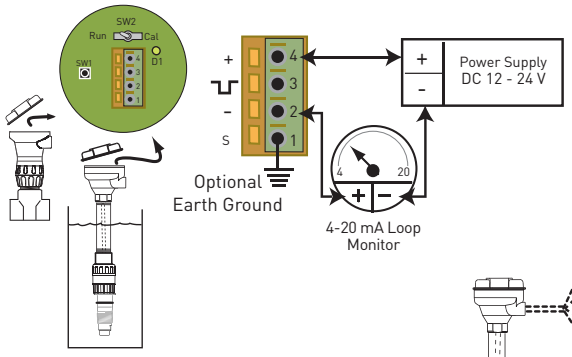
Digital (S³L) pH/ORP Wiring continued

2750 In-Line version with J-Box

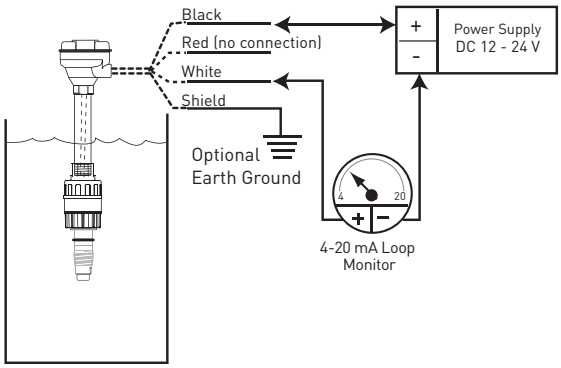


4 to 20 mA Loop pH/ORP Wiring

2750 with J-Box



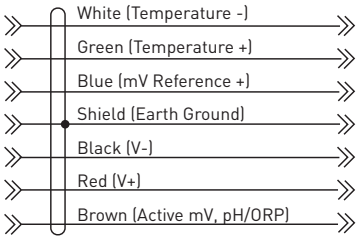
2750 without J-Box



2760 Preamplifier to Other Manufacturer's Equipment

DryLoc® Preamplifier, Submersible
3-2760-1
3-2760-2

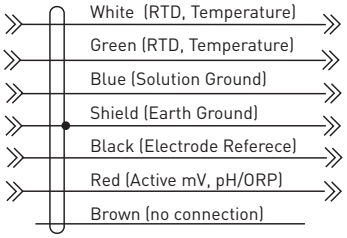
DryLoc® Preamplifier, In-line
3-2760-11
3-2760-21



2760 Connector to Other Manufacturer's Equipment

DryLoc® Connector, Submersible
3-2760-3
3-2760-4

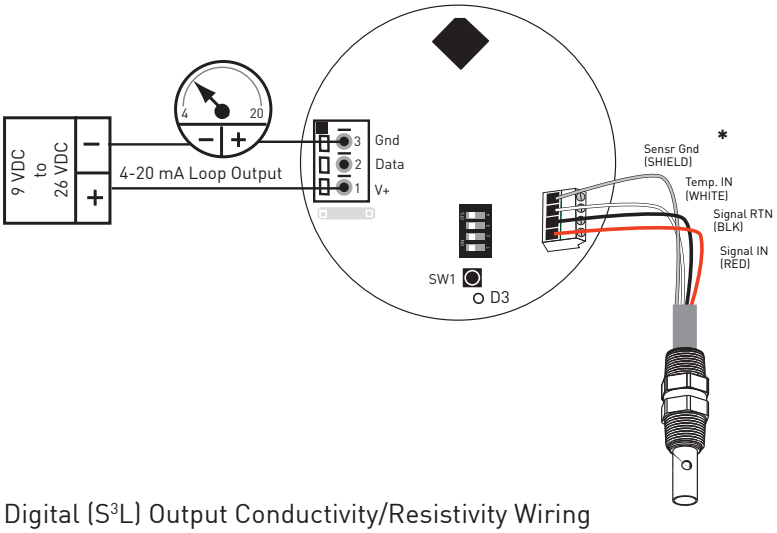
DryLoc® Connector, In-line
3-2760-31
3-2760-41



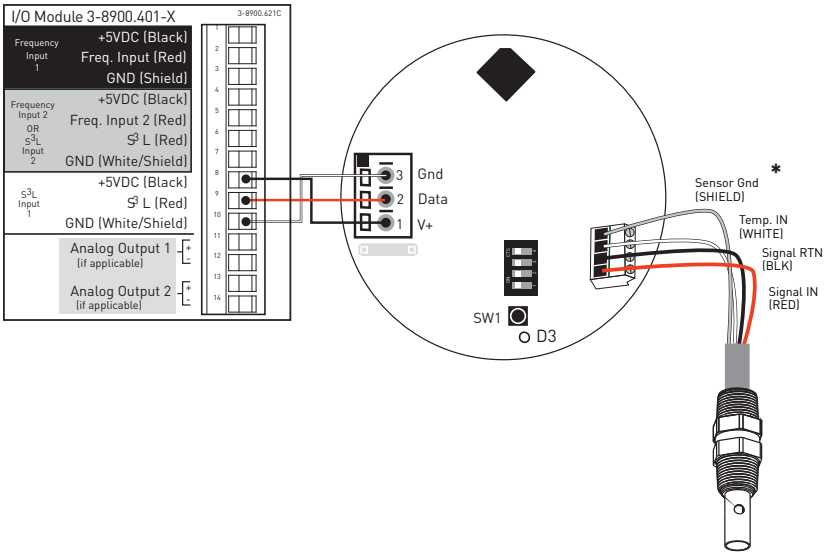
Wiring Information: Electrodes

IV. 2850 Conductivity/Resistivity Sensor Electronics

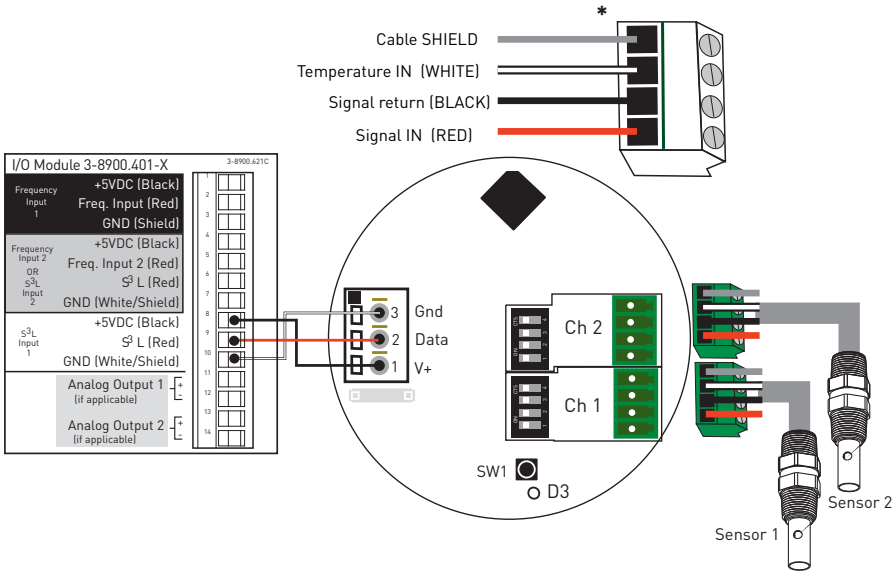
4 to 20mA Conductivity/Resistivity Wiring



Digital (S^3L) Output Conductivity/Resistivity Wiring



Dual Digital (S^3L) Output Conductivity/Resistivity Wiring



*Note: Under normal operation, the shield wire does not need to be connected.
However, in noisy environments, the shield should be connected to improve noise immunity.

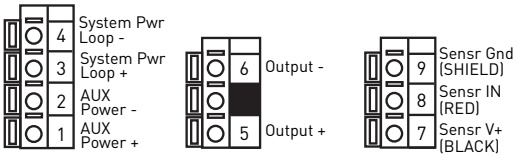
Wiring Information: Instruments

V. Rear Terminal Views Signet Flow Instruments

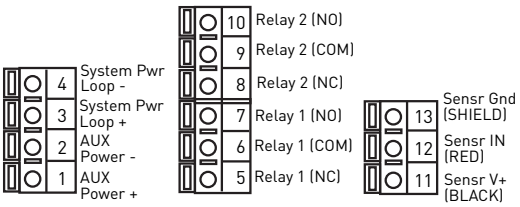
Wiring Information

- The terminal blocks for the 8550 are not labelled on the back of the unit. An adhesive label is supplied with the instruments with terminal descriptions to serve as a remote terminal display to aid electrical installations.
- The 8150 Battery Powered Flow Totaliser is compatible only with the AC output sensors, 515 and 525. The wiring is shown here. See Operation Manual for more information.

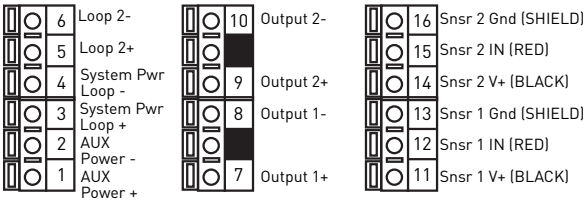
Terminal 8550-1



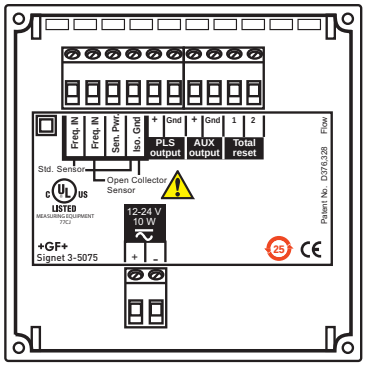
Terminal 8550-2



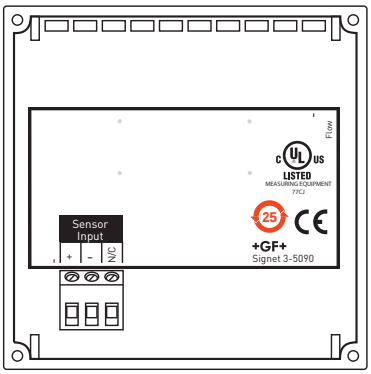
Terminal 8550-3



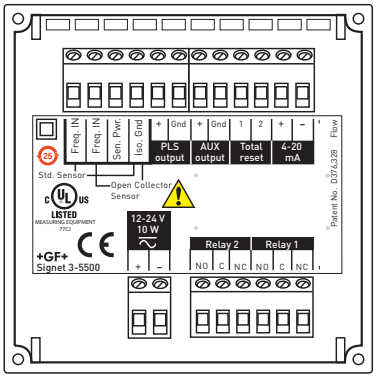
5075



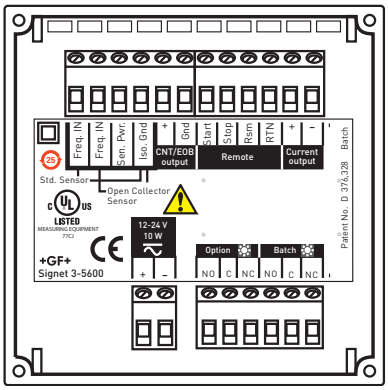
5090



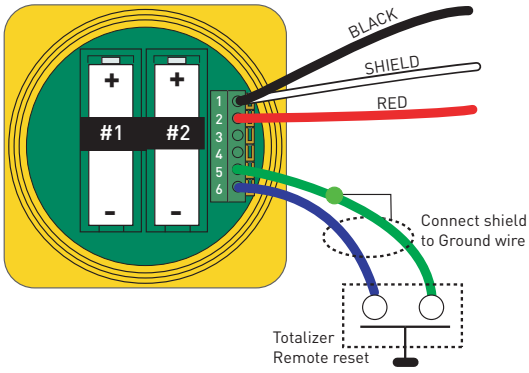
5500



5600



8150 Battery Powered Flow Totaliser

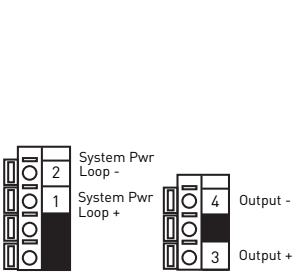


Wiring Information: Instruments

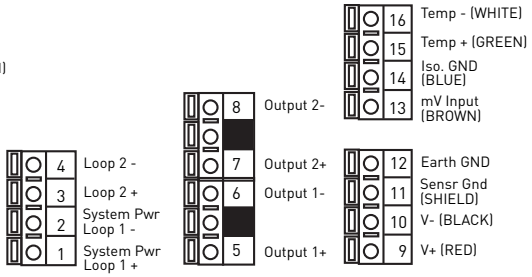
V. Rear Terminal Views Signet pH/ORP, Conductivity/Resistivity Instruments

pH/ORP

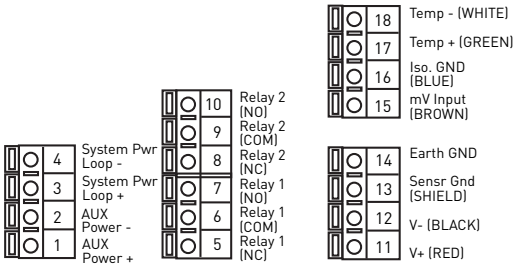
Terminal 8750-1



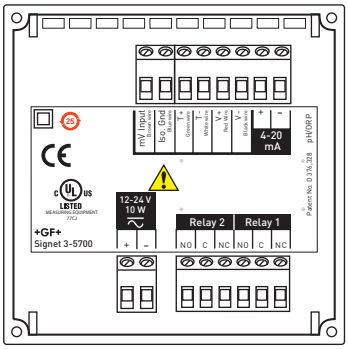
Terminal 8750-3



Terminal 8750-2

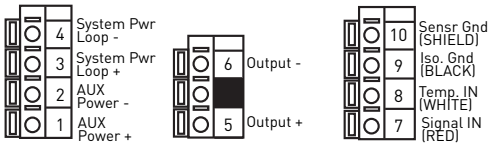


5700

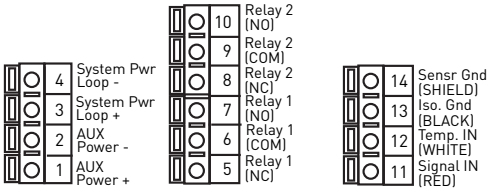


Conductivity

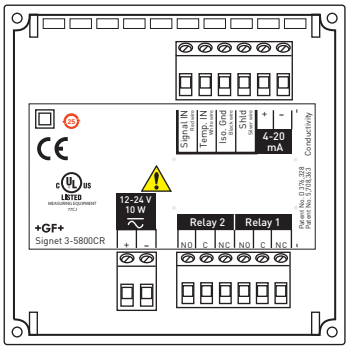
Terminal 8850-1



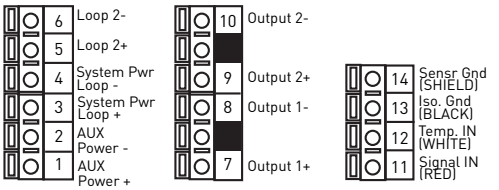
Terminal 8850-2



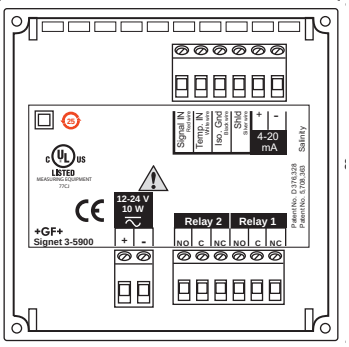
5800CR



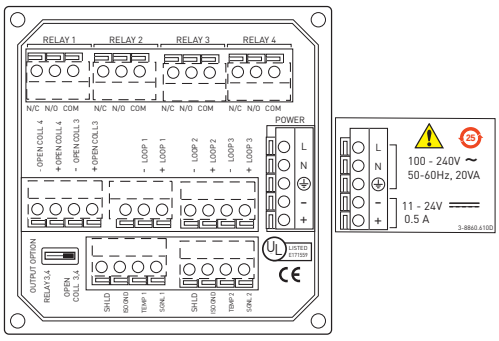
Terminal 8850-3



5900



8860

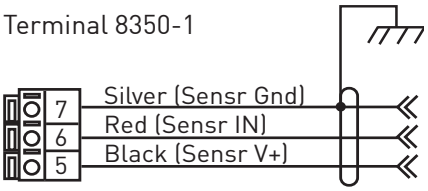


Wiring Information: Instruments

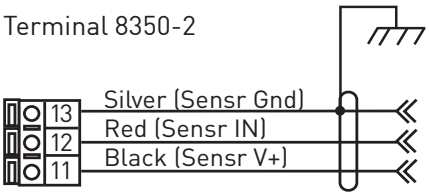
V. Rear Terminal Views Signet Temperature, Level & Pressure Instruments

Temperature

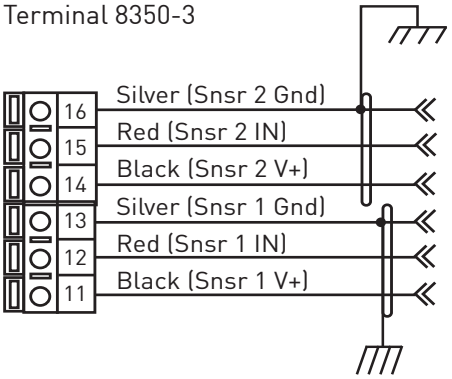
Terminal 8350-1



Terminal 8350-2

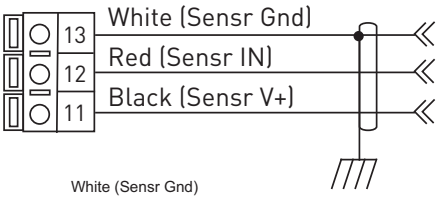


Terminal 8350-3



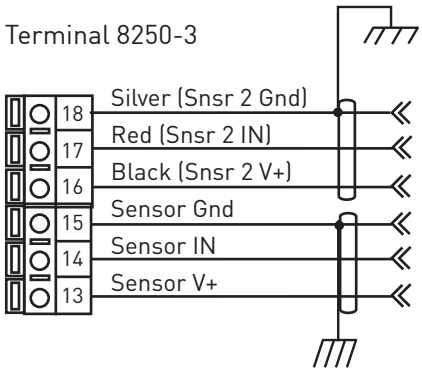
Level

Terminal 8250-2



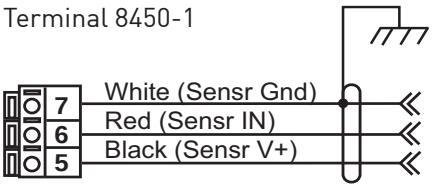
White (Sensr Gnd)
Red (Sensr IN)
Black (Sensr V+)

Terminal 8250-3

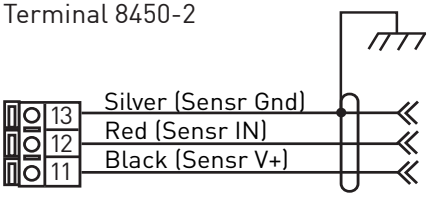


Pressure

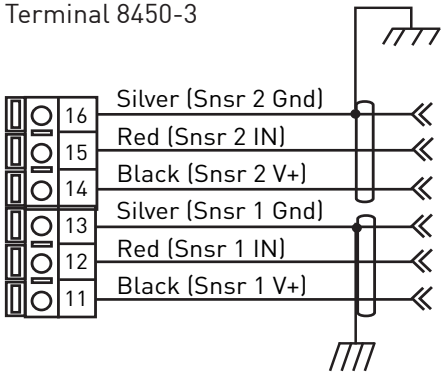
Terminal 8450-1



Terminal 8450-2



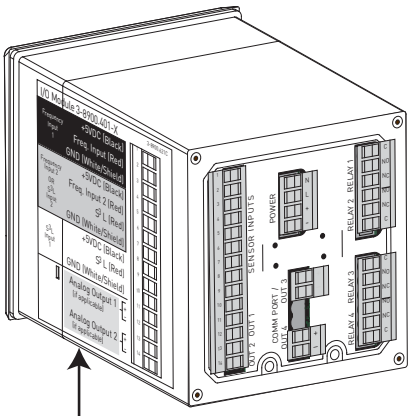
Terminal 8450-3

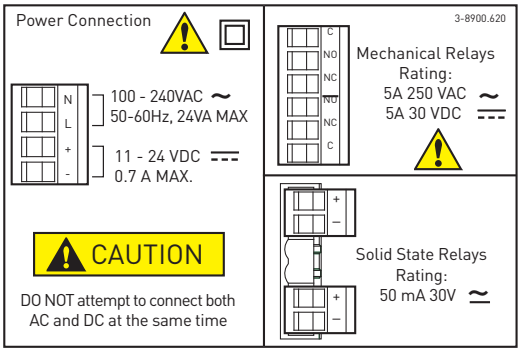


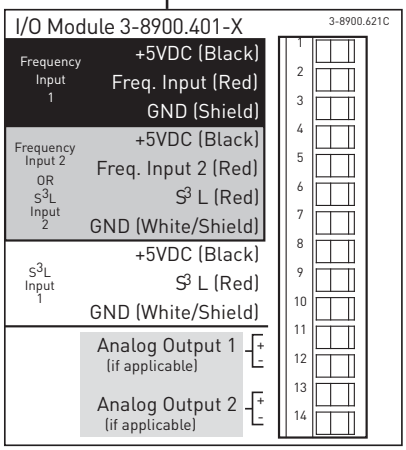
Wiring Information: Instruments

V. Rear Terminal Views Signet Instruments

8900 Multi-Parameter







Maximum Cable Lengths for all sensors used with the 8900
The I/O Module (3-8900.401-x) supports frequency and S^3L signal types. These signal types are fundamentally different from one another, and the rules governing maximum cable lengths also differ, so the two types must be treated separately. Refer to the following two sections as necessary to determine the cable length limitations of any system.

Signal Type: Frequency
The maximum allowable cable length for flow sensors with frequency output is dependent upon the output signal strength of the sensors themselves, and the degree to which the signals are susceptible to EMI or "noise". This is largely a function of whether the sensors are self-powered, or powered by an external source.

All of the sensors in the table below are compatible with the 8900. The three models limited to 60 m (200 ft) are self-powered sensors. The 8900 automatically provides power to the others via the I/O Module (normal sensor wiring).

These maximum recommended cable lengths apply to individual sensors and are completely independent of one another. Additionally, these cable lengths have no relevance to any digital (S^3L) devices that may also be connected to the I/O Module.

Flow sensor models with Frequency output

Maximum Cable Length	515	525	2000	2100	2507	2536	2537	2540	2551	2552
60 m (200 ft)	X	X								
305 m (1000 ft)			X	X	X	X	X	X	X	X

V. Rear Terminal Views Signet Instruments

Multi-Parameter (continued) Signal Type: Digital (S^3L)

Step 1: Calculate the Total current requirements for S^3L Branches

This information will determine the total current consumption of all digital (S^3L) sensors on a branch of the digital (S^3L) bus, as a means of determining if the sensor load is within the current rating of the cable.
Fill in the chart to determine the current requirements for a specific set of sensors.

Maximum Current Consumption for S^3L Devices

	Current		Quantity	Total	
2350 Temperature Sensor	1 mA	X	_____ =	_____	
2450 Pressure Sensor	1 mA	X	_____ =	_____	
2551/2552 Magmeter*	15 mA	X	_____ =	_____	
2750 pH/ORP Sensor Electronics	3 mA	X	_____ =	_____	
2850 Cond. Sensor Electronics	2 mA	X	_____ =	_____	
8058 Current-digital (S^3L) Converter	3 mA	X	_____ =	_____	
8059 External Relay Module**	1 mA	X	_____ =	_____	
Total current requirement on digital (S^3L) bus				_____	mA

Example:	
none	
2 Press	1 mA x 2 = 2 mA
2 Mags	15 mA x 2 = 30 mA
2 pH	3 mA x 2 = 6 mA
none	
none	
none	
Total	38 mA

** The digital (S^3L) communication link between the 8900 and the 8059 is powered by the 8900 and consumes 1 mA maximum. However, the 8059 External Relay Module always requires a separate power source for its operation.

Step 2 Determine the Maximum length of each branch of the (S^3L) Bus

This chart determines the maximum length of one branch of the digital (S^3L) bus. This distance is important because it ensures that the digital signal can successfully travel the length of the cable and still be detected by the 8900.

- Find the column nearest to the total current in this branch, as determined in step 1.
- Find the cable gauge or wire dimensions that most accurately represent the cable being used.
- The number at the intersection of these factors represents the maximum cable for one branch of the (S^3L) bus.
- The top section references AWG cables, the lower section is based on METRIC cables.
- Dividing the sensors between two branches will greatly increase the maximum cable length of each branch. Example: 40 mA total on one branch can sustain 70 ft of cable. 20 mA on two branches can sustain 140 ft on each branch.

Maximum Cable (AWG)

		Power Supply Current (mA)								
AWG	Ω/ft	1	2	4	10	15	20	40	60	90
24	0.0277	1800	900	450	180	120	90	40	30	20
22	0.0175	2850	1420	710	280	190	140	70	40	30
20	0.0109	3000	2290	1140	450	300	220	110	70	50
18	0.0069	3000	3000	1810	720	480	360	180	120	80
16	0.0044	3000	3000	2840	1130	750	560	280	180	120

Feet

Maximum Cable (Metric)

Area mm^2	Diameter mm	Ω/m	1	2	4	10	15	20	40	60	90
0.2	0.50463	0.0885	560	280	140	50	30	20	10	0	0
0.25	0.56419	0.0708	700	350	170	70	40	30	10	10	0
0.5	0.79789	0.0354	900	700	350	140	90	70	30	20	10
0.75	0.97721	0.0236	900	900	520	210	140	100	50	30	20
1	1.12839	0.0177	900	900	700	280	180	140	70	40	30
1.5	1.38199	0.0118	900	900	900	420	280	210	100	70	40

Meters

Step 3 Determine the Maximum total cable length of the digital (S^3L) Bus

The quality of the cable used in the bus determines the maximum length of all branches combined. The maximum cable length may not exceed these limits, regardless of current requirements.

Cable Capacitance (pF/ft)	**Max. Total Distance**	**Comments**
<50 pF/ft	900 ft	Even the most economical cables meet this specification.
<30 pF/ft	1500 ft	Cables from Signet fall into this category.
<15 pF/ft	3000 ft	Cables meeting this specification are very expensive network cables.
pF/m	**Max. Total Distance**	
<150 pF/m	300 m	Even the most economical cables meet this specification.
<100 pF/m	450 m	Cables from Signet fall into this category.
<50 pF/m	900 m	Cables meeting this specification are very expensive network cables.

Technical Reference Section: Standards and Approvals

CE Mark

CE Marking on a product is a legal requirement for selling in the EU stating the conformity with specific European Union (EU) directives. It is a self-declaration that a product complies with the essential requirements of the relevant European health, safety and environmental protection legislation. For our products the relevant directives are "Low Voltage" and "Electromagnetic Conformity ("EMC").

Low Voltage Directive
This directive refers to products that require voltage ranges from 50 to 1000 volts for AC (alternating current) and 75 to 1500 volts for DC (direct current).

EMC Directive
This directive defines the minimum requirements for immunity and maximum emissions with related tests for electronic equipment. These tests are only relevant for "active" circuitry, which refers to products that contain semiconductors that can be affected by electromagnetic interference (EMI) or generate themselves EMI. Products that do not contain such active circuits (like 515, 525 or pH sensors) are exempt from the requirements from this directive, thus do not require the CE marking.

UL Listing

E171559

Underwriters Laboratory (UL) is recognised as a Nationally Recognized Testing Laboratory (NRTL). UL is required for products intended to be connected to voltage levels that may cause "Hazardous Live" conditions. For all practical purposes this means the connection of 120V or 240V AC to either an AC power supply or the contacts of relays. Furthermore we list products equipped with certain types of batteries that may cause specific safety concerns (e.g. explosion) other than the voltage rating. Manufacturers submit products to UL for testing and safety certification on a voluntary basis and therefore UL is not required by law. Products with the UL mark can assure customers that they are buying products that have been tested to a standard that will help prevent danger or accidents in case of hazardous conditions. All products that have mechanical relays such the ProcessPro, ProPoint, Multi-Parameter, Display Magmeter with relays, and 2537, all qualify for the UL listing because of the relay ratings which are typically 240 VAC max and 5A max. Products that contain a battery, such as the 8150, also require UL to safety test the current discharge amount that can cause a fire/explosion. Canada also has the UL Listing, however, the products in Canada will be listed under CUL.

ETL

Intertek (ETL) is also recognised as a Nationally Recognized Testing Laboratory (NRTL). ETL provides product safety testing and certification, and is equally recognised and accepted as UL. ETL evaluates products using UL, CSA, and other harmonised standards. It is also voluntary.

FM

FM helps to ensure that electrical equipment will not cause a fire or explosion in areas where flammable or combustible materials, such as gases, vapours, dusts, or fibres, are present. FM certifies industrial and commercial products and services for companies worldwide. When a product or service meets the standards of FM Approvals, it is issued the "FM APPROVED" mark to signify it will perform as expected and support property loss prevention. The FM approval allows companies to participate in applications that require products to be placed in many hazardous areas, which can be barriers to entry for many companies. The application and demand are the main determination of marking FM for the 5090, 515, and 525.

RoHS

RoHS is an Enforcement Authority for the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2008. These Regulations implement EU Directive 2002/95 which bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants. Signet products are exempt from compliance under the Product Category 9 entitled "Other monitoring and control instruments used in industrial installations." However, Georg Fischer Signet intends to become fully compliant to these established guidelines while minimizing supply chain issues.

ISO 9001 / 14001

- ISO 9001 provides the requirements for quality management systems, is now firmly established as the globally implemented standard for providing assurance about the ability to satisfy quality requirements and to enhance customer satisfaction in supplier-customer relationships.
- ISO 14001 provides the requirements for environmental management systems, confirms its global relevance for organizations wishing to operate in an environmentally sustainable manner.

The people of Georg Fischer Signet LLC are dedicated to the design, manufacture and support of products that meet or exceed the requirements of our customers. We pledge to do this by developing safe processes and procedures which continuously improve our systems, products and the environment.

We shall target appropriate goals in our business environment, being mindful of changing laws, regulations, customer requests and the prevention of pollution.

This policy was developed by the executive management of the company. We shall train all employees in the requirements of this policy, and we shall document, audit, review annually and revise our Quality and Environmental Management System to ensure that it remains appropriate and effective to achieve our goals.

Technical Reference Section: Turbidity

Signet Model 3-4150-x

The Signet Model 3-4150-x instrument is commonly used to monitor and to control filter operation and performance in the domestic-utility drinking water industry. It is also commonly used to monitor and to control filter operation and performance in the gray and tertiary re-cycled water industry as well. It does this by accurately sensing to amount of turbidity that's in the water.

The instrument uses the Nephelometric Method to measure turbidity which is based upon a comparison of the intensity of light that's scattered by a sample under defined and controlled conditions with the intensity of light scattered by a standard reference suspension. The greater the intensity of scattered light, the higher is the turbidity.

Because the Signet instrument uses a small cuvette rather than a large liquid measuring chamber, the 3-4150-x is easier and faster to calibrate than most other instruments on the market today.

The instrument is available in either of two (2) different light sources to meet standards that are different in different parts of the world. For the United States, most of North and South America and most of Asia, a white light version meeting EPA 180.1 requirements is available. To meet requirements of ISO 7027 for Europe and most of Eastern Europe, an IR light version is available.

The instruments are designed to accept a range of different power levels between 100 and 240 volts – 47 - 63 Hz.

The instrument has two separate alarm relay outputs for high and low process limit conditions or to show instrument malfunction. The instrument also has a choice of a single analogue signal or a single RS485 digital signal output for monitor and control functions by SCADA.

The instrument is housed in a NEMA-4X enclosure. However, mounting under a sun-shade or indoors is always encouraged for longer life.

Technical Reference Section: Flow

Velocity-based Flow Measurement Technologies

All of the flow sensors featured in the Signet catalogue, belong to the broad category of velocity-based flow measurement devices. This vast offering includes paddlewheel, electromagnetic, in-line rotor, and turbine flow sensors. Principles of operation vary considerably for each type, but some very important installation considerations are common throughout. The following discussion, plus the general selection guidelines at the front of the catalogue, should help the user choose the appropriate sensor type to obtain optimal flow measurement results.

All manuals, data sheets, and additional information are available at **www.gfsignet.com**

Fully Developed Turbulent Flow

Velocity-based flow sensors depend on fully developed turbulent flow for accurate and repeatable measurements. Fully developed turbulent flow occurs in Newtonian fluids with a Reynolds Number (Re) greater than 4,500. Low flow rates, viscous liquids, and large pipe sizes make fully developed turbulent flow more difficult to achieve. The opposite is also true. That is, for a given set of conditions, simply reducing the pipe size to increase the local flow velocity will produce a higher Reynolds Number.

Re: Reynolds Number

$Re = 3{,}162.76 \times Q \times Sg/(\mu \times ID)$

where:

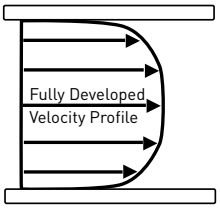
Q = Flow Rate in GPM
Sg = Specific Gravity
μ = Dynamic Viscosity in Centipoise (cP)
ID = pipe inside diameter in inches

OR

$Re = DN \times V/\nu$

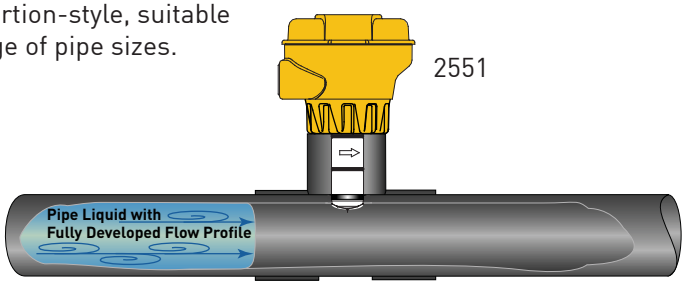
where:

DN = pipe inside diameter (m)
V = flow velocity (m/s)
ν = kinematic viscosity (m^2/s)
(ν of water = 1×10^{-6} m^2/s)



Principles of Operation

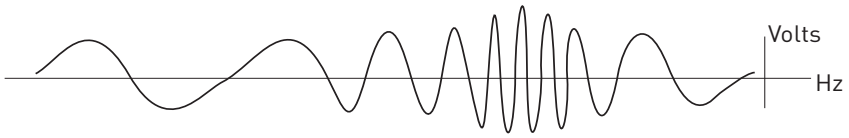
- **Electromagnetic** flow sensors, like Signet's Models 2551 and 2552, operate on Faraday's principle of electromagnetic induction, and have no moving parts. As fluid (must be conductive <20 μS) moves through the magnetic field produced at the sensor tip, a voltage occurs that is directly proportional to the fluid velocity. Internal electronics then convert this voltage into a frequency and/or a 4 to 20 mA output. Signet electromagnetic flow sensors are insertion-style, suitable for use in a wide range of pipe sizes.



Technical Reference Section: Flow

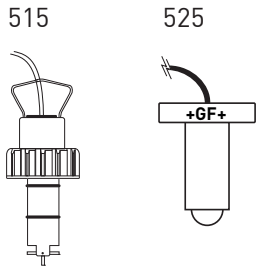
Principles of Operation (continued)

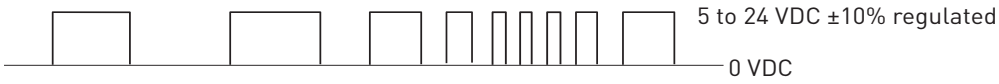
- **Paddlewheel** flow sensors are insertion devices, mounted perpendicular to the piping system, and rely upon the energy in the flow stream to spin a rotor (paddlewheel) around a stationary shaft. Most paddlewheel flow sensors utilize rotors with magnets embedded in each blade. The magnets are typically used either in conjunction with a coil internal to the sensor housing to produce a sinusoidal output (self-generating, non-powered sensors), or to trigger an internal electronic switch to produce a square-wave output (transistor-type, powered sensors). Either way, the resulting frequency is directly proportional to the fluid velocity.



Sinusoidal output

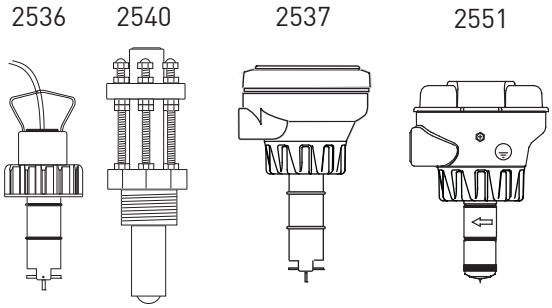
1) Sinusoidal sensors output a signal typical of self-generating, non-powered paddlewheel sensors such as the Model 515, or 525. The frequency and amplitude (voltage) both vary directly with flow rate.





Square wave output

2) Transistor-type sensors output a signal typical of powered sensors such as the Model 2536, 2540, and all other Signet powered flow sensors with frequency output.

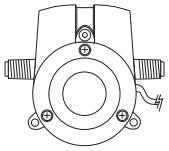


Technical Reference Section: Flow

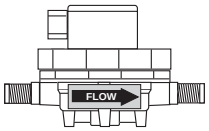
Principles of Operation (continued)

- **In-Line** Rotor flow sensors like the Signet Models 2000 and 2507 are similar to paddlewheel sensors, except the rotor is positioned in a flow cell. These types of sensors have a transistor-type output signal and are able to measure lower flow rates.

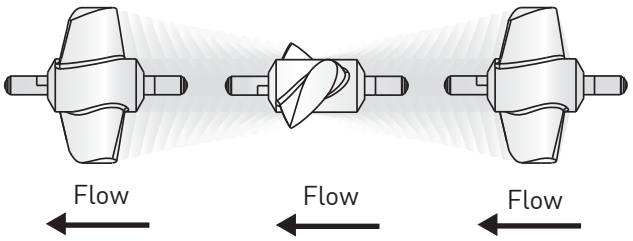
2000



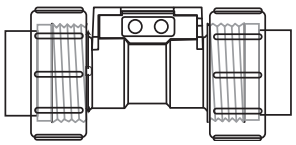
2507



- **Turbine** flow sensors are full-bore devices designed for low-flow measurements. Signet Model 2100 is offered in 6.4 mm and 12.7 mm (¼ in. and ½ in.) line sizes. Many self-aligning end-connector options are available for installation simplicity and application versatility. Similar to paddlewheels, they rely upon the energy in the flow stream to spin a rotor (turbine). The difference is that the shaft is in the centre of, and parallel to, the flow stream. The velocity of the fluid spins the turbine for detection by external electronic circuitry, producing a transistor-type square wave output with a frequency directly proportional to the flow rate.



2100



Technical Reference Section: Flow

Flow Range Charts (GPM)

Paddlewheel and Electromagnetic Sensors

Signet Models 515, 525, 2536, 2537, 2540, 2551, 2552
GPM Flow Rates for DN15 to DN450 (½ in. to 18 in.) pipe sizes

Nominal Pipe Size		2551/2552		2536/8512/2540		515 and 8510		525	
Inch	Metric DN (mm)	Min	Max	Min	Max	Min	Max	Min	Max
		0.15 ft/s	33 ft/s	0.3 ft/s	20 ft/s	1 ft/s	20 ft/s	1.6 ft/s	20 ft/s
0.5	15	0.14	31.25	0.28	18.94	0.95	18.94	1.52	18.94
0.75	20	0.25	54.85	0.50	33.24	1.66	33.24	2.66	33.24
1	25	0.40	88.89	0.81	53.88	2.69	53.88	4.31	53.88
1.25	32	0.70	153.84	1.40	93.24	4.66	93.24	7.46	93.24
1.5	40	0.95	209.40	1.90	126.91	6.35	126.91	10.15	126.91
2	50	1.57	345.15	3.14	209.18	10.46	209.18	16.73	209.18
2.5	65	2.24	492.45	4.48	298.46	14.92	298.46	23.88	298.46
3	80	3.46	760.39	6.91	460.84	23.04	460.84	36.87	460.84
4	100	5.95	1309.40	11.90	793.57	39.68	793.57	63.49	793.57
5	125	9.35	2057.74	18.71	1247.12	62.36	1247.12	99.77	1247.12
6	150	13.51	2971.57	27.01	1800.95	90.05	1800.95	144.08	1800.95
8	200	23.39	5145.63	46.78	3118.57	155.93	3118.57	249.49	3118.57
10	250	36.87	8110.73	73.73	4915.59	245.78	4915.59	393.25	4915.59
12	300	52.33	11512.97	104.66	6977.56	348.88	6977.56	558.20	6977.56
14	350	-	-	126.49	8432.82	421.64	8432.82	-	-
16	400	-	-	165.24	11015.97	550.80	11015.97	-	-
18	450	-	-	209.16	13943.74	697.19	13943.74	-	-

Technical Reference Section: Flow

Flow Range Charts (LPM)

Paddlewheel and Electromagnetic Sensors

Signet Models 515, 525, 2536, 2537, 2540, 2551, 2552
LPM Flow Rates for DN15 to DN450 (½ in. to 18 in.) pipe sizes

Nominal Pipe Size		2551/2552		2536/8512/2540		515 and 8510		525	
Inch	Metric DN (mm)	Min	Max	Min	Max	Min	Max	Min	Max
		0.05 m/s	10 m/s	0.1 m/s	6 m/s	0.3 m/s	6 m/s	0.5 m/s	6 m/s
0.5	15	0.6	117.6	1.2	70.6	3.5	70.6	5.9	70.6
0.75	20	1.0	206.4	2.1	123.9	6.2	123.9	10.3	123.9
1	25	1.7	334.5	3.3	200.7	10.0	200.7	16.7	200.7
1.25	32	2.9	579.0	5.8	347.4	17.4	347.4	28.9	347.4
1.5	40	3.9	788.1	7.9	472.8	23.6	472.8	39.4	472.8
2	50	6.5	1298.9	13.0	779.4	39.0	779.4	64.9	779.4
2.5	65	9.3	1853.3	18.5	1112.0	55.6	1112.0	92.7	1112.0
3	80	14.3	2861.7	28.6	1717.0	85.9	1717.0	143.1	1717.0
4	100	24.6	4927.8	49.3	2956.7	147.8	2956.7	246.4	2956.7
5	125	38.7	7744.2	77.4	4646.5	232.3	4646.5	387.2	4646.5
6	150	55.9	11183.3	111.8	6710.0	335.5	6710.0	559.2	6710.0
8	200	96.8	19365.3	193.7	11619.2	581.0	11619.2	968.3	11619.2
10	250	152.6	30524.2	305.2	18314.5	915.7	18314.5	1526.2	18314.5
12	300	216.6	43328.4	433.3	25997.0	1299.9	25997.0	2166.4	25997.0
14	350	-	-	523.7	31419.1	1571.0	31419.1	-	-
16	400	-	-	684.1	41043.4	2052.2	41043.4	-	-
18	450			865.9	51951.7	2597.6	51951.7		

Technical Reference Section: Flow

Flow Range Charts (GPM and LPM)

In-line Rotor and Turbine Sensors

Signet Models 2000, 2100, and 2507
GPM and LPM Flow Rates

		GPM		LPM	
Model and Size:	**Description**	**Min**	**Max**	**Min**	**Max**
3-2000-1X	MicroFlow -Low	0.030	0.700	0.110	2.600
3-2000-2X	MicroFlow - High	0.300	3.200	1.130	12.110
3-2100-XL and -31 Kits	Turbine Low - 1/2" Tubing	0.100	1.000	0.380	3.800
3-2100-XL and -32 Kits	Turbine Low - 3/8" Tubing	0.100	1.000	0.380	3.800
3-2100-XL and -33 Kits	Turbine Low - 1/4" Tubing	0.100	1.000	0.380	3.800
3-2100-XL and -34 thru -38 Kits	Turbine Low - 1/2" Pipe	0.100	1.000	0.380	3.800
3-2100-XH and -31 kits	Turbine High - 1/2" Tubing	0.800	10.000	3.000	38.000
3-2100-XH and -34 thru -38 Kits	Turbine High - 1/2" Pipe	0.800	10.000	3.000	38.000
3-2507.100-2V	Mini Flow - 2mm Insert	0.106	0.740	0.500	2.800
3-2507.100-3V	Mini Flow - 3mm Insert	0.198	1.123	0.750	4.250
3-2507.100-4V	Mini Flow - 4mm Insert	0.330	1.585	1.250	6.000
3-2507.100-6V	Mini Flow - 6mm Insert	0.792	3.170	3.000	12.000

Technical Reference Section: pH/ORP

Information in this section addresses frequently asked questions regarding pH and ORP and is provided as REFERENCE ONLY to supplement procedures and recommendations specifically outlined in individual product instruction manuals. All manuals, data sheets, and additional helpful information are available at **www.gfsignet.com.**

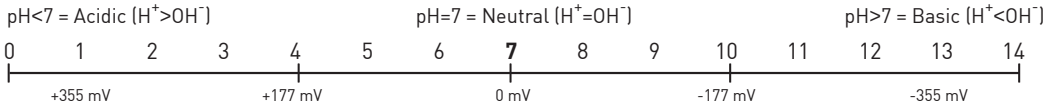
Definition of pH

pH is defined as the negative logarithm of the Hydrogen ion concentration in aqueous solutions. The common pH scale ranges from 0 to 14, with 7 being neutral water (H_2O). At pH 7, Hydrogen ions (H^+) exist in equal concentration to Hydroxyl ions (OH^-). A solution is considered to be acidic if the concentration of H^+ exceeds that of OH^-, and is indicated by pH values below 7. Conversely, a solution is considered to be basic if the concentration of H^+ is less than that of OH^-, and is indicated by pH values above 7.

Common Acids
1M HCl: 0.0 pH
Sulphuric Acid: 0.3 pH
Lemon Juice: 2.0 pH
Vinegar: 3.0 pH
Wine: 3.5 pH
Beer: 4.5 pH
Milk: 6.0 pH

Common Bases
Egg Whites: 7.5 pH
Seawater: 8.0 pH
Sodium Bicarbonate: 8.4 pH
Ammonia: 11.6 pH
Photo Developer: 12.0 pH
0.1M NaOH: 13.0 pH
Lye: 14.0 pH

pH Scale



(Theoretical: 59.16 mV/pH @ 25 °C)

Definition of ORP

ORP is an abbreviation for **O**xidation-**R**eduction **P**otential. Oxidation is a term used to denote the occurrence of a molecule losing an electron. Reduction occurs as a molecule gains an electron. The "potential" is simply an indication of a solution's propensity to contribute or accept electrons. ORP reactions (sometimes referred to as REDOX) always take place simultaneously. There is never oxidation without reduction, and ORP electrodes are used to detect electrons exchanged by molecules as these reactions occur.

Both pH and ORP electrodes produce voltages that depend on the solutions in contact with their sensing ends. Most pH electrodes, including the Signet brand, are designed to produce 0 mV at pH 7, positive mV below pH 7 (associated with the charge of the Hydrogen ion, H^+) and negative mV above pH 7 (associated with the charge of the Hydroxyl ion, OH^-). According to the Nernst Equation, the interval between each pH unit is approximately 59.16 mV at 25 °C. This "raw" output is converted to a pH value by the display instrument.

The ORP scale is typically -1000 mV to +1000 mV, and the electrodes produce these values directly.

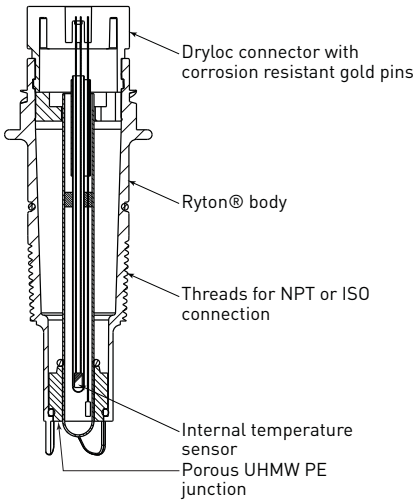
Whereas pH is a specific measure of the Hydrogen ion concentration in solution, ORP only provides relative measures of chemicals and cannot discriminate one from another. Although non-specific, it is a very useful and inexpensive method of monitoring and controlling the activity of such compounds as chlorine, ozone, bromine, cyanide, chromate, and many other chemical reactions.

It is worth noting that Temperature Compensation, very important for accurate pH measurement, is NOT used in ORP measurements. Temperature does indeed affect the reactionary potential of all chemicals, some to a greater extent than others. But even if the affects of temperature could be precisely known in all of the many different REDOX reactions, it would not be desirable to remove them from the measurement. True ORP is the direct measurement of electrons in transit during Oxidation-Reduction reactions, regardless of temperature.

Technical Reference Section: pH/ORP

Principle of Operation

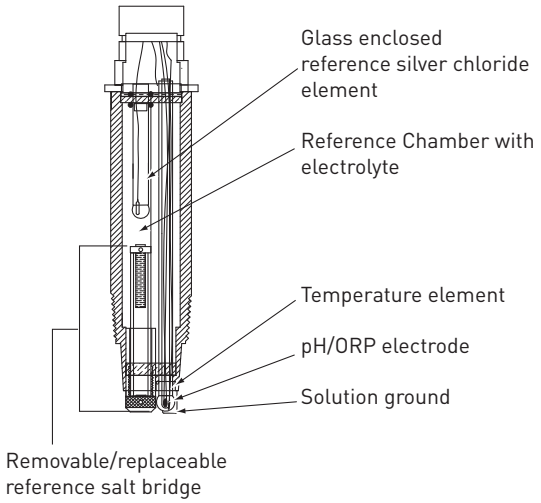
Cutaway of 2724 pH electrode



- **Standard pH/ORP** electrodes are also commonly called combination electrodes; a pH/ORP measuring electrode and a reference measuring electrode are combined in a single body. The pH/ORP sensor measures the amount of hydrogen ions in the liquid. The pH signal is measured against the steady reference signal. Various chemical elements leaching through the porous reference junction can react with the reference electrolyte, dilute the electrolyte solution, or attack the silver chloride element; in either case, it will disturb the steady reference signal. Stray electrical currents will also affect the steady reference signal. A temperature element is also built into the pH combination electrode. Instruments interpret the temperature compensated pH signal into a pH reading at 25 °C (77 °F). ORP values are not temperature dependent; Signet ORP sensors do not have temperature compensation.

Signet offers two different groups of Standard pH/ORP Electrode Models: Models 2724-2726 and 2774-2777

Cutaway of 2766 pH electrode



- **Differential pH/ORP** electrodes function similar to the standard (combination) electrodes, but the reference design is modified and there is a third electrode, the solution ground. The pH and reference electrodes are measured against the solution ground. The solution ground drains stray currents away from the reference element, hence maintaining a steady signal at all times. The reference salt bridge slows or stops various chemical elements from leaching into the reference chamber. Chemicals that leach in may dilute the electrolyte but will not react with the glass-encased reference silver chloride element. The reference electrolyte can be refreshed if it is diluted or depleted. The temperature element is embedded in the pH/ORP electrode for an extremely quick response.

Signet offers one group of Differential pH/ORP Electrodes: Models 2764-2767

Technical Reference Section: pH/ORP

Standard versus Differential pH/ORP Electrodes:

Signet offers what is called combination pH/ORP electrodes; a combination of three or four electrodes built into one common body that measures the pH or ORP of the solutions. These electrodes are the pH/ORP sensing element, temperature sensing element (pH only), the reference, and sometimes a solution ground. An electrical path between the process solution, reference electrode, and the pH/ORP sensing electrode must always be present to complete the measuring circuit. When the circuit is broken or interrupted, the result is a faulty reading. There are only a few things in a chemical process that would affect the glass-sensing element. These include concentrations of HF, constant high temperatures, and particles that can break the glass.

On the other hand, there are many problems that can occur with the reference electrode. The reference silver chloride sensing element (wire) is exposed to the process liquid via the primary porous reference junction, which is in constant contact with the process and allows liquid to pass through to the reference electrolyte. Because of the direct contact with the process liquid, the reference electrolyte and reference silver chloride sensing element can react with chemicals in the process. Many application liquids do not chemically react with the reference and therefore a standard electrode will perform well in this scenario. However, there are other process chemicals that will easily attack the reference and therefore, a differential style electrode should be used. There are three advantages of the differential electrode:

1. If the process chemicals attack the KCl electrolyte, the reference electrolyte chamber is refillable.

2. If the reference junction becomes clogged by chemical reactions between the KCl and the process chemicals, the reference salt bridge is replaceable.

3. If there are stray currents or if there are process chemicals that attack the silver chloride wire in the standard electrodes, it will not attack it in the differential electrode because the wire is encased in a glass electrode.

A general rule of thumb is to use a differential electrode if you have mercury, copper, lead, chlorate, bromine, iodine, cyanide, or sulfide compounds in the process liquid. Differential electrodes may also be useful in processes where oil, grease, and dirt build up on the reference junction because it is easily replaced.

See Model 2764-2767 Differential pH/ORP catalogue pages for more information on standard versus differential electrodes.

Technical Reference Section: pH/ORP

Important Application Tips

- It is important that the sensing end of pH and ORP electrodes remain wet, for they may be permanently damaged if allowed to dehydrate. This is true for both in-line and submersible installation configurations. However, be careful to keep the electrical interconnection between electrode and preamplifier dry and clean at all times. Moisture in this area can also cause permanent damage.
- pH control is best when performed in a tank. This is especially true in neutralisation applications since it is very important for reagents to mix thoroughly with waste fluids, and to be allowed adequate time for the reactions to occur. Limiting adjustments to fewer than 3 pH units per stage, and sizing tanks to provide at least 10 minutes retention time, will increase the probability of producing safe effluents.
- For bulb-style pH and ORP electrodes, significant natural self-cleaning by turbulent eddies is achieved at velocities of 1.5 m/s or more (5 ft/s). Flat surface electrodes get adequate self-cleaning at velocities of 0.3 to 0.6 m/s (1 to 2 ft/s). In all cases, exposure to velocities greater than 3 m/s (10 ft/s) can cause excessive measurement noise and electrode wear and should be avoided.
- The aging of pH and ORP electrodes (i.e., reference depletion and decreased glass sensitivity) results from a series of chemical reactions. And as a general rule, the rates of chemical reactions double with every increase of 10 °C (50 °F). This means shorter life expectancy for all pH and ORP electrodes as application temperatures increase.
- HF acid and strong caustics etch pH glass. High concentrations, especially at high temperatures, destroy electrodes quickly. For applications containing trace quantities of HF (<2%), use the Signet 2726-HF electrode. This electrode has a polymeric constituent in the pH glass that resists attack by HF and extends the service life considerably over "normal" electrodes.
- In applications where process temperatures will drop below 10 °C (50 °F), use the bulb-style electrodes in place of the Flat style electrode. This is a function of the electrical impedance of the glass that increases dramatically as temperature decreases.
- Proper electrode placement within a tank is also very important. Electrodes should be mounted in well-mixed areas, away from reagent and waste introduction. It is usually advisable to position the electrode near the discharge outlet of the tank.
- In-line pH control is not recommended because it is very difficult to determine the amounts of reagent necessary to achieve a desired reaction if both pH and flow are variables. However, in-line pH monitoring is very common and useful.

Technical Reference Section: pH/ORP

Maintenance Tips

- Cleaning pH and ORP electrodes and calibrating the systems should be done regularly. The required frequency is application-dependent, but once/week for cleaning, and twice/month for calibration is recommended.

- Isopropyl alcohol may be used for removing mild grease and oils from the pH sensitive glass or from the metallic tips of ORP electrodes. Use 5% HCl on porous reference junctions clogged with hard water deposits, or other solvents/detergents as necessary. Always consider the electrode's materials of construction when selecting a cleanser.

- The purpose of calibration is to compensate the system for the continual changes occurring within the electrodes. Like batteries, all pH and ORP electrodes eventually deplete and must be replaced. A good time to determine the condition of an electrode is after cleaning and during calibration. Note the mV readings in pH buffers and replace the electrode if its actual mV output differs more than 50 mV from these theoretical values: pH 7 = 0 mV, pH 4 = +177 mV, pH 10 = -177 mV. Replace an ORP electrode if its actual mV output differs more than 50 mV from the theoretical values in the table below:

ORP Values of Standard pH Buffers Saturated with Quinhydrone

	pH4			pH7		
Temperature (°C)	20	**25**	30	20	**25**	30
ORP Value (mV)	268	**264**	258	92	**87**	79

- The typical shelf-life recommendation for Signet pH and ORP electrodes is 12 months at 25 °C (77 °F).
- Refrigeration will extend this period, but do not allow them to freeze! Expansion of internal solutions during freezing can cause permanent damage to the electrodes.
- The risk of putting older electrodes into service is the possible disappointment of shorter than expected service-life. All Signet pH and ORP electrodes are marked with date codes to identify the date of manufacture.

Technical Reference Section: Conductivity/Resistivity

Information in this section addresses frequently asked questions regarding Conductivity (Resistivity) and is provided as REFERENCE ONLY to supplement procedures and recommendations specifically outlined in individual product instruction manuals. All manuals, data sheets, and additional helpful information are available at **www.gfsignet.com**

Definition of Conductivity and Resistivity

Conductivity is a measure of the ability of a material to convey an electric current. The proper term for this ability of a solution is electrolytic conductivity, since only ions conduct electric current in solution. When dissolved in solution, many substances such as salts, acids and bases dissociate into ions. Electrolytic conductivity (or simply conductivity) is therefore an indirect measure of the ionic concentration of a solution. Generally, conductivity increases and decreases with the concentration of ions.

Unlike pH, which is a specific measure of Hydrogen ion concentration, conductivity is a non-selective measurement of all the dissolved ionic species in a solution. As such, it is a highly utilized parameter in water, wastewater and industrial process analyses. For example, conductivity is used to monitor the salt load of waters entering treatment facilities, to monitor and control the quality of drinking water and ultra-pure water, and to otherwise detect contaminants in industrial processes.

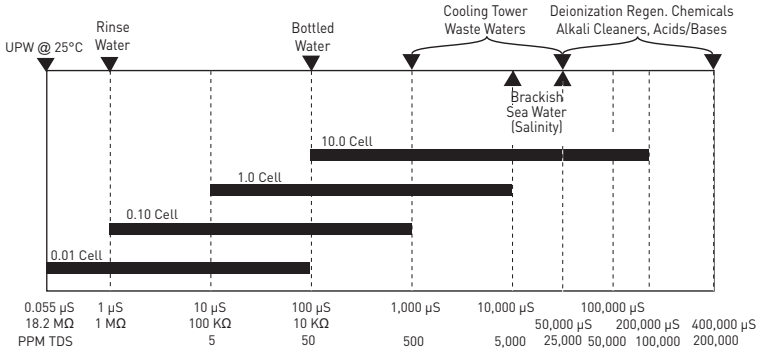
According to the International Standards Organization (ISO) the unit of conductance is the Siemens (S), after Werner von Siemens (1816-1892). However, the following three separate units of measure are commonly used to express conductivity: Siemens/cm (S/cm), mhos/cm, and µS/cm.

For any given measurement Siemens/cm and mhos/cm are exactly equal; they are merely different labels for the same value. The denominator in these units (cm) is sometimes truncated but is always assumed to be present.

Ohm•cm is a unit of resistivity (the inverse of conductivity) and is frequently replaced by "Ω" the symbol for electrical resistance. Units of resistivity are most commonly associated with ultra-pure water measurements in the millions of ohm•cm, or MΩ (megohms).

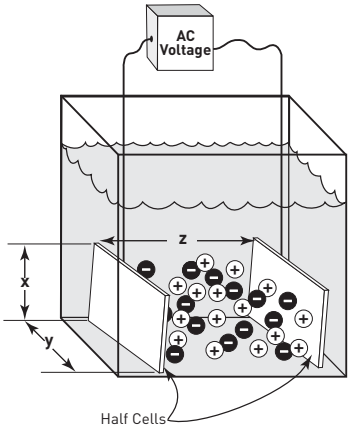
Some users will also find it desirable to express conductivity in terms of parts per million (PPM) or parts per billion (PPB) of total dissolved solids (TDS). Signet instruments accommodate this by allowing the entry of a TDS factor to convert from standard units of conductivity. (See the instruction manual of any current Signet conductivity instrument for details.)

Conductivity is a measurement parameter with a very wide range. For example, ultra-pure water has a theoretical maximum resistivity of approximately 18.2 MΩ, approximately 0.055 µS (microsiemens), whereas concentrated acids and bases can exceed 400,000 µS. Despite the wide-ranging possibilities most applications for conductivity measurement are much narrower. Tap water, for instance, typically measures between 50 and 1,000 µS.



Technical Reference Section: Conductivity/Resistivity

Principle of operation



Most conductivity electrodes consist of two measuring half-cells. The geometry of the half-cells can be tailored to provide highly accurate measurements over a specific conductivity range. Cell constants help to describe electrode geometry for the purpose of selecting the appropriate electrode for a given application. A cell constant is defined as the length between the two half-cells divided by the area of the cells.

* CSA is cross sectional area.

$$\text{Conductivity Cell Constant} = \frac{\text{Length}}{\text{CSA*}} = \frac{z}{xy}$$

As an example, When x = y = z = 1cm the cell constant becomes $\frac{1\text{cm}}{1\text{cm}^2} = 1\text{cm}^{-1}$

Solutions of very low conductivity (high resistivity) such as ultra-pure water are best measured with half-cells that are very close together (i.e., cell constant = 0.01cm^{-1}). Highly conductive solutions should be measured with half-cells that are farther apart and have relatively little cross sectional area between them (i.e., cell constant = 20.0cm^{-1}).

Temperature Compensation

The conductivity of a solution is highly dependent upon temperature. Therefore, conductivity measurements are almost always converted to an equivalent conductivity at the common reference temperature of 25 °C (77 °F). This is accomplished by means of temperature compensation algorithms in the instruments, which require temperature as well as conductivity measurement input. To simplify and facilitate this requirement all Signet conductivity electrodes contain high-quality temperature sensing elements intelligently positioned for quick and accurate response.

Temperature effects on conductivity are more or less linear for normal water-based solutions, hovering around 2% per °C. However, the actual linear relationship varies considerably with the ionic composition of the solution and can range from less than 1% to more than 3% per °C. This is true of regional ground water sources as well as for other solutions such as brackish water, acids and bases. Signet instruments allow the entry of custom linear compensation coefficients for these applications. See the instruction manual of any Signet conductivity instrument for details.

The conductivity or resistivity of pure water is not a linear function with respect to temperature. In fact, the latest Signet conductivity instruments utilize a sophisticated polynomial to compensate for the peculiar effects. For seamless measurement accuracy all current Signet conductivity instruments switch automatically between linear and pure-water compensation as certain measurement thresholds are crossed.

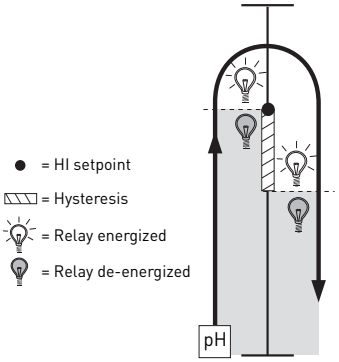
Temperature Compensation Exception

One exception to the requirement for temperature compensation has been established by USP (United States Pharmacopeia), which prescribes limits of acceptability for ultra-pure water quality based upon non-compensated measurements. This methodology is used to eliminate measurement variances that may result from differences in the pure-water temperature compensation algorithms used by different manufacturers of conductivity measurement equipment. A more thorough treatment of the USP standard and instrument functionality can be found in the instruction manuals of the following Signet conductivity instruments: Model 8900 Multi-Channel, Multi-Parameter Controller (Appendix D), model 8860 Dual Channel Conductivity/Resistivity Controller.

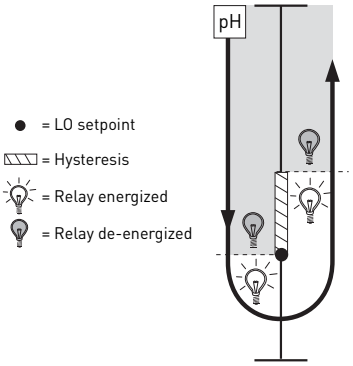
Relay Information

The two most common methods of controlling a process are "on/off" and "proportional" control. In on/off control, relay setpoints are defined as either high or low limits on the process variable. When the measurement value reaches a limit the relay is energised, typically for the purpose of opening a valve or starting a pump to introduce a chemical reagent to the process. This should cause the measurement value to change in the direction of the setpoint as shown in these on/off control diagrams:

High limit on/off relay control



Low limit on/off control



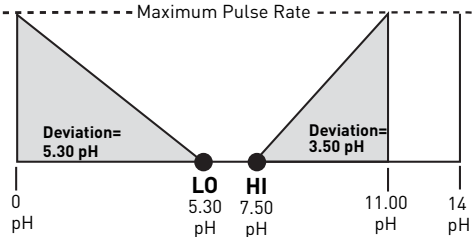
Notice the relay will not de-energise until the setpoint is exceeded by the hysteresis value. This is a programmable value and is primarily used to prevent "relay chatter", which occurs if a relay is set to energise and de-energise at the same value. Because of hysteresis, and because reagent delivery is fairly constant while the relay is energised, a condition known as "overshoot" is inherent to the on/off control method. Overshoot refers to the introduction of more chemical reagent than is absolutely necessary for achieving a desired adjustment to the process value, and can be expensive over time.

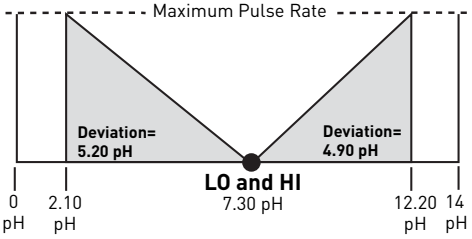
Proportional control is a popular alternative to the on/off control method. This method typically makes use of variable-rate metering pumps to reduce overshoot and improve precision. Establishing a proportional control scenario requires the selection of setpoint(s), deviation range(s) and maximum pulse rates.

The example shown here illustrates how two relays in "pulse mode" can be used to proportionally control pH within a desired range, or to a single setpoint. This is called "Dual Proportional Control". Of course, a single relay in proportional pulse mode can be used to establish a high or low limit and will also reduce overshoot.

Metering pumps are idle at and between setpoints. When a setpoint is exceeded, the pump begins delivering reagent at a rate proportional to the difference between the measurement value and the setpoint. The larger the difference, the faster the delivery. The programmed deviation value defines how quickly the maximum pulse rate is reached. Depending on the input requirements of the metering pump, proportional control can also be accomplished with scaleable 4 to 20 mA outputs instead of pulsing relays or open collectors.

Dual proportional pulse relay control





Open Collector Output

Many Signet instruments and sensors feature "Open Collector Outputs" for purposes of signal transmission, alarming, control signal output, etc. Although such outputs allow for a lot of wiring flexibility, care must be taken not to destroy the circuits via incorrect polarity, over-voltage, transients or current overload. Below is an explanation of proper wiring and dimensioning of related circuit components. Please note that the following recommendations may or may not apply to other manufacturer's equipment.

1. Function

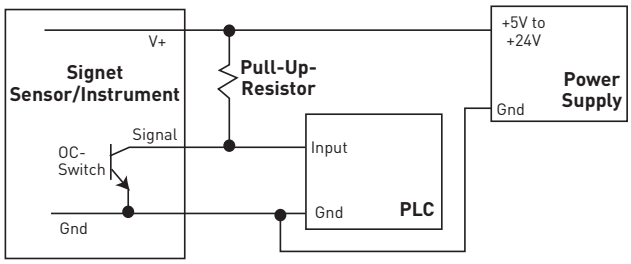
Open Collector ("OC") outputs are low powered, solid state switches. Although the term "Open Collector" stipulates the use of bipolar transistors (NPN-type or PNP-type) as a switch, nowadays Field Effect Transistors (FET or MOSFET) are used. Unlike electromechanical switches (e.g. pushbuttons or dry contact relays) these OC switches are very fast, use little power, are inexpensive, do not bounce and do not wear. However, OC's are also more limited in terms of voltage and current rating as well as being polarized (i.e. they have a "plus" and "minus" terminal and thus DC only switching capability). They are less tolerant to overload abuse than electromechanical devices. Usually these switches have higher resistance and voltage drop.

2. Sensor Wiring

A typical example of the need for high speed switching capability is the OC frequency output of Signet flow sensors like 3-2536 or 3-2540. Signal frequencies can reach several hundred pulses per second while voltage and current requirements are small enough, allowing the use of a transistor switch. For each output pulse this switch connects the signal output to the negative supply or ground terminal of the sensor and is therefore an "NPN" style output. Signet does not produce sensors with PNP style outputs (which connect the signal output internally to the positive supply terminal).

Most indicating instruments or control system inputs require a signal voltage of 0 to 5 V (TTL or CMOS logic levels) or 0 to 24 V. Therefore, Open Collector output circuits must be complemented with a "Pull-Up-Resistor" to function properly. Please see the following example diagram for wiring with a PLC input:

Do not exceed the absolute maximum voltage rating of the OC output as listed in the sensor specifications, normally 27 or 30 Volt, DC only. This includes changes to power line fluctuations, transients or power supply instability, otherwise damage to the OC will occur.



Please note that the voltage connected to the positive sensor supply (V+) must correspond to the required high-level PLC input voltage (i.e. if the high-input voltage of the PLC is 24 V, then the pull-up must be supplied with 24 V). If the input is "TTL-Level" or "CMOS-Level", that means 5 V for high level, then the pull-up should not be connected with a supply higher than 5 V.

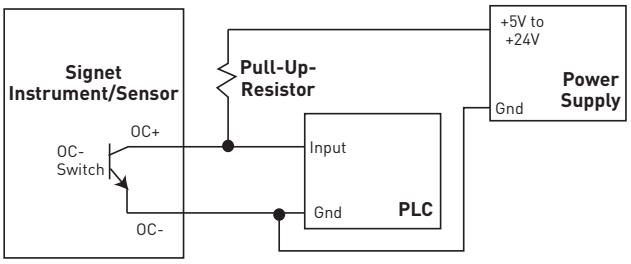
Signet instruments already have the pull-up-resistor and the sensor power supply built into the instrument. No external pull-up-resistors are required.

Open Collector Output (continued)

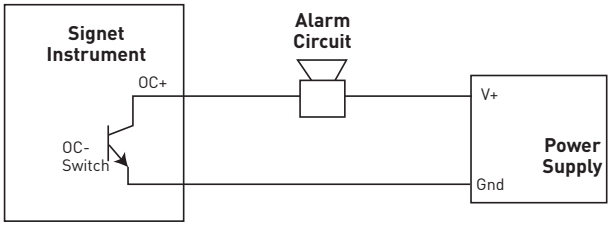
3. Instrument Output Wiring

Open collector control and alarm outputs on Signet instruments (i.e. ProcessPro® or ProPoint® series) are electrically isolated from the instrument's power supply. That means these can be used in the above mentioned NPN configuration as well as in PNP configuration, if required. Below are a few sample circuits:

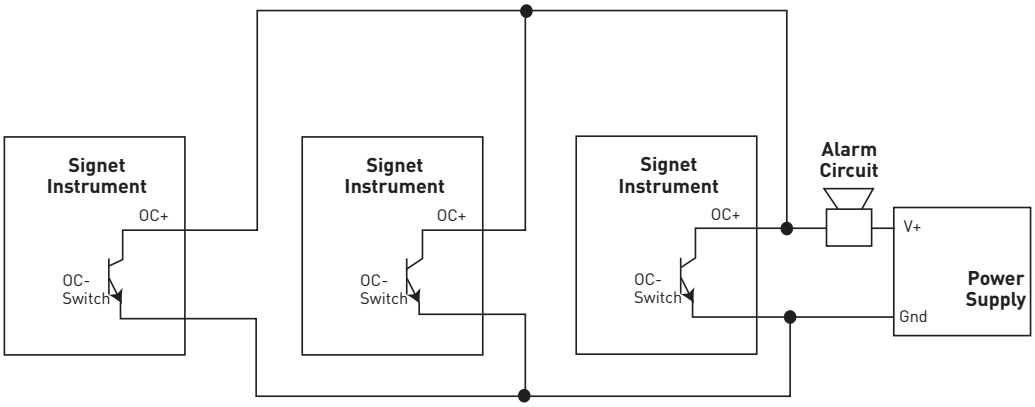
- PLC Wiring "NPN" style



- Alarm circuit or alarm lamp wiring to a single Signet instrument



- Alarm circuit or alarm lamp wiring to serve multiple Signet instruments
  - Triggers the alarm if any one of the instruments open collector outputs are on.



Open Collector Output (continued)

4. Voltage and Current Limitation

As mentioned before, the supply voltage in the OC output circuit MUST be limited to the specified maximum OC voltage (see operating manual for specific instrument). The use of a quality regulated 5 V, 12 V or 24 V (depending on the application) power supply is recommended.

The current through the Open Collector switch must be limited. Typical OC outputs allow only for 10 to 50 mA switch current (please consult manual). Exceeding this current limit can burn out the OC output components immediately. Please see the following section on how to dimension the loads.

5. Load and Pull-Up/Down Resistor Considerations

By utilizing basic arithmetic and Ohm's law, one can determine the safe limits of load resistance. When the OC switch is closed, almost the entire supply voltage is applied to the load, (i.e. the pull-up or pull-down resistor, the alarm horn input, a potential power relay coil or annunciator lamp). The resulting current through the load and through the OC switch, as well, can be calculated as:

(Current) = (Supply Voltage)/(Load Resistance)

- Example 1:
  The supply voltage is 24 V and a pull-up-resistor of 10 kΩ is used. Current is 24/10,000 = 2.4 mA

  (If the OC current rating is 10 mA, then in this example, it would be considered safe.)

- Example 2:
  The supply voltage is 12 V and a horn with a resistance of 100 Ω is used Current is 12/100 = 120 mA

  (Even if the OC current rating is 50 mA, this load will damage the instrument)

6. Transient Protection

There are several "difficult" load cases that must be considered:

- Inductive loads:
  These can be power relay or other solenoids, motors, alarm horn coils, etc. Such loads generate very high voltage spikes every time the load switches. If such a load is unavoidable, the use of transient suppression components, or Signet RC-filters (3-8050.396), or snubbers, wired parallel to the load is required. This is critical, as a single transient pulse may destroy the output.

- Capacitive loads:
  This type of load should be rare but can occur if the load contains an internal power supply/regulator that is fed from the output circuit. In such a case, it must be assured that the in-rush current does not exceed the OC current rating.

- Incandescent lamps:
  Such lamps have a very high start-up current until the filament glows and the current settles to the specified value. The use of incandescent lamps on an OC output is not recommended. An LED type annunciator should be used instead.

Open Collector Output (continued)

7. "Active High" and "Active Low" Setting

Depending on the desired function of the circuit attached to the OC output, it may be necessary to have the OC output switch turned "on" or "off" when the criteria for the activation of this output are met.

By default, Signet instruments are set to operate in "active low" mode. This means when the user-defined condition for the activation is met (e.g. exceeding of an alarm limit) the OC switch is turned "on". If wired as standard "NPN-style" output (see previous page) the logic level of the attached control system or PLC input consequently becomes "low" logic level.

If a high input logic level is required for activation, it can be accomplished by changing the OC output function to "active high" in the menu system of the instrument. Most Signet instruments allow for this option.

8. Fail-Safe Behaviour

No matter what the setting, most OC outputs of Signet instruments turn off when the instrument loses power. This must be taken into account when evaluating system failure consequences. If the system layout requires a "closed" or "on" condition for the output in case of power loss, a mechanical dry contact relay (NC contacts) must be used instead of the OC output.

Open Collector Output (continued)

Control Outputs
Many Signet products offer control outputs that can be categorised into three categories: Mechanical Relay, Solid-State Relay and Open Collector. Each control output offers benefits and limitations based on the application requirements. See below for comparisons.

Open Collector
Benefits:
- Longer life than a Mechanical Relay
- No moving parts
- Can switch DC voltage only (typically < 30 VDC)
- Faster ON/OFF switching capabilities than Mechanical Relays

Considerations:
- Can only be used with DC voltage
- Polarity very important when wiring
- Not recommended for use with inductive loads
- Lower voltage and current ratings than Mechanical Relays
- Typically should not apply current > 25 mA

Solid-State Relays
Benefits:
- Has isolated outputs (optically)
- Can switch DC voltage (typically > 30 VDC)
- Can switch AC voltage (typically > 42 VAC) 50 mA DC / 50 mA AC
- Longer life than a Mechanical Relay
- No moving parts
- Faster ON/OFF switching capabilities (Equal rise/fall times)

Considerations:
- Not recommended for use with:
- Inductive loads (ex. Solenoid, Pumps)
- If using inductive loads, snubbers (RC Filter) can prevent IC damage
- Lower voltage and current ratings than Mechanical Relays

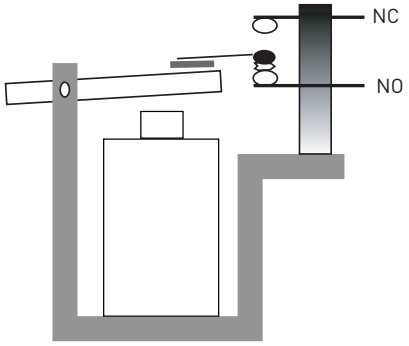
Mechanical Relays
Benefits:
- Can switch line voltage (typically > 120 to 240 VAC)
- Can switch DC voltage (typically > 30 VDC @ 5A)
- Has a large current rating (typically 5 A)
- Larger voltage and current ratings than Solid-State Relay and Open Collector Outputs

Considerations:
- Slower ON/OFF switching capabilities than Solid-State Relay and Open Collector Outputs
- Mechanical contacts can burn/wear over time
- Snubbers (RC Filter), Signet 3-8050.396, can prolong contact life

RC Filter

RC Filter kits are recommended when using a Signet transmitter or controller with mechanical relays, and/or the external relay module 3-8059 to switch on and off inductive loads. Signet RC filter kits provide protection and extend the life of the relay by preventing premature wearing of the relay contacts, usually caused by voltage/current arching and line noises generated by the activation and deactivation of mechanical relays.

RC filter kit (3-8050.396) comes with two RC filter assemblies.



During the activation and deactivation of a relay, a spark can be generated on the surface of the relay contacts. This spark, over a period of time, melts the surface of the contacts which will prevent the contacts from making a physical connection

Figure A is suitable for AC and DC applications.

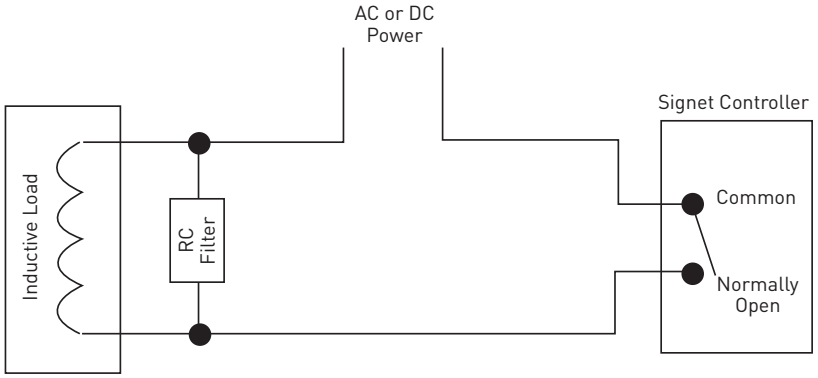


Fig. A

Figure B is also suitable for AC and DC applications. However, if this configuration is used with an AC power source, verify that the impedance of the load is less than the impedance of the RC filter; current leak through the filter may occur and cause the device to be constantly on.

- R = 47 Ω
- C = 0.01 µF

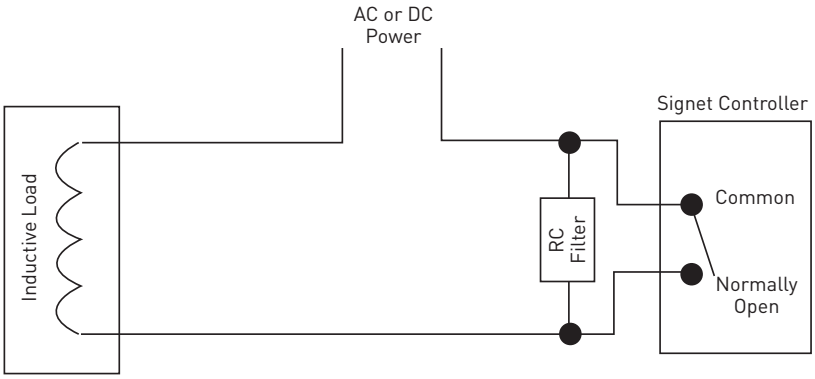


Fig. B

Conversion Factors

Volume						
To Convert	**Into**	**Multiply by**		**To Convert**	**Into**	**Multiply by**
Gallons (U.S.)	fl. oz. (U.S.)	128		Liters	fl. oz. (U.S.)	33.81
Gallons (U.S.)	cubic in. (in3)	231		Liters	cubic in. (in3)	61.02
Gallons (U.S.)	cubic ft. (ft3)	0.1336		Liters	cubic ft. (ft3)	0.0353
Gallons (U.S.)	litres	3.785		Liters	Gallons (U.S.)	3785.41
Gallons (U.S.)	cubic meter (m3)	0.00379		Cubic meter (m3)	cubic ft. (ft3)	35.31
Gallons (U.S.)	pounds	8.33		Cubic meter (m3)	Gallon (UK)	219.97
Gallons (U.S.)	cubic centimeter (cm3 or cc)	3785.41		Cubic meter (m3)	Gallons (U.S.)	264.17
Gallons (U.S.)	Gallon (UK)	0.833		1 Acre foot	Gallons (U.S.)	325,853
Gallons (U.S.)	millilitre (mL)	3785.41		Cubic ft. (ft3)	Gallon (UK)	6.23
Cubic ft. (ft3)	litres	28.32		Cubic ft. (ft3)	Gallons (U.S.)	7.48
Cubic ft. (ft3)	cubic meter (m3)	0.028317				
Pressure						
To Convert	**Into**	**Multiply by**		**To Convert**	**Into**	**Multiply by**
psi	bar	0.069		bar	psi	14.5
psi	kPa	6.89		bar	kPa	100
psi	atmosphere	0.068		bar	atmosphere	0.987
psi	mm of Hg	51.71		bar	mm of Hg	750.06
atmosphere	bar	1.013		kPa	bar	0.01
atmosphere	psi	14.696		kPa	psi	0.145
atmosphere	kPa	101.325		kPa	atmosphere	0.00987
atmosphere	mm of Hg	760		kPa	mm of Hg	7.5
Temperature						
To Convert	**Into**	**Multiply by**		**To Convert**	**Into**	**Multiply by**
Deg F	Deg C	(F-32)*0.5555		Deg C	Deg F	C*1 .8+32
Length						
To Convert	**Into**	**Multiply by**		**To Convert**	**Into**	**Multiply by**
inch	metre (m)	0.0254		foot	centimetre (cm)	30.48
inch	millimetre (mm)	25.4		cm	foot (ft.)	0.0328
inch	centimetre (cm)	2.54		cm	inch (in.)	0.3938
foot	Metre (m)	0.3048		m	foot (ft.)	3.28
foot	millimetre (mm)	304.8		m	inch (in.)	39.37
Flow rate						
To Convert	**Into**	**Multiply by**		**To Convert**	**Into**	**Multiply by**
gallon (US)/min	m3/h	0.227		m3/h	l/s	0.2778
gallon (US)/min	l/s	0.063		m3/h	ft3/min	0.589
gallon (US)/min	ft3/min	0.134		m3/h	gallon (US)/min	4.4
ft3/min	m3/h	1.699		l/s	m3/h	3.6
ft3/min	l/s	0.472		l/s	ft3/min	2.12
ft3/min	gallon (US)/min	7.48		l/s	gallon (US)/min	15.85
Weight						
To Convert	**Into**	**Multiply by**		**To Convert**	**Into**	**Multiply by**
ounce(Av.)	grams (g)	28.35		grams (g)	ounce(Av.)	0.035274
pound(Av.)	grams (g)	453.59		grams (g)	pound(Av.)	0.0022046
pound(Av.)	ounce(Av.)	16				
Area						
To Convert	**Into**	**Multiply by**		**To Convert**	**Into**	**Multiply by**
Acre	Hectare	0.4047		square meter (m2)	Hectare	0.0001
Acre	square ft. (ft2)	43559.66		square meter (m2)	square ft. (ft2)	10.764
Acre	square meter (m2)	4046.82		square centimeter (cm2)	square ft. (ft2)	0.00108
Acre	square kilometer (km2)	0.004047		square inch (in2)	square centimeter (cm2)	0.155

Equations:
Flow:

- To convert fluid velocity into a volumetric flow rate.
  GPM = (ID^2 x Feet/sec)/0.4084967 **(To calculate GPM enter ID in inches.)**
  LPM = 0.0471189 x ID^2 x m/s **(To calculate LPM enter ID in millimetres.)**
- To convert volumetric flow rate into fluid velocity.
  Feet/sec = (GPM x 0.4084967)/ID^2 **(To calculate Feet/sec enter ID in inches.)**
  m/s = (LPM x 21 .22291)/ID^2 **(To calculate m/s enter ID in millimetres.)**

Conductivity: Conductivity = 1/Resistivity
1/Ohm = 1 Siemen = 1 mho
Measured conductivity = [(solution conductivity) x (electrode sectional area)]/electrode separation
Measured conductivity = Siemen/cm

Nominal Pipe Sizes
Below are the NPS (Nominal Pipe Sizes) inch names and their metric equivalents called DN or "diameter nominal". The metric designations conform to International Standards Organization (ISO).

Metric DN (mm)	NPS (inch)
6	1/8
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	1.25
40	1.5
50	2
65	2.5
80	3
100	4
125	5
150	6
200	8
250	10
300	12
350	14
400	16
450	18
500	20
550	22
600	24
650	26
700	28
750	30
800	32
900	36
1000	40
1100	42
1200	48
1400	54
1500	60
1600	64
1800	72
2000	80
2200	88

Choosing the Correct pH/ORP Electrode

Choosing the right Signet pH/ORP electrode is important and unique for each application.

- The 2724Electrode Series is used for all general purpose, mild applications.
- The 2774 Electrode Series is used for more aggressive applications with ions such as mercury, copper, lead and perchlorate.
- The 2764 Electrode Series is a rebuildable sensor and is used for more aggressive applications with ions such as mercury, copper, lead and perchlorate, bromides, iodides, cyanides, and sulfides.

Refer to the application matrix on the left for assistance in your selection.

Application	2724-2726 DryLoc® Electrodes	2774-2777 Electrodes	2764-2767 Differential Electrodes
Aquatic Animal Life Support Systems	✔	⊘	⊘
Boiler Make-Up Water (20 µS)	✔	⊘	⊘
Brackish Water Influent	✔	⊘	?
Chemical Injection Mixing Tank	✔	⊘	?
Chemical Processing	✔	?	?
Chlorine Dioxide Control Effluent	✔	⊘	?
Chrome Reduction	⊘	✔	?
Circuit Board Etching	⊘	✔	?
Circuit Board Film Processing	⊘	✔	?
Coagulation and Flocculation	✔	⊘	?
Commercial Aquariums	✔	⊘	?
Commercial Swimming Pools	✔	⊘	⊘
Cooling Towers	✔	⊘	⊘
Cyanide Destruction	⊘	⊘	✔
Dechlorination Monitoring	✔	⊘	⊘
Desalination Plants-effluent	✔	⊘	⊘
Desalination Plants-influent	✔	⊘	⊘
Dialysis	✔	⊘	⊘
Drinking Water Quality	✔	⊘	⊘
Effluent Monitoring (discharge to local water sources)	✔	⊘	⊘
Fish Farming	✔	⊘	?
Food and Beverage Manufacturing	✔	⊘	?
Fruit and Vegetable Rinsing	✔	?	?
Greenhouses	✔	⊘	⊘
Heavy Metal Recovery	⊘	✔	?
Influent Monitoring (to neutralisation processes)	✔	⊘	?
Neutralisation Systems	✔	?	?
Ozone Injection Effluent	✔	⊘	⊘
Plating Baths	✔	?	?
Process Control (verify chemical compatibility)	✔	⊘	?
Pulp and Paper	⊘	⊘	✔
Reverse Osmosis	✔	⊘	⊘
Rinse Water	✔	⊘	?
Scrubbers	✔	⊘	?
Sulphur Recovery	✔	⊘	?
Surface Finishing	⊘	✔	?
Textile Dye Process	⊘	✔	?
Toxics Destruction	⊘	✔	?
Wastewater Neutralisation Tanks	✔	⊘	?
Wastewater Treatment	✔	⊘	?
Water Parks	✔	⊘	?
Water Treatment (boilers, cooling towers, pH neutralisation, make-up water)	✔	⊘	⊘
Wholesale Nurseries	✔	⊘	⊘
Zoo Exhibit Water Treatment	✔	⊘	?

Refer to following guide to choose the right sensor for your application temperature range.

	Application Temperature Range														
	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C	80°C	85C	90°C	95°C	100°C	110°C
	14°F	32°F	50°F	68°F	86°F	104°F	122°F	140°F	158°F	176°F	185°F	194°F	203°F	212°F	230°F
2724 Series Sensors															
2724															
2725															
2726															
2726-LC															
2726-HF															
2774 Series Sensors															
2774															
2775															
2776															
2777															
2774-HT*															
2776-HT*															
2764 Series Sensors															
2764															
2765															
2766															
2767															
2756/2757 WetTap Sensors															
2756-WT															
2756-WTP															
2757-WT															
2757-WTP															
*Special order only															

Legend

✔	Best choice for this application
⊘	DO NOT use this electrode; it is not required or it is an incorrect choice
?	In certain applications, this is a good alternative to the "best choice" option

Application Assistance Form:

Please provide as much detail as possible for prompt assistance. Fax the completed form to Technical Support at your local GF sales office.

Date:			
Company:			
Contact:			
Address:			
City:	State/Country:		Zip/Postal Code:
Country:			
Phone:	Ext:	Fax:	Email:
Name of project:			
GF Distributor:	Contact:		Tel:

Description of application (use separate sheet if necessary):

Piping system: (if flow sensor, on separate sheet sketch piping system - see Installation section for upstream and downstream requirements)

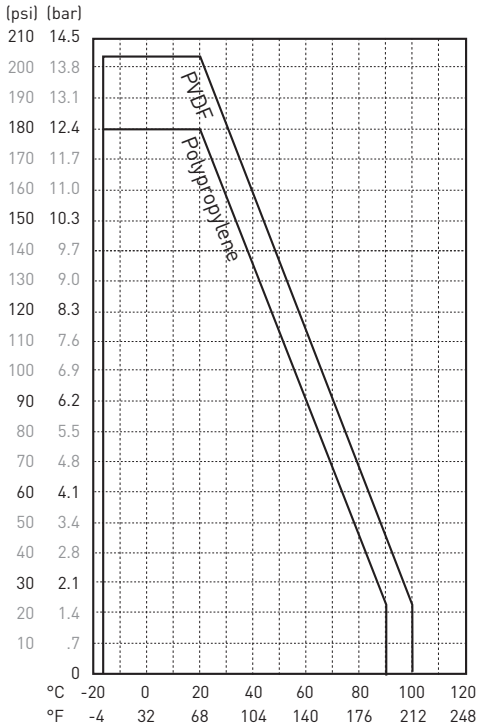
Piping material:	Size:	Schedule:	Angle: Vertical ☐	or Horizontal ☐
Fluid temp. range, min:		max:	nominal:	Control range:
Line press. range, min:		max:	nominal:	Control range:
Process pH range, min:		max:	nominal:	Control range:
Cond/ Resist range, min:		max:	nominal:	Control range:
Turbidity range, min:		max:	nominal:	Control range:
Sensor mounted: Indoor ☐ or Outdoor ☐			Indicator mounted:	Indoor ☐ or Outdoor ☐
Sensor mounted: In-line ☐ or Submersible ☐				
If submersible, tank size and shape:				

Fluid to be measured:		Chemistry:	
Fluid viscosity:		Specific gravity:	
Percent solids:	Description:		Size of solids:
Flow rate, min:	max:		nominal:
Back pressure after sensor:	psig/bar		
Required accuracy:	Unit of measurement:		
Cable run from sensor to indicator:	ft./m		
Available power:	Amperage:		
Required outputs & Qty:			

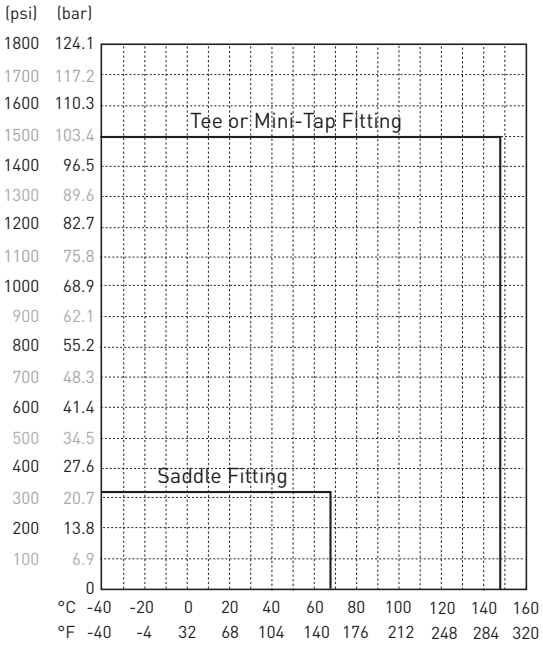
Operating Temperature/Pressure Graphs: Flow Sensors

Note:
The pressure/ temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.

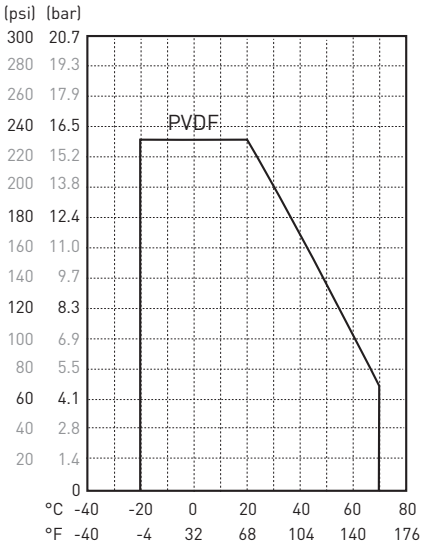
Model 515



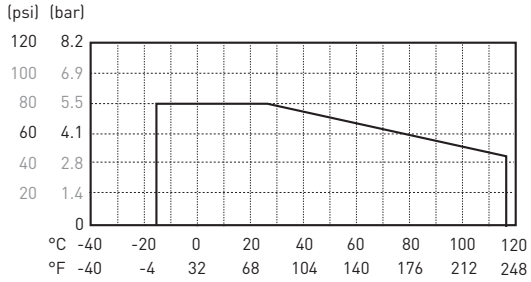
Model 525



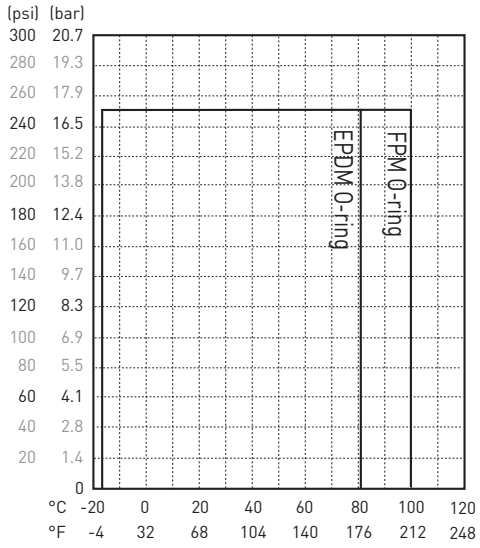
Model 2100



Model 2507



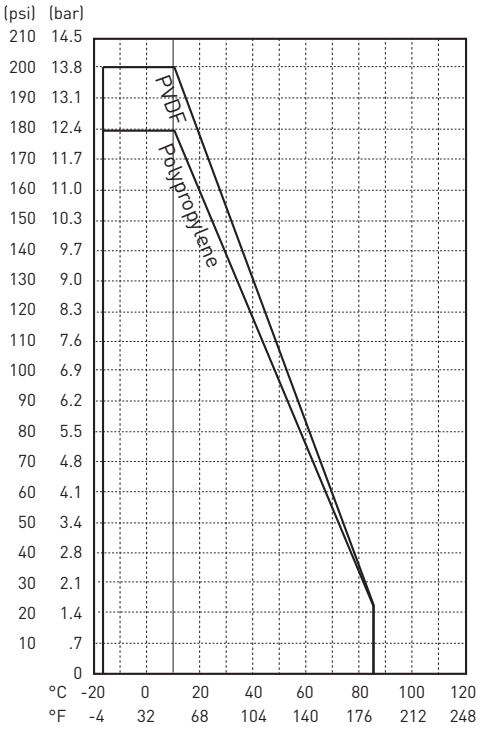
Models 2540



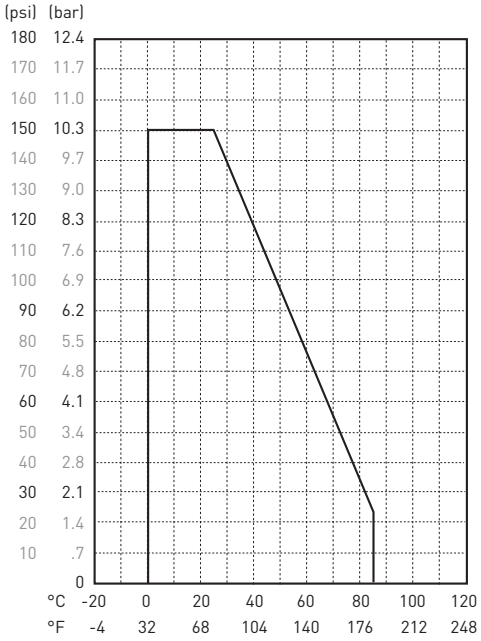
Operating Temperature/Pressure Graphs: Flow Sensors

Note:
The pressure/ temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.

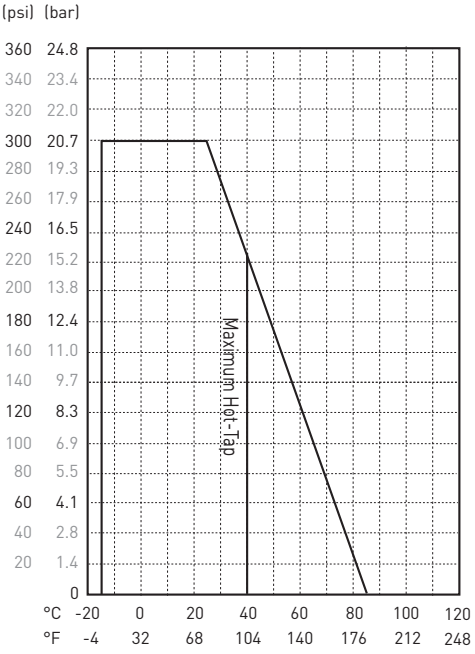
Models 2536 & 2537



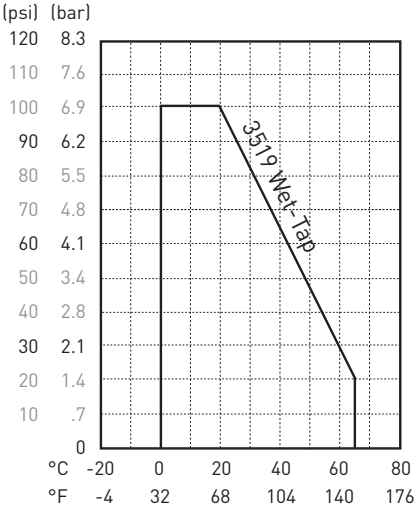
Model 2551



Model 2552



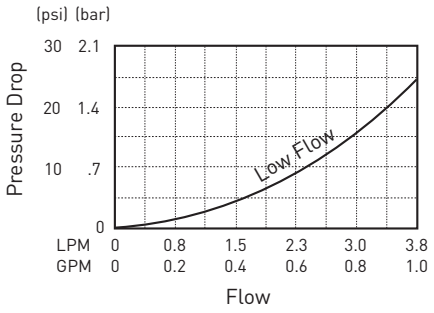
Model 3519



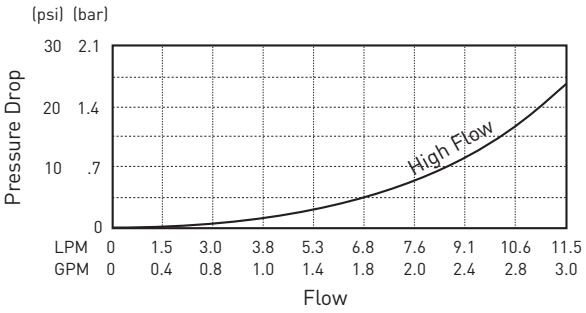
Pressure Drop Graphs: Flow Sensors

Note:
The pressure/ temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.

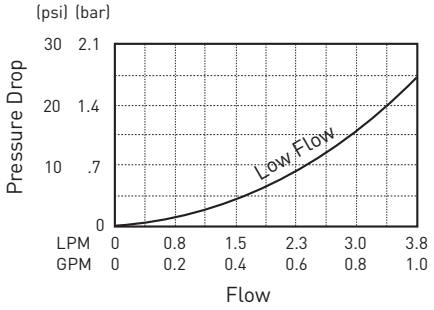
Model 2000 - Low Flow



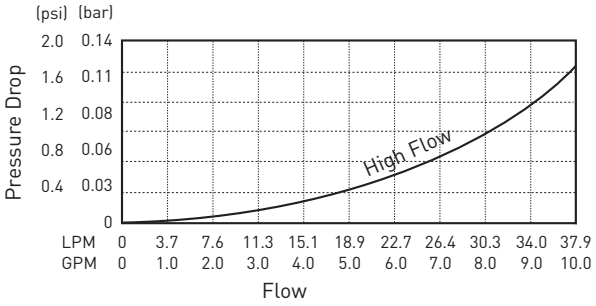
Model 2000 - High Flow



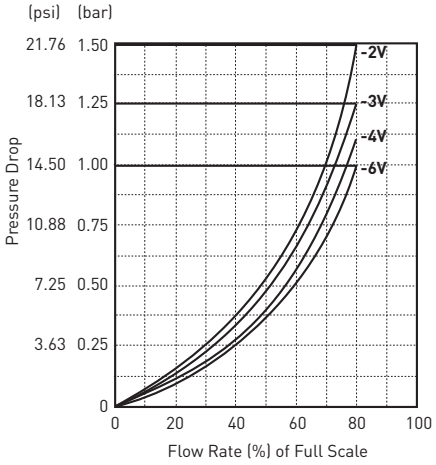
Model 2100 - Low Flow



Model 2100 - High Flow



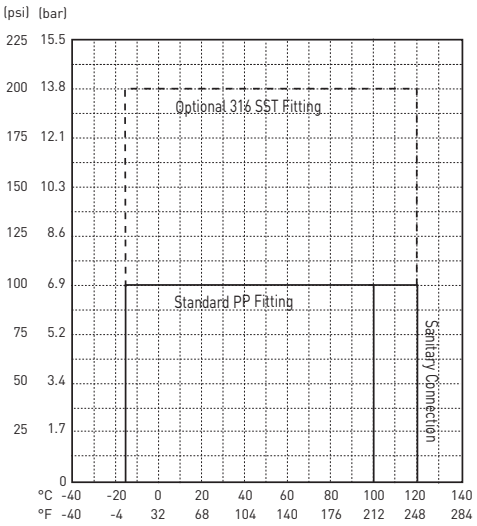
Model 2507 - High Flow



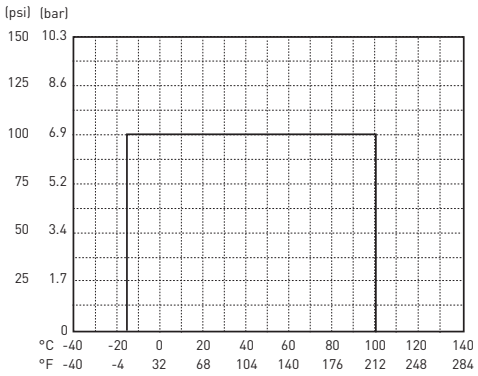
Operating Temperature/Pressure Graphs: Conductivity Electrodes

Note:
The pressure/ temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.

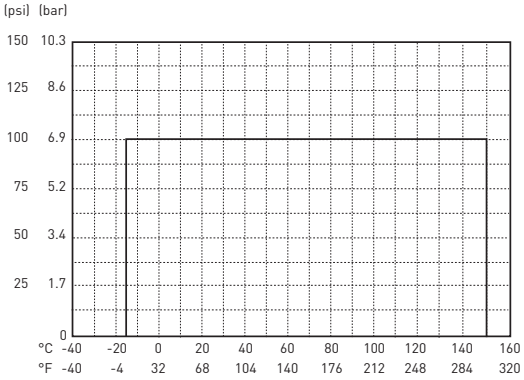
Models 2819, 2820, 2821



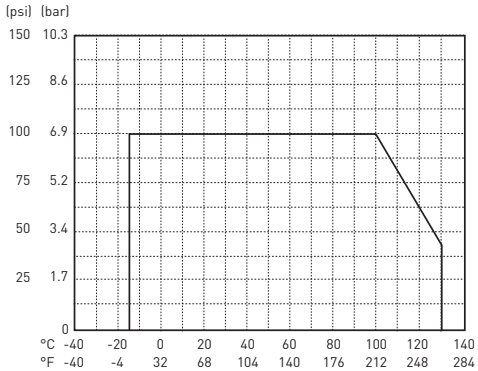
Model 2822



Model 2823



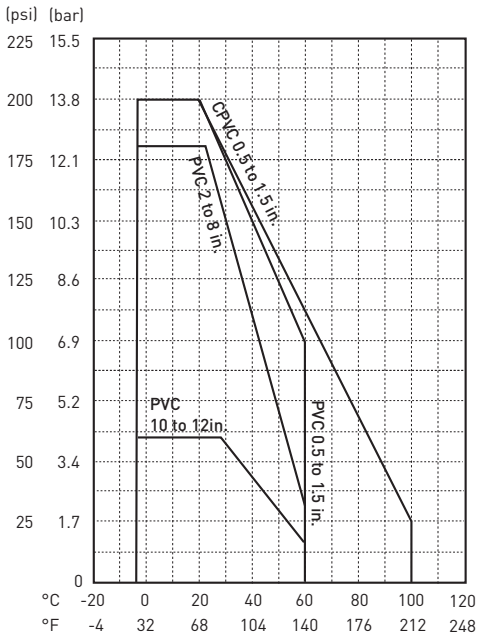
Models 2839-2842



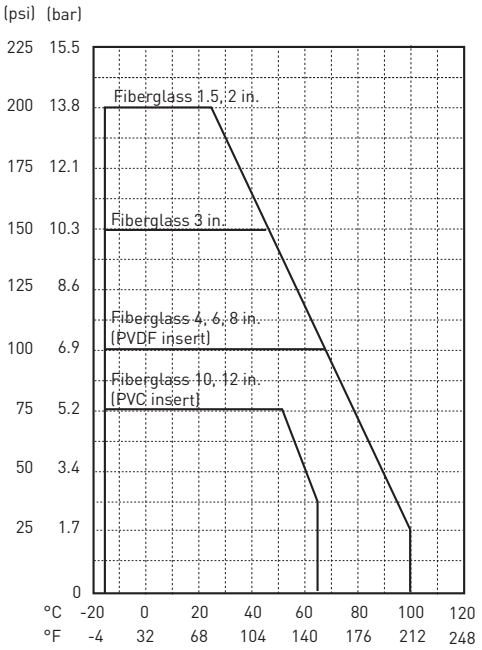
Operating Temperature/Pressure Graphs: Flow Sensor and pH Electrode Fittings

Note:
The pressure/ temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.

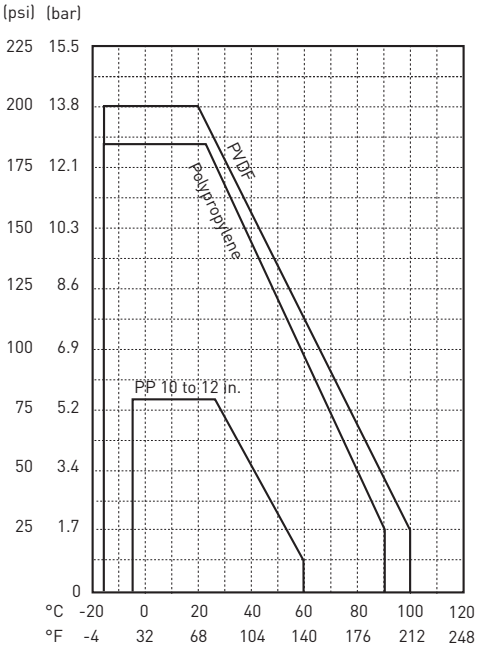
PVC and CPVC Tees and Saddles



Fibreglass Tees and Saddles



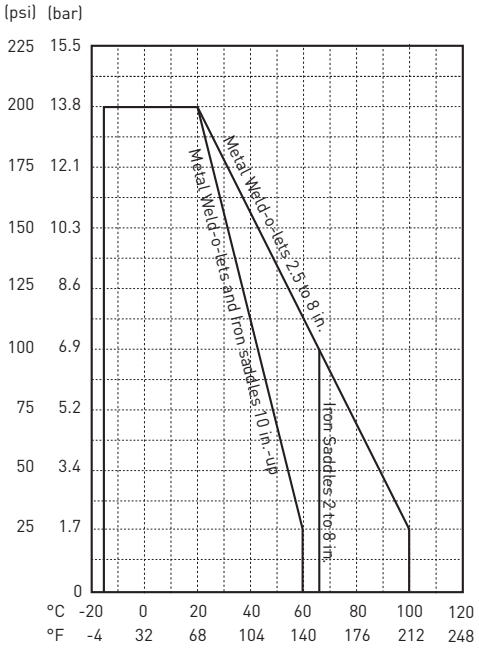
PP and PVDF Tees and Saddles



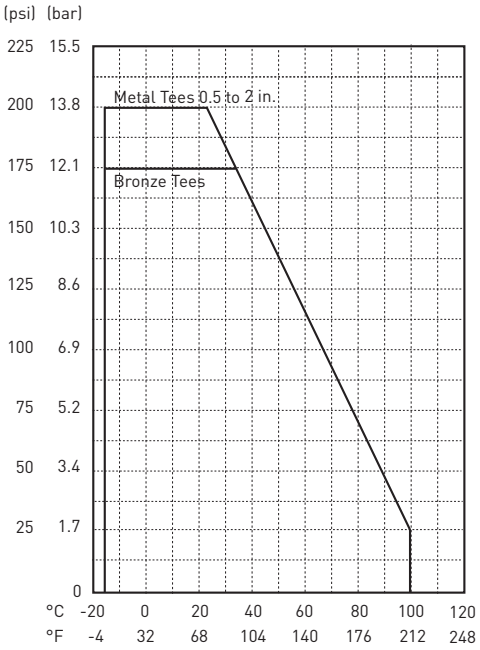
Operating Temperature/Pressure Graphs: Flow Sensor and pH Electrode Fittings

Note:
The pressure/ temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.

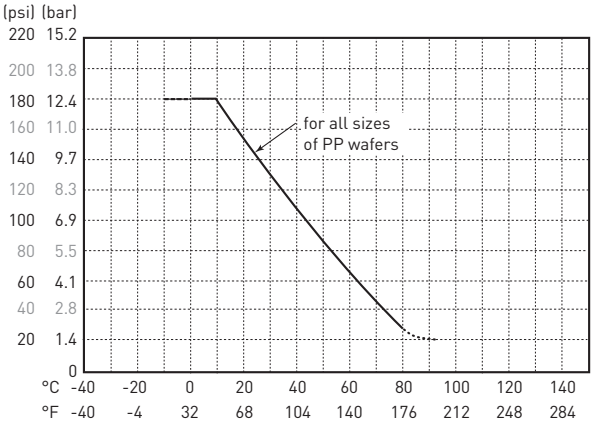
Metal Weldolets and Saddle Fittings



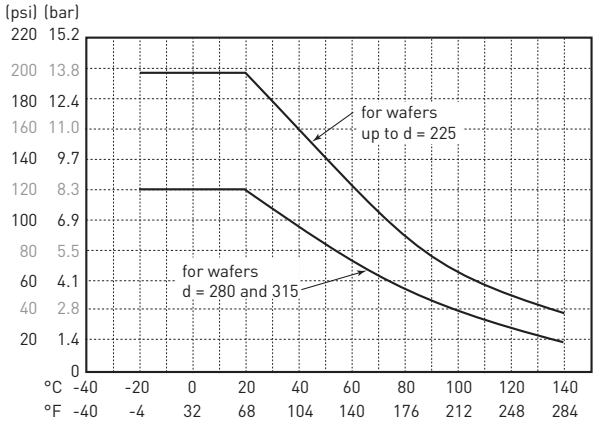
Metal Tees



PP Wafer Fittings



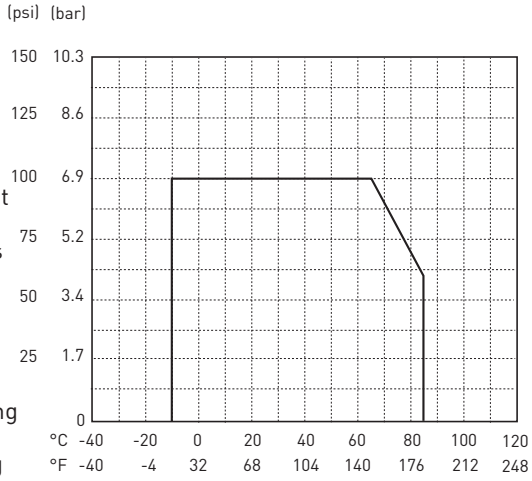
PVDF Wafer Fittings



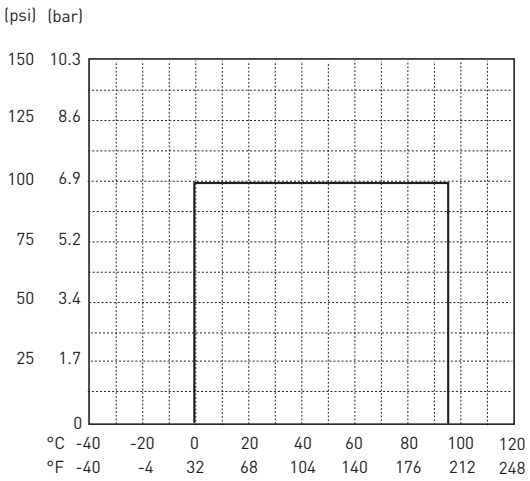
Operating Temperature/Pressure Graphs: pH/ORP Electrodes

Note:
The pressure/ temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.

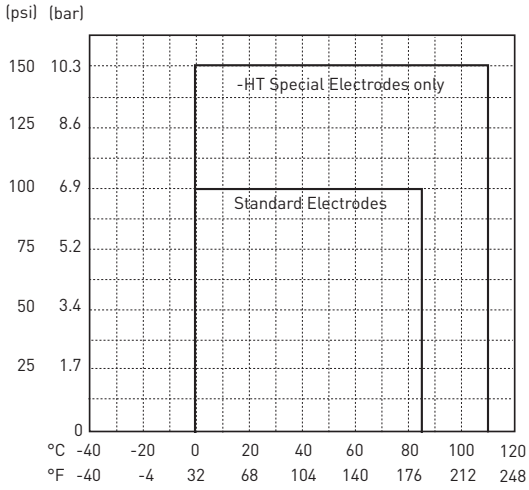
Models 2724-2726



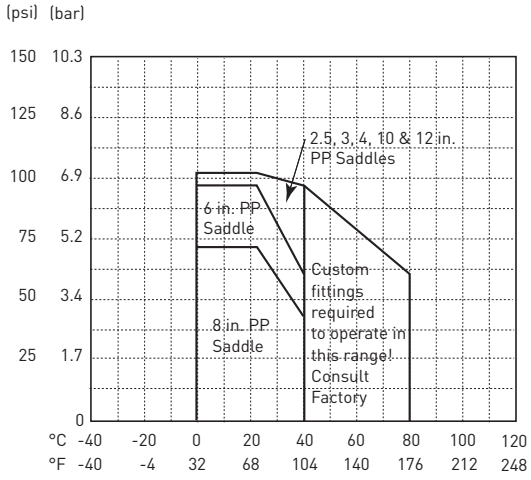
Models 2764-2767



Models 2774-2777



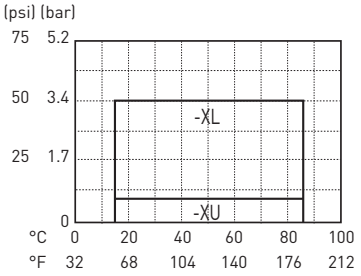
Model 3719



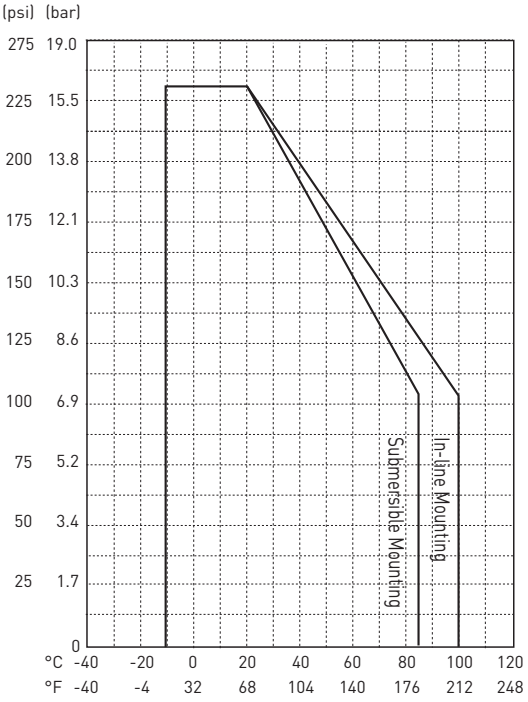
Operating Temperature/Pressure Graphs: Temperature/Pressure Sensors

Note:
The pressure/ temperature graphs are specifically for the Signet sensor. During system design the specifications of all components must be considered. In the case of a metal piping system, a plastic sensor will reduce the system specification. When using a PVDF sensor in a PVC piping system, the fitting will reduce the system specification.

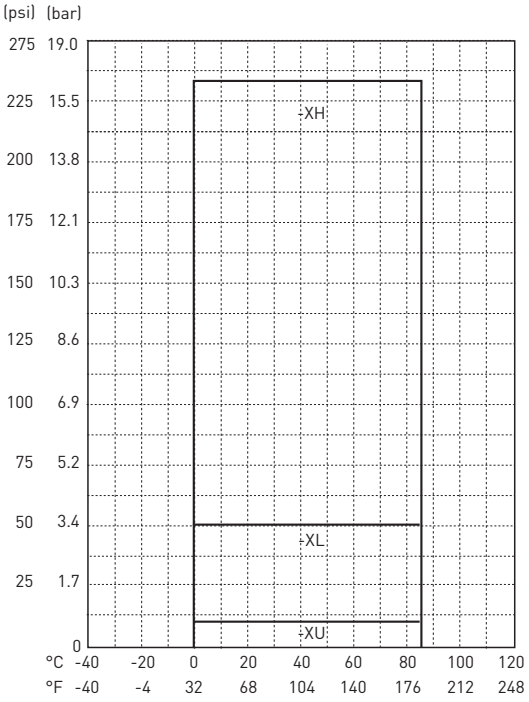
Model 2250



Model 2350



Model 2450



Glossary

4 to 20 mA: A standard analogue signal used for the proportional representation of a measurement variable or process condition.

Absorb: To take up or receive by chemical or molecular action.

AC (Alternating Current): An electric current in which the flow reverses periodically. Compare direct current (DC).

Accumulator: See Totaliser

Accuracy: The ability of a measurement to match the actual value of the quantity being measured.

Acid: A corrosive liquid (usually in a solution) that dissolves metals and other materials. Technically, acidic material produces positive ions in solution. An acid is the opposite of a base and has a pH between 0 to 7. A given amount of an acid added to the same amount of a base neutralizes the base, producing water and a salt. Common vinegar, for example, is a weak solution of acetic acid.

Active Outputs: Current outputs that require no external power source to operate.

Adsorption: The clinging of molecules to the surface of particles; the process by which activated carbon removes contaminants from water.

Alkali: A bitter, caustic mineral often found in large beds in the desert. Alkalis are bases; two common examples are lye and ammonia.

Analogue (also analog): A type of signal in which data is represented by continuously variable, measurable, physical quantities, such as current or voltage. 4 to 20 mA is a common analogue signal, as opposed to Digital.

Base: A bitter, caustic liquid. Technically, a basic material produces negative ions in solution. A base is the opposite of an acid and has a pH of 7 to 14. A given amount of a base added to the same amount of an acid neutralizes the acid; water and a salt are produced. Alkalis are bases; ammonia is a common base.

Batch Control: The process of dispensing a precise volume of fluid repetitively or in conjunction with another process.

BCF: Bead and Crevice Free; a welding technique for plastic pipes that yields a weld surface suitable for high purity application requirements.

Bi-Directional Flow: (1) All Signet flow sensors with a frequency output are bi-directional; the sensor will always have an output of "positive" flow no matter which direction the fluid is flowing in the pipe. (2) Flow sensors with 4 to 20mA output can be set for uni- or bi-directional flow. Uni-directional flow indicates one direction of flow only, typically set as 4 mA equal to zero flow and 20 mA equal to the maximum flow rate required. Bi-directional flow indicates flow in both forward and reverse directions. Bi-directional flow can be set-up by making the 4 mA output equal to a negative number (for instance, -5 m/s) and the 20 mA output equal to a positive number (for instance, +5 m/s).

Blind Transmitter: Any device having 4 to 20 mA output without also having a local/permanent display.

Glossary

Boolean: A logic system treating variables through the operators AND, OR, NOT, and XOR, where each operator can have one of two values, true or false.

Buffer: Typically a solution used as a calibration standard due to its ability to maintain a stable pH value.

Calibration: Systematic adjustment of the display and/or output of a measuring instrument for the purpose of conforming to a standard or actual value.

Caustic: any strongly corrosive chemical substance, especially one that attacks organic matter. A caustic alkali is a metal hydroxide, especially that of an alkali metal; caustic soda is sodium hydroxide, and caustic potash is potassium hydroxide. Most inorganic acids, e.g., sulphuric acid, are caustic, especially when concentrated.

Cavitation: The formation and collapse of a gas pocket or bubble due to mechanical shearing of a fluid.

CE: Conformité Européene. A mark that is affixed to a product to designate that it is in full compliance with all applicable European Union legal requirements.

Cell Constant: 1) the distance between the two electrodes of a conductivity cell divided by their cross-sectional area. 2) A value associated with an effective measurement range used in the proper selection of conductivity cells for specific applications.

Condensation: The transformation of water vapour to liquid. Also, a chemical reaction in which two or more molecules combine, usually with the expulsion of water or some other substance.

Conductivity: The measure of the ability of a fluid to conduct an electrical current. In water, this ability is due to the presence of ionized substances in solution. Conductivity measurements usually include temperature compensation.

Corrosion: Material deterioration due to chemical attack.

Current (loop) Output: See 4 to 20 mA

DC (Direct Current): Electric current in which electrons flow in one direction only. Compare alternating current (AC).

Dead Band:
The limits between which the input to an instrument can vary without causing a change to the instrument output.
In relay operation: The difference between the increasing and decreasing readings when the switch is operated between set point and reset point.
See also Hysteresis

DIN: Deutsches Institut für Normung e.V.
DIN is a non-governmental organization established to promote the development of standardization and related activities in Germany and related markets with the goal of facilitating the international exchange of goods and services, and to developing cooperation in the spheres of intellectual, scientific, technological and economic activity. Through the European standards organizations CEN and CENELEC, DIN also presents the German view in the development of the European standards that are critical to completion of the single European market.

Glossary

DN: Diametre Nominal; Term used by DIN standards for the inside diameter of pipes.

Deionisation: A purification process by which ionized particles are removed from water.

Desalination: Processes that remove salt from water, such as reverse osmosis, ion exchange, distillation and evaporation.

Desiccant: A granular, porous, silica based material that has the ability to absorb moisture. Desiccant is used to control humidity in a closed environment.

Desiccant Silica Gel: Is a granular, porous form of silica made synthetically from sodium silicate. Despite the name, silica gel is a solid. Silica gel is most commonly encountered in everyday life as beads packed in a semi-permeable. In this form, it is used as a desiccant to control local humidity and is used in industry for many purposes.

Diffusion: An intermingling of the molecules of liquids or gases.

Digital: A type of signal in which data is represented in numerical form. Opposite of analogue.

Dry Contact Closure: Relay. The contacts of a mechanical switch.

Dry Contact Relay (DCR):

DryLoc®: Georg Fischer Signet LLC trade name and patented design for a versatile and robust connector scheme between sensor electronics and electrodes.

Dual Proportional Control: See relay control discussion on page 234 (also applies to transistor-type outputs).

EasyCal: The calibration routine in Signet pH and ORP systems in which standard buffers or test solutions are automatically recognised by the instrument.

Efficiency: For pH and ORP electrodes, the percent of theoretical slope.

Effluent: Liquid flowing out of a system, such as a discharge of liquid waste from a factory or water leaving a sewage treatment plant.

Electrode: Primary detection device, typically analytical, requiring or benefiting from some secondary conditioning circuitry (e.g., pH and ORP electrodes). 2) Sensor.

Emissions: The potentially disruptive electromagnetic frequencies generated by an electronic device. Various standards defining allowable limits have been established.

Empty Pipe Detection: The empty pipe detection in Signet products features a zero flow output when the sensors are not completely wetted. This does not indicate an empty pipe, but rather a pipe that is not completely full.

EP: Copolymer of Ethylene and Propylene or terpolymer with butadiene. Typically features good weather and chemical resistance. Typically used with diluted acids and alkalis, detergents, alcohols, steam and silicone oils.

EPDM: Ethylene Propylene Copolymer; Same as EP, EPR, and EPM.

EPM: Ethylene Propylene Copolymer; Same as EP and EPR, and EPDM.

Glossary

EPR: Ethylene Propylene Copolymer; Same as EP, EPM, and EPDM.

FFPM : Also known as FFKM, trade names include or Kalrez (trademark) or Chemraz (registered trademark). Typical applications for this material include highly aggressive chemical processing, semiconductor wafer processing, pharmaceutical, oil and gas recovery, aerospace and petroleum.

FM: Factory Mutual; An organization that sets various product standards, especially related to intrinsic safety and explosion proof. Insurance companies look to see if items such as cooling towers have earned Factory Mutual Approval and typically offer reduced rates for equipment that has been demonstrated as unlikely to burn in a fire.

Formazin: A very stable suspended solid that remains suspended in solution with water indefinitely. The suspended solid in Formazin can be hydrazine sulphate, $(NH_2)_2(H_2SO_4)$ or hexa-methylene-tetramine in water.

FPM: FPM is an elastomer, better known as Viton. See Viton entry.

Frequency: The number of repetitions that occur in one second. Frequency can be used to describe electrical quantities, sound waves, mechanical vibrations, etc. Frequency is measured in units of Hertz (Hz). In Signet flow sensors, the output is defined in terms of frequency and used to calculate Flow Rate.

Formazin Nephelometric Unit (FNU): A unit of turbidity based upon a comparison of scattered light intensity by a sample under defined conditions with the intensity of light scattered by a standard reference Formazin suspension. The higher the intensity of scattered light, the greater is the turbidity. The design of the nephelometer is specified in the method. A standard suspension of Formazin is used for calibration.

Hot-Tap: A mechanical assembly that allows the insertion and removal of a sensor or electrode without the need for system shutdown, and initial installation may be performed under pressurised conditions. Similar to Wet-Tap.

Hysteresis: In relay Setpoint programming, the difference between the activation point and the release point. See also Deadband.

Impedance: A measure of the apparent resistance posed by an electrical circuit to an alternating current (AC).

Immunity: Ability of a device to function without disruption in the presence of electromagnetic interference.

Insertion Flow Sensor: A type of flow sensor that installs through a hole in the wall of a pipe and converts a local velocity measurement into a calculation of the flow rate in the pipe. Usually used in comparison to “full bore” or “full line” flow sensor.

Intrinsically Safe: Term used to identify any device, instrument or component that will not produce any spark or thermal effects under any conditions that are normal or abnormal that will ignite a specified gas mixture. Electrical and thermal energy limits are at levels incapable of causing ignition. It is common practice to use external barriers with intrinsically safe installations.

Glossary

Ion: An electrically charged atom or group of atoms.

IP65: A European standard for the degree of protection provided by enclosures for splash proof and dust-proof rating.

IP68: The European standard for degree of protection provided by enclosures for submersible and dust-proof rating.

IR: Infrared, refers to a welding technique offered within the range of SYGEF® HP products.

IR - Infrared Light: Light whose wave length is just below the light sensitivity of the human eye.

ISO: International Organization for Standardization: A voluntary organization that creates international standards, including the standards for computers and communications. The American National Standards Institute, ANSI is a member of ISO. An example of an ISO set of standard codes is the two-character code set to denote countries, e.g., AR = Argentina, AT = Austria, AU = Australia, DE = Germany, SG = Singapore, and US = United States of America.

ISO 14001: International Organization for Standardization environmental standard.

ISO 9001: International Organization for Standardization quality standard.

Isolated/Isolation: Electrical separation between two or more circuits used to prevent measuring errors, ground loops, or a shock hazard.

K-Factor: In Signet Flow sensors, the number of pulses generated by the sensor for each unit of volume that passes by the sensor. Usually published in pulses per gallon and pulses per litre.

Linearity: The extent to which an output (response) is strictly proportional to an input (stimulus).

Loop: In electricity, a complete circuit. Usually used in reference to a 4 to 20 mA loop, an output signal used to control valves, actuators etc.

Loop Impedance: The maximum allowable total electrical resistance of all devices, including wiring, connected to any electrical loop; expressed in Ohms at a specified voltage level, i.e.; 600 Ω @ 12 VDC.

Loop output: An analogue output signal, usually 4 to 20 mA.

Loop powered: In Signet products, any instrument that derives operating power from a 4 to 20 mA loop.

Magmeter: Electromagnetic flow meter.

Metalex: Product name of fixed insertion metal paddlewheel flow sensors manufactured by Georg Fischer Signet LLC

Mho: The unit of conductance such that a constant voltage of one volt between its ends produces a current of one ampere in the conductor.

Mini-Tap: Stainless steel installation fittings for use with Metalex flow sensors.

Glossary

NEMA 4: A standard for enclosures maintained by the National Electrical Manufacturers Association; NEMA 4 enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose-directed water.

NEMA 4X: Same as NEMA 4, with added protection from corrosion.

NEMA 6: A standard for enclosures maintained by the National Electrical Manufacturers Association; NEMA 6 enclosures are intended for indoor or outdoor use primarily to provide a degree of protection in submersible applications.

NIST: National Institute of Standards and Technology.

Non-isolated: Two or more electrical circuits sharing a common ground. When separated by distance or connected to additional circuitry there is increased probability for measurement errors due to ground loops.

Nephelometric Turbidity Unit (NTU): A unit of measure used when comparing the light scattered by a liquid media to the light scattered by a known concentration Formazin Polymer. This unit of measure is recognised as a measure of the optical clarity of an aqueous sample. NTU is the accepted unit of measurement for turbidity.

Ohm: The unit of measure for electrical resistance. A resistance of 1 ohm will pass 1 ampere of current when a voltage of 1 volt is applied.

Open Collector Output: An NPN transistor or FET output generally used to pull a signal from high to low. Device used for frequency, pulse, and alarm outputs.

Operating Pressure: Maximum vapour pressure from process

Operating Temperature: The temperature at which a product is capable of operating; usually a minimum and maximum value.

ORP (Oxidation Reduction Potential): A method of measuring the degree of completion of a chemical reaction by detecting the ratio of ions in the reduced form to those in the oxidized form as a variation in electrical potential measured by an ORP electrode.

Paddlewheel: A type of insertion flow sensor (pioneered by Georg Fischer Signet LLC) that utilises a bladed rotor to engage the fluid flowing in a pipe. The spinning rotor produces a frequency output directly proportional to the fluid velocity.

Passive Outputs: Current outputs that require external power to operate.

PBT: PolyButylene Terephthalate: A semi-crystalline polymer, combining good strength and stiffness with low moisture absorption, exceptional thermal stability, excellent electrical insulation properties, outstanding dimensional stability and resistance to the effects of a wide range of chemicals, solvents, and oils.

PEEK™: PolyEtherEtherKetone; an engineering thermoplastic with excellent chemical and water resistance. In Signet products, the yellow housing in ProcessPro field-mount instruments.

Glossary

Percent Rejection: An indicator of RO system efficiency and membrane condition. Defined as one minus the ratio of the conductivity of RO product water to feed water, expressed as a percentage, and representing the extent to which incoming contaminants were rejected by the system.

pH: A measure of the acidity or alkalinity of a solution, numerically equal to 7 for neutral solutions, increasing with increasing alkalinity and decreasing with increasing acidity. The pH scale commonly in use ranges from 0 to 14.

Polypropylene (PP): PP is a polymer of ethylene with an isotactic arrangement of methyl groups.

Preamplifier: A device used typically to protect the relatively weak output signals of pH and ORP electrodes from the wide variety of electromagnetic interference common in most industrial environments.

ProcessPro®: Signet product name for a group of instruments characterised by a basic 4 to 20 mA Loop output, for the measurement of Flow, pH/ORP, Conductivity, Pressure and Temperature.

Proof Pressure: Maximum water or hydraulic pressure.

ProPoint®: Signet product name for a group of panel mount instruments for the measurement of Flow, Batch, pH/ORP, Conductivity/Resistivity, Salinity and others. Characterised by a unique analogue and digital display.

Proportional Pulse: In Signet products, an operating mode for relays and open-collector outputs that varies the frequency of the pulse in direct proportion to input variations.

PTFE: Polytetrafluoroethylene, also known as TFE. Trade names include Teflon®, Halon®, Fluon® (all registered trademarks).

Pull-up resistor: A resistor needed to obtain the high-level voltage signal in a transistor-type output circuit.

PWM: Pulse Width Modulation; In Signet products, an operating mode for relays and open-collector outputs characterised by varying the time that a pulse is "on" versus the time it is "off". Also, a method of digitally encoding analogue signal levels.

Quinhydrone: A crystalline powder typically added to pH 4 and 7 buffers for the purpose of producing standard solutions used in the calibration of ORP measuring systems.

RC Filter: A resistive-capacitive device, often referred to as a "snubber", designed to protect instrumentation and relay contacts by capturing the voltage spikes resulting from the switching of large inductive loads such as solenoids and motor starters, etc.

REDOX: Reduction/Oxidation; Same as ORP.

Relative Humidity: The amount of moisture in the air as compared with the maximum amount that the air could contain at the same temperature, expressed as a percentage.

Relay: An electromechanical switch.

Glossary

Repeatability: The extent to which an output (response) repeatedly corresponds to identical input (stimulus) during dynamic conditions.

Resistivity: The inverse of conductivity (1/conductivity).

Reverse Osmosis: a process that allows the removal of particles as small as ions from a solution. The most common use for reverse osmosis is in purifying water. It is used to produce water that meets the most demanding specifications that are currently in place.

Reynolds Number: A dimensionless quantity associated with the smoothness of flow of a fluid. At low velocities fluid flow is smooth, or laminar, and the fluid can be pictured as a series of parallel layers, or lamina, moving at different velocities. The fluid friction between these layers gives rise to viscosity. As the fluid flows more rapidly, it reaches a velocity, known as the critical velocity, at which the motion changes from laminar to turbulent, with the formation of eddy currents and vortices that disturb the flow. The formula can be stated as:

$R=dv/\mu$ where d is inside diameter, v is velocity and μ is viscosity.

In general,

- R < 2000 = Laminar Flow
- R > 2000 < 4500 = Transitional (Indeterminate)
- R > 4500 = Fully Developed & Turbulent
  (most flow sensors operate best in turbulent flow)

Rotor-X: Family trade name of the original plastic paddlewheel flow sensors.

Ryton®: Trade name for Polyphenylene Sulfide or PPS. Other trade names include Fortron®, Tedar®, Supec®, and Tedur® (all registered trademarks)

(S^3L): Acronym for Signet Sensor Serial Link; a digital communication method between Signet sensors and host instruments.

SafeLoc™: Name coined by Georg Fischer Signet LLC to define the unique locking mechanism used in the Signet 3719 pH Wet-tap assembly.

Salinity: A measurement of dissolved salt concentration, as in seawater, typically expressed in parts per thousand (ppt).

Sensor: 1) A primary detection device typically providing direct input to a measurement instrument (i.e., paddlewheel flow sensor). 2) The combination of an electrode and some secondary conditioning circuitry (i.e., pH electrode and preamplifier). 3) Electrode.

Signet: Model name of fluid measurement sensors and instruments marketed under the Georg Fischer Piping Systems brand.

Sleeved Rotor: An accessory rotor featuring a self-lubricating mechanical sleeve that replaces the standard liquid bearing of Rotor-X paddlewheel flow sensors. Sleeved rotors will extend the maintenance interval in applications known to produce premature rotor wear, such as those involving abrasive liquids.

Specific Gravity: Ratio of the mass of a body to the mass of an equal body of volume of water at 4 °C, or some other specified temperature.

Suspended Solids: Particulate suspended (as opposed to being dissolved) and typically creating turbid, cloudy conditions in liquid.

Glossary

SSR: Solid-state relay

TDS: Total dissolved solids

Totaliser: In flow instrumentation, a permanent or resettable counter for volume such as gallons or tens of gallons, etc.

Transmitter (two-wire): A device that converts an electrode or sensor input to a 4 to 20 mA output using the same two wires for signal transmission as for system power.

Turbidity: The reduction of transparency of a liquid caused by the presence of undissolved matter (ISO 7027 Definition of Turbidity).

Turndown Ratio: Dynamic response characteristic. The ratio of a sensor's maximum measurement range to its minimum measurement range.

UHMW Polyethylene: Ultra High Molecular Weight polyethylene. Very good chemical resistance of corrosives; very good stress cracking resistance (with the exception of strong oxidizing acids at elevated temperatures).

Viscosity: The internal friction of a fluid, caused by molecular attraction, which makes it resist a tendency to flow.

Viton: Viton® fluoroelastomer is well known for its excellent heat resistance. It offers excellent resistance to aggressive chemicals.

Voltage (output): A standard analogue signal (0 to 5 or 0 to 10 VDC for Signet products) used for the proportional representation of a measurement variable or process condition.

Weldolet: A weld-on branch connection for metal pipe typically used as an installation fitting for insertion-style sensors or electrodes.

Wet-Tap: A mechanical assembly that, after initial installation into a non-pressurised system, allows the insertion and removal of a sensor or electrode without the need for system shutdown. Similar to Hot-Tap.

White Light: The combined light whose wave lengths are all within the range of sensitivity of the human eye.

Window (Relay Module): An out-of-range alarm scenario that allows a single relay to be triggered by either a high or a low process condition. For example, a relay in window mode can be programmed to trigger if a pH value in a final effluent tank drops below 6.0 or rises above 8.5.

Notes:

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Full product and application information is found in our published literature, now available in French and German languages as well as English. Full specifications for every product are provided with temperature/pressure graphs, a system overview to outline how parts fit together, an ordering matrix, and even application tips and dimensions are included. Additionally, the catalogue includes a system compatibility, a side-by-side product specification matrix, and a comprehensive technical reference section.

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Any non-catalogue product is classified as a "special request". Should you require a sensor with an alternative material that is a non-moulded item to suit your specific application requirement, or an additional cable length than provided with your product of choice, we remain flexible to accommodate your needs. Contact your local sales company for further information.

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3-0000.702 (C-3/09) #0100 (3/09)

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