

Signet 2250 Submersible Hydrostatic Pressure Sensor For Level and Depth Control

Features

- Level and depth measurement
- 4 to 20 mA or digital (S³L) output
- Flush ceramic diaphragm
- Easy submersible installation
- Choice of two pressure ranges
- Standard union connection and extended cable and capillary tubing (10 m)



Blind Transmitter or Digital (S³L) Sensor

Description

The Signet 2250 Hydrostatic Level Sensor for level and depth control has a one-piece injection molded PVDF body and ceramic diaphragm for superior compatibility in corrosive liquids. Utilizing hydrostatic pressure, the 2250 disregards false level signals from steam vapors, 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 (S³L), 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
- Neutralization Tanks
- Plating Lines
- Waste Sumps
- Clarifiers
- Overflow Protection

System Overview

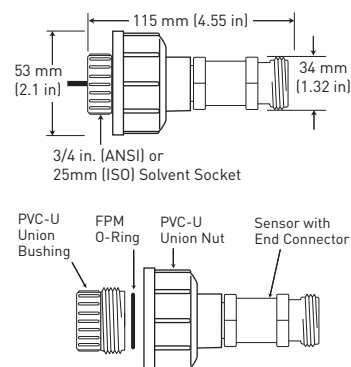
Panel, Tank, Wall Mount Signet Instrument (sold separately) 8250 8450 8900	4 to 20 mA Input Programmable Logic Controller
Universal Mount Kit 3-8050-1 (sold separately)	Integral Mount Kit 3-8052-1
Pipe extension or conduit (customer supplied)	
Signet 2250 Submersible Hydrostatic Pressure Sensor with union connection, extended cable and capillary tubing (10 m)*	

CE

* 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 (S³L) or 4 to 20 mA

Accuracy:

- From Factory: $\pm 1\%$ 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 (S³L): 5 to 6.5 VDC <1.5 mA
- 4 to 20 mA: 12 to 24 VDC $\pm 10\%$, 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 (S³L) Output:

- Serial ASCII, TTL level 9600 bps.
- Reverse polarity and short circuit protected.

Electrical (continued)

4 to 20 mA Output:

- Accuracy: $\pm 32 \mu A$
- 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 ³ L), 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	3/4 in. Integral mounting kit
3-8052-1	159 000 755	3/4 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.

3-2250.099 Rev A (01/10)

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Signet 8250 Level Transmitters

Member of the Process Pro® Family of Transmitters



Panel Mount



Pipe, Wall, Tank and Integral Mount

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

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.

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
- Neutralization Tanks
- Overflow Protection
- Leak Detection

System Overview

In-Line Installation			Submersible Installation*
Panel Mount Signet 8250 Level Instrument 	Pipe, Tank, Wall Mount Signet 8250 Level Instrument 	Integral Mount Signet 8250 Level Instrument 	Panel, Pipe, Tank, Wall Mount Signet 8250 Level Instrument
	Signet Universal Adapter Kit (3-8050) (sold separately) 	Signet Integral Adapter Kit (3-8052) (sold separately) 	Pipe extension or conduit with 3/4 in. FNPT threads
Signet 2250, 2450 Sensor (sold separately) 			Signet 2250, 2450 Sensor (sold separately)
In-Line Installation - Fittings (Customer supplied)			

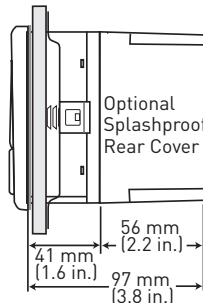
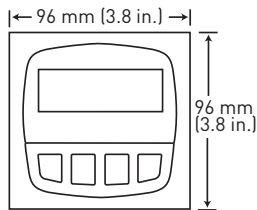
8058 signal converter & 8059 external relay module also compatible

*For pipe, tank or wall mount installations, user must use the Universal Adapter Kit (3-8050)

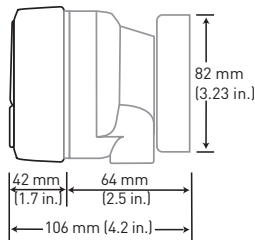


Dimensions

3-8250-XP



Field version with universal mount



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.

3-8250.099 Rev B (01/10)

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Specifications

General

Compatible Sensors:

- Signet 2250 level sensor
- Signet 2450 pressure sensor versions with digital (S³L) output or other sensors with 4 to 20 mA output (via Model 8058)

Accuracy: $\pm 1\%$ 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 $\pm 10\%$ 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

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	Mfr. Part No	Code
3-8250-2	159 000 766	3-8250-3	159 000 768
3-8250-2P	159 000 767	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 2350 Temperature Sensor



Blind Transmitter or Digital (S³L) Sensor

Description

The Signet 2350 Temperature Sensor has a one piece injection molded 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 (S³L) 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.

Features












- 4 to 20 mA or digital (S³L) output
- Standard ¾ in. NPT process connection
- One-piece injection molded PVDF body
- PT1000 platinum RTD in extended tip for quick response
- Easy installation
- Threaded for in-line or submersible installation

Applications

- Plating Bath Temperature Control
- Heat Exchange Monitor
- R.O. and D.I. System Monitor
- Hot/Cold Mixing System Monitor
- Data Acquisition
- Cooling Loops
- Effluent Monitoring
- HVAC
- Chemical Processing

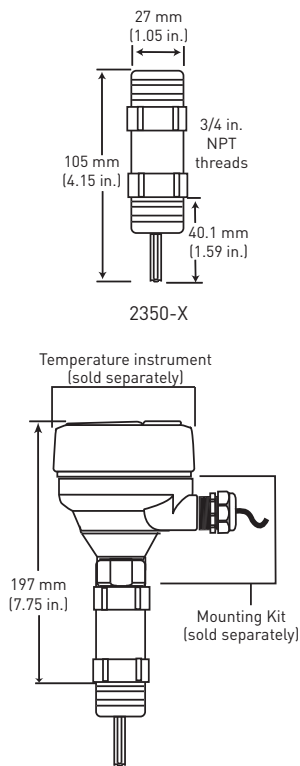


System Overview

In-Line Installation				Submersible Installation*
Panel Mount Signet 8350 or 8900 Instrument (sold separately) 	Pipe, Tank, Wall Mount Signet 8350 Instrument (sold separately)  Signet Universal Adapter Kit (3-8050) (sold separately) 	Integral Mount Signet 8350 Instrument (sold separately)  Signet Integral Adapter Kit (3-8052) (sold separately) 	4 to 20 mA Input Chart Recorder OR Programmable Logic Controller  	Panel, Pipe, Tank, Wall Mount Signet 8350 or 8900 Instrument (sold separately)  Pipe extension or conduit with ¾ in. FNPT threads 
Signet 2350 Temperature Sensor 				Signet 2350 Temperature Sensor 
In-Line Installation - Fittings (Customer supplied)				

* For tank or wall mount installations, user must use the Universal Adapter Kit (3-8050).

Dimensions



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 (S³L) output or 4 to 20 mA
Accuracy: $\pm 0.5^{\circ}\text{C}$ ($\pm 0.9^{\circ}\text{F}$)
Response Time, τ : 10 secs.
Repeatability: $\pm 0^{\circ}\text{C}$ ($\pm 0.2^{\circ}\text{F}$)
Resolution: 0.01°C (0.02°F)
Sensing-End Connection:
 $3/4$ in. NPT male thread
Cable-End Connection:
 $3/4$ in. NPT male thread

Wetted Material

- Sensor Housing: PVDF

Electrical

Power Requirements:

Type of output is automatically selected when appropriate power is applied.

- Digital (S³L): 5 to 6.5 VDC < 1.5 mA
- 4 to 20 mA: 12 to 24 VDC $\pm 10\%$, 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 (S³L) 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 $^{\circ}\text{C}$ to 100 $^{\circ}\text{C}$ (32 $^{\circ}\text{F}$ to 212 $^{\circ}\text{F}$)
- 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 $^{\circ}\text{C}$ @ 16 bar to 100 $^{\circ}\text{C}$ @ 7.5 bar
(14 $^{\circ}\text{F}$ @ 232 psi to 212 $^{\circ}\text{F}$ @ 108 psi)
- Submersible Mounting:
-10 $^{\circ}\text{C}$ @ 16 bar to 85 $^{\circ}\text{C}$ @ 7.5 bar
(14 $^{\circ}\text{F}$ @ 232 psi to 185 $^{\circ}\text{F}$ @ 108 psi)

Storage Temperature:

-55 $^{\circ}\text{C}$ to 100 $^{\circ}\text{C}$ (-67 $^{\circ}\text{F}$ to 212 $^{\circ}\text{F}$)

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 ³ L) and 4.6 m (15 ft) cable
	-2	Digital (S ³ L) 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	$3/4$ in. Integral mounting kit
3-8052-1	159 000 755	$3/4$ 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)

3-2350.099 Rev B [01/10]

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Signet 8350 Temperature Transmitters

Member of the Process Pro® Family of Transmitters



Panel Mount



Pipe, Wall, Tank and Integral Mount

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.

Features


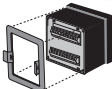









- Digital (S³L) input for stable & reliable reading
- Available with single or dual input
- Field scaleable 4 to 20 mA output
- Displays temperature and mA output
- Temperature display in degrees Celsius (°C) or Fahrenheit (°F)
- Choice of relay or open collector output

- NEMA 4X/IP65

Applications

- Process Temperature Monitoring
- Plating Bath Temperature Control
- Heat Exchange Monitor
- R.O. or D.I. Monitoring
- Hot/Cold Mixing System Monitoring
- Data Acquisition
- Cooling Loops
- Effluent Monitoring
- HVAC
- Chemical Processing

System Overview

In-Line Installation			Submersible Installation*
Panel Mount Signet 8350 Temperature Transmitter  	Pipe, Tank, Wall Mount Signet 8350 Temperature Transmitter  Signet Universal Adapter Kit (3-8050) (sold separately) 	Integral Mount Signet 8350 Temperature Transmitter  Signet Integral Adapter Kit (3-8052) (sold separately) 	Panel, Pipe, Tank, Wall Mount Signet 8350 Temperature Transmitter   Pipe extension or conduit with 3/4 in. FNPT threads 
Signet 2350 Temperature Sensor (sold separately) 	Signet 2350 Temperature Sensor (sold separately) 		
In-Line Installation - Fittings (Customer supplied)			

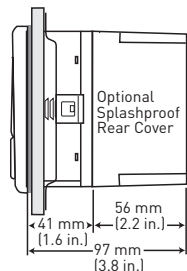
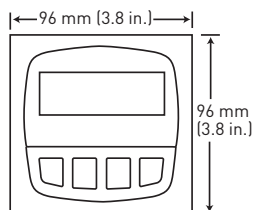


8058 signal converter also compatible

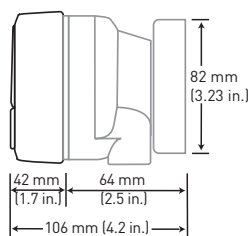
*For pipe, tank or wall mount installations, user must use the Universal Adapter Kit (3-8050).

Dimensions

3-8350-XP



Field version with universal mount



Model 8350

Ordering Notes

- 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.
- An optional splashproof rear cover can be ordered separately if needed.
- Use the universal mounting kit with the field mount transmitter to mount to a pipe, tank or wall.
- To mount panel version on a wall, use heavy duty wall mount bracket.
- Order RC filter kits to protect relays from voltage spikes.
- 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: $\pm 0.5^{\circ}\text{C}$ ($\pm 0.9^{\circ}\text{F}$) (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 $\pm 10\%$ 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 $^{\circ}\text{C}$ to 70 $^{\circ}\text{C}$ (14 $^{\circ}\text{F}$ to 158 $^{\circ}\text{F}$)

Storage Temperature:

-15 $^{\circ}\text{C}$ to 80 $^{\circ}\text{C}$ (5 $^{\circ}\text{F}$ to 176 $^{\circ}\text{F}$)

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	Mfr. Part No	Code
3-8350-1	159 000 192	3-8350-2P	159 000 195
3-8350-1P	159 000 193	3-8350-3	159 000 196
3-8350-2	159 000 194	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	3/4 in. Integral mounting kit
3-8052-1	159 000 755	3/4 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

3-8350.099 Rev B [01/10]

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Signet 2450 Pressure Sensors



3/4 in. NPT 1/2 in. union mount

Blind transmitter or digital (S³L) sensor

Features

- Test certificate included
- 4 to 20 mA or digital (S³L) output
- Standard 3/4 in. NPT or 1/2 in. male union process connection
- One-piece injection molded 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 molded 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 (S³L), 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



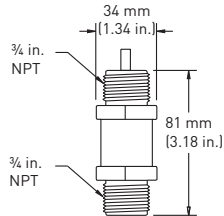
System Overview

In-Line Installation				Submersible Installation*
Panel Mount Signet Instrument (sold separately) 8250 8450 8900 	Pipe, Tank, Wall Mount Signet Instrument (sold separately) 8250 8450 Signet Universal Adapter Kit (3-8050) (sold separately) 	Integral Mount Signet Instrument (sold separately) 8250 8450 Signet Integral Adapter Kit (3-8052) (sold separately) 	4 to 20 mA Input Chart Recorder OR Programmable Logic Controller 	Panel, Pipe, Tank, Wall Mount Signet 8350, 8450 or 8900 Instrument (sold separately) Pipe extension or conduit with 3/4 in. FNPT threads**
Signet 2450 Pressure Sensor 				Signet 2450 Pressure Sensor*
In-Line Installation - Fittings (Customer supplied)				

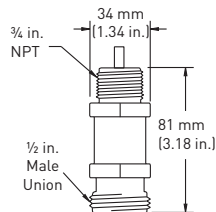
* For pipe, tank or wall mount installations, user must use the Universal Adapter Kit (3-8050). An alternative to the Signet 2450 submersible is to use the Signet 2250 Hydrostatic Pressure Sensor.

** Cable must be exposed to the atmosphere.

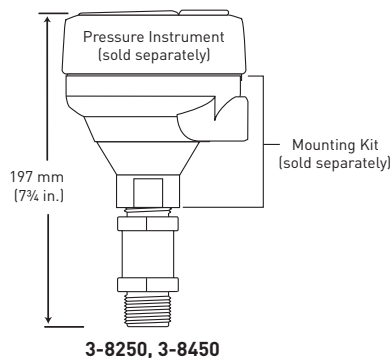
Dimensions



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 on parts required.

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.

3-2450.099 Rev E (01/10)

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Specifications

General

Output: Digital (S³L) or 4 to 20 mA

Accuracy:

- For all pressure ranges: $\pm 1\%$ of full scale @ 25 °C
- 0 to 10 psig: $\pm 1\%$ of reading when unit is field calibrated

Vacuum Range: 0 to -10 psig

Response Time: <100 ms

Sensing-End Connection:

- 3/4 in. NPT male thread
- 1/2 in. union male thread (requires end connector and union nut)

(See installation section for end connector and nut recommendation)

Cable-end connection:

3/4 in. NPT male thread

Wetted Material

- Sensor housing: PVDF
- Diaphragm: Ceramic
- Diaphragm seal: FPM

Electrical

Power Requirements:

- Digital (S³L): 4.5 to 6.5 VDC <1.5 mA
- 4 to 20 mA: 12 to 24 VDC $\pm 10\%$, 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 (S³L) Output:

- Serial ASCII, TTL level 9600 bps.
- Reverse polarity and short circuit protected.

Electrical (continued)

4 to 20 mA Output:

- Accuracy: $\pm 32 \mu\text{A}$
- Resolution: $<5 \mu\text{A}$
- 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 ³ L), 3/4 in. male NPT, 4.6 m (15 ft) cable
-2	Digital (S ³ L), 3/4 in. male NPT, 15.2 cm (6 in.) cable used with 3-8052 or 3-8052-1 (sold separately)
-3	Digital (S ³ L), 1/2 in. male union, 4.6 m (15 ft.) cable
-4	Digital (S ³ L), 1/2 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), 3/4 in. male NPT, 4.6 m (15 ft) cable
-7	Current (4 to 20 mA), 1/2 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	Mfr. Part No	Code
3-2450-3U	159 000 683	3-2450-5L	159 000 907
3-2450-4U	159 000 686	3-2450-7L	159 000 908
3-2450-7U	159 000 906	3-2450-1H	159 000 026
3-2450-1L	159 000 024	3-2450-2H	159 000 027
3-2450-2L	159 000 025	3-2450-4H	159 000 684
3-2450-3L	159 000 682	3-2450-5H	159 000 909
3-2450-4L	159 000 685	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	3/4 in. Integral mounting kit
3-8052-1	159 000 755	3/4 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 8450 Pressure Transmitters

Member of the Process Pro® Family of Transmitters



Panel Mount



Pipe, Wall, Tank and Integral Mount

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 1/4 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.

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

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

System Overview

In-Line Installation			Submersible Installation*
Panel Mount Signet 8450 Pressure Instrument 	Pipe, Tank, Wall Mount Signet 8450 Pressure Instrument 	Integral Mount Signet 8450 Pressure Instrument 	Panel, Pipe, Tank, Wall Mount Signet 8450 Pressure Instrument
	Signet Universal Adapter Kit (3-8050) (sold separately) 	Signet Integral Adapter Kit (3-8052) (sold separately) 	Pipe extension or conduit with 3/4 in. FNPT threads
Signet 2450 Pressure Sensor (sold separately) 			Signet 2450 Pressure Sensor (sold separately)
In-Line Installation - Fittings (Customer supplied)			

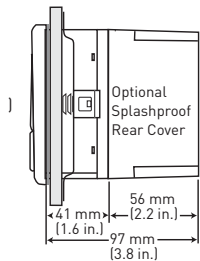
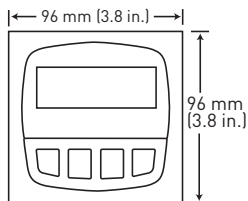


8058 Signal converter also compatible

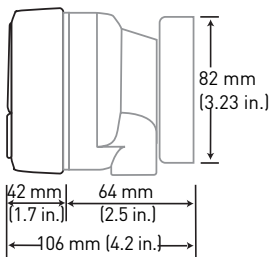
*For pipe, tank or wall mount installations, user must use the Universal Adapter Kit (3-8050)

Dimensions

3-8450-XP



Field version with universal mount



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.

3-8450.099 Rev B (01/10)

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Specifications

General

Compatibility:

Signet 2450 Pressure Sensor versions with digital output or other sensors with 4 to 20 mA output (via Model 8058)

Accuracy: $\pm 1\%$ 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 $\pm 10\%$ 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			
3-8450	-1	P	Example Part Number

Mfr. Part No	Code	Mfr. Part No	Code
3-8450-1	159 000 041	3-8450-2P	159 000 044
3-8450-1P	159 000 042	3-8450-3	159 000 045
3-8450-2	159 000 043	3-8450-3P	159 000 046

Accessories and Replacement Parts

Mfr. Part No.	Code	Description
Mounting		
3-8050	159 000 184	Universal mounting kit
3-8052	159 000 188	3/4 in. Integral mounting kit
3-8052-1	159 000 755	3/4 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