

Model 235

Wet/Wet Differential Pressure Transducer

For Liquids or Gases

Ranges: 0 - 2 psid to 0 -25 psid



Setra Systems Model 235 is a high output, low differential pressure transducer designed for wet to wet differential pressure measurements of liquids or gases. It contains a fast-response inductive sensor, and signal conditioning electronic circuitry necessary for providing a highly accurate, linear analog output proportional to pressure. Both unidirectional and bidirectional pressure ranges are available for applications with line pressure up to 2500 psig.

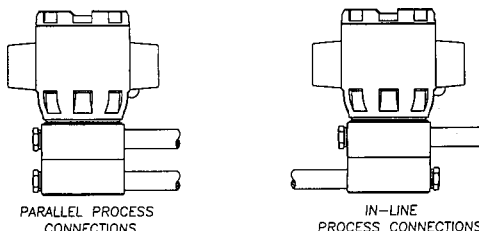
With its 0.5% total error band from -20 to +160°F (-29 to +71°C) and a NEMA 4/IP65 industrial housing, the 235 is ideally suited for OEM systems, which require optimal performance at an affordable price.

The Model 235 utilizes a new patented "media insensitive" inductive sensor to achieve excellent performance typically found in much more expensive transducers.

The Model 235 has no liquid fill isolation diaphragms, eliminating possible batch contamination and thermal transient errors. All parts exposed to pressure media are stainless steel, alumina ceramic and glass.

The Model 235 is offered in either an all stainless steel housing with cable for electrical connections or an aluminum housing with terminal block connections. Either version makes the Model 235 one of the most rugged wet/wet differential pressure transducers on the market.

Configurations



NOTE: Setra adheres to strict quality standards including ISO 9001 and ANSI-Z540-1. The calibration of this product is NIST traceable. Teflon® is a registered trademark of E.I. du Pont de Nemours and Company. Patent Pending.

Applications

- Process Control
- Natural Gas Delivery
- Energy Management Systems
- Flow Measurement
- Liquid Level Measurement of Pressurized Vessels
- Pressure Drop Across Filters and Pumps

Features

- Low Cost
- Fast Response
- Gas and Liquid Compatible
- Low Differential Ranges
- Low Line Pressure Effect
- High Overpressure Capability
- High Accuracy
- NEMA 4 Industrial Housing
- Meets CE Conformance Standards

When it comes to a product to rely on - choose the Model 235. When it comes to a company to trust - choose Setra.

Pressure Ranges

Differential Pressure	
0 to 2 psid	0 to 50 in. WC
0 to 5 psid	0 to 100 in. WC
0 to 10 psid	0 to 150 in. WC
0 to 25 psid	0 to 200 in. WC
	0 to 250 in. WC
	0 to 500 in. WC

ISO
9001:
2000
Certified

Visit Setra Online:
<http://www.setra.com>

setra
800-257-3872

Model 235 Specifications

Performance Data

Accuracy RSS* (at room temp)	±0.18% FS
Non-Linearity, BFSL	±0.10% FS
Hysteresis	0.15% FS
Non-Repeatability	0.04% FS
Thermal Effects	
Compensated Range °F (°C)	-20 to 160 (-29 to 71)
5 PSID through 500 in.WC Units:	
Total Error Band	±0.5% FS over Compensated Temperature Range
2 PSID Unit:	
Total Error Band	±0.75% FS over Compensated Temperature Range
Line Pressure Effect	
	<0.10% FS/100 PSI
	FS/psig line pressure
Resolution	<0.015% FS
Gravity Effect	<0.05% FS
Warm-Up Shift	Negligible
Update Rate	25 ms (typical)
Maximum Line Pressure	2500 psig
Burst Pressure	4000 psig
Maximum Overpressure**	±1000 psig
	(500 psig on 25 psid range)

*RSS of Non-Linearity, Non-Repeatability and Hysteresis.

** The zero and span will shift slightly when high differential overpressure is applied. The shift may be as much as ±0.5% FS with overpressure applied to the low pressure port. Other parameters (linearity, etc.) will not shift. If the overpressure is nominally only in one direction, the user may apply this overpressure to preset the sensor. Subsequent overload of less magnitude will not cause additional shift. Unit is pre-zeroed at factory after application of maximum overload pressure to the high pressure port.

Environmental Data

Temperature	
Operating* °F (°C)	-20 to +185 (-29 to +85)
Storage °F (°C)	-40 to +185 (-40 to +85)
Vibration	5g from 5 Hz to 500 Hz
Acceleration	20g maximum
Shock	50g operating
*Operating limits of the electronics only.	

Pressure media may be considerably higher or lower.

Physical Description

Case	NEMA 4/Epoxy Painted Aluminum or Stainless Steel Enclosure
Electrical Connection	Terminal block connector with 1/2" NPT female conduit openings or 6' multiconductor cable.
Pressure Fittings	7/16" - 20 SAE internal
Bleed Ports	7/16" - 20 SAE internal (plugs included)
Weight (approx.)	
Stainless Steel Unit	2.4 lbs. (1.1 kg)
Terminal Housing Unit	2.8 lbs. (1.3 kg)
Sensor Cavity Volume*	0.3 in. ³ Positive Port
	0.2 in. ³ Negative Port

*Sensor cavity volume specifications do not include internal threaded area of pressure port.

Electrical Data (Voltage)

Circuit	3-Wire (Exc, Out, Com)
Excitation	4.8 to 14.0 VDC
Output*	0.5 to 4.5 VDC**
*Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.	
**Any Zero and Span (Full Scale) offsets are included in the Total Error Band specification.	

Electrical Data (Current)

Circuit	2-Wire
Output*	4-20 mA**
Electrical Load	0 to 1000 ohms
Minimum supply voltage (VDC) = 16 + 0.02 x	(Resistance of receiver plus line).
Maximum supply voltage (VDC) = 30 + 0.004 x	(Resistance of receiver plus line).
*Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load.	
**Any Zero and Span (Full Scale) offsets are included in the Total Error Band specification.	

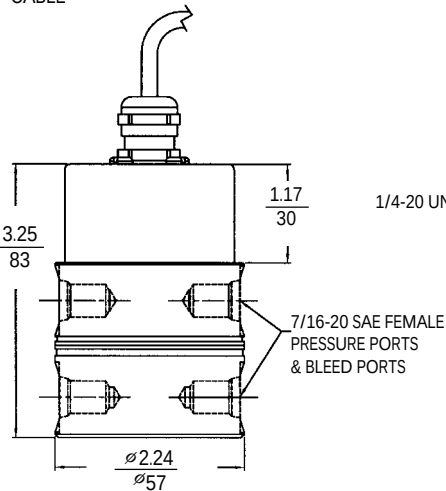
Pressure Media

Liquids or Gases Compatible with 303SS and 304SS, alumina ceramic, glass, and Viton O-rings. Not recommended for use with acidic solutions.

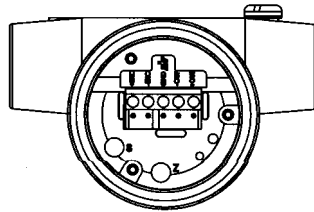
Specifications subject to change without notice.

Outline Drawings

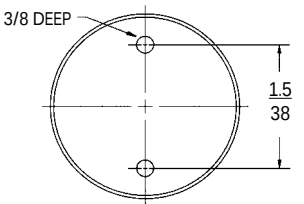
STAINLESS STEEL
HOUSING WITH 6 FT.
CABLE



TERMINAL BLOCK CONNECTIONS IN
PAINTED ALUMINUM HOUSING



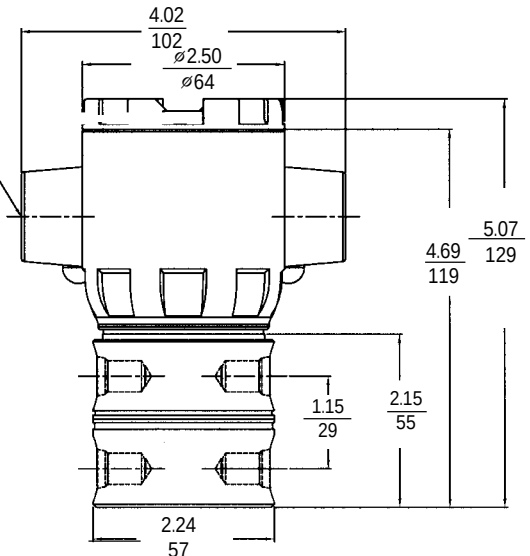
TOP VIEW (COVER REMOVED)



BOTTOM VIEW (MOUNTING HOLES)

1/2"-14 NPT
ELECTRICAL
CONDUIT PORT

IN
MM



ORDERING INFORMATION

Code all blocks in table.

Example: Part No. 2351005PD1106L1 for a 235 Transducer, 5 PSID Differential, Stainless Steel Enclosure, 4-20 mA Output, 6 ft. Cable (SS Housing) Accuracy ±0.18% FS and 316SS Stainless Wetted Materials.

2	3	5	1	—					—			—			—	L	—	1	—	F
Model					Ranges					Output			Elec. Term/Housing			Accuracy		Wetted Materials		Options
2351 = 235					Differential					11 = 4 to 20mA			06 = 6 ft. cable			L = ±0.18% FS		1 = 303SS, 304SS,		F = Adapter
										45 = 0.5 to 4.5 VDC			(SS Housing)					316SS, ceramic,		7/16-20 SAE-M
													T1 = Terminal Block					and glass		to 1/4 NPT-F
													(Painted Aluminum)							