DVS205 Dual-Variable Sensor

The DVS205 Dual-Variable Sensor (DVS205) provides static pressure and differential pressure inputs to a FloBoss™ 103, FloBoss 107E, or FloBoss 500-Series Flow Manager. The DVS205 communicates via a serial format with the FloBoss.

Variables

Functionally, the DVS205 is a digital transmitter that measures two flow-related variables simultaneously: differential pressure and static pressure. These variables are continuously available to the FloBoss unit that polls the DVS205.

Transducer and Electronics

The DVS205 contains a transducer and an electronics circuit. The transducer uses capacitance-cell technology to sense differential pressure and piezoresistive technology to sense the static (absolute or gauge) pressure.

The transducer electronics convert the pressure variables directly into a digital format, allowing accurate correction and compensation. A microprocessor linearizes and corrects the raw pressure signals (from the sensor) using characterization data stored in non-volatile memory.

The electronics also allow the DVS205 to communicate with a FloBoss using a Serial Peripheral Interface (SPI).

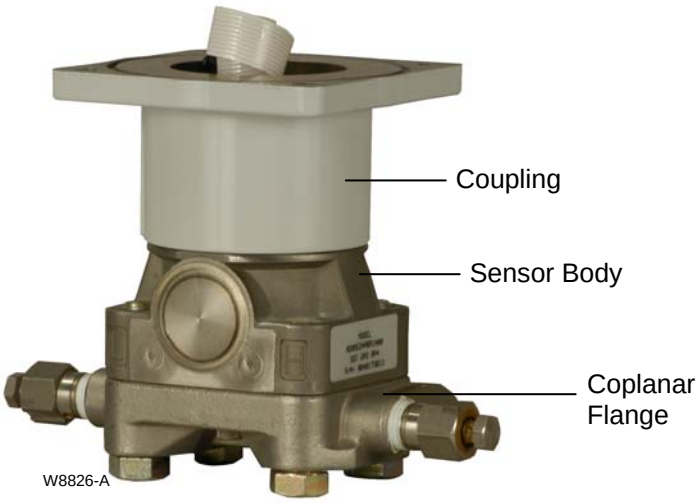
Accuracy

Two versions of the DVS205 are available:

- 205P with reference accuracy of 0.075% of the full span.
- 205E with reference accuracy of 0.10% of the full span.

Mounting

The DVS205 is factory installed on a FloBoss™ 103, FloBoss 107E, or FloBoss 500-Series Flow Manager to comply with agency requirements. Attached to the bottom of the sensor body is a Coplanar™ flange. This flange allows the DVS205 to mount on an integral orifice assembly or manifold valve.



DVS205 Dual-Variable Sensor

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DVS205 Multi-Variable Sensor

Differential Pressure Input			
Range[1]	0 to 62.2 kPa (0 to 250" H2O) 0 to 248.8 kPa (0 to 1000" H2O)		
Reference Accuracy	205E	Turndowns from 1:1 to 10:1 of URL	±0.10% of span
		Turndowns from 10:1 to 100:1 of URL	Not allowed
	205P	Turndowns from 1:1 to 10:1 of URL	±0.075% of span
		Turndowns from 10:1 to 100:1 of URL	±[0.025 + 0.005(URL/Span)]% of span
Stability	±0.125% of URL for five years, with up to ±50°F (28°C) ambient temperature changes and up to 1000 psi (68,9 bar) line pressure		
Ambient Temperature Effect per 50°F (28°C)	Spans from 1:1 to 30:1	±(0.025% URL + 0.125% of span)	
	Spans from 30:1 to 100:1	±(0.035% URL + 0.175% of span)	
Static Pressure Effects	Zero error	±0.05% of URL per 1000 psi (68,9 bar)	
	Span error	±0.20% of DP Reading per 1000 psi (68,9 bar)	
Over-Pressure Limit	3,626 psi (250 bar) applied on either or both sides without damage to the sensor		
Burst Pressure Limit	10,065 psi (694 bar)		
Static Pressure Input			
Range	Either Absolute or Gauge: 0 to 5516 kPa (0 to 800 psia/psig) 0 to 25,000 kPa (0 to 3626 psia/psig)		
Reference Accuracy	205E	Turndowns from 1:1 to 10:1 of URL	±0.10% of span
		Turndowns from 10:1 to 100:1 of URL	Not allowed
	205P	Turndowns from 1:1 to 10:1 of URL	±0.075% of span
		Turndowns from 10:1 to 100:1 of URL	±[0.03 + 0.0075(URL/Span)]% of span
Stability	±0.125% of URL for five years, with up to ±50°F (28°C) ambient temperature changes		
Ambient Temperature Effect per 50°F (28°C)	Spans from 1:1 to 30:1	±(0.05% URL + 0.125% of span)	
	Spans from 30:1 to 100:1	±(0.06% URL + 0.175% of span)	
Over-Pressure Limit	Same as URL		

1. Consult factory for special ranges and materials which may be available. For example, 0 to 6.22 kPa (0 to 25" H2O) at ±0.10% reference accuracy.

Power			
Input at 0 to 75°C (32 to 167°F)	8 to 30 Vdc, 10 mW average		
Input at –40 to 0°C (–40 to 32°F)	8.5 to 30 Vdc, 10 mW average		
Physical			
Dimensions	120 mm H by 163 mm W by 89 mm D (4.7 in. H by 6.4 in. W by 3.5 in. D)		
Weight	2.2 kg (4.9 lb)		
Vibration Effect	Sensor outputs shall not shift more than +0.1% of upper range limit per g from 5 to 2000 Hz in any axis when tested per IEC 770, Section 6.2.14.		
Construction	Standard	Transducer is all stainless steel construction with silicone fill fluid, 316L diaphragms and glass-filled PTFE o-rings. Coupling is A360 Aluminum with urethane coating.	
	Optional	Transducer includes Hastelloy C-276 wetted parts (construction is NACE compliant per MR0103 and ISO15156/MR0175), inert fill fluid. Coupling is available316 stainless steel.	
Mounting	Factory-installed on enclosure of FB103, FB107E, and FB503 units. See respective technical specifications for unit mounting options.		
Connections	Process	1/4-18 NPT on 2-1/8 inch centers (on coplanar flange)	
Environmental			
Same as the FloBoss unit in which it is installed.			
Process Seals per ANSI/ISA 12.27.01	Meets requirements for a Single Seal device as defined by ANSI/ISA 12.27.01. Installation must adhere to the following process temperature limits:		
	Process Temperature (at transmitter isolator flange)	Standard Silicone Fill Sensor	–40 to 100°C (–40 to 212°F)
		Inert Fill Sensor	–18 to 85°C (0 to 185°F)
		Note: Process temperatures above 85°C (185°F) require you to lower the product's maximum ambient temperature rating by a 1.5:1 ratio. To determine the adjusted maximum temperature rating, perform the following calculation: Adjusted max T_{amb} = Product Max T_{amb} – [(Actual Process T_{amb} – 85°C (185°F)) * 1.5] Example: Adjusted Max T_{amb} = 75°C – [(95°C – 85°C) * 1.5] = 60°C.	
Approvals			
Same as the FloBoss unit in which it is installed.			

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