

Model 268/268MR (Ex) Intrinsically Safe Differential Pressure Transmitter

Setra Systems Model 268 and 268MR pressure transducers sense gauge(static) or differential pressure and convert this pressure difference to a proportional current or voltage output. The 268 series is offered with a high level analog 0 to 5 VDC, 0 to 10 VDC or 4-20mA output. The 268MR offers multi-range capability and field configurable output. The Model 268 is packaged in a die-cast aluminum enclosure that is specifically designed for IP65 service to withstand environmental effects. Used in Building Energy Management Systems, the 268 and 268MR pressure transducers are available for air pressure ranges as low as 0.1 in. W.C. (25 Pa) full scale to 100 in. W.C. (25 kPa) full scale. Static accuracy is $\pm 1\%$ full scale in normal ambient temperature environments. The 268 series utilizes an improved all stainless steel micro-tig welded sensor, which is enclosed in a welded stainless steel body. The tensioned stainless steel diaphragm and insulated stainless steel electrode, positioned close to the diaphragm, form a variable capacitor. As the pressure increases or decreases, the capacitance changes. The change in capacitance is detected and converted to a linear DC electrical signal by Setra's unique electronic circuit. The micro-tig welded tension sensor allows up to 10 psi overpressure(in either direction), with no damage to the unit. The improved sensor design also allows the Model 268MR version to have 6 field selectable pressure ranges (bi-directional and unidirectional) in one unit. The simple flip of a dip switch enables the user to easily field calibrate the unit with minimal effort. Explosion-proof units are approved for ia II CT4.



Performance Data

Parameter	Standard	Optional	Optional
Accuracy RSS* (at constant temp.)	$\pm 1.0\%FS$	$\pm 0.4\%FS$	$\pm 0.25\%FS$
Non-Linearity (BFSL)	$\pm 0.98\%FS$	$\pm 0.33\%FS$	$\pm 0.20\%FS$
Hysteresis	$\pm 0.20\%FS$	$\pm 0.20\%FS$	$\pm 0.20\%FS$
Non-Repeatability	$\pm 0.05\%FS$	$\pm 0.05\%FS$	$\pm 0.05\%FS$
Thermal Effects**			
Compensated Range °F(°C)	+40 to +150 (+5 to +65)		
Zero/Span Shift %FS/ °F(°C)	$\pm 0.033 (\pm 0.06)$		
Maximum Line Pressure	10 PSI		
Overpressure	10 PSI in Positive or Negative Direction		
Warm-up Shift	$\pm 0.1\% FS$ Total		

Position Effect***	Range	Zero Offset (%FS/g)
	0 To 25Pa	2.1
0 To 250Pa	0.22	
0 To 1250Pa	0.14	
0 To 7500Pa	0.06	

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

** Units calibrated at nominal 70°F. Maximum thermal error computed from this datum.

*** Unit is factory calibrated at 0g effect in the vertical position.

Physical Description

Case	IP65 die-cast aluminum enclosure
Electrical Connection	Screw Terminal Strip Inside of Case
Electrical Termination	PG-9
Zero and Span Adjustment	Accessible Inside of Case
Pressure Fittings	3/16" O.D. Barbed Brass for 1/4" Push-On Tubing (Standard)
Mounting	2 Mounting Tabs with 0.18" Holes
Weight (approx.)	348 grams
Pressure Media	Typically Air or Similar Non-Conducting Gases.
Environmental Data Temperature	
Operating* °F (°C)	0 to +150 (-18 to +65)
Storage °F (°C)	-65 to +180 (-54 to +82)

* Operating temperature limits of the electronics only.

Pressure media temperature may be considerably higher or lower.

Electrical Data (Current)

Circuit	2-Wire
Output*	4 to 20 mA**
Bidirectional Output at Zero	12 mA
External Load	0 to 800 Ohms
Minimum loop supply voltage	(VDC) = $9 + 0.02 \times (\text{Resistance of receiver plus line})$
Maximum loop supply voltage	(VDC) = $30 + 0.004 \times (\text{Resistance of receiver plus line})$
Re-Ranging (268MR only)	4 Position Dip Switches (located inside case)

* Calibrated with a 24 VDC loop supply voltage and a 250 ohm load.

** Zero output factory set to within $\pm 0.16mA$ (± 0.08 mA for optional accuracies).

Application

- Power Plant
- Energy Management Systems
- Orifice Plate Flow Measure
- Oven Pressurization and Furnace Draft

Controls

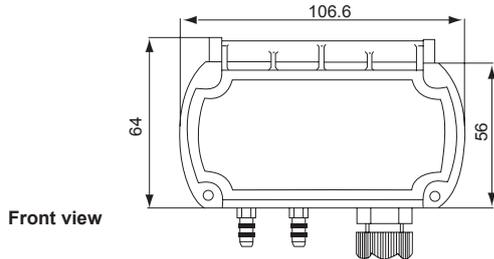
Features

- Model 268MR Offers Multi-Range Capability, 6 Field Selectable
- IP65 Rated Housing
- Optional Accuracies as High as 0.25% FS
- PG-9 Electrical Termination
- Ranges as low as 0.1 in.W.C. (25 Pa)
- Meets CE Conformance Standards

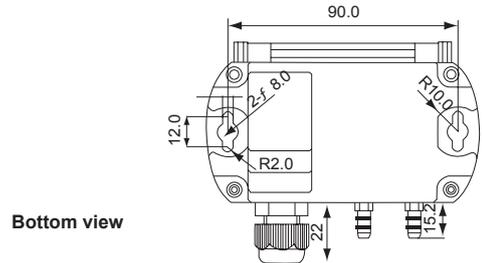
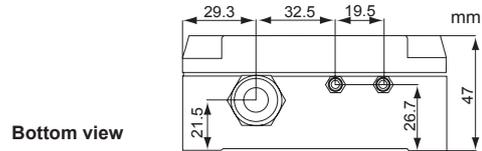
Electrical Data (Voltage)

Circuit	3-wire (Exc, Com, Sig)
Output*	0 to 5VDC/0 to 10VDC**
Excitation (for 0 to 5VDC output)	9 to 30VAC/12 to 42VDC
Excitation (for 0 to 10VDC output)	11 to 30VAC/13 to 42VDC
Bidirectional Output at Zero	2.5VDC (0 to 5VDC)/5VDC (0 to 10VDC)
Output Impedance	100Ohms

*Calibrated into a 50K ohm load, operable into a 5000 ohm load or greater.
 **Zero output factory set to within ±50mV (±25 mV for optional accuracies).
 Span (Full Scale) output factory set to within ±50mV. (±25 mV for optional accuracies).



Outline Drawings



Ordering Information

Example: Part No. 2681R25WD11G2C for a 0 to .25 in. WC Unidirectional Range, 4-20 mA Output, 3/16" Barbed Brass Fitting, PG-9 Electrical Termination, 1% Accuracy

Model 268 Pressure Transducer Code all blocks in table.

Model	Range	Unit	Type	Output	Accuracy	Fitting	Display	Safe
2681 = 268	in.WC	W = in.WC L = Pascal	Differential Pressure: D=Directional B=Bidirectional R=Reverse	11=4-20mA 2D=0-5VDC 2E=0-10VDC	C=±1.0%FS w/Cal. Cert. G=±1.0%FS D=±0.5%FS E=±0.4%FS F=±0.25%FS	F ₁ =3/16" Barbed Brass F ₂ = Ø 8mm Barbed Brass	N=No Display D=LCD Display	E=Intrinsic Safe N=No Intrinsic Safe
	Pascals							
	025 = 0 to 25	±25						
	050 = 0 to 50	±50						
	100 = 0 to 100	±100						
	250 = 0 to 250	±250						
	500 = 0 to 500	±500						
	10C = 0 to 1000	±1000						
	25C = 0 to 2500	±2500						
	40C = 0 to 5000	±5000						
	70C = 0 to 5000	±10000						
	10K = 0 to 10000							
	15K = 0 to 15000							
	20K = 0 to 20000							
	25K = 0 to 25000							
			1in.WC = 249.087Pa					

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Model	Pressure range	Units	Type	Output	Accuracy	Fitting	Display	Safe
2681 = 268	in.WC	W = in.WC L = Pascal	Differential Pressure: D=Directional B=Bidirectional	11=4-20mA 2D=0-5VDC 2E=0-10VDC	C=±1.0%FS w/Cal. Cert.G=±1.0%FS D=±0.5%FS	F ₁ =3/16" Barbed Brass F ₂ = Ø 8mm Barbed Brass	N=No Display D=LCD Display	E=Intrinsic Safe N=No Intrinsic Safe
	MR1 = 0 to 0.1	±0.05						
	MR2 = 0 to 0.25	±0.125						
	0 to 0.5	±0.25						
	0 to 1	±0.5						
	MR3 = 0 to 1.25	±0.625						
	0 to 2.5	±1.25						
	0 to 0.5	±2.5						
	MR4 = 0 to 7.5	±3.75						
	0 to 15	±7.5						
	0 to 30	±15						
	Pascals							
	MR5 = 0 to 25	±12.5						
	MR6 = 0 to 50	±25						
	0 to 100	±50						
	0 to 200	±100						
	MR7 = 0 to 250	±125						
	0 to 500	±250						
	0 to 1000	±500						
	MR4 = 0 to 625	±312						
	0 to 1250	±625						
	0 to 2500	±1250						
	MR9 = 0 to 1875	±937						
	0 to 3750	±1875						
	0 to 7500	±3750						
			1in.WC = 249.087Pa					

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