

SM-5551 Constant Current SM-5552 Constant Voltage

Low Pressure Transducer

Fully Temperature Compensated
and Calibrated

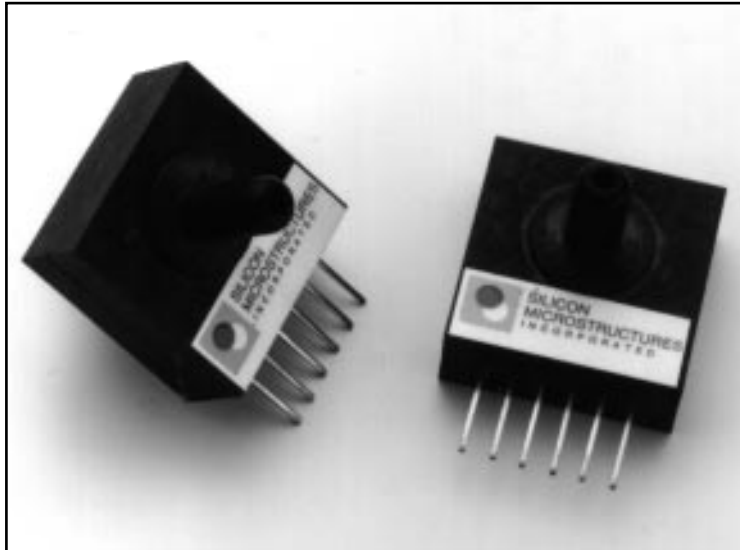
Description

Pressure sensor models SM-5551 and SM-5552 are fully temperature-compensated and calibrated. Each sensor is housed in a rugged plastic enclosure.

SMI uses a unique silicon sensor chip structure to optimize low-pressure performance and to provide a true low-pressure sensor—not merely a derated high-pressure part. The result is a device that provides all the performance necessary for low-pressure applications. Both constant current (model SM-5551) and constant voltage (model SM-5552) are available.

Factory calibration provides either a gain-set resistor (Model SM-5551) or a fixed 25 mV full-scale output (Model SM-5552). By eliminating the need for customer gain adjustments, these parts are truly interchangeable and offer remarkable assembly-cost savings for a wide variety of OEM industrial, medical and consumer products.

Rugged pins, sealed into the package to prevent breakage, allow simple placement in PC boards using standard 0.1 inch center-to-center pin spacing. Full high-temperature plastic enclosure prevents substrate drift and eases handling.



Features

- Solid state reliability
- Fully temperature-compensated
- Thoroughly calibrated and interchangeable
- Constant voltage or constant current drive
- Fully-enclosed, rugged plastic housing
- 0.3, 0.8, 1.5 and 3 PSI ranges available
- Differential or gage measurement
- Calibrated to better than 2%

Applications

- Medical equipment
- Respiration
- HVAC
- Level detection
- Flow measurement
- Industrial control

Characteristics

Test Conditions: Model SM-5551 w/excitation= 1.500 mA @ 25°C, Model SM-5552 w/excitation=10.00 Vdc @ 25°C, unless otherwise specified

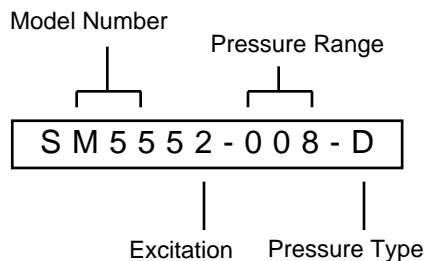
Parameter	Minimum	Typical	Maximum	Units
Excitation				
Current (SM-5551)	0.00	1.50	3.00	mA
Voltage (SM-5552)	0.00	10.00	20.00	Volts
Output				
Span (SM-5551) ¹	25.0	50.0	75.0	mV
Span (SM-5552)	24.5	25.0	25.5	mV
Offset	-2.0	±0.20	2.0	mV
Temperature Performance				
TC Span ²	-1.20	±0.20	1.20	%FS/100 °C ³
TC Offset ²	-2.40	±0.20	2.40	%FS/100 °C
Temp Hysteresis	-0.45	±0.05	0.45	%FS
Accuracy				
Linearity ^{4,5}	-0.30	±0.05	0.30	%FS
Repeatability	-0.30	±0.05	0.30	%FS
Pressure Hysteresis	-0.30	±0.05	0.30	%FS
Impedance (SM-5551)				
Z Input	2.20	3.00	4.60	k
Z Output	2.90	3.30	4.80	k
Impedance (SM-5552)				
Z Input	4.50	8.00	25.0	k
Z Output	2.00	2.50	4.50	k
Temperature Range				
Calibration	0	-	70	°C
Operating	-40	-	85	°C
Storage	-55	-	125	°C
Dynamic Characteristics				
Proof Pressure	>3 times full-scale output			
Burst Pressure	>5times full-scale output			

Notes

- Gain-set resistor for constant current (SM-5551): see application note 5500-1.
- Measured over a temperature range of 0 to 70 °C. RMS error, see application note 5500-1.
- FS denotes full scale output.
- Best fit straight line.
- 0.3 PSI linearity is ±0.5%FS (max).

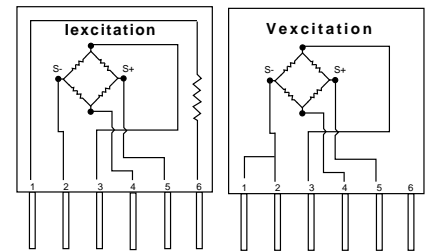
Ordering Information

Excitation:	Pressure range
1: Current	003: 0.3 PSI
2: Voltage	008: 0.8 PSI
	015: 1.5 PSI
Pressure type	030: 3.0 PSI
D: Differential	
G: Gage	



Special configurations are available. Contact Silicon Microstructures for more information.

Figure 1: Device Pinouts



Model SM-5551

Constant Current

- Rs (Span Cal.)
- Signal Out (-)
- I excitation
- Ground
- Signal Out (+)*
- Rs (Span Cal.)

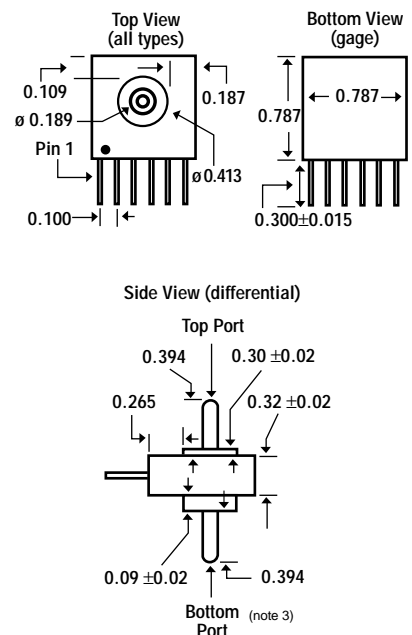
Model SM-5552

Constant Voltage

- Signal Out (-)
- Signal Out (-)
- V excitation
- Ground
- Signal Out (+)*
- Signal Out (+)*

* Output increases as top-port pressure is increased.

Figure 2: Installation Drawing



NOTES:

- All dimensions are shown in inches.
- Tolerance on all dimensions ±0.005" unless otherwise specified.
- Side view for gage/absolute parts is same as the differential without the bottom port.



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Additional Products

- Accelerometers
- OEM Pressure Transducers
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