

PSG50x/-S, PSG51x-S,

Pirani Standard Gauge

The INFICON Pirani Standard Gauges, PSG500, PSG500-S, PSG502-S, PSG510-S and PSG512-S, employ the most advanced digital Pirani technology available in the marketplace. The rugged stainless steel sensor cell and compact design qualify them for use on semiconductor systems and for standard applications, such as for vacuum lines.



ADVANTAGES

- Easy push button ATM and HV adjustment
- Compact space saving and rugged design
- Aluminum housing
- Measuring performance independent of mounting orientation for maximum engineering freedom in tool design
- All stainless steel measuring cell
- Logarithmic signal output for easy integration
- 10 bar absolute overpressure with threaded connections
- 250°C bakeable version
- Nickel filament option for corrosive applications
- Ceramic feedthrough for extremely corrosive applications (PSG510 and PSG512)
- Optional setpoints
- RoHS compliance

APPLICATIONS

- Controlling high vacuum ionization gauges
- For vacuum pressure monitoring
- Safety circuits in vacuum systems
- General vacuum measurement and control in the fine and rough vacuum range

PSG50x/-S, PSG51x-S,

ORDERING INFORMATION

Type	PSG500	PSG500-S	PSG502-S	PSG510-S	PSG512-S
Setpoints	None	Two setpoints	Two setpoints	Two setpoints	Two setpoints
Filament	Tungsten	Tungsten	Nickel	Tungsten	Nickel
Feedthrough	Glass	Glass	Glass	Ceramic	Ceramic
DN 16 ISO-KF	350-160	350-180	350-240	350-210	350-310
DN 16 CF-R	350-162	350-182	-	-	-
1/8 in. NPT	350-161	350-181	350-241	-	-
8 VCR	350-164	350-184	350-244	-	-
4 VCR	350-165	350-185	350-245	-	-
1/2 in. tube	350-163	350-183	-	-	-
7/16-20 UNF	350-166	-	-	-	-
DN 16 ISO-KF long tube	350-167	350-187	350-247	-	-
DN 16 CF-R long tube	350-168	-	-	-	-

Replacement sensor	PSG500/-S	PSG502-S	PSG510-S	PSG512-S
Filament	Tungsten	Nickel	Tungsten	Nickel
Feedthrough	Glass	Glass	Glass	Ceramic
DN 16 ISO-KF	350-820	350-800	-	-

Replacement sensor for old sensor version	PSG500/-S	PSG502-S	PSG510-S	PSG512-S
Filament	Tungsten	Nickel	Tungsten	Nickel
Feedthrough	Glass	Glass	Glass	Ceramic
DN 16 ISO-KF	350-920	350-900	350-930	350-940
DN 16 CF-R	350-922	350-902	-	-
1/8 in. NPT	350-921	350-901	-	-
8 VCR	350-924	350-904	-	-
4 VCR	350-926	350-906	-	-
1/2 in. tube	350-923	350-903	-	-
7/16-20 UNF	350-925	350-905	-	-
DN 16 ISO-KF long tube	350-927	350-907	-	-
DN 16 CF-R long tube	350-928	350-908	-	-

PSG50x/-S, PSG51x-S,

SPECIFICATIONS

Type	PSG500	PSG500-S	PSG502-S	PSG510-S	PSG512-S
Filament Feedthrough	Tungsten Glass	Tungsten Glass	Nickel Glass	Tungsten Ceramic	Nickel Ceramic
Measuring principle	thermal conductance according to Pirani				
Measurement range (air, O ₂ , CO, N ₂)	5 × 10 ⁻⁴ to 1000 mbar				
Accuracy (N ₂)					
1 × 10 ⁻³ ... 100 mbar	±15% of reading				
5 × 10 ⁻⁴ ... 1 × 10 ⁻³ mbar	±50% of reading				
100 ... 1000 mbar	±50% of reading				
Repeatability (air) 1 × 10 ⁻³ ... 100 mbar	2% of reading				
Output signal (measurement signal)					
Voltage range	0 ... +10.3 V				
Measurement range	V +1.9 ... +10.0 V				
Voltage vs. pressure	Logarithmic 1.286 V / decade				
Error signal	0 ... +0.5 V (filament rupture)				
Output impedance	2 × 4.7 Ω				
Minimum loaded impedance	10 kΩ, short-circuit proof				
Response time	80 ms				
Gauge identification	27.0 kΩ, referenced to supply common				
Adjustment	One tactile switch for ATM and HV adjustment				
Setpoint	none	2			
Setting range	2 × 10 ⁻³ ... 500 mbar				
Hysteresis	10% of reading above lower threshold				
Relay contact	30 V (dc) / 0.5 A (dc) floating				
Switching time	<20 ms				
Supply voltage					
At gauge	+14 ... +30 V (dc)				
Ripple	≤1 V _{pp}				
Current consumption	<500 mA (max. starting current)				
Power consumption	≤1 W				
Electrical connection	FCC 68 / RJ45 appliance connector, 8 poles, male				
Sensor cable	8 poles plus shielding				
Cable length	≤100 m (8 × 0.14 mm ²)				
Materials exposed to vacuum	Glass, Ni, NiFe	Al ₂ O ₃ , Ni,			
	DIN 1.4301/1.4305/1.4435	DIN 1.3981/1.4305/1.4435			
Material Filament	W	W	Ni	W	Ni
Internal volume					
DN 16 ISO-KF, DN 16 CF-R, 7/16-20 UNF	1.5 cm ³ (0.092 in. ³)				
DN 16 ISO-KF and DN 16 CF-R long tube	10 cm ³ (0.61 in. ³)				
1/8 in. NPT, 4 VCR, 8 VCR, 1/2 in. tube	2 cm ³ (0.122 in. ³)				
Admissible pressure (absolute)	10 bar, limited to inert gases				

¹⁾ In horizontal mounting orientation

²⁾ Long tube

PSG50x/-S, PSG51x-S,

Type	PSG500	PSG500-S	PSG502-S	PSG510-S	PSG512-S
Filament Feedthrough	Tungsten Glass	Tungsten Glass	Nickel Glass	Tungsten Ceramic	Nickel Ceramic
Admissible temperature					
Operation			+5 ... +60°C		
Vacuum connection ¹⁾			80 / 250°C ²⁾		
Storage			-20 ... +65°C		
Mounting orientation			any		
Degree of protection			IP40		
Weight					
DN 16 ISO-KF, 7/16-20 UNF			80 g		
DN 16 CF-R, 4 VCR			100 g		
1/8 in. NPT, 1/2 in. tube			70 g		
8 VCR, DN 16 ISO-KF long tube			130 g		
DN 16 CF-R long tube			140 g		

¹⁾ In horizontal mounting orientation

²⁾ Long tube

PSG50x/-S, PSG51x-S,

DIMENSIONS

mm (in.)

