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# PSG5xx ATM to Medium Vacuum Gauge

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




## ADVANTAGES

- Easy push button ATM and HV adjustment
- Space saving rugged design
- Aluminum housing
- Mounts in any orientation
- Stainless steel measuring cell with metal-sealed feedthrough
- 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 & PSG512)
- Optional setpoints
- RoHS compliance

## ORDER INFORMATION

| Type | PSG500 tungsten | PSG500-S tungsten, setpoints | PSG502-S nickel, setpoints | PSG510-S tungsten, setpoints, ceramic feedthroughs | PSG512-S nickel, setpoints, ceramic feedthroughs |
|---|---|---|---|---|---|
| PSG500 1/2" Tube | 350-063 | | | | |
| PSG500 1/8" NPT | 350-061 | | | | |
| PSG500 4-VCR (1/4") | 350-065 | | | | |
| PSG500 7/16-20 UNF | 350-066 | | | | |
| PSG500 8-VCR (1/2") | 350-064 | | | | |
| PSG500 DN 16 CF-R | 350-062 | | | | |
| PSG500 DN 16 CF-R, ext. body | 350-068 | | | | |
| PSG500 DN 16 ISO-KF, ext. body | 350-067 | | | | |
| PSG500 DN 16 ISO-KF. | 350-060 | | | | |
| PSG500-S 1/2" Tube | | 350-083 | | | |
| PSG500-S 1/8" NPT | | 350-081 | | | |
| PSG500-S 4-VCR (1/4") | | 350-085 | | | |
| PSG500-S 7/16-20 UNF | | 350-086 | | | |
| PSG500-S 8-VCR (1/2") | | 350-084 | | | |
| PSG500-S DN 16 CF-R | | 350-082 | | | |
| PSG500-S DN 16 CF-R, ext. body | | 350-088 | | | |
| PSG500-S DN 16 ISO-KF | | 350-080 | | | |
| PSG500-S DN 16 ISO-KF, ext. body | | 350-087 | | | |
| PSG502-S 1/2" Tube | | | 350-143 | | |
| PSG502-S 1/8" NPT | | | 350-141 | | |
| PSG502-S 4-VCR (1/4") | | | 350-145 | | |
| PSG502-S 7/16-20 UNF | | | 350-146 | | |
| PSG502-S 8-VCR (1/2") | | | 350-144 | | |
| PSG502-S DN 16 CF-R | | | 350-142 | | |
| PSG502-S DN 16 CF-R, ext. body | | | 350-148 | | |
| PSG502-S DN 16 ISO-KF | | | 350-140 | | |
| PSG502-S DN 16 ISO-KF, ext. body | | | 350-147 | | |
| PSG510-S DN 16 ISO-KF | | | | 350-200 | |
| PSG512-S DN 16 ISO-KF | | | | | 350-300 |

## SPECIFICATIONS

| Type | | PSG500 tungsten | PSG500-S tungsten, setpoints | PSG502-S nickel, setpoints | PSG510-S tungsten, setpoints, ceramic feedthroughs | PSG512-S nickel, setpoints, ceramic feedthroughs |
|---|---|---|---|---|---|---|
| Measuring principle | | thermal conductance according to Pirani | thermal conductance according to Pirani | thermal conductance according to Pirani | thermal conductance according to Pirani | thermal conductance according to Pirani |
| Accuracy ($N_2$) | | | | | | |
| 1 x $10^{-3}$ … 100 mbar | % of reading | | ±15% | ±15% | ±15% | ±15% |
| 5 x $10^{-4}$ … 1 x $10^{-3}$ mbar | % of reading | | ±50% | ±50% | ±50% | ±50% |
| 100 … 1000 mbar | % of reading | | ±50% | ±50% | ±50% | ±50% |
| Accuracy($N_2$) | | | | | | |
| 1 x $10^{-3}$ … 100 mbar | % of reading | ±15% | | | | |
| 5 x $10^{-4}$ … 1 x $10^{-3}$ mbar | % of reading | ±50% | | | | |
| 100 … 1000 mbar | % of reading | ±50% | | | | |
| Repeatability (air) | | | | | | |
| 1 x $10^{-3}$ … 100 mbar | % of reading | 2% | 2% | 2% | 2% | 2% |
| Output signal (measurement signal) | | | | | | |
| Voltage range | V | 0 … +10.3 | 0 … +10.3 | 0 … +10.3 | 0 … +10.3 | 0 … +10.3 |
| Measurement range | V | +1.9 … +10.0 | +1.9 … +10.0 | +1.9 … +10.0 | +1.9 … +10.0 | +1.9 … +10.0 |
| Measurement range (air, $0_2$, CO, $N_2$) | mbar | 5 x $10^{-4}$ to 1000 | 5 x $10^{-4}$ to 1000 | 5 x $10^{-4}$ to 1000 | 5 x $10^{-4}$ to 1000 | 5 x $10^{-4}$ to 1000 |
| Setpoint | | | | | | |
| Number of setpoints | | none | 2 | 2 | 2 | 2 |
| Setpoint | | | | | | |
| Setting range | mbar | – | 2 x $10^{-3}$ … 500 | 2 x $10^{-3}$ … 500 | 2 x $10^{-3}$ … 500 | 2 x $10^{-3}$ … 500 |
| Setpoint | | | | | | |
| Hysteresis | % of reading | – | 10% above lower threshold | 10% above lower threshold | 10% above lower threshold | 10% above lower threshold |
| Setpoint | | | | | | |
| Relay contact | V (dc) | – | 30 | 30 | 30 | 30 |
| Setpoint | | | | | | |
| Relay contact | A (dc) | – | 0.5 floating | 0.5 floating | 0.5 floating | 0.5 floating |
| Setpoint | | | | | | |

## SPECIFICATIONS

| Type | | PSG500 tungsten | PSG500-S tungsten, setpoints | PSG502-S nickel, setpoints | PSG510-S tungsten, setpoints, ceramic feedthroughs | PSG512-S nickel, setpoints, ceramic feedthroughs |
|---|---|---|---|---|---|---|
| Relay contact: Switching time | ms | – | <20 | <20 | <20 | <20 |
| Supply voltage | | | | | | |
| At gauge | V (dc) | +14 …+30 | +14 …+30 | +14 …+30 | +14 …+30 | +14 …+30 |
| Supply voltage | | | | | | |
| Ripple | V (p-p) | ≤1 | ≤1 | ≤1 | ≤1 | ≤1 |
| Voltage vs. pressure | | logarithmic 1.286 Volts per decade | logarithmic 1.286 Volts per decade | logarithmic 1.286 Volts per decade | logarithmic 1.286 Volts per decade | logarithmic 1.286 Volts per decade |
| Internal volume | | | | | | |
| DN 16 ISO-KF, DN 16 CF-R, 7/16-20 UNF | cm³ (in.³) | 1.5 (0.092) | 1.5 (0.092) | 1.5 (0.092) | 1.5 (0.092) | 1.5 (0.092) |
| DN 16 ISO-KF & DN 16 CF-R long tube | cm³ (in.³) | 10 (0.61) | 10 (0.61) | 10 (0.61) | 10 (0.61) | 10 (0.61) |
| 1/8" NPT , 4 VCR, 8 VCR, 1/2" tube | cm³ (in.³) | 2 (0.122) | 2 (0.122) | 2 (0.122) | 2 (0.122) | 2 (0.122) |
| Admissible temperature | | | | | | |
| Operation | °C | +5 … +60 | +5 … +60 | +5 … +60 | +5 … +60 | +5 … +60 |
| Vacuum connection (1) | °C | 80 / 250 (2) | 80 / 250 (2) | 80 / 250 (2) | 80 / 250 (2) | 80 / 250 (2) |
| Storage | °C | -20 … +65 | -20 … +65 | -20 … +65 | -20 … +65 | -20 … +65 |
| Weight | | | | | | |
| DN 16 ISO-KF, 7/16-20 UNF | g | 80 | 80 | 80 | 80 | 80 |
| DN 16 CF-R, 4 VCR | g | 100 | 100 | 100 | 100 | 100 |
| 1/8" NPT, 1/2" tube | g | 70 | 70 | 70 | 70 | 70 |
| 8 VCR, DN 16 ISO-KF long tube | g | 130 | 130 | 130 | 130 | 130 |
| DN 16 CF-R long tube | g | 140 | 140 | 140 | 140 | 140 |
| Error signal | V | 0 … +0.5 (filament rupture) | 0 … +0.5 (filament rupture) | 0 … +0.5 (filament rupture) | 0 … +0.5 (filament rupture) | 0 … +0.5 (filament rupture) |
| Output impedance | Ω | 2 x 4.7 | 2 x 4.7 | 2 x 4.7 | 2 x 4.7 | 2 x 4.7 |
| Minimum loaded impedance | kΩ | 10, short-circuit proof | 10, short-circuit proof | 10, short-circuit proof | 10, short-circuit proof | 10, short-circuit proof |
| Response time | ms | 80 | 80 | 80 | 80 | 80 |

## SPECIFICATIONS

| Type | | PSG500 tungsten | PSG500-S tungsten, setpoints | PSG502-S nickel, setpoints | PSG510-S tungsten, setpoints, ceramic feedthroughs | PSG512-S nickel, setpoints, ceramic feedthroughs |
|---|---|---|---|---|---|---|
| Gauge identification | kΩ | 27.0, referenced to supply common | 27.0, referenced to supply common | 27.0, referenced to supply common | 27.0, referenced to supply common | 27.0, referenced to supply common |
| Adjustment | | one tactile switch for ATM and HV adjustment | one tactile switch for ATM and HV adjustment | one tactile switch for ATM and HV adjustment | one tactile switch for ATM and HV adjustment | one tactile switch for ATM and HV adjustment |
| Current consumption | mA | <500 (max. starting current) | <500 (max. starting current) | <500 (max. starting current) | <500 (max. starting current) | <500 (max. starting current) |
| Power consumption | W | ≤1 | ≤1 | ≤1 | ≤1 | ≤1 |
| Electrical connection | | FCC 68 / RJ45 appliance connector, 8 poles, male | FCC 68 / RJ45 appliance connector, 8 poles, male | FCC 68 / RJ45 appliance connector, 8 poles, male | FCC 68 / RJ45 appliance connector, 8 poles, male | FCC 68 / RJ45 appliance connector, 8 poles, male |
| Sensor cable | | 8 poles plus shielding | 8 poles plus shielding | 8 poles plus shielding | 8 poles plus shielding | 8 poles plus shielding |
| Cable length | m | ≤100 (8 x 0.14 mm²) | ≤100 (8 x 0.14 mm²) | ≤100 (8 x 0.14 mm²) | ≤100 (8 x 0.14 mm²) | ≤100 (8 x 0.14 mm²) |
| Materials exposed to vacuum | | glass, Ni, NiFe, DIN 1.4301 / 1.4305 / 1.4435 | glass, Ni, NiFe, DIN 1.4301 / 1.4305 / 1.4435 | glass, Ni, NiFe, DIN 1.4301 / 1.4305 / 1.4435 | $Al_2O_3$, Ni, DIN 1.3981 / 1.4305 / 1.4435 | $Al_2O_3$, Ni, DIN 1.3981 / 1.4305 / 1.4435 |
| Filament | | W | W | Ni | W | Ni |
| Admissible pressure | bar (absolute) | 10, limited to inert gases | 10, limited to inert gases | 10, limited to inert gases | 10, limited to inert gases | 10, limited to inert gases |
| Mounting orientation | | any | any | any | any | any |
| Degree of protection | | IP40 | IP40 | IP40 | IP40 | IP40 |

(1) In horizontal mounting orientation

(2) Long tube

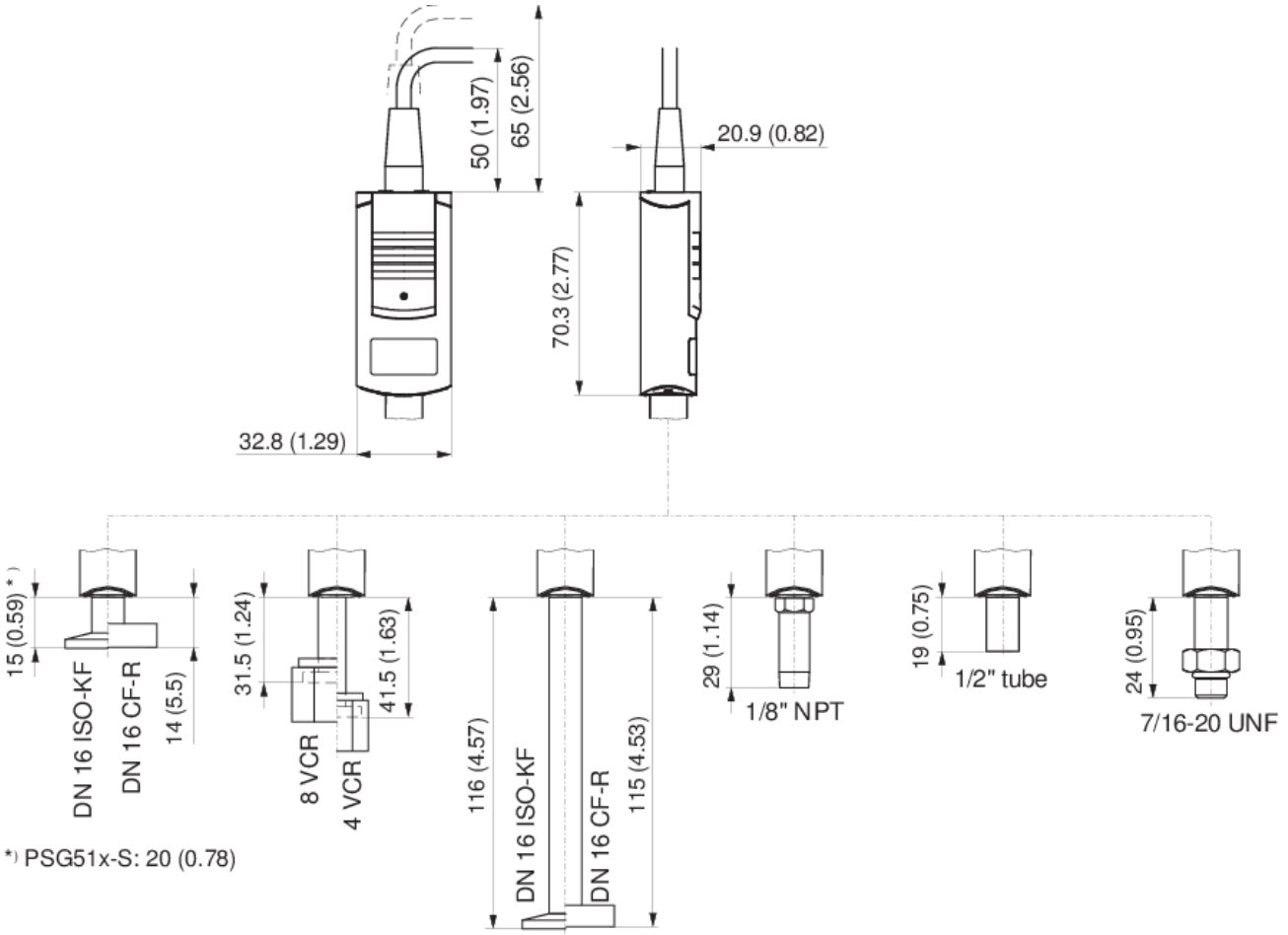
## SPAREPARTS

| | PSG500 tungsten | PSG500-S tungsten, setpoints | PSG502-S nickel, setpoints | PSG510-S tungsten, setpoints, ceramic feedthroughs | PSG512-S nickel, setpoints, ceramic feedthroughs |
|---|---|---|---|---|---|
| PSG500 Spare Sensor 4-VCR (1/4") | 350-926 | 350-926 | - | - | - |
| PSG500 Spare Sensor 1/2" Tube | 350-923 | 350-923 | - | - | - |
| PSG500 Spare Sensor 1/8" NPT | 350-921 | 350-921 | - | - | - |
| PSG500 Spare Sensor 7/16-20 UNF | 350-925 | 350-925 | - | - | - |
| PSG500 Spare Sensor 8-VCR (1/2") | 350-924 | 350-924 | - | - | - |
| PSG500 Spare Sensor DN 16 CF-R | 350-922 | 350-922 | - | - | - |
| PSG500 Spare Sensor DN 16 CF-R,ext.body | 350-928 | 350-928 | - | - | - |
| PSG500 Spare Sensor DN 16 KF | 350-920 | 350-920 | - | - | - |
| PSG500 Spare Sensor DN 16 KF,ext.body | 350-927 | 350-927 | - | - | - |
| PSG502 Spare Sensor 1/2" Tube | - | - | 350-903 | - | - |
| PSG502 Spare Sensor 1/8" NPT | - | - | 350-901 | - | - |
| PSG502 Spare Sensor 4-VCR (1/4") | - | - | 350-906 | - | - |
| PSG502 Spare Sensor 7/16-20 UNF | - | - | 350-905 | - | - |
| PSG502 Spare Sensor 8-VCR (1/2") | - | - | 350-904 | - | - |
| PSG502 Spare Sensor DN 16 CF-R | - | - | 350-902 | - | - |
| PSG502 Spare Sensor DN 16 CF-R,ext.body | - | - | 350-908 | - | - |
| PSG502 Spare Sensor DN 16 KF | - | - | 350-900 | - | - |
| PSG502 Spare Sensor DN 16 KF,ext.body | - | - | 350-907 | - | - |
| PSG510 Spare Sensor DN 16 KF | - | - | - | 350-930 | - |
| PSG512 Spare Sensor DN 16 KF | - | - | - | - | 350-940 |

## ACCESSORIES

| | PSG500 tungsten | PSG500-S tungsten, setpoints | PSG502-S nickel, setpoints | PSG510-S tungsten, setpoints, ceramic feedthroughs | PSG512-S nickel, setpoints, ceramic feedthroughs |
|---|---|---|---|---|---|
| Clamping ring DN 10-16 ISO-KF | 211-001 | 211-001 | 211-001 | 211-001 | 211-001 |

## DIMENSIONS




*) PSG51x-S: 20 (0.78)



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