

PPG550

Pirani Piezo Gauge

The new INFICON Pirani Piezo combination gauge (PPG550) is based on the most advanced MEMS (Microelectromechanical Systems) sensor technology available. The Pirani/ Piezo combination technology miniaturized in the MEMS process enables the construction of a very small and space-saving sensor. The Pirani, based on MEMS technology, is measuring deeper and more accurately in the HV range than a classic Pirani. Combined with a MEMS piezo sensor, mounted in the same flange, the gauge becomes a real vacuum wide range gauge, extending the measuring range far beyond the usual 1000 mbar.

In the range of 2 ... 1333 mbar the MEMS Piezo part of the sensor provides gas type independent pressure measurement. PPG550 can be used to direct drop in replace the so called MKS910 "DualTrans™ MicroPirani™ - Absolute Piezo Vacuum Pressure Transducers" as well as MKS925 "Micro Pirani™ Vacuum Pressure Transducers". PPG550 offers same connectors/ pin assignment, analog output and RS232/485 compatibility.



ADVANTAGES

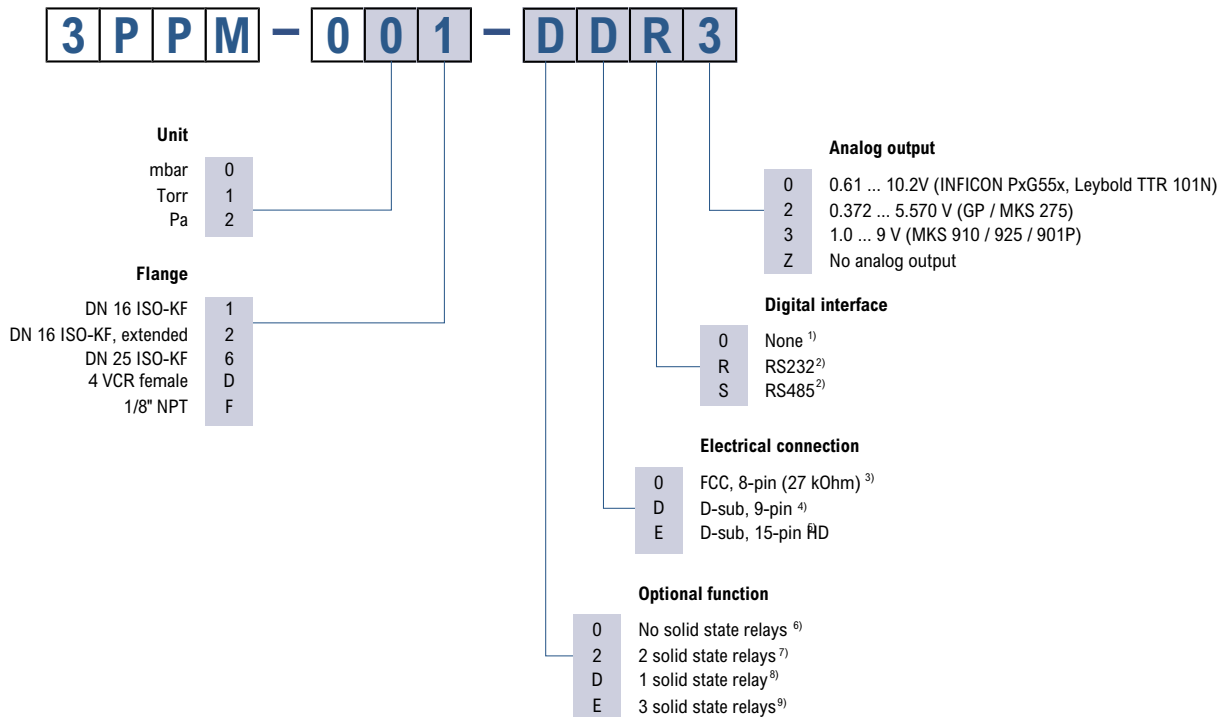
- Gas type independent above 2 mbar – allows safe venting with any gas mixture
- High accuracy and reproducibility at atmosphere – reliable, fast atmospheric pressure detection
- Versatile of mounting orientation – provides engineering freedom in tool design
- Selectable analog output signal for easy system integration
- Digital interfaces RS232/ RS485
- Direct drop in replacement MKS910 "DualTrans™ MicroPirani™ & MKS925 "Micro Pirani™" (Trademarks of MKS Instruments, Andover, MA)
- Compliance & standards: CE, EN, UL, CSA, RoHS

APPLICATIONS

- Use in Analytical equipment/ mass spectrometers
- Physical vapor deposition
- Fore-line measurement
- Gas-backfilling

PPG550

ORDERING INFORMATION



- 1) No RS interface on FCC 8-pin connector
- 2) Only for D-sub 9-pin or D-sub 15-pin HD connectors
- 3) FCC 8-pin with 0 or 2 solid state relays, no RS interface on FCC 8-pin connector, solid state relay on FCC connector gauges have to be preset during production, they can't be set in the field due to missing RS interface
- 4) D-sub 9-pin with 0 or 1 solid state relay, customer choice of either RS232 or RS485 interface
- 5) D-sub 15-pin HD with 0 or 3 solid state relays, customer choice of either RS232 or RS485 interface
- 6) All connectors are also available without solid state relays
- 7) 2 solid state relays are only available on FCC 8-pin connector, solid state relays on FCC connector gauges have to be preset during production, they can't be set in the field due to missing RS interface
- 8) 1 solid state relay is only available on D-sub 9-pin connector, solid state relays can be set by customer via RS interface
- 9) 3 solid state relays are only available on D-sub 15-pin HD connector, solid state relays can be set by customer in the field via the RS interface

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SPECIFICATIONS

Type	PPG550
Measurement principle	
2 ... 1333 mbar	MEMS Piezo resistive diaphragm
1.5 ... 2 mbar	Crossover range
1×10^{-6} mbar	MEMS Pirani thermal conductivity
Measurement range N ₂	1×10^{-6} ... 1333 mbar
Accuracy	
1100 ... 1333 mbar	0.5% of reading
800 ... 1099 mbar	0.25 % of reading
100 ... 800 mbar	0.5 % of reading
2 ... 99.9 mbar	1% of reading
1×10^{-4} ... 1.99 mbar	5% of reading
1×10^{-5} ... 9.99×10^{-5} mbar	25% of reading
Hysteresis	
10 ... 1333 mbar	0.1% of reading
1×10^{-3} ... 10 mbar	1% of reading
Response time (ISO 19685:2017)	<20 ms
Temperature	
Compensation	+10 ... +50 °C
Measurement absolute accuracy	$\pm 1.5^\circ\text{C}$ (0 ... +80 °C)
Solid state relay	
Set point range	5×10^{-6} ... 1333 mbar
Contact rating	50 V, 100 mA / mA (dc)
Contact on resistance	<35 Ω
Contact endurance	Unlimited (no mechanical wear)
Analog output	
3PPM-xxx-xxx 0	0.61 ... 10.2 V
3PPM-xxx-xxx 2	0.375 ... 5.570 V
3PPM-xxx-xxx 3	1.0 ... 9 V
3PPM-xxx-xxx Z	1.0 ... 9 V
Error signal	Check operating manual page 13
Power supply	
Supply voltage at gauge	+12 ... +30 V (dc) ripple max. 1 V
Power consumption	≤ 350 mW
Internal fuse	100 mA (thermal recoverable)
Reverse polarity and overvoltage protection	yes

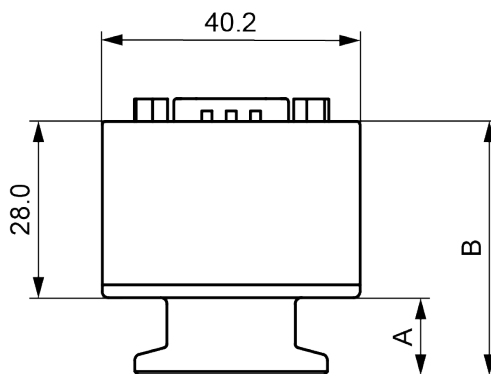
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Type	PPG550
Sensor cable connections	
Electrical connection	
3PPM-0xx-x0xx	FCC 68, 8-pin
3PPM-0xx-xDxx	D-sub, 9-pin, male
3PPM-0xx-xExx	D-sub HD, 15-pin, male
Sensor cable	shielded, 0.14 mm ² /conductor
Cable length	
Analog	≤100 m
RS232C operation	≤15 m
RS485 operation	≤1200 m
RS232C/RS485 interface	
Data rate	9600 Baud (default)
Data format	binary 8 data bits one stop bit no parity bit no handshake
	Further information on RS232/ RS485 interface look operating manual page 15
Materials exposed to vacuum	
Housing	SS 1.4307, AISI 304L, Al 6061
Flange	SS 1.4307, AISI 304L
Further parts	AISI 304L, Kovar, glass, silicon, nickel, Al, SiO ₂ , Si ₃ N ₄ , gold, FPM, low outgassing epoxy resin, solder, RO4305
Pressure max	10 bar (absolute)
Admissible temperatures	
Storage	-40 ... +120 °C
Operation	-20 ... +50 °C
Bakeout	+120 °C (non operating)
Relative humidity (IEC 68-2-38) (year's mean / during 60 days)	98% non-condensing
Use	indoors only altitude up to 2000 m
Degree of protection	IP 40
Weight	
DN 16 ISO-KF	~136g
DN 16 ISO-KF, long tube	~154g
DN 25 ISO-KF	~155g
4 VCR female	~158g
1/8" NPT	~139g

PPG550

DIMENSIONS

[mm]



	A [mm]	B [mm]
DN 16 ISO-KF	12.0	40.0
DN 16 ISO-KF, long tube	29.0	56.4
DN 25 ISO-KF	12.0	40.0
4 VCR female	37.7	61.7
1/8" NPT	37.0	65.0