

PCG550, PCG552, PCG554

Pirani Capacitance Diaphragm Gauge

The INFICON Pirani Capacitance Diaphragm Gauge (PCG55x) combines the INFICON ceramic capacitance diaphragm sensor technology with the advantages of a Pirani unit in a single product. In the measurement range between 10 mbar and atmosphere the capacitance diaphragm technology provides gas-type independent, highly accurate values for reliable pressure measurement. The PCG55x offers also a variety of features which allows the right product configuration for the demanded application.

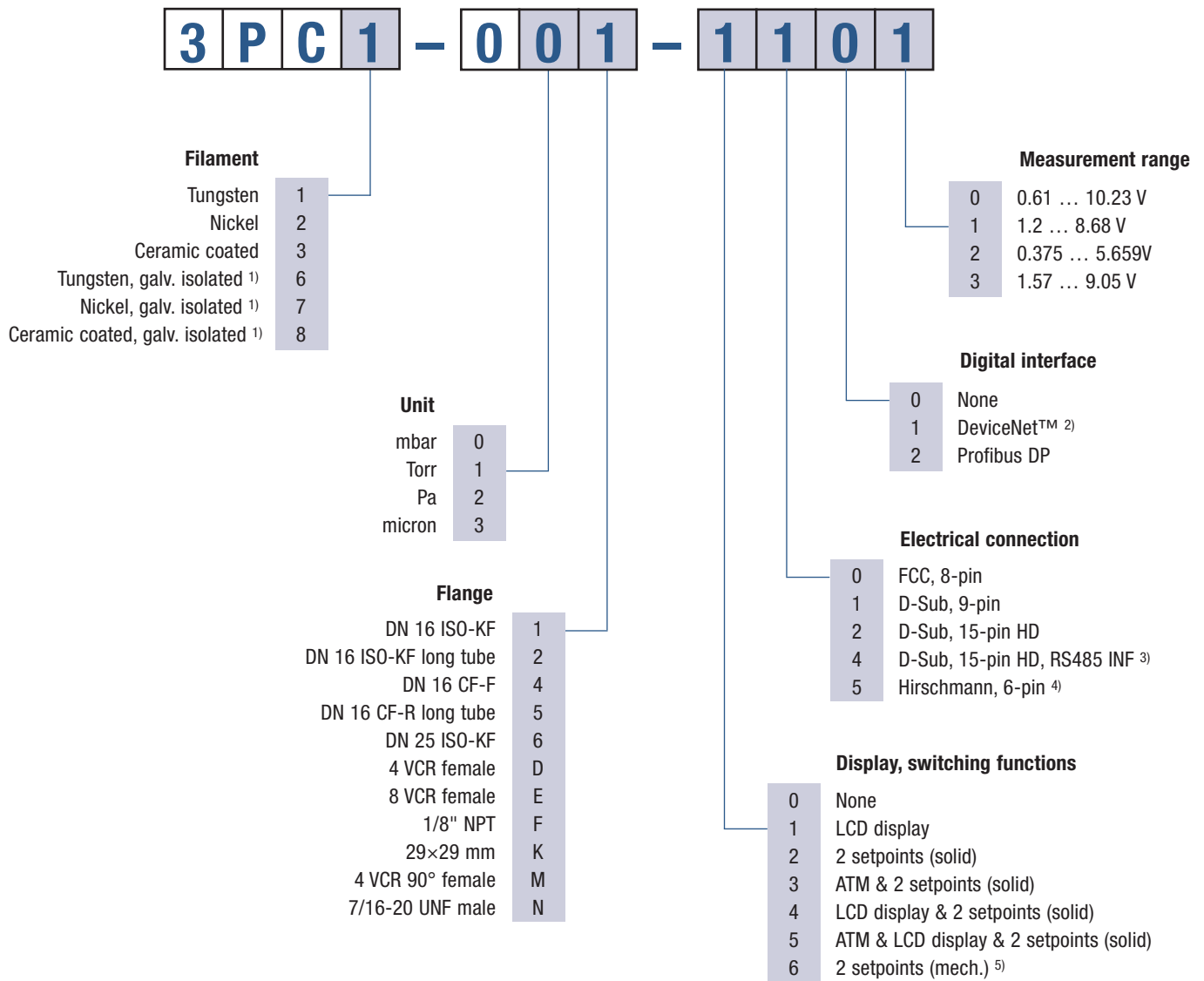


ADVANTAGES

- Gas-type independent above 10 mbar – allows safe venting with any gas mixture
- High accuracy and reproducibility at atmosphere – for reliable atmospheric pressure detection
- Fast atmospheric detection – eliminates waiting time and shortens process cycle
- Versatile of mounting orientation – provides engineering freedom in tool design
- Available with Tungsten (PCG550) or Nickel (PCG552) filament or with a fully ceramic coated (PCG554) sensor unit for highly corrosive applications
- Easy to exchange plug & play sensor element with on-board calibration data – guarantees high reproducibility and low cost of ownership
- Eligible output signal for easy integration
- Optional atmospheric switch, display and digital interfaces
- Diagnostic port on all versions

APPLICATIONS

- Load Lock control
- Fore vacuum pressure measurement
- Safety circuits in vacuum systems
- General vacuum measurement and control in the medium and rough vacuum range



1) Only with D-Sub 9-pin connector available
 2) Only with D-Sub 9-pin connector and galvanically isolated available
 3) Only without additional digital interface available
 4) No fieldbus interface, setpoints and ATM sensor available
 5) Only with D-Sup 9-pin connector without LCD display available

SPECIFICATIONS

Type Filament		PCG550 Tungsten	PCG552 Nickel	PCG554 ceramic coated
Measurement range	mbar (Torr)	5×10 ⁻⁵ ... 1500 (3.8×10 ⁻⁵ ... 1125)		
Accuracy (N ₂)	5×10 ⁻⁴ ... 1×10 ⁻³ mbar	% of reading	±50	
	1×10 ⁻³ ... 100 mbar	% of reading	±15	
	100 ... 950 mbar	% of reading	±5	
	950 ... 1050 mbar	% of reading	±2.5	
Repeatability (N ₂)	1×10 ⁻³ ... 1100 mbar	% of reading	±2	
Admissible pressure	bar (absolute)		≤5	
Burst pressure	bar (absolute)		10	
Admissible temperature				
Operation (ambient)	°C		+10 ... +50	
Storage	°C		-20 ... +65	
Bakeout at flange	°C		≤80	
Long tube	°C		≤250	
Supply voltage	V / A DC		+15 ... +30	
Power consumption				
Without fieldbus	W		≤2.5	
DeviceNet™	W		≤3	
Profibus	W		≤3	
Output signal analog				
3PCx-0xx-xxx0	V		0 ... +10.23	
-xxx1	V		0 ... +8.68	
-xxx2	V		0 ... +5.659	
-xxx3	V		0 ... +9.05	
Measurement range				
3PCx-0xx-xxx0	V		+0.61 ... +10.23	
-xxx1	V		+1.2 ... +8.68	
-xxx2	V		+0.375 ... +5.659	
-xxx3	V		+1.57 ... +9.05	
Voltage vs. pressure				
3PCx-0xx-xxx0 / -xxx1	V / Decade		1.286	
3PCx-0xx-xxx2 / -xxx3	V / Decade		1	
Load impedance	kΩ		>10	
Setpoint relay			2	
Range (N ₂)	mbar		5×10 ⁻⁵ ... 1500	
Relay contact			n.o., potential free	
Hysteresis	% of threshold		10	
Contact rating				
Solid state relays	V / A DC		≤30 / ≤0.3	
Mechanical relays	V / A DC		≤30 / ≤1	
Switching time	ms		≤30	
Interface (digital)			RS232C	
Electrical connection				
3PCx-0xx-x0xx			FCC, 8-pin	
-x1xx			D-Sub, 9-pin, male	
-x2xx			D-Sub, 15-pin HD, male	
-x4xx			D-Sub, 15-pin HD, RS485 INFICON, male	
-x5xx			Hirschmann, 6-pin	
Cable length	m (ft)		≤100 (≤330)	
RS232C operation	m (ft)		≤30 (≤100)	
Materials exposed to vacuum		W, Ni, NiFe, ceramic, SnAg, stainless steel, glass	Ni, NiFe, ceramic, SnAg, stainless steel, glass	ceramic, stainless steel

(continued)

SPECIFICATIONS (concluded)

Type Filament	PCG550 Tungsten	PCG552 Nickel	PCG554 ceramic coated
Internal volume			
DN 16 ISO-KF	cm ³	4.7	
DN 16 ISO-KF long tube	cm ³	14.5	
DN 16 CF-F	cm ³	8	
DN 16 CF-R long tube	cm ³	14	
DN 25 ISO-KF, 4 VCR	cm ³	5.5	
8 VCR	cm ³	7	
1/8" NPT, 7/16-20 UNF	cm ³	5.2	
29×29 mm	cm ³	4.9	
4 VCR 90°	cm ³	7.9	
Weight			
Without fieldbus interface	g	115 ... 130	
With fieldbus interface	g	230 ... 250	
Degree of protection		IP 40	

SPECIFICATIONS DeviceNet™

Protocol		DeviceNet™, group 2 slave only
Data rate switch	kBaud	125, 250, 500 or network programmable
Cable length		
125 kbps	m (ft)	500 (1650)
250 kbps	m (ft)	250 (825)
500 kbps	m (ft)	100 (330)
MAC ID		2 switches (address 00 - 63) or network programmable
Digital functions		read pressure, select units: Torr, mbar, Pa, micron, counts monitor gauge status, detailed alarm and warning information, safe state allows definition of behavior in case of error
Specification		DeviceNet™ "Vacuum Gauge Device Profile"
Device type		"CG" for combination gauge
I / O slave messaging		polling only
Supply voltage for DeviceNet™		
3PC1- / 3PC2- / 3PC3-0xx-xxxx	V / A DC	+15 ... +30
Power consumption		
3PC1- / 3PC2- / 3PC3-0xx-xxxx	W	≤3
Connector for DeviceNet		Micro-Style, 5-pin, male

SPECIFICATIONS Profibus DP

Baud rates	kBaud MBaud	9.6 / 19.2 / 93.75 / 187.5 / 500 1.5 / 12
Address		2 switches (address 00 - 127) or network programmable
Digital functions		read pressure, select units: Torr, mbar, Pa, micron, counts monitor gauge status, detailed alarm and warning information, safe state allows definition of behavior in case of error
Connector for Profibus DP		D-Sub, 9-pin, female

SPECIFICATIONS RS485C

Baud rates	kBaud	9.6 / 19.2 / 38.4 /57.6
Address		2 switches (address 00 - 127) or network programmable
Digital functions		read pressure, select units: Torr, mbar, Pa, micron, counts monitor gauge status, detailed alarm and warning information, safe state allows definition of behavior in case of error
Connector for RS485		D-Sub, 15-pin HD, male

SPARE PARTS

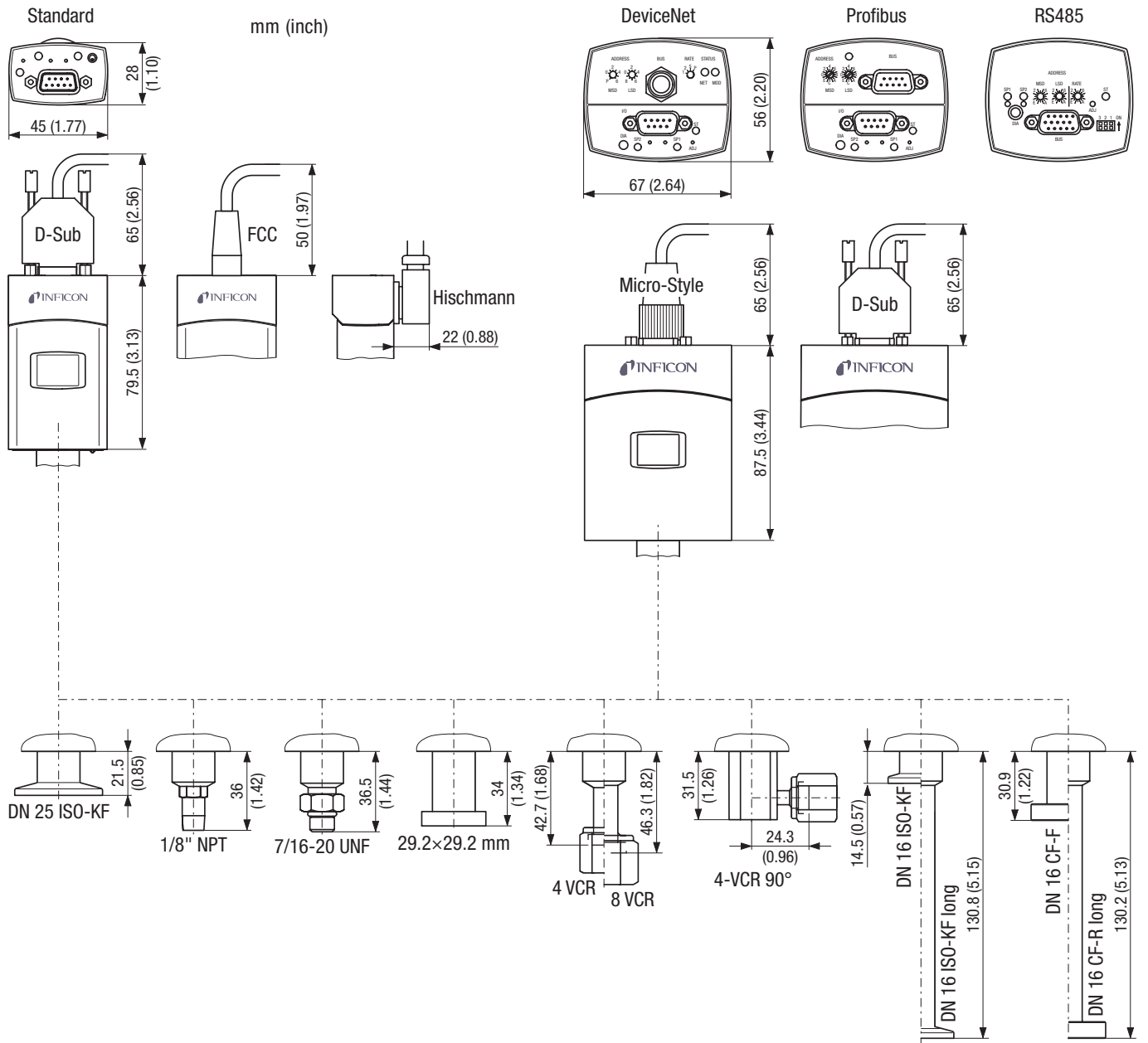
Type		PCG550 Tungsten	PCG552 Nickel	PCG554 ceramic coated
Replacement sensor	DN 16 ISO-KF	357-925	357-936	357-947
	DN 16 ISO-KF long tube	357-926	357-937	357-948
	DN 16 CF-F	357-927	357-938	357-949
	DN 16 CF-R long tube	357-928	357-939	357-950
	DN 25 ISO-KF	357-929	357-940	357-951
	4 VCR female	357-932	357-943	357-954
	8 VCR female	357-931	357-942	357-953
	1/8" NPT	357-930	357-941	357-952
	29x29 mm	357-934	357-945	357-956
	4 VCR 90° female	357-935	357-946	357-957
	7/16-20 UNF male	357-933	357-944	357-955

ACCESSORIES

Centering ring with filter (DN 16 ISO-KF)	211-097
Diagnostic ¹⁾ : Communication adapter (2 m) for PC RS232C serial port	303-333

¹⁾ Software to run the diagnostic functions on Windows NT, XP can be downloaded from our website.

DIMENSIONS



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Due to our continuing program of product improvements, specifications are subject to change without notice.

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