

TripleGauge™ BCG450

Bayard-Alpert Pirani Capacitance Diaphragm Gauge

The INFICON Bayard-Alpert Pirani Capacitance Diaphragm Gauge, BCG450, combines the advantages of three different technologies in a single, compact, economical package to measure process and base pressure from 5×10^{-10} to 1500 mbar (3.75×10^{-10} to 1125 Torr). The BCG450 is designed to take the place of three sensors (hot ion, convection enhanced Pirani and vacuum switch), thus reducing cost and valuable tool space.

ADVANTAGES

- BCG450 saves cost and tool space and reduces the complexity of vacuum measurement installation and setup
- Gas-type-independent pressure measurement above 10 Torr provides more reliable loadlock control for any gas-mixture
- Pirani interlock protects the hot filament from premature burnout
- Automatic high vacuum and atmospheric Pirani adjustment reduces operator interventions
- Differential pressure measurement at atmosphere eliminates uncertainty related to atmospheric pressure changes
- Easy-to-exchange sensing element with on-board calibration data guarantees reproducibility
- Optional graphic display and Fieldbus interfaces available

APPLICATIONS

- Pressure measurement in Semiconductor process, transfer and loadlock chambers
- Industrial coating
- General vacuum measurement and control on systems in the low to ultra high vacuum range



ORDERING INFORMATION

Type	BCG450 without LCD display	BCG450 with LCD display	BCG450-SP with Profibus DP ¹⁾	BCG450-SD with DeviceNet ¹⁾	BCG450-SR with RS485 ¹⁾
DN 25 ISO-KF	353-550	353-552	353-554	353-557	353-559
DN 40 CF-R	353-551	353-553	353-556	353-558	353-560
Replacement sensor 25 ISO-KF	354-492	354-492	354-492	354-492	354-492
Replacement sensor 40 CF-R	354-493	354-493	354-493	354-493	354-493
Available	1.Qt 2004	on request	on request	1.QT 2004	on request

¹⁾ not available with LCD display

ACCESSORIES

Power supply 24V DC / RS 232 C line	353-511
Baffle	353-512

SPECIFICATIONS

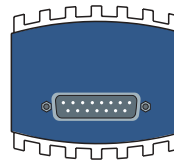
			BCG450 Standard	BCG450 Display
Measurement range	mbar (Torr)		5×10^{-10} to 1500	$(3.75 \times 10^{-10}$ to 1125)
Accuracy	10^{-8} to 10^{-2} mbar	% of reading	15	
	10^{-2} to 50 mbar	% of reading	15	
	50 to 950 mbar	% of reading	5	
	950 to 1050 mbar	% of reading	2.5	
Hot ion emission on (selectable high / low, via RS232 / Fieldbus)	mbar		2×10^{-2} (high)	
	mbar		8×10^{-3} (low)	
Degas ¹⁾ $p < 7.2 \times 10^{-6}$	mbar		Electron bombardment, max. 3 min	
Pressure, max. absolute	bar		5	
Temperature				
Operation (ambient)	°C		0 to +50	
Storage	°C		-20 to +70	
Bakeout				
at flange	°C		80	
electronics removed	°C		150	
Supply	V / A DC		20 to 28 / 0.8	
Output signal analog				
Measurement range	V		0 to 10.3	
Relation voltage / pressure	V / Decade		0.75	
Error signal	V		0.3 / 0.5	
Minimum load	kΩ		10	
Interface (digital) ²⁾			RS232C	
Connector			D-sub, 15 pin, male	
Cable length, max. ³⁾	m (ft)		100 (330)	
Materials exposed to vacuum			Yttrium oxide, iridium, stainless steel, molybdenum, Cu, W, glass, NiFe, NiCr, Al ₂ O ₃ , SnAg	
Internal volume KF / CF	cm ³ (inch) ³		24 (1.46) / 34 (2.1)	
Weight KF / CF	g		285 / 550	
Protection type			IP30	

¹⁾Reduced accuracy during degas

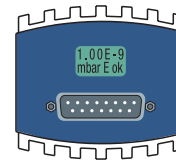
²⁾Simultaneous use of RS232C or VGC400 series controllers and Fieldbus is not allowed

³⁾RS232C operation <30m

BCG450 Standard



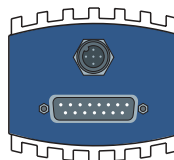
BCG450 with LCD display option



SPECIFICATIONS

			BCG450-SD 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
Network size			Up to 64 nodes per segment
Digital functions			Read pressure, select units: Torr, mbar, Pa Degas function Monitor gauge status Safe state allows definition of behavior in case of error Detailed alarm and warning information
Analog functions			0 to 10 V analog output pressure indication Two setpoint relays A + B
Visual communication indicators			LED network status (green / red) LED module status (green / red)
Specification			DeviceNet™ "Vacuum Gauge Device Profile"
Device type			"CG" for combination gauge
Explicit peer to peer messaging			no
I / O peer to peer messaging			no
Configuration consistency value			no
Faulted node recovery			no
Baud rates	kBaud		125 / 250 / 500
Master / Scanner			no
I / O slave messaging			
Bit Strobe			no
Polling			yes
Cyclic			no
Change of State (COS)			no
Setpoint relays			2
Range	mbar		1×10^{-9} to 1400
Relay contact			n.o., potential free
Hysteresis	% of reading		10
Contact rating	V / A DC		60 / 0.5
Connector			D-sub, 15 pin, male
Supply for DeviceNet™	V / A DC		11 to 25 / 0.5
Supply for gauge	V DC		20 to 28
Connector for DeviceNet™			Microstyle, 5 pin
Connector for BCG, analog output and power supply			D-sub, 15 pin, male

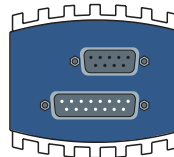
BCG450 DeviceNet™



SPECIFICATIONS

			BCG450-SP 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 Degas function Monitor gauge status Safe state allows definition of behavior in case of error Detailed alarm and warning information
Analog functions			0 to 10 V analog output pressure indication Two setpoint relays A + B
Expanded user parameter data			No
Sync-Mode and Freeze-Mode			No
Connector			D-sub, 9 pin, female
Setpoint relays			2
Range	mbar		1×10^{-9} to 1400
Relay contact			n.o., potential free
Hysteresis	% of reading		10
Contact rating	V / A DC		60 / 0.5
Connector			D-sub, 15 pin, male

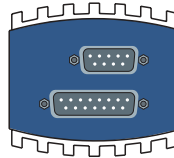
BCG450 Profibus DP



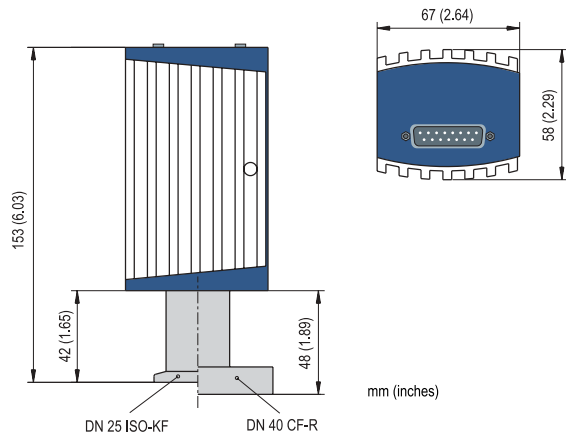
SPECIFICATIONS

			BCG450-SR RS485
Baud rates	kBaud		0.3 / 1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 28.8
Address			2 switches (address 00 - 127) or network programmable
Digital functions			Read pressure, select units: Torr, mbar, Pa Degas function, Pirani full scale adjust Monitor gauge status Detailed alarm and warning information
Analog functions			0 to 10 V analog output pressure indication Two adjustable setpoint relays A + B
Connector			
for RS485			D-sub, 9 pin, male
for gauge (analog output, power, setpoints)			D-sub, 15 pin, male
Setpoint relays			2
Range	mbar		1×10^{-9} to 100
Relay contact			n.o., potential free
Hysteresis	% of reading		10
Contact rating	V / A DC		60 / 0.5

BCG450-SR with RS485

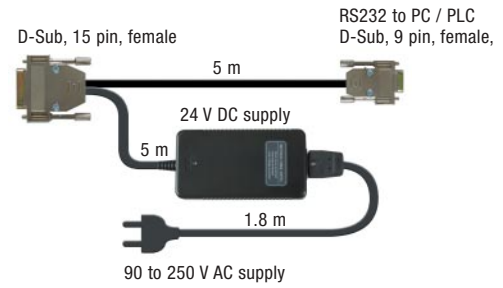


DIMENSIONS



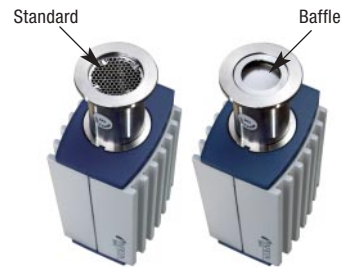
ACCESSORIES

Power supply 24 V DC / RS 232 C line



Baffle:

Prevents contamination of the sensor.
Easy installation into the vacuum connection - no tools required.



INFICON Instruments for Intelligent Control™

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