

## BPG402-Sx ATM to Ultra-High Vacuum Gauge

---

The INFICON Bayard-Alpert Pirani Combination Gauge, BPG402-S, functions as two gauges in a single compact unit measuring from  $5 \times 10^{-10}$  mbar to atmosphere ( $3.8 \times 10^{-10}$  Torr to atmosphere). Combining technologies reduces the complexity of installation, setup, and integration. Choose the BPG402-S with two yttrium oxide coated iridium filaments for affordable and repeatable process to base pressure measurements in one economical package. Sensing elements with on-board calibration data guarantees high reproducibility when exchanging sensors.



### ADVANTAGES

---

- Extremely wide measurement range from  $5 \times 10^{-10}$  mbar to atmosphere ( $3.8 \times 10^{-10}$  Torr to atmosphere)
- Excellent repeatability in the process pressure range from  $10^{-8}$  ...  $10^{-2}$  mbar of 5%
- Pirani interlock protects the filament from premature burnout
- Two long-life yttrium oxide coated iridium filaments
- Optional graphic display and Fieldbus interfaces available
- Automatic high vacuum Pirani adjustment reduces operator interventions
- Easy to exchange sensing element with on-board calibration data guarantees high reproducibility
- RoHS compliance

### ORDER INFORMATION

---

Type	BPG402-S
BPG402-S DN 25 ISO-KF	353-570
BPG402-S DN 40 CF-R	353-571
BPG402-S LCD, DN 25 ISO-KF	353-572
BPG402-S LCD, DN 40 CF-R	353-573
BPG402-SD DNet, DN 25 ISO-KF	353-576
BPG402-SD DNet, DN 40 CF-R	353-577
BPG402-SE ECAT, DN 25 ISO-KF	353-590
BPG402-SE ECAT, DN 40 CF-R	353-591
BPG402-SL long tube DN 40 CF-R	353-578
BPG402-SP PBus, DN 25 ISO-KF	353-574
BPG402-SP PBus, DN 40 CF-R	353-575
Spare sensor head BPG402 DN 25 ISO-KF	354-494
Spare sensor head BPG402 DN 40 CF-R	354-495

## SPECIFICATIONS

Type	BPG402-S
Measurement range (air, O <sub>2</sub> , CO, N <sub>2</sub> ) mbar	5×10 <sup>-10</sup> ... 1000
Measurement range (air, O <sub>2</sub> , CO, N <sub>2</sub> ) Torr	3.8×10 <sup>-10</sup> ... 750
Accuracy	
10 <sup>-8</sup> ... 10 <sup>-2</sup> mbar % of reading	±15
Repeatability	
10 <sup>-8</sup> ... 10 <sup>-2</sup> mbar % of reading	5
Degas (1)	
p < 7.2 × 10 <sup>-6</sup> mbar	electron bombardment, max. 3 min
Pressure, max.	2 bar (absolute)
Temperature	
Operation (ambient) °C	0 ... +50
Storage °C	-20 ... +70
Bakeout at flange without electronics BPG402-S °C	80
Bakeout at flange without electronics BPG402-SL °C	150
Supply voltage V (dc)	+20 ... +28

## SPECIFICATIONS

Type		BPG402-S
Supply voltage	A (dc)	≤0.8
Output signal analog		
Output signal	V	0 ... +10
Measurement range	V	+0.774 ... +10
Error signal	V	0.1 / 0.3 / 0.5
Output signal analog		
Voltage vs. pressure	volts per decade	0.75
Output signal analog		
Load impedance, min.	kΩ	10
Setpoint relay		
Number of setpoints		1
Relay contact		n.o., potential free
Setpoint relay		
Range	mbar	1×10 <sup>-9</sup> ... 100
Setpoint relay		
Hysteresis	% of reading	10
Setpoint relay		
Contact rating	V (dc)	≤30
Setpoint relay		
Contact rating	A (dc)	≤0.5
Digital functions		degas
Interface (digital) (2)		RS232C
Emission control		automatic / manual via interface
Filament		two Yt <sub>2</sub> O <sub>3</sub> coated Ir
Filament status / relay		LED / relay
Electrical connection		D-Sub, 15-pin, male
Cable length, max. (3)	m (ft.)	100 (330)
Materials exposed to vacuum		Yt <sub>2</sub> O <sub>3</sub> , Ir, Pt, Mo, Cu, W, NiFe, NiCr, stainless steel, glass
Internal volume KF / CF	cm <sup>3</sup> (in. <sup>3</sup> )	24 (1.46) / 34 (2.1)
Weight KF / CF	g	450 / 710
Degree of protection		IP30
Profibus DP		
Baud rates	kBaud	9.6 / 19.2 / 93.75 / 187.5 / 500
Profibus DP		

## SPECIFICATIONS

Type		BPG402-S
Baud rates	Mbaud	1.5 / 12
Profibus DP		
Address		2 switches (address 00 - 127) or network programmable
Digital functions		read pressure, select units: Torr, mbar, Pa; emission control, degas function, monitor gauge status, filament status, safe state allows definition of behavior in case of error, detailed alarm and warn
Analog functions		0 ... 10 V analog output pressure indication, two setpoint relays A + B
Setpoint relays: Number of setpoints		2
Setpoint relays: Relay contact		n.o., potential free
Connector for Profibus DP		D-Sub, 9-pin, female
Connector for CDG (analog output, supply voltage, setpoints)		D-Sub, 15-pin, male
Profibus DP		
Setpoint relays: Range	mbar	$1 \times 10^{-9}$ ... 100
Profibus DP		
Setpoint relays: Hysteresis	% of reading	10
Profibus DP		
Setpoint relays: Contact rating	V (dc)	$\leq 30$
Profibus DP		
Setpoint relays: Contact rating	A (dc)	$\leq 0.5$
DeviceNet™		
Protocol		DeviceNet™, group 2 slave only
MAC ID		2 switches (address 00 - 63) or network programmable
Digital functions		read pressure, select units: Torr, mbar, Pa ; emission control, degas function , monitor gauge status, filament status , safe state allows definition of behavior in case of error , detailed alarm and
Analog functions		0 ... 10 V analog output pressure indication , two setpoint relays A + B
Specification		DeviceNet™ "Vacuum Gauge Device Profile"
Device type		"CG" for combination gauge
I / O slave messaging		polling only

## SPECIFICATIONS

Type	BPG402-S	
Setpoint relay: Number of setpoints	2	
Setpoint relays: Relay contact	n.o., potential free	
Connector for DeviceNet™	Microstyle, 5-pin	
Connector for BPG (analog output, supply voltage, setpoints)	D-Sub, 15-pin, male	
DeviceNet™		
Data rate switch	kBaud	125, 250, 500 or network programmable
DeviceNet™		
Cable length 125 kbps	m (ft.)	500 (1650)
Cable length 250 kbps	m (ft.)	250 (825)
Cable length 500 kbps	m (ft.)	100 (330)
DeviceNet™		
Setpoint relays: Range	mbar	1×10 <sup>-9</sup> ... 100
DeviceNet™		
Setpoint relays: Hysteresis	% of reading	10
DeviceNet™		
Setpoint relays: Contact rating	V (dc)	≤30
Supply voltage for DeviceNet™	V (dc)	+11 ... +25
Supply voltage for gauge	V (dc)	+20 ... +28
DeviceNet™		
Setpoint relays: Contact rating	A (dc)	≤0.5
Supply voltage for DeviceNet™	A (dc)	≤0.5
Supply voltage for gauge	A (dc)	≤0.8
EtherCAT		
Protocol EtherCAT	protocol specialized for EtherCAT	
Communication standards	ETG.5003.1 S (R) V1.1.0: Part 1 Common Device Profile (CDP) ETG.5003.2080 S (R) V1.3.0: Part 2080: Specific Device Profile (SDP) Vacuum Pressure Gauge	
Node address	Explicit Device Identification	
Physical layer	100BASE-Tx (IEEE 802.3)	

## SPECIFICATIONS

Type	BPG402-S	
Digital functions EtherCAT	read pressure, select units: Torr, mbar, Pa emission control, degas function monitor gauge status, filament status safe state allows definition of behavior in case of error detailed alarm and warning	
Process data	Fixed PDO mapping and configurable PDO mapping	
Mailbox (CoE)	SDO requests, responses and information	
EtherCAT connector	RJ45, 8-pin (socket), IN and OUT	
Cable	shielded Ethernet CAT5e or higher	
EtherCAT		
Cable length	m (ft.)	≤100 (330)

- 1) Reduced accuracy during degas
- 2) Simultaneous use of RS232C or VGC40x series controllers and Fieldbus is not allowed
- 3) For RS232C operation <30m

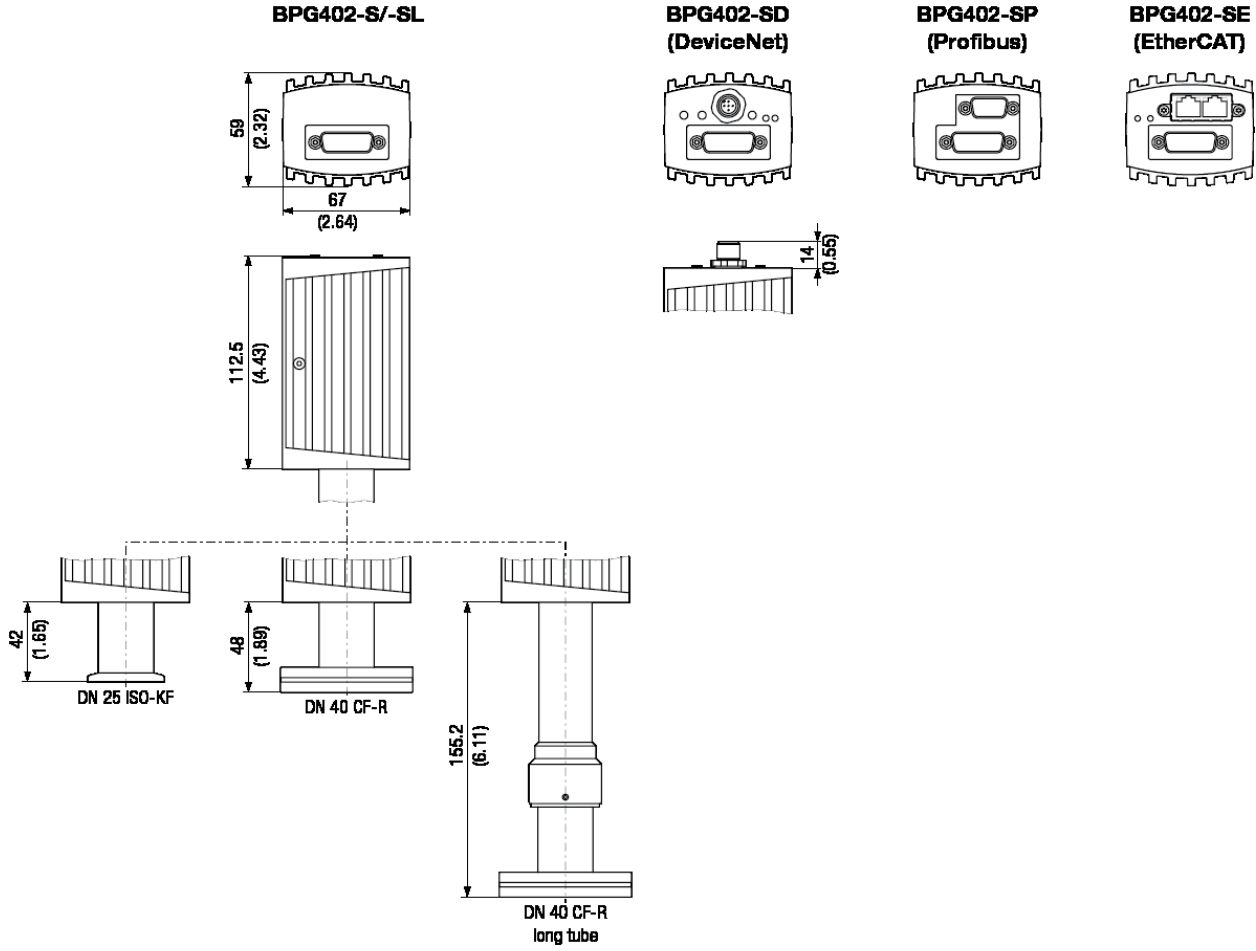
## SPAREPARTS

	BPG402-S
Spare sensor head BPG402 DN 25 ISO-KF	354-494
Spare sensor head BPG402 DN 40 CF-R	354-495

## ACCESSORIES

	BPG402-S
Baffle for BPG400	353-512
Centering ring with baffle DN 25 KF	211-113
Power supply BPG400 24VDC	353-511

## DIMENSIONS



[www.inficon.com](http://www.inficon.com)    [reachus@inficon.com](mailto:reachus@inficon.com)

Due to our continuing program of product improvements, specifications are subject to change without notice. RateWatcher is a trademark of INFICON. All other trademarks are the property of their respective owners.

Letzte (2022-01) © 2022 INFICON  
 Version war von 2019-03-30, 01:30 Uhr