HPG400

High Pressure Hot Ionization Pirani Gauge

The INFICON High Pressure Hot Ionization Pirani Gauge, HPG400, combines High Pressure Hot Ionization and Pirani sensors in a single, compact, economical package to measure pressure from 2 x 10^{-6} mbar to atmosphere (1.5 x 10^{-6} Torr to atmosphere). The HPG400 provides highly repeatable and reproducible pressure measurement for accurate sputter process pressure control.

ADVANTAGES

- HPG400 saves cost and tool space and reduces the complexity of vacuum system installation and setup
- The high pressure hot ion gauge delivers accurate, reliable pressure measurements from 1 x 10^{-5} … 1 mbar for improved process control
- User selectable hot ion emission activation between 5 x 10^{-2} and 1 mbar
- Pirani interlock protects the hot filament from premature burnout
- Optional graphic display and Fieldbus interfaces available
- Automatic high vacuum Pirani adjustment reduces operator interventions
- RoHS compliance

APPLICATIONS

- Sputter applications in semiconductor manufacturing, electronics and media industry
- Industrial coating
- General vacuum measurement and control in the low to high vacuum range

HPG400

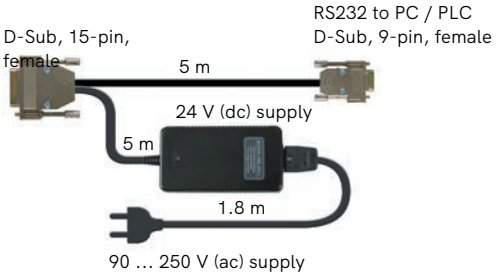
ORDERING INFORMATION

Type	HPG400 w/o LCD	HPG400 with LCD	HPG400-SP with Profibus DP [1]	HPG400-SD with DeviceNet™ [1]
DN 25 ISO-KF	**353-520**	**353-521**	**353-525**	**353-527**
DN 40 CF-F	**353-522**	**353-523**	**353-526**	**353-528**
Replacement sensor 25 ISO-KF	**354-487**	**354-487**	**354-487**	**354-487**
Replacement sensor 40 CF-R	**354-488**	**354-488**	**354-488**	**354-488**

[1] not available with LCD

Accessories	Part no.
Power supply 24 V (dc) / RS232C line	**353-511**
Centering ring with baffle DN 25 ISO-KF	**211-113**

Power supply 24 V (dc) / RS232C line



HPG400

SPECIFICATIONS

	HPG400 Standard	HPG400 Display
Measurement range (air, N_2)	2×10^{-6} … 1000 mbar (1.5×10^{-6} … 750 Torr)	
Accuracy 10^{-5} … 1 mbar	±15% of reading [1]	
Repeatability		
10^{-5} … 10^{-1}	2% of reading	
10^{-1} … 100 mbar	30% of reading	
Hot ion emission on, selectable		
Option 1	1 mbar	
Option 2	5×10^{-1} mbar	
Option 3	2×10^{-1} mbar	
Option 4	1×10^{-1} mbar	
Option 5	5×10^{-2} mbar	
Pressure, max. (absolute)	2 bar	
Temperature		
Operation (ambient)	0 … +50°C	
Storage	-20 … +70°C	
Bakeout		
At flange	80°C	
Electronics removed	150°C	
Supply voltage	20 … 28 V / 0.8 A (dc)	
Output signal analog	0 … +10.2 V	
Measurement range		
Hot cathode	1.5 … 7.5 V	
Pirani	8.5 … 9.75 V	
Voltage vs. pressure		
Hot cathode	1 V / Decade	
Pirani	0.25 V / Decade	
Error signal		
Hot cathode	0.3 V	
Pirani	0.5 V	
Load impedance , min.	10 kΩ	
Interface (digital) [2]	RS232C	
Electrical connection	D-Sub, 15-pin, male	
Cable length, max.[3]	100 m (330 ft)	
Materials exposed to vacuum	Yt_2O_3, Ir, Pt, Mo, Cu, W, NiFe, NiCr, stainless steel, glass	
Internal volume KF / CF	20 cm^3 (1.2 $in.^3$) / 30 cm^3 (1.8 $in.^3$)	
Weight KF / CF	430 g / 695 g	
Degree of protection	IP30	

[1] Accuracy from 10^{-5} mbar to the selected hot ion emission on value

[2] Simultaneous use of RS232C or VGC40x and VGC50x series controllers and Fieldbus is not allowed

[3] For RS232C operation <30 m

HPG400

SPECIFICATIONS INTERFACES

DeviceNet™	
Protocol	DeviceNet™, group 2 slave only
Data rate switch	125, 250, 500 kBaud or network programmable
Cable length	
125 kbps	500 m (1650 ft.)
250 kbps	250 m (825 ft.)
500 kbps	100 m (330 ft.)
MAC ID	Two switches (address 00 – 63) or network programmable
Digital functions	Read pressure, select units: Torr, mbar, Pa Degas function, Pirani full scale adjust Monitor gauge status Safe state allows definition of behavior in case of error Detailed alarm and warning information
Analog functions	0 … 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
I / O slave messaging	Polling only
Setpoint relays	2
Range	1×10^{-9} … 100 mbar
Relay contact	NO, potential free
Hysteresis	10 % of reading
Contact rating	60 V / 0.5 A (dc)
Supply voltage for DeviceNet™	+11 - +25 V / 0.5 A (dc)
Supply voltage for gauge	+20 - +28 V / 0.8 A (dc)
Connector for DeviceNet™	Microstyle, 5-pin
Connector for Gauges (analog output, supply voltage, setpoints)	D-Sub, 15-pin, male

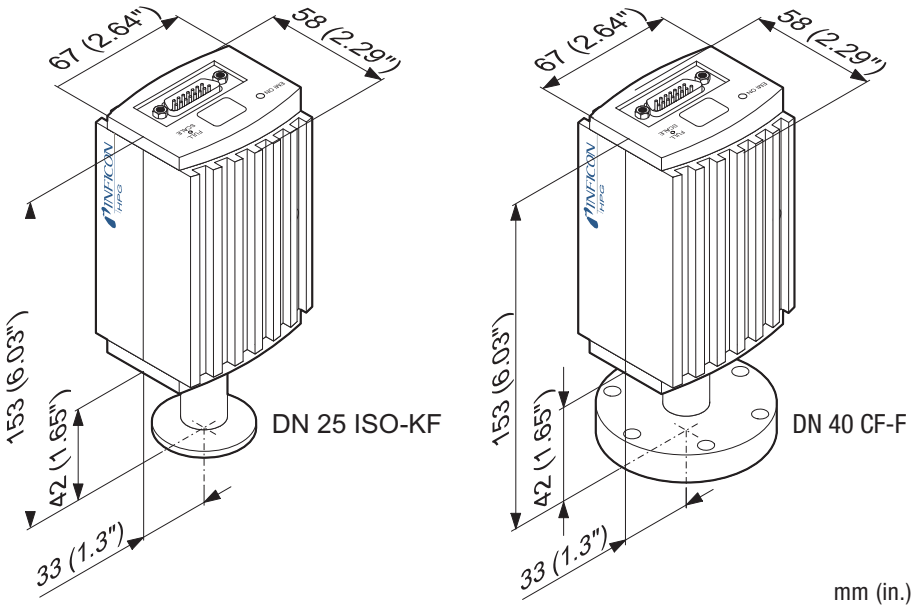
PROFIBUS DP	
Baud rates	9.6 / 19.2 / 93.75 / 187.5 / 500 kBaude 1.5 / 12 MBaud
Address	Two switches (address 00 - 127) or network programmable
Digital functions	Read pressure, select units: Torr, mbar, Pa Degas function, Pirani full scale adjust Monitor gauge status, filament status Safe state allows definition of behavior in case of error Detailed alarm and warning information
Analog functions	0 … 10 V analog output pressure indication two setpoint relays A + B

HPG400

PROFIBUS DP	
Setpoint relays	2
Range	1×10^{-9} … 100 mbar
Relay contact	NO, potential free
Hysteresis	10 % of reading
Contact rating	≤30 V / ≤0.5 A (dc)
Connector for Profibus DP	D-Sub, 9-pin, female
Connector for BPG (analog output, supply voltage, setpoints)	D-Sub, 15-pin, male

DIMENSIONS

mm (in.)



mm (in.)

tiba14e1-d