

## HPG400

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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  $2 \times 10^{-6}$  mbar to atmosphere ( $1.5 \times 10^{-6}$  Torr to atmosphere). The HPG400 provides highly repeatable and reproducible pressure measurement for accurate sputter process pressure control.



### BENEFITS

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- 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  $1 \times 10^{-5}$  ... 1 mbar for improved process control
- User selectable hot ion emission activation between  $5 \times 10^{-2}$  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

### ORDERING INFORMATION

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Type	HPG400
HPG400 DN 25 ISO-KF	353-520
HPG400 DN 40 CF-F	353-522
HPG400 LCD, DN 25 ISO-KF	353-521
HPG400 LCD, DN 40 CF-F	353-523
HPG400-SD DNet DN 25 ISO-KF	353-527
HPG400-SD DNet DN 40 CF-F	353-528
HPG400-SP PBus, DN 25 ISO-KF	353-525
HPG400-SP PBus, DN 40 CF-F	353-526

## SPECIFICATIONS

Type	HPG400
Measurement range (air, N <sub>2</sub> )      mbar	2×10 <sup>-6</sup> ... 1000
Measurement range (air, N <sub>2</sub> )      Torr	1.5×10 <sup>-6</sup> ... 750
Accuracy	
10 <sup>-5</sup> ... 1 mbar                      % of reading	±15 <sup>(1)</sup>
Repeatability	
10 <sup>-5</sup> ... 10 <sup>-1</sup> mbar                  % of reading	2
10 <sup>-1</sup> ... 100 mbar                    % of reading	30
Hot ion emission on, selectable:	
option 1                                  mbar	1
option 2                                  mbar	5×10 <sup>-1</sup>
option 3                                  mbar	2×10 <sup>-1</sup>
option 4                                  mbar	1×10 <sup>-1</sup>
option 5                                  mbar	5×10 <sup>-2</sup>
Pressure, max.                        bar (absolute)	2
Temperature	
Operation (ambient)                  °C	0 ... +50
Storage                                    °C	-20 ... +70
Bakeout at flange                      °C	80
Bakeout electronics removed       °C	150
Supply voltage                        V (dc)	20 ... 28
Supply voltage                        A (dc)	0.8
Output signal analog	

## SPECIFICATIONS

Type		HPG400
Output signal	V	0 ... +10.2
Measurement range hot cathode	V	1.5 ... 7.5
Measurement range Pirani	V	8.5 ... 9.75
Error signal hot cathode	V	0.3
Error signal Pirani	V	0.5
Output signal analog		
Voltage vs. Pressure hot cathode	volts per decade	1
Voltage vs. Pressure Pirani	volts per decade	0.25
Output signal analog		
Load impedance, min.	kΩ	10
Interface (digital) (2)		RS232C
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> )	20 (1.2) / 30 (1.8)
Weight KF / CF	g	430 / 695
Degree of protection		IP30
DeviceNet™		
Protocol		DeviceNet™, group 2 slave only
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; 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

## SPECIFICATIONS

Type		HPG400
Setpoint relays: Number of setpoints		2
Setpoint relays: Relay contact		n.o., potential free
Connector for DeviceNet™		Microstyle, 5-pin
Connector for HPG (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	$2 \times 10^{-6}$ ... 100
DeviceNet™		
Setpoint relays: Hysteresis	% of reading	10
DeviceNet™		
Setpoint relays: Contact rating	V (dc)	60
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
Profibus DP		
Baud rates	kBaud	9.6 / 19.2 / 93.75 / 187.5 / 500
Profibus DP		
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 ; Pirani full scale adjust , monitor gauge status , safe state allows definition of behavior in case of error , detailed alarm and warning information	

## SPECIFICATIONS

Type		HPG400
Analog functions		0 ... 10 V analog output pressure indication
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 HPG (analog output, supply voltage, setpoints)		D-Sub, 15-pin, male
Profibus DP		
Setpoint relays: Range	mbar	$1 \times 10^{-6}$ ... 100
Profibus DP		
Setpoint relays: Hysteresis	% of reading	10
Profibus DP		
Setpoint relays: Contact rating	V (dc)	60
Profibus DP		
Setpoint relays: Contact rating	A (dc)	0.5

(1) Accuracy from 10-5 mbar to the selected hot ion emission on value

(2) Simultaneous use of RS232C or VGC40x series controllers and Fieldbus is not allowed

(3) For RS232C operation <30m

## SPAREPARTS

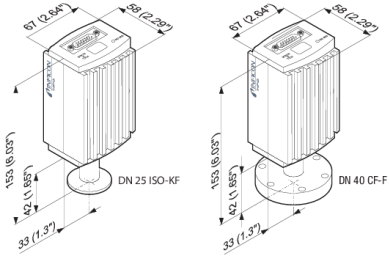
	HPG400
Spare sensor head HPG400, DN 25 ISO-KF	354-487
Spare sensor head HPG400, DN 40 CF-F	354-488

## ACCESSORIES

	HPG400
Centering ring with baffle DN 25 KF	211-113
Power supply BPG400 24VDC	353-511

## DIMENSIONS

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

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