UNIQUE VACUUM SOLUTIONS

HVP-4 OnePirani

Pirani Vacuum Transducer

1×10^{-6} to 13.33 mbar / 7.5×10^{-7} to 10 Torr

MEMS pirani transducer

Advantages:

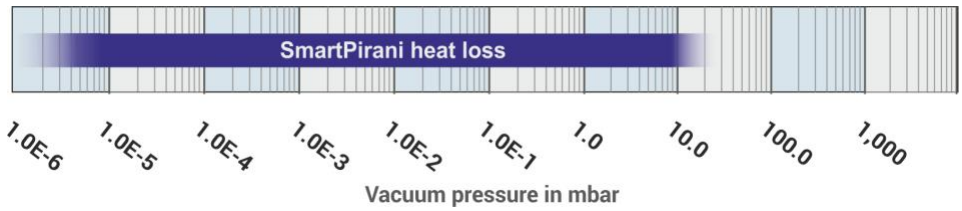
- **3 decades of wide measurement range.**
- **Programmable 0-10V voltage ouput.**
- **RS232 / RS485 interfacing.**
- **Zero drift compensation**
- **Optional SSR setpoint replay outputs - 3 numbers.**
- **Has a built in ambient temperature compensation to avoid Zero drift.**

Applications:

- ***PVD coating***
- ***Mass spectrometers.***
- ***Fore-line vacuum.***
- ***Freeze drying.***
- ***Sterilisation process.***
- ***Load lock systems.***
- ***Vacuum furnaces.***

This OnePirani HVP-4 uses the thermal conductivity sensing technology and has extended measurement range from 13 to 1E-6 mbar (10 to 7.5E-7 torr).

This OnePirani MEMS (Microelectromechanical Systems) sensor technology, combined with a novel precision digital signal processing architecture and advanced algorithms gives the possibility for wide applications and precision vacuum measurement.

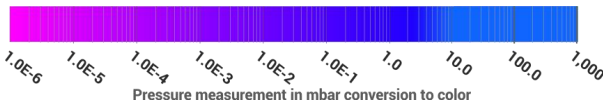


With the high accurancy and tested repeatability standards of this HVP-4 sensor, this is the best cost effective replacement solution for conventional hot cathod and cold cathod ionisation gauges.

Reliable and robust setpoint relay control
For use in critical vacuum processes and cycle applications, the HVP-4 has optional 3 numbers of solid state relay outputs, which setpoint and hysteresis are programmable.

Analog and digital options
The HVP-4 is available with industry standard analog 4-20 mA current output or 0-10 VDC voltage output. The analog output can be scaled and configured using our interface software.

RGB LED for pressure indication



With the incorporation of multi color LED on the top of the sensor, this makes the user to follow the color and know the level of vacuum in the sensor, throughout the pressure range.
This cost effective solution is best replacement for expensive onboard vacuum display sensors.

Applications

The OnePirani has wide range of industries and research applications, such as fore-line measurement, mass spectrometers, scanning electron microscopes and coating processes.
Analytical equipment
HVP-4, With an effective wide range of vacuum measurement up to 10e-6 mbar, this OnePirani eliminates of need of expensive high vacuum ionisation gauges in Mass spectrometers and scanning electron microscopes and other analytical vacuum equipment applications.
Physical vapor deposition
solar, medical, automotive, tooling, optics and packaging.
In Harsh environment of PVD coatings, the entry of coating particulate in to the vacuum measurement sensor is unavoidable. This results in reducing the life of the sensor and also causing damages to sensing elements exposed to coatings.

The OnePirani HVP-4 has a usercleanable baffle which avoids the direct entry of coating particulate in to the sensor.

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TECHNICAL DATA

MODEL	***HVP-4***
SPECFICATIONS	Measuring range in mbar :1×10^{-6} to 13.33 mbar (7.5×10^{-7} to 10.0 Torr) Measuring principle :MEMS Pirani thermal conductivity Accuracy 1×10^{-5} to 9.99×10^{-5} : 25% of reading Accuracy 1×10^{-4} to 9.99×10^{-1} mbar : 5% of reading Accuracy 1.00 to 13.33 mbar : 30% of reading Hysteresis 1×10^{-3} to 13.33 mbar :1% Analog output resolution : 16 bit (150 µV) Analog output update rate :124 Hz Response time (ISO 19685:2017) :<20 ms Temperature compensation :+10 to +50 °C Solid state relay set point range : 5×10^{-6} to 13.33 mbar (3.75×10^{-6} to 10.0 Torr) Solid state relay contact rating :50 V, 100 mArms / mADC Solid state relay approvals : UL Recognized: File E76270 CSA Certified: Certificate 1175739 EN/IEC 60950-1 Certified
Environmental conditions for operation	Operating ambient temperature : -20 to +50 °C Media temperature : -20 to +50 °C Storage ambient temperature : -40 to +120 °C Bake-out temperature (non-operating) : +120 °C Maximum media pressure : 10 bar absolute Mounting position : Arbitrary Protection rating, EN 60529/A2:2013 : IP40 Humidity, IEC 68-2-38 : 98%, non-condensing
Power supply	Supply voltage :12-30 VDC Power consumption : 240 mW (max) Reverse polarity protection : Yes Overvoltage protection : Yes Internal fuse :100 mA (thermal recoverable)
Materials	Enclosure : SS 1.4307 / AISI 304L / Aluminum 6061 Vacuum Process flange (media wetted) :SS 1.4307 / AISI 304L Vacuum exposed materials (media wetted) :304L Stainless steel, Kovar, glass, silicon, nickel, aluminum, SiO_2, Si_3N_4, gold, Viton®, low out-gassing epoxy resin Process leak tightness (ISO 27895:2009) : <1·10e-9 mbar·l/sec.

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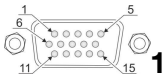
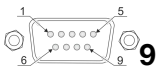
Connector Pin outs



15 Pin HD D-sub RS-232 / RS-485

PIN	DESCRIPTION
1	RS-232 Transmit / RS-485 (-)
2	RS-232 Receive / RS-485 (+)
3	Supply voltage 12-30 VDC
4	Supply voltage – (return)
5	Analog voltage signal +
6	Analog voltage signal – (return)
7	Relay 1 NO (normally open contact) (1)
8	Relay 1 Common (1)
9	Relay 1 NC (normally closed contact)(1)
10	Relay 2 NC (normally closed contact)(1)
11	Relay 2 Common (1)
12	Relay 2 NO (normally open contact)(1)
13	Relay 3 NO (normally open contact)(1)
14	Relay 3 Common (1)
15	Relay 3 NO (normally open contact)(1)

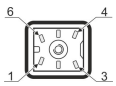
(1) Optional solid-state relay



9 Pin D-sub RS-232 / RS-485

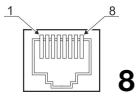
PIN	DESCRIPTION
1	Relay 1 NO (normally open contact)(1)
2	Relay 1 NC (normally closed contact)(1)
3	Supply voltage 12-30 VDC
4	Supply voltage – (return)
5	Analog voltage signal +
6	Relay 1 Common(1)
7	RS-232 Transmit / RS-485 (-)
8	Analog voltage signal – (return)
9	RS-232 Receive / RS-485 (+)

(1) Optional solid-state relay



6 Pin Hirschmann connector

PIN	DESCRIPTION
1	Identification resistor (3K)
2	Analog voltage signal +
3	Analog voltage signal – (return)
4	Supply voltage 12-30 VDC
5	Supply voltage – (return)
6	Chassis



8 Pin RJ45 / 8P8C

PIN	DESCRIPTION
1	Supply voltage 12-30 VDC
2	Supply voltage – (return)
3	Analog pressure voltage signal +
4	Identification resistor
5	Analog pressure voltage signal – (return)
6	Relay 2 NO (normally open contact)(1)
7	Relay 1 NO (normally open contact)(1)
8	Relay COMMON

(1) Optional relay

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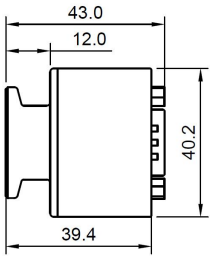
Dimensions (in mm)



Ordering Information:

HVP-4	1	0	1	0	1	2	3	2

Vacuum flange

DN16KF	1	0
DN25KF	2	0
NPT 1/8"	3	0
VCR4	4	0
DN16KF Extended	8	0
DN16KF with light baffle	1	1
DN16KF with heavy duty baffle	1	2
DN25KF with light baffle	2	1
DN25KF with heavy duty baffle	2	2

Digital interface

RS-232 / S4-Connect™	1
RS-485 / S4-Connect ™	2
S4-Connect™	3

Analog Output

0.5 - 9.5 (1 V/dec)	0	1
1.0-9 VDC 1 VDC/Dec (MKS 901P/925/910)	0	2
0.375 to 5.659 VDC (MKS GP275)	0	3
0.5V DC (MKS 523)	0	4
1.9-10 VDC (Inficon PSG55x, Leybold TTR91)	0	5
1.5-8.5 VDC (Pfeiffer TPR260/27x/28x)	0	6
1.9-9.1VDC Edwards APG100XLC	0	7
1.9-9.1VDC (Edwards APG100XM)	0	8
0-10 VDC 0.1Torr FS Capacitance manometer	1	0
0-10 VDC 1 Torr FS Capacitance manometer	1	1
0-10 VDC 10 Torr FS Capacitance manometer	1	2
0-10 VDC 100 Torr Capacitance manometer	1	3
0-10 VDC 1000 Torr Capacitance manometer	1	4

Other analog outputs are available on request

Unit

1	torr
2	mbar
3	Pascal

Setpoints

0	None
1	1x Solid State Relay
2	2x Solid State Relays
3	3x Solid State Relays

Connection

1	9 Pin D-sub male
2	15 pin HD D-sub male
3	15 pin HD D-Sub male / dual analog out
4	6 pin Hirschmann, ID res 3K
5	6 pin Hirschmann, ID res 5.1K
6	6 pin Hirschmann, ID res 9.1K/11.1K
7	8 pin RJ45 / FCC68, ID Res 27K
8	8 pin RJ45 / FCC68, ID Res 36K
9	8 pin RJ45 / FCC68, ID Res 43K

Our Products In Vacuum Measurements Are :

DPRG
FLEXA
Hybrid
DVG
OnePirani
Mercury McLeod

Our Expertise Is In :

Helium Leak test Systems
Vacuum Measuring Gauges
High Vacuum Systems
Vacuum filtration solutions
High vacuum components
Vacuum Gauges & Helium
Std leak Calibration Services
Helium Leak testing services

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