

## VSM72

The combination transducer VSM72 (Pirani/cold cathode) measures absolute pressure from atmospheric to ultrahigh vacuum.

The intelligent, micro processor controlled Smartline transducers automatically manage the appropriate interaction of both vacuum sensors regarding measurement ranges and switching points.

Smartline uses a high tech design and provides safe, easy to use and cost effective process control.

### Typical Applications

- Analysis technology
- Coating plants and vapor deposition
- Process engineering
- Measuring and controlling in fine and ultrahigh vacuum
- Sputtering plants
- Vacuum furnaces

## Smartline Vacuum Transducer Absolute Pressure 1000 to $5 \times 10^{-9}$ mbar

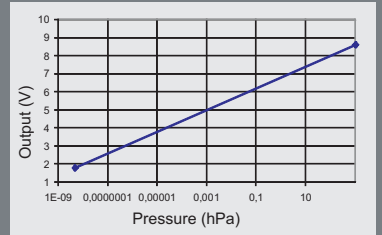
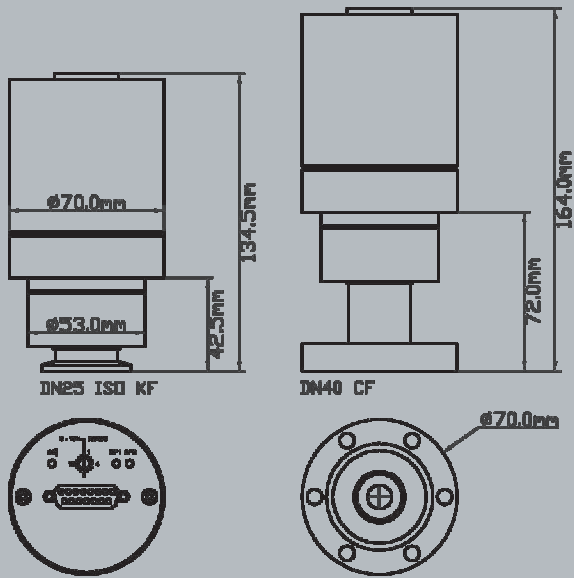


*Smartline*

### Benefits

- Combination sensor with wide measuring range
- The cold cathode sensor is automatically switched on and off by the Pirani
- Patented pulsed Pirani sensor with extended range allows operation of cold cathode at lower pressure and increase of lifetime
- Robust cold cathode sensor
- Low thermal and electrical interference with the vacuum process
- Excellent ignition behavior
- Insensitive against inrush of air
- Two independent, dry relay switch points
- Logarithmic signal output 0 - 10 V provides easy interpretation
- RS485 serial interface
- The digital output signals can be transmitted error-free over long distances (up to 500 m)
- Replaceable sensor heads
- Low power consumption
- Correct pressure readings by means of separate gas type correction factors for Pirani and cold cathode sensors
- Precise pushbutton digital adjustment of zero pressure and atmospheric
- Rugged, EMI-proof metal housing





$$V_{out} / V = 0,6 \log (p / \text{mbar}) + 6,8$$

$$p / \text{mbar} = 10^{(V_{out} / V - 6,8) / 0,6}$$

## Technical Data

Measuring Principle	Heat conduction (Impulse Pirani), cold cathode: inverted magnetron, both depending on gas type
Material In Contact With Vacuum	Stainless steel 1.4307, nickel, tungsten, molybdenum, glass
Measurement Range	1000 - 5 x 10 <sup>-9</sup> mbar (750 - 5 x 10 <sup>-9</sup> Torr), max. overpressure 4 bar abs.
Accuracy	1000 - 20 mbar: < 30 % from reading 20 - 5 x 10 <sup>-3</sup> mbar: < 10 % from reading 5 x 10 <sup>-3</sup> mbar - 1 x 10 <sup>-7</sup> mbar: < 25% from reading
Repeatability	5%
Response Time	200 ms, 500 ms for activating the cold cathode
Cathode Voltage	Max. 2.5 kV
Voltage Supply	19 - 30 VDC
Electrical Connection	Sub-D, 15-pole, male
Power Consumption	Approx. 2.5 W (without switch points)
Operating Temperature	+5...+50°C
Storage Temperature	-20...+70°C
Maximum Bake Out Temperature	150°C at flange (electronic detached)
Output Signal	0 - 10 VDC, measuring range 1.8 - 8.6 VDC, logarithmic, 1 V/decade
Serial Interface	RS485: 9600 baud, address switch
Switch Points	2 switch-over relays, 60 V, 0.5 A
Vacuum Connection	Stainless steel flange DN 25-KF (VSM72MV) Stainless steel conflat flange DN 40 CF (VSM72MVCF)
Protection Class	IP40
Weight	Approx. 570 g

## Product Codes

- VSM72MV**  
 Combination transducer Pirani/inverted magnetron 1000 - 5 x 10<sup>-9</sup> mbar, with DN 25 ISO-KF connection; output 0 - 10 V logarithmic, RS485
- VSM72MVCF**  
 As above, with DN 40 CF connection

## Accessories:

- W1506002**  
 Measuring cable, shielded, 2 m (for VD9)
- W1506006**  
 Measuring cable, shielded, 6 m (for VD9)
- W1515002**  
 Measuring cable, shielded, 2 m (for VD10)
- W1515006**  
 Measuring cable, shielded, 6 m (for VD10)
- BVSM72KF25**  
 Sensor head DN 25 ISO-KF for replacement
- BVSM72CF**  
 Sensor head DN 40 CF for replacement