

VSM - Smartline Vacuum Transducer Pirani / Cold Cathode

Absolute Pressure 1000 to 5×10^{-9} mbar



VSM at a glance

- Wide range sensor Pirani / cold cathode
- The cold cathode sensor is automatically controlled by the Pirani
- Pirani with extended range allows operation of cold cathode at lower pressure and increases lifetime
- Correct pressure readings by means of separate gas type correction factors for Pirani and hot cathode
- Robust sensor design
- Small volume of the measuring cell e. g. 9 cm^3 for VSM77D
- Excellent ignition behavior
- Insensitive against inrush of air
- Baud rate 9.6 kBd to 115 kBd

Features of the Smartline product family

- Digital RS485 interface and additional analog output signal 0 - 10 V, EtherCAT, Profibus or Profinet
- Digital adjustment of zero and atmospheric pressure via pushbutton or interface
- Two independent, potential-free relay switch points
- Large, integrated LCD display with background illumination
- LEDs for device status and switch points
- Protection class up to IP54
- Output signal scalable according to required output characteristics for an easy replacement of existing transducers
- Easy connection with PLCs
- Rugged, EMI-proof metal housing
- The digital output signal can be transmitted failure-free over long distances (up to 500 m)
- Bluetooth adapter available
- Suitable for Thyracont 2 and 4 channel controllers VD12 / VD14
- VacuGraph™ Windows software to visualize, analyze and save measurements
- Easily replaceable sensor heads with stored calibration data

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Technical Data

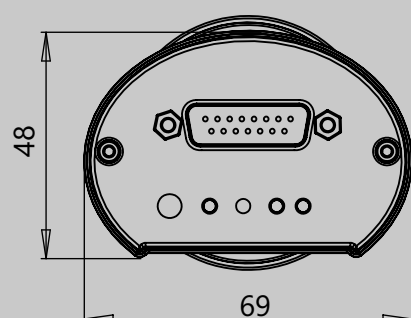
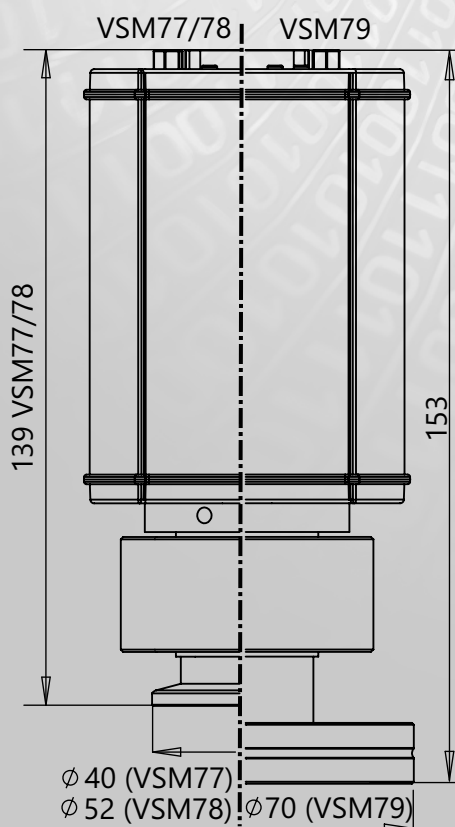
Measurement Principle	Heat conduction Pirani / Cold cathode (inverted magnetron), depending on gas type
Measurement Range	1000 - 5×10^{-9} mbar (750- 5×10^{-9} Torr)
Max. Overload	10 bar abs.
Accuracy	1000 - 10 mbar: Approx. 30 % f. reading, 10 - 2×10^{-3} mbar: 10 % f. reading, 2×10^{-3} mbar - 10^{-8} mbar: 25% f. reading
Repeatability	10 - 1×10^{-2} mbar: Approx. 2% f.r., 1×10^{-2} - 10^{-8} mbar: Approx. 7% f.r.
Materials With Vac. Contact	Stainl. steel 1.4307, tungsten, nickel, glass, molybdenum, Al_2O_3 ceramic
Anode Material	Molybdenum
Anode Voltage	< 2.5 kV
Reaction time	50 ms (switch-on cold cathode < 2s)
Operating Temperature	+5...+60°C
Storage Temperature	-40...+65°C
Bake Out Temperature	Max. 160°C at the flange (voltage supply switched-off)
Voltage Supply	20 - 30 VDC
Power Consumption	Max. 3 W, add. 0.8 W f. EtherCAT / relays / LCD, add. 1 W for Profibus, 1.8 W for Profinet
Output Signal	0 - 10 VDC, min 10 k Ω , measuring range 1.82 - 8.6 VDC, log. per default (VSM7xD/DL)
Serial Interface	RS485: 9.6 kBd to 115 kBd, 8 databit, 1 stopbit, no parity
Switch Points	2x relay, potential free, 50 VAC / 2 A or 30 VDC / 2 A, max. 60 VA
Electrical Connection	VSM7xD/DL: SubD, 15-pole, male, lockable VSM7xE, -PB, -PN: M12 circular connector, female, lockable VSM7xE, -PN: 1x A standard, 5-pole, 2x D-coded, 4-pole VSM7xPB: 1x A standard, 5-pole, 1x B-coded, 4-pole
Vacuum Connection	DN 25 ISO-KF (VSM77), DN 40 ISO-KF (VSM78), DN 40 CF-F (VSM79)
Protection Class	VSM7xE, VSM7xPN: IP54; VSM7xD/DL: IP40, IP54 with XB15SL05 adaptor
Weight	555 g (VSM77)

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Dimensions in mm



Model designations

- VSM77D DN 25 ISO-KF, 0 - 10 V and RS485
- VSM77DL DN 25 ISO-KF, 0 - 10 V and RS485, with LCD display
- VSM77E DN 25 ISO-KF, EtherCAT and RS485
- VSM77PB DN 25 ISO-KF, Profibus and RS485
- VSM77PN DN 25 ISO-KF, Profinet and RS485
- VSM78D DN 40 ISO-KF, 0 - 10 V and RS485
- VSM78DL DN 40 ISO-KF, 0 - 10 V and RS485, with LCD display
- VSM78E DN40 ISO-KF, EtherCAT and RS485
- VSM78PB DN 25 ISO-KF, Profibus and RS485
- VSM78PN DN40 ISO-KF, Profinet and RS485
- VSM79D DN 40 CF-F, 0 - 10 V and RS485
- VSM79DL DN 40 CF-F, 0 - 10 V and RS485, with LCD display
- VSM79E DN 40 CF-F, EtherCAT and RS485
- VSM79PB DN 25 ISO-KF, Profibus and RS485
- VSM79PN DN 40 CF-F, Profinet and RS485

Accessories

- Replacement sensor heads: B_VSM77, B_VSM78, B_VSM79

For further accessories and information see our Smartline brochure.

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