

# VSM - Smartline Vacuum Transducer Pirani / Cold Cathode

Absolute Pressure 1000 to  $5 \times 10^{-9}$  mbar

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**PROFI<sup>®</sup>**  
**NET**

EtherCAT<sup>®</sup>

RS485

0-10 V

## VSM at a glance

- Wide range combi sensor Pirani / cold cathode
- Automatic control of the cold cathode by the Pirani
- Switch-on of cold cathode at low pressure increases lifetime
- Robust sensor design
- Excellent ignition behavior
- Insensitive against inrush of air
- Overpressure stability up to 16 bar
- Correct pressure readings by means of separate gas type correction factors for Pirani and cold cathode
- Easily replaceable sensor heads with stored calibration data
- Two independent, potentialfree relay switch points
- Options for drop-in replacements (scalable output signals and adapters)

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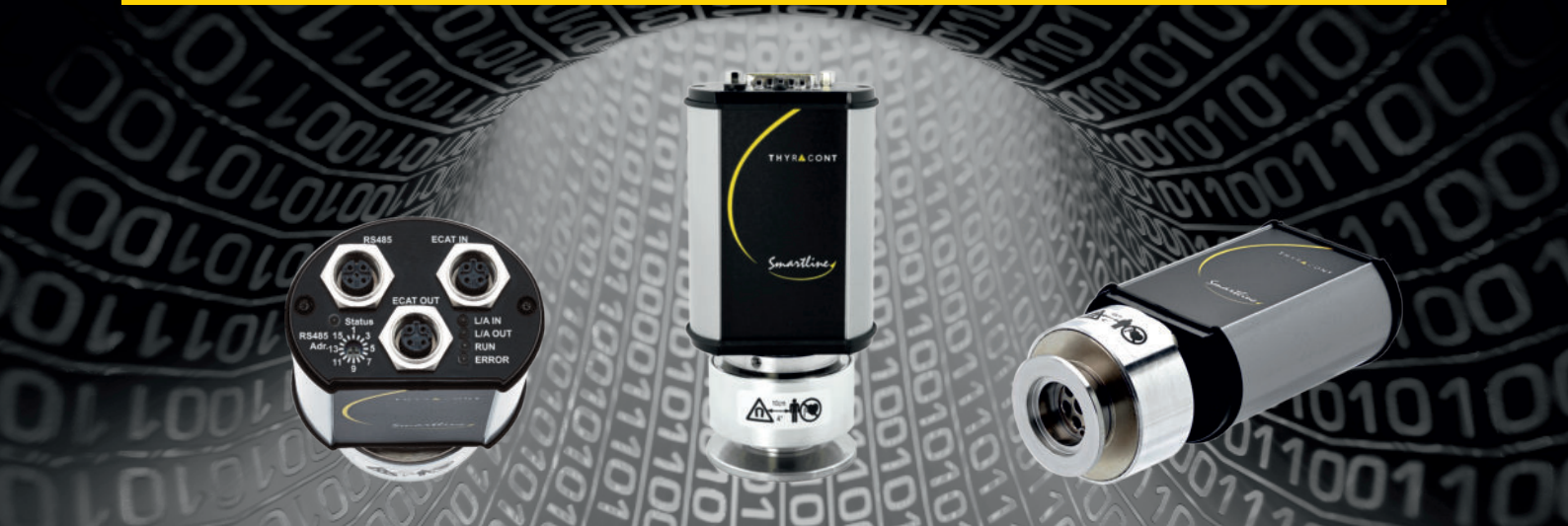
## Absolute Pressure 1000 to $5 \times 10^{-9}$ mbar

### Technical Data

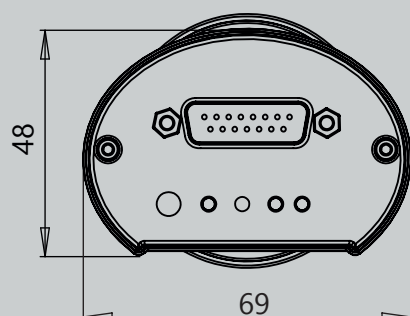
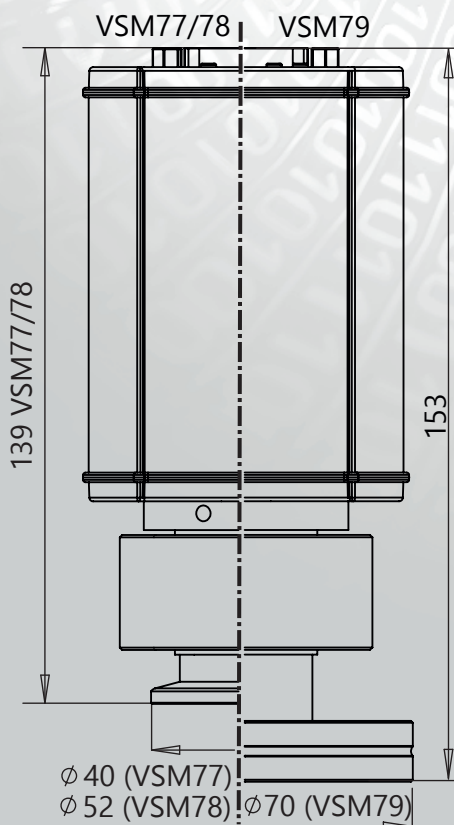
Measurement Principle	Heat conduction Pirani / Cold cathode (inv. magnetron), dep. on gas type
Measurement Range	1000 - $5 \times 10^{-9}$ mbar (750- $5 \times 10^{-9}$ Torr)
Max. Overload	10 bar abs.   optional: 16 bar abs. (with CERT31P)
Accuracy	1000 - 10 mbar: Approx. 30 % f. reading, 10 - $2 \times 10^{-3}$ mbar: 10 % f. reading, $2 \times 10^{-3}$ mbar - $1 \times 10^{-8}$ mbar: 25% f. reading
Repeatability	10 - $1 \times 10^{-2}$ mbar: Approx. 2% f.r., $1 \times 10^{-2}$ - $1 \times 10^{-8}$ mbar: Approx. 7% f.r.
Materials With Vac. Contact	Stainl. steel 1.4307, tungsten, nickel, glass, molybdenum, $\text{Al}_2\text{O}_3$ ceramic
Anode Voltage	< 2.5 kV
Reaction time	50 ms (switch-on cold cathode < 2s)
Operating Temperature	+5...+60°C (Profinet +5...+50°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. 1.6 W for Profinet
Output Signal	0 - 10 VDC, min 10 k $\Omega$ , measuring range 1.82 - 8.6 VDC, log. per default except for EtherCAT, Profinet
Serial Interface	RS485: 9.6 kBd to 115 kBd, 8 databit, 1 stopbit, no parity, EtherCAT, Profinet
Switch Points	2x relay, potential free, 50 VAC / 2 A or 30 VDC / 2 A, max. 60 VA except for EtherCAT, Profinet
Electrical Connection	RS485/0-10V: SubD, 15-po 2 A / 2x M12 D, female
Vacuum Connection	DN 25 ISO-KF (VSM77), DN 40 ISO-KF (VSM78), DN 40 CF-F (VSM79)
Protection Class	Up to IP54 (SubD with XB15SL05 connector)
Weight	555 g (VSM77)

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## Dimensions in mm



## Model designations

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

## Set

- VD1277P: Set including a 2 channel controller VD12, VSM77D, measuring cable 2 m

## Accessories

- CERT31P: overpressure stability 16 bar, incl. testing certificate 3.1
- Replacement sensor heads: B\_VSM77, B\_VSM78, B\_VSM79
- SLCASE Smartline protective plastic case, SLN4 plug-in power supply, SLKUSB interface converter RS485-USB, VGR VacuGraph software lite version

Further accessories as well as detailed information about our product family can be found in our Smartline brochure.