

# VSM - Smartline Vacuum Transducer Pirani / Cold Cathode

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



## Overview VSM vacuum transducer

- Wide range combination sensor Pirani / cold cathode
- Automatic control of the cold cathode by the Pirani, switch-on of cold cathode at low pressure increases lifetime, insensitive against inrush of air
- Excellent ignition behavior
- Low stray magnetic field
- Overpressure stability up to 16 bar

## Overview Smartline vacuum transducers

- Digital RS485 interfaces plus 0-10 V output signal, EtherCAT or PROFINET, Bluetooth adapter SLKBT for wireless communication
- PROFINET transducers support MRP
- Exchangeable sensor heads with stored calibration data
- Large LCD display (exc. EtherCAT, PROFINET)
- Readjustment of zero and atmosphere by push-button or interface
- LEDs for device status and switch points
- Two independent, potentialfree relay switch points (exc. EtherCAT, PROFINET)
- Protection class up to IP54
- 0-10 V output signal can be scaled according to the required output characteristics. Exchange of existing vacuum gauges easily, independent of the manufacturer, without programming effort
- Intelligent sensors for simplified integration according to Industry 4.0 standards
- Metal sealed stainless steel sensor cell, suitable for UHV (He leakage rate  $< 5e-10$  mbar l / s)
- Expansion with 2 channel controller VD12 or 4 channel controller VD14 possible
- VacuGraph™ Windows software for visualisation, analysis and storage of measuring data

# VSM - Smartline Vacuum Transducer Pirani / Cold Cathode

## 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. r., 10 - $2 \times 10^{-3}$ mbar: 10 % f. r., $2 \times 10^{-3}$ mbar - $1 \times 10^{-8}$ mbar: 25 % f. r.
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, 49 VAC / 2 A or 30 VDC / 2 A, max. 60 VA except for EtherCAT, Profinet
Electrical Connection	RS485/0-10V: SubD, 15-pole, male RS485/EtherCAT/Profinet: 1x M12 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	Approx. 555 g (VSM77)

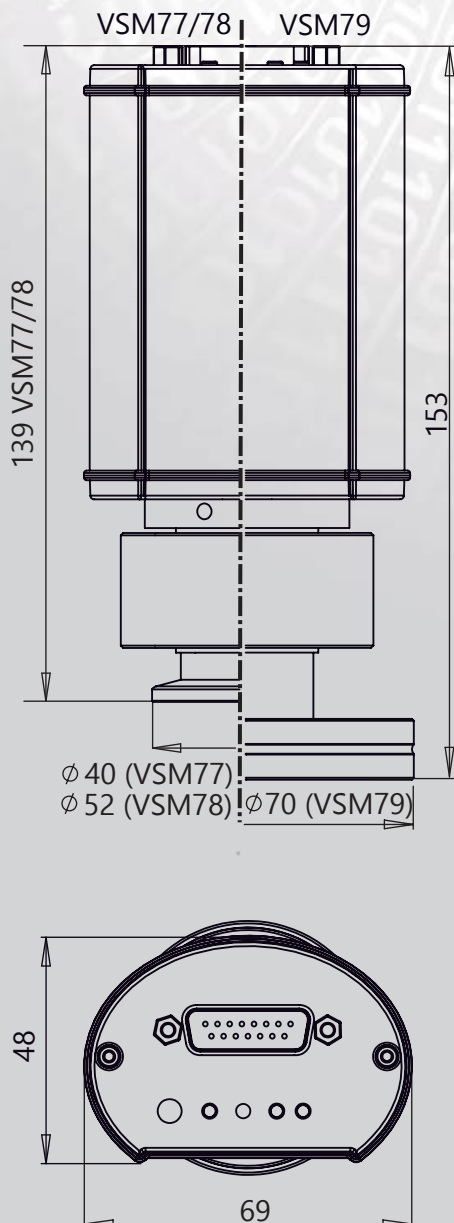


# VSM - Smartline Vacuum Transducer Pirani / Cold Cathode

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



## 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 DN 40 ISO-KF, EtherCAT and RS485
- VSM79E DN 40 CF-F, EtherCAT and RS485
  
- VSM77PN DN 25 ISO-KF, Profinet and RS485
- VSM78PN DN 40 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\_VSM77A, B\_VSM78A, B\_VSM79A
- 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.