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
- Voltage reduction of cold cathodes optimizes durability of sensors
- 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 x 10⁻⁹ mbar

### Technical Data

<table>
<thead>
<tr>
<th><strong>Measurement Principle</strong></th>
<th>Heat conduction Pirani / Cold cathode (inv. magnetron), dep. on gas type</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement Range</strong></td>
<td>1000 - 5e⁻⁹ mbar (750-5e⁻⁹ Torr)</td>
</tr>
<tr>
<td><strong>Max. Overload</strong></td>
<td>10 bar abs.</td>
</tr>
<tr>
<td><strong>Accuracy</strong></td>
<td>1000 - 10 mbar: Approx. 30 % f. r., 10 - 2e⁻³ mbar: 10 % f. r., 2e⁻³ mbar - 1e⁻⁸ mbar: 25 % f. r.</td>
</tr>
<tr>
<td><strong>Repeatability</strong></td>
<td>10 - 1e⁻² mbar: Approx. 2 % f.r., 1e⁻²-1e⁻⁸ mbar: Approx. 7 % f.r.</td>
</tr>
<tr>
<td><strong>Materials With Vac. Contact</strong></td>
<td>Stainl. steel 1.4307, tungsten, nickel, glass, molybdenum, Al₂O₃ ceramic</td>
</tr>
<tr>
<td><strong>Anode Voltage</strong></td>
<td>&lt; 2.5 kV</td>
</tr>
<tr>
<td><strong>Reaction time</strong></td>
<td>50 ms (switch-on cold cathode &lt; 2s)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>+5...+60°C (Profinet +5...+50°C)</td>
</tr>
<tr>
<td><strong>Storage Temperature</strong></td>
<td>-40...+65°C</td>
</tr>
<tr>
<td><strong>Bake Out Temperature</strong></td>
<td>Max. 160°C at the flange (voltage supply switched-off)</td>
</tr>
<tr>
<td><strong>Voltage Supply</strong></td>
<td>20 - 30 VDC</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>Max. 3 W, add. 0.8 W f. EtherCAT / relays / LCD, add. 1.6 W for Profinet</td>
</tr>
<tr>
<td><strong>Output Signal</strong></td>
<td>0-10 VDC, min 10 kΩ, measuring range 1.82 - 8.6 VDC, log. per default except for EtherCAT, Profinet</td>
</tr>
<tr>
<td><strong>Serial Interface</strong></td>
<td>RS485: 9.6 kBd to 115 kBd, 8 databit, 1 stopbit, no parity, EtherCAT, Profinet</td>
</tr>
<tr>
<td><strong>Switch Points</strong></td>
<td>2x relay, potential free, 49 VAC / 2 A or 30 VDC / 2 A, max. 60 VA except for EtherCAT, Profinet</td>
</tr>
</tbody>
</table>
| **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)                                         |

[www.thyracont-vacuum.com](http://www.thyracont-vacuum.com)
VSM - Smartline Vacuum Transducer Pirani / Cold Cathode
Absolute Pressure 1000 to 5 x 10^-9 mbar

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.

www.thyracont-vacuum.com