Overview VSL vacuum transducer

- Two piezo diaphragm sensors to monitor chamber pump-down and vent-up; Pirani sensor measuring down to 1e-4 mbar controls low-pressure transfer between loadlock and process chamber minimizing particle events
- Differential pressure output for precisely triggering door-open function
- Short response time of up to 40 ms
- High accuracy, optimal resolution and excellent stability
- Stable readings due to optimized temperature compensation
- Measurements independent of gas type above 20 mbar

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
### Technical Data

<table>
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<tr>
<th>Measurement Principle</th>
<th>Piezo-resistive / heat conduction Pirani (Pirani, depending on gas type)</th>
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</table>
| Measurement Range               | Absolute: 1200 - 1e-4 mbar (900 - 1e-4 Torr)  
Relative: -1060...+340 mbar (-795...+255 Torr), dep. on ambient pressure |
| Overload                        | 4 bar abs.                                                                |
| Accuracy                        | Absolute: 1200 - 40 mbar: 0.3 % f. s.  
40 - 2e-3 mbar: 10 % f. r.  
Relative: 0.25 % f. spane       |
| Repeatability                   | 1200 - 40 mbar: 0.1 % f. s., 40 - 1e-2 mbar: 2 % f. r.                    |
| Materials with Vac. Contact     | Stainless steel 1.4307, tungsten, nickel, glass, gold, silicon oxide       |
| Reaction Time                   | 40 ms                                                                     |
| Operating Temperature           | +5...+60°C (Profinet +5...+50°C)                                           |
| Storage Temperature             | -40...+65°C                                                                |
| Bake Out Temperature            | Max. 125 °C at the flange (voltage supply switched-off)                    |
| Voltage Supply                  | 20 - 30 VDC                                                               |
| Power Consumption               | Max. 2.5 W, add. 0.8 W for EtherCAT / relays /LCD, 1.6 W for Profinet     |
| Output Signal                   | 0-10 VDC, min. 10 kΩ, measuring range 1.5 to 8.58 VDC, log. (Default)   
expt. for EtherCAT, Profinet     |
| Digital 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  
expt. 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 16 ISO-KF (VSL53), DN 16 CF-F (VSL54)                                  |
| Protection Class                | Up to IP54 (SubD with XB15SL05 adaptor)                                   |
| Weight                          | Approx. 195 g (VSL53D)                                                    |
VSL - Smartline Vacuum Transducer Piezo / Pirani
Absolute Pressure 1200 to $1 \times 10^{-4}$ mbar
Relative Pressure $-1060...+340$ mbar

Model designations
- VSL53D  DN16 ISO-KF, 0-10 V and RS485
- VSL54D  DN16 CF-F, 0-10 V and RS485
- VSL53DL DN16 ISO-KF, 0-10 V and RS485, with LCD display
- VSL54DL DN16 CF-F, 0-10 V and RS485, with LCD display
- VSL53E  DN16 ISO-KF, EtherCAT and RS485
- VSL54E  DN16 CF-F, EtherCAT and RS485
- VSL53PN DN16 ISO-KF, Profinet and RS485
- VSL54PN DN16 CF-F, Profinet and RS485

Accessories
- Replacement sensor heads: B_VSL53, B_VSL54
- 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.