

VCL - Smartline Vacuum Transducer Piezo / Pirani

Absolute Pressure 1200 ... 5×10^{-4} mbar

Relative Pressure -1060 ... +340 mbar



Smartline

made for
LOADLOCKS

PROFI
NET

EtherCAT

RS485
0-10 V



Overview VSL vacuum transducer

- Two piezo diaphragm sensors to monitor chamber pump-down and vent-up; Pirani sensor measuring down to $1\text{e-}4$ mbar controls low-pressure transfer between loadlock and process chamber minimizing particle events
- Suitable for demanding applications with aggressive media due to platinum rhodium filament
- Short response time of up to 40 ms
- Differential pressure output for precisely triggering door-open function
- High accuracy, optimal resolution and excellent stability
- Stable measurements 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 $<5\text{e-}10$ 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

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Technical Data

Measurement Principle	Piezo-resistive / heat conduction Pirani (Pirani, depending on gas type)
Measurement Range	Absolute: 1200 - 5×10^{-4} mbar (900 - 5×10^{-4} Torr) Relative: -1060...+340 mbar (-795...+255 Torr), dep. on ambient pressure
Overload	4 bar abs.
Accuracy	Absolute: 1200 - 10 mbar: 0.3 % f. s. 10 - 1×10^{-2} mbar: 10 % f. r. Relative: 0.25 % f. span
Repeatability	1200 - 10 mbar: 0.1 % f. s., 10 - 1×10^{-2} mbar: 5 % f. r.
Materials with Vac. Contact	Stainl. steel 1.4307, platinum/rhodium, 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 k Ω , measuring range 2.2 to 8.58 VDC, log. (Default) except 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 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 16 ISO-KF (VCL53), DN 16 CF-F (VCL54)
Protection Class	Up to IP54 (SubD with XB15SL05 adaptor)
Weight	Approx. 195 g (VCL53D)

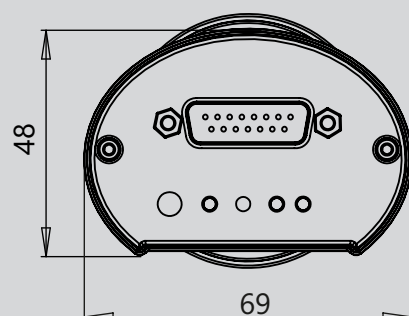
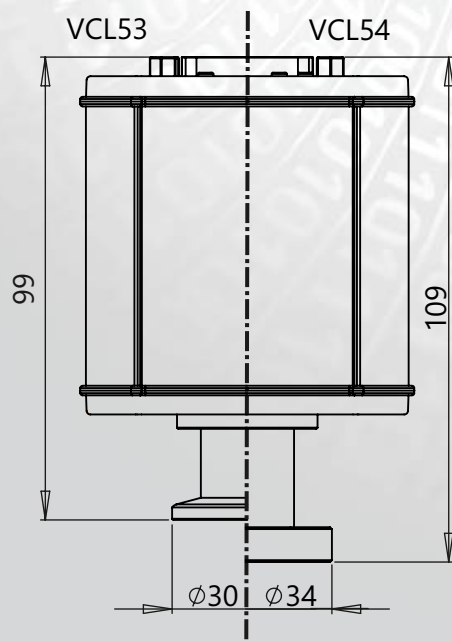
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Dimensions in mm



Model designations

- VCL53D DN16 ISO-KF, 0-10 V and RS485
- VCL54D DN16 CF-F, 0-10 V and RS485
- VCL53DL DN16 ISO-KF, 0-10 V and RS485, with LCD display
- VCL54DL DN16 CF-F, 0-10 V and RS485, with LCD display
- VCL53E DN16 ISO-KF, EtherCAT and RS485
- VCL54E DN16 CF-F, EtherCAT and RS485
- VCL53PN DN16 ISO-KF, Profinet and RS485
- VCL54PN DN16 CF-F, Profinet and RS485

Accessories

- Replacement sensor heads: B_VCL53, B_VCL54
- 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.