VSH - Smartline Vacuum Transducer Pirani / Hot Cathode

Absolute Pressure 1000 to 5×10^{-10} mbar

4.0

Smartline

THYRACONT

mbar
2.6 E-7

Smartline

PROFI NET®
EtherCAT®
RS485
0-10 V
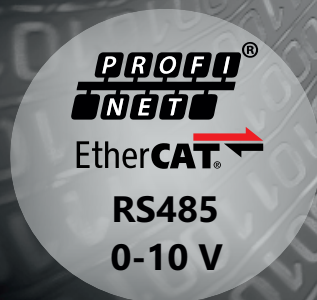
Overview VSH vacuum transducer

- Wide range combination sensor Pirani / Bayard Alpert
- Excellent accuracy and repeatability
- Bayard Alpert with blowing resistant, yttrium coated double filament
- Longterm tests confirm excellent life time: up to 100,000 shock venting cycles

- Switch-on of the hot cathode at lower pressure enhances durability
- Automatic control of the hot cathode by the Pirani
- Seperate gas correction factors for Pirani and hot cathode

Overview Smartline vacuum transducers

- Digital RS485 interfaces plus 0-10 V output signal, EtherCAT or Profinet. Bluetooth adapter SLKBT for wireless communication
- 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 leackage 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

THYRACONT
Vacuum Instruments

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Technical Data

Measurement Principle	Heat conduction Pirani / Hot Cathode Bayard Alpert, dep. on gas type
Measurement Range	1000 - 5e-10 mbar (750 - 5e-10 Torr)
Max. Overload	4 bar
Accuracy	1000 - 10 mbar: Approx. 30 % f. r., 10 - 1e-8 mbar: Approx. 10 % f. r.
Repeatability	10 - 1e-2 mbar: 2 %, 1e-2 - 1e-8 mbar: 5%
Materials With Vac. Contact	Stainl. steel 1.4307, tungsten, nickel, glass, platinum, iridium, yttria oxide
Filaments Bayard Alpert	Yttria coated iridium
Emission Current	9 µA, 100 µA, 1.0 mA, 2.0 mA
Degas Method	Ohmic heating of the anode
Reaction Time	50 ms (switching of emission current < 2s)
Operating Temperature	+5...+60°C (Profinet +5...+50°C)
Storage Temperature	-40...+65°C
Bake Out Temperature	Max. 180°C at the flange (voltage supply switched-off)
Voltage Supply	20 - 30 VDC
Power Consumption	Max. 8 W, add. 1 W f. degas and 0.8 W f. EtherCAT/relays/LCD, add. 1.6 W for Profinet
Output Signal	0 - 10 VDC, min. 10 kΩ, measuring range 1.219 - 8.6 VDC, log. 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, 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 (VSH87), DN 40 ISO-KF (VSH88), DN 40 CF-F (VSH89)
Protection Class	Up to IP54 (SubD with XB15SL05 adaptor)
Weight	Approx. 475 g (VSH88)

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Dimensions in mm

VSH87/88   VSH89

141

146

48

69

Ø40 (VSH87)
Ø55 (VSH88)   Ø70 (VSH89)
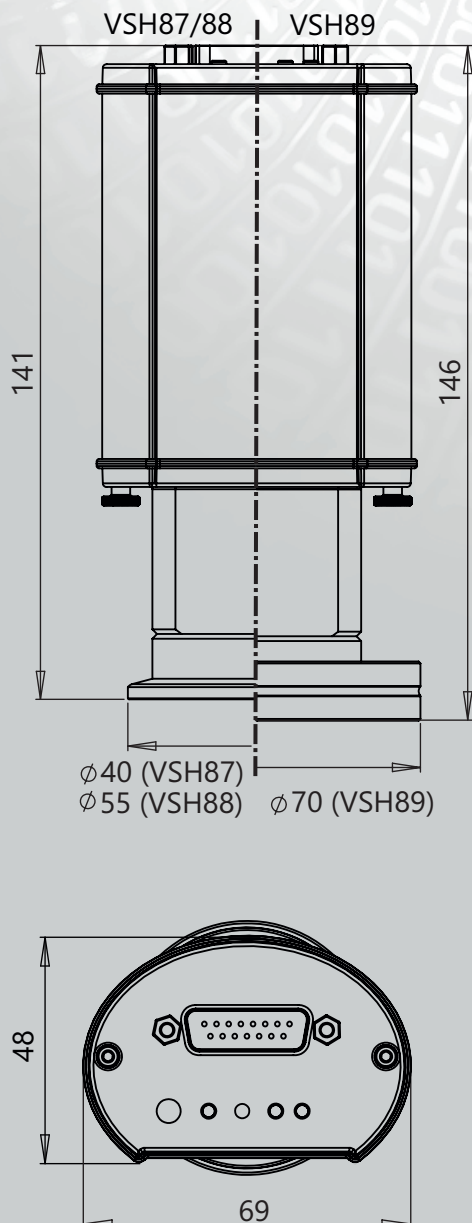
Model designations

- VSH87D   DN 25 ISO-KF, 0-10 V and RS485
- VSH88D   DN 40 ISO-KF, 0-10 V and RS485
- VSH89D   DN 40 CF-F, 0-10 V and RS485

- VSH87DL   DN 25 ISO-KF, 0-10 V, RS485, LCD display
- VSH88DL   DN 40 ISO-KF, 0-10 V and RS485, LCD display
- VSH89DL   DN 40 CF-F, 0-10 V and RS485, LCD display

- VSH87E   DN 25 ISO-KF, EtherCAT and RS485
- VSH88E   DN 40 ISO-KF, EtherCAT and RS485
- VSH89E   DN 40 CF-F, EtherCAT and RS485

- VSH87PN   DN 25 ISO-KF, Profinet and RS485
- VSH88PN   DN 40 ISO-KF, Profinet and RS485
- VSH89PN   DN 40 CF-F, Profinet and RS485

Set

VD1288P: Set including a 2 channel controller VD12, VSH88D, measuring cable 2 m

Accessories

- Replacement sensor heads: B_VSH87A, B_VSH88A, B_VSH89A
- 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.