

VSH - Smartline Vacuum Transducer Pirani / Hot Cathode

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



VSH at a glance

- Wide range combination sensor Pirani / Bayard Alpert
- Bayard Alpert with blowing resistant, yttrium coated double filament
- Longterm tests confirm excellent life time and resistance: up to 100,000 shock venting cycles
- The Pirani sensor's extended range allows for preserving operation of hot cathode at lower pressure
- Activation and deactivation of the hot cathode by the Pirani for enhanced durability
- Excellent accuracy and repeatability
- Small volume of the measuring cell e. g. 20 cm³ for VSH88D
- Baud rate 9.6 kBd to 115 kBd
- Correct pressure readings by means of separate gas type correction factors for Pirani and hot cathode

Features of the Smartline product family

- Digital RS485 interface and additional analog output signal 0 - 10 V, EtherCAT or Profinet
- Digital adjustment of zero and atmospheric pressure via pushbutton or interface
- Two independent, potential-free relay switch points
- Large, integrated LCD display with background illumination
- LEDs for device status and switch points
- Protection class up to IP54
- Output signal scalable according to required output characteristics for an easy replacement of existing transducers
- Easy connection with PLCs
- Rugged, EMI-proof metal housing
- The digital output signal can be transmitted failure-free over long distances (up to 500 m)
- Bluetooth adapter available
- Suitable for Thyracont 2 and 4 channel controllers VD12 / VD14
- VacuGraph™ Windows software to visualize, analyze and save measurements
- Easily replaceable sensor heads with stored calibration datas

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Technical Data

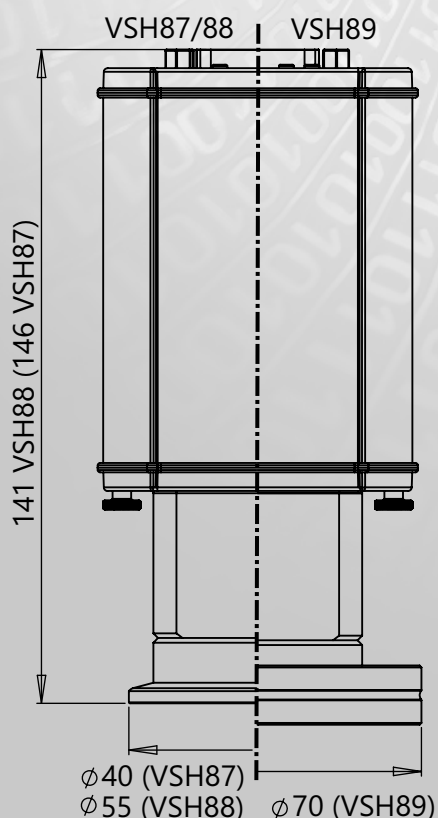
Measurement Principle	Heat conduction Pirani / Hot Cathode Bayard Alpert, dep. on gas type
Measurement Range	1000 - 5×10^{-10} mbar (750 - 5×10^{-10} Torr)
Max. Overload	4 bar
Accuracy	1000 - 10 mbar: Approx. 30 % f. reading, 10 - 1×10^{-8} mbar: Approx. 10 % f. reading
Repeatability	10 - 1×10^{-2} mbar: 2 %, 1×10^{-2} - 1×10^{-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 μ A, 100 μ A, 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
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 W for Profibus, 1.8 W for Profinet
Output Signal	0 - 10 VDC, min. 10k Ω , measuring range 1.219 - 8.6 VDC, log. (VSHxD/DL)
Serial Interface	RS485: 9,6 kBd to 115 kBd, 8 databit, 1 stopbit, no parity
Switch Points	2x relay, potential free, 50 VAC / 2 A, 30 VDC / 2 A, max. 60 VA (VSH8xD/DL)
Electrical Connection	VSH8xD/DL: SubD, 15-pole, male, lockable VSH8xE, -PB, -PN: M12 circular connector, female, lockable VSH8xE, -PN: 1x A standard, 5-pole, 2x D-coded, 4-pole VSH8xPB: 1x A standard, 5-pole, 1x B-coded, 4-pole
Vacuum Connection	DN 25 ISO-KF (VSH87), DN 40 ISO-KF (VSH88), DN 40 CF-F (VSH89)
Protection Class	VSH8xE, -PB, -PN: IP54; VSH8xD/DL: IP40, IP54 with XB15SL05 adaptor
Weight	Approx. 475 g (VSH88)

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Dimensions in mm



Model designations

- VSH87D DN 25 ISO-KF, 0 - 10 V and RS485
- VSH87DL DN 25 ISO-KF, 0 - 10 V, RS485, LCD display
- VSH87E DN 25 ISO-KF, EtherCAT and RS485
- VSH87PN DN 25 ISO-KF, Profinet and RS485
- VSH88D DN 40 ISO-KF, 0 - 10 V and RS485
- VSH88DL DN 40 ISO-KF, 0 - 10 V and RS485, LCD display
- VSH88E DN 40 ISO-KF, EtherCAT and RS485
- VSH88PN DN 40 ISO-KF, Profinet and RS485
- VSH89D DN 40 CF-F, 0 - 10 V and RS485
- VSH89DL DN 40 CF-F, 0 - 10 V and RS485, LCD display
- VSH89E DN 40 CF-F, EtherCAT and RS485

Accessories

- Replacement sensor heads: B_VSH87A, B_VSH88A, B_VSH89A

For further accessories and information see our Smartline brochure.

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