

# VSR - Smartline Vacuum Transducer Piezo / Pirani

Absolute Pressure 1200 to  $1 \times 10^{-4}$  mbar



## VSR at a glance

- Wide measuring range due to combination sensor piezo / Pirani
- High accuracy and optimal resolution over the whole measuring range
- Short response time
- Excellent reproducibility and long term stability
- Metal sealed stainless steel sensor, suitable for UHV applications
- Filament is protected against oil and solvent vapors by a metal screen
- Stable measurements due to optimized temperature compensation
- Small measuring cell volume of  $2 \text{ cm}^3$
- Baud rate 9.6 kBd to 115 kBd
- Measurements independent of gas type above 20 mbar and adjustable gas type correction factors for Pirani sensor

## 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 data

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### Technical Data

|                             |                                                                                                                                                                                                                        |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measurement Principle       | Piezo resistive / heat conduction Pirani (Pirani, depending on gas type)                                                                                                                                               |
| Measurement Range           | 1200 - $1\text{e-}4$ mbar (900 - $1\text{e-}4$ Torr)                                                                                                                                                                   |
| Max. Overload               | 4 bar abs.                                                                                                                                                                                                             |
| Accuracy                    | 1200 - 40 mbar: 0.3% f. scale end, 40 - $2\text{e-}3$ mbar: 10% f. reading                                                                                                                                             |
| Repeatability               | 1200 - 40 mbar: 0.1 % full scale, 40 - $1\text{e-}2$ mbar: 2% from reading                                                                                                                                             |
| Materials with Vac. Contact | Stainless steel 1.4307, tungsten, nickel, glass, gold, silicon oxide                                                                                                                                                   |
| Reaction Time               | 40 ms                                                                                                                                                                                                                  |
| Operating Temperature       | +5...+60°C                                                                                                                                                                                                             |
| Storage Temperature         | -40...+65°C                                                                                                                                                                                                            |
| Bake Out Temperature        | Max. 150 °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, add. 1 W f. Profibus, 1.8 W for Profinet                                                                                                                            |
| Output Signal               | 0-10 VDC, min. 10 k $\Omega$ , measuring range 1.5 to 8.58 VDC, log. (VSR5xD/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 or 30 VDC / 2 A, max. 60 VA                                                                                                                                                     |
| Electrical Connection       | VSR5xD/DL: SubD, 15-pole, male, lockable<br>VSR5xE, -PB, -PN: M12 circular connector, female, lockable<br>VSR5xE, -PN: 1x A standard, 5-pole, 2x D-coded, 4-pole<br>VSR5xPB: 1x A standard, 5-pole, 1x B-coded, 4-pole |
| Vacuum Connection           | DN 16 ISO-KF (VSR53), DN 16 CF-F (VSR54)                                                                                                                                                                               |
| Protection Class            | IP54: VSR5xE, VSR5xPN   IP40: VSR5xD/DL (IP54 with XB15SL05 adaptor)                                                                                                                                                   |
| Weight                      | 195 g (VSR53D)                                                                                                                                                                                                         |

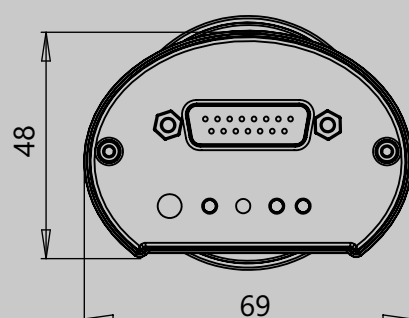
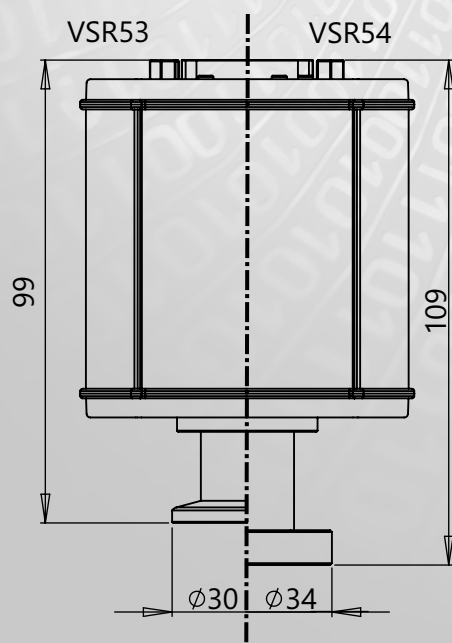


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## Dimensions in mm



## Model designations

- VSR53D DN16 ISO-KF, 0-10V and RS485
- VSR53DL DN16 ISO-KF, 0-10V and RS485, with LCD display
- VSR53E DN16 ISO-KF, EtherCAT and RS485
- VSR53PB DN16 ISO-KF, Profibus and RS485
- VSR53PN DN16 ISO-KF, Profinet and RS485
- VSR54D DN16 CF-F, 0-10V and RS485
- VSR54DL DN16 CF-F, 0-10V and RS485, with LCD display
- VSR54E DN16 CF-F, EtherCAT and RS485
- VSR54PB DN16 CF-F, Profibus and RS485
- VSR54PN DN16 CF-F, Profinet and RS485

## Accessories

- Replacement sensor heads: B\_VSR53A, B\_VSR54A

For further accessories and information see our Smartline brochure.

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