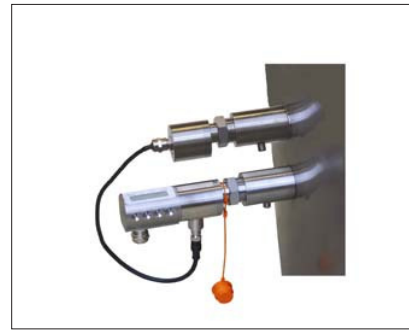


SATRON VDU differential pressure transmitter belongs to V-series transmitters. SATRON VDU differential pressure transmitter is 2-W transmitter and is used from 0-1.4 kPa to 0-3 MPa ranges. In pressure measuring applications SATRON VDU diff.pressure transmitters are used for measuring the pressure of clean, sedimenting, crystallizing and sticking materials. The transmitter's sensor is piezoresistive. The rangeability is 25:1. The transmitter communicates digitally using the HART® protocol.



TECHNICAL SPECIFICATIONS

Measuring range and span

See Selection Chart.

Zero and Span adjustment

Zero elevation: Calibrated span is freely selectable on the specified range. This can be made by using keyboard or HART®275 communicator.

Damping

- Time constant is continuously adjustable 0,01 to 60 s.

Temperature limits

Ambient: -30 to +80 °C
Process: -30 to +125/+200 °C
Shipping and storage: -40 to +80 °C.
Operating temperature of display: 0 to +50°C (does not affect operation of the transmitter)

Pressure limits Min. and max. process pressure: See the appended tables.

Volumetric displacement

< 0.5 mm³ /max. span (in both sensors)

Output 2-wire (2W), 4-20 mA, user selectable for linear, square root, inverted signal or the transfer function (16 points) specified by the user

Supply voltage and permissible load

See the load capacity diagram;
4-20 mA output: 12 - 35 VDC.

Humidity limits

0-100 % RH; freezing of condensed water not allowed in reference pressure channels.

PERFORMANCE SPECIFICATIONS

Tested in accordance with IEC 60770: Reference conditions, specified span, no range elevation, horizontal mounting; AISI316L diaphragm, silicone oil fill.

Accuracy

±0.2 % of calibrated span (span 1:1-7.5:1 /max.range).
On the measuring ranges 7.5:1-25:1:

$$\pm[0.02+0.024 \times \left(\frac{\text{max.span}}{\text{calibrated span}} \right)]\% \text{ of calibrated span}$$

Special accuracy types **BA** and **DA** : (Temperature effect on +20 to +70 °C) ±0,15 % of calibrated span, only proces

¹⁾ Parts in contact with process medium

connections **BA** and **DA** / temperature effect code **S**, for spans 1:1-7,5:1).

On the measuring ranges 7,5:1-25:1:

$$\pm[0.01+0.007 \times \left(\frac{\text{max.span}}{\text{calibrated span}} \right)]\% \text{ of calibrated span}$$

(incl. nonlinearity, hysteresis and repeatability)

Long-term stability

±0.2 % / max. span / year

Temperature effect

- on -20 to +80 °C range

Zero and span error:
±0.3 % of max. span.

- on 0 °C to +200 °C range

(process temperature code **H**)
±2 % of max. span, VDU6
±4 % of max. span, VDU4, VDU5

Temperature effect

- on +20 °C to +70 °C,

process connections **BA** and **DA**
Zero and span error:
±0.15 % of max.span, code **S**

Mounting position effect

Zero error < 0.32 kPa, which can be calibrated out.

Vibration effect (IEC 68-2-6: FC):

±0.1 % of measuring range/
2g/10 to 2000 Hz
4g/10 to 100 Hz

Power supply effect

< ±0.01 of calibrated span per volt

Insulation test voltage

500 V rms 50 Hz

CONSTRUCTION AND CALIBRATION

Materials

Diaphragm ¹⁾: AISI316L / 317L, Duplex (EN 1.4462), Hast. C276/C22, CoNi-alloy, Titanium Gr2, Nickel or Tantalum. Coupling ¹⁾: AISI316L, Duplex (EN

1.4462), Hast.C276 or Titanium
Other sensing element materials:
AISI316, AISI303.

Filling fluid: Silicone oil, food industry oil or inert oil

Enclosure class IP66

Electronics housing:

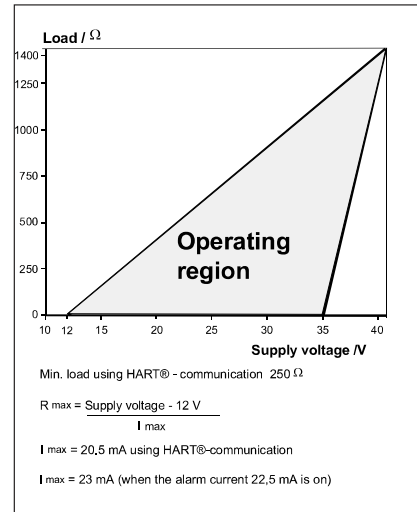
AISI303/316, Seals: nitrile rubber and Viton®, Nameplates: Polyester

Calibration

For customer-specified range with 1 s. damping. (If range is not specified, transmitter is calibrated for maximum range.)

Process connections

See Selection Chart
Process couplings: See Selection Chart and installation instructions or technical specification: Couplings for Transmitters **G150**.



Pressure limits

Maximum process pressure

Transmitter type	Max. overload pressure, MPa	Pressure class
VDU3	0.25	PN40
VDU4	0.3	PN40
VDU5	1.5	PN40
VDU6	7.5	PN100

Minimum process pressure

T _{proc.} °C	Minimum pressure for different fill fluids (kPa, abs.)	
	DC200 100 cSt	Inert oil
20	5	8
40	8	10
80	16	28
120	21	53