



## VD 550 - Robust flow sensor for wet compressed air and gases



### FIELD OF APPLICATION:

- Wet air
- Technical gas
- Mixed gases: e.g. natural gas/H<sub>2</sub>
- LPG
- Propane
- CO<sub>2</sub>



### Benefits at a glance:

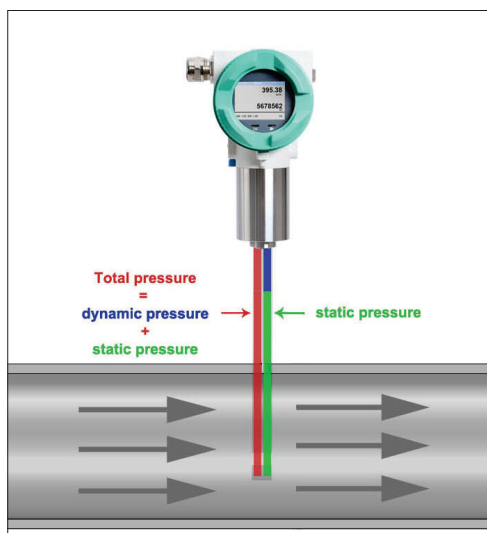
- Unique sensitivity in the lower measuring range: Measures from as little as 2 m/s and thus covers the complete operating range of variable speed drive (VSD) compressors
- Particularly suitable for extremely high flow rates
- Flow, total consumption, temperature and pressure
- Measurement at high temperatures, max. temperature 180 °C
- Can be used in pipes from DN 20 to DN 1500
- Installation via 1/2" or 3/4" ball valve under pressure
- Robust impact-proof aluminum die cast housing for outdoor area IP 67

### Typical applications:

- Measurement of the capacity of compressors
- Compressed air audits
- Efficiency measurement of compressed air systems
- 

### Typical applications:

- After a functioning water separator
- In horizontal pipes (recommended) or in riser pipes
- Installation without water separator only with 3/4" screw thread in horizontal pipes



The integrated, precise differential pressure sensor measures the differential pressure/dynamic pressure at the sensor tip. The pressure depends on the respective gas velocity. The flow is therefore easy to determine by means of the pipe diameter.

The additional measurement of temperature and absolute pressure and calculation of the relevant density means that measuring can be carried out for various gases, a wide variety of temperatures and pressures.

### TECHNICAL DATA VD 550

<b>Measuring range:</b>	2 up to 224 m/s / 600 m/s (compressed air) 0,04 up to 500 mbar differential pressure for gas
<b>Measured medium:</b>	Air and gas
<b>Accuracy:</b> (m.v.: of meas. value)	± 1,5 % of m.v.
<b>Measuring principle:</b>	Differential pressure
<b>Measuring span:</b>	1:100 / 300
<b>Response time:</b>	t <sub>99</sub> : < 1 sec.
<b>Temperature of the medium:</b>	-30...+180 °C
<b>Operating pressure:</b>	-1...+100 bar (g)
<b>Ambient temperature:</b>	-20 ...+70 °C
<b>Protection class:</b>	IP 67
<b>Power supply:</b>	18...36 VDC, 5 W
<b>Signal outputs:</b>	1x 4...20 mA analogue output (electrically not isolated), pulse output, RS 485 (Modbus-RTU) <b>Optional:</b> 2 x 4...20 mA active, Ethernet interface (PoE), M-Bus; HART, IO-Link



Example order code VD 550:

0690 5501\_A1\_B1\_C1\_D1\_E1\_G1\_J1\_K1\_M1

Measuring range	
A1	224 m/s (Compressed air)
A2	600 m/s (Compressed air)
A3	0,04 - 500 mbar Differential pressure (gases)

Screw-in thread	
B1	G 1/2"
B2	NPT 1/2"
B3	PT 1/2"
B4	G 3/4"
B5	NPT 3/4"

Installation length / shaft length	
C1	220 mm
C2	400 mm
C3	600 mm (only with 3/4" thread)
C4	1000 mm (only with 3/4" thread)

Display	
D1	with integrated display

Signal outputs / bus connection option	
E1	2x 4...20 mA analogue output (electrically not isolated), pulse output, RS 485 (Modbus-RTU)
E4	1x 4...20 mA analogue output (electrically not isolated), pulse output, RS 485 (Modbus-RTU)
E5	Ethernet interface (Modbus/TCP), 1 x 4...20 mA analogue output (not electrically isolated), pulse output, RS 485, (Modbus-RTU)
E6	HART protocol, 1 x 4...20 mA output (not galvanically isolated), pulse output, without RS 485 (Modbus RTU)
E8	M-Bus, 1 x 4...20 mA analogue output (not electrically isolated), pulse output, RS 485 (Modbus-RTU)
E9	Ethernet interface PoE (Power over Ethernet), (Modbus/TCP), 1 x 4...20 mA analogue output, (not electrically isolated), pulse output RS 485 (Modbus-RTU)
E10	IO-Link, 1 x 4...20 mA output (not galvanically isolated), pulse output, RS 485 (Modbus RTU)

Reference standard	
G1	20 °C, 1000 mbar
G2	0 °C, 1013,25 mbar
G3	15 °C, 981 mbar
G4	15 °C, 1013,25 mbar

Calibration	
J1	No real gas calibration - Adjustment of gas type via gas constant
J2	Real gas calibration in selected gas type

Gas type	
K1	Compressed air
K2	Nitrogen (N2)
K3	Argon (Ar)
K4	Carbon dioxide (CO2)
K5	Oxygen (O2)
K6	Nitrous oxide (N2O)
K7	Natural gas (NG)
K8	Helium (He)
K9	Propane (C3H8)

K10	Methane (CH4)
K11	Biogas (Methane 50%: CO2 50%)
K12	Hydrogen (H2)
K90	Further gas / please indicate gas type (on request)
K91	Gas mixture / please indicate mixture ratio (on request)

Max. pressure	
M1	30 bar (g)
M2	100 bar (g)
M3	2 bar (g)
M4	10 bar (g)

DESCRIPTION	ORDER NO.
VD 550 flow sensor for wet compressed air and gas	0690 5501 + Order code A_...M_
Connection cable for probes 5 m with open ends	0553 0108
Connection cable for probes 10 m with open ends	0553 0109
Ethernet connection cable length 5 m, M12 plug x-coded (8 pin) to RJ 45 plug	0553 2503
Ethernet connection cable length 10 m, M12 plug x-coded (8 pin) to RJ 45 plug	0553 2504
Mains unit in wall housing for maximum 2 sensors of the series VA/FA 5xx, 100-240 V, 23 VA, 50-60 Hz / 24 VDC, 0.35 A	0554 0110
ISO calibration certificate at 5 measuring points	3200 0001
Additional calibration point for volume flow (point freely selectable)	0700 7720
CS Service Software for VA/VD 550 incl. PC connection set, USB connection and interface adapter for configuration / parametrization	0554 2007
High-pressure safety device recommended for the installation of 10 up to 100 bar (for VD 550)	0530 2205
PNG cable screwing - for standard	0553 0552