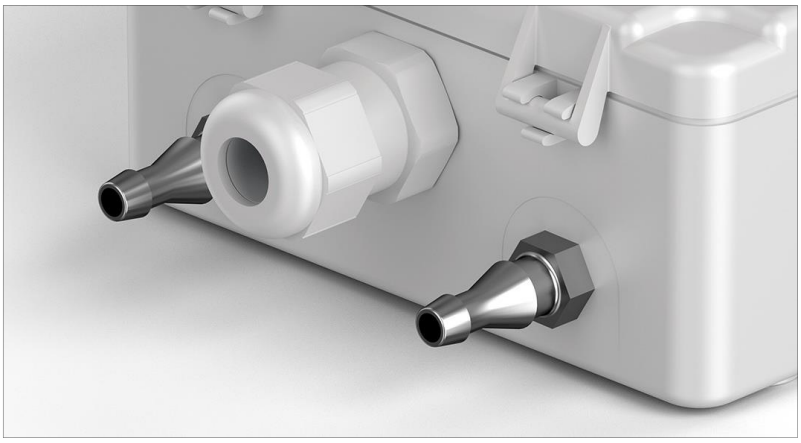
Beck.

Transmitter 985V for Volume Flow or Flow Velocity



Transmitter 985V for Volume Flow or Flow Velocity

General description

The transmitters of the 985V series are used to measure volume flow or flow velocity and pressure.
A jumper enables switching between volume flow or flow velocity and pressure measurement.

Applications

Monitoring of gaseous, non-combustible and non-aggressive media.

Possible usage areas are:

- Building automation and air conditioning systems
- Overpressure measurement in clean rooms and laboratories
- Measurement of constant pressure in VAV applications
- Dynamic filter and ventilator monitoring

Configuration of volume flow or flow velocity measurement

1. Select a calculation formula and enter a k-factor, both of which are dependent on the type of ventilator or measuring probe.

2. Or create a reference volume flow or flow velocity, which is entered directly.

A menu guide on the device is available for all settings.

Output signal selection

The output signal can be changed between 0 ...10 Volt and 4 ... 20 mA by removing a jumper.

Switching output

To give a switch signal at an user defined pressure level the transmitter has an adjustable transistor switching output (NPN NO) with a maximum switching capacity of 30 VDC/100 mA. NPN NC or PNP NO / NC on request.

Configurable response time

The response time of the output signal can be configured using a jumper. If the jumper is in place the response time is slow (factory setting), which is useful for suppressing brief pressure peaks. If the application requires a fast response time the jumper must be removed.

Easy offset calibration

For 985VM press the left button manually in an unpressurized state to adjust the output signal to zero. The Version 985VA performs a zero point adjustment automatically.

Reset

The transmitter can be reset to its factory setting.

Mounting position

Can be mounted in any position. The zero offset calibration eliminates any possible position error.

Technical data

Measuring method	Piezoresistive pressure transducer
Supply voltage	18 ... 30 VAC / VDC
Output signal	0 ... 10 V or 4 ... 20 mA
LED display	Red; 4 digits
Units selectable Volume flow Flow velocity	 m3/h; m3/s; cfm; l/s m/s; ft/min
k-factor	0.001 é 9.9 x 10^5
Switching output	Transistor; maximum switching capacity of 30 VDC / 100 mA
Maximum current draw	100 mA (DC) / 230 mA (AC)
Load for output 4 ... 20 mA 0 ... 10 V	 20 ... 500 Ý Ó1kÝ (Ò10 mA)
Medium	Air and non-combustible and non-aggressive gases
Working and storage temperature 985VM 985VA	 -20 ... 70°C -10 é 50°C
Linearity (incl. hysteresis and repeatability)	Ò±0.5% FS, min. ±1 Pa
Uncertainty (Total Error Band w/o long-term and temperature effects)	±1% FS, min. ±1 Pa
Long-term stability 985VM 985VA	 Ò±1% FS n.r.
Humidity	0 ... 95 % rel., non-condensing
2 custom response times selectable between 0.2 s and 20 s	Standard 1.0 s and 0.2 s
Process connection P1 and P2	Hose connection with 4 / 6 mm outer diameter
Electrical connection	Plug-in terminals for wires and strands up to 1.5 mm^2 or circular connector M12 / 4-pole
Housing material	ABS
Housing dimensions	approx. 81 x 83 x 41 mm
Weight	approx. 125 gr
Cable conduit	Cap nut conduit AF15 made of polyamide
Protection class acc. to EN 60529	IP65
CE Conformance acc.	EMC Directive RoHS Directive

Accuracy specifications according to EN 60770 based on the pressure measurement at 23°C

Transmitter 985V
for Volume Flow or Flow Velocity

Pressure ranges

Model	Pressure range	Overload capacity	Bursting pressure	Additional uncertainty with temperature [% FS/10K] 985VM	985VA
985VA.31	0 é 50 Pa	60 kPa	100 kPa	-	± 0.7
985Vx.32	0 é 100 Pa	60 kPa	100 kPa	± 1.0	± 0.5
985Vx.33	0 é 250 Pa	60 kPa	100 kPa	± 0.7	± 0.3
985Vx.34	0 é 500 Pa	75 kPa	125 kPa	± 0.5	n.r.
985Vx.35	0 é 1000 Pa	75 kPa	135 kPa	± 0.3	n.r.
985Vx.37	0 é 5000 Pa	85 kPa	135 kPa	± 0.3	n.r.
985Vx.38	0 é 10 kPa	85 kPa	135 kPa	± 0.3	n.r.

Further pressure ranges on request.

Order matrix

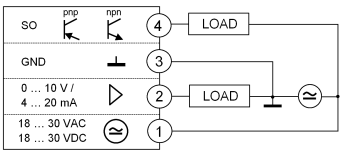
Offset calibration	manual			**985VM.3**	X	X	X	1	X
	automatic			**985VA.3**	X	X	X	1	X
Configurable pressure range	**0 ... 50 Pa**	**(0.5 mbar)**	only available as 985VA		1				
	0 ... 100 Pa	**(1.0 mbar)**			2				
	0 ... 250 Pa	**(2.5 mbar)**			3				
	0 ... 500 Pa	**(5.0 mbar)**			4				
	0 ... 1000 Pa	**(10 mbar)**			5				
	0 ... 5000 Pa	**(50 mbar)**			7				
	0 ... 10 kPa	**(100 mbar)**			8				
Unit of display	Volume Flow	m3/h; m3/s; cfm; l/s				A			
	Flow Velocity	m/s; ft/min				B			
Output signal and version	**0 ... 10 V** or 4 ... 20 mA, 3-wire, 24 VAC / VDC, with switching output						1		
	4 ... 20 mA or 0 é 10 V, 3-wire, 24 VAC / VDC, with switching output						3		
Display	with LED-display							1	
Electrical connection	via plug-in terminals								4b
	via circular connector M12 / 4-pole								8b

Factory settings printed in bold type.

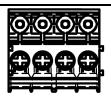
Accessories

Climaset® consisting of 2m PVC hose and 2 plastic pipes	Article No. 6555
Climaset® consisting of 2m Silicone hose and 2 plastic pipes	Article No. 6557
Climaset® consisting of 2m PVC hose and 2 angled metal pipes	Article No. 6550
Climaset® consisting of 2m Silicone hose and 2 angled metal pipes	Article No. 6556
Duct connecting pipe for Climaset® 6555	Article No. 6551
Angled metal pipe for Climaset® 6550	Article No. 6552
Rubber grommet for Climaset® 6550	Article No. 6553
Roll with 100 m PVC hose	Article No. 6424
Roll with 100 m Silicone hose	Article No. 6425

Terminal assignments

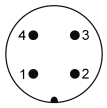


Plug-in terminals 4-pole



4	Switching output (SO)
3	Ground (GND)
2	Output signal (0é 10 V / 4é 20 mA)
1	Supply voltage (18...30 VAC / VDC)

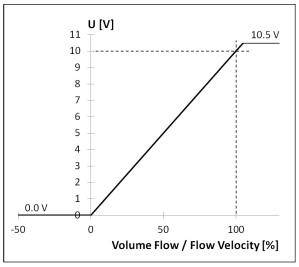
Circular connector M12 4-pole

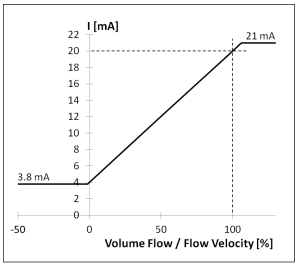


2	Switching output (SO)
3	Ground (GND)
4	Output signal (0é 10 V / 4é 20 mA)
1	Supply voltage (18...30 VAC / VDC)

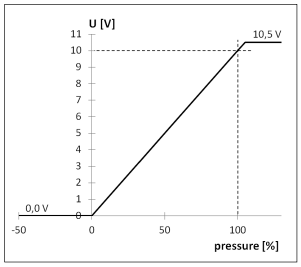
Analog output signal

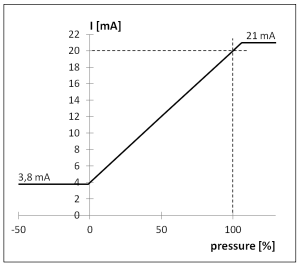
Volume flow or flow velocity (Jumper 3 open)





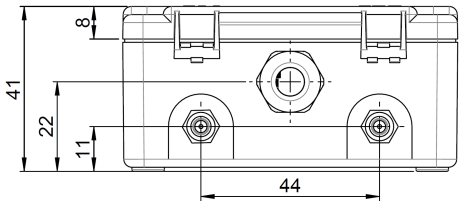
Pressure (Jumper 3 closed)

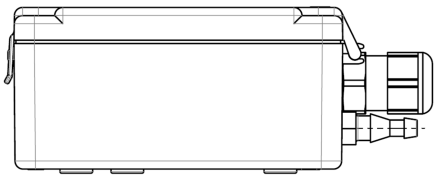




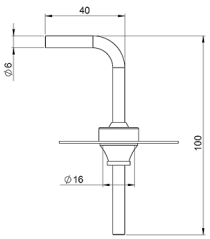
Dimensional Drawings

985 with cap nut conduit AF15

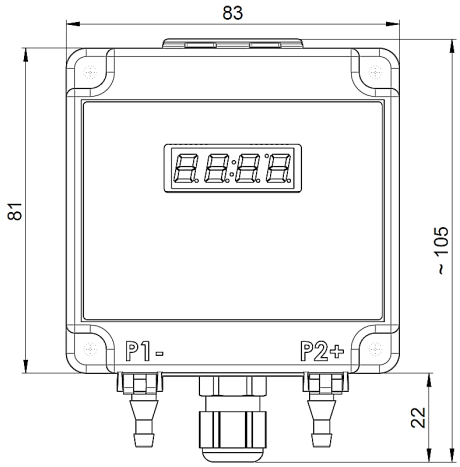


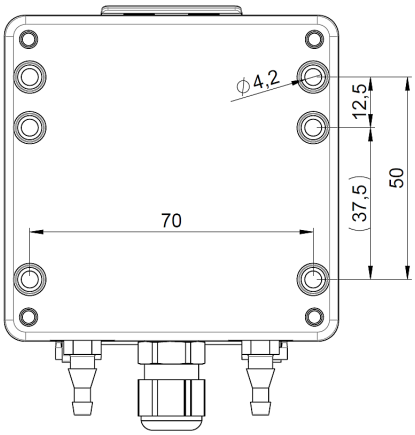


Climaset® 6550 / 6556

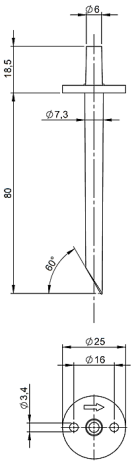


Drilling template





Climaset® 6555 / 6557



Configuration of volume flow or flow velocity

1. Jumper 1 open:
Select a calculation formula and enter the k-factor.
This procedure is used when the k-factor is known. The k-factor can be found, for example, in documentation provided by the manufacturer of the ventilator or the probe. Use the menu guide on the device for configuration.

2. jumper 1 closed:
Creating reference volume flow or flow velocity.
Create a reference volume flow or flow velocity to configure the device without selecting a formula and without entering the k-factor. Use F L ◘ in the menu guide for entry - see description in the operating instructions.

Selection on device	Manufacturer, e.g.	Formula in data sheet of manufacturer
F 1	Ebm-Papst, Ziehl-Abegg	$q = k \cdot \sqrt{\Delta p}$
F 2	Ziehl-Abegg	$q = \sqrt{\frac{\rho_{20}}{\rho}} \cdot k \cdot \sqrt{\Delta p}$
F 3	Nicotra-Gebhardt, Rosenberg	$q = k \cdot \sqrt{\frac{2}{\rho} \cdot \Delta p}$
F 4	Fläkt Woods	$q = \frac{1}{k} \cdot \sqrt{\Delta p}$

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