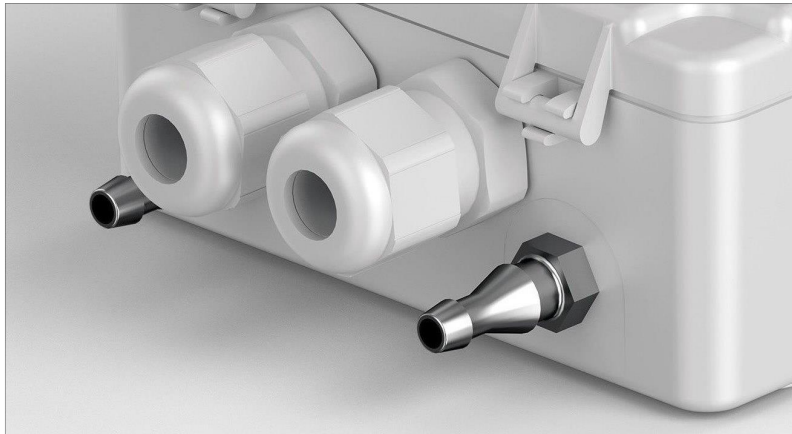


Beck.

Transmitter 985-Modbus with IP65 for Differential Pressure and Volume Flow / Flow Velocity



Transmitter 985-Modbus with IP65



General description

The transmitters of the 985-Modbus series are used to measure differential pressure, volume flow or flow velocity and pressure. The measured value can be output and the parameterization on the device can be done via the Modbus RTU data interface.

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

Communication

The digital signal Modbus enables direct connection to control / regulating systems.

Configuration of volume flow or flow velocity measurement

1. Select a calculation formula and enter a k-factor. Both dependents on the type of ventilator or measuring probe.
2. Or create a reference volume flow or flow velocity, which is entered directly.

The modbus is used to set the device. Please read the exact procedure in the manual.

Adjustable response time

The response time of the output signal can be variably set via Modbus.

Easy offset calibration

For 985M-Modbus and 985VM-Modbus press the MODE/Offset button or set via Modbus in an unpressurized state to adjust the offset to zero. The Versions 985A-Modbus and 985VA-Modbus perform an automated zero offset compensation.

Display

A red LED display shows the pressure value, volume flow or flow velocity.

Mounting position

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

Technical data

Supply voltage	18 ... 30 VAC / VDC
Measuring method	Piezoresistive pressure transducer
Medium	Air and non-combustible and nonaggressive gases
LED display	Red, 4 digits
Units (standard)	Pa or mbar
Pressure	m ³ /h; m ³ /s; cfm; l/s (selectable)
Volume flow	m/s; ft/min (selectable)
Flow velocity	
k-factor	0.001 ÷ 9.9 x 10 ⁵
Output signal	Digital
Protocol, Transmission mode	Modbus, RTU
Type, Adress	Slave, 1 ÷ 247
Interface	RS-485
Baud rate	9600 ÷ 115200 Bd
Data bit, Stop bit	8, 1
Maximum current draw	< 230 mA
Working and storage temperature	
985M and 985VM	-20 ... 70°C
985A and 985VA	-10 ... 50°C
Linearity (incl. hysteresis and repeatability)	m±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	
985M and 985VM	m±1% FS
985A and 985VA	n.r.
Humidity	0 ... 95 % rel., non-condensing
Response time	0.2 ÷ 10 s
Process connection P1 and P2	4/6 mm hose connection
Electrical connection	Plug-in terminals for wires and strands up to 1.5 mm ²
Housing dimensions	ABS
Housing dimensions	approx. 81 x 83 x 41 mm
Weight	approx. 140 gr
Protection class acc. to EN 60529	IP65
CE Conformance	EMV Directive RoHS Directive

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

Transmitter 985x-Mod

for Differential Pressure

Pressure ranges

Model	Pressure range	Overload capacity	Bursting pressure	Additional uncertainty with temperature [% FS/10K]	
				985M	985A
985A-Mod.3E	-25 ÷ 0 ÷ +25 Pa	60 kPa	100 kPa	-	± 0.7
985x-Mod.3X	-50 ÷ 0 ÷ +50 Pa	60 kPa	100 kPa	± 1.0	± 0.5
985x-Mod.3W	-100 ÷ 0 ÷ +100 Pa	60 kPa	100 kPa	± 0.7	± 0.3
985A-Mod.31	0 ÷ 50 Pa	60 kPa	100 kPa	-	± 0.7
985x-Mod.32	0 ÷ 100 Pa	60 kPa	100 kPa	± 0.7	± 0.5
985x-Mod.33	0 ÷ 250 Pa	60 kPa	100 kPa	± 0.5	± 0.3
985x-Mod.34	0 ÷ 500 Pa	75 kPa	125 kPa	± 0.3	n.r.
985x-Mod.35	0 ÷ 1000 Pa	75 kPa	135 kPa	± 0.3	n.r.
985x-Mod.37	0 ÷ 5000 Pa	85 kPa	135 kPa	± 0.3	n.r.
985x-Mod.38	0 ÷ 10 kPa	85 kPa	135 kPa	± 0.3	n.r.
985x-Mod.39	0 ÷ 25 kPa	200 kPa	400 kPa	± 0.3	n.r.
985x-Mod.3A	0 ÷ 50 kPa	200 kPa	400 kPa	± 0.3	n.r.
985x-Mod.3B	0 ÷ 100 kPa	200 kPa	400 kPa	± 0.3	n.r.

Order matrix

Offset calibration	manual		985M-Mod.3	X	X	9	1	4b
	automatic		985A-Mod.3	X	X	9	1	4b
Configurable pressure range	- 25 ... 0 ... +25 Pa (-0.25 ... 0 ... +0.25 mbar)	only available as 985A-Mod		E				
	- 50 ... 0 ... +50 Pa (-0.5 ... 0 ... +0.5 mbar)			X				
	- 100 ... 0 ... +100 Pa (-1.0 ... 0 ... +1.0 mbar)			W				
	0 ... 50 Pa (0.5 mbar)	only available as 985A-Mod		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				
	0 ... 25 kPa (250 mbar)			9				
0 ... 50 kPa (500 mbar)			A					
0 ... 100 kPa (1000 mbar)			B					
Pressure unit	mbar				1			
	Pa				3			
Data Interface	Modbus RTU (RS-485)					9		
Display	with LED-display						1	
Electrical connection	via plug-in terminals							4b

Transmitter 985Vx-Mod

for Volume Flow or Flow Velocity

Pressure ranges

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

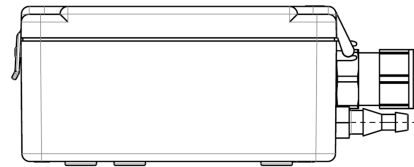
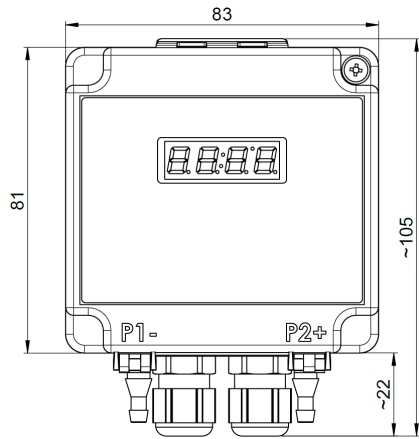
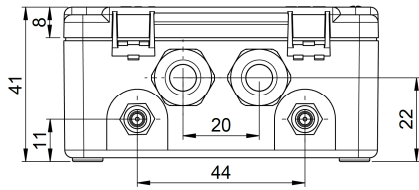
Order matrix

Offset calibration	manual		985VM-Mod.3	X	X	9	1	4b
	automatic		985VA-Mod.3	X	X	9	1	4b
Configurable pressure range	0 ... 50 Pa (0.5 mbar)	only available as 985VA-Mod		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	m ³ /h; m ³ /s; cfm; l/s			A			
	Flow Velocity	m/s; ft/min			B			
Data Interface	Modbus RTU (RS-485)					9		
Display	with LED-display						1	
Electrical connection	via plug-in terminals							4b

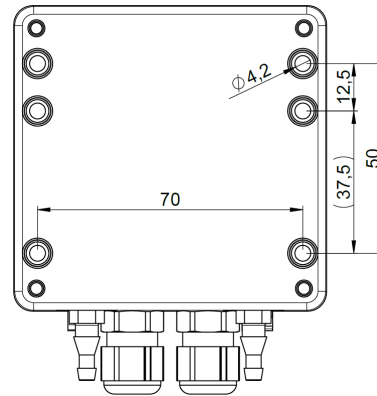
Further pressure ranges and versions on request.

Dimensional Drawings

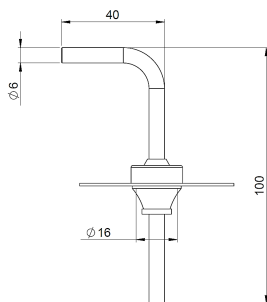
985-Modbus with cap nut conduit AF15



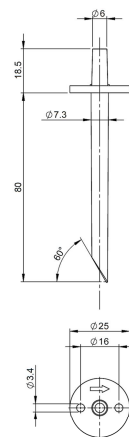
Drilling template



Duct connection for Climaset® 6550/6556



Climaset® 6555/6557



Terminal assignments

Plug-in terminals		2 x 5-pole	
		1 2 3 4 5	1 2 3 4 5
1	in	Supply voltage (18...30 VAC / VDC)	
2	in	Ground (GND) Common	
3	in	A / Data + (D0)	
4	in	B / Data - (D1)	
5	in	Shield	
1	out	Supply voltage (18...30 VAC / VDC)	
2	out	Ground (GND) Common	
3	out	A / Data + (D0)	
4	out	B / Data - (D1)	
5	out	Shield	

Accessories

Climaset® consisting of 2m PVC hose and 2 plastic pipes	Artikel-Nr. 6555
Climaset® consisting of 2m Silicone hose and 2 plastic pipes	Artikel-Nr. 6557
Climaset® consisting of 2m PVC hose and 2 angled metal pipes	Artikel-Nr. 6550
Climaset® consisting of 2m Silicone hose and 2 angled metal pipes	Artikel-Nr. 6556
Duct connecting pipe for Climaset® 6555	Artikel-Nr. 6551
Angled metal pipe for Climaset® 6550	Artikel-Nr. 6552
Rubber grommet for Climaset® 6550	Artikel-Nr. 6553
Roll with 100 m PVC hose	Artikel-Nr. 6424
Roll with 100 m Silicone hose	Artikel-Nr. 6425



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