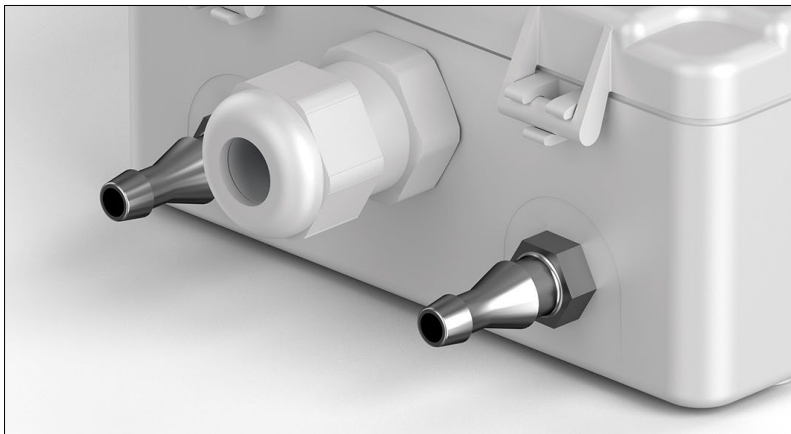


Beck.

The differential pressure transmitter for air with IP65



Differential pressure transmitter 985 with IP65



General description

The differential pressure transmitters of the 985 series are used to measure differential pressure, overpressure and vacuum. They provide up to 8 pressure ranges and 2 output signals, which are easily selectable by jumper or rotary selector switch.

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

Configurable pressure range

For an optimum adaptation to the application, the transmitter can be switched between various pressure ranges. The factory setting is the most sensitive range. For the series 985M and 985A the less sensitive second range will be selected by simply removing a jumper. For the series 985Q the available eight ranges can be selected by a rotary selector switch.

Output signal selection

The output signal of the 3-wire version can be changed between 0 ... 10 Volt and 4 ... 20 mA by removing a jumper. The series 985M is also available in a 2-wire version with 4 ... 20 mA output signal.

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

The output signal of the 985M series can be calibrated to zero by pressing the MODE/Offset button in a pressureless state of the transmitter. The series 985A and 985Q perform an automated zero offset compensation.

Volume flow measurement

The shape of the output signal can be switched from linear to square root using a jumper in order to measure the volume flow via a differential pressure.

Switching output (optional, not available with 2-wire version)

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.

Display (optional, not available with 2-wire version)

In addition to the analogue output signal the pressure value can be read out on a red LED-display in Pascal or other pressure units.

Measuring method

Piezoresistive pressure transducer.

Mounting position

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

Overview on technical data

Series	985M	985M	985A	985Q
Electrical connection	2-wire	3-wire	3-wire	3-wire
Measuring method	Piezoresistive pressure transducer			
Supply voltage	18...30 VDC	18...30 VAC / VDC 50 – 60 Hz	18...30 VAC / VDC 50 – 60 Hz	18...30 VAC / VDC 50 – 60 Hz
Output signal selectable	–	with jumper	with jumper	with jumper
Output signal 0 ... 10 V	–	■	■	■
Output signal 4 ... 20 mA	■	■	■	■
Output signal 0 ... 5 V	–	□	□	□
Output signal 0 ... 20 mA	–	□	□	□
LED display, red, 4 digits	–	□	□	□
Switching output for max 30 VDC / 100 mA	–	□	□	□
Output signal selection from linear to square root	■	■	■	■
max. current draw without display VDC / VAC	21 / – mA	25 / 110 mA	75 / 180 mA	75 / 180 mA
max. current draw with display VDC / VAC	– / –	50 / 170 mA	100 / 230 mA	100 / 230 mA
Load for 4 ... 20 mA output	20 ... 500 Ω			
Load for 0 ... 10 V output	–	≥ 1kΩ (≤ 10 mA)	≥ 1kΩ (≤ 10 mA)	≥ 1kΩ (≤ 10 mA)
Pressure medium	Air and non-combustible and non-aggressive gases			
Configuration of pressure range	with jumper	with jumper	with jumper	with rotary switch
max. number of pressure range	2	2	2	8
only one customized pressure range	□	□	□	□
Manuel offset compensation	■	■	–	–
Automated offset compensation	–	–	■	■
Working and storage temperature	-20 ... +70°C	-20 ... +70°C	-10 ... +50°C	-10 ... +50°C
Linearity (incl. hysteresis and repeatability)	≤ ±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	≤ ±1% FS	≤ ±1% FS	n.r.	n.r.
Humidity	0 ... 95% rel, non-condensing			
Response time 0.2 s and 1 s (standard)	■	■	■	■
Response time free selectable between 0.2 s and 20 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 mm² or circular connector M12 / 4-pole			
Housing material	ABS			
Housing dimensions	approx. 81 x 83 x 41 mm			
Weight	approx. 110 gr	approx. 125 gr	approx. 140 gr	approx. 140 gr
Cable conduit	Cap nut conduit AF15 made of polyamide			
Protection class acc. to EN 60529	IP65			
CE Conformance acc. to EN 61326	■	■	■	■
RoHS Conformance acc. to 2011/65/EU	■	■	■	■

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

■ standard equipment

□ optional equipment

Differential pressure transmitter 985M

with manual offset compensation and 2 pressure ranges

Pressure ranges

Model	Range 1	Range 2	Overload capacity	Bursting pressure	Additional uncertainty with temperature [% FS/10K]
985M.3X3	-50 ... 0 ... +50 Pa	-	60 kPa	100 kPa	± 1.0
985M.3W3	-100 ... 0 ... +100 Pa	-	60 kPa	100 kPa	± 0.7
985M.3Q3	-500 ... 0 ... +500 Pa	-	75 kPa	125 kPa	± 0.3
985M.3S3	-1000 ... 0 ... +1000 Pa	-	75 kPa	125 kPa	± 0.3
985M.323	0 ... 100 Pa	0 ... 250 Pa	60 kPa	100 kPa	± 0.7
985M.333	0 ... 250 Pa	0 ... 500 Pa	60 kPa	100 kPa	± 0.5
985M.343	0 ... 500 Pa	0 ... 1000 Pa	75 kPa	125 kPa	± 0.3
985M.353	0 ... 1 kPa	0 ... 2.5 kPa	85 kPa	135 kPa	± 0.3
985M.373	0 ... 5 kPa	0 ... 10 kPa	85 kPa	135 kPa	± 0.3
985M.393	0 ... 25 kPa	0 ... 50 kPa	200 kPa	400 kPa	± 0.3
985M.3A3	0 ... 50 kPa	0 ... 100 kPa	200 kPa	400 kPa	± 0.3

Further pressure ranges on request.

Order matrix

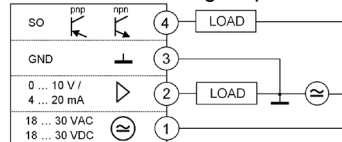
Version	Standard	3					
	UL certified	U3					
Configurable pressure range	- 50 ... 0 ... +50 Pa	(-0.5 ... 0 ... +0.5 mbar)	X				
	- 100 ... 0 ... +100 Pa	(-1.0 ... 0 ... +1.0 mbar)	W				
	- 500 ... 0 ... +500 Pa	(-5.0 ... 0 ... +5.0 mbar)	Q				
	- 1000 ... 0 ... +1000 Pa	(-10 ... 0 ... +10 mbar)	S				
	0 ... 100 Pa (1.0 mbar)	0 ... 250 Pa (2.5 mbar)	2				
	0 ... 250 Pa (2.5 mbar)	0 ... 500 Pa (5.0 mbar)	3				
	0 ... 500 Pa (5.0 mbar)	0 ... 1000 Pa (10 mbar)	4				
	0 ... 1 kPa (10 mbar)	0 ... 2.5 kPa (25 mbar)	5				
	0 ... 5 kPa (50 mbar)	0 ... 10 kPa (100 mbar)	7				
	0 ... 25 kPa (250 mbar)	0 ... 50 kPa (500 mbar)	9				
	0 ... 50 kPa (500 mbar)	0 ... 100 kPa (1.0 bar)	A				
Pressure unit	mbar			1			
	inWC			2			
	Pa			3			
	mmWC			4			
Output signal and version	0 ... 10 V or 4 ... 20 mA , 3-wire, with switching output				1		
	0 ... 10 V or 4 ... 20 mA , 3-wire, without switching output				7		
	4 ... 20 mA or 0 ... 10 V , 3-wire, with switching output				3		
	4 ... 20 mA or 0 ... 10 V , 3-wire, without switching output				D		
Display	4 ... 20 mA , 2-wire				2		
	no display					0	
Electrical connection	with LED-display, 4 digits (only for 3-wire)					1	
	via plug-in terminals						4b
Accessories*	via circular connector M12 / 4-pole						8b
	without accessories						
Accessories*	with Climaset® 6555						4
	with Climaset® 6550						5

*see optional accessories for other versions

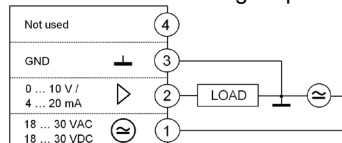
Factory settings printed in bold type.

Terminal assignments

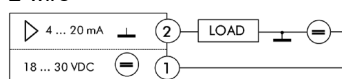
3-wire with switching output



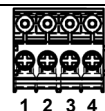
3-wire without switching output



2-wire



Plug-in terminals 2- or 4-pole

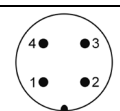


4	Switching output (SO)
3	Ground (GND)
2	Output signal (0...10 V / 4...20 mA)
1	Supply voltage (18...30 VAC / VDC)

4	Not used
3	Ground (GND)
2	Output signal (0...10 V / 4...20 mA)
1	Supply voltage (18...30 VAC / VDC)

2	Output signal (4...20 mA)
1	Supply voltage (18...30 VDC)

Circular connector M12 4-pole



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

2	Not used
3	Ground (GND)
4	Output signal (0...10 V / 4...20 mA)
1	Supply voltage (18...30 VAC / VDC)

2	Output signal (4...20 mA)
3	Not used
4	Not used
1	Supply voltage (18...30 VDC)

Differential pressure transmitter 985A

with automated offset compensation and 2 pressure ranges

Pressure ranges

Model	Range 1	Range 2	Overload capacity	Bursting pressure	Additional uncertainty with temperature [% FS/10K]
985A.3E3	-25 ... 0 ... +25 Pa	-	60 kPa	100 kPa	± 0.7
985A.3X3	-50 ... 0 ... +50 Pa	-	60 kPa	100 kPa	± 0.5
985A.3W3	-100 ... 0 ... +100 Pa	-	60 kPa	100 kPa	± 0.3
985A.3Q3	-500 ... 0 ... +500 Pa	-	75 kPa	125 kPa	n.r.
985A.3S3	-1000 ... 0 ... +1000 Pa	-	75 kPa	125 kPa	n.r.
985A.303	0 ... 25 Pa	0 ... 50 Pa	60 kPa	100 kPa	± 0.7
985A.313	0 ... 50 Pa	0 ... 100 Pa	60 kPa	100 kPa	± 0.5
985A.323	0 ... 100 Pa	0 ... 250 Pa	60 kPa	100 kPa	± 0.3
985A.333	0 ... 250 Pa	0 ... 500 Pa	60 kPa	100 kPa	n.r.
985A.343	0 ... 500 Pa	0 ... 1000 Pa	75 kPa	125 kPa	n.r.
985A.353	0 ... 1 kPa	0 ... 2.5 kPa	85 kPa	135 kPa	n.r.
985A.373	0 ... 5 kPa	0 ... 10 kPa	85 kPa	135 kPa	n.r.
985A.393	0 ... 25 kPa	0 ... 50 kPa	200 kPa	400 kPa	n.r.

Further pressure ranges on request.

Order matrix

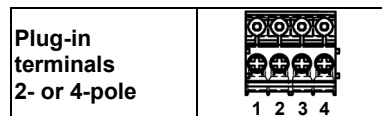
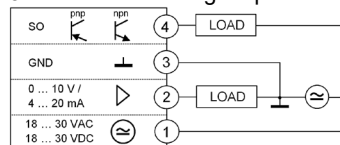
Version	Standard UL certified	985A.
Configurable pressure range	- 25 ... 0 ... +25 Pa (-0.25 ... 0 ... +0.25 mbar) - 50 ... 0 ... +50 Pa (-0.5 ... 0 ... +0.5 mbar) - 100 ... 0 ... +100 Pa (-1.0 ... 0 ... +1.0 mbar) - 500 ... 0 ... +500 Pa (-5.0 ... 0 ... +5.0 mbar) - 1000 ... 0 ... +1000 Pa (-10 ... 0 ... +10 mbar) 0 ... 25 Pa (0.25 mbar) 0 ... 50 Pa (0.5 mbar) 0 ... 100 Pa (1.0 mbar) 0 ... 250 Pa (2.5 mbar) 0 ... 500 Pa (5.0 mbar) 0 ... 1 kPa (10 mbar) 0 ... 5 kPa (50 mbar) 0 ... 25 kPa (250 mbar) 0 ... 50 Pa (0.5 mbar) 0 ... 100 Pa (1.0 mbar) 0 ... 250 Pa (2.5 mbar) 0 ... 500 Pa (5.0 mbar) 0 ... 1000 Pa (10 mbar) 0 ... 2.5 kPa (25 mbar) 0 ... 10 kPa (100 mbar) 0 ... 50 kPa (500 mbar)	3 U3 E X W Q S 0 1 2 3 4 5 7 9
Pressure unit	mbar inWC Pa mmWC	1 2 3 4
Output signal and version	0 ... 10 V or 4 ... 20 mA, 3-wire, with switching output 0 ... 10 V or 4 ... 20 mA, 3-wire, without switching output 4 ... 20 mA or 0 ... 10 V, 3-wire, with switching output 4 ... 20 mA or 0 ... 10 V, 3-wire, without switching output	1 7 3 D
Display	no display with LED-display, 4 digits	0 1
Electrical connection	via plug-in terminals via circular connector M12 / 4-pole	4b 8b
Accessories*	without accessories with Climaset® 6555 with Climaset® 6550	4 5

*see optional accessories for other versions

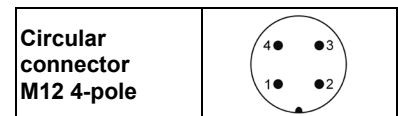
Factory settings printed in bold type.

Terminal assignments

3-wire with switching output

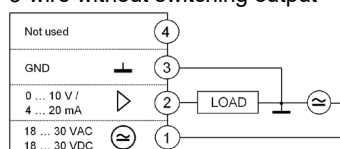


4	Switching output (SO)
3	Ground (GND)
2	Output signal (0...10 V / 4...20 mA)
1	Supply voltage (18...30 VAC / VDC)



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

3-wire without switching output



4	Not used
3	Ground (GND)
2	Output signal (0...10 V / 4...20 mA)
1	Supply voltage (18...30 VAC / VDC)

2	Not used
3	Ground (GND)
4	Output signal (0...10 V / 4...20 mA)
1	Supply voltage (18...30 VAC / VDC)

Differential pressure transmitter 985Q

with automated offset compensation and 8 pressure ranges

Pressure ranges

Model	Position rotary switch	Pressure ranges	Overload capacity	Berstdruck	Additional uncertainty with temperature [% FS/10K]
985Q.343	1	0 ... 100 Pa	75 kPa	125 kPa	± 0.7
	2	0 ... 250 Pa	75 kPa	125 kPa	± 0.3
	3	0 ... 500 Pa	75 kPa	125 kPa	n.r.
	4	0 ... 1000 Pa	75 kPa	125 kPa	n.r.
	5	-50 ... 0 ... +50 Pa	75 kPa	125 kPa	± 0.7
	6	-100 ... 0 ... +100 Pa	75 kPa	125 kPa	± 0.5
	7	-250 ... 0 ... +250 Pa	75 kPa	125 kPa	n.r.
	8	-500 ... 0 ... +500 Pa	75 kPa	125 kPa	n.r.
	0	fixed output signal 0 V / 4 mA	-	-	-
	9	fixed output signal 10 V / 20 mA	-	-	-
985Q.353	1	-100 ... 0 ... +100 Pa	85 kPa	125 kPa	± 1.0
	2	0 ... 100 Pa	85 kPa	125 kPa	± 1.5
	3	0 ... 200 Pa	85 kPa	125 kPa	± 1.0
	4	0 ... 500 Pa	85 kPa	125 kPa	± 0.5
	5	0 ... 1000 Pa	85 kPa	125 kPa	± 0.3
	6	0 ... 1500 Pa	85 kPa	125 kPa	n.r.
	7	0 ... 2000 Pa	85 kPa	125 kPa	n.r.
	8	0 ... 2500 Pa	85 kPa	125 kPa	n.r.
	0	fixed output signal 0 V / 4 mA	-	-	-
	9	fixed output signal 10 V / 20 mA	-	-	-

Factory settings printed in bold type.

Order matrix

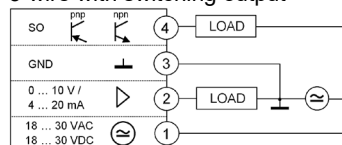
Version	Standard	985Q.				
	UL certified	3				
Configurable pressure range	see pressure ranges	U3				
	max. 1000 Pa (10 mbar)	4				
	max. 2500 Pa (25 mbar)	5				
Pressure unit	mbar	1				
	inWC	2				
	Pa	3				
	mmWC	4				
Output signal and version	0 ... 10 V or 4 ... 20 mA, 3-wire, with switching output	1				
	0 ... 10 V or 4 ... 20 mA, 3-wire, without switching output	7				
	4 ... 20 mA or 0 ... 10 V, 3-wire, with switching output	3				
	4 ... 20 mA or 0 ... 10 V, 3-wire, without switching output	D				
Display	no display	0				
	with LED-display, 4 digits	1				
Electrical connection	via plug-in terminals	4b				
	via circular connector M12 / 4-pole	8b				
Accessories*	without accessories	4				
	with Climaset® 6555	5				
	with Climaset® 6550					

*see optional accessories for other versions

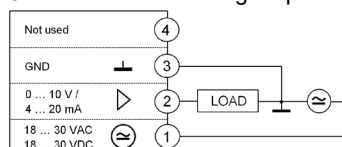
Factory settings printed in bold type.

Terminal assignments

3-wire with switching output



3-wire without switching output



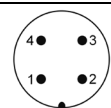
Plug-in terminals 2- or 4-pole



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

4	Not used
3	Ground (GND)
2	Output signal (0...10 V / 4...20 mA)
1	Supply voltage (18...30 VAC / VDC)

Circular connector M12 4-pole

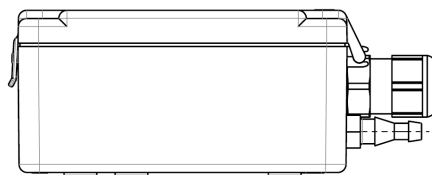
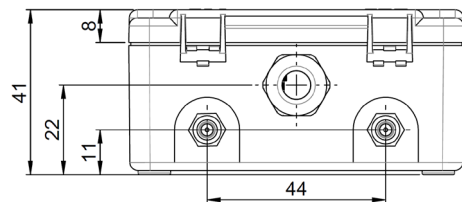


2	Switching output (SO)
3	Ground (GND)
4	Output signal (0...10 V / 4...20 mA)
1	Supply voltage (18...30 VAC / VDC)

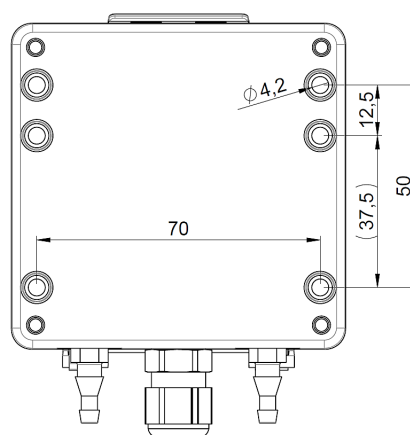
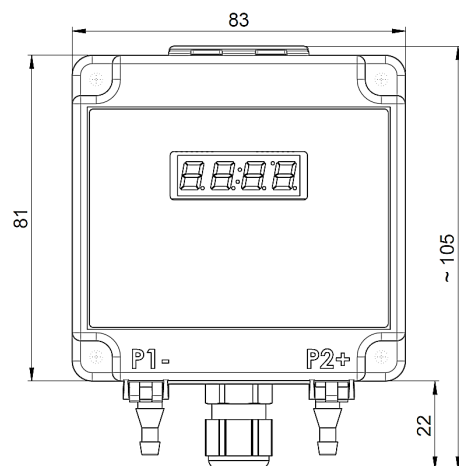
2	Not used
3	Ground (GND)
4	Output signal (0...10 V / 4...20 mA)
1	Supply voltage (18...30 VAC / VDC)

Dimensional Drawings

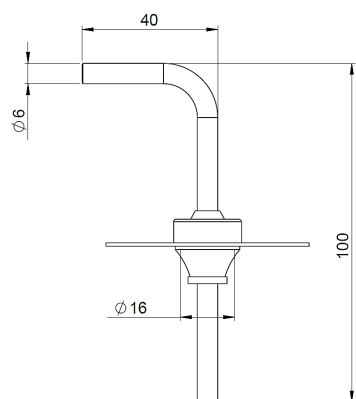
985 with cap nut conduit AF15



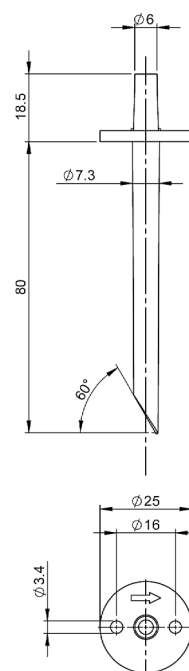
Drilling template



Duct connection for Climaset® 6550/6556



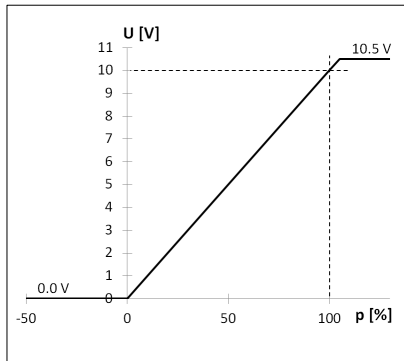
Duct connection for Climaset® 6555/6557



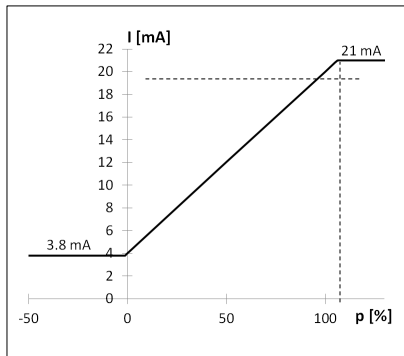
Analog output signal

Linear (Jumper 3 closed)

0 – 10 V

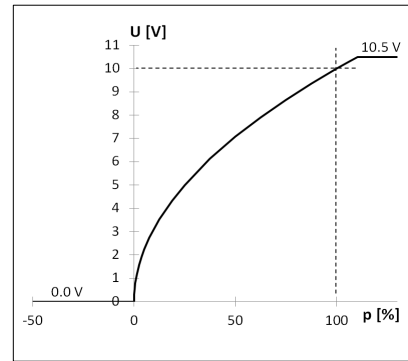


4 – 20 mA

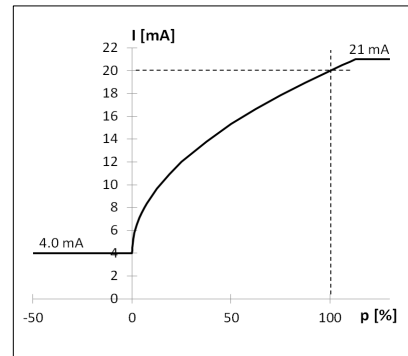


Square root (Jumper 3 open)

0 – 10 V



4 – 20 mA



Optional 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
Universal bracket set made of stainless steel	Article No. 6596
DIN rail adaptor	Article No. 6597
Roll with 100 m PVC hose	Article No. 6424
Roll with 100 m Silicone hose	Article No. 6425
Inspection certificate 3.1 DIN EN 10204:2004	Article No. 6905

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