

# Beck.

## The differential pressure gauge 990 Display for air.



# Differential pressure gauge 990 Display



## General description

The differential pressure gauges 990 Display are for air and non-aggressive gases and will be used to measure differential pressure, overpressure and vacuum. They offer one adjustable pressure range and two output signals, which can be selected in the menu. The type 990M has a manual zero offset calibration, the type 990A has an automatic zero offset calibration.

## Applications

Monitoring of air and non-aggressive gases.

## Adjustable pressure range

To adapt the instrument to the application, the factory-set pressure range can be modified in the menu in a range from 100% to 20% of its full scale value.

## Switchable pressure units

The instrument offers three different pressure units to show in the display, which can be selected in the menu. Factory setting is Pascal, which can be changed to mbar or inWC.

## Switchable output signal

The output signal is either 0...10V or 4...20mA, which can be easily changed in the menu.

## Adjustable response time

The response time of the output signal can be configured using the menu in a range from 0.1 to 20s.

## Easy offset calibration

The output signal of the type 990M can be re-calibrated to zero in the menu when the instrument is in a pressure less state. The series 990A performs an automated zero offset compensation. Here any drift of the zero-point is automatically corrected in regular intervals. No re-calibration is needed which reduces monitoring and maintenance efforts.

## Volume flow measurement

The shape of the output signal can be changed in the menu from linear to square rooted to enable a volume flow measurement via a differential pressure reading.

## Switching output

To give a switch signal at an user defined pressure level the instrument has two adjustable relay switching outputs with a maximum switching capacity of 250VAC/5A.

## Measuring method

Piezoresistive pressure transducer

## Technical data

Supply voltage	
Type 990M with manual offset calibration	16 ... 32VDC 18 ... 30VAC
Type 990A with automatic offset calibration	22 ... 30VDC/AC
Optional wall power supply	100 ... 240VAC(In)/24VDC(Out) (50 ... 60Hz)
Output signal	0 ... 10V and 4 ... 20mA
Working resistance for output 4 ... 20mA	20 ... 480Ω
Power consumption	< 100mA for DC < 250mA for AC
Pressure medium	Air and non-aggressive gases
Linearity and hysteresis error	$\pm 1\%$ of FS
Working temperature	0 ... 50°C
Storage temperature	- 10 ... 70°C
Long-term stability, typical	$\pm 0.5\%$ to $\pm 2.5\%$ of FS/year, depending on pressure range
Repeatability	$\pm 0.2\%$ of FS
Position dependence	$\pm 0.02\%$ of FS/g
Humidity	0 ... 95% rel., non condensing
Response time, switchable	0.1 - 20.0s
Process connection	4mm and 6mm tube connections
Electrical connection	Screw terminals for wires and strands up to 1.5mm <sup>2</sup>
Mounting	Panel mounting in accordance with DIN IEC 61554
Display	Red 7 segment LED display, 4 digits
Housing dimensions	143mm x 96mm x 48mm
Weight	230g
IP rating after EN 60529	IP20
Standards / Conformity	EN60770, EN61326 2011/65/EC (RoHS)

## Pressure ranges

Type	Pascal	mbar	inWC	Overload capacity	Burst pressure	Temperature error
990A.303	0 ... 25 Pa	0.25	0.10	20 kPa	40 kPa	≤ ± 5 % of FS
990A.313	0 ... 50 Pa	0.5	0.20	20 kPa	40 kPa	≤ ± 5 % of FS
990x.323	0 ... 100 Pa	1.0	0.40	20 kPa	40 kPa	≤ ± 5 % of FS
990x.333	0 ... 250 Pa	2.5	1.00	20 kPa	40 kPa	≤ ± 5 % of FS
990x.343	0 ... 500 Pa	5.0	2.00	20 kPa	40 kPa	≤ ± 2.5 % of FS
990x.353	0 ... 1 kPa	10	4.00	20 kPa	40 kPa	≤ ± 1 % of FS
990x.363	0 ... 2.5 kPa	25	10.05	40 kPa	70 kPa	≤ ± 1 % of FS
990x.373	0 ... 5 kPa	50	20.10	60 kPa	120 kPa	≤ ± 1 % of FS
990x.383	0 ... 10 kPa	100	40.20	60 kPa	120 kPa	≤ ± 1 % of FS
990x.393	0 ... 25 kPa	250	100.50	300 kPa	500 kPa	≤ ± 1 % of FS
990x.3A3	0 ... 50 kPa	500	200.10	300 kPa	500 kPa	≤ ± 1 % of FS
990x.3B3	0 ... 100 kPa	1,000	402.00	1.2 MPa	2 MPa	≤ ± 1 % of FS
990x.3F3	0 ... 250 kPa	2,500	1,004.75	1.2 MPa	2 MPa	≤ ± 1 % of FS

## Order matrix

Offset calibration	Manual	<b>990M.3</b>				
	Automatic	<b>990A.3</b>				
Pressure ranges	<b>0 ... 25 Pa</b> (0.25 mbar)	only for type 990A	0			
	<b>0 ... 50 Pa</b> (0.5 mbar)	only for type 990A	1			
	<b>0 ... 100 Pa</b> (1.0 mbar)		2			
	<b>0 ... 250 Pa</b> (2.5 mbar)		3			
	<b>0 ... 500 Pa</b> (5.0 mbar)		4			
	<b>0 ... 1 kPa</b> (10 mbar)		5			
	<b>0 ... 2.5 kPa</b> (25 mbar)		6			
	<b>0 ... 5 kPa</b> (50 mbar)		7			
	<b>0 ... 10 kPa</b> (100 mbar)		8			
	<b>0 ... 25 kPa</b> (250 mbar)		9			
	<b>0 ... 50 kPa</b> (500 mbar)		A			
	<b>0 ... 100 kPa</b> (1,000 mbar)		B			
	<b>0 ... 250 kPa</b> (2,500 mbar)		F			
Pressure unit	<b>Pascal (kPa)</b> , mbar, inWC		3			
Output signal	<b>0 ... 10 V</b> or 4 ... 20 mA, with 2 switching outputs			1		
	<b>4 ... 20 mA</b> or 0 ... 10 V, with 2 switching outputs			3		
Display	Red LED display, 4 digits				1	
Electrical connection	screw terminals for 24VAC/VDC					4
	wall power supply for 100 to 240VAC (50 to 60Hz)					5

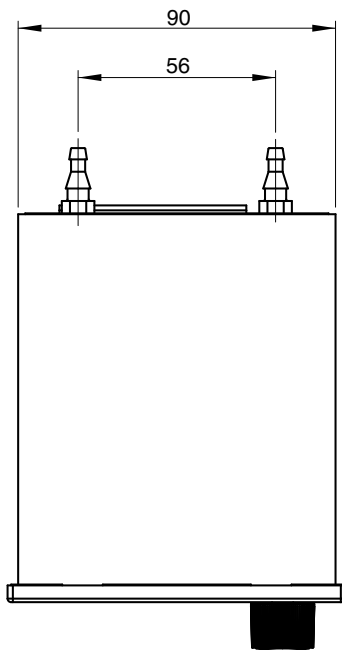
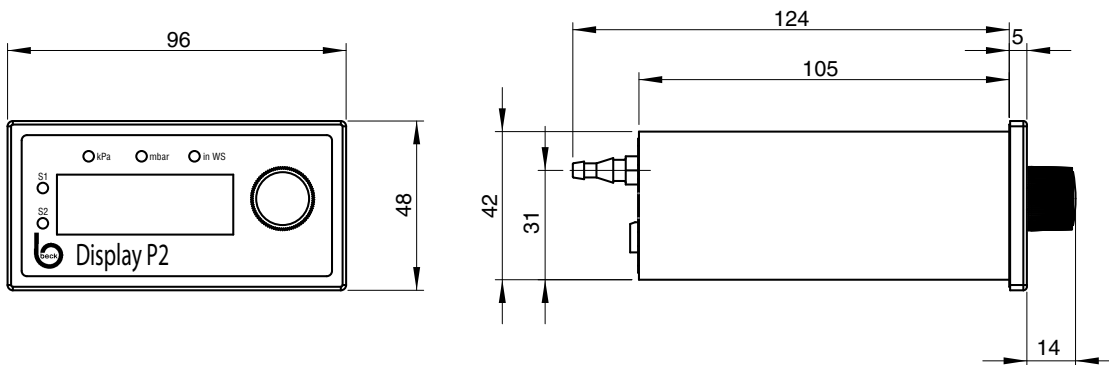
Factory setting printed in old type.

## Accessories

Climaset® consisting of 2 m PVC hose and 2 plastic pipes with 80 mm length	Article No. 6555
Climaset® consisting of 2 m Silicone hose and 2 plastic pipes	Article No. 6557
Climaset® consisting of 2 m PVC hose and 2 angled metal pipes	Article No. 6550
Climaset® consisting of 2 m Silicone hose and 2 angled metal pipes	Article No. 6556
Duct connecting pipe for Climaset® 6555, with 80 mm length	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
Wall power supply	Article No. 6505
Front frame (as separate accessory)	Article No. 6506

# Differential pressure gauge 990 Display

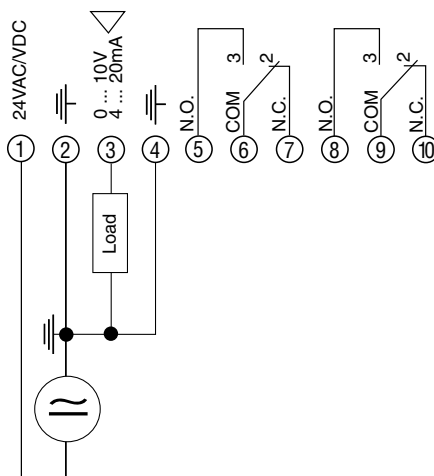
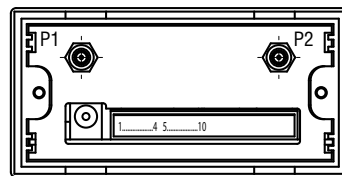
## Dimensions



## Connection plan

optional, power supply pack

Inp. 100 ... 240V  
50 ... 60Hz  
max. 100mA  
Outp. 24 VDC  
24W



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