



Water Level Transmitter 981 for Continuous Level Measurement



beck



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Water Level Transmitter 981

for Continuous Level Measurement

Measuring range from 0-100 mbar
Other ranges on request

Application

Pressure transmitter for monitoring overpressure and negative pressure, for liquid and gaseous, as well as aggressive media. The pressure measurement is relative to the atmospheric pressure.

Permissible Environmental Conditions

Storage and operating temperature -20°C to $+85^{\circ}\text{C}$

Media temperature 0 to 85°C

Humidity max. 95% rH., non-condensing

Membrane Material

NBR, Silicone, FKM, EPDM

Pressure Range

Please see order matrix

Other pressure ranges upon request

Maximum Operating Pressure

Depending on the pressure range, please see order matrix

Linearity

Depending on the pressure range, please see order matrix

Response Time

500 ms

Supply Voltage

10 ... 30 VDC 2-wire

18 ... 30 VDC 3-wire

Supply Current

≤ 21 mA 2-wire

≤ 50 mA 3-wire

Output Signal

4 - 20 mA 2-wire

0 - 10 VDC 3-wire

Load

Max. $500\ \Omega$ at 24 VDC 2-wire

Min. 1 k Ω 3-wire

Electrical Connection

M12 socket, 4 poles, A-coded

Protection Class

IP65 according to EN 60529

Conformity

RoHS Directive, EMC Directive

Accuracy Specifications

According to EN 60770,

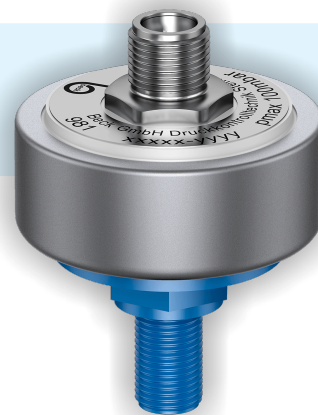
reference temperature: 23°C

Mounting Position

Mounting in any position

Weight

Approx. 100 gr



Hose connection			Threaded Connection			
5m	6.5 mm	10mm	M10x1	1/8" gas	1/4" gas	1/2 gas
PA	PA-PPS	PA-PPS	PA-PVDF	PA-PVDF	PVDF	Brass
				Ottone AISI316	Ottone AISI316	

PA = Polyamide - PVDF = Polyvinyl fluoride - PPS = Polyethylene salt

Water Level Transmitter 981

for measuring low pressures of different media

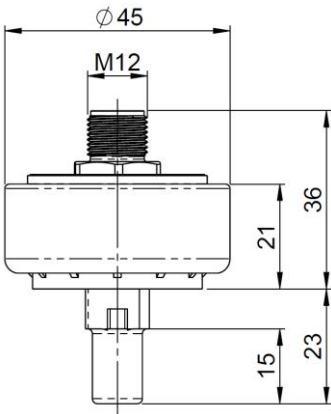
Type	Pressure range	Max. positive working pressure	Max. negative working pressure	Accuracy FS
981.01	+/- 100 mbar	900 mbar	-1 bar	≤ 2 %
981.02	+/- 50 mbar	900 mbar	-1 bar	≤ 2 %
981.03	0 - 25 mbar	900 mbar	-1 bar	≤ 3 %
981.04	0 - 50 mbar	900 mbar	-1 bar	≤ 2 %
981.05	0 - 100 mbar	900 mbar	-1 bar	≤ 1 %
981.06	0 - 150 mbar	900 mbar	-1 bar	≤ 1 %
981.07	0 - 300 mbar	900 mbar	-1 bar	≤ 1 %
981.08	0 - 600 mbar	900 mbar	-1 bar	≤ 1 %

				Pressure range	-----	-----	Membrane	Pressure connection	Output signal	Display	Electr. connection
Order Matrix				981.0	X	0	0	X	X	X	X
Pressure range	+/- 100 mbar			1	0	0					
	+/- 50 mbar			2	0	0					
	0 - 25 mbar			3	0	0					
	0 - 50 mbar			4	0	0					
	0 - 100 mbar			5	0	0					
	0 - 150 mbar			6	0	0					
	0 - 300 mbar			7	0	0					
	0 - 600 mbar			8	0	0					
Membrane material	NBR						1				
	EPDM						2				
	Silicone						3				
	FKM / FPM						4				
Pressure connection	PA6	Hose nipple	5.0 mm					W			
	PA6	Hose nipple	6.0 mm					A			
	PA6	Hose nipple	6.5 mm					B			
	PA6	Hose nipple	10 mm					C			
	PA6	Thread	G 1/8					D			
	PA6	Thread	M10x1					E			
	PPS	Hose nipple	6.5 mm					F			
	PPS	Hose nipple	10 mm					G			
	PVDF	Thread	G 1/8					J			
	PVDF	Thread	M10x1					H			
	Brass	Thread	G 1/2					S			
	Brass	Thread	G 1/4					L			
	Brass (nickel plated)	Thread	G 1/4					V			
	Brass	Thread	G 1/8					M			
	Brass	Thread	G 3/8					O			
	Brass	Thread	M10x1					N			
	V2A	Thread	M10x1					P			
	V2A	Thread	G 1/8					Q			
	V2A	Thread	G 1/4					R			
Output signal	4 ... 20 mA, 2-wire, linear								2		
	0 ... 10 V, 3-wire, linear								7		
Display	no									0	
Electr. connection	M12 plug, 4 poles, A-Coded										8

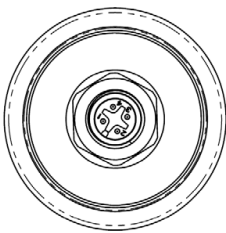
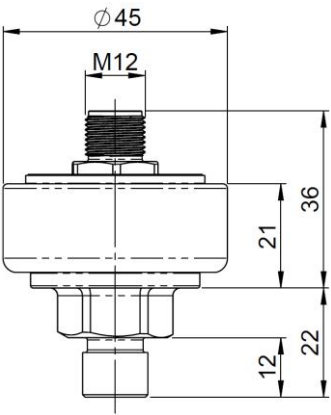
PA = polyamide, PVDF = polyvinyl difluoride, PPS = polyphenylene sulfide, brass = CW617N, V2A = stainless steel

Water Level Transmitter 981

981 with hose connection

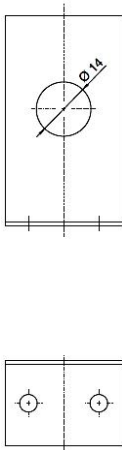


981 with threaded connection

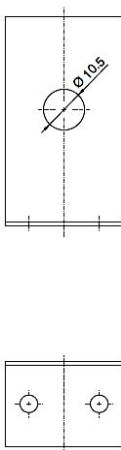


Mounting brackets

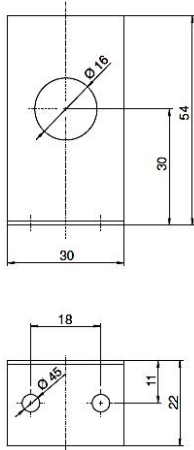
6403



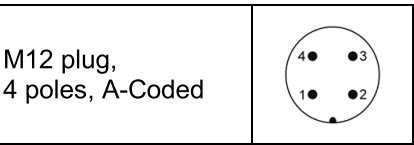
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6405



Pin assignment



2-wire

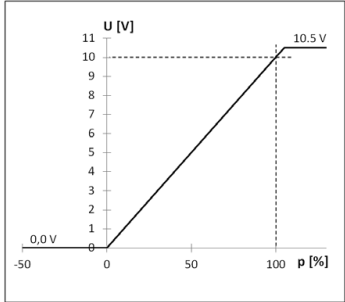
1	Supply voltage (10...30 VDC)
2	Not connected
3	Output signal (4...20 mA)
4	Not connected

3-wire

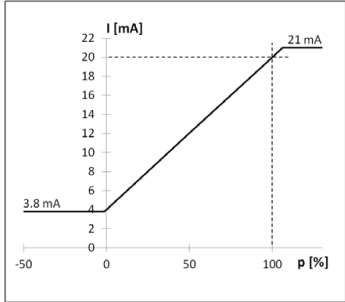
1	Supply voltage (18...30 VDC)
2	Output signal (0...10 V)
3	Ground (GND)
4	Not connected

Analog output signal

0 – 10 V



4 – 20 mA



Accessories

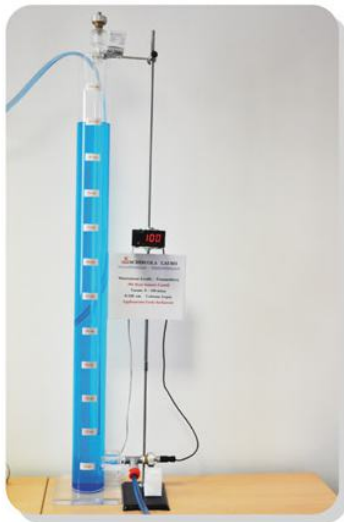
Mounting bracket L-shape for pressure connection G1/4	6403
Mounting bracket L-shape for pressure connection G1/8 and M10x1	6404
Mounting bracket L-shape for pressure connections with hose connection	6405
Clamping spring for mounting with hose connections	6333
Connecting cable 2 meters with M12 socket, straight, 4 poles, open end	9976

Article No

6403
6404
6405
6333
9976

Example of Water Level Transmitter 981 Application

Liquid level control on tanks 0-100 cm or higher



Application example with

Water Level Transmitter 981 with Dip Hose

Liquid level control on tanks 0-100 cm or higher Application with fishing tube connected to a display or PLC indicates the level of water or other liquid (subject to specific weight correction) with 4-20 mA output

It is possible to measure the level of the tanks using a dip tube connected to the sensor positioned at the top. When the level rises, the air contained in the passing tube is compressed proportionally to the increase in the liquid level. 100 cm is equivalent to 100 mbar. The seal must be perfect, we recommend the use of O-rings on the fitting or air-tight sealing pastes.

The advantage of this application is on difficult fluids, acids or bases, creams, paints, emulsions with suspended metal particles etc., since the sensor is never in contact with the fluid, only vapours. By using the correct sensor body even vapors do not damage the sensor.

It is advisable to use suction tubes that are at least suitable for the material and suitable for the fluid. Ideal hose 1" or larger for thick fluids.

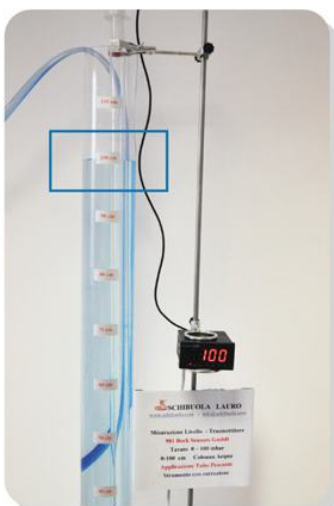
In this case the application requires greater care in calibrating the instruments, following examples of incorrect and correct application. The instruments with calibration 4 mA 0 20 mA 100 in fact give different to lower values due to the compressibility of the air. You had to go to 112 cm to read 100 on the instrument.

The Dip tube application requires a correction on the setting of the Display or PLC instrument as the physical phenomenon of air compression (compressor fluid inserts a constant error in the measurement. When actually flying, for example, 100 cm, the value in cm of the liquid present in the Dip tube. The value of 12 cm present at the bottom of the dip tube must be added to 100 of the full scale.

This logic must be used when setting full scale values

$$4 \text{ mA} = 0 \quad 20 \text{ mA} = 112$$

With this fix the instruments report the correct values



Example with correction



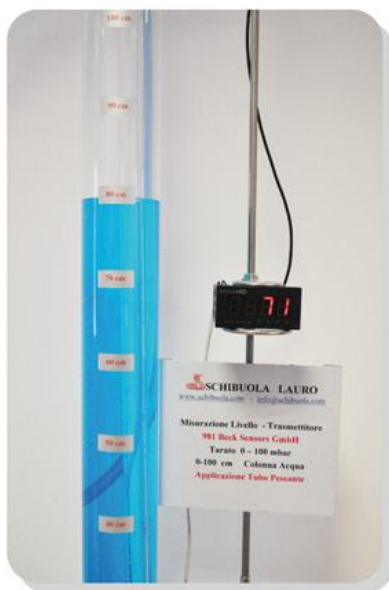
Example without correction



Example without correction



Example with correction



Example without correction



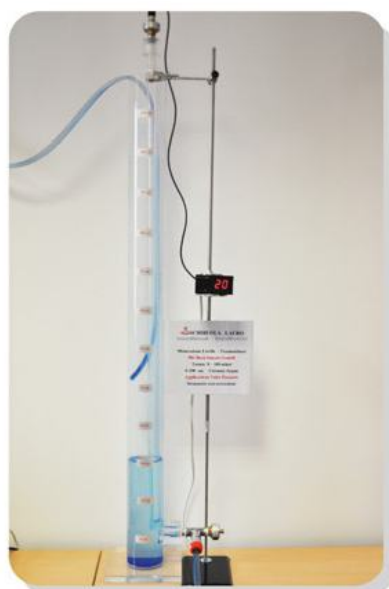
Example with correction



Example without correction



Exemplary with connection



Example with correction



Example without correction



Example without correction