

## Pressure Sensors Special for submersible measurement

Accuracy 0,25% and 0,5%

Standard signal:      4...20 mA;    2-wire  
                         or      0...20 mA;    3-wire



### Description

The pressure sensor special for submersible measurement has been developed especially for use in liquids for hydrostatic level measurement.

Due to the systematic use of stainless steel for the wetted parts, this sensor is suitable for the food industry without any restrictions. For measuring tasks in aggressive media a special version with FEP cable can be obtained.

A hermetically sealed stainless steel case with a protection type IP 68 allows the pressure sensor to be immersed down to a depth of 300 m.

The inner vented connection cable makes pressure compensation of the measuring cell against the atmosphere possible and thus hydrostatic pressure measurement.

The mechanical fastening of the pressure sensor does not require any additional strain relief, as the construction of the cable is suitable to take a maximum tensile force of 1000 N. An additional weight can be screw-fitted to increase the actual weight of the sensor.

For mains-independent service in the field, the sensor can operate with a supply voltage of 5 V.

The sensor can be obtained with a lightning protection. To determine the media temperature the submersible sensor can be equipped with a Pt 100 sensor.

The pressure sensor special for submersible measurement meets the electromagnetic compatibility (EMC) requirements to EN 61326.

### Features

- Compact design
- Protection type IP 68 (up to 300m depth)
- Corrosion resistant stainless steel design
- PUR sheathed cable with inner ventilation
- tensile strength of the cable up to 1000 N
- Option: lightning protection
- Option: FEP cable
- Option: temperature measurement (Pt 100)

### Measuring ranges

Gauge pressure  
positive    0...0,1 bar up to 0...25 bar

### Applications

Water level measurement in:

Potable water wells,  
bore holes,  
waste water plants,  
containers,  
flow water.

**Models: P3230, P3233**

## Technical data

Model	P3233	P3230	Options
Pressure type	positive gauge pressure		
Output signal	4...20 mA, 2-wire	4...20 mA, 2-wire 0...20 mA, 3-wire	0...5 V, 0...10 V, 3-wire <sup>1)</sup> 0,5...2,5 V, 3-wire; Pt 100 (DIN IEC 751), 4-wire for model P3230
Accuracy <sup>2)</sup>	0,5 % of F.S.	0,25 % of F.S. <sup>7)</sup>	
Ranges acc. to EN	0 ... 0,25 bar to 0 ... 10 bar	0 ... 0,1 bar to 0 ... 25 bar	other ranges on request
Sensor element	piezoresistive		
Repeatability	≤ ± 0,05 % of F.S		
Stability (annual)	≤ ± 0,2 % of F.S. in rated conditions		
Pressure connection	G ½ B with protection cap		
Wetted parts <sup>3)</sup>	stainless steel PA		protection cap stainless steel or Hastelloy for model P3230
– Case	PUR		
– protection cap	PUR, Polyolefine (shrink hose)		for model P3230 FEP <sup>4)</sup>
– Cable			
Overload limit	≤ 1 bar, 5x; ≤ 4 bar, 4x; ≤ 25 bar, 3,2x		
Electrical connection	connection cable (PUR-sheathed with inner ventilation, tensile strength 1000 N)		
Power supply	10...30 VDC, (14...30 VDC for output 0...10 V) (5...30 VDC, for output 0,5...2,5 V)		
Power consumption	current signal current signal + 4 Ma approx. 2 mA 8 mA		
– 4...20 mA			
– 0...20 mA			
– 0,5...2,5 V			
– voltage output:			
Load			
– current output	$\leq \frac{U_B - 10V}{0,020A} - 0,14 \frac{\Omega}{m} * \text{cable length}$		
– voltage output	≥ 100 kOhm		
Temp. comp. range	0...+ 50°C		
Temperature influence medium TK	± 0,2 % /10 K, on zero and span <sup>5)</sup>		
Response time	≤ 1 ms (within 10% to 90% of F.S.)		
Emission <sup>6)</sup>	acc. to EN 61326		
Interference <sup>6)</sup>	acc. to EN 61326		
Protection type	IP 68 acc. to EN 60 529 / IEC 529		
– depth	up to 100 m	up to 300 m	
Electrical protection type	polarity, overload and short circuit protection		lightning protection (IEC 801-5; 1,5 kV)
Temperature ranges			
– storage	-30 .... 80 °C		Model P3230
– medium	-10 .... 50 °C		-10 ... 85 °C (FEP-cable)
Weight			
– sensor	approx. 0,18 kg	approx. 0,2 kg	
– cable	approx. 0,08 kg/m	approx. 0,08 kg/m	
– additional weight	approx. 0,5 kg	approx. 0,5 kg	

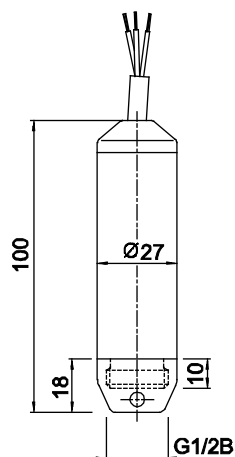
of F.S. = of full scale value

- 1) Special signal for mains independent operation, for ranges 0...0,25 bar.
- 2) Terminal point adjustment according to DIN 16 086, including linearity and hysteresis (calibrated in vertical installation position)
- 3) Including pressure connection and diaphragm.
- 4) max depth 100 m
- 5) 0,4 % for measuring ranges 0...0,1 and 0...0,16 bar.
- 6) Declaration of conformity on request.
- 7) Measuring ranges < 0,25 bar only with accuracy 0,5%

## Dimensions (mm)

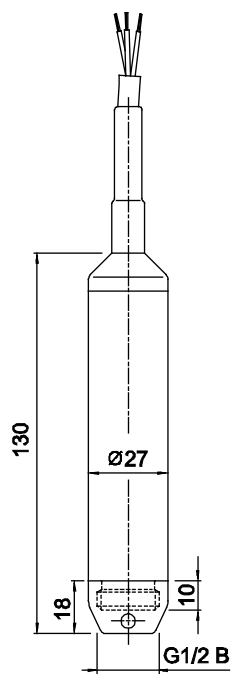
### Model P3233

(depth up to 100 m)



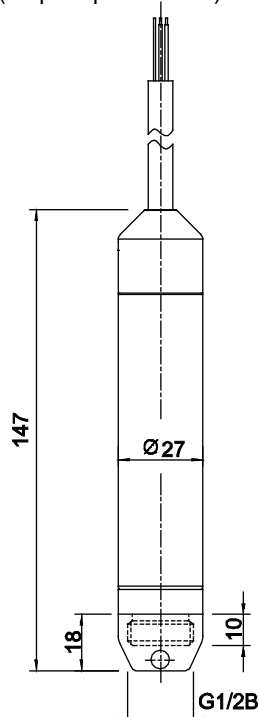
### Model P3230

with PUR-cable  
(depth up to 300 m)



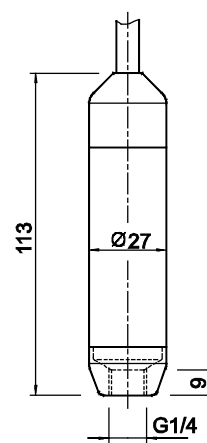
### Model P3230

with FEP-cable  
(depth up to 100 m)



### Model P3230

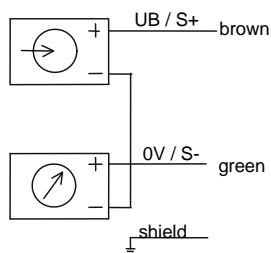
Hastelloy with FEP-cable  
(depth up to 100 m)



## Electrical connection

### 2 wire

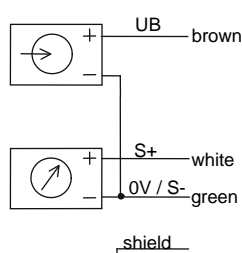
with cable outlet



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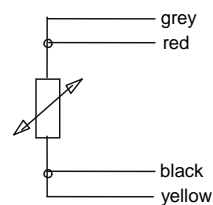
### 3 wire

with cable outlet



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### Pt 100, 4 wire



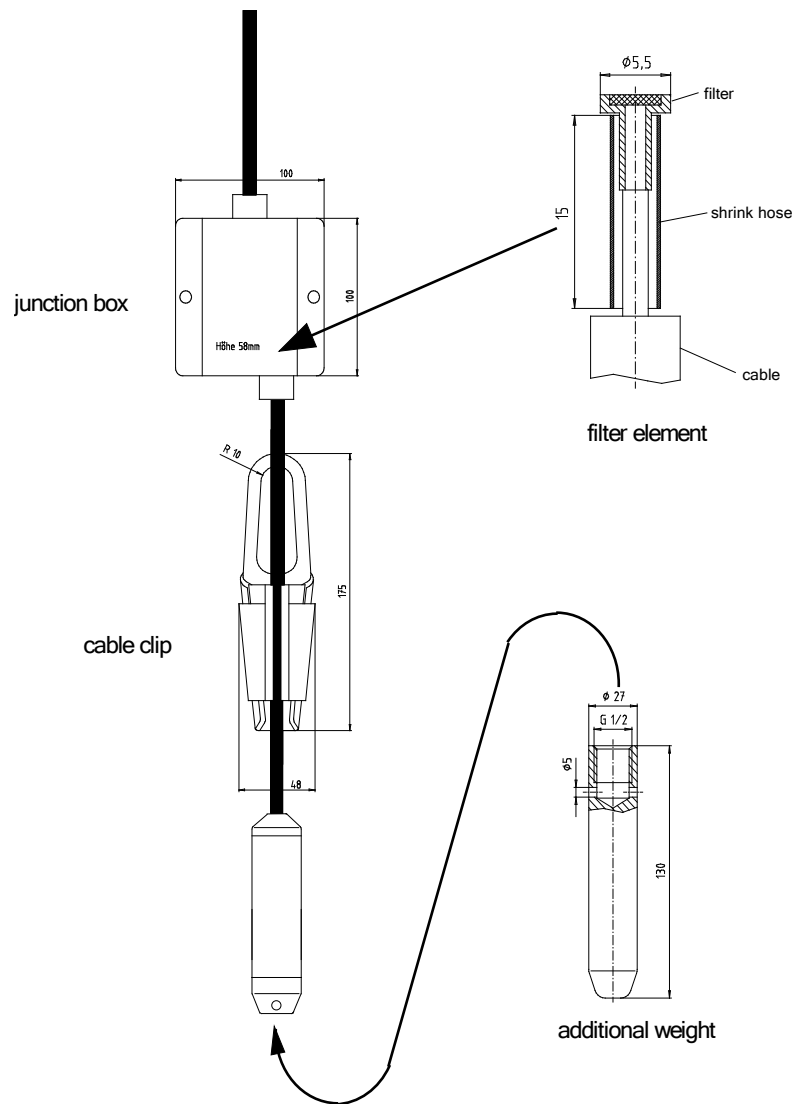
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## Connection table for cable outlet

	4...20 mA (2 - wire)	0...10VDC (3 - wire)
Supply: UB+	brown	brown
Supply: 0V	green	green
Signal: S+	-	white
Signal: S-	-	green
Shield	grey	grey

## Accessories

Art. No.	Description
AZM51.001.003	Filter element for capillary tube
AZM51.001.002	Cable clip
AZM51.001.001	Additional weight
AZM51.001.004	Junction box (protection type IP 54)



## Ordering details

1. Model
2. Measuring range
3. Output signal
4. Options

Subject to technical changes