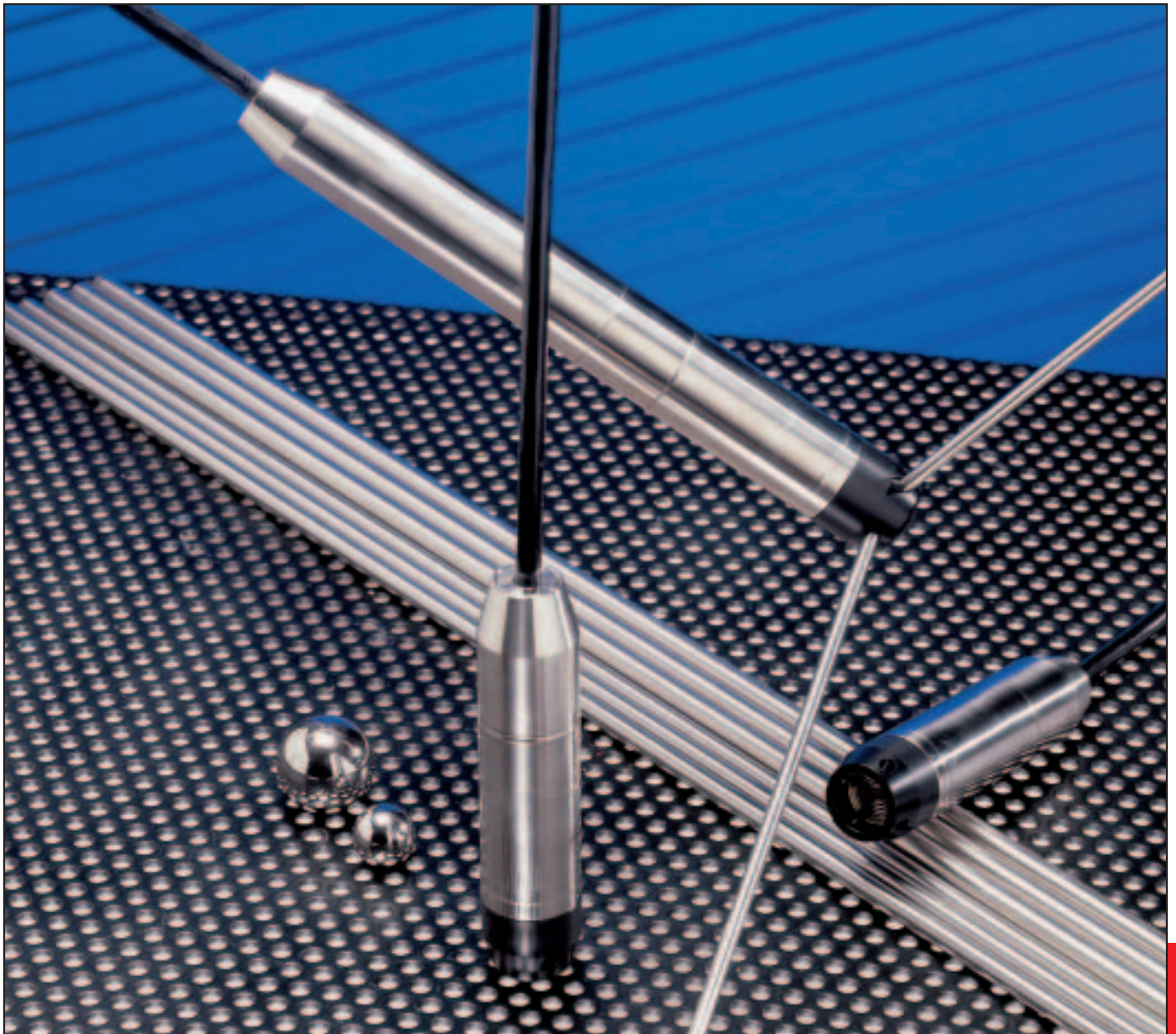


681

**Pressure-type
level sensing transmitter
0 to 25 bar**



EDITION 07/2002

HUBA-REGISTERED TRADE MARK

Huba Control

FOR FINE PRESSURE AND FLOW MEASUREMENT



EDITION 07/2002

Technical overview

The pressure transmitters of type series 681 with piezoresistive measuring elements have compensated, calibrated and amplified sensor signals which are available as standardized voltage or current outputs.

In the immersion-sensor version with a salt water and oil-resistant connection cable they are specially suited for level measurement, even in the presence of corrosive liquids.

The cable incorporates a tube for compensation of the ambient pressure.

All metal parts made of stainless steel are water-tight welded.

The distinct advantages

- Mechanically protected diaphragm due to special head design
- Supplementary weight (option) improves stabilization of sensor in turbulent media
- Effective overload protection due to chemically etched chip diaphragm and specially designed glass gland
- Compact construction using SMD technology, enhances operational reliability in the presence of shock and vibration
- 100 % sealed against media because fully welded

Pressure ranges

Relative pressure 0.1 to 25 bar (differential measurements to ambient pressure)

Absolute pressure as option.

DIN categories see order code selection table.

Overload

3x measurement range, min. 3 bar.

Rupture pressure

> 200 bar (0.1 ... 25 bar)

Characteristic line deviation

Acc. initial point setting DIN 16086, inclusive hysteresis and repeatability

$\leq \pm 0.5 \% \text{ fs}$
 $\leq \pm 0.25 \% \text{ fs}$ (option)
 $\leq \pm 0.1 \% \text{ fs}$ up to pressure range 1 bar (option)

Temperature influences

Compensated temperature ranges: 0 to 70 °C, -25 to +85 °C

Temperature error

Zero point (0 to 70 °C)
 0 ... < 0.5 bar < $\pm 0.06 \% \text{ fs}/^{\circ}\text{C}$
 0.5 ... < 2 bar < $\pm 0.03 \% \text{ fs}/^{\circ}\text{C}$
 2 ... 25 bar < $\pm 0.015 \% \text{ fs}/^{\circ}\text{C}$

Zero point (-25 to +85 °C)
 0 ... < 0.5 bar < $\pm 0.08 \% \text{ fs}/^{\circ}\text{C}$
 0.5 ... < 2 bar < $\pm 0.04 \% \text{ fs}/^{\circ}\text{C}$
 2 ... 25 bar < $\pm 0.02 \% \text{ fs}/^{\circ}\text{C}$

Operating range (0 to 70 °C)
 $\pm 0.015 \% \text{ fs}/^{\circ}\text{C}$

Operating range (-25 to +85 °C)
 $\pm 0.02 \% \text{ fs}/^{\circ}\text{C}$

Storage -40 to +125 °C

Dynamic response

Response time < 1 msec.
 Suitable for static and dynamic measurements.

Outputs and power supply

0 – 5 V	15 – 30 VDC	(3-wire)
0 – 10 V	15 – 30 VDC	(3-wire)
0 – 20 mA	9 – 33 VDC	(3-wire)
4 – 20 mA	9 – 33 VDC	(2-wire)

Short-circuit proof, with polarity reversal protection.

Other signal outputs on request.

Electromagnetic compatibility: CE conformity to EC directive 89/336 EEC (EMC) by application of harmonized standards EN 50081-2 and EN 50082-2.

Load

0 – 20 mA: $\frac{\text{supply voltage} - 6 \text{ V}}{0.02 \text{ A}}$ [Ohm]
 max. 1 kOhm

4 – 20 mA: max. $\frac{\text{supply voltage} - 9 \text{ V}}{0.02 \text{ A}}$ [Ohm]

Intrinsically safe version

Intrinsic safety
 II 16 EEx ia IIC T4 ... T6
 for Fig. 1 and 2
 Intrinsic safety
 II 16 EEx ia IIB T4 ... T6 for Fig. 3

Output	Power supply
4 – 20 mA	10 – 30 VDC

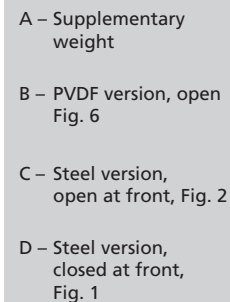
Load:
 max. $\frac{\text{supply voltage} - 10 \text{ V}}{0.02 \text{ A}}$ [Ohm]

Current consumption

0 – 5 V	2.5 mA
0 – 10 V	2.5 mA
0 – 20 mA	26 mA fs (max. 30 mA)
4 – 20 mA	20 mA fs (max. 31 mA)

Electrical connections/Protection class

Test voltage 500 volts.



Versions

EDITION 07/2002

XXXXXXXXXX

[illegible]

¹ Other pressure ranges outside the DIN categories on request.

2 Other temperature ranges on request.

³ Specify type of benzene.

⁴ For temperature > 50 °C use cable Teflon.

5 Indicate correct medium.

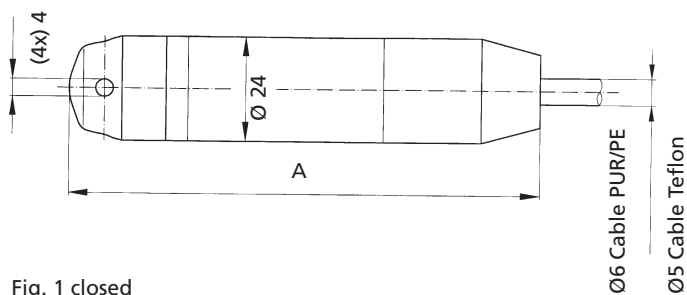


Fig. 1 closed

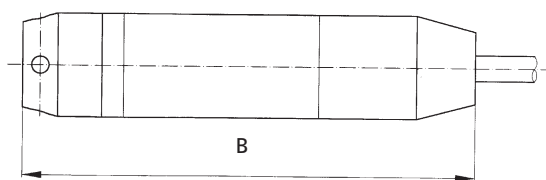


Fig. 2 open

Standard
without weight prolongation
with weight prolongation

A (mm)	B (mm)
108	104
195	191

Overload protection
without weight prolongation
with weight prolongation

A (mm)	B (mm)	Ex-version	A (mm)	B (mm)
157	153		118	114
244	240		205	201

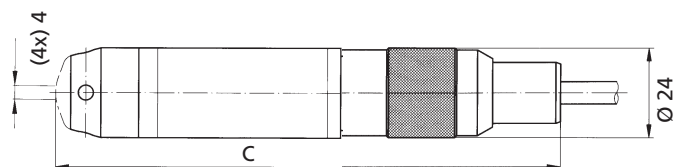


Fig. 3 closed, screwing version

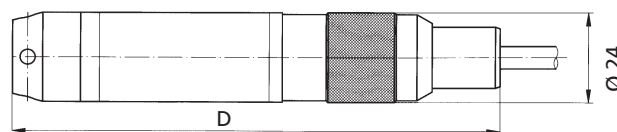


Fig. 4 open, screwing version

Standard
without weight prolongation
with weight prolongation

C (mm)	D (mm)
134	130
221	217

Overload protection
without weight prolongation
with weight prolongation

C (mm)	D (mm)	Ex-version	C (mm)	D (mm)
183	179		144	140
270	266		231	227

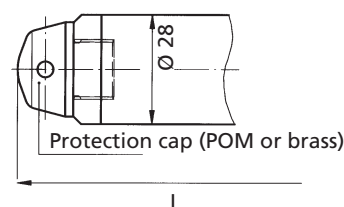


Fig. 5 closed, with protection cap

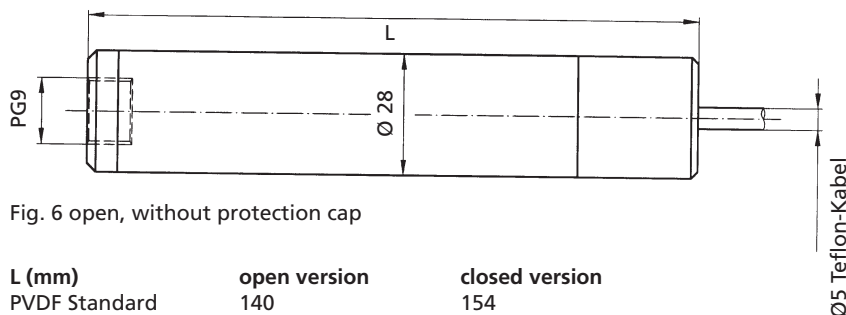


Fig. 6 open, without protection cap

L (mm)	open version	closed version
PVDF Standard	140	154
PVDF Ex-version	189	203

Electromagnetic compatibility:

CE conformity to EC directive 89/336 EEC (EMC) by application of harmonized standards EN 50081-1 (1992) and EN 50082-2 (1995).

Interference emission

Basic specification
Interference emission, class B

Test standard

EN 50081-1 (1992)
EN 55022 (1994)

Effects

No effect

Interference immunity

Basic specification
Electrostatic discharge 4 kV contact, 8 kV air
Radiated electromagnetic field 10V/m, 80–1000 MHz, 80% AM 1 kHz
Radiated electromagnetic field (GSM) 10V/m, 950 MHz, 200Hz on/off
Fast transients (burst) 2 kV
Conducted electromagnetic interference 10 Vm 0.15–80 MHz, 80% AM 1 Hz
Surge¹ 10 kA (8/20 µs)

Test standard

EN 50082-2 (1995)
EN 61000-4-2 (1995)
ENV 50140 (1993)
ENV 50204 (1995)
EN 61000-4-4 (1995)
ENV 50141 (1993)
EN 61000-4-5 (1995)

Effects

No effect
No effect
No effect
No effect
No effect
No effect
No effect

¹ Only versions with option overvoltage protection (lightning stroke)

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