



Design Features

- Measuring ranges 0...160 mbar to 0...10 bar
- Piezoresistive sensor element
- Stainless steel probe with PTFE-protective foil
- Protection type IP 68
- Temperature measuring with Pt 100 (optional)
- Power supply: 24 V DC, 2 and 3-wire circuitry
- Ex-protection, EEx ia/ib
- EMC test as per valid EC guidelines

Application

The device is suitable for use in level, measuring in wells, tank farms and open stretches of water. It converts the hydrostatic pressure measurements into a load-independent current or voltage signal. Because of its robust design, it is particularly suitable for use in tough environments in the chemical industry, shipping and the normal process technology.

Design and Function

The transmitter sensor is a piezoresistive semiconductor measuring bridge. A compensation network ensures, to a large extent, the independence of the output signal from the ambient temperature. The internal case pressure is compensated by a flexible-tubing connection. This connection also carries the connection cable.

Technical Data

Immersion case

material no.: 1.4401/1.4571
protection type: IP 68, immersible

Case strength

max. 25 bar external pressure

Attachment cable connection

slit cable 5 strand fixed or pluggable with polyamide plastic tube (Teclan). Observe mounting instructions.

Measuring system

piezoresistive measuring bridge, protected by an internal high-grade steel diaphragm, diaphragm material no. 1.4404 with PTFE foil

Filling

vegetable oil

Weights

probe: approx. 0.7 kg
+ supply lines depending on length pro metre: approx. 0.1 kg

Allowed storage temperature

-25...+80 °C

Operating temperature range

-10...+70 °C

Compensated temperature range

-10...+70 °C

Temperature influence

on zero point: ≤ 0.02 % of meas. span / K
on meas. span: ≤ 0.02 % of meas. span / K

Auxiliary energy supply

standard version:
· nominal voltage 24 V DC
· function range
with 2-wire circuitry 14...30 V DC
with 3-wire circuitry 16...30 V DC
· max. allowed operating voltage 30 V DC
ex-version
· allowed voltage range
EEx ia IIC 15...20 V DC
EEx ib IIC 14...30 V DC

Standard measuring ranges/overload limits
see order details

Signal output

4...20 mA, 2-wire circuitry, standard
see order details for other versions

Current limitation in output signal

max. output current approx 30 mA

Supply voltage influence

≤ 0.2 % f.s. / 10 V

Linearity error incl. hysteresis

≤ 0.3 % f.s. (limit point setting)

Adjusting range

zero-point and span at the factory only
alternatively:
· external zero-point adjustment in connection head
· galvanic isolation and adjusting features in LABOM type PB1470 or PB1670

Ex-approval

EC model test certificate according to recommendation 94/9/EG, TÜV 96 A TEX 1122 X
type of ex-protection: II 2 G EEx ia/ib T4/T5/T6

Burden

2-wire circuitry
standard version $R_a = \frac{U_b - 14 V}{20 mA}$ (KOhm)

EEx ia version $R_a = \frac{U_b - 15 V}{20 mA}$ (KOhm)

EEx ib version $R_a = \frac{U_b - 14 V}{20 mA}$ (KOhm)

3-wire circuitry
all versions
with current output $R_a = \frac{U_b - 9 V}{20 mA}$ (KOhm)

3-wire circuitry
all versions
with voltage output $I_a \leq 20 mA$

U_b = operating voltage
 R_a = max allowed burden resistance (incl. supply line)

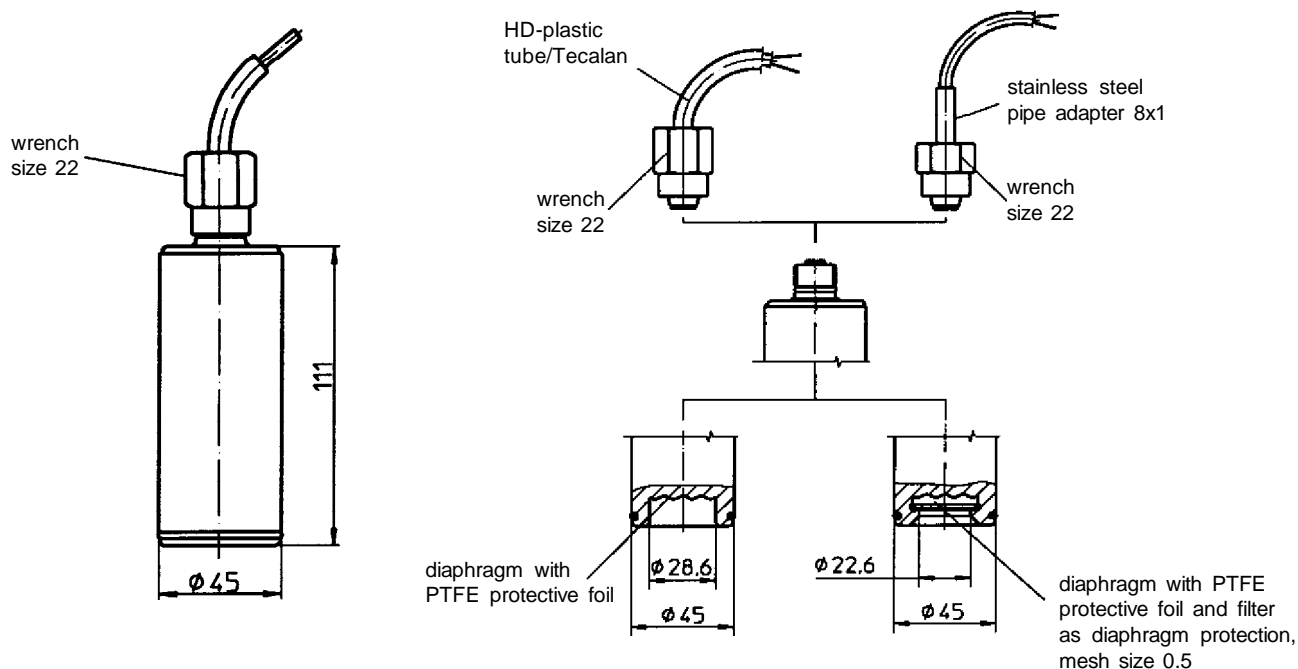
Burden influence
for 500 Ohm burden change: ≤ 0.1 % f.s.

EMC-Test
· noise immunity as per EN 50082, section 2, March 95 issue for industry
· emitted interference as per EN 50081, section 1, 1993 issue for residential and industrial areas

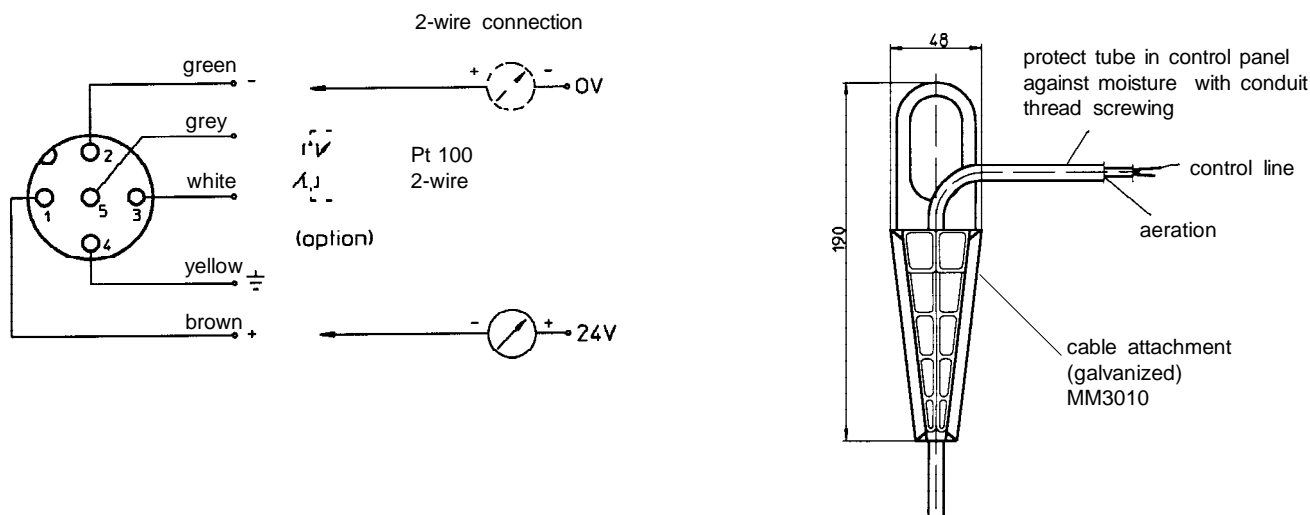
Additional feature: temperature measurement
Pt 100 sensor in connection with output signal 4..20 mA only, no ex-approval

Other accessories for adapting the submersible pressure transmitter are available as a modular system

Dimensions



Connection diagram



Mounting and operating instructions

The submersible pressure transmitters are adjusted at the factory. Subsequent changes may only be made at the manufacturer's works. Ideally, the devices should be used in conjunction with isolation amplifier supply units with galvanic isolation and zero-point and span adjustment features, e.g. LABOM type PB 1470 or PB 1670.

An external zero-point adjustment may be integrated as an option in the IP 67 field-housing head with terminal board (accessory). Level measurements are generally based on excess pressure measurements that require internal case pressure compensation to atmosphere. This compensation is achieved with this device version via the attachment with polyamide plastic tube or stainless steel pipe. To prevent moisture penetration, tube or pipe with cable must be terminated in an aerated connection box, that is situated in a dry room.

Make sure that the connection cable diameter corresponds with the specified screwing dimensions. The supply line and probe should be suitably fixed for immersions depths > 1.5 m.

Electrical equipment in hazardous areas should only be installed and commissioned by competent personnel. Modifications to devices and connections destroy the ex-proofing and the guarantee. The complete cable run, both inside and outside the hazardous areas in intrinsically safe circuits, should be equipotentially bonded. The limit values detailed in the certificate of conformity are to be observed.

The CE designations for devices certifies compliance with European Council guidelines (89/336/EWG), EMC legislation (13.11.1992), current generic standards, and product and basic standards.

Clear operation in systems and plants is achieved when the conditions for screening, earthing, wiring and potential isolation are fulfilled.

Order Details

- Please give additional specifications for models not listed -

Submersible pressure transmitter for liquid-level measurement							standard measuring ranges			
design	· standard	CG2010					meas. range	UE bar	order code	
without attachment	· ex-protection	CG2011					0...160 mbar	2	A1009	
measuring range	· per table ←					0...250 mbar	2	A1010	
cable connection/ attachment	· pluggable with polyamide flexible tube cable length pls. specify	G2499					0...400 mbar	6	A1051	
	· pluggable for st. steel pipe 8x1, cable length pls. specify	G2599					0...600 mbar	6	A1052	
output signal	· 4...20 mA, 2-wire	H1					0...1 bar	10	A1053	
	· 0...20 mA, 3-wire ¹	H2					0...1.6 bar	10	A1054	
	· 0...10 V, 3-wire ¹	H4					0...2.5 bar	16	A1055	
	· 2...10 V, 3-wire ¹	H5					0...4 bar	16	A1056	
	· 0...5 V, 3-wire ¹	H6					0...6 bar	30	A1057	
threaded adapter	· with PTFE protective foil, without filter	K3					0...10 bar	30	A1058	
	· with PTFE protective foil, with filter	K5								
additional features (to be indicated in case of need, only)										
temperature meas.	· with Pt 100 ²	P1								
type of ex-protection (to be indicated for explosion proof, only)	· EEx ib IIC T4/T5	S63								
	· EEx ia IIC T4/T5	S64								
	· EEx ib IIC T6	S65								
	· EEx ia IIC T6	S66								
Order code (example):		CG2010	A1010	G2499	H1	K3				
accessories ³										
cable connection pluggable		UG2001								
design	with polyamide flexible tube	· cable length 2.5 m	G2402							
		· cable length 5 m	G2405							
		· cable length 10 m	G2410							
		· cable length 15 m	G2415							
		· cable length 20 m	G2420							
		· cable length pls. specify (max. 35 m)	G2499							
	with pipe adapter 8x1	· cable length 2,5 m	G2502							
		· cable length 5 m	G2505							
		· cable length 10 m	G2510							
		· cable length 15 m	G2515							
		· cable length 20 m	G2520							
		· cable length pls. specify (max. 35 m)	G2599							
cable attachment galvanized		MM3010								

¹ not in ex and not with Pt 100

² only in 4...20 mA, 2-wire

³ other accessories for adapting the submersible pressure transmitter are available as a modular system