

Heavy-Duty and Push-In Pore Water Pressure Sensor - Piezometer

Type PP4 RS and PP4 RS E



This kind of piezometer Type PP4 RS is the heavy-duty model with an extra-large ring filter made of sintered metal. The model PP4 RS E is a push-in Piezometer which can be pushed directly into soft soils.

The piezoresistive piezometer is used to monitor pore-water pressures. The pressure sensor of the heavy-duty piezometer is encapsulated in a waterproof housing made of stainless steel with a diameter of 40 mm and a length of 230 mm. The piezometer converts pore-water pressure to an output signal proportional to the measured value via a filter and via the diaphragm of the pressure sensor.

The Push-in Type of Piezometer PP4 RS E provides a thread M36 x 1,5 for easy connection of a push-in sleeve to connect drill rods.

TECHNICAL DATA

Model

- PP 4 RS (Standard without thread)
- PP 4 RS E (with thread M36 x 1,5 for push-in sleeve)

Filter

- Sinter metal ring filter (PP4 RS) for installation in sand fills resp. groundwater measuring points

Accessories

- Press-in sleeve for PP4 RS E
- Cable type PUD (blue)
type PEHD standard (black) and
type PEHD with vent hose (black)
- Overtoltage protection

General Specifications

Dimensions, Ø / length:	40x230 mm (PP 4 RS) 40x330 mm (PP 4 RS E, incl. push-in sleeve)
Material:	V4A 1.4571
Weight:	920 g (PP 4 RS) 1700 g (PP 4 RS E, incl. push-in sleeve)
Protection class:	IP 68

Filter type

Filter type:	Sintered metal
Filter area:	57 cm ²
Density:	4.9-5.3 g/cm ³
Porosity:	33-38 %
Specific flow coefficient:	3 [m ²]x10 ⁻¹² (laminar) 8 [m ²]x10 ⁻⁷ (turbulent)
Porometer, Ø pore size:	6 µm

Technical data / variants

Pore water pressure sensors



AU
69.xx.01



AI
69.xx.02



VW
69.xx.03

AU PIEZORESISTIVE PRESSURE SENSOR, 4-CONDUCTOR SYSTEM

Supply	Constant current 1 mA
Optional supply	4 mA or 10 V _{DC}
Output signal	0 - 250 mV
Overload protection (1 - 50 bar)	50 % f. s.
Linearity incl. hysteresis	< 0.5 % f. s.
Linearity incl. hysteresis (opt.)	< 0.1 % f. s.
Thermal zero offset	0.025 mV/ °C
Operating temperature	+5 to +80 °C
Storage temperature (dry)	-40 to +100 °C
Long-term drift, temperature-dependent (at 0 °C to 50 °C), typ.	0.25 mV
Max. cable lengths	500 - 1000 m*

AI PIEZORESISTIVE PRESSURE SENSOR WITH A BUILT-IN AMPLIFIER

Supply	15 to 30 V
Output signal	4 - 20 mA
Overload protection (1 - 50 bar)	50 % f. s.
Linearity incl. hysteresis	< 0.5 % f. s.
Linearity incl. hysteresis (opt.)	< 0.1 % f. s.
Operating temperature	+5 to +60 °C
Storage temperature (dry)	-15 to +100 °C
Temperature coefficient	< 0.01 %/ °C f. s.
Load impedance	(U _s -9 V) : 20 mA
Initialization time after switch-on	6 seconds
With optional AD 590 temperature sensor, output signal 1 µA/K	
Max. cable length	1000 - 2000 m*

PRESSURE SENSOR WITH VW VIBRATING WIRE TECHNOLOGY

Overload protection of measuring range	50 %
Linearity incl. hysteresis	± 0.5 % f. s.
Linearity incl. hyster. (opt.)	± 0.1 % f. s.
Resolution	± 0.02 %* ¹ f. s.
Thermal zero offset	< 0.02 %/ °C* ¹

SENSOR SPECIFICATIONS	
Temperature range	-20 to +80 °C
Current consumption	Impulse excitation
Operating frequency	2 kHz - 3,3 kHz
Supply, impulse triggering	60 V
Optional ex-protection* ²	EEx ib IIB T4 EEx ib IIB BTI
Max. cable length	2500 m

*Dependent on the number of sensors and cable length

*¹ Deviation during operation at high temperatures on request
*² The cable characteristics need to be taken into account for ex-versions

Pressure and measuring ranges

0 - 0.1, 0 - 0.2, 0 - 0.5 , 0 - 0.5 , 0 - 1 , 0 - 2 ,
0 - 5 , 0 - 10, 0 - 20, 0 - 50, 0 - 100, 0 - 200
and 0 - 400 bar

Pressure and measuring ranges

0 - 0.1, 0 - 0.2, 0 - 0.5 , 0 - 0.5 , 0 - 1 , 0 - 2 ,
0 - 5 , 0 - 10, 0 - 20, 0 - 50, 0 - 100, 0 - 200
and 0 - 400 bar

Pressure and measuring ranges

-0.5 to +0.4, +0.7, +1.7, +3.5, +5.0, +7.0,
+10, +20, +35, +70, +100, +200, +350, +500
and 750 bar, negative pressures standard up
to -0.5 bar

Add-ons and finishes

Resistance to seawater and brackish water
1.4439 or similar

Environmental protection: Gel pad to
protect the membrane against aggressive
chemicals and extreme pH values

Climate tested: If required, we can prepare
a temperature test for your batch or individual
sensor to provide a precise tempera-
ture quotient for your evaluation.

* PW4 RF only: With additional M36x1.5
union for press-in sleeve

All of our sensors are calibrated in defined
environmental parameters. This calibration
result is included with the actual device in
the form of a comprehensive calibration
sheet. More extensive calibrations can be
arranged at any time.

Measurement device and Data logging

- Handheld measuring device HMG
- Handheld measuring device for
vibrating wire transducer
- DL Data logger
- Measurement system MCC