

# 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)
- Overvoltage 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 <sup>2</sup>
Density:	4.9-5.3 g/cm <sup>3</sup>
Porosity:	33-38 %
Specific flow coefficient:	3 [m <sup>2</sup> ] $\times$ 10 <sup>-12</sup> (laminar) 8 [m <sup>2</sup> ] $\times$ 10 <sup>-7</sup> (turbulent)
Porometer, Ø pore size:	6 µm



Art.No.: 69.xx.01

**AU PIEZORESISTIVE PRESSURE SENSOR, 4-CONDUCTOR SYSTEM**

Supply	Constant current 1 mA
Optional supply	4 mA or 10 VDC
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 drift	0.025 mV/K
Operating temperature range	+5 to +80 °C
Storage temperature range (dry)	-40 to +100 °C
Long-term temperature-dependent drift (at 0°C to 50°C), typ.	0.25 mV
Overvoltage protection	on application
	Precision protection USS



Art.No.: 69.xx.04

**PRESSURE SENSOR WITH LVW VIBRATING WIRE TECHNOLOGY**

Overload protection of measuring range	50 %
Linearity incl. hysteresis	± 0.5 % f.s.
Linearity incl. hyst. (opt.)	± 0.1 % f.s.
Resolution (f.s.)	± 0.02 %
Thermal zero drift	< 0.03 %/°C

**SENSOR-SPECIFIC SPECIFICATIONS**

Temperature range	0 to +70°C
Current consumption	Pulse excitation
Operating frequency	0.7 kHz – 1 kHz
Supply, pulse triggering	60 V
Coil resistance at 20°C	480 Ω
Thermistor resistance at 25°C	
3 kΩ inductance	42 mH
Capacitance	135 nF
Line resistance at 5 V	150 Ω
Overvoltage protection	on application
	coarse protection USS 0;
	Lightning protection element gas arrester

**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 temperature 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.



Art.No.: 69.xx.02

**AI PIEZORESISTIVE PRESSURE SENSOR AS ABOVE WITH BUILT-IN AMPLIFIER AND OPTIONAL TEMPERATURE SENSOR**

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 range	+5 to +60 °C
Storage temperature range	-15 to +100 °C
Temperature coefficient	< 0.01 %/°C f.s.
Burden (Us-9V):	20 mA
Initialisation time after switching on	6 seconds
Overvoltage protection	integrated
	precision protection

With optional AD 590 temperature sensor, output signal 1 µA/K



Art.No.: 69.xx.03

**PRESSURE SENSOR WITH VW VIBRATING WIRE TECHNOLOGY**

Overload protection of measuring range	50 %
Linearity incl. hysteresis	± 0,5 % f.s.
Linearity incl. hyst. (opt.)	± 0,1 % f.s.
Resolution (f.s.)	± 0,02 %*1
Thermal zero drift	< 0,02 %/°C*1

**SENSOR-SPECIFIC SPECIFICATIONS**

Temperature range	-20 to +80 °C
Current consumption	Pulse excitation
Operating frequency	2 kHz – 3,3 kHz
Supply, pulse triggering	60 V
Ex protection option*2	Ex ib IIB T4 EEx ib IIB BT
Overvoltage protection	on application
	coarse protection USS 0;
	Lightning protection element Lightning protection element gas arrester

\*1 Deviation during operation at high temperatures on request  
\*2 The cable data needs to be taken into account for Ex versions

**AU And AI**

**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

**VW And LVW**

**PRESSURE AND MEASURING RANGES**

-0.5 bis +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

**Quality labels**



**HIGH QUALITY SENSORS**

Standard product line. High quality and attractively priced



**INTELLIGENCE SENSORS**

With controller technology, self-compensation and direct display



**QUALITY QUANTITY QUOTE**

Range of sensors for major customers with communicated quality/quantity quote



**VOLTAGE OUTPUT**

Standard 0-250 mV / extended 0-1 V



**CURRENT OUTPUT**

Standard 4-20 mA / extended 0-20 mA



**VIBRATING WIRE**

Operating frequency 2.0 -3.3 kHz



**LONG VIBRATING WIRE**

Operating frequency 0.7 -1 kHz



**FIBRE OPTIC**

Glass fibre measurement system



**WIRELESS**

Wireless data transmission



**CONTROLLER**

Digital chain instrumentation



**PRODUCT INNOVATION**