

RESISTIVE PIEZOMETERS AND PRESSURE TRANSDUCERS

Resistive piezometers are used to measure soil pore pressure or water table level in standpipe piezometers, Casagrande piezometers or wells.

They are available with both stainless steel or titanium body for application also in aggressive soils. Different filter porosity permit to suit specific applications in any particle size soil.

Output signals, suitable for transmission over long distances, are easily read and automated.

Applications include automatic measurement of ground water levels, measurement of permeability and hydraulic gradients in dams and in natural or cut slopes.

Hi-Tech resistive strain gauge sensor for very accurate measurement

Entirely stainless steel or titanium construction and hermetically sealed

Output signal suitable for long distance transmission

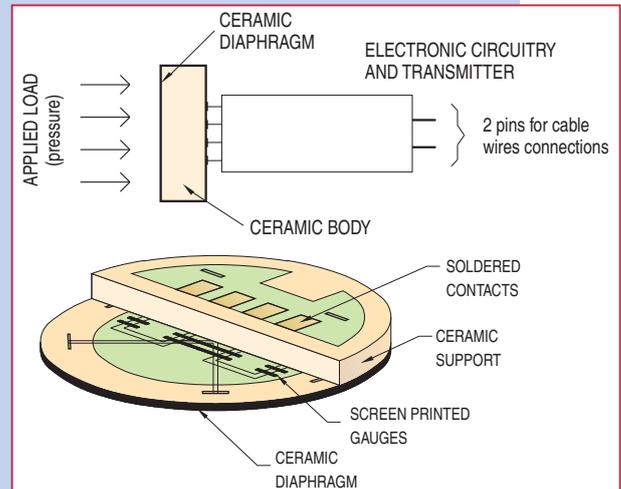
Relative transducer for water table level not need atmospheric pressure compensation



RESISTIVE PIEZOMETERS

RESISTIVE STRAIN GAUGES TECHNOLOGY

This sensor is a spin off from thick film technology using the piezo-resistive characteristic of specific resistive inks. Resistors, formed using screen printing techniques, are deposited on a deformable ceramic diaphragm substrate to form strain gauge arrays. Strain changes from external loads applied to the deformable ceramic diaphragm result in resistance changes of the strain gauge arrays. The electric signal from the strain gauge arrays is directly proportional to the stress applied to the diaphragm. Sensor is constructed of a ceramic, analogous to a crystal structure, to form a pressure diaphragm chemically inert with near perfect mechanical characteristics. Screen printed resistors are deposited onto the diaphragm to form a 4 arms Wheatstone bridge. A fixed excitation voltage is applied to one diagonal of the circuit. Strains experienced by the diaphragm will change the values of the individual resistors within the Wheatstone bridge resulting in a bridge unbalance. This unbalance produce an output signal from the other diagonal of the Wheatstone bridge, directly proportional to the applied stress. An electronic board converts this signal into 4-20 mA suitable for transmission over long distances to remote readouts or to data acquisition systems.



TECHNICAL SPECIFICATIONS

MODEL	P252R	P235S	P235TI		P252C	P235I	P252A
Measure	water level	pore pressure	pore pressure		pore pressure	pore pressure	Water pressure
Type of Sensor	relative resistive SG	absolute resistive SG	absolute resistive SG	absolute resistive SG	absolute resistive SG	absolute resistive SG	resistive SG
Application	within standpipe	embedded into the soil	embedded into aggressive soil		removable (Casagrande)	drive-in	3-port assembly pressure cells
Measuring range	100, 200 kPa 0.5, 1.0 MPa	200, 500 kPa 1.0, 2.0, 5.0 MPa	200, 500 kPa 1.0, 2.0 MPa		200, 500 kPa	200, 500 kPa 1.0 MPa	from 100 kPa to 20.0 MPa
Overload	30% FS	30% FS	30% FS		30% FS	30% FS	30% FS
Sensitivity	0.01% FS	0.01% FS	0.01% FS		0.01% FS	0.01% FS	0.01% FS
Accuracy	< 0.3% FS	< 0.3% FS	< 0.3% FS		< 0.3% FS	< 0.3% FS	< 0.3% FS
Ther. zero shift	0.00025 % FS /°C	0.00025 % FS /°C	0.00025 % FS /°C		0.00025 % FS /°C	0.00025 % FS /°C	0.00025 % FS /°C
Ther. sensitivity shift	< 0.01% /°C	< 0.01% /°C	< 0.01% /°C		< 0.01% /°C	< 0.01% /°C	< 0.01% /°C
Electric supply	12 - 24 V DC	12 - 24 V DC	12 - 24 V DC		12 - 24 V DC	12 - 24 V DC	12 - 24 V DC
Output signal	4 - 20 mA	4 - 20 mA	4 - 20 mA		4 - 20 mA	4 - 20 mA	4 - 20 mA
Electric insulation	4 KV	4KV	4 KV		4 KV	4 KV	4 KV
Temp. oper. range	-10 to +55 °C	-10 to +55 °C	-10 to +55 °C		-10 to +55 °C	-10 to +55 °C	-10 to +55 °C
Material	stainless steel	stainless steel	titanium		stainless steel	stainless steel	stainless steel
Diameter	28 mm	28 mm	27 mm		28/30 mm	28/35 mm	28 mm
Length	200 mm	200 mm	200 mm		230 mm	260 mm	180 mm
Weight	0.6 Kg	0.5 Kg	0.3 Kg 0.8 Kg		1.0 Kg	0.5 kg	
Filter Unit							
Material	sinterised steel or vjon	sint. steel ceramic or vjon	vjon ceramic or vjon		sint. steel	ceramic	-
Diameter (mm)	disc 20mm	disc 18mm disc 15mm	disc 18mm disc 15mm		disc 15 mm	stone 4 mm	-
Pore size	40/50 µm	40/50 µm 0.25 µm	40 µm 0.25 µm		40 µm	0.25 µm	-
Cables							
Model	WE203KEOZH	WE102KEOZH	WE102PH1		WE102KEOZH	WE102KEOZH	WE102KEOZH

Ⓢ electromagnetic compatibility according to EN 61326-1 and EN 61326-A1 directives for EMC emission and immunity

TITANIUM PIEZOMETERS (PRODUCT CODE OP235TI0000)

Titanium piezometers are specially designed for application in landfills, leach fields or any other corrosive application. They are entirely realized in Titanium with viton OR and special resin. They could be also applied into nuclear waste repositories or into aggressive mine tailings where long term survival is required.



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