



Piezoelectric Acceleration Sensor

PAS-109

FEATURES

- Submersible version (150 metres) with associated IP68 overmolded Teflon FEP integral cable
- 20kHz Bandwidth
- Annular shear mode for reduced transverse vibrations sensitivity
- Dual case isolation with Faraday shield
- Exceptional bias voltage stability at elevated temperatures
- Stainless steel body protected against water, shock



Monitoring solution



Shaft & bearing vibration - absolute

Typical applications



Hydrogenerators



Pumps, fan, cooling towers...



Gas & steam turbines

DESCRIPTION

The hermetic sealed industrial piezoelectric accelerometer PAS-109 is designed to monitor the vibration in harsh industrial environment. It uses the industry standard @ICP 2-wire voltage transmission technic with a 4 mA minimum constant current supply. Signal ground is isolated from the mounting surface and outer case to prevent ground loops. Faraday shielding will limit sensitivity to ESD to a minimum.

Annular shear mode design prevents from thermal transient and from spurious signal from high transverse vibrations. Low noise electronic and temperature compensated design will ensure accurate results over the complete temperature range.

The sensor provides a voltage output proportional to the vibration acceleration across the two transmission wires. The DC standing voltage is used for OK detection and the dynamic voltage for vibration monitoring.

GLOBAL SPECIFICATIONS

OPERATION

Measuring principle	Piezoelectric annular shear mode with built-in electronic
Measuring parameter	Vibration acceleration
Electrical grounding	Isolated from machine ground
Shielding	Internal Faraday shielding
Isolation case to shield	100M Ω
Sensitivity	100mV/g $\pm$ 10%
Output impedance	50 Ω nominal
Output bias voltage	+12V _{DC}
Residual noise (24°C)	
1Hz to 25kHz	300 μ g rms
1Hz	30 μ g
Frequency response	
$\pm$ 10%	1 to 10'000Hz
$\pm$ 3dB	0.5 to 20'000Hz
Mounted resonant frequency	40kHz nominal
Dynamic range	80g pk
Transverse sensitivity	< 5% max of nominal sensitivity at 20Hz, 5g
Linearity	$\pm$ 1% max
Warm up time	< 1s
Power supply	
Constant current source	+2 to +10mA _{DC}
Voltage	+22 to +28V _{DC}
Protection	Built-in overvoltage and reverse polarity protection

ENVIRONMENTAL

Temperature range (continuous operation)	-55°C to +120°C
Humidity / Enclosure	IP68, epoxy sealed
Acceleration limit	
Shock	5'000g pk
Continuous vibration	500g pk
Base strain sensitivity	0.0002g pk/ μ strain
ESD protection	> 40V
EMC emission	EN50081-1, EN50081-2
EMC immunity	EN50082-1, EN50082-2

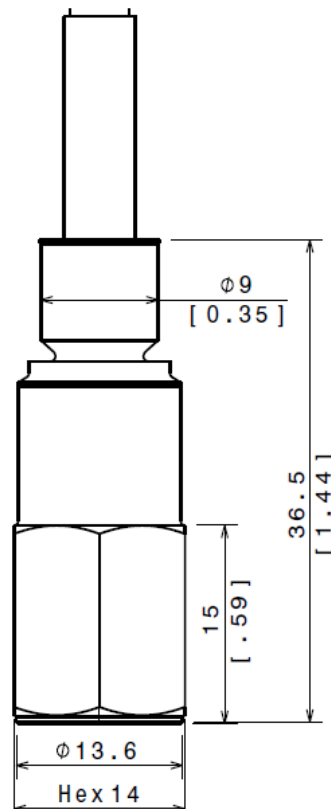
PHYSICAL

Body material	Stainless steel DIN 1.4401
Weight	30g (Sensor Head only)
Mounting screw	1/4"28 UNF-2A (sensor body) to M6
Mounting torque	2.4Nm

ORDERING INFORMATION

Part type	Piezoelectric acceleration sensor - 20kHz Bandwidth
Ordering code	01.109.110 M1
Description	Sensitivity = 100mV/g, top exit integral 10m Teflon FEP cable

MECHANICAL DRAWING

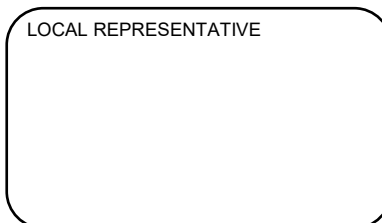


Field Wiring	Integral cable
-	Black
+	Red
Not used	Green

MC-monitoring Quality certifications



LOCAL REPRESENTATIVE



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