CURRENT APPLICATIONS

Measurements within service fatique strength

- to warrant for the service fatique strength of your components you have to reveal reliable statements about the expected operating conditions and the induced loads on the components; the determination of load collectives during usual operation is amongst other things based upon measuring accelerations
- static and dynamic measurements of acceleration on test bench or in the field under extreme conditions

Measurements within vehicle dynamics

- for the testing and approval of running characteristics of railway vehicles are measurements of accelerations necessary
- our sensors are up to the european standards of testing running characteristics and dynamic behaviour

Railway measurement

- determination of the service load environment on individual components of track system working on controlled operation
- measurements on railway track for increasing permitted speed-limit
- verification of the effects of track maintenance on the service load environment of track systems

Direct measurement of lateral acceleration

- the technical proporties of our sensors allow to measure free lateral acceleration directly on the axle box of the vehicle

Structural and seismic monitoring

- measurements of acceleration during rehabilitation of a building as well as during a building project in the immediate vicinity (e.g. on bridges, churches, etc.)

Natural frequency analysis

- this dynamic analysis shows the frequencies and the modes of vibration of the free oscillation of a system; to be aware of the resonance frequencies it is possible to move them out of the stimulated area via modification of the stiffness

Vibration monitoring

- monitoring the oscillation shield machines and plants from too high vibrations, too high shocks, deflections with maximum amplitudes, unbalances, etc.

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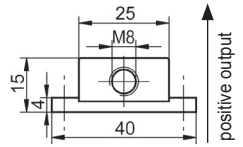
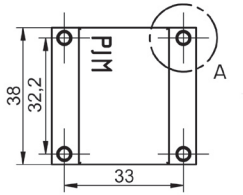
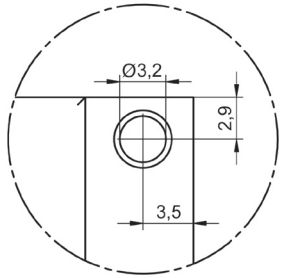
CHARACTERISTICS







dimensions in mm

Features

- ±4 V Differential Output or Analog Output: 0 V - 4 V
- 8 V - 12 V DC Power
- g-Ranges available from 2 g to 400 g
- Uniaxial, 4 Wire System
- Low Cross Axis Sensitivity ~2 %
- Low Noise: 5 µg/√Hz for the 2 g sensor
- High Shock Resistance
- Internal Temperature Sensor
- Nitrogen Damped / Hermetically Sealed
- Responds to DC & AC Acceleration
- - 55 to + 125°C Operation Temperature
- Amplified Output

Options

- Calibration Test Sheet
- Customized Cable Length
- Customized Connector

Pros

- measurements of static accelerations (e.g. gravitation)
- applicable under harsh operating conditions
- no overmodulation by temporarily observed high frequency excitations
- free lateral acceleration measurable directly
- cut off frequency high enough for vibration monitoring

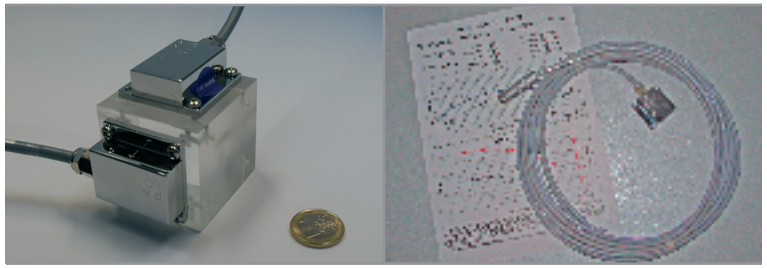
Description

The PJM LN Sensor is a uniaxial accelerometer based on capacitive technology. Its hermetically sealed steel casing guarantees perfect protection from environmental influences. It can be used in zero to medium frequency instrumentation applications that require extremely low noise. Due to its internal Temperature Sensor it is relatively insensitive to temperature changes. The sensitive axis is perpendicular to the bottom of the package, with positive acceleration as shown above.

PERFORMANCE - ALL MODELS

PERFORMANCE - all Models: at V_{DD} = V_R = 5 VDC, T_C = 25 °C, Differential Mode					
PARAMETER		MIN	TYP	MAX	UNITS
Cross Axis Sensitivity			2	3	%
Bias Calibration Error	2 g		2	4	% of span
	5 g thru 200 g		1	2	
Bias Temperature Shift (T_C= -55 to +125 °C)	2 g		100	300	(ppm of span)/°C
	5 g thru 200 g		50	200	
Scale Factor Calibration Error[1]			1	2	%
Scale Factor Temperature Shift (T_C = -55 to +125 °C)		-250		250	ppm/°C
Non-Linearity[1] (±90 % of Full Scale)	2 g thru 50 g		0,15	0,5	% of span
	100 g		0,25	1	
	200 g		0,4	1,5	
	400 g		0,7	2	
Power Supply Rejection Ratio			25		dB
Output Impedance			90		Ohms
Operating Voltage		4,75	5	5,25	Volts
Operating Current (I_{DD}+I_{VR})[2]			8	10	mA
Mass	Aluminium		30		grams
	Stainless Steel		80		

Note 1: 100 g and greater versions are tested from -65 g to +65 g



PERFORMANCE - BY MODEL

PERFORMANCE - by Model: at V_{DD} = V_R = 5 VDC, TC = 25 °C											
MODEL No.	PJM LN 2g	PJM LN 5g	PJM LN 10g	PJM LN 25g	PJM LN 50g	PJM LN 100g	PJM LN 200g	PJM LN 400g	UNITS
Input Range	±2	±5	±10	±25	±50	±100	±200	±400	g
Frequency Response (Nominal, 3 dB)	0 - 400	0 - 600	0 - 1000	0 - 1500	0 - 2000	0 - 2500	0 - 3500	0 - 4000	Hz
Sensitivity (Differential)[1]	2000	800	400	160	80	40	20	10	mV/g
Output Noise (Differential, RMS, typical)	5	7	10	25	50	100	200	400	µg/√Hz
Max. Mechanical Shock (0,1 ms)	2000			5000					g

Note 1: Single ended sensitivity is half of values shown