

Piezoelectric Industrial Accelerometer type AT3/100

Application

Accelerometer is especially suitable for monitoring vibrations of machines in heavy duty industrial conditions. It may be used for dynamic machine state evaluation and predicting, balancing, bearings condition evaluation and protection of the machine operation based on acceptable vibration levels. It may be used with various rotating machinery such as turbine sets, compressors, fans, pumps, electric motors, etc.

Description

Designed based on PZT ceramics and piezoelectric effect with shear input function. It is equipped with preliminary voltage amplifier, allowing double conductor connection of a sensor with signal receiver (monitor) being the power source. Casing made of stainless steel with double contact connector, according to MIL C-5015. Casing design is air-tight welded (IP68). Leakproofness degree of the sensor depends on applied plug/cable assembly. Usually for applications inside the buildings a plug/cable assembly of IP54 is sufficient, although there are versions IP64, IP66, IP68 available. Other sensor design features:

- sensor's electric system is fully insulated from the casing
- resistance to inverse connection
- resistance to electrostatic discharge

Performances

METROLOGICAL

Sensitivity: 100mV/g \pm 5% at +25°C

Acceleration range: 80g of peak value

Amplitude nonlinearity: \pm 1 %

Frequency response:

(\pm 3dB) 0,5 – 14 000 Hz

(\pm 10%) 1 – 9 000 Hz

(\pm 5%) 3 – 5 000 Hz

Resonance frequency: 30kHz

Transverse sensitivity: max. 5% of axial

Ambient temperature effect: \pm 5% at the whole range of ambient temperature changes

Sensitivity for base stresses: do not apply

ELECTRICAL

Power supply requirements:

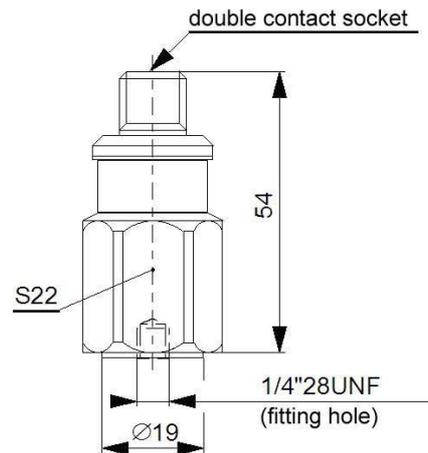
Constant current source 2-10mA at 18-30V DC

Broad band electric noise: 700 μ g

Output impedance: max. 100 Ω

Bias output voltage: 10 - 12 V DC

Grounding: case isolated, internally shielded



ENVIRONMENTAL

Ambient temperature range: -50°C to +120°C

Relative humidity: 100% with cable assembly

Vibration limit: 500g of peak value

Shock limit: 5000g of peak value

CE requirements: Directive 89/336/EEC – Electromagnetic compatibility

MECHANICAL

Weight: 90 grams

Casing material: 316L stainless steel

Installation: sensor is delivered with M6 mounting stud (optional M8), requiring 6 mm (8mm for M8) hole deep in the machine casing

Mounting torque: 3Nm

Output plug: 2-pin according to MIL-C-5015

Mating connector: MS3106A-10SL-4S

Recommended Cable: two conductor shielded with PTFE isolation, section of approx. 0,25 mm²

Accelerometer ordering information

A

AT3/100 - □□

A □□ Mounting stud thread

M 6 mounting stud with M6 thread

M 8 mounting stud with M8 thread

Cable for accelerometer ordering information

A B C D

VSC - □ - □□ - □□ - □□

A □ Connector shape

A Axial cable exit (in relation to sensor axis)

R Right-angle cable exit

B □□ Connector protection degree

6 4 protection degree IP64

6 6 protection degree IP66

6 8 protection degree IP68 (only A cable output)

C □□ Cable length

0 3 cable length 3m

0 5 cable length 5m

1 0 cable length 10m

D □□ Stainless steel protective armour

0 0 without armour

0 1 with armour

0 2 with armour having additional kynar outer jacket

