

## Piezoelectric Industrial High Sensitivity Accelerometer type AT3/500

### Application

The accelerometer is especially recommended for vibration monitoring of low rotating speed machines like hydro machines, cooling tower fans or slow speed gearboxes. It may be used for dynamic machine state evaluation and predicting, balancing, bearings condition evaluation and machine operation protection based on acceptable vibration level.

### 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). The tightness degree of the sensor depends on applied plug/cable assembly. Usually for applications inside buildings a plug/cable assembly of IP64 is sufficient, although there are versions IP66, IP68 available. Other sensor design features:

- Sensor's electric system is fully insulated from the casing
- Resistance to reverse wiring connection
- Resistance to electrostatic discharge
- EMI/RFI shielded
- Clear signals at low vibration levels
- Extended low frequency response

### Performances

#### METROLOGICAL

**Sensitivity:** 500mV/g  $\pm$  5% at +25°C

**Acceleration range:** 10g of peak value

**Amplitude nonlinearity:**  $\pm$ 1 %

**Frequency response:**

( $\pm$ 3dB) 0,2 – 14 000 Hz

( $\pm$ 10%) 0,5 – 9 000 Hz

( $\pm$ 5%) 0,7 – 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

#### ELECTRICAL

**Power supply requirements:**

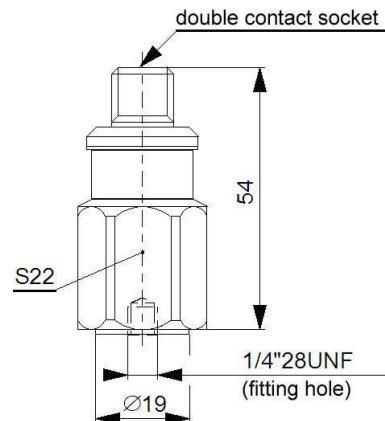
Constant current source 2-10mA at 18-30V DC

**Broad band electric noise:** 250 $\mu$ g

**Output impedance:** max. 100 $\Omega$

**Bias output voltage:** 12 VDC

**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 2004/108/EC – 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 mm<sup>2</sup>

#### Accelerometer ordering information

**A**

**AT3/500 - □□**

**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 connector shape)

**C □□** Cable length

0 3 cable length 3m

0 5 cable length 5m

1 0 cable length 10m

x x other length in meters

**D □□** Stainless steel protective armour

0 0 without armour

0 1 with armour

0 2 with armour and additional PVDF outer jacket