

## Two Axis Acceleration and Vibration Sensor KAS903-Serie for cost sensitive vibrations applications

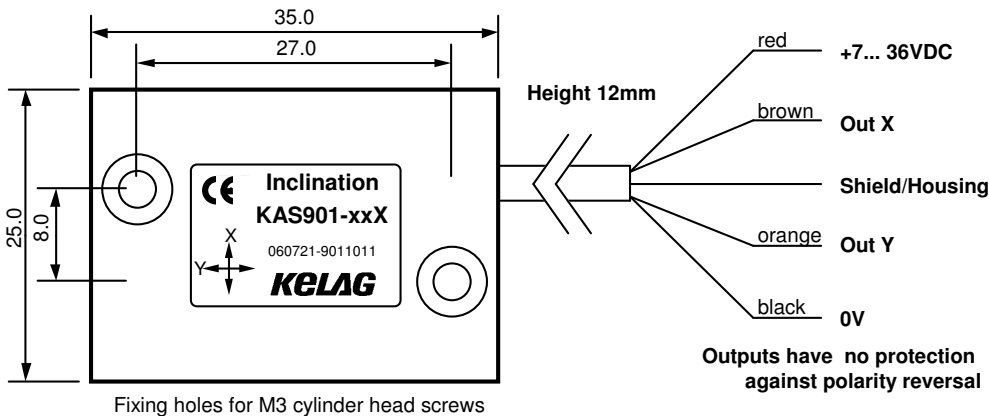
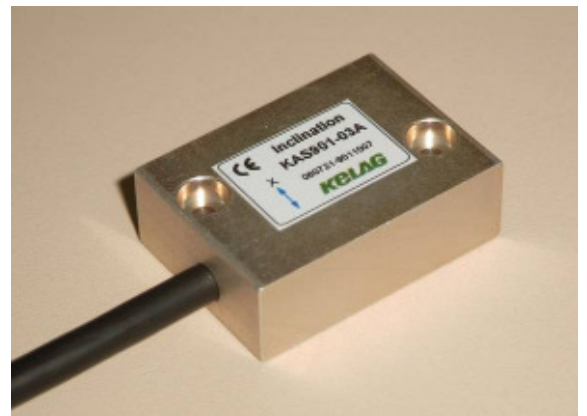
The sensors are based on an advanced “bulk micro machined” technology. The three dimensional structure of these sensors comprise a pendulum made of mono crystalline silicon. The pendulum is hermetically enclosed between two silicon discs. From this construction results a long term stable, high resolution und shock resistant sensor. A gas damping prevents overshooting and interfering resonance oscillation. An ASIC measures the capacitive change caused by the movement of the pendulum.

Those sensors need no separate adapter and can be used easily on e.g. SPS-Devices or standard oscilloscopes.

The gas damping into the sensing element eliminates negative effect like resonance frequency problems and over-shooting effects. The sensor offers excellent low pas filtering which is necessary in a wide band of vibrations-applications.

There are other sensitivity and ban-pass-filter parameters possible on request.

- senses in positive and negative direction
- static and dynamic acceleration measured
- high repeatability up to 0,01% over range
- high resolution: up to 0,005% over range
- shock resistance of the pendulum min. 50'000g
- temperature range -30 .. +85 °C
- active and passive temperature compensation
- small, solid metal housing with fixing holes
- rugged PVC cable
- large output span: 0.5 .. 4.5V output over measuring range
- power supply requirement: 7... 36 VDC, stabilized
- Traceable calibration certificate for mV/g on 1g/150Hz on certified Shaker available on request



### Other versions

- single and dual axis sensors in IP67 housing with cable or connector and standardized output 4... 20mA, 2...10V
- smaller cases and sensors for higher temperatures ranges

**Specifications:**

Parameter	conditions	KAS903-01A	KAS903-02A	KAS903-11A	KAS903-12A	unit
Measuring range <sup>4)</sup>		+/- 12	+/- 12	+/- 6	+/- 6	g
Repeatability at 0° (horizontal position) <sup>1)</sup>	20 °C, typ	<4	<4	<4	<4	mg
Typ Resolution at 0° / 1g Noise	DC .. 400Hz	2 100	2 100	2 100	2 100	mg µg√Hz
typ. Offset temperature dependency <sup>9)</sup>	-13...37 °C	1,25	1,25	1,25	1,25	mg / °C
long term stability <sup>6)</sup>	10 years <sup>6)</sup>	7	7	7	7	mg
Measuring direction		X, Y	X, Y	X, Y	X, Y	axis
Damping (banpass filtering)	-3 dB	400	1000	400	1000	Hz
Operating temperature range <sup>8)</sup>		-30 .. +85	-30 .. +85	-30 .. +85	-30 .. +85	°C
Shock resistance Chip		20'000	20'000	20'000	20'000	g
Output signal V <sub>out</sub> Offset = V <sub>out</sub> in 0° / rest pos. <sup>7)</sup> Sensitivity <sup>7)</sup>	Nominal <sup>7)</sup> Nominal <sup>7)</sup>	0,5 .. 4,5 2,5 <sup>7)</sup> 0.166 <sup>7)</sup>	0,5 .. 4,5 2,5 <sup>7)</sup> 0.166 <sup>7)</sup>	0,5 .. 4,5 2,5 <sup>7)</sup> 0.333 <sup>7)</sup>	0,5 .. 4,5 2,5 <sup>7)</sup> 0.333 <sup>7)</sup>	V V V/g
Power supply <sup>3)</sup>		7... 36	7... 36	7... 36	7... 36	VDC
Weight without cable		22	22	22	22	g

- 1) **Repeatability:** maximum offset occurring with position change after return to initial position (corresponds to achievable precision, including temperature hysteresis after temperature compensation and linearization).
- 2) **Cross axis sensitivity:** maximum error occurring with (additional) inclination or acceleration from another direction than the measuring plane
- 3) **Supply** stabilized
- 4) Not relevant
- 5) Typical values;
- 6) **Long term stability:** calculated values from HTB tests. Test results available at request.
- 7) **Traceable calibration certificate for mV/g on 1g/150Hz on certified Shaker available on request**
- 8) Cable is specified for -15° for high dynamic and -30° for static applications. High flexible cables are available on request.
- 9) Related to Sensing element