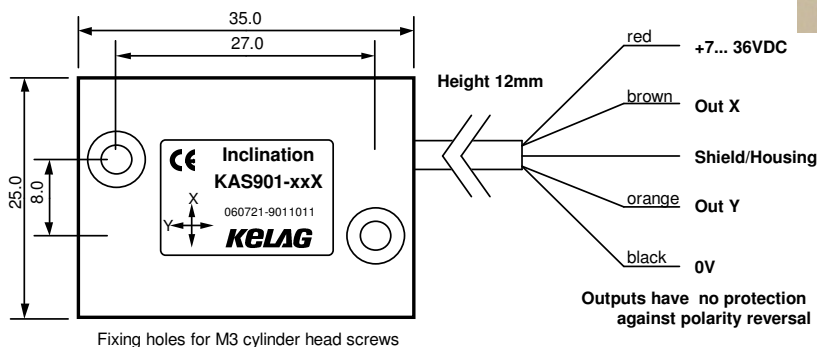
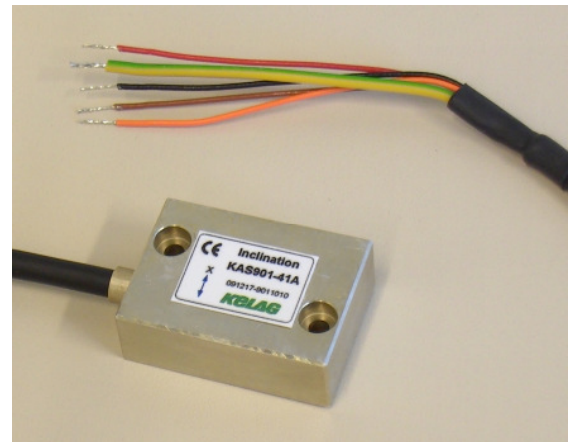


## Single Axis Acceleration Sensor KAS901- 05 (Z-axis<sup>8)</sup>)

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 and 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.

- senses in positive and negative direction
- static and dynamic acceleration measured
- high repeatability up to 0,05% over range
- high resolution: up to 0,005% over range
- shock resistance of the pendulum min. 50'000g
- temperature range -30 .. +85°C
- passive temperature compensation
- small, solid brass 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



### Other versions:

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

Parameter	Conditions	KAS901-04	Unit
Measuring range <sup>4)</sup>		+/- 1,7 +/- 90	G °
Repeatability at 0° (horizontal position) <sup>1)</sup>	at 0...40 °C, 20 °C typ	4 0,2	mg °
Resolution at 0° / 1g	DC .. 1Hz	0,2 0,01	mg °
typ. Offset temperature dependency	20...60 °C	0.6	mg/°
long term stability <sup>6)</sup>	10 years <sup>6)</sup>	approx. 1,5	mg
Measuring direction		z-axis <sup>8)</sup>	
Cross axis sensitivity <sup>2)</sup>		4	%
damping	-3 dB	50	Hz <sup>5)</sup>
Operating temperature range		-30 <sup>7)</sup> .. +85	°C
Shock resistance (Chip)		20'000	g
Output signal V <sub>out</sub>		0,5 .. 4,5	V
Offset = V <sub>out</sub> in 0°/position <sup>8)</sup>		1,3 <sup>8)</sup>	V <sup>8)</sup>
Sensitivity		4	V/g
Power supply <sup>3)</sup>		7... 36	VDC

- 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) **Measuring range:** Trigonometric function:  

$$\text{angle} = \arcsin \left( \frac{V_{out} - 2,5 (\text{Offset})}{\text{Sensitivity}} \right)$$

(paste values without units)
- 5) Typical values;
- 6) **Long term stability:** calculated values from HTB tests. Test results available at request.
- 7) Cable is specified for -15 °C for dynamic and -30 °C for static applications
- 8) **In 0° (horizontal) position the proof-mass (pendulum) is bending down (earth's gravitational force)**  
**If the sensor will be turned 90° to the side then the output will be nominal 2,5V**