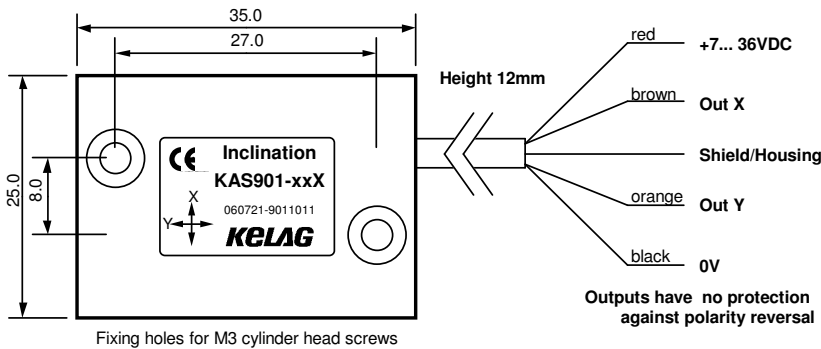
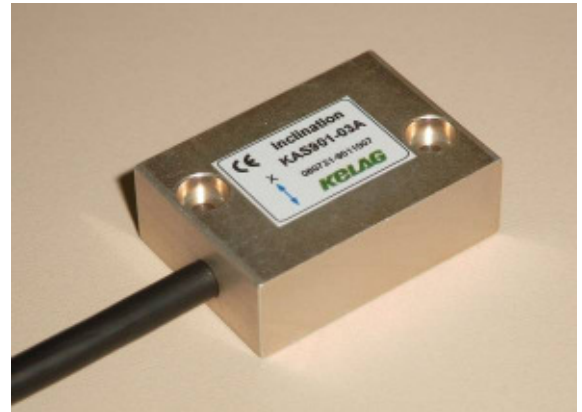


Dual-Axis Acceleration-(Inclination-)Sensor KAS901- 54 und -55

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 -40 .. +85 °C
- active and 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	KAS901-54	KAS901-55	Unit
Measuring range ⁴⁾		+/- 1,7	+/- 1,7	g
Measuring range ⁴⁾ min.		+/- 90	+/- 90	°
Repeatability at 0° (horizontal position) ^{1) 6)}	0 ... 40°C	4 0,2°	4 0,2°	mg
Resolution at 0° / 1g	0 ... 50 Hz	0,08 0,01°	0,08 0,01°	mg/√Hz °
Measuring direction		X-axis Y-axis	Y-axis Z-axis	
Cross axis sensitivity ²⁾		4	4	%
damping	-3 db.	50	50	Hz
Operating temperature range		-40 ⁷⁾ ... +85	-40 ⁷⁾ ... +85	°C
Shock resistance		20'000	20'000	g
Output signal V _{out}		0,5 .. 4,5	0,5 .. 4,5	V
Offset = V _{out} in 0°/restpos		2,5	2,5	V
Sensitivity		1,2	1,2	V/g
Power supply ³⁾		7... 36	7... 36	VDC
Analog resistive output load	V _{out} to V _{dd}	Min. 10	Min. 10	kOhm
Analog capacitive output load	or GND	Max. 20	Max. 20	nF

- 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 down to -30° specified