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Miniature Accelerometer

Type M105A...

Uniaxial, Resistive

The miniature accelerometer of Type M105A... satisfy the requirements of general measuring technique.

- Measuring range 1 000 g
- Low transverse sensitivity
- Small linearity
- Frequency response 0 ... 2 500 Hz (±5 %)
- Low weight
- Typical damping 0,35

Description

The sensor is based on a silicon sensor element. The natural oscillation of the sensor is disabled by gas damping of the chip. The damping and the integrated overload stop units cause the robustness of the sensor.

Application

Because of its small dimensions and low mass, the accelerometer is universally applicable. The casing is mounted by sticking it together with the measurement location. The sensor can be fixed both at the ground and the side-panel. Generally the sensor is attached to measurement locations, which will be possibly destroyed. The sensor is available with ID module, either a UPS module (Universal Parameter Memory) or a Dallas module can be chosen for this functionality. These modules are integrated in an external housing in the wiring or in the connector. Customized cable lengths and connectors with specific pin assignments are optionally deliverable.

Technical Data

Measuring range	g	±1 000
Sensitivity at 80 Hz[1]		
typ.	mV/g	0,18
min./max.	mV/g	0,15/0,22
Supply voltage	VDC	5 ... 12
Zero measurand output (ZMO)[2] (typ./max.)	mV	±15/±30
Temperature drift, ZMO (max.)	mV	±4,8
Temperatur drift, sensitivity[3] (max.)	%/°C	–0,25
Source resistance (SIG+ to SIG–)	kΩ	2,7
Frequency response, ±5 % DC up to (min.)	Hz	2 500
Current consumption	mA	6
Amplitude non-linearity 0 ... 200 g[4], typ./max.	%	±0,5/±1
Transverse sensitivity (typ./max.)	%	2/3
Bridge resistance	kΩ	1,7
Insulation resistance[5] (min.)	MΩ	90
Shock (>2 ms pulse)	g	5 000
Max. sine load (<2 kHz, peak to peak)	g	100
Warm up period (max.)	s	120
Operating temperature range	°C	–20 ... 70
Storage temperature range	°C	–30 ... 90
Mounting		adhesion
Damping ratio		
typ.		0,35
min./max.		0,3/0,5
Housing material		Alu alloy
Weight (without cable or additional housing)	grams	3
Dimensions	mm	10x10x10

All specifications are typical at 25 °C and rated at 10 V sensor supply voltage, unless otherwise specified.

1) Sensitivity at 80 Hz, at 50 m/s² of sine amplitude
2) ZMO values are only valid when accelerometer is mounted
3) Range of 0 ... 50 °C
4) Values calculated with pendulum calibration up to 200 g
5) All wires to screen (GND), measured with 10 V (DC)

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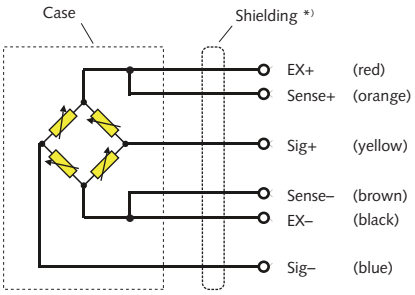
Mounting

The sensor is mounted by bonding it onto the measurement location. Concerning simple applications and even surfaces, it is also possible to do the mounting with a doublefaced adhesive tape. For a better connection please use the glue X60 of HBM or comparable. In order to disassemble the sensor the shear-off with a suitable open-end wrench is recommended and to avoid damages at the sensor, the adhesion of the glue layer should be diminished by temperature or solvent before.



*) Shielding is connected to plug housing

Fig. 1: Schematic diagram "M" version

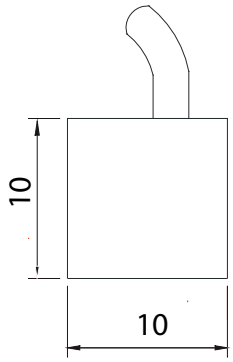


Fig. 2: Dimensions in mm

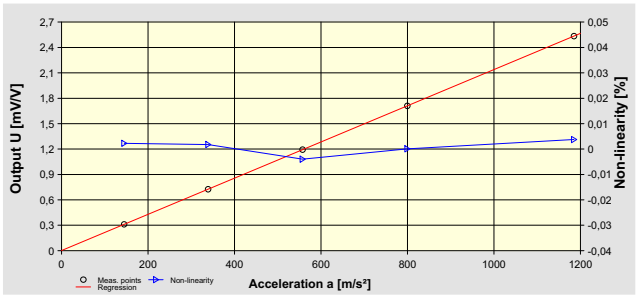


Fig. 3: Typical pendulum calibration

Included Accessories

- None

Optional Accessories	Type No.
• Quick adhesion	on request
• Add. label with serial number, plug side	M015KABID
• Add. label with ID number at sensor	M015KABID
• Add. shunt	on request
• ID module	on request

Ordering Key

Type M105A ☐☐☐☐☐☐

Design

Standard	**M1L6**

Cable Length before Electronics

0 cm	**00**
<10 cm (digit x 1 cm)	**C#**
10 cm ... 9,9 m (digit x 10 cm)	**##**
10 m ... 90 m (digit x 10 m)	**D#**

Additional Electronics

Sensor detail, as per type declaration acceleration TP-650-1	**#**

Cable Length after Electronics

0 cm	**00**
<10 cm (digit x 1 cm)	**C#**
10 cm ... 9,9 m (digit x 10 cm)	**##**
10 m ... 90 m (digit x 10 m)	**D#**

Connector

Conn. type, as per TP-600	**#-**
Conn. assignment, as per TP-600	**-#**