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Accelerometer

Type M101A...

Uniaxial, Resistive

The accelerometers Type M101A... satisfy the requirements of general measuring technique.

- Measuring range 1 000 g
- Low transverse sensitivity
- Small linearity error
- Frequency response 0 ... 2 500 Hz (±5 %)
- Low weight
- Typical damping 0,35 (optional 0,7 or 0,05)

Type M101AM0L6...

Type M101AM1L6...

Description

The sensors are 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 sensors.

Application

Because of their small dimensions and low mass, the accelerometers are universally applicable. The casing is mounted by sticking it together with the measurement location. Generally the sensor is attached to measurement locations, which will be possibly destroyed. All sensors are 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.

Technical Data

Measuring range	g	±1 000
Sensitivity at 80 Hz[1]		
min./max.	mV/g	0,15 ... 0,22
typ.	mV/g	0,18
Supply voltage	VDC	5 ... 12
Zero measurand output typ./max.	mV	±15/±30
Temperature drift, ZMO (max.), in temp. range 0 ... 50 °C	mV	±4,8
Temperature drift, sensitivity (max.), in temp. range 0 ... 50 °C	%/°C	–0,25
Source resistance (SIG+ to SIG–)	kΩ	1,7
Frequency response, ±5 % DC up to (min.)	Hz	2 500
Current consumption	mA	6
Damping ratio[2]		
M101AM0L6... (black)		0,6 ... 0,8
M101AM1L6... (silver)		0,3 ... 0,5
Amplitude non-linearity 0 ... 200 g (typ./max.)	%	±0,5/±1
Transverse sensitivity (typ./max.)	%	2/3
Bridge resistance (typ.)	kΩ	1,7
Insulation resistance[3] (min.)	MΩ	90
Shock (pulse width >2 ms)	g	5 000
Max. sine load (<2 kHz)	g	100
Warm-up period (max.)	s	120
Operation temperature range	°C	–20 ... 70
Storage temperature range	°C	–30 ... 90
Mounting		adhesion
Housing material		Alu
Weight	grams	2,35
Dimensions	mm	13x12x7
Calibration method		sine

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

1) Sensitivity at 80 Hz, at 50 m/s² sine amplitude
2) Damping changes in temperature range of –10 ... 80 °C by <10 % relating to 25 °C
3) 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, a shear-off with a suitable open-end wrench (12 mm notch) is recommended. Damages of the sensor are avoided by diminishing temperature of the glue layer or solvent before.

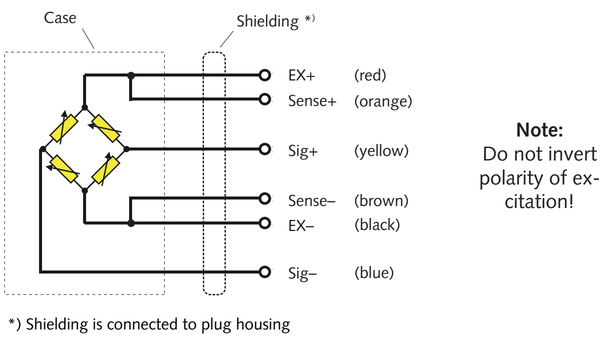

Fig. 1: Schematic diagram

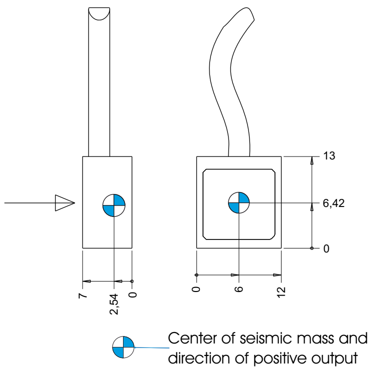

Fig. 2: Dimension and direction of action

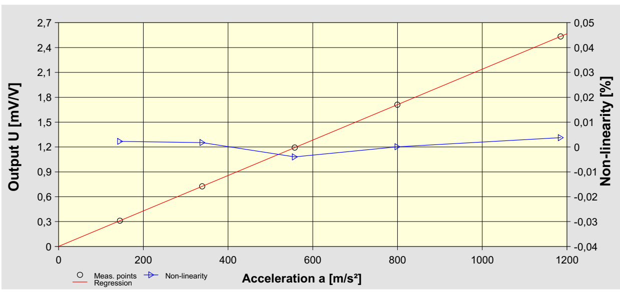

Fig. 3: Typical pendulum calibration

Included Accessories

- None

Optional Accessories	Type No.
• Quick adhesion	on request
• Mounting plate	on request
• Add. label with serial number, plug side	M015KABID
• ID module	on request
• Add. label with ID number at sensor	M015KABID
• Add. shunt (customized resistance)	on request
• Add. sine calibration	on request

Ordering Key

Type M101A ☐☐☐☐☐

Design

Alu, damping 0,6 ... 0,8 (black)	M0L6
Alu, damping 0,3 ... 0,5 (silver)	M1L6

Cable Length before Electronics

0 cm	0
<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	0
<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

Connector type, as per TP-600	#-
Connector assignment, as per TP-600	-#

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