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Accelerometer

Type M0301A...

Triaxial, gas-damped

Type M0301A... is a small, compact triaxial device designed for vehicle impact and road testing.

- Measuring ranges ±1 000 ... 2 000 g
- Excitation 2 ... 10 VDC
- Low transverse sensitivity
- Gas-damped MEMS element
- Mechanical overload stops
- Designed for adhesive mounting

Description

The sensor incorporates gas-damped MEMS sensing elements with mechanical stops for high overload protection. Featuring ranges from ±1 000 ... 2 000 g and a shock limit up to 5 000 g. This sensor is easily mounted in hard to reach places on vehicles under test.

Application

The sensor is designed for automotive crash testing, impact testing, off road testing and vehicle testing.

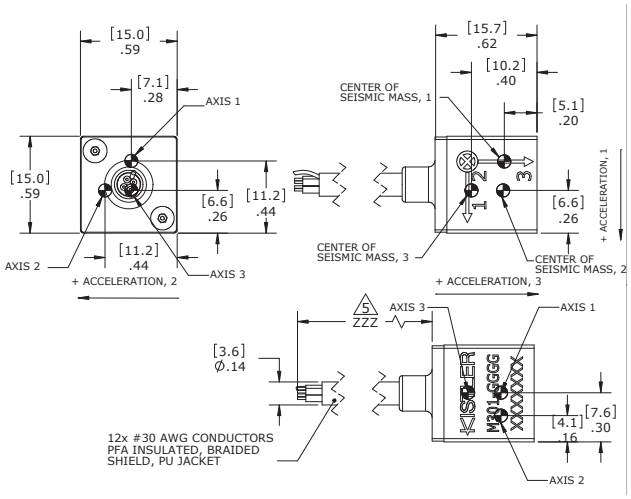

Fig. 1: Dimensions and center of seismic mass

Technical data

Dynamic

Measuring range	g	±1 000	±2 000
Sensitivity[1)]	mV/g	0,15	0,13
Frequency response			
X axis, ±1 dB	Hz	0 ... 2 500	0 ... 3 000
Y axis, ±1 dB	Hz	0 ... 2 500	0 ... 3 000
Z axis, ±1 dB	Hz	0 ... 2 500	0 ... 3 000
Resonant frequency	Hz	20 000	23 000
Damping ratio, typ.		0,05	0,05
Amplitude non-linearity, of reading	%FSO	±1	±1
Transverse sensitivity	%	<3	<3
Shock limit	g	5 000	5 000

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Technical data (continuation)

Electrical

Zero acceleration output	mV	<±25
Excitation	VDC	2 ... 10
Input resistance	Ω	2 400 ... 6 000
Output resistance	Ω	2 400 ... 6 000
Insulation resistance, @ 100 VDC	MΩ	>100
Residual noise	µV RMS	<10
Ground isolation		isolated from mounting surface

Environmental

Thermal zero shift, from 0 ... 50 °C	%FSO/°C	±0,05
Thermal sensitivity shift, from 0 ... 50 °C	%/°C	–0,20 (±0,05)
Operating temperature range	°C	–20 ... 85
Storage temperature range	°C	–40 ... 90
Humidity, epoxy sealed		IP65

Physical

Case material		anodized aluminium
Cable		#30 AWG conductors PFA insulated braided shield PU jacket
Mounting		adhesive
Weight (without cable)	grams	3,5

All values are typical at +24 °C, 100 Hz and 10 VDC excitation unless otherwise stated.

[1] Output is ratiometric to excitation voltage

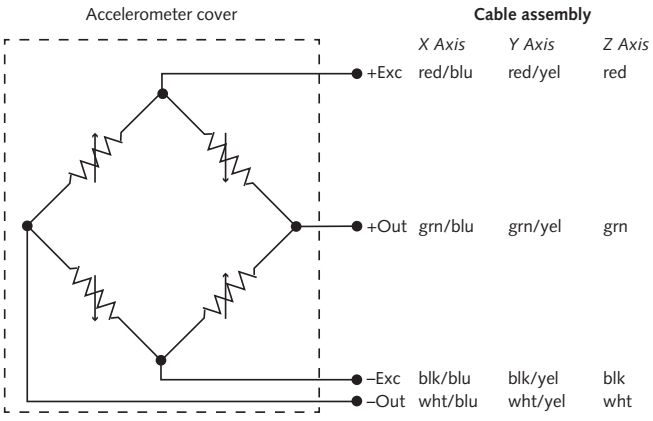

Fig. 2: Schematic diagram

Ordering key

Type M0301A00-□-□-□□□

Measuring range

±1 000 g	**1000**
±2 000 g	**2000**

Cable length

8 ... 360 inches[*)]	**###**

Sensor detail

Nothing	**A**
UPS	**B**
Dallas	**C**
DiMod	**D**
Shunt	**N**
Shunt & Dallas	**P**

Connector

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

Calibration power supply

10 VDC	**0**
5 VDC	**1**
2,5 VDC	**2**
2 VDC	**3**

[*)] 1 inch = 25,4 mm

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