

Accelerometer

Uniaxial, Piezoresistive

Type M0052F...

Type M0052F... has an advanced piezoresistive MEMS sensing element which offers excellent dynamic range and stability.

- Measuring ranges $\pm 500 \dots 2\,000$ g
- Excitation 2 ... 10 VDC
- Low transverse sensitivity
- Piezoresistive MEMS element
- Weight <1,0 grams
- Linearity ± 1 %

Description

The sensor features a full bridge output with an operating temperature range from $-40 \dots 90$ °C. A slight amount of gas damping provides outstanding shock survivability 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, high impact research, biomechanical studies and blast testing.

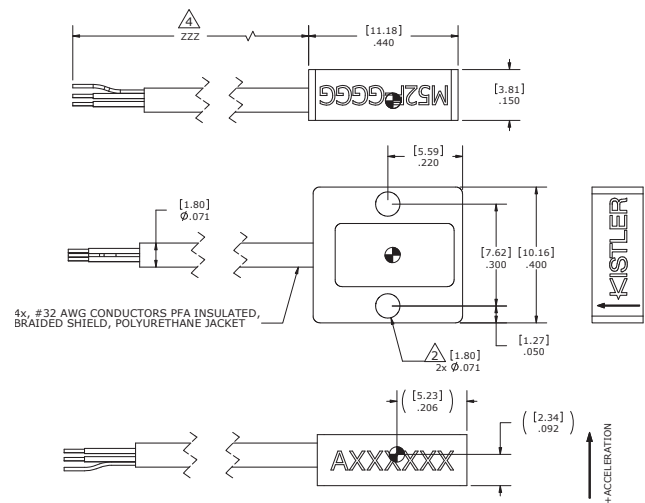


Fig. 1: Dimensions and center of seismic mass

Technical Data

Dynamic

Measuring range	g	± 500	$\pm 2\,000$
Sensitivity ¹⁾	mV/g	0,4	0,15
Frequency response			
± 5 %	Hz	0 ... 2 000	0 ... 4 500
± 1 dB	Hz	0 ... 2 800	0 ... 6 000
Resonant frequency	Hz	15 000	26 000
Amplitude non-linearity	%FSO	± 1	± 1
Transverse sensitivity	%	<3	<3
Shock limit	g	5 000	5 000

Electrical

Zero acceleration output	mV	$< \pm 50$
Excitation	VDC	2 ... 10
Input resistance	Ω	2 400 ... 6 000
Output resistance	Ω	2 400 ... 6 000
Insulation resistance, @ 100 VDC	M Ω	>100
Ground isolation		isolated from mounting surface

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Technical Data (Continuation)

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	-40 ... 90
Storage temperature range	°C	-40 ... 90
Humidity, epoxy sealed		IP65

Physical

Case material	anodized aluminium	
Cable ²⁾	4x#32 AWG PFA insulated braided shield PU jacket	
Mounting	2x#0-80x1/4" socket head cap screws torque 3 lb-in	
Weight (without cable)	grams	1,0

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

- ¹⁾ Output is ratiometric to excitation voltage
- ²⁾ Integral up to a cable length of 360 inches available

Ordering Key

Type M0052F00-□-□-□□□

Measuring Range

±500 g	0500
±2 000 g	2000

Cable Length

8 ... 360 inches ¹⁾	###
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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

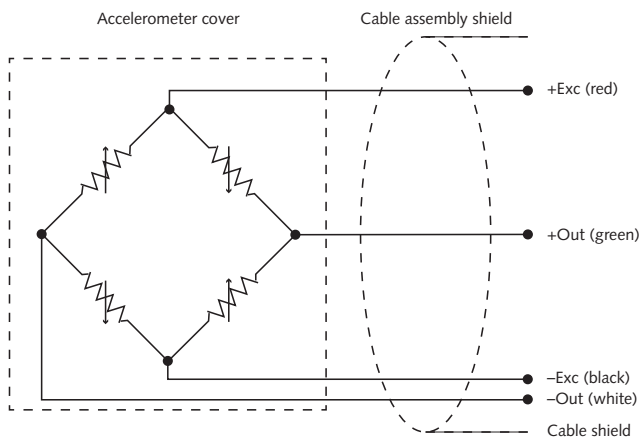


Fig. 2: Schematic diagram

¹⁾ 1 inch = 25,4 mm

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