Model 1202 Accelerometer

DC Response
Durable Cable
Reliable Performance
Self Test



DESCRIPTION

The Model 1202 accelerometer is a small, compact uniaxial device designed for vehicle impact and road testing. Its mechanical overload stops provide high shock protection in rugged applications. Featuring ranges from 50 g to 1000g and frequency response to 3000 Hz, this sensor is easily mounted in hard to get places on vehicles under test.

By applying a voltage to the self-test lead, an electrostatic force is created that attracts the seismic mass towards the top cap, simulating an acceleration and allowing proper sensor function to be verified.

FEATURES

- ◆ 2nd GEN MEMS Sensing Element
- ◆ 1000 g Full Scale Range
- ◆ 2-10 VDC Excitation
- → ±40 mV Zero Measurand Output
- → Gas Damping
- Connector Options
- Mechanical Overload Stops
- → Designed for Adhesive Mounting
- ♦ Self Test U.S. Patent Numbers

5.103.667

5,253,510

5,445,006

APPLICATIONS

- Crash Testing
- → Impact Testing
- ♦ Off-Road Testing

www.meas-spec.com Tel: 949-716-5377 Fax: 949-916-5677

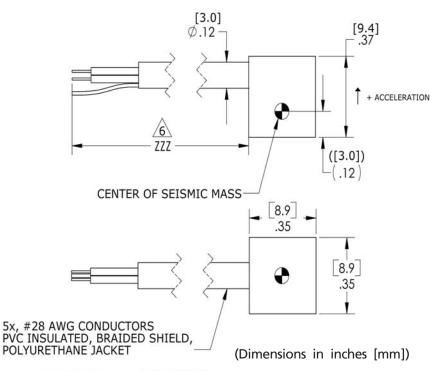
Email: vibration@meas-spec.com

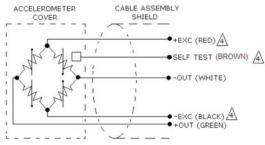
Since the mass actually moves, the self-test is both a mechanical test of the unit's functioning and an electrical test. This ensures significant time and costs savings for quality

personnel in determining performance during in-coming inspections and for test engineers trouble-checking instrumentation channels before and after auto safety tests.



dimensions







Model 1202 Accelerometer

performance specifications

All values are typical at 24 °C, 100 Hz and 10 Vdc excitation unless otherwise stated. Measurement Specialties reserves the right to update and change these specifications without notice.

Voltage Excitation 2 to 10 Vdc Input Impedance 3500 to 4800 Ω Typical Output Impedance 2700 to 4800 Ω Typical Insulation Resistance 100 Ω Typical ©50 Vdc Ground Isolation Solution Isolated Cable Output Connections 30 Feet Integral, Tinned Leads or Customer Specified ELECTRICAL RED 28 AWG, PVC insulated + EXC BLACK 28 AWG, PVC insulated + OUT GREEN 28 AWG, PVC insulated - OUT WHITE 28 AWG, PVC insulated	PARAMETERS							
Sensitivity 2.0 0.9 0.9 0.4 0.15 mV/g	DYNAMIC						Units	Notes
Frequency Response 0-800 0-1500 0-1800 0-2700 0-3000 Hz ±1 dB	Range	±50	±100	±200	±500	±1000	g	
Resonant Frequency 2000 3000 4000 6000 7000 Hz Gas Damped Non-Linearity ±1.0 ±1.0 ±1.0 ±1.0 ±1.0 % FSO Transverse Sensitivity 2 ±0.05(±0.03) % FSO Typical Zero Acceleration Output < ±4.0	Sensitivity	2.0	0.9	0.9	0.4	0.15	mV/g	
Non-Linearity	Frequency Response	0-800	0-1500	0-1800	0-2700	0-3000	Hz	±1 dB
Transverse Sensitivity	Resonant Frequency	2000	3000	4000	6000	7000	Hz	Gas Damped
Zero Acceleration Output	Non-Linearity	±1.0	±1.0	±1.0	±1.0	±1.0	% FSO	
Thermal Zero Shift	Transverse Sensitivity			3			%	Typical
Thermal Sensitivity Shift #0.2(±0.11) %/°C(%/°F) ELECTRICAL Voltage Excitation 2 to 10 Vdc Input Impedance 3500 to 4800 Ω Typical Output Impedance 100 MΩ @50 Vdc Ground Isolation Resistance 100 MΩ @50 Vdc Ground Isolation Solated S	Zero Acceleration Output			<±40			mV	
ELECTRICAL Voltage Excitation 2 to 10 Vdc Input Impedance 3500 to 4800 Ω Typical Output Impedance 100 MΩ ©50 Vdc Insulation Resistance Insulation Resistance Ground Isolation Cable Output Connections ELECTRICAL + EXC FED RED RED 28 AWG, PVC insulated - EXC BLACK 9 BLACK 28 AWG, PVC insulated 4 OUT OUT SELF TEST CABLE SHIELD CABLE SHIELD CABLE SHIELD CABLE JACKET PHYSICAL Case Material Meight Weight Meight Meight Mounting ENVIRONMENTAL Shock Limit 3000 3000 4000 5000 5000 g's Operating Temperature	Thermal Zero Shift			±0.05(±0.03)			%FSO/°C(%FSO/°F)	
Voltage Excitation 2 to 10 Vdc Input Impedance 3500 to 4800 Ω Typical Output Impedance 2700 to 4800 Ω Typical Insulation Resistance 100 MΩ @50 Vdc Ground Isolation Isolated Isolated Image: Compact of the properties of	Thermal Sensitivity Shift			±0.2(±0.11)		%/°C(%/°F)	
Input Impedance 3500 to 4800 Ω Typical Output Impedance 2700 to 4800 Ω Typical Insulation Resistance 100 MΩ @50 Vdc Ground Isolation Cable Output Connections 30 Feet Integral, Tinned Leads or Customer Specified ELECTRICAL + EXC RED 28 AWG, PVC insulated - EXC BLACK 28 AWG, PVC insulated - OUT GREEN 28 AWG, PVC insulated SELF TEST BROWN 28 AWG, PVC insulated SELF TEST BROWN 28 AWG, PVC insulated CABLE SHIELD N/A Braided Wires CABLE JACKET BLACK POLYURETHANE PHYSICAL Case Material Anodized Aluminum Black Weight 3 grams Without Cable Mounting Adhesive ENVIRONMENTAL Shock Limit 3000 3000 4000 5000 5000 g/s Operating Temperature 3500 to 4800 Ω Typical MΩ Typical NΩ Typical RDQ Typical NΩ AWG NΩ Soun Sound So	ELECTRICAL							
Output Impedance 2700 to 4800 Ω Typical Insulation Resistance 100 MΩ @50 Vdc Ground Isolation	Voltage Excitation			2 to 10			Vdc	
Insulation Resistance 100 MΩ @50 Vdc Ground Isolation Isolated Cable Output Connections 30 Feet Integral, Tinned Leads or Customer Specified ELECTRICAL + EXC RED 28 AWG, PVC insulated - EXC + OUT GREEN 28 AWG, PVC insulated - OUT WHITE 28 AWG, PVC insulated SELF TEST SELF TEST ANA Braided Wires CABLE SHIELD CABLE JACKET PHYSICAL Case Material Weight 3 grams Without Cable Mounting ENVIRONMENTAL Shock Limit 3000 3000 4000 5000 5000 g's Operating Temperature 100 MΩ @50 Vdc MΩ @50 Vdc MΩ @50 Vdc @50 Vdc @	Input Impedance			3500 to 48	00		Ω	Typical
Ground Isolation Isolated Cable Output Connections 30 Feet Integral, Tinned Leads or Customer Specified ELECTRICAL + EXC - EXC - EXC + OUT - OUT - OUT - OUT - OUT - SELETEST - CABLE SHIELD - CABLE SHIELD - CABLE JACKET PHYSICAL Case Material - Weight - Weight - Wind Mind Mind Mind Mind Mind Mind Mind M	Output Impedance			2700 to 48	00		Ω	Typical
Cable Output Connections ELECTRICAL + EXC - EXC BLACK 28 AWG, PVC insulated + OUT OUT OUT SELF TEST CABLE SHIELD CABLE JACKET PHYSICAL Case Material Weight Mounting ENVIRONMENTAL Shock Limit 3000 3000 3000 4000 5000 5000 5000 5000 g's Operating Temperature RED 28 AWG, PVC insulated 38 AWG, PVC insulated 48 AWG,	Insulation Resistance			100			МΩ	@50 Vdc
ELECTRICAL + EXC - EXC BLACK 28 AWG, PVC insulated - OUT GREEN 28 AWG, PVC insulated - OUT WHITE 28 AWG, PVC insulated N/A BROWN 28 AWG, PVC insulated N/A Braided Wires CABLE SHIELD N/A Braided Wires BLACK POLYURETHANE PHYSICAL Case Material Weight 3 grams Without Cable Mounting Adhesive ENVIRONMENTAL Shock Limit 3000 3000 4000 5000 5000 g's -20 to +85 °C	Ground Isolation			Isolated				
FEXC	Cable Output Connections	30 Feet Integral, Tinned Leads or Customer Specified						
- EXC	ELECTRICAL							
+ OUT - OUT SELF TEST SELF TEST CABLE SHIELD CABLE JACKET PHYSICAL Case Material Weight Mounting Adhesive ENVIRONMENTAL Shock Limit Operating Temperature 28 AWG, PVC insulated Whitte 28 AWG, PVC insulated Whitte 28 AWG, PVC insulated N/A Braided Wires PHY Cinsulated N/A Braided Wires BlaCK POLYURETHANE PHYSICAL Grams Without Cable Without Cable Shock Limit Shock	+ EXC						RED	28 AWG, PVC insulated
- OUT SELF TEST CABLE SHIELD CABLE SHIELD CABLE JACKET PHYSICAL Case Material Weight Mounting Adhesive ENVIRONMENTAL Shock Limit Operating Temperature WHITE 28 AWG, PVC insulated N/A Braided Wires N/A Black POLYURETHANE Adhesive Black Strain Adhesive Strain Shock Limit Sh	- EXC						BLACK	28 AWG, PVC insulated
SELF TEST CABLE SHIELD CABLE JACKET PHYSICAL Case Material Weight Mounting ENVIRONMENTAL Shock Limit Shock Limit Operating Temperature BROWN 28 AWG, PVC insulated N/A Braided Wires PHY Limit Shock Limit N/A Braided Wires PHYLICAL Anodized Aluminum Black grams Without Cable Mounting Shock Limit Shock Lim	+ OUT						GREEN	28 AWG, PVC insulated
CABLE SHIELD CABLE JACKET PHYSICAL Case Material Weight Mounting ENVIRONMENTAL Shock Limit Operating Temperature N/A Braided Wires N/A Braided Wires Anodized Aluminum Black grams Without Cable Mounting Shock Limit Shoc	- OUT						WHITE	28 AWG, PVC insulated
CABLE JACKET BLACK POLYURETHANE PHYSICAL Case Material Anodized Aluminum Black Weight 3 grams Without Cable Mounting Adhesive ENVIRONMENTAL Shock Limit 3000 3000 4000 5000 5000 g's Operating Temperature -20 to +85 °C	SELF TEST						BROWN	28 AWG, PVC insulated
PHYSICAL Case Material Anodized Aluminum Black Weight 3 grams Without Cable Mounting Adhesive ENVIRONMENTAL Shock Limit 3000 3000 4000 5000 5000 g's Operating Temperature -20 to +85 °C	CABLE SHIELD						N/A	Braided Wires
Case Material Anodized Aluminum Black Weight 3 grams Without Cable Mounting Adhesive ENVIRONMENTAL Shock Limit 3000 4000 5000 5000 g's Operating Temperature -20 to +85 °C	CABLE JACKET						BLACK	POLYURETHANE
Weight 3 grams Without Cable Mounting Adhesive ENVIRONMENTAL Shock Limit 3000 4000 5000 5000 g's Operating Temperature -20 to +85 °C	PHYSICAL							
Mounting Adhesive ENVIRONMENTAL Shock Limit 3000 3000 4000 5000 5000 g's Operating Temperature -20 to +85 °C	Case Material			Anodized Aluminum				Black
ENVIRONMENTAL Shock Limit 3000 3000 4000 5000 5000 g's Operating Temperature -20 to +85 °C	Weight			3			grams	Without Cable
Shock Limit 3000 3000 4000 5000 5000 g's Operating Temperature -20 to +85 °C	Mounting			Adhesive				
Operating Temperature -20 to +85 °C	ENVIRONMENTAL							
1,111	Shock Limit	3000	3000	4000	5000	5000	g's	
Humidly Epoxy sealed	Operating Temperature					-20 to +85	°C	
	Humidly							Epoxy sealed

To utilize the accelerometer in normal sensing mode, the +EXC (Red) and Self Test (Brown) leads must be electrically shorted together. In self test mode, the -EXC (Black) and Self Test (Brown) leads must be electrically shorted together. Application of 10 Vdc Between +EXC (Red) and -EXC (Black) / Self Test (Brown) will result in a corresponding mV output, less the offset, between +Out (Green) and -Out (White) [e.g. 50g-2mV, 100g-1mV, 200g-1mV, 500g-1mV, 200g-1mV, 200g-1 0.5mV, 1000g-0.3mV].

ordering information

Supplied Materials: Mounting Screws (PN AC-D02024)x4 1202-<u>ZZZZ-ZZ-ZZZ X</u> Calibration Certificate NO CONNECTOR CABLE LENGTH (INCHES) [e.g. 360 IS 360 INCHES OF CABLE] EXCITATION (Vdc) [e.g. 10 IS 10 Vdc EXCITATION] RANGE (g) [e.g. 0100 IS 100g RANGE]

CUSTOM CONNECTOR OPTIONS ARE AVAILABLE. CONTACT MEASUREMENT SPECIALTIES, INC. FOR APPLICABLE MODEL NUMBER.

www.meas-spec.com Tel: 1-949-716-5377 Fax: 1-949-916-5677

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