



MODEL 41 CRASH TEST ACCELEROMETER

Specifications

- Critically Damped DC Accelerometer
- On-Vehicle Crash Test Accelerometer
- Compliant to SAE J211/J2570
- Compliant to ISO 6487
- $\pm 100g$ to $\pm 2000g$ Dynamic Range
- Replaceable Cable Assembly

Features

- 150mV Full Scale Output
- Critical 0.7 Damping Ratio
- Standard $<25mV$ ZMO
- 10,000g Shock Protection
- 2-10Vdc Excitation
- Silicon Piezoresistive Elements
- $-20^{\circ}C$ to $+80^{\circ}C$ Temperature Range

Applications

- Anthropomorphic Dummy Instrumentation
- Crush Zone Testing
- Pedestrian Impact Testing
- Auto Safety Testing Applications
- Shock and Impact Testing
- Transient Drop Testing
- Munitions Testing

The Model 41 is a small piezoresistive single axis crash test accelerometer designed to be compliant to SAE-J2570 and ISO-6487 specifications. This DC accelerometer features built-in mechanical stops, anodized aluminum alloy housing and an integral low noise cable designed for high-g shock testing. This cable assembly is user repairable in case of damage during testing. The sensing element is fluid damped to extend useful frequency range and reduce the adverse effect of high frequencies ringing caused by sensor resonance excitation at high-g inputs.

The model 41 accelerometer is designed for crush zone testing and features an epoxy sealed for minimum IP65 protection over the full operating temperature range of $-20^{\circ}C$ to $+80^{\circ}C$. The accelerometer is available in ranges from $\pm 100g$ to $\pm 2,000g$ and features a full-bridge configuration with a nominal 1000Ω impedance that offers quick warm-up time and minimal drift. The model 41 accelerometer has a standard 5Vdc calibration voltage with options for 2Vdc and 10Vdc calibration.

The model 41 accelerometer has the same identical form factor as the Kyowa ASM-A-ID and ASM-1KBCV series accelerometers and can be used as drop-in replacements. The model 41 will provide a wider excitation range, $\sim 3x$ greater sensitivity and FS output as well as higher bridge impedance for minimum self-heating of gages at power on.

For a triaxial critically damped accelerometer version with identical performance, TE Connectivity also offers the model 43 crash test shock sensor.

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MODEL 41 ACCELEROMETER

Performance Specifications

All values are typical at +24°C, 80Hz and 5Vdc excitation unless otherwise stated. TE Connectivity reserves the right to update and change these specifications without notice.

PARAMETERS

DYNAMIC						NOTES
Range (g)	±100	±250	±500	±1000	±2000	
Sensitivity (mV/g) ¹	0.75	0.30	0.15	0.075	0.0375	@5Vdc Excitation
Frequency Response (Hz)	0-400	0-600	0-1100	0-1500	0-2500	±2.5%/-8%
	0-675	0-1100	0-2000	0-2700	0-4500	±2.5%/-20%
Natural Frequency (Hz)	>1500	>2500	>4500	>6000	>10000	
Transverse Sensitivity (%)	<3	<3	<3	<3	<3	<1% Option
Non-Linearity (%FSO)	<±1	<±1	<±1	<±1	<±1	
Damping Ratio	0.7	0.7	0.7	0.7	0.7	Typical
Shock Limit (g)	10000	10000	10000	10000	10000	

ELECTRICAL

Zero Acceleration Output (mV)	<±25	Differential
Excitation Voltage (Vdc)	2 to 10	
Input Resistance (Ω)	2000	Nominal
Output Resistance (Ω)	1000	Nominal
Insulation Resistance (MΩ)	>100	@100Vdc
Residual Noise (μV RMS)	<10	
Ground Isolation	Isolated from mounting surface	

ENVIRONMENTAL

Thermal Zero Shift (mV)	±3.0	From -10°C to +50°C
Thermal Sensitivity Shift (%/°C)	±0.1	From -10°C to +50°C
Operating Temperature (°C)	-20 to +80	
Humidity	Epoxy Sealed, IP65	

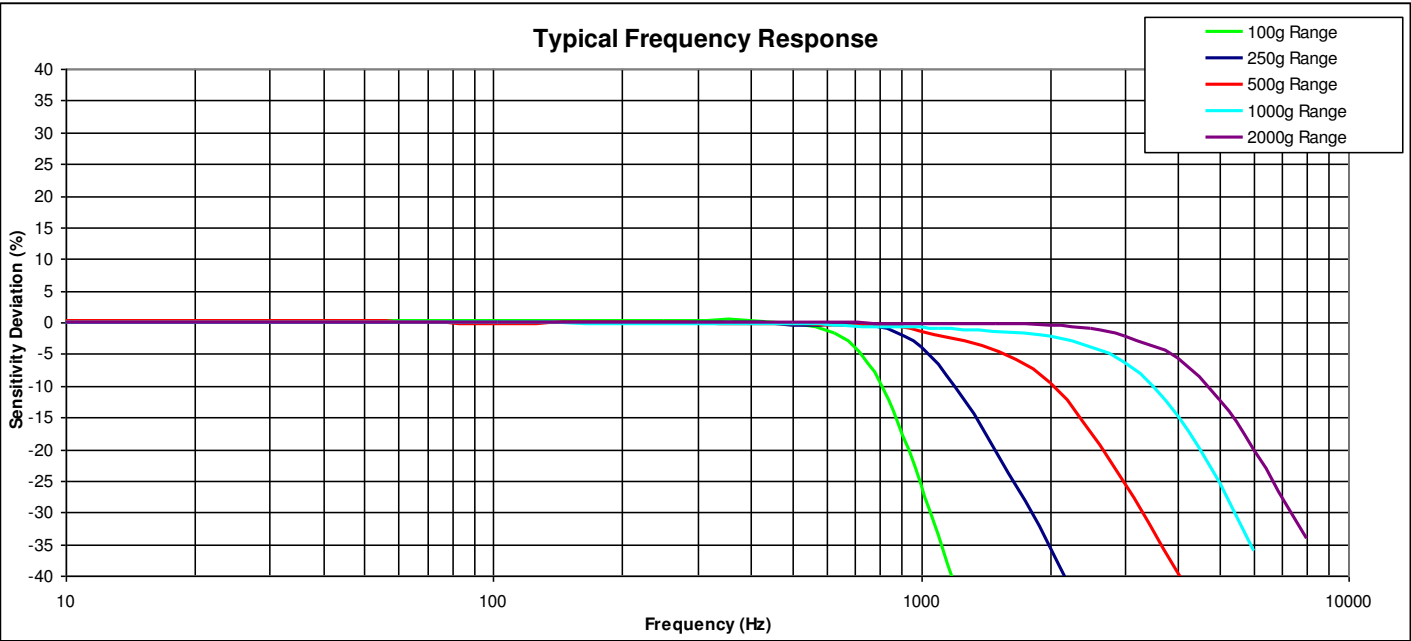
PHYSICAL

Case Material	Anodized Aluminum	
Cable	5x #30 AWG Leads, PFA Insulated, Braided Shield, PU Jacket	
Weight (grams)	<8	Cable not included
Mounting	2x #0-80 or M1.6x0.35 Socket Head Cap Screws	
Mounting Torque	1.0-1.5 lb-in (0.11-0.17 Nm)	

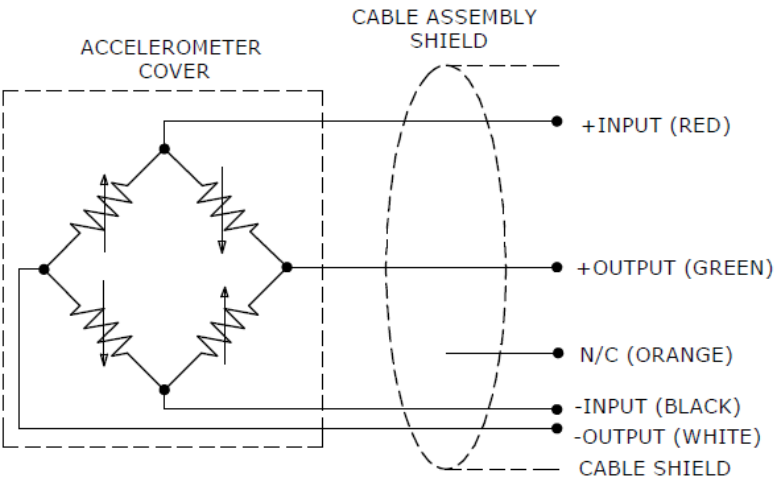
¹ Output is ratiometric to excitation voltage. Tolerance is +50%/-30%.

Calibration supplied: CS-FREQ-0100 NIST Traceable Amplitude Calibration from 20Hz to Upper Frequency Limit
Optional accessories: 121 3-Channel Precision Low Noise DC Amplifier

Typical Frequency Response



Schematic



Dimensions



Ordering Information

41	GGGG	ZZZ	T	XXX
Range 0100 = 100g 0250 = 250g 0500 = 500g 1000 = 1000g 2000 = 2000g				
Cable length 240 = 240 inches, 20 feet 360 = 360 inches, 30 feet 276 = 276 inches, 7 meters (*Minimum order quantity 25 pieces)				
Transverse Sensitivity Option Blank = <3% T = <1%				
Excitation Voltage Option Blank = 5Vdc 001 = 10Vdc 005 = 2Vdc				

Example; 41-2000-360
Model 41, 2000g range, 360inch (30ft) cable length

Example; 41-0500-276T
Model 41, 500g range, 276inch (7m) cable length, <1% transverse sensitivity option

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