

## Tri-axial static response accelerometer



### Features

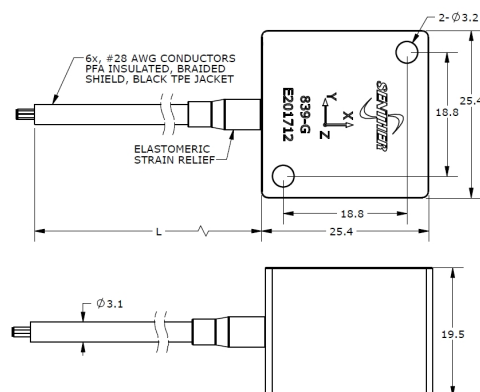
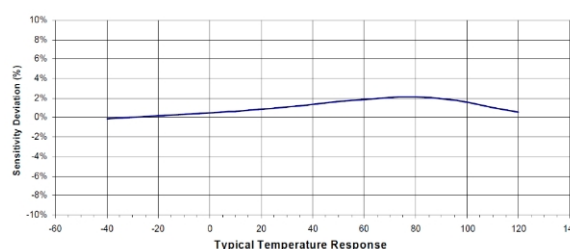
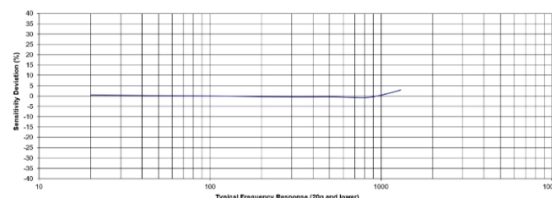
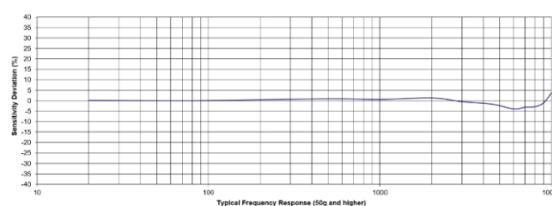
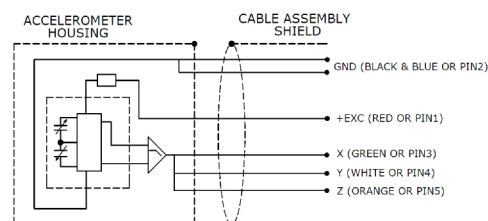
- DC response
- 2 to 500g full scale
- Extreme low noise
- High frequency response
- Excellent thermal stability
- Motion, low frequency, tilt
- 5K g shock survivability

### Application

- Flight test
- Automotive road testing
- Civil engineering structures
- Railway comfort
- Aviation and aerospace

### Description

Model 839 is a high-sensitivity, low noise triaxial accelerometer which simultaneously measures acceleration and low-frequency vibration in three mutually perpendicular axial. 839 is triaxial capacitive accelerometer family utilizes a silicon Micro-Electro-Mechanical System (MEMS) variable capacitance sensing element. The sensing element of each axis consists of a very small inertial mass and a flexure element cantilever positioned between two plates. As the mass deflects under acceleration, the capacitance between these plate changes. AC excitation and synchronous amplitude demodulation circuitry contained in the accelerometer's internal signal conditioner provides an analog output signal proportional to the applied acceleration. This output signal is scaled as a voltage which is proportional to the applied acceleration. The output signal format is single-ended  $2.5 \pm 2V$ . The accelerometer is powered by a single regulated supply between 8 to 36 Vdc. Thermal drift has been compensated by internal circuit for the best environment stability. The sensing element and electronics are contained in a lightweight housing with an integral cable terminated by pigtailed or specified connector. Signal ground is isolated from the test object that benefit from the anodized aluminum housing. The accelerometer can be mounted by M3 metric screw or adhesive. 839 is well-suited for a wide variety of R&D applications requiring precision measurements and packaging for demanding application and handling needs.



## Specification

All values are typical at +24°C (+75°F), 12Vdc excitation and apply to each axis unless otherwise stated.

Dash no.	-2	-5	-10	-20	-30	-50	-100	-500	
Dynamic range	±2	±5	±10	±20	±30	±50	±100	±500	g
Sensitivity ±10%	1000	400	200	100	67	40	20	4	mV/g
Freq response ±5%	0-800	0-800	0-800	0-800	0-800	0-4500	0-4500	0-7000	Hz
Freq response ±3dB	0-1300	0-1300	0-1300	0-1300	0-1300	0-10000	0-10000	0-10000	Hz
Noise density	20	80	80	160	160	25	30	150	ug/√Hz
Residual noise (passband)	650	1000	550	550	550	250	300	300	μVrms
Shock limit (any direction)	5000	5000	5000	5000	5000	5000	5000	5000	g


Parameters	Value	Units
Zero acceleration output	2500±50	mV
Transverse sensitivity	<2	%
Non-linearity (BFSL)	±1	%FSO
Thermal zero shift, -40 to +125°C, ref 24°C	±1.5	%FSO
Thermal sensitivity shift, -40 to +125°C, ref 24°C	±2.5	%
Excitation voltage	8 to 36	Vdc
Excitation current	<15	mA
Bias voltage	2.5	Vdc
Full scale output voltage	±2	Vpk (FSO=2V)
Output impedance	<100	Ω
Insulation resistance (@100Vdc)	>100	MΩ
Turn on time	<100	mSEC
Operating and storage temperature	-40 to +125	°C (°F)
Humidity (housing)	Epoxy Sealed	
Housing material	Al Alloy Anodized Black	
Weight (cable not included)	17	Grams
Mounting torque	6 (0.7)	lb-in (Nm)

## Accessories

Calibration certificate included.

Part Number	Description	Availability
PM0346	M3x25 socket head cap screws	2pcs included
PM0073	Ø3 SST washer	2pcs included
PJ0048	LEMO FGG-1B-307 connector	Optional
IN-3062	8 channels data acquisition system	Optional

## Measurement configuration

Sensor	Connector	Data acquisition	Computer
			

## Ordering information

<b>839</b>	-	<b>20</b>	-	<b>3</b>
<b>Model</b>	-	<b>Range</b>	-	<b>Cable length</b>
<b>839</b>	-	2=2g 5=5g 10=10g 20=20g 30=30g 50=50g 100=100g 500=500g	-	1=1 meter 3=3 meters

