

## Variable capacitance MEMS accelerometer



### Description

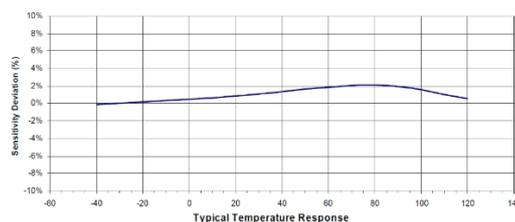
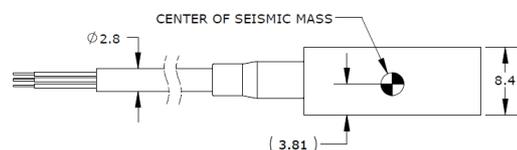
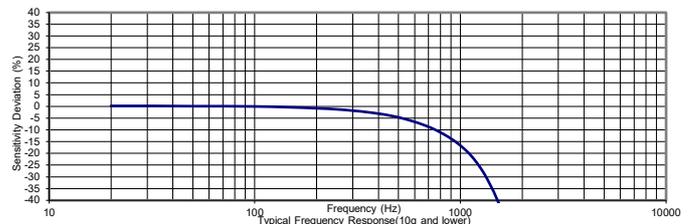
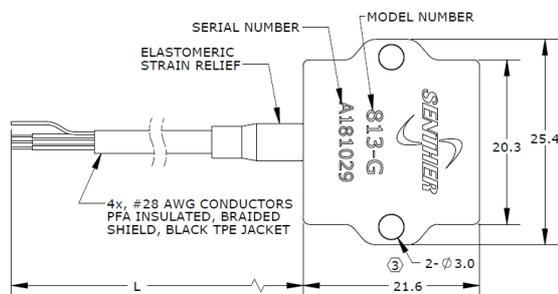
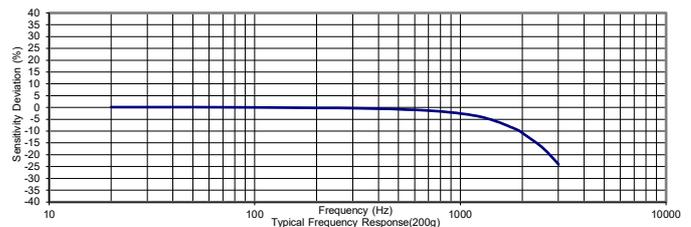
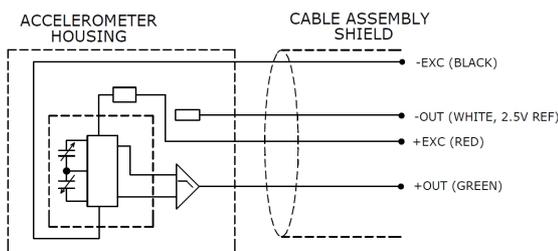
Model 813 is a high-sensitivity, variable capacitance accelerometer which measures static acceleration and low-frequency vibration. 813 is a capacitive accelerometer family utilizes a silicon Micro-Electro-Mechanical System (MEMS) variable capacitance sensing element. The sensing element consists of 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 5.5 to 30 Vdc. 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 by the anodized aluminum housing. The accelerometer can be mounted by M3 metric screw or adhesive. 813 is well-suited for a wide variety of R&D or OEM applications requiring precision measurements and compact size.

### Features

- DC response
- 2 to 200g full scale
- Motion, low frequency, tilt
- 5K g shock survivability
- Temperature compensation

### Application

- Automotive road test
- High speed train
- Maglev dynamic position
- Suspension monitoring
- Aircraft testing
- Static acceleration
- Transmission test



## Specification

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

DYNAMIC RANGE	2	5	10	200	g
SENSITIVITY ±10%	1000	400	200	10	mV/g
FREQUENCY RESPONSE -3db	0-400	0-400	0-400	0-1000	Hz
RESIDUAL NOISE (PASSBAND)	1000	500	400	1300	µV RMS
SHOCK LIMIT	5000	5000	5000	5000	g

PARAMETERS	VALUE	UNITS
ZERO ACCELERATION OUTPUT	2.5±0.1	V
TRANSVERSE SENSITIVITY	<3	%
NON-LINEARITY (BFSL)	±1	%FSO
THERMAL ZERO SHIFT, -40 to +85°C, REF. 24°C	±2	%FSO
THERMAL SENSITIVITY SHIFT, -40 to +85°C, REF. 24°C	±2	%
EXCITATION VOLTAGE	5.5 to 30	Vdc
EXCITATION CURRENT	<4	mA
REFERENCE VOLTAGE	2.5	Vdc
FULL SCALE OUTPUT VOLTAGE	±2	Vpk (FSO=2V)
OUTPUT IMPEDANCE	<100	Ω
INSULATION RESISTANCE (@500Vdc)	>100	MΩ
TURN ON TIME	<100	mSEC
OPERATING AND STORAGE TEMPERATURE	-40 to +85	°C
HUMIDITY	Silicone potted	
WEIGHT (CABLE NOT INCLUDED)	6	Grams
MOUNTING TORQUE	6 (0.7)	lb-in (Nm)

## Accessories

Calibration certificate included.

Part Number	Description	Availability
PM0361	M3x16 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



## Ordering information

<b>813</b>	-	<b>20</b>	-	<b>3</b>
<b>Model</b>	-	Range	-	Cable length
<b>813</b>	-	2=2g 5=5g 10=10g 200=200g	-	1=1 meter 3=3 meters

