



13201A & 23201A Analog Accelerometers

SPECIFICATIONS

- Single and Biaxial Output Options
- DC Response, Silicon MEMS
- $\pm 1g$ & $\pm 2g$ Measurement Ranges
- $< \pm 0.5\%$ Thermal Errors from -40°C to $+85^{\circ}\text{C}$
- Temperature Output Included

The TE Connectivity model 13201A and 23201A accelerometers are rugged analog accelerometers capable of accurately measuring vibration inputs along each axis. The model 13201A sensor is a single axis accelerometer while the model 23201A is a dual axis accelerometer and both include a temperature sensor output.

The 13201A & 23201A accelerometers are designed to be installed in challenging environments. The 6061-T6 compact housing with anodized finish plus a PTFE cable grounded to the case provide a cost effective but robust design solution. Optional mounting adaptors are also available to allow mounting in any three orientations.

Each axis of both the model 13201A and 23201A accelerometers have a nominal full-scale output swing of ± 2 Volts from the zero-g output level of nominally $+2.5$ Volts. Precise values for each axis are provided on the calibration certificate included with each sensor.

FEATURES AND BENEFITS

Self-Test on Digital Command

A TTL-compatible self-test input causes a simulated acceleration to be injected into all sensor channels to verify channel integrity.

High Accuracy and Linearity over Wide Temperature Range

The output of each axis of the sensors are directly proportional to the acceleration along that axis. Each DC-coupled output is fully scaled and temperature compensated to a minimal $\pm 0.5\%$ thermal sensitivity drift from -40°C to $+85^{\circ}\text{C}$.

Built-In Power Supply Regulation

The accelerometers also include input regulation to allow a range of 8.5 to 36Vdc excitation. Furthermore, reverse power protection is included up to voltages of -80 V constant supply and transients of $+80$ V for 550msec compatible with MIL-STD-704A.

PERFORMANCE SPECIFICATIONS

All values are typical at +24°C and 12Vdc excitation unless otherwise stated. TE Connectivity reserves the right to update and change these specifications without notice.

Parameters

DYNAMIC

	-R001	-R002
Dash Number	-R001	-R002
Range (g)	±1	±2
Sensitivity (mV/g)	2000	1000
Frequency Response (Hz)	0-380	0-380
Non-Linearity (%FSO)	±1.25	±1.25
Transverse Sensitivity (%)	<3	<3
Alignment Error (Degrees)	±0.25	±0.25
Shock Limit (g)	±3500	±3500
Resolution B031 filter option (mg)	0.78	0.78
Resolution B094 filter option (mg)	1.35	1.35
Resolution B380 filter option (mg)	2.71	2.71
Spectral Noise (µg/√Hz)	110	110

Notes

See Ordering Info
 Exact value on cal cert
 -3dB cutoff per BYYY option
 BFSL
 <1% typical
 Axis 1 to Axis 2
 0.5msec pulse
 31Hz -3dB cutoff
 94Hz -3dB cutoff
 380Hz -3dB cutoff

ELECTRICAL

Zero Acceleration Output (V)	±2.50 ±0.010
Excitation Voltage (Vdc)	8.5 to 36
Excitation Current (mA)	10 per channel
Rejection Ratio (dB)	>120
Full Scale Output (single-ended)	0.50 to 4.50Vpk (FSO=2V)
Output Resistance (Ω)	<100
Insulation Resistance (MΩ)	>100
Turn On Time (msec)	<50
Ground Isolation	Isolated from Mounting Surface

Single ended

No load, quiescent
 DC
 >1MΩ load

@100Vdc

SELF TEST FUNCTION

Response with self-test pin grounded	
Output Change for Axis 1 & 2 (mV)	750 typical
Self Test Resistance to Ground (kΩ)	50

TEMPERATURE SENSOR

Sensitivity (mV/°C)	6.45
+25°C Bias Level (mV)	509

ENVIRONMENTAL

Thermal Zero Shift (mg/°C)	±0.8	-40 to +85°C
Thermal Sensitivity Shift (%)	±0.3	-40 to +85°C
Operating Temperature (°C)	-40 to +85	
Humidity (Active Element & Electronics)	Hermetically Solder Seal	
Humidity (Housing)	Epoxy Sealed, IP65	

PHYSICAL

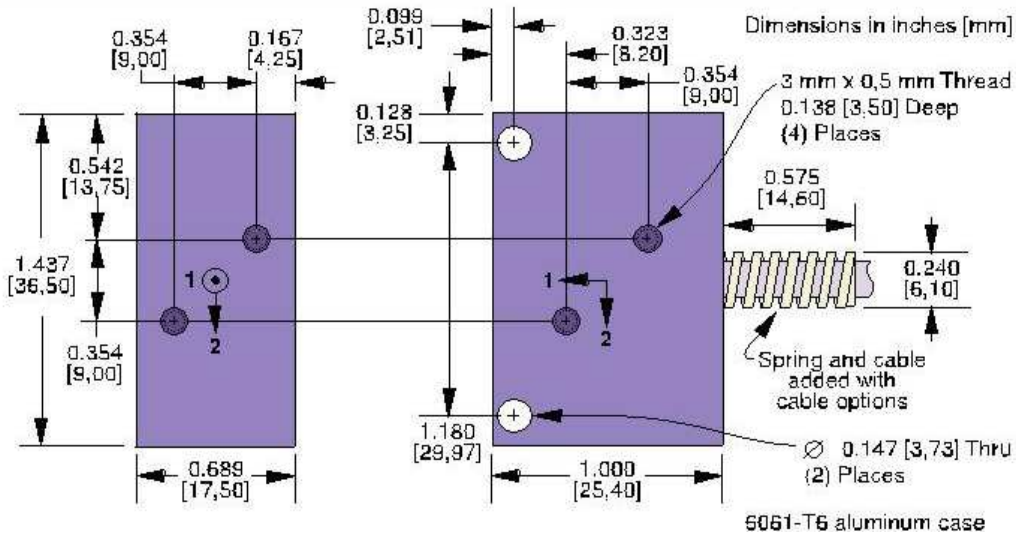
Case Material	Blue Anodized Aluminum
Cable	9x, #30 AWG Conductors, PTFE Insulated, Tin Plated Shield, PTFE Jacket
Connector	9-pin DB9 Male Connector Installed at End of Cable
Weight (cable not included)	38 grams
Mounting	2x M3-0.5 Machine Screws
Mounting Torque	5 lbf-in (0.56 N-m)

Calibration supplied: CS-FREQ-0100 NIST Traceable Calibration with Sensitivity and Offset

Optional accessories: 35172A Vertical Mounting Flange
 35173A Horizontal Mounting Flange

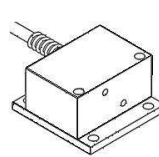
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DIMENSIONS

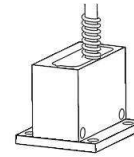


Two through holes and four 3 mm x 0.5 mm threaded holes are provided for mounting.

Mounting adapters
(sold separately)

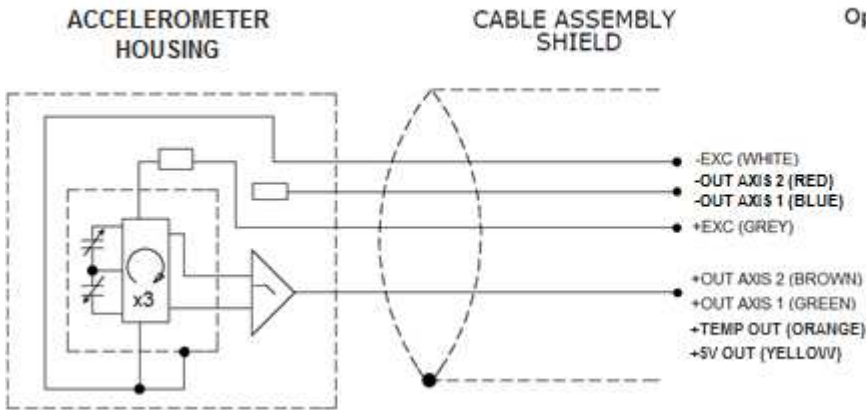


35173A Horizontal

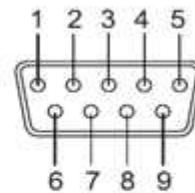


35172A Vertical

SCHEMATIC



Option T004: DB9 Male Connector



- Pin 1: +OUTPUT SIGNAL AXIS 2 (BROWN)
- Pin 2: -OUTPUT SIGNAL AXIS 2 (RED)
- Pin 3: +TEMP OUT (ORANGE)
- Pin 4: +5V OUT (YELLOW)
- Pin 5: +OUTPUT SIGNAL AXIS 1 (GREEN)
- Pin 6: -OUTPUT SIGNAL AXIS 1 (BLUE)
- Pin 7: SELF TEST-L (VIOLET)
- Pin 8: +EXCITATION VOLTAGE (GREY)
- Pin 9: -EXCITATION VOLTAGE (WHITE)

ORDERING INFORMATION

13201A (single axis) 23201A (dual axis)	RXXX	BYYY	TZZZ	C001
Range R001 = ±1g R002 = ±2g				
Bandwidth B031 = 0 to 31Hz B094 = 0 to 94Hz B380 = 0 to 380Hz				
Cable Length T004 = 4ft cable with DB9M connector (standard option) TZZZ = Contact factory for custom length (ZZZ in feet)				
Calibration C001 = Standard room temperature calibration (standard)				

Example; 23201A-R002-B031-T004-C001

Dual axis model 23201A, ±2g range, 0-31Hz bandwidth, 4ft cable with DB9M connector, std room temp calibration

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