13201A & 23201A Analog Accelerometers

SPECIFICATIONS

- **Single and Biaxial Output Options**
- **DC Response, Silicon MEMS**
- **±1g & ±2g Measurement Ranges**
- **<±0.5% Thermal Errors from -40°C to +85°C**
- **Temperature Output Included**

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.

volume use.

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 ±0.5% thermal sensitivity drift from -40°C to +85°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.

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.

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			**Notes**
Dash Number	-R001	-R002	See Ordering Info
Range (g)	±1	±2	
Sensitivity (mV/g)	2000	1000	Exact value on cal cert
Frequency Response (Hz)	0-380	0-380	-3dB cutoff per BYYY option
Non-Linearity (%FSO)	±1.25	±1.25	BFSL
Transverse Sensitivity (%)	<3	<3	<1% typical
Alignment Error (Degrees)	±0.25	±0.25	Axis 1 to Axis 2
Shock Limit (g)	±3500	±3500	0.5msec pulse
Resolution B031 filter option (mg)	0.78	0.78	31Hz -3dB cutoff
Resolution B094 filter option (mg)	1.35	1.35	94Hz -3dB cutoff
Resolution B380 filter option (mg)	2.71	2.71	380Hz -3dB cutoff
Spectral Noise (µg/√Hz)	110	110	
ELECTRICAL			
Zero Acceleration Output (V)	±2.50 ±0.010		Single ended
Excitation Voltage (Vdc)	8.5 to 36		
Excitation Current (mA)	10 per channel		No load, quiescent
Rejection Ratio (dB)	>120		DC
Full Scale Output (single-ended)	0.50 to 4.50Vpk (FSO=2V)		>1MΩ load
Output Resistance (Ω)	<100		
Insulation Resistance (MΩ)	>100		@100Vdc
Turn On Time (msec)	<50		
Ground Isolation	Isolated from Mounting Surface		
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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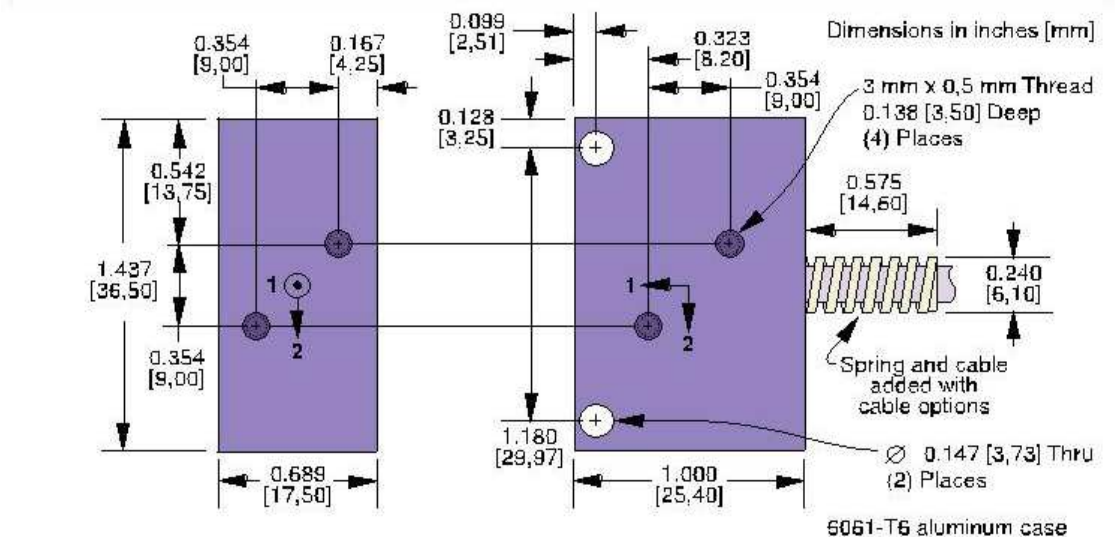
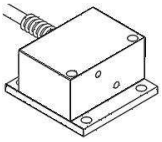
DIMENSIONS

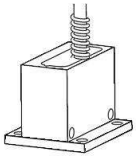


Two through holes and four 3 mm x 0.5 mm threaded holes are provided for mounting.

Mounting adapters
(sold separately)

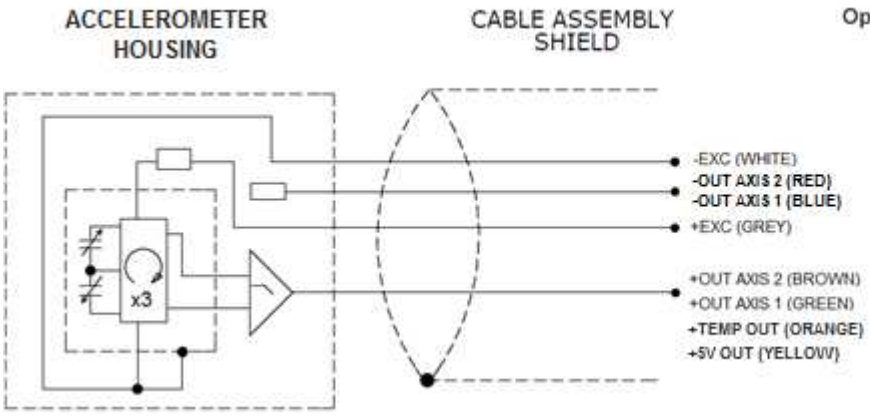


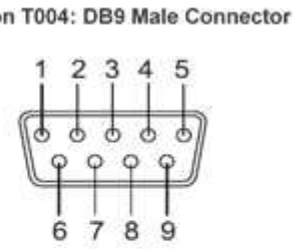
35173A Horizontal



35172A Vertical

SCHEMATIC





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: +OUPUT 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