13201A 23201A

Uniaxial Biaxial

SPECIFICATIONS

- **±1 g to ±2 g Accelerometers Zero g Bias Stability ±2 mg**
- **Very Low Noise 110 µg/√Hz**

Simplify Acceleration Measurements

Measurement Specialties 13201A and 23201A accelerometers have either one or two orthogonal axes and a temperature sensor in a small, rugged package. The small size and built-in power regulation allow them to fit in most applications without any external circuitry or conditioning.

Suitable for dry gas and some fluids with Parylene or RTV protection (options). Non-standard excitation, compensated temperatures are available as options.

Each axial sensor has been tested over the -40 to +85°C temperature range. Each axis has 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

Precision
These Measurement Specialties accelerometers offer precision measurements over the entire -40 to +85°C temperature range with superior bias stability and approximately 100 µg measurement resolution.

High Accuracy and Linearity over Wide Temperature Range
The voltage output for the 13201A and 23201A is directly proportional to the acceleration along the axis. The DC-coupled output is fully scaled, referenced and temperature compensated over the entire -40 to +85°C temperature range. Optional internal temperature compensation provides unrivaled measurement accuracy over varying temperatures.

Calibration Certificate
Each 13201A and 23201A is supplied with a calibration certificate listing sensitivity and offset, as well as the on-axis and transverse alignment parameters needed to ensure rapid and efficient system implementation. Increased offset compensation can be obtained with Option C002.

Self-Test on Digital Command
A TTL-compatible self-test input causes a simulated acceleration to be injected into all three sensors to verify channel integrity.

Small Size
Complete accelerometer in approximately one cubic inch volume.

-Built-In Power Supply Regulation
Unregulated DC power from +8.5 to +36 Volts is all that is required to measure acceleration and temperature. Reverse power voltages of up to -80 V can be withstood indefinitely. Transients of +80 V for 550 ms compatible with MIL-STD-704A can be withstood with full operation.

Easy Installation
A built-in terminal block or cable with 9-pin connector simplifies wiring. Tapped holes on bottom and back simplify horizontal or vertical mounting.

Suitable for Harsh Environments
These accelerometers are robust and can be used in harsh environments. The unit will survive 3500 g powered and unpowered.

Warranty
These Measurement Specialties accelerometers come with a three-year factory warranty.

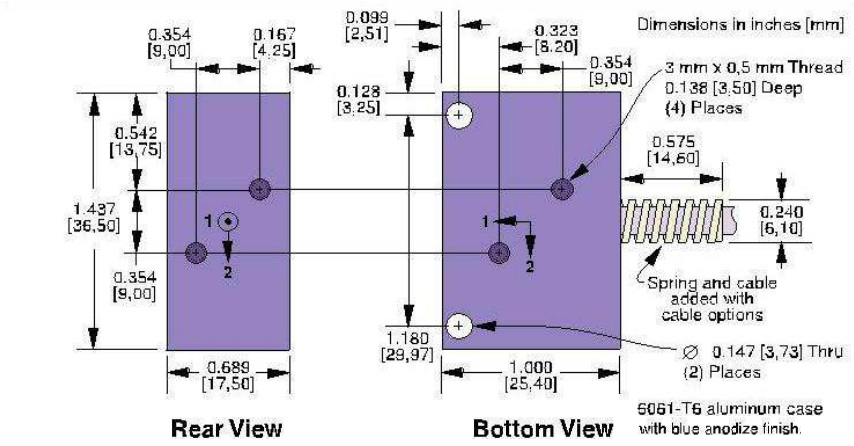
SPECIFICATIONS FOR 13201A AND 23201A -*improved specifications available upon request*

Ta = Tmin to Tmax; 8.5 ≤ Vs ≤ 36 V; Acceleration = 0 g unless otherwise noted; within one year of calibration

Parameter	Min	Typical	Max	Units	Conditions/Notes
Range					
Measurement Full Scale		±2.0		g	On each axis. Must specify via Option Rnnn
Sensitivity					
At 25°C, Option R002		1000†		mV/g	Precise values on cal certificate
Drift T_{min} to T_{max}		±0.3		%	
Zero g Bias Level					
At 25°C		2.50 ±0.010		V	Precise values on cal certificate
Drift T_{min} to T_{max}, Option C001		±20	±60	mg	At <1.25°C/min temperature rate of change
Drift T_{min} to T_{max}, Option C002		±2	±6	mg	At <1.25°C/min temperature rate of change
Alignment					Precise values on cal certificate
Deviation from Ideal Axes		±.75	±3	degrees	Can be compensated if required
Transverse Sensitivity		0.25		%	Inherent sensor error, excluding misalignment
Nonlinearity		±0.2	±1.25	% FSR	
Frequency Response	0		2100	Hz	Upper cutoff per Option Bnnn, -3 dB pt ±10%
Noise Density		110		µg/√Hz	
Self Test Pull-Up Resistor	5			kΩ	Logic "1"≥3.5 V, "0"≤ 1.5 V; "0" causes self-test
Temperature Sensor					
Sensitivity		6.45		mV/°C	Error ±1°C over temperature
+0°C Bias Level		509		mV	
Outputs					Series 100 Ω for capacitance tolerance
Output Voltage Swing, R001, R1.5	0.05		4.95	V	>1 MΩ load
Output Voltage Swing, R002	0.55		4.8	V	>1 MΩ load; limits typically reach 0.2 V to 4.95 V
Power Supply (V_S)					
Input Voltage Limits	-80		+80	V	-80 V continuous, >38 V if ≤550 ms, duty <1%
Input Voltage - Operating	+8.5		+36	V	
Input Current		10		mA	No load, quiescent
Rejection Ratio		>120		dB	DC
Temperature Range (T_a)	-40		+85	°C	
Mass		38		grams	Excludes cable; T000 values on cal certificate
Shock Survival	-3500		+3500	g	Any axis for 0.5 ms. Powered or unpowered

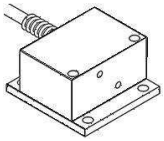
†*Scale linearly with range option Rnnn; see Ordering Information*

MECHANICAL

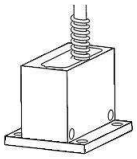


Two through holes and four 3 mm x 0.5 mm threaded holes are provided for mounting.

Mounting adapters (sold separately)

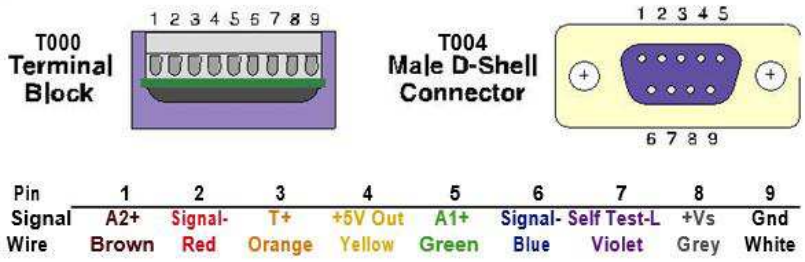


35173A Horizontal



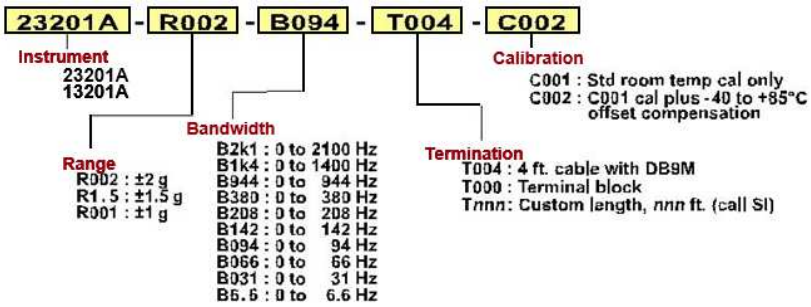
35172A Vertical

CONNECTIONS



Pin	1	2	3	4	5	6	7	8	9
Signal	A2+	Signal-	T+	+5V Out	A1+	Signal-	Self Test-L	+Vs	Gnd
Wire	Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	White

ORDERING INFORMATION



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