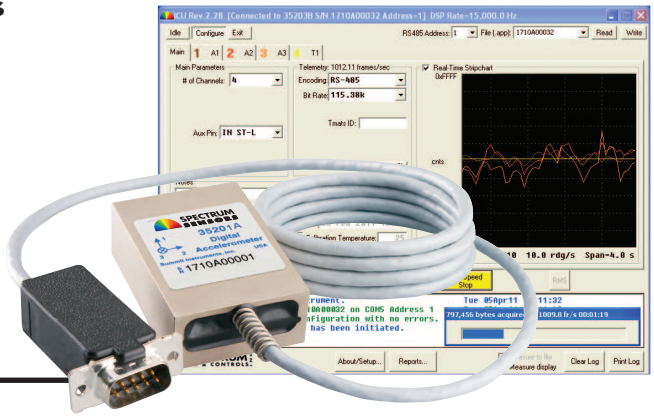
15201A **25201A** **35201A**
Uniaxial Biaxial Triaxial

Digital Accelerometers
User Configurable ±1 g to ±2 g



Technical Data*

Features and Benefits

User Configurable Settings
The analog/digital output range and low-pass filter of each digital accelerometer axis can be set via a built-in RS-485 interface. An RS-485 to RS-232 adapter is available. Free, downloadable Instrument Configuration Utility (ICU) software is available online.

RS-485 Serial and Analog Outputs
Calibrated, ranged and filtered data can be streamed out at up to 3 Mbit/sec via RS-485. Analog output of up to three calibrated, ranged and filtered channels are provided for compatibility with existing systems.

High Accuracy and Linearity over Wide Temperature Range
Accelerometer accuracy is improved by minimizing variations due to temperature and aging effects. Each axial sensor has been temperature compensated over the -40 to +85°C temperature range.

Built-in Calibration
Calibration data for each sensor is maintained in the accelerometer. All digital data output is fully calibrated and easily converted to user specified engineering units.

Self-Test
Self-test commands help verify channel integrity and wiring connections.

Small Size
Complete conditioned triaxial accelerometer with digital signal processing in approximately two cubic inches.

Built-In Power Supply Regulation
Unregulated DC power from +8.5 to +36 volts is all that is required to measure accelerations on all axes. Digital accelerometers are ideal for automotive applications as they survive both continuous reverse battery and load dump transients. MIL-STD-704A compatible.

Easy Installation with Minimal Wiring Requirements
A built-in terminal block or cable with 9-pin connector simplifies wiring. Wiring can be minimized by daisy-chaining the two multidrop RS-485 pins on up to 30 digital accelerometers. 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. They survive 3500 g powered and unpowered.

Warranty
Spectrum Sensors' digital accelerometers come with a three-year factory warranty.

Inertial Measurements Made Fast and Easy

These Spectrum Sensors digital accelerometers are complete, easy-to-use, user-configurable sensors containing one to three accelerometers, a temperature sensor, signal processor, RS-485 interface and three analog outputs in a small, easy-to-install package.

All channels are sampled simultaneously to avoid data skewing. The digital signal processor takes 16-bit samples, filters, ranges, and calibration compensates at up to 42,500 samples/sec/channel. Digital data can be streamed out at up to 3 Mbit/sec.

The output range, filter frequency and calibration of each channel, as well as telemetry configuration, can be set by the user via the RS-485 command processor. CRC-8 and CRC-16 error checking is used to ensure command and data integrity.

The built-in temperature sensor can be used by critical applications to correct for any residual temperature effects.

**Data subject to change without notice*

Rev. 1/11/2012

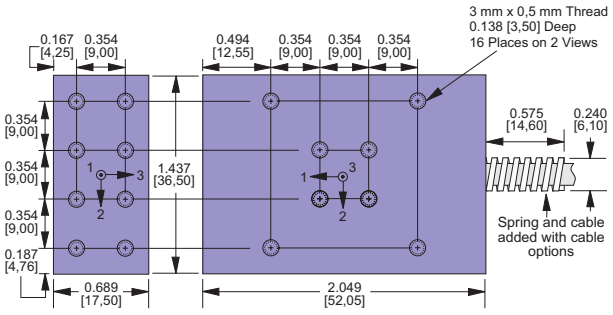
Specifications for 15201A, 25201A and 35201A - *improved specifications available upon request*

$T_A = T_{MIN}$ to T_{MAX}; Acceleration = 0 g unless otherwise noted; within one year of calibration.

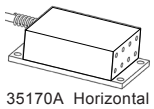
Parameter	Min	Typical	Max	Units	Conditions/Notes
Accelerometers Full Scale Range			±2	g	On each axis. User configurable
Sensitivity Drift 25°C to T_{MIN} or T_{MAX}		±0.3		%	Percent of sensitivity at 25°C
Zero g Drift 25°C to T_{MIN} or T_{MAX}		±20		mg	
Alignment		±1.5		degrees	Deviation from ideal axes
Transverse Sensitivity		0.25		%	Inherent sensor error, excluding misalignment
Nonlinearity		0.2	1.25	% FSR	Best fit straight line
Frequency Response	0†		2100†	Hz	Lower filter cutoffs are user configurable
Noise Density		110		µg/√Hz	
Temperature Sensor					
Range	-55		125	°C	
Resolution		0.25		°C	
Accuracy		±2	±3.5	°C	T_A = -40 to 85°C
Digital Signal Processor					
Internal Word Size			32	bits	
Sensor Scan Rate		15,000	42,500	Hz	User configurable, channels processed in parallel
Analog Outputs					
Voltage Swing	0.2		4.5	V	
Impedance to Analog-	100	130	220	Ω	
Nonlinearity			0.15	% FSR	Excluding sensor nonlinearity
Digital Output Word Size			16	bits	Filtered, gained and calibration corrected
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	Continuous
Input Current		50		mA	
Rejection Ratio	80	120		dB	DC
Temperature Range (T_A)	-40		85	°C	Terminal block Opt. T000 rated to -30°C
Mass		78		grams	
Shock Survival	-1500		+1500	g	Any axis for 0.5 ms., powered or unpowered

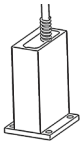
†*User configurable low-pass filter 3dB cutoff (number poles configurable)*

Mechanical

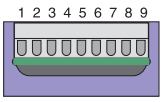


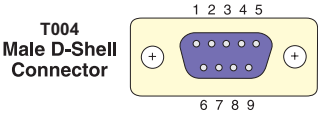
Mounting adapters (sold separately)


35170A Horizontal


35172A Vertical

Connections





Pin	1	2	3	4	5	6	7	8	9
Signal	Analog1+	Analog2+	Analog3+	Signal-	RS485-	RS485+	Aux	+Vs	Gnd
Wire	Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	White

Ordering Information

35201A - R002 - T004 - C002 - K11

Instrument
35201A
25201A
15201A

Accelerometer
R002 : ±2 g 2100 Hz

Termination
T004 : 4 ft. cable with DB9M
T000 : Terminal block
T*nnn* : Custom length, *nnn* ft.

Calibration
C001 : Standard room temp cal only
C002 : C001 cal plus offset data over -40 to +85°C range

Interface kit
0 : None
1 : Interface kit with US power supply
2 : Interface kit with int'l power supply
3 : Interface kit for terminal block (US)
4 : Interface kit for terminal block (int'l)

Adapter
0 : None
1 : 35170A Horizontal mounting adapter
3 : 35172A Vertical mounting adapter

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