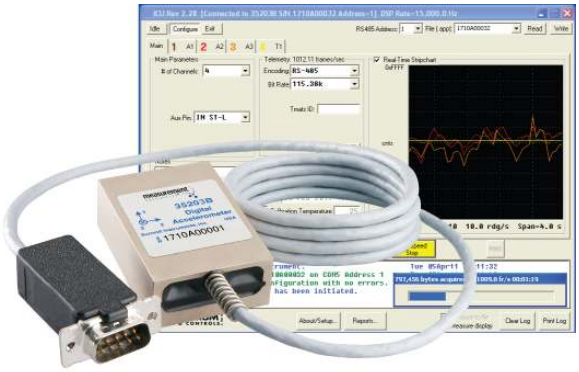
15203B /25203B /35203B Accelerometer

Digital Accelerometers
User Configurable ±1 to ±15 g



Digital Accelerometer

These Measurement Specialties 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.

No data acquisition system is required; data is streamed directly to a PC. A connection kit is available to set up and begin testing immediately upon receipt of the sensor.

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

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.

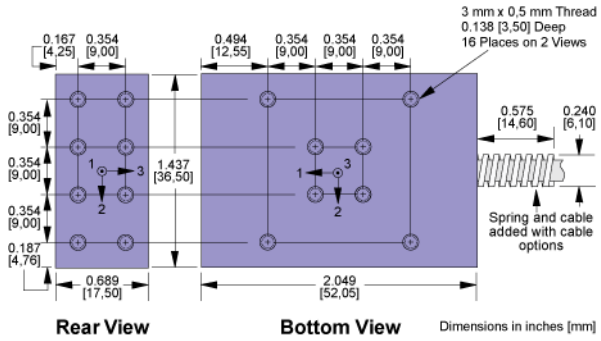
FEATURES

- User Configurable Settings
- RS485 Serial and Analog Outputs
- High Accuracy and Linearity over Wide Temperature Range
- Built-in Calibration Data
- Built-in Power Supply Regulation
- Easy Installation
- Suitable for Harsh Environments
- DO-160 Version Available
- Three Year Warranty

APPLICATIONS

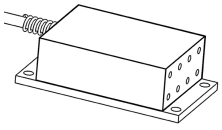
- Vehicle dynamics
- Construction Equipment
- Research & Development
- Test & Measurement
- Military/Aerospace

dimensions

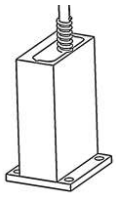


Two through holes and four 3 mm x 0.5 mm threaded holes are provided for mounting.

Mounting adapters (sold separately)

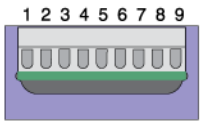


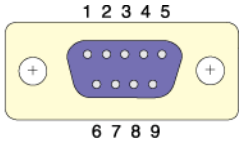
35170A Horizontal



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

15203B/25203B /35203B Accelerometer

performance specifications

$T_A = T_{min}$ to T_{max} ; Acceleration = 0 g unless otherwise noted; within one year of calibration. Improved specifications available upon request.

PARAMETERS	Min	Typical	Max	Units	Conditions/Notes
Range: Measurement Full Scale					On each axis, user configurable
Option R015			±15	g	
Option R006			±6	g	
Sensitivity Drift 25ºC to T_{min} or T_{max}		±0.65		%	Percent of sensitivity at 25 ºC
Zero g Drift 25ºC to T_{min} or T_{max}		±60		mg	Repeatable, can be compensated
Alignment		±1.0	±3.0	degrees	Deviation from ideal axes
Transverse Sensitivity		±0.25		%	Inherent sensor error, excluding misalignment
Nonlinearity		0.1		% FSR	Best fit straight line
Frequency Response	0		800	Hz	Lower filter cutoffs are user configurable*
Noise Density		120		µg/√Hz	T_A = 25 ºC
Temperature Sensor					
Range	-55		125	ºC	
Resolution		0.25		ºC	
Accuracy		±2.0	±3.5	ºC	T_A = -40 to +85 ºC
Digital Signal Processor					
Internal Word Size			32	bits	
Sensor Scan Rate		15,000	42,500	Hz	User configurable; channels processed in parallel
Analog Outputs**					Configurable to sensor
Voltage Swing	0.25		4.75	V	I_{out} = 5 mA
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	ºC	Terminal block option T000 rated to -30 ºC
Mass		78		grams	
Shock Survival – Sensor	-1500		+1500	g	Any axis for 0.5 ms, limited by oscillator

*User configurable low-pass filter 3dB cutoff (number poles configurable)
**Each channel's offset and gain are configurable

ordering info

35203B - R015 - T004 - C002 - K11

Instrument
35203B
25203B
15203B

Accelerometer
R015 : ±15 g 800 Hz
R006 : ±6 g 800 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

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

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)