## 15203B /25203B /35203B Accelerometer



### Digital Accelerometers User Configurable ±1 to ±15 g

#### **Digital Accelerometer**

These Measurement Specialties digital accelerometers are complete, easy-to-use, userconfigurable 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**

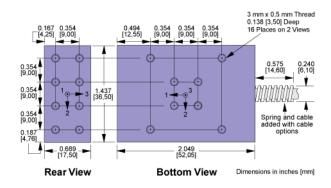
- User Configurable Settings
- RS485 Serial and Analog Outputs
- High Accuracy and Linearity over Wide Temperature Range
- Built-in Calibration Data
- Built-in Power Supply Regulation
- Easy Installation
- Suitable for Harsh Environments
- DO-160 Version Available
- Three Year Warranty

#### **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)

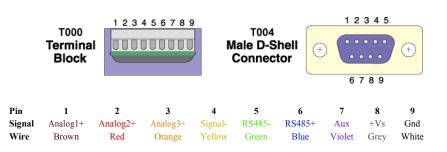




35170A Horizontal

35172A Vertical

#### connections



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# 15203B/25203B /35203B Accelerometer



### performance specifications

T<sub>A</sub> = T<sub>min</sub> to T<sub>max</sub>; Acceleration = 0 g unless otherwise noted; within one year of calibration. Improved specifications available upon request.

Range: Measurement Full Scale       On each axis, user configurable         Option R015 $\pm 15$ g         Option R006 $\pm 60$ g         Sensitivity Drift 25°C to T <sub>min</sub> or T <sub>max</sub> $\pm 60$ mg       Repeatable, can be compensated         Alignment $\pm 1.0$ $\pm 3.0$ degrees       Deviation from ideal axes         Irransverse Sensitivity $\pm 0.25$ %       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 $\mu g/NHz$ $T_A = 25  ^{\circ}C$ Range $-55$ 125       °C         Range $-55$ 125       °C         Range $-55$ 125       °C         Range inder Size $\pm 2.0$ $\pm 3.5$ °C         Sensor Scan Rate $5,000$ $42,500$ Hz       User configurable; channels processed in parallel         Analog Outputs** $22$ $5$ °C $Configurable to sensor       Configurable to sensor         Voltage Swing       0.25 4.75$	PARAMETERS	Min	Typical	Мах	Units	Conditions/Notes
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Digital Signal Processor       32       bits         Sensor Scan Rate       15,000       42,500       Hz       User configurable; channels processed in parallel         Analog Outputs**       Configurable to sensor       Configurable to sensor         Voltage Swing       0.25       4.75       V       Iout = 5 mA         mpedance 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 (Vs)       +80       V       -80 V continuous, >38 V if ≤550 ms, duty <1%	Resolution		0.25		°C	
nternal Word Size32bitsSensor Scan Rate15,00042,500HzUser configurable; channels processed in parallel Configurable to sensorAnalog Outputs**0.254.75VIout = 5 mA/oltage Swing0.254.75VIout = 5 mAmpedance to Analog -100130220 $\Omega$ Nonlinearity0.15% FSRExcluding sensor nonlinearityDigital Output Word Size16bitsFiltered, gained and calibration correctedPower Supply (Vs)480V-80 V continuous, >38 V if <550 ms, duty <1%	Accuracy		±2.0	±3.5	°C	T <sub>A</sub> = -40 to +85 °C
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mpedance to Analog -100130220ΩNonlinearity0.15% FSRExcluding sensor nonlinearityDigital Output Word Size16bitsFiltered, gained and calibration correctedPower Supply (Vs)16v-80 V continuous, >38 V if ≤550 ms, duty <1%	Analog Outputs**					Configurable to sensor
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Digital Output Word Size       16       bits       Filtered, gained and calibration corrected         Power Supply (Vs)       -80       -8	Impedance to Analog -	100	130	220	Ω	
Power Supply (Vs)+80V-80 V continuous, >38 V if $\leq$ 550 ms, duty <1%nput Voltage Limits-80+8.5+36VContinuousnput Voltage – Operating+8.5+36VContinuousnput Current50mAExerciseMaxRejection Ratio80120dBDCTemperature Range (T <sub>A</sub> )-40+85°CTerminal block option T000 rated to -30 °CMass78grams	Nonlinearity			0.15	% FSR	Excluding sensor nonlinearity
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nput Voltage – Operating     +8.5     +36     V     Continuous       nput Current     50     mA       Rejection Ratio     80     120     dB     DC       Temperature Range (T <sub>A</sub> )     -40     +85     °C     Terminal block option T000 rated to -30 °C       Mass     78     grams	Power Supply (Vs)					
nput Current         50         mA           Rejection Ratio         80         120         dB         DC           Temperature Range (T_A)         -40         +85         °C         Terminal block option T000 rated to -30 °C           Mass         78         grams	Input Voltage Limits	-80		+80	V	-80 V continuous, >38 V if ≤550 ms, duty <1%
Rejection Ratio     80     120     dB     DC       Temperature Range (T <sub>A</sub> )     -40     +85     °C     Terminal block option T000 rated to -30 °C       Mass     78     grams	Input Voltage – Operating	+8.5		+36	V	Continuous
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Mass 78 grams	Rejection Ratio	80	120		dB	DC
	Temperature Range (T <sub>A</sub> )	-40		+85	°C	Terminal block option T000 rated to -30 °C
Shock Survival – Sensor -1500 +1500 g Any axis for 0.5 ms, limited by oscillator	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

