# 34205A Accelerometer

## ±5 g to ±50 g
## Superior Zero g Bias Stability
## Low Noise – Wide Bandwidth


## Triaxial Analog Accelerometers

The Measurement Specialties 34205A triaxial accelerometer offers precision measurements over the entire -40 to +85°C temperature range with superior bias stability and measurement resolution.

A tough, compact housing holds potted electronics and the small size and built-in power regulation allow the 34205A to fit where other accelerometers can't. Choose from range options of ±50, ±40, ±30, ±25, ±20, ±10, or ±5, and various bandwidth options to best suit your application.

The voltage output of the 34205A is directly proportional to the acceleration along the axis. Each DC-coupled output is fully scaled, referenced, and temperature compensated. Users are supplied with a calibration certificate listing sensitivity and offset for each sensor.

The accelerometers have a nominal full scale output swing of ±2.25 volts. The zero g output level is nominally +2.5 volts. Custom versions of the 34205A can be provided.

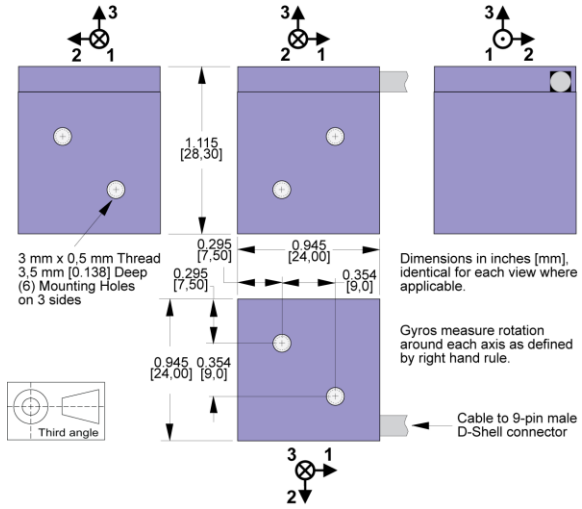
## FEATURES

- Superior Zero g Bias Stability
- Low Noise
- Bandwidth to 2 kHz
- High Accuracy and Linearity over Wide Temperature Range
- Rugged for Harsh Environments
- NIST Traceable Calibration
- Built-in Power Supply Regulation
- Easy Installation
- Three Year Warranty

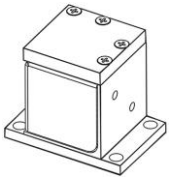
## APPLICATIONS

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

## dimensions

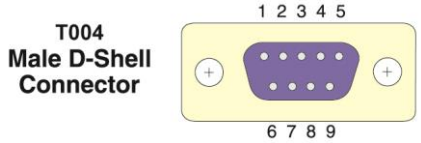



Two 3 mm x 0.5 mm threaded holes are provided on each of three orthogonal faces for mounting



Shown with mounting adapter 34170B (sold separately)

## connections




| Pin | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| Signal | A1+ | Signal- | A2+ | +5 V Out | A3+ | T+ | N.C. | +Vs | Gnd |
| Wire | Brown | Red | Orange | Yellow | Green | Blue | Violet | Grey | White |

# 34205A Accelerometer

## Performance Specifications

$T_A = T_{min}$ to $T_{max}$ ; $8 \le V_S \le 18$ V; 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 | ±5 | | ±50 | g | On each axis. Must specify via Option Rnnn |
| **Sensitivity** | | | | | |
| At 25ºC, Option R050 | | 40* | | mV/g | Nom ±50 g; Precise values on cal certificate |
| Drift Tmin to Tmax | | | ±2.0 | % | Percent of sensitivity at 25ºC |
| **Zero g Bias Level** | | | | | |
| At 25 ºC | | 2.5 | | V | Precise values on cal certificate |
| Drift to Tmin or Tmax | | | | | |
| Option R050, R040, R030, R025, R020 | | ±80 | ±200 | mg | At 1.25ºC/min. temperature rate of change |
| Option R010, R005 | | ±16 | ±40 | mg | At 1.25ºC/min. temperature rate of change |
| **Alignment** | | | | | Precise values on cal certificate |
| Deviation from Ideal Axes | | ±0.35 | ±3.0 | degrees | Can be compensated if required |
| **Nonlinearity** | | ±0.15 | ±0.5 | % FSR | Best fit straight line |
| **Frequency Response** | 0 | | 2000 | Hz | Upper cutoff per Option Bnnn, -3 dB pt ±10% |
| **Noise Density** | | | | | $T_A$ = 25ºC |
| Option R050, R040, R030, R025, R020 | | 50 | | µg/√Hz | |
| Option R010, R005 | | 10 | | µg/√Hz | |
| **Temperature Sensor** | | | | | Accuracy ±1 ºC |
| Sensitivity | | 6.45 | | mV/ºC | |
| 0ºC Bias Level | | 509 | | mV | |
| **Outputs** | | | | | |
| Output Voltage Swing | 0.25 | | 4.75 | V | $I_{OUT}$ = ±0.5 mA |
| Capacitive Drive Capability | 500 | | | pF | |
| **Power Supply ($V_S$)** | | | | | |
| Input Voltage Operating | +8 | | +18 | V | Will withstand -20 V continuous or 36 V for <1 sec. |
| Input Current | | 33 | 50 | mA | No load; quiescent |
| Rejection Ratio | | >120 | | dB | DC |
| **Temperature Range ($T_A$)** | -40 | | +85 | ºC | |
| **Mass** | | 35 | | grams | Precise values on cal certificate |
| **Shock Survival** | -5000 | | +5000 | g | Any axis for 0.1 ms, powered or unpowered |

*Scale linearly with range option Rnnn; see Ordering Information

## ordering info

**34205A - R050 - B2k0 - T004**

**Instrument**
34205A

**Range - Bandwidth**

| Range | Bandwidth |
|---|---|
| R050 : ±50 g | B2k0 : 0 to 2000 Hz |
| R040 : ±40 g | B1k4 : 0 to 1400 Hz |
| R030 : ±30 g | B944 : 0 to 944 Hz |
| R025 : ±25 g | B380 : 0 to 380 Hz |
| R020 : ±20 g | B208 : 0 to 208 Hz |
| R010 : ±10 g | B1k0 : 0 to 1000 Hz |
| R005 : ±5 g | B944 : 0 to 944 Hz |
| | B380 : 0 to 380 Hz |
| | B208 : 0 to 208 Hz |

**Termination**
**T004 : 4 ft. cable with DB9M**
**T000 : PCB Mount (Not shown, Call SI)**
**T*nnn* : Custom length, *nnn* ft. (Call SI)**