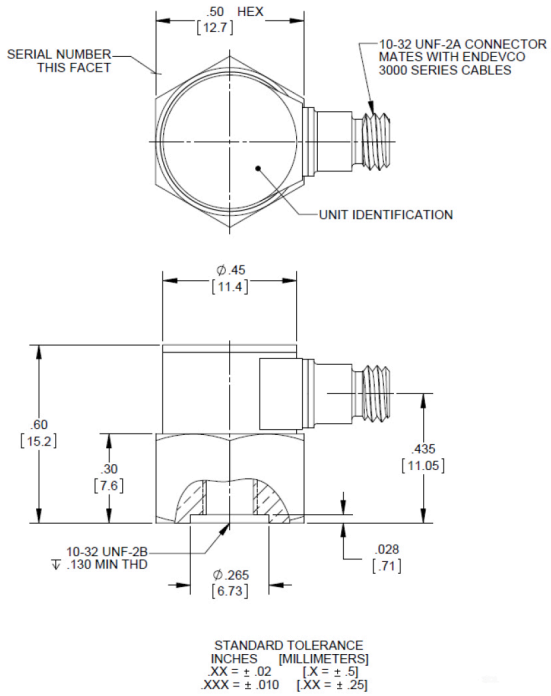
# Isotron® accelerometer
## Model 42A


## Key features

- General purpose single axis Isotron® accelerometer
- 10-32 side connector
- Wide frequency bandwidth
- Hermetically sealed
- Lightweight
- Signal ground isolated from mounting surface
- IEEE P1451.4 TEDS capable

The Endevco® model 42A is a cost effective general purpose Isotron® accelerometer designed for use in a variety of applications. The model 42A is a small hex shaped Isotron accelerometer with a 10-32 side mounted connector. The unit is hermetically sealed against environmental contamination.

The Endevco® model 42A features an annular shear ceramic crystal which exhibits excellent output stability over time. The accelerometer incorporates an internal hybrid circuit with TEDS in a two-wire IEPE system which transmits its low impedance voltage output through the same cable that supplies the constant current power. Signal ground is electrically isolated from the outer case of the unit. Polarity inversion protection for the hybrid circuit is inherent in the circuit design.

The Endevco® model 42A is available in five sensitivities designated by a two digit suffix. The 42A13 has a sensitivity of 10 mV/g, the 42A14, 42A16, 42A18 and 42A19 have sensitivities of 25 mV/g, 100 mV/g, 500 mV/g and 1,000 mV/g respectively. The customer may select the mounting stud size included standard with the unit. The available stud sizes are 10-32, 1/4-28, M5 and M6. The stud size is designated following a dash after the model number.

This product is fully compliant to the European Union's Low Voltage Directive, 2006/95/EC and EMC Directive 2004/108/EC and is eligible to bear the CE Mark.

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## Specifications

**The following performance specifications conform to ISA-RP-37.2 and are typical values, referenced at +75°F (+24°C), 4 mA, and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.**

| **Dynamic characteristics** | **Units** | **42A13** | **42A14** | **42A16** | **42A18** | **42A19** |
|---|---|---|---|---|---|---|
| Range | g | ±500 | ±200 | ±50 | ±10 | ±5 |
| Sensitivity | | | | | | |
| ±5% | mV/g | 10 | 25 | 100 | | |
| ±10% | mV/g | | | | 500 | 1000 |
| Frequency response | | | | | | |
| Resonance frequency | | | | | | |
| Typical | kHz | 35 | 35 | 35 | 30 | 30 |
| Minimum | kHz | 30 | 30 | 30 | 25 | 25 |
| Amplitude response | | | | | | |
| ±5% | Hz | | | 1 to 10 000 | | |
| ±10% | Hz | | | 1 to 12 000 | | |
| Phase response | | | | | | |
| ±5° | Hz | | | 5 to 10 000 | | |
| Sensitivity deviation over temperature | | | | | | |
| -67°F to +257°F (-55°C to +125°C) | % | 5 | 5 | 5 | 10 | 10 |
| Transverse sensitivity | % | | | ≤5 | | |
| Amplitude linearity | % | | | <1 | | |
| **Electrical characteristics** | | | | | | |
| Output polarity | | | | Acceleration directed into base produces positive output | | |
| DC output bias voltage | | | | | | |
| Room temperature +75°F (+24°C) | Vdc | | | +11.4 to +13.0 | | |
| -67°F to +257°F (-55°C to +125°C) | Vdc | | | +8.0 to +15.5 | | |
| Output impedance | Ω | | | <100 | | |
| Noise floor | | | | | | |
| Broadband | | | | | | |
| 1Hz to 10 kHz | µg rms | 300 | 200 | 100 | 60 | 40 |
| Spectral | | | | | | |
| 1Hz | µg/√Hz | 250 | 150 | 80 | 30 | 30 |
| 10 Hz | µg/√Hz | 30 | 25 | 10 | 5 | 5 |
| 100 Hz | µg/√Hz | 6 | 4 | 3 | 1.3 | 1.3 |
| 1000 Hz | µg/√Hz | 3 | 2 | 1 | 0.6 | 0.4 |
| Grounding method | | | | Signal ground isolated from case | | |
| Power requirements | | | | | | |
| Supply voltage | Vdc | | | +24 to +30 | | |
| Supply current | mA | | | +2 to +20 | | |
| Warm-up time [1] | s | 2 | 3 | 5 | 10 | 15 |
| **Environmental characteristics** | | | | | | |
| Temperature range, operating | | | | -67°F to +257°F (-55°C to +125°C) | | |
| Humidity | | | | Hermetically sealed | | |
| Vibration limit (sinusoidal motion) [2] | g | 1000 | 1000 | 1000 | 600 | 600 |
| Shock limit [3] | g pk | | | 5000 | | |
| Base strain sensitivity at 250 µstrain | g/µstrain | | | 0.001 | | |
| **Physical characteristics** | | | | | | |
| Dimensions | | | | See outline drawing | | |
| Weight, maximum | gram (oz) | 8 (0.28) | 8 (0.28) | 8 (0.28) | 10 (0.35) | 10 (0.35) |
| Case material | | | | Titanium | | |
| Connector | | | | 10-32 threaded coaxial | | |
| Mounting method | | | | Threaded stud | | |
| Mounting stud torque, recommended | | | | | | |
| 10-32 and M6 studs | lbf-in (Nm) | | | 18 (2) | | |
| M5 stud | lbf-in (Nm) | | | 13 (1.5) | | |
| 1/4-28 stud | lnf-in (Nm) | | | 30 (3.5) | | |
| **Calibration data supplied** | | | | | | |
| Sensitivity | mV/g | | | | | |
| Frequency response | | | | | | |
| Amplitude response | % | | | 50 Hz to 10 kHz | | |
| DC output bias voltage | Vdc | | | | | |

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### Model number definition

42A XX -YYY

- Mounting stud option
  No dash number = No stud included
  - 1032 = 10-32 stud
  - 2528 = 1/4-28 stud
  - M5 = M5 stud
  - M6 = M6 stud
- Denotes nominal sensitivity:
  - 13 = 10 mV/g
  - 14 = 25 mV/g
  - 16 = 100 mV/g
  - 18 = 500 mV/g
  - 19 = 1000 mV/g
- Basic model number

### Accessories

| Product | Description | 42AXX | 42AXX-1032 | 42AXX-2528 | 42AXX-M5 | 42AXX-M6 |
|---|---|---|---|---|---|---|
| C-001-AC-002-XXX [4] | Cable assembly 10-32 to BNC | Optional | Optional | Optional | Optional | Optional |
| 3061A-XXX [4] | Cable assembly 10-32 to BNC | Optional | Optional | Optional | Optional | Optional |
| 42676-1 | Mounting stud 10-32 to 10-32 | Optional | Included | Optional | Optional | Optional |
| 42676-2 | Mounting stud 10-32 to 1/4-28 | Optional | Optional | Included | Optional | Optional |
| 42676-4 | Mounting stud 10-32 to M5 | Optional | Optional | Optional | Included | Optional |
| 42676-3 | Mounting stud 10-32 to M6 | Optional | Optional | Optional | Optional | Included |
| 42675-1 | Adhesive mounting adapter | Optional | Optional | Optional | Optional | Optional |

### Notes

1. DC bias within 10% of final value.
2. Destructive limit.
3. Destructive limit. Shock is a one-time event. Shock pulses of short duration may excite transducer resonance. Shock level above the sinusoidal vibration limit may produce temporary zero shift that will result in erroneous velocity or displacement data after integration.
4. XXX designates cable assembly length in inches.
5. Maintain high levels of precision and accuracy using Meggitt's factory calibration services. Call Meggitt's inside sales force at 800-982-6732 for recommended intervals, pricing and turn-around time for these service as well as quotations for other products.

### Contact

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