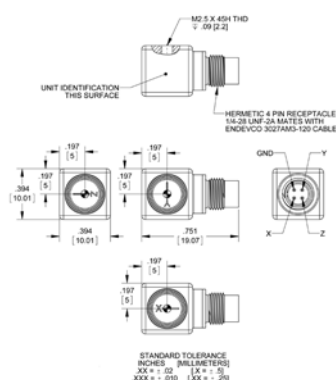
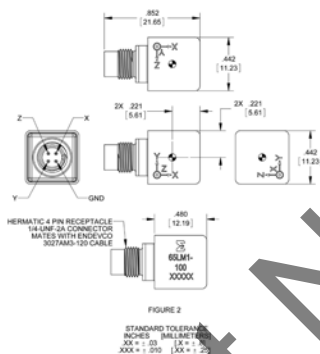


# Isotron® accelerometer

## Model 65L and 65LM1



65L outline drawing



65LM1 outline drawing



### Key features

- 65L-100-R and 65LM1-100-R available as replacement sensors
- Triaxial, low-impedance output
- Small size (10-mm cube, 5 gram for 65L)
- Ideal for structural analysis, laboratory testing, and modal analysis
- Single connector, flexible cable
- Low frequency response down to 1 Hz

### Description

The high sensitivity and low frequency performance of Endevco® models 65L and 65LM1 distinguishes these triaxial accelerometers from comparable products. Model 65L is packaged in a 10-mm cube of welded titanium construction. Model 65LM1 is a 11.05-mm cube of welded titanium encapsulated in an anodized aluminium isolated jacket that provides electrical isolation from the mounting surface. Interface to these accelerometers is via a Microtech 4-pin connector. Temporary petro-wax adhesive and a ten-foot cable assembly with BNC connectors are provided as standard accessories.

Excellent frequency response, in both amplitude and phase, provide the user with a triaxial accelerometer ideally suited for structural and component testing, drop tests and general laboratory vibration work. The reduced size of these accelerometers enable the test engineer or technician to measure the accelerations of three orthogonal axes of vibration simultaneously on lightweight structures. Optional mounting block accessories are available for 65L.

Endevco signal conditioners 2793, 4416B or Oasis 2000 are recommended for use with this accelerometer.

## Isotron® accelerometer | Model 65L and 65LM1

The following performance specifications conform to ISA-RP-37.2 (1964) and are typical values, referenced at +75°F (+24°C) and 100 Hz, unless otherwise noted. Calibration data, traceable to National Institute of Standards and Technology (NIST), is supplied.

| Specifications                            |                               |                         |                                    |  |
|---|-------------------------------|-------------------------|------------------------------------|--|
| Dynamic characteristics                   | Units                         | 65L-100                 | 65LM1-100                          |  |
| Range                                     | g (m/s <sup>2</sup> )         |                         | ±50 (490)                          |  |
| Voltage sensitivity                       | mV/g (mV / m/s <sup>2</sup> ) |                         | 100 (10.2)                         |  |
| Amplitude response                        |                               |                         |                                    |  |
| ±5%                                       | Hz                            |                         | 1 to 6000                          |  |
| ±1 dB                                     | Hz                            |                         | 0.5 to 8000                        |  |
| ±3 dB                                     | Hz                            |                         | 0.3 to 10 000                      |  |
| Phase response, ±5°                       | Hz                            |                         | 10 to 1500                         |  |
| Resonance frequency                       | Hz                            | 45 000                  |                                    | 42 000   |
| Transverse sensitivity                    | %                             |                         | < 5                                |  |
| Temperature response                      |                               |                         |                                    |  |
| Sensitivity deviation, ±5%                |                               |                         | +32°F to +104°F (0°C to +40°C)     |  |
| Sensitivity deviation, ±10%               |                               |                         | -4°F to +185°F (-20°C to +85°C)    |  |
| Amplitude non-linearity                   | %                             |                         | < 1                                |  |
| Output characteristics                    |                               |                         |                                    |  |
| Output polarity                           |                               |                         | See arrows on outline drawing      |  |
| DC output bias voltage [1]                |                               |                         |                                    |  |
| Room temperature +75°F (+24°C)            | Vdc                           |                         | +11.0 to +13.5                     |  |
| -67°F to +257°F (-55°C to +125°C)         | Vdc                           |                         | +7.5 to +16                        |  |
| Output impedance                          |                               |                         |                                    |  |
| 2 mA to 3 mA                              | Ω                             |                         | < 300                              |  |
| 3 mA to 20 mA                             | Ω                             |                         | < 100                              |  |
| Full scale output voltage                 | Vpk                           |                         | ±5                                 |  |
| Noise floor                               |                               |                         |                                    |  |
| Broadband (2Hz to 10kHz)                  | μg rms                        |                         | 400                                |  |
| Spectral                                  |                               |                         |                                    |  |
| 1Hz                                       | μg/√Hz                        |                         | 300                                |  |
| 10Hz                                      | μg/√Hz                        |                         | 50                                 |  |
| 100Hz                                     | μg/√Hz                        |                         | 10                                 |  |
| 1kHz                                      | μg/√Hz                        |                         | 4                                  |  |
| Grounding [2]                             |                               |                         | Signal ground connected to case    |  |
| Power requirement                         |                               |                         |                                    |  |
| Compliance voltage                        | Vdc                           |                         | +23 to +30                         |  |
| Supply current                            | mA                            |                         | +2 to +20                          |  |
| Warm-up time (to reach 90% of final bias) | sec                           |                         | < 20                               |  |
| Environmental characteristics             |                               |                         |                                    |  |
| Temperature range                         |                               |                         | -65°F to 257°F (-55°C to +125°C)   |  |
| Humidity                                  |                               |                         | Welded construction                |  |
| Sinusoidal vibration limit                | g pk                          |                         | ±200                               |  |
| Shock limit [3]                           | g pk                          |                         | 10 000                             |  |
| Base strain sensitivity at 250 μstrain    | eq. g/μstrain                 | < 0.001                 |                                    | < 0.0006   |
| Thermal transient sensitivity             | eq. g/°F                      | 0.02                    |                                    | 0.004  |
| Physical characteristics                  |                               |                         |                                    |  |
| Dimensions                                |                               |                         | See outline drawing                |  |
| Weight                                    | oz (gm)                       | 0.17 (5)                |                                    | 0.17 (5)   |
| Case material                             |                               | Titanium                |                                    | Titanium (Inner case),<br>Anodized aluminum (Outer case) |
| Connector [4]                             |                               |                         | 4 pin Microtech style side mounted |  |
| Mounting [5]                              |                               | Adhesive or M2.5 thread |                                    | Adhesive   |
| Mounting torque                           | lbf-in                        | 8                       |                                    | NA   |
| Calibration                               |                               |                         |                                    |  |
| Supplied, each axis:                      |                               |                         |                                    |  |
| Voltage sensitivity                       | mV/g                          |                         |                                    |  |
| Maximum transverse sensitivity            | %                             |                         |                                    |  |
| Frequency response                        | %                             |                         | 1 to 6000                          |  |

| Accessories   |   |          |          |          |          |
|---------------|---|----------|----------|----------|----------|
| Product       | Description   | 65L      | 65LM1    | 65L-R    | 65LM1-R  |
| 3027AM3-120   | Triaxial cable 85°C, 3 BNC's at instrumentation end                             | Included | NA       | Included | NA       |
| EH755         | Socket head cap screw M2.5 x .45 x 6 mm   | Included | NA       | Included | NA       |
| EH761         | Socket head set screw M2.5 x .45 x 6 mm   | Included | Included | Optional | Optional |
| 32279         | Mounting wax  | Included | Optional | Optional | Optional |
| 3027A-120     | Cable assembly, silicone jacket, 125°C [6]                                      | Optional | Optional | Optional | Optional |
| 3027AVM13-120 | Triaxial cable, 200°C (transducer extension cable mates with model 3027AM3) [7] | Optional | NA       | Optional | NA       |
| 40965         | Mounting block, adhesive mount  | Optional | NA       | Optional | NA       |
| EH769         | Screw for 40965 mounting block  | Optional | NA       | Optional | NA       |
| 41013         | Mounting clip   | Optional | NA       | Optional | NA       |
| 2981-14       | Mounting stud, M2.5 to 6-32   | Optional | Optional | Optional | Optional |
| 2793          | Isotron signal conditioner  | Optional | Optional | Optional | Optional |
| 4416B         | Battery powered Isotron conditioner   | Optional | Optional | Optional | Optional |
| 4990A-1       | OASIS 2000 computer controlled system   | Optional | Optional | Optional | Optional |

## Notes

1. +22 Vdc minimum must be available to the accelerometer to ensure full-scale operation at the temperature extremes.
2. For model 65LM1 signal ground is connected to the case but isolated from the mounting surface.
3. Shock pulses of short duration may excite transducer resonance.
4. Microtech DR-4S-4 receptacle mates with Endevco model 3027AM3 cables.
5. Be careful not to apply abusive forces when removing the accelerometer from a structure.
6. The 3027A cable assembly should be used in applications where the accelerometer is used near its upper temperature range extreme, 257°F (125°C). The included cable assembly, 3027AM3-120, is only rated for use up to only 185°F (85°C).
7. The 3027AVM13-XXX cable assembly should be used as a 257°F (125°C) extension cable for model 3027AM3-120. Cable length, in inches, is specified by the model number suffix.
8. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.

