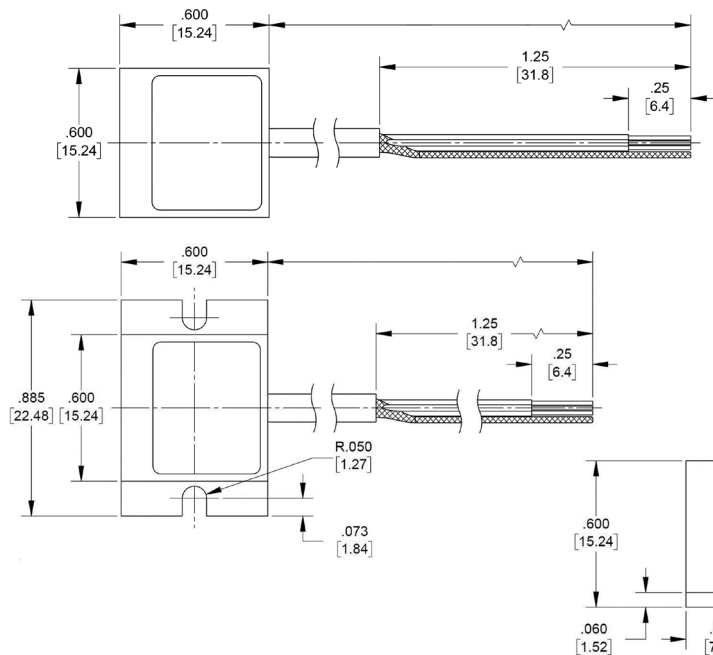


Variable capacitance accelerometer

Model 770A - 770F



Top of sensor may be slightly concave due to settling of potting which does not affect sensor performance.

DIRECTION OF ACCELERATION FOR POSITIVE OUTPUT

MOUNTING SURFACE

Key features

- 2, 10, 30, 50, 100 and 200 g ranges
- Measures motion, low frequencies and tilt
- Frequency response from DC up to 1,500 Hz
- Rugged housing and cable
- U option for 7 to 36 V input
- R option for regulated 5 V input

Description

The ENDEVCO® Model 770A and 770F are low g DC accelerometers that utilize unique variable capacitance microsensors. These accelerometers are designed for measurement of relatively low level accelerations in automotive ride quality, motorsports and high speed rail applications where measurement of whole body motion immediately after the accelerometer is subjected to a shock motion and in the presence of severe vibrational inputs is required.

The 770A and 770F accelerometers are available with a choice of two power options. One option (U) allows for operation from 7V to 36V. The second option (R) allows for operation at a regulated excitation voltage of 5V. These accelerometers feature various full scale g ranges including $\pm 2g$, $\pm 10g$, $\pm 30g$, $\pm 50g$, $\pm 100g$, $\pm 200g$, and provide single-ended output with a 2.5V output bias voltage.

The Model 770A is designed for adhesive mounting for ultimate flexibility when mounting. The Model 770F is designed for screw mounting with the provided screws.

Variable capacitance accelerometer | Model 770A - 770F

All specifications assume +75°F (+24°C) unless otherwise stated. Calibration voltage for -R units is 5Vdc and for -U units is 15Vdc.

| Specifications | | | | | | | |
|---|-------------|--|-------------|-------------|-------------|-------------|-------------|
| Dynamic characteristics | Units | ±2 | ±10 | ±30 | ±50 | ±100 | ±200 |
| Sensitivity | mV/g | 1000 ±50 | 200 ±10 | 66 ±4 | 40 ±2 | 20 ±1.0 | 10 ±1.0 |
| Frequency response | Hz | | | | | | |
| (±5% max, ref 100 Hz) | | 0-200 | 0-800 | 0-800 | 0-800 | 0-1250 | 0-1500 |
| (±10% typical, ref 100 Hz) | | 0-350 | 0-1800 | 0-2400 | 0-2400 | 0-4000 | 0-4000 |
| (±3dB typical, ref 100 Hz) | | 0-600 | 0-2600 | 0-3000 | 0-3000 | 0-5000 | 0-5000 |
| Zero measurand output | mV | 2500 ±75 | 2500 ±75 | 2500 ±75 | 2500 ±75 | 2500 ±75 | 2500 ±75 |
| Transverse sensitivity | % | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Thermal zero shift (max) | %FSO | ±2.0 | ±2.0 | ±2.0 | ±2.0 | ±2.0 | ±2.0 |
| -40°C to +100°C (-40°F to +212°F) | | | | | | | |
| Thermal sens shift (max) | % | ±2.0 | ±2.0 | ±2.0 | ±2.0 | ±2.0 | ±2.0 |
| -40°C to +100°C (-40°F to +212°F) | | | | | | | |
| Combined non-linearity and hysteresis | %FSO | ±0.5 | ±0.5 | ±0.5 | ±0.5 | ±0.5 | ±0.5 |
| Natural frequency | Hz | 1300 | 2700 | 5500 | 5500 | 9800 | 9800 |
| Threshold (resolution) [1] | equiv. g's. | .0002 | .001 | .003 | .005 | .01 | .02 |
| Warm-up time (to within 1% of final output value) | 30 ms | | | | | | |
| Electrical | | | | | | | |
| Excitation voltage | | 5 Vdc (Regulated 5V supply required; Maximum 7V without damage) | | | | | |
| For option "R" supply voltage | | 7 to 36 Vdc (Maximum 45V without damage) | | | | | |
| For option "U" supply voltage | | 8 mA max | | | | | |
| Current drain | | 100 Ohms max | | | | | |
| Output impedance | | 10k Ohms resistance minimum | | | | | |
| Load | | 50 pF capacitance maximum | | | | | |
| Residual noise | | 100 µVrms typ, 500 µVrms max; 0.5 to 100 Hz | | | | | |
| | | 500 µVrms typ, 1.0 mVrms max; 0.5 Hz to 10 kHz | | | | | |
| Insulation resistance | | 100 meg Ohms minimum at 50 Vdc | | | | | |
| Physical | | | | | | | |
| Weight | | 6 grams (without cable) plus cable at 19 grams/meter | | | | | |
| Case material | | Anodized aluminum alloy | | | | | |
| Cable type | | Integral 4 conductor, # 28 AWG Teflon insulated leads, shielded with white polyurethane jacket | | | | | |
| Mounting/torque | | Adhesive mount (770A); Two #2-56 Screws (770F) | | | | | |
| Environmental | | | | | | | |
| Shock limit | | 10000 g (0.15 mS haversine pulse) | | | | | |
| Operating temperature | | -40°C to +100°C (-40°F to +212°F) | | | | | |
| Storage temperature | | -40°C to +100°C (-40°F to +212°F) | | | | | |
| Humidity | | IP67 | | | | | |
| Calibration data | | | | | | | |
| Sensitivity | | Measured at 1 g and 100 Hz for the -2 | | | | | |
| | | Measured at 10 g and 100 Hz for the -10, -30, -50, -100 and -200 | | | | | |
| Frequency response | | Measured at 1 g, 20 to 1000 Hz for the -2 | | | | | |
| | | Measured at 10 g, 20 to 10000 Hz for the -10, -30, -50, -100 and -200 | | | | | |
| Zero measurand output | | Measured at room temperature | | | | | |

Variable capacitance accelerometer | Model 770A - 770F

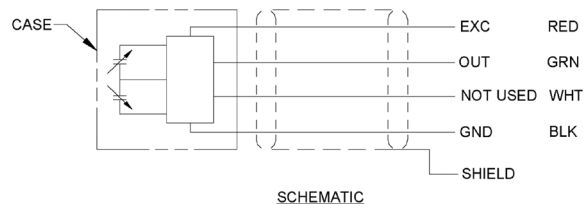
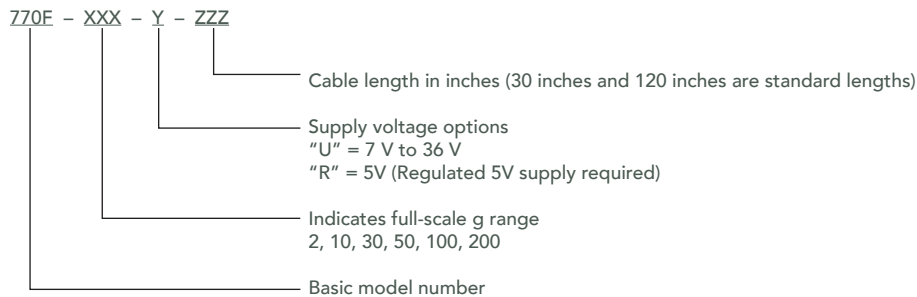
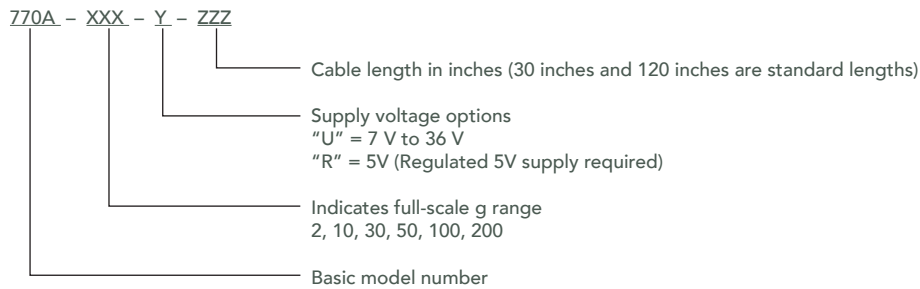
| Accessories | | |
|-------------|---|----------|
| Options | Description | 770 |
| EH136 | Screw, socket head, 2-56 x ¼ alloy steel blk oxide (x2) | Included |
| EHM178 | Hex wrench | Included |
| 7971 | Triaxial mounting block | Optional |

Ordering information:

- 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.

Notes

- Threshold = 2x max. residual noise; .5 to 100Hz/sensitivity
- Model number definition:



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