

## Variable capacitance accelerometer

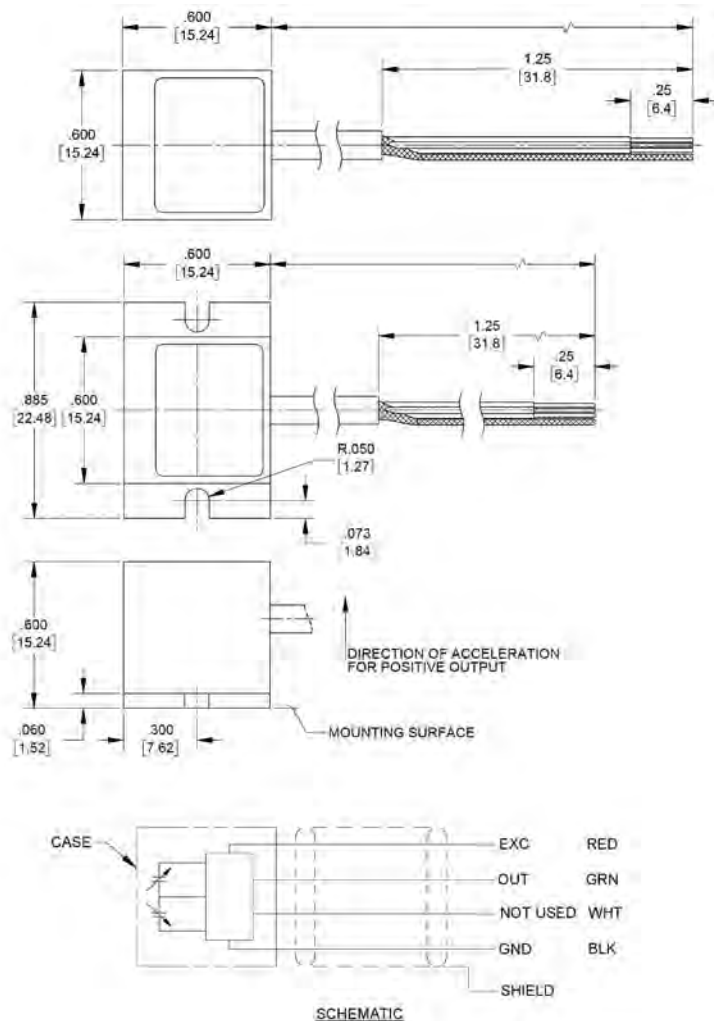
### Model 770A - 770F



770A



770F



#### 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

### Specifications

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

Dynamic	Units	±2	±10	±30	±50	±100	±200
Sensitivity	mV/g	1000	200 ±50	66 ±10	40 ±4	20 ±2	10 ±1.0
±1.0							
Frequency response	Hz						
(±5% max, ref 100 Hz)		0-200	0-900	0-900	0-900	0-1500	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 ±50	2500 ±50	2500 ±50	2500 ±50	2500 ±50	2500 ±50
Transverse sensitivity	%	3.0	3.0	3.0	3.0	3.0	3.0
Thermal zero shift (max) -40°C to +100°C (-40°F to +212°F)	%FSO	±2.0	±2.0	±2.0	±2.0	±2.0	±2.0
Thermal sens shift (max) -40°C to +100°C (-40°F to +212°F)	%	±2.0	±2.0	±2.0	±2.0	±2.0	±2.0
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						
<b>Electrical</b>							
Excitation voltage							
For option "R" supply voltage	5 Vdc						
For option "U" supply voltage	7 to 36 Vdc						
Current drain	8 mA max						
Output impedance	100 Ohms max						
Load	10k Ohms resistance minimum 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						
<b>Physical</b>							
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)						
<b>Environmental</b>							
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						
<b>Calibration data</b>							
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						
Transverse sensitivity	Measured at 1 g						
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

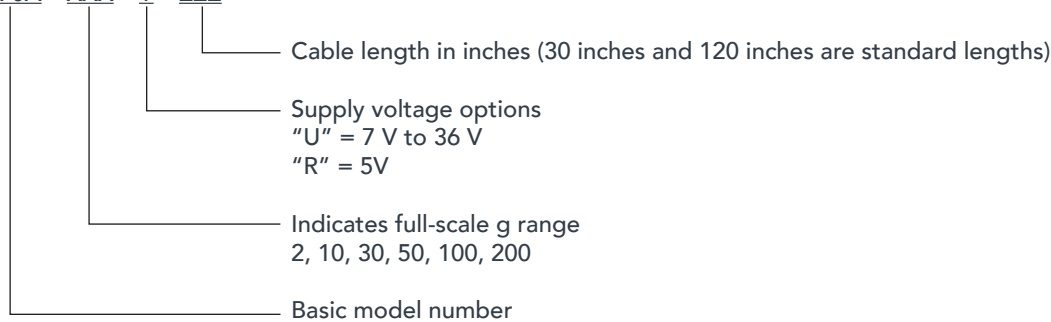
Product	Description	770
EH136	Screw, socket head, 2-56 x ¼ alloy steel blk oxide (x2)	Included
EHM178	Hex wrench	Included
7971	Triaxial mounting block	Optional

#### Notes

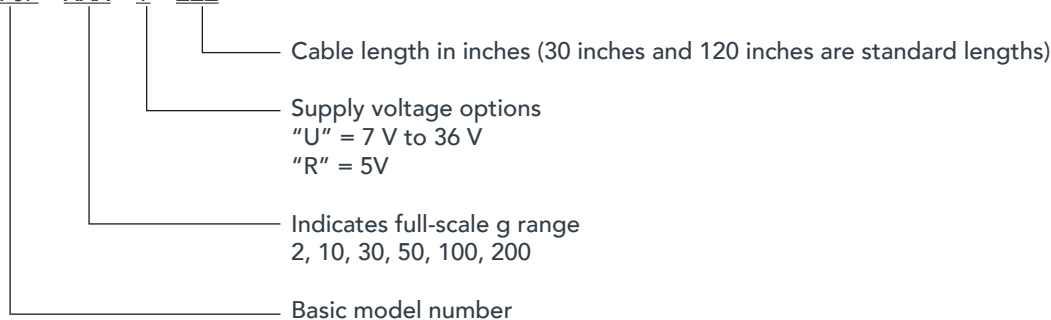
1. Threshold = 2x max. residual noise; .5 to 100Hz/sensitivity
2. To interface a Model 770A-770F to bridge front end of the data logger, connect the wires as follows:
 

Sensor	Bridge Front End
EXC (red)	+ Power
GND (black)	Ground
OUT (green)	+ Input
GND (black)	- Input
Not Used (white)	
3. Model number definition:

770A - XXX - Y - ZZZ



770F - XXX - Y - ZZZ



#### Ordering information

1. 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.