



MODEL 4630 TRIAXIAL ACCELEROMETER

SPECIFICATIONS

- **MEMS DC Triaxial Accelerometer**
- **Ultra-Stable, DC to 2000Hz Response**
- **Exceptional Thermal Performance**
- **<2.0% Total Error Band**
- **<0.1% Linearity Accuracy**
- **Anodized Aluminum Housing**

FEATURES

- $\pm 2g$ to $\pm 200g$ Dynamic Range
- Three Independent Circuits
- Self-test Enabled
- Amplified Output, Signal Conditioned
- Gas Damped MEMS Sensors
- Integral Strain Relief
- 4 to 30Vdc Excitation Voltage
- 6000g Shock Protection

APPLICATIONS

- Flight Testing
- Flutter and Nacelle Vibrations
- Structural Testing
- Test and Instrumentation
- Performance Testing
- Transportation

The Model 4630 is an ultra-stable MEMS DC triaxial accelerometer with exceptional performance over a full operating temperature range of -55°C to $+125^{\circ}\text{C}$. The accelerometers are available in ranges from ± 2 to $\pm 200g$ with a wide bandwidth from DC to 2000Hz. The model 4630 accelerometers incorporate gas damped variable capacitance MEMS sensing element with integral over-range stops for high-g shock protection. The accelerometers are designed for 4 to 30Vdc excitation voltage and include a self-test option.

For single axis version, TE Connectivity also offers the model 4602, 4604 and 4610 accelerometers.

PERFORMANCE SPECIFICATIONS

MODEL 4630 ACCELEROMETER

All values are typical at +24°C, 80Hz and 12Vdc excitation unless otherwise stated. TE Connectivity reserves the right to update and change these specifications without notice.

Parameters

DYNAMIC

	±2	±5	±10	±30	±50	±100	±200	Notes
Range (g)								
Sensitivity, Differential (mV/g)	1000	400	200	67	40	20	10	±5%
Frequency Response (Hz)	0-250	0-700	0-1000	0-1500	0-1500	0-1500	0-1500	±5%
Frequency Response (Hz)	0-500	0-1000	0-1500	0-2000	0-2000	0-2000	0-2000	±1dB
Non-Linearity (%FSO)	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	
Transverse Sensitivity (%)	<3	<3	<3	<3	<3	<3	<3	<1 Typical
Damping Ratio	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
Shock Limit (g)	6000	6000	6000	6000	6000	6000	6000	
Residual Noise (µV RMS)	360	380	400	440	480	500	500	Passband
Spectral Noise (µg/√Hz)	14	28	45	137	231	464	920	Passband

ELECTRICAL

Zero Acceleration Output (mV)	±50							Differential
Excitation Voltage (Vdc)	4 to 30							
Excitation Current (mA)	<7 per channel							
Common Mode Voltage (Vdc)	1.22							
Full Scale Output (differential)	±2 Vpk (FSO=2V)							
Full Scale Output (single-ended)	+0.22 to 2.22 Vpk (FSO=1V)							
Output Resistance (Ω)	<100							
Insulation Resistance (MΩ)	>100							@100Vdc
Turn On Time (msec)	<100							
Ground Isolation	Isolated from Mounting Surface							

ENVIRONMENTAL

Thermal Zero Shift (%FSO/°C)	±0.004							Typical
Thermal Sensitivity Shift (%/°C)	±0.008							Typical
Operating Temperature (°C)	-55 to 125							
Storage Temperature (°C)	-55 to 125							
Humidity	Epoxy Sealed, IP65 (MEMS sensor and high impedance electronics hermetically sealed)							
Total Error Band	<2% (RSS of Non-Linearity, Thermal Zero Shift, and Thermal Sensitivity Shift)							

PHYSICAL

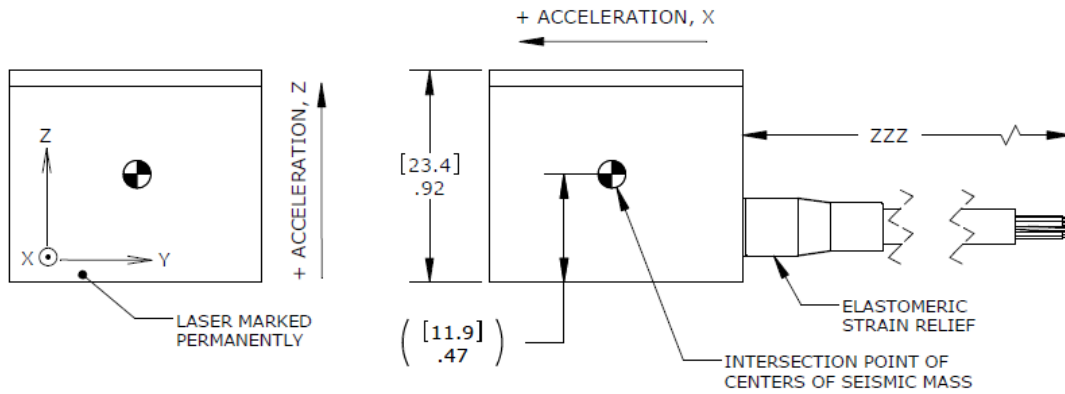
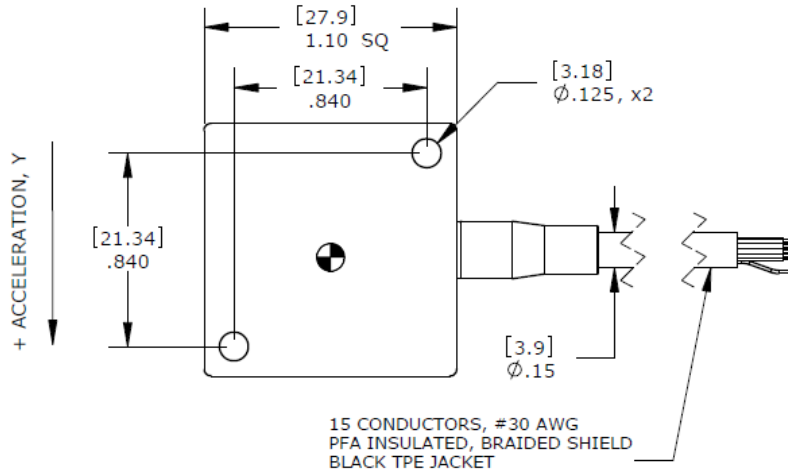
Case Material	Anodized Aluminum
Cable	15x #30 AWG Conductors PFA Insulated, Braided Shield, TPE Jacket
Weight (grams)	30 (cable not included)
Mounting	2x #4 or M3 Screws
Mounting Torque	6 lb-in (0.7 N-m)

Calibration supplied:	CS-FREQ-0100	NIST Traceable Amplitude Calibration from 20Hz to ±5% Frequency Response Limit
Supplied accessories:	AC-D02855	2x #4-40 (1 ^{1/8} inch length) Socket Head Cap Screw and Washer
Optional accessories:	AC-D02744 121	Adhesive Mounting Adaptor 3-Channel Precision Low Noise DC Amplifier

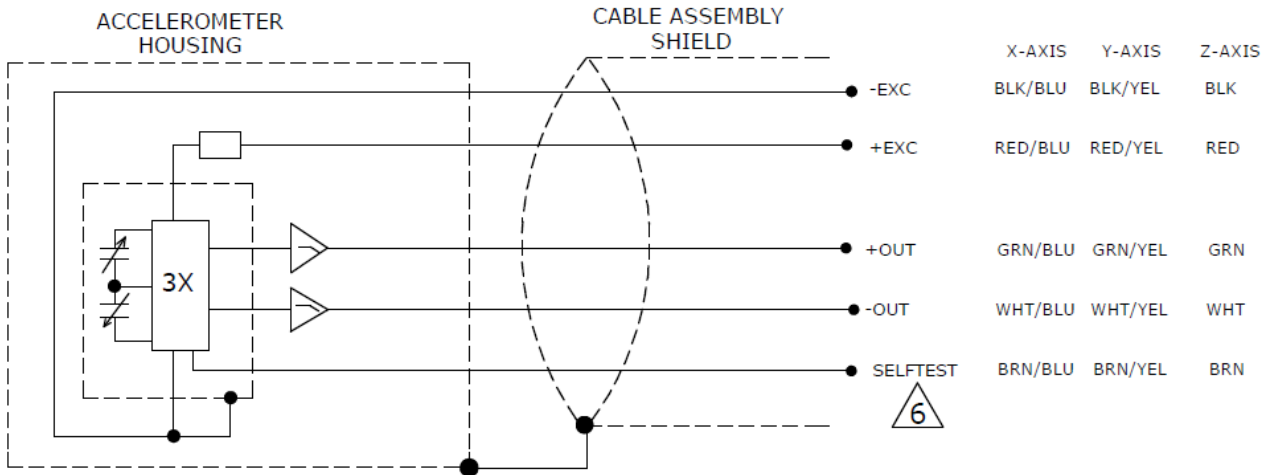
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DIMENSIONS



SCHEMATIC



⚠ BIT: CONNECT TO CIRCUIT GROUND TO PERFORM SELFTEST WHICH PRODUCES A 24Hz, 1g PEAK-TO-PEAK AMPLITUDE, SQUARE WAVE OUTPUT SIGNAL BY MECHANICALLY ACTUATING SENSOR ELEMENT. THE SELF-TEST OUTPUT SIGNAL IS IN ADDITION TO ANY INERTIAL ACCELERATION ACTING ON THE DEVICE DURING SELF-TEST. A ZERO-G ORIENTATION PROVIDES A $\pm 0.5g$ SELF-TEST OUTPUT SWING AROUND ZERO-G BIAS. AN AC VOLTMETER DISPLAYS A $0.5g$ -rms EQUIVALENT OUTPUT SHIFT. A SINGLE-ENDED HOOKUP REDUCES THE SELF-TEST OUTPUT BY HALF.

ORDERING INFORMATION

4630	GGG	ZZZ	D
Range			
002=2g			
005=5g			
010=10g			
030=30g			
050=50g			
100=100g			
200=200g			
Cable length			
120 = 120 inches, 10 feet			
240 = 240 inches, 20 feet			
360 = 360 inches, 30 feet			
480 = 480 inches, 40 feet			
600 = 600 inches, 50 feet			
197 = 197 inches, 5 meters			
394 = 394 inches, 10 meters			

Example; 4630-010-120-D
 Model 4630, 10g range, 120inch (10ft) cable length

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