MODEL 4610 ACCELEROMETER

SPECIFICATIONS

- **MEMS DC Accelerometer**
- **Ultra-Stable, DC to 2000Hz Response**
- **Exceptional Thermal Performance**
- **<2.0% Total Error Band**
- **<0.1% Linearity Accuracy**
- **Self-test Function Included**

FEATURES

- ±2g to ±200g Dynamic Range
- 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 4610 is an ultra-stable MEMS DC accelerometer with exceptional performance over a full operating temperature range of -55°C to +125°C. The accelerometers are available in ranges from ±2 to ±200g with a wide bandwidth from DC to 2000Hz. The model 4610 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 a triaxial version, TE Connectivity also offers the model 4630 and 4835A accelerometers.

PERFORMANCE SPECIFICATIONS

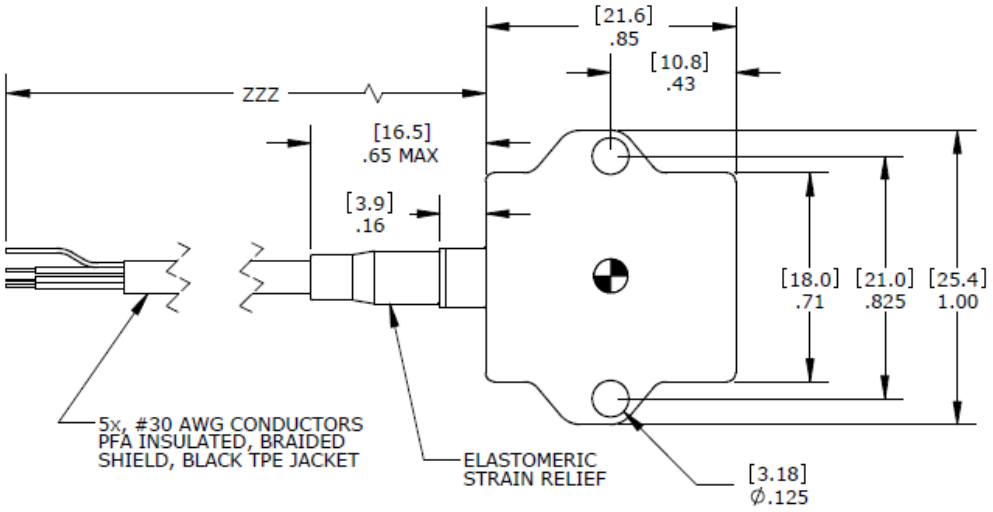
All values are typical at +24°C, 80Hz and 12Vdc excitation unless otherwise stated. TE Connectivity reserves the right to update and change these specifications without notice.

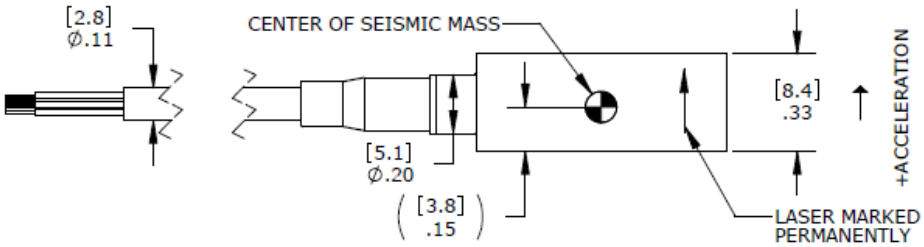
Parameters								
DYNAMIC								**Notes**
Range (g)	±2	±5	±10	±30	±50	±100	±200	
Sensitivity, Differential (mV/g)	1000	400	200	67	40	20	10	±5%
Frequency Response (Hz)	0-250	0-700	0-1000	0-1500	0-1500	0-1500	0-1500	±5%
Frequency Response (Hz)	0-500	0-1000	0-1500	0-2000	0-2000	0-2000	0-2000	±1dB
Non-Linearity (%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	
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 (MEMS Sensor and Electronics)	Hermetically Sealed	
Humidity (Housing)	Epoxy Sealed, IP65	
PHYSICAL		
Case Material	Anodized Aluminum	
Cable	5x #30 AWG Conductors PFA Insulated, Braided Shield, TPE Jacket	
Weight (grams)	8	
Mounting	2x #4 or M3 Screws	
Mounting Torque	6 lb-in (0.7 N-m)	

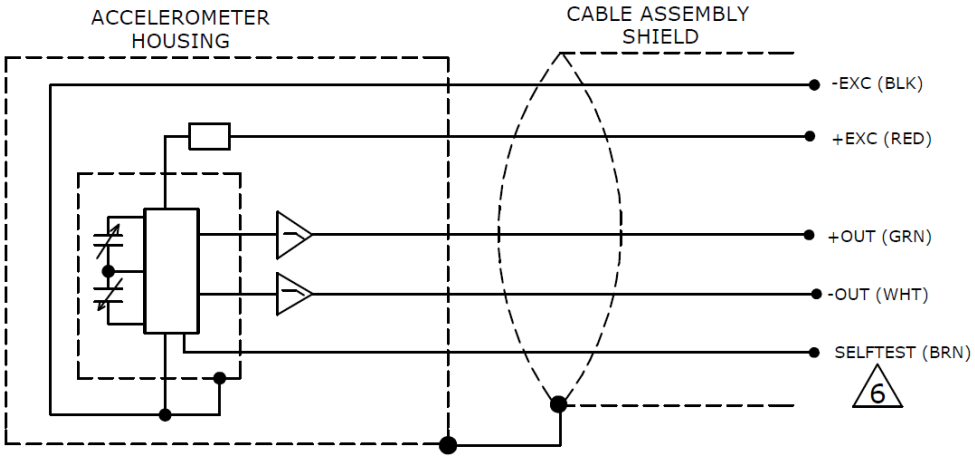
Calibration supplied:	CS-FREQ-0100	NIST Traceable Amplitude Calibration from 20Hz to ±5% Frequency Response Limit
Supplied accessories:	AC-A02285	2x #4-40 (7/16 inch length) Socket Head Cap Screw and Washer
Optional accessories:	AC-D02669	Triaxial Mounting Block
	AC-D02744	Adhesive Mounting Adaptor
	121	Three Channel DC Differential Amplifier

DIMENSIONS





SCHEMATIC



6. 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 ±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

4610	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; 4610-010-120-D
Model 4610, 10g range, 120inch (10ft) cable length