



MODEL 610 ANGULAR RATE SENSOR

SPECIFICATIONS

- Silicon MEMS Gyro, DC Response
- ± 500 to $\pm 50,000^\circ/\text{sec}$ Range
- Insensitive to Shock Events
- SAE J211 & ISO 6487 Compliant

The Model 610 Angular Rate Sensor is a small analog gyroscope designed specifically for automotive safety testing and other system designs requiring accurate measurement of angular velocity. The Model 610 series utilizes silicon MEMS sensing elements with custom electronics and packaging to produce an angular rate sensor that is highly reliable even under excessive shock and vibration environments. A wide selection of ranges is available for your specific applications along with a triaxial mounting block designed for mounting of both the model 610 angular rate sensors and the model 64X accelerometers.

For a triaxial version, TE Connectivity also offers the model 603 angular rate sensor.

FEATURES

- 5 to 16Vdc Excitation Voltage
- Small, Lightweight Package
- -40°C to $+105^\circ\text{C}$ Temperature Range
- Shock Resistant Design
- Low Cross-Axis Sensitivity

APPLICATIONS

- Auto Safety Crash Testing
- Dummy Instrumentation
- Pedestrian Impact
- Rollover Testing
- Motorsports
- Biomechanics Testing
- Robotic System Design
- Aerospace Testing



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PERFORMANCE SPECIFICATIONS

All values are typical at +24°C and 10Vdc excitation unless otherwise stated. TE Connectivity reserves the right to update and change these specifications without notice.

Parameters								Notes
DYNAMIC								
Dash Number	-0500	-1500	-6000	-12K	-18K	-24K	-50K	See Ordering Info
Range (deg/sec)	±500	±1500	±6000	±12K	±18K	±24K	±50K	
Sensitivity (mV/deg/sec)	4.00	1.33	0.333	0.167	0.111	0.083	0.040	Not ratiometric
Frequency Response (Hz)	0-1000	0-1000	0-1000	0-2000	0-2000	0-2000	0-3300	+1dB/-3dB
Non-Linearity (%FSO)	±0.5	±0.5	±0.5	±0.5	±0.5	±0.5	±0.5	BFSL
Cross-Axis Sensitivity (%)	<1	<1	<1	<1	<1	<1	<1	
Shock Limit (g)	3000	3000	3000	5000	5000	5000	5000	
Residual Noise (mV RMS)	3.66	1.20	3.30	1.22	1.50	1.80	1.80	Passband
ELECTRICAL								
Zero Acceleration Output (mV)	±100							Differential
Excitation Voltage (Vdc)	5 to 16							
Excitation Current (mA)	<8							
Influence of Linear Acceleration (°/sec/g)	0.1							
Common Mode Voltage (Vdc)	2.5							±5%
Full Scale Output Voltage (Vpk)	±2							±15%
Output Resistance (Ω)	400							
Insulation Resistance (MΩ)	>100							@100Vdc
Turn On Time (msec)	<100							
Ground Isolation	Isolated from Mounting Surface							
ENVIRONMENTAL								
Thermal Zero Shift (%FSO)	±2.5							-40 to +105°C
Thermal Sensitivity Shift (%)	±2.0							-40 to +105°C
Operating Temperature (°C)	-40 to +105							
Humidity (Active Element & Electronics)	Hermetically Solder Seal							
Humidity (Housing)	Epoxy Sealed, IP65							
PHYSICAL								
Case Material	Anodized Aluminum							
Cable	5x, #30 AWG Conductors, PFA Insulated, Braided Shield, PU Jacket							
Weight (cable not included)	3 grams							
Mounting	2x #0-80							
Mounting Torque	4 lb-in (0.45 N-m)							

Calibration supplied: CS-ARLIN NIST Traceable Linearity Calibration to FS Range

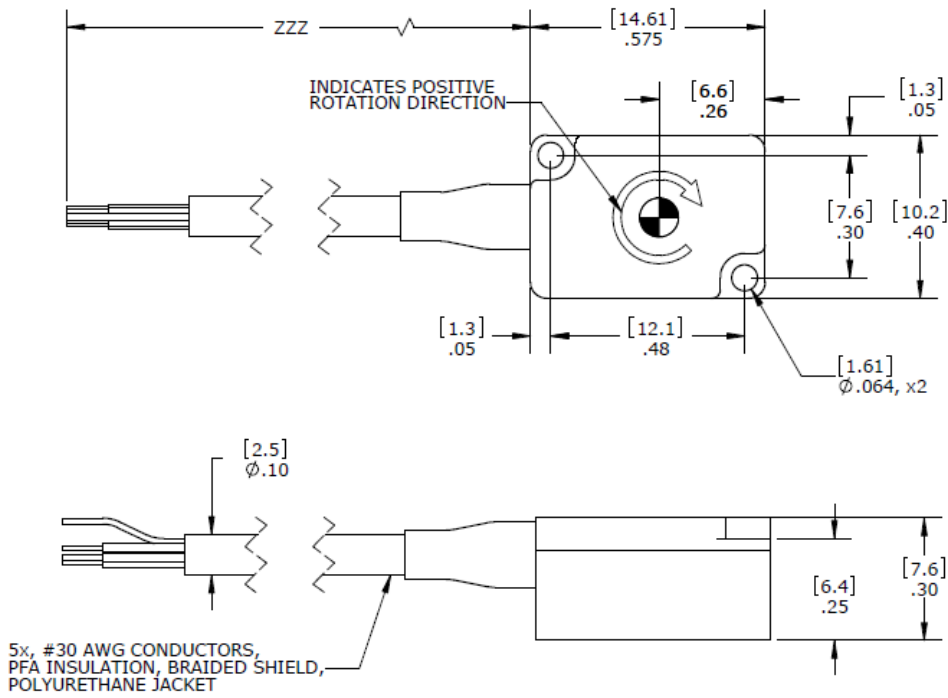
Supplied accessories: AC-A04531 2x #0-80 (3/8 length) Socket Head Cap Screw and Washer

Optional accessories: AC-A05700 Triaxial Mounting Block
121 3-Channel Precision Low Noise DC Amplifier

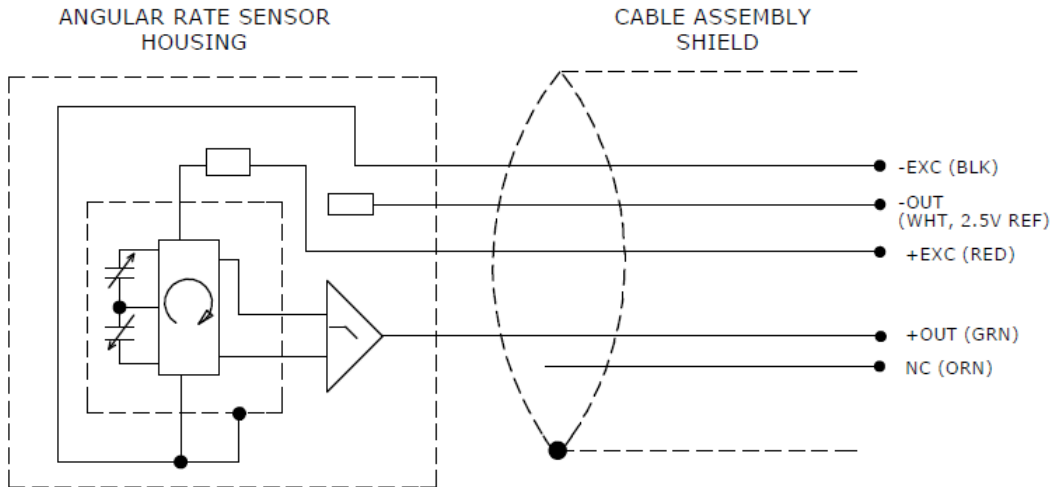
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DIMENSIONS



SCHEMATIC



SHUNT CALIBRATION SUPPORTED FOR EITHER OUTPUT LEAD TO BLACK LEAD. UNIT BEHAVES LIKE 400Ω BRIDGE POWERED BY 5V EXCITATION.

ORDERING INFORMATION

610	GGGG	ZZZ	XXX
Range			
500=500deg/sec			
1500=1500deg/sec			
6000=6000deg/sec			
12K=12,000deg/sec			
18K=18,000deg/sec			
24K=24,000deg/sec			
50K=50,000deg/sec			
Cable length			
120=120 inches			
240=240 inches			
360=360 inches			
480=480 inches			
600=600 inches			
197=197 inches, 5 meters			
276=276 inches, 7 meters			
394=394 inches, 10 meters			

Example; 610-1500-360
Model 610, 1500deg/sec range, 360inch (30ft) cable length

Example; 610-12K-276
Model 610, 12,000deg/sec range, 276inch (7meter) cable length



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