

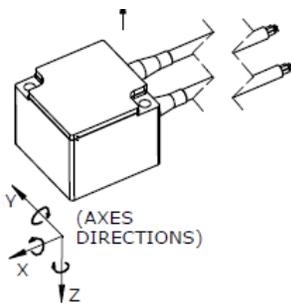


## FEATURES

- Low Noise Jacketed Cables
- Rugged Integral Strain Relief
- Reliable Silicon MEMS Sensors
- -40 to +105°C Temperature Range
- Shock Resistant Package
- Low Cross-Axis Sensitivity
- Exceptional Temperature Performance

## APPLICATIONS

- Automotive Handling Testing
- Motorsports Applications
- Biomechanics Testing
- Shock & Impact Testing
- Motion Measurements
- Flight Testing



## MODEL 634

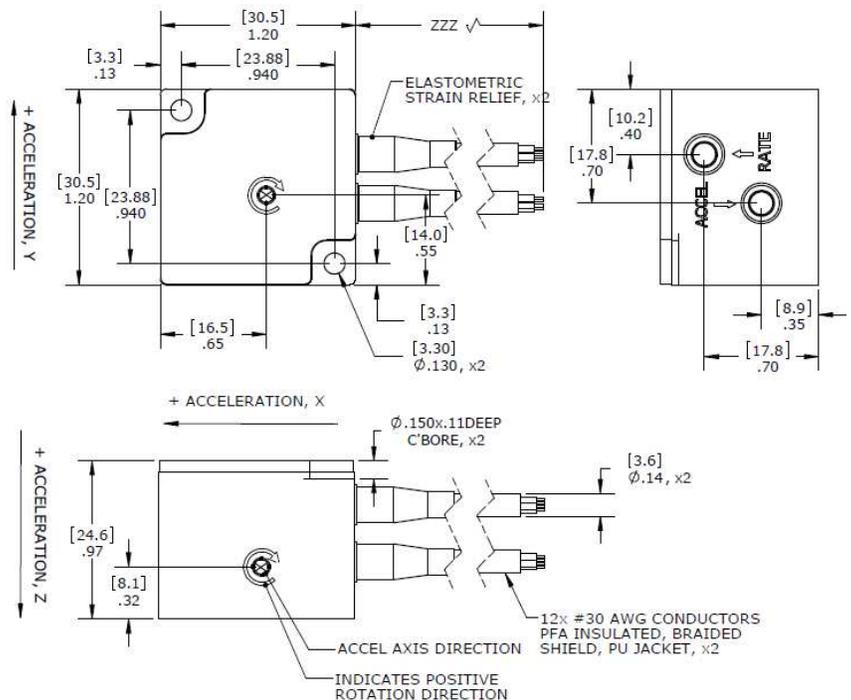
### Six-Degree of Freedom Sensor

#### SPECIFICATIONS

- Silicon MEMS 6DOF Sensor
- $\pm 2$  to  $\pm 100g$  Acceleration Range
- $\pm 100$  to  $\pm 18,000^\circ/\text{sec}$  Rate Range
- Miniature Compact Package
- Rugged Shock Resistant Housing

The Model 634 6-DOF Sensor is an analog sensor that includes outputs of three gyroscope/rate sensors and three DC accelerometers in one small package. The rate sensors and accelerometers are aligned orthogonally to each other which allow the user to measure motions in all 6 degrees of freedom (6-DOF). Designed specifically for product research and development in harsh environments, the Model 634 can maintain its precision under high shock condition.

#### dimensions



PERFORMANCE SPECIFICATIONS

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

Parameters

**DYNAMIC (RATE SENSORS)**

	-100	-500	-1K5	-6K	-12K	-18K	Notes
Dash Number	-100	-500	-1K5	-6K	-12K	-18K	See Ordering Info
Range (deg/sec)	±100	±500	±1500	±6000	±12K	±18K	
Sensitivity (mV/deg/sec)	20.0	4.00	1.33	0.333	0.167	0.111	
Frequency Response (Hz)	0-1000	0-1000	0-1000	0-1000	0-2000	0-2000	+1dB/-3dB
Non-Linearity (%FSO)	±0.5	±0.5	±0.5	±0.5	±0.5	±0.5	BFSL
Cross-Axis Sensitivity (%)	<1	<1	<1	<1	<1	<1	
Shock Limit (g)	3000	3000	3000	3000	5000	5000	
Residual Noise (mV RMS)	18.0	3.66	1.20	3.30	1.22	1.50	Passband

**DYNAMIC (ACCELERATION SENSORS)**

	-002	-005	-010	-030	-050	-100	Notes
Dash Number	-002	-005	-010	-030	-050	-100	See Ordering Info
Range (g)	±2	±5	±10	±30	±50	±100	
Sensitivity (mV/g)	1000	400	200	67	40	20	
Frequency Response (Hz)	0-250	0-700	0-1000	0-1000	0-1000	0-1000	±5%
Natural Frequency (Hz)	700	800	1000	1500	4000	6000	
Non-Linearity (%FSO)	±0.5	±0.5	±0.5	±0.5	±0.5	±0.5	
Transverse Sensitivity (%)	<3	<3	<3	<3	<3	<3	
Shock Limit (g)	2000	5000	5000	5000	5000	5000	
Damping Ratio	0.7	0.7	0.7	0.7	0.7	0.7	
Residual Noise (µV RMS)	600	750	800	800	800	800	Passband

**ELECTRICAL**

Zero Acceleration Output (mV), Rate Sensors	±100						Differential
Zero Acceleration Output (mV), Accel Sensors	±50						Differential
Excitation Voltage (Vdc), Rate Sensors	5 to 16						
Excitation Voltage (Vdc), Accel Sensors	8 to 36						
Excitation Current (mA), Rate Sensors	<8						
Excitation Current (mA), Accel Sensors	<5						
Influence of Linear Acceleration (deg/sec/g)	0.1						
Common Mode Voltage (Vdc), Rate Sensors	2.5						±5%
Full Scale Output Voltage (Vpk), Rate Sensors	±2						±15%
Bias Voltage (Vdc), Accel Sensors	2.5						
Full Scale Output Voltage (Vpk), Accel Sensors	±2						
Output Impedance (Ω), Rate Sensors	400						
Output Impedance (Ω), Accel Sensors	<100						
Insulation Resistance (MΩ)	>100						@100Vdc
Turn On Time (msec), Rate Sensors	<100						
Ground Isolation	Isolated from Mounting Surface						

**ENVIRONMENTAL**

Thermal Zero Shift, Rate Sensors (%FSO)	±2.5						-40 to +105°C
Thermal Sensitivity Shift, Rate Sensors (%)	±2.0						-40 to +105°C
Thermal Zero Shift, Accel Sensors (%FSO)	±2.5						-40 to +105°C
Thermal Sensitivity Shift, Accel Sensors (%)	±3.0						-40 to +105°C
Operating Temperature (°C)	-40 to +105						
Humidity (Active Element & Electronics)	Hermetically Solder Seal						
Humidity (Housing)	Epoxy Sealed, IP65						

**PHYSICAL**

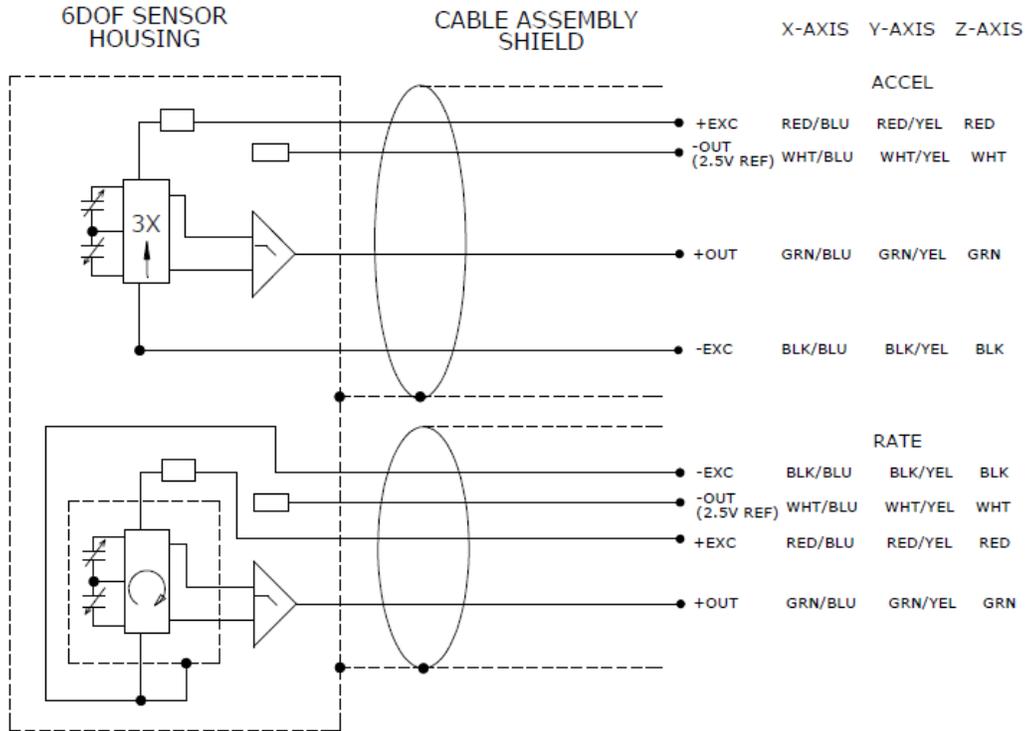
Case Material	Anodized Aluminum
Cable	2x Cables; 12x #30AWG Cond PFA Insulated, Braided Shield, PU Jacket
Weight (cable not included)	40 grams
Mounting	2x #4-40 or M3 Mounting Screw
Mounting Torque	6 lb-in (0.68 N-m)

**Calibration supplied:** CS-ARLIN NIST Traceable Linearity Calibration to FS Range  
 CS-FREQ-0100 NIST Traceable Amplitude Calibration to FR Limit

**Supplied accessories:** 2x #4-40 (1.0" length) Socket Head Cap Screw

**Optional accessories:** 121 3-Channel Precision Low Noise DC Amplifier

SCHEMATIC



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## ORDERING INFORMATION

PART NUMBERING Model Number+Accel Range+Rate Range+Cable Length

634-GGG-RRR-ZZZ-XX

| | | | \_\_\_\_\_Special requirements, otherwise leave blank  
| | | \_\_\_\_\_Cable (-120 is 120 inches, standard options are -120, -240 & -360 cable lengths)  
| | \_\_\_\_\_Rate Range (-100 for 100deg/sec, -12K for 12000deg/sec)  
| \_\_\_\_\_Accel Range (-002 for 2g, -100 for 100g)

Example: 634-002-100-120  
Model 634, 2g, 100deg/sec, 120" Cable

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