



## 31206B Triaxial Angular Rate Sensor

### SPECIFICATIONS

- Rugged Triaxial Angular Rate Gyro
- Silicon MEMS Gyro, DC Response
- $\pm 50^\circ/\text{sec}$  to  $\pm 600^\circ/\text{sec}$  Ranges
- $< \pm 6^\circ/\text{sec}$  Offset Stability
- 8.5 to 36Vdc Excitation Voltage

The TE Connectivity model 31206B Triaxial Angular Rate Sensor is a rugged analog gyroscope capable of accurately measuring angular rate around the three orthogonal axes. The sensor is packaged in a tough, compact housing with fully encapsulated and protected electronics and a shielded #30 AWG cable. Its cubical form allows mounting in any three orientations.

The model 31206B Gyroscope Sensor provides enhanced accuracy and durability features to meet the challenges of harsh installations. In addition to its robust construction, increased precision is achieved through enhanced offset and gain compensation over full operating temperature range.

Each angular rate sensor has been accurately tested and compensated over the full  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$  temperature range and has a nominal full scale output swing of  $\pm 2.25\text{V}$ . The zero rate output level is nominally  $+2.5\text{V}$ .

### FEATURES AND BENEFITS

#### Self-Test on Digital Command

A TTL-compatible self-test input causes a simulated rotational rate to be injected into all three sensors to verify channel integrity.

#### Rugged for Harsh Environment

The 31206B is robust to perform well in harsh environments. The 6061-T6 case with electroless nickel finish plus a PTFE cable with a shield bonded to the case provide improved resistance to EMI, lightning, or other disturbances.

#### High Accuracy and Linearity over Wide Temperature Range

The output of each axis of the model 31206B sensor is directly proportional to the rotational rate about that axis. Each DC-coupled output is fully scaled, referenced, and temperature compensated. When used in demanding temperature environments, gain compensation makes the 31206B one of the most accurate angular rate gyros available.

## PERFORMANCE SPECIFICATIONS

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

### Parameters

#### DYNAMIC

	-R050	-R150	-R300	-R600	Notes
Dash Number	-R050	-R150	-R300	-R600	See Ordering Info
Range (deg/sec)	±50	±150	±300	±600	
Sensitivity (mV/deg/sec)	25.0	12.5	6.3	3.1	±10%
Frequency Response (Hz)	0-100	0-100	0-100	0-100	Upper cutoff -3dB
Non-Linearity (%FSO)	±0.1	±0.1	±0.1	±0.1	BFSL
Alignment (deg)	±1.5	±1.5	±1.5	±1.5	Deviation from ideal axes
Influence of Linear Acceleration (°/sec/g)	0.2	0.2	0.2	0.2	Affects offset
Shock Limit (g)	±2000	±2000	±2000	±2000	0.5msec pulse
Noise Density (°/sec/√Hz)	0.05	0.05	0.05	0.05	

#### ELECTRICAL

Zero Acceleration Output (V)	2.50 ±0.10				
Excitation Voltage (Vdc)	8.5 to 36				
Excitation Current (mA)	18 typical (30 max)				No load, quiescent
Rejection Ratio (dB)	>120				DC
Full Scale Output Voltage (Vpk)	0.25 to 4.75				Iout = 1mA, cap load <1000pF
Insulation Resistance (MΩ)	>100				@100Vdc
Output Impedance (Ω)	100				
Turn On Time (msec)	<100				
Ground Isolation	Isolated from Mounting Surface				

#### SELF TEST FUNCTION

Response with self-test pin grounded					
±50°/sec FSO	-1.9V				
±150°/sec FSO	-1.0V				
±300°/sec FSO	-0.54V				
±600°/sec FSO	-0.275V				
Self Test Input Impedance (kΩ)	10 minimum (Pullup. Logic "1" ≥ 3.5V, Logic "0" ≤ 1.5V)				

#### TEMPERATURE SENSOR

Sensitivity (mV/°C)	9.1
+25°C Bias Level (V)	2.50

#### ENVIRONMENTAL

Thermal Zero Shift (°/sec)	±3.0 typical (±6.0 max)	-40 to +85°C
Thermal Sensitivity Shift (%)	±2.5	-40 to +85°C
Operating Temperature (°C)	-40 to +85	
Humidity (Active Element & Electronics)	Hermetically Solder Seal	
Humidity (Housing)	Epoxy Sealed, IP65	

#### PHYSICAL

Case Material	Electroless Nickel Plated 6061-T6 Aluminum
Cable	9x, #30 AWG Conductors, PTFE Insulated, Tin Plated Shield, PTFE Jacket
Connector	9-pin DB9 Male Connector Installed at End of Cable
Weight (cable not included)	38 grams
Mounting	2x M3-0.5 Machine Screws
Mounting Torque	5 lbf-in (0.56 N-m)

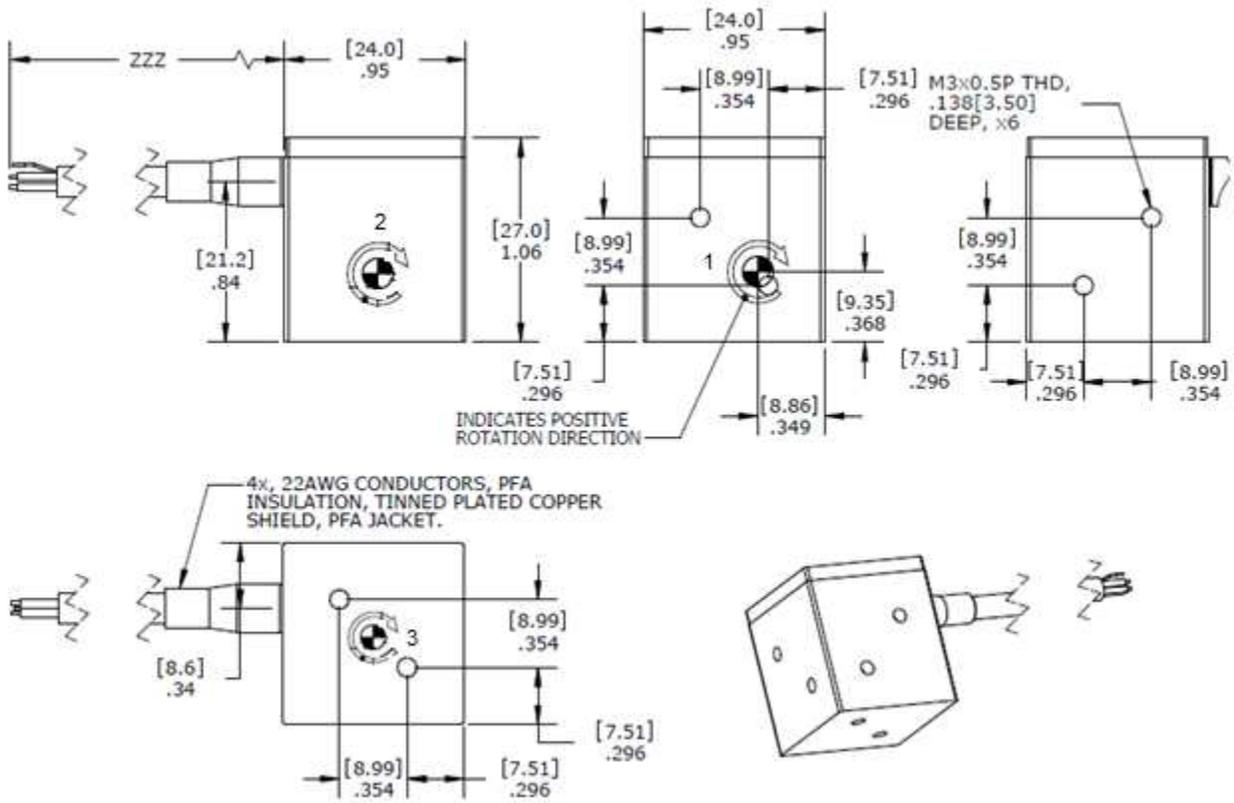
**Calibration supplied:** CS-ARLIN NIST Traceable Calibration with Sensitivity and Offset

**Optional accessories:** 34170B Adaptor Plate for Flange Mounting

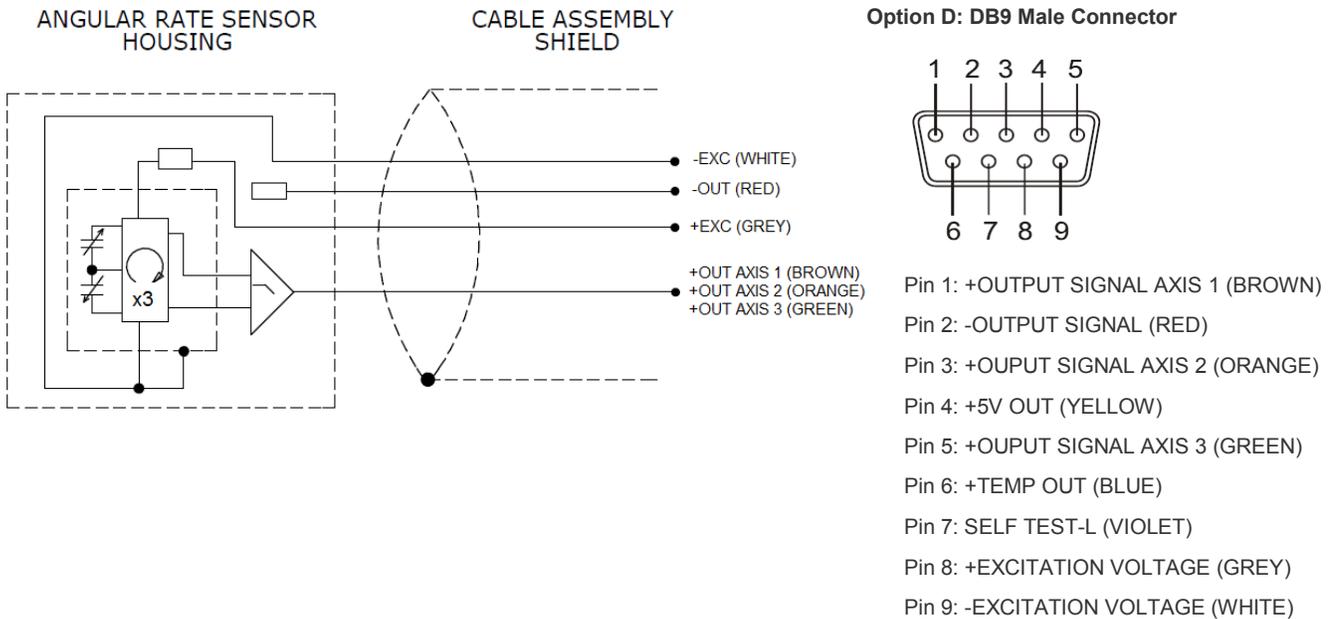
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# 31206B TRIAXIAL ANGULAR RATE SENSOR

## DIMENSIONS



## SCHEMATIC



## ORDERING INFORMATION

31206B

RXXX

BYYY

TZZZ

### Range

R050 = ±50deg/sec

R150 = ±150deg/sec

R300 = ±300deg/sec

R600 = ±600deg/sec

### Bandwidth

B050 = 0 to 50Hz

B100 = 0 to 100Hz (standard option)

### Cable Length

T004 = 4ft cable (standard option)

TZZZ = Contact factory for custom length (ZZZ in feet)

Example; 31206B-R300-B100-T004A

Model 31206B, ±300deg/sec range, 0-100Hz bandwidth, 4ft cable length

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