

## Triaxial Rate Gyro

**$\pm 1000, \pm 1200^\circ/\text{sec}$  Range**  
 **$< \pm 6^\circ/\text{sec}$  Offset Stability**



### Technical Data\*

#### Features and Benefits

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

The voltage output for each axis of the 31207B is directly proportional to the rotational rate along that axis. Each DC-coupled output is fully scaled, referenced, and temperature compensated.

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##### Calibration Certificate

Each 31207B is supplied with a calibration certificate listing sensitivity and offset needed to ensure rapid and efficient system implementation.

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##### 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.

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##### Small Size

Complete conditioned triaxial rate gyro in less than a cubic inch.

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##### Built-In Power Supply Regulation

Unregulated DC power from +8.5 to +36 volts is all that is required to measure rotational rates on all axes.

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##### Suitable for Harsh Environments

The 31207B is robust and can be used in harsh environments. The unit will survive 2000 g powered and unpowered.

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##### Three Year Warranty

Spectrum Sensors' 31207B Triaxial Rate Gyros are covered by a three year return to factory warranty.

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### Precisely Measure Real-World Rates

The Spectrum Sensors 31207B Triaxial Rate Gyro is capable of sensing angular rate around three orthogonal axes. Fully temperature compensated analog outputs are available for the X, Y and Z axes.

Choose the range option best suited for your application to measure  $\pm 1000^\circ/\text{sec}$  or  $\pm 1200^\circ/\text{sec}$  rotational rates on each of three axes.

Each axial sensor has been tested over the  $-40$  to  $+85^\circ\text{C}$  temperature range and has a nominal full scale output swing of  $\pm 2$  volts. The zero rate output level is nominally +2.5 volts. Precise values for each axis are available on the included calibration certificate. Custom versions of the 31207B can be provided for applications which require different ranges and/or bandwidths.

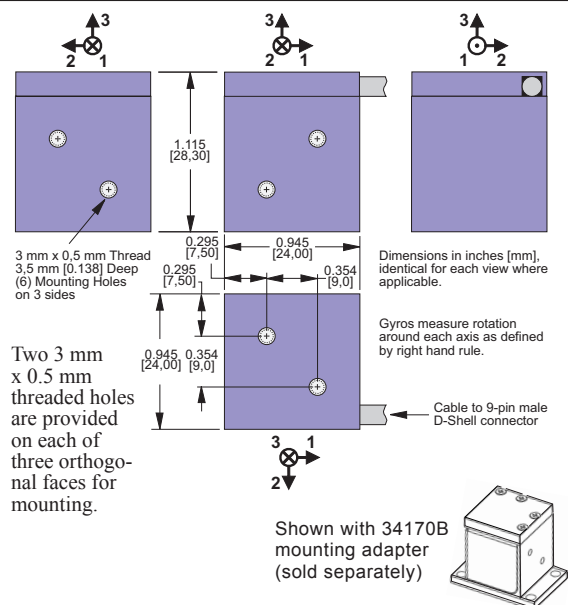
## Specifications for 31207B - improved specifications available upon request

$T_A = T_{MIN}$  to  $T_{MAX}$ ;  $8.5 \leq V_S \leq 36$  V; Acceleration =  $\pm 1$  g, Angular Rate =  $0^\circ/\text{sec}$  unless otherwise noted; within one year of calibration.

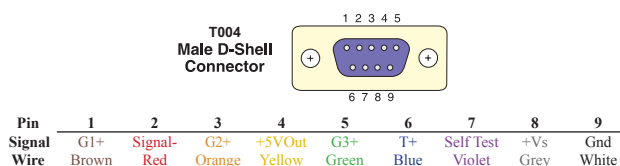
Parameter	Min	Typical	Max	Units	Conditions/Notes
<b>Range</b> Measurement Full Scale, Option R1k2		$\pm 1200^\dagger$		$^\circ/\text{sec}$	On each axis
<b>Sensitivity at 25°C</b> Option R1k2 Drift $T_{MIN}$ to $T_{MAX}$		1.7† 2.5		mV/ $^\circ/\text{sec}$ % FSR	Precise values on cal certificate
<b>Zero g Bias Level</b> At 25°C Drift $T_{MIN}$ to $T_{MAX}$		2.50 $\pm 3.0$	$\pm 6.0$	V $^\circ/\text{sec}$	Precise values on cal certificate
<b>Alignment</b> Deviation from Ideal Axes		$\pm 1.5$		degrees	Precise values on cal certificate Can be compensated if required
<b>g Sensitivity</b>		0.2		$^\circ/\text{sec}/\text{g}$	Affects offset
<b>Nonlinearity</b>		0.1		% FSR	Best fit straight line
<b>Frequency Response</b>	0		100	Hz	Upper cutoff per Option Bnnn, -3 dB pt $\pm 10\%$
<b>Self Test Response</b> w/ST pin grounded $\pm 1200^\circ/\text{sec}$ FSR $\pm 1000^\circ/\text{sec}$ FSR		0.145 0.125		V V	$\pm 30\%$ may indicate defective axis
<b>Noise Density</b>		0.1		$^\circ/\text{sec}/\sqrt{\text{Hz}}$	$T_A = 25^\circ\text{C}$
<b>Self Test Input Impedance</b>	10			k $\Omega$	Pullup. Logic "1" $\geq 3.5$ V, Logic "0" $\leq 1.5$ V
<b>Temperature Sensor</b> Sensitivity +25°C Bias Level		9.0 2.5		mV/ $^\circ\text{K}$ V	Precise values on cal certificate
<b>Outputs</b> Output Voltage Swing	0.25		4.75	V	$I_{OUT} = 1$ mA, Capacitive load $< 1000$ pF
<b>Power Supply (<math>V_S</math>)</b> Input Voltage Limits Input Voltage - Operating Input Current Rejection Ratio	-20 +8.5		+38 +36 18 30 >120	V V mA dB	-20 V continuous No load, quiescent DC
<b>Temperature Range (<math>T_A</math>)</b>	-40		+85	$^\circ\text{C}$	
<b>Mass</b>		35		grams	
<b>Shock Survival</b>	-2000		+2000	g	Any axis for 0.5 ms, powered or unpowered

†Scale linearly with range option Rnnn

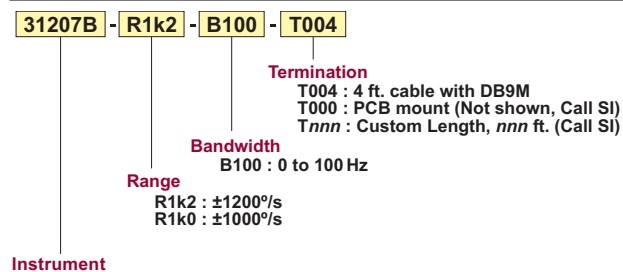
## Mechanical



## Connections



## Ordering Information



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