measurement SPECIALTIES™

31206B

Triaxial Rate Gyro
±50, ±150, ±300, ±600°/sec Ranges
< ±6°/sec Offset Stability

Technical Data*

Features and Benefits

High Accuracy and Linearity over Wide Temperature Range
The voltage output for each axis of the 31206B is directly proportional to the rotational rate along that axis. Each DC-coupled output is fully scaled, referenced, and temperature compensated.

Calibration Certificate
Each 31206B is supplied with a calibration certificate listing sensitivity and offset needed to ensure rapid and efficient system implementation.

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.

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

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.

Suitable for Harsh Environments
The 31206B is robust and can be used in harsh environments. The unit will survive 2000 g powered and unpowered.

Three Year Warranty
Measurement Specialties 31206B Triaxial Rate Gyros are covered by a three year return to factory warranty.

Precisely Measure Real-World Rates

Measurement Specialties' 31206B 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 ±50°/sec, ±150°/sec, ±300°/sec, and ±600°/sec rotational rates on each of three axes.

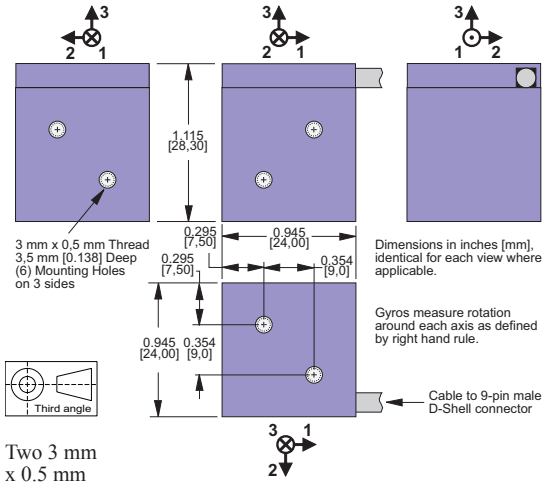
Each axial sensor has been tested over the -40 to +85°C temperature range and has a nominal full scale output swing of ±2 Volts. The zero rate output level is nominally +2.5 volts. Precise values for each axis are available on the included calibration certificate. Custom versions of the 31206B can be provided for applications which require different ranges and/or bandwidths.

Specifications for 31206B - *improved specifications available upon request*

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

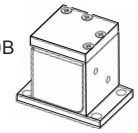
Parameter	Min	Typical	Max	Units	Conditions/Notes
Range & Sensitivity at 25°C					Must specify via Option Rnnn, see Ordering Info
±600°/sec FSR	2.8	3.1	3.4	mV/°/sec	Precise values on cal certificate
±300°/sec FSR	5.6	6.3	6.9	mV/°/sec	Precise values on cal certificate
±150°/sec FSR	11.2	12.5	13.8	mV/°/sec	Precise values on cal certificate
±50°/sec FSR	22.5	25	27.5	mV/°/sec	Precise values on cal certificate
Drift T_{MIN} to T_{MAX}		2.5		% FSR	
Zero g Bias Level					
At 25°C		2.50		V	Precise values on cal certificate
Drift T_{MIN} to T_{MAX}		±3.0	±6.0	°/sec	
Alignment					Precise values on cal certificate
Deviation from Ideal Axes		±1.5		degrees	Can be compensated if required
g Sensitivity		0.2		°/sec/g	Affects offset
Nonlinearity		0.1		% FSR	Best fit straight line
Frequency Response	0		100	Hz	Upper cutoff per Option Bnnn, -3 dB pt ±10%
Noise Density		0.05		°/sec/√Hz	T_A = 25°C
Self Test Input Impedance	10			kΩ	Pullup. Logic "1"≥3.5 V, Logic "0"≤1.5 V
Self Test Response w/ST pin grounded					±30% may indicate defective axis
±600°/sec FSR		-0.275		V	
±300°/sec FSR		-0.540		V	
±150°/sec FSR		-1.0		V	
±50°/sec FSR		-1.9		V	
Temperature Sensor					
Sensitivity		9.1		mV/°C	
+25°C Bias Level		2.5		V	
Outputs					
Output Voltage Swing	0.25		4.75	V	I_{OUT} = 1 mA, Capacitive load < 1000 pF
Power Supply (V_S)					
Input Voltage Limits	-20		+38	V	-20 V continuous
Input Voltage - Operating	+8.5		+36	V	
Input Current		18	30	mA	No load, quiescent
Rejection Ratio		>120		dB	DC
Temperature Range (T_A)	-40		+85	°C	
Mass		35		grams	
Shock Survival	-2000		+2000	g	Any axis for 0.5 ms, powered or unpowered

Mechanical

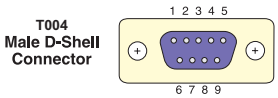


Two 3 mm x 0.5 mm threaded holes are provided on each of three orthogonal faces for mounting.

Shown with 34170B mounting adapter (sold separately)



Connections



Pin	1	2	3	4	5	6	7	8	9
Signal	G1+	Signal-	G2+	+5VOut	G3+	T+	Self Test-L	+V_S	Gnd
Wire	Brown	Red	Orange	Yellow	Green	Blue	Violet	Grey	White

Ordering Information

31206B - R150 - B100 - T004

Termination
- **T004 : 4 ft. cable with DB9M**
- **T000 : PCB mount (Not shown, Call SI)**
- **T*nnn* : Custom Length, *nnn* ft. (Call SI)**

Bandwidth
- **B100 : 0 to 100 Hz**
- **B050 : 0 to 50 Hz**

Range
- **R600 : ±600°/s**
- **R300 : ±300°/s**
- **R150 : ±150°/s**
- **R050 : ±50°/s**

Instrument