31206A

Triaxial Rate Gyro
±150, ±300, ±600°/sec Ranges
< ±6°/sec Offset Stability
-40 to +85°C Temperature Range

Technical Data*

Features and Benefits

High Accuracy and Linearity over Wide Temperature Range
The voltage output for each axis of the 31206A is directly proportional to the rotational rate along that axis. Each DC-coupled output is fully scaled, referenced, and temperature compensated. Accuracy is improved by minimizing variations due to temperature and aging effects, resulting in a sensor that is stable over temperature.

Calibration Certificate
Each 31206A is supplied with a calibration certificate listing gain, offset, and on-axis and transverse alignment parameters needed to ensure rapid and efficient system implementation. The alignment data can be used to compensate the measured values to achieve an even higher level of sensor accuracy.

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 to +36 volts is all that is required to measure accelerations on all axes.

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

Three Year Warranty
Summit Instruments 31206A Triaxial Rate Gyros are covered by a three year return to factory warranty.

**Preliminary, Data subject to change without notice*

Precisely Measure Real-World Rates

The Summit Instruments 31206A Triaxial Rate Gyro is capable of sensing angular motion around three orthagonal axes. Fully temperature compensated analog outputs are available for the X, Y , and Z axes.

Unregulated +8 to +36V DC power is all that is required to measure ±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 calibration certificate. Custom versions of the 31206A can be provided for applications which require different ranges and/or bandwidths.

Omni Instruments
Measurement > Control > Data Acquisition

UK / Europe Office
Tel: +44 (0)8700 434040
Fax: +44 (0)8700 434045
info@omniinstruments.co.uk
www.omniinstruments.co.uk

Australia / Asia Pacific Office
Tel +61 (0)282 442 363
Fax +61 (0)294 751 278
info@omniinstruments.com.au
www.omniinstruments.com.au

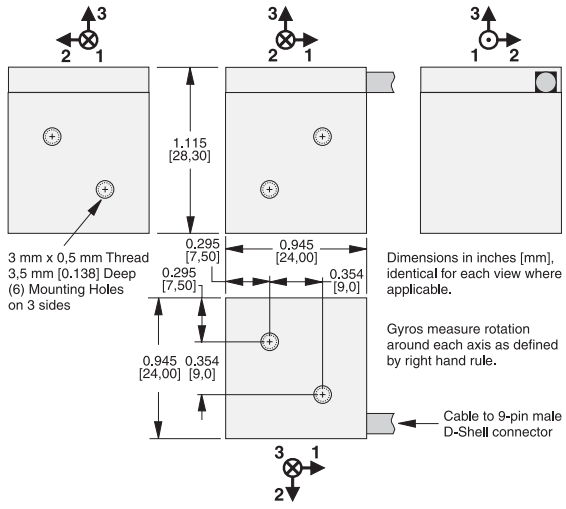
USA / Canada Office
Tel +1-866-849-3441
Fax +1-866-628-8055
info@omniinstruments.net
www.omniinstruments.net

Specifications

$T_A = T_{MIN}$ to T_{MAX}, $8 \le V_S \le 36$ V, Acceleration = ±1 g, Angular Rate = 0°/sec unless otherwise noted.

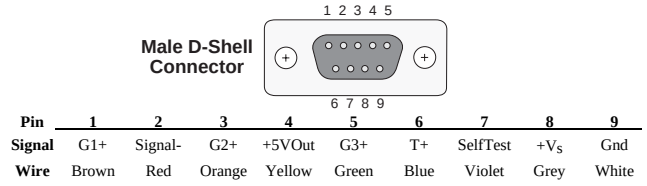
Parameter	Min	Typical	Max	Units	Conditions/Notes
Range					
Measurement Full Scale				°/sec	On each axis. Must specify via Opt. Rnnn
Shock survival	-2000		+2000	g	Any axis for 0.5 ms., powered or unpowered
Sensitivity @ 25°C					
±150°/sec FSR	11.2	12.5	13.8	mV/°/sec	Precise values on cal certificate.
±300°/sec FSR	5.6	6.3	6.9	mV/°/sec	Precise values on cal certificate
±600°/sec FSR	2.8	3.1	3.4	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.
Upper Cutoff Frequency		100		Hz	±10%
Noise Density		0.05		°/sec/√ Hz	
Self Test Input Impedance		50		kΩ	To ground.
Temperature Sensor					Precise values on cal certificate.
Sensitivity		8.4		mV/°K	
+25°C Bias Level		2.5		V	
Outputs					
Output voltage swing	0.25		4.75	V	I_{OUT} = 1 mA, capacitive load <1000pF
Power Supply (V_S)					
Input voltage limits	-20		+38	V	-20V continuous, >30V if <100ms, duty <1%
Input voltage - operating	+8		+36	V	
Input current		28	38	mA	No load, quiescent.
Rejection Ratio	80	120		dB	DC
Temperature Range (T_A)	-40		+85	°C	
Mass		35		g	

Mechanical



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

Connections



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

Ordering Information

31206A Triaxial Rate Gyro (-Tnnn option required)

- **-R150** ±150°/sec range
- **-R300** ±300°/sec range
- **-R600** ±600°/sec range
- **-Tnnn** Termination via nnn foot cable with 9-pin male D-subminiature connector at end
- **-T000** Termination via 9-pin BERG Conan connector, includes mate, for PCB mounting.

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