



31207B

Triaxial Angular Rate Gyro Sensor

SPECIFICATIONS

- ◆ Triaxial Rate Gyro
- ◆ $\pm 1000, \pm 1200^\circ/\text{sec}$ Ranges
- ◆ $< \pm 6^\circ/\text{sec}$ Offset Stability

The Measurement Specialties 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 $+85$ temperature range and has a nominal full scale output swing of ± 2 volts. The zero rate output level is nominally $+2.5$ volts.

Precisely Measure Real-World Rates

FEATURES AND BENEFITS

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.

Calibration Certificate

Each 31207B 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.

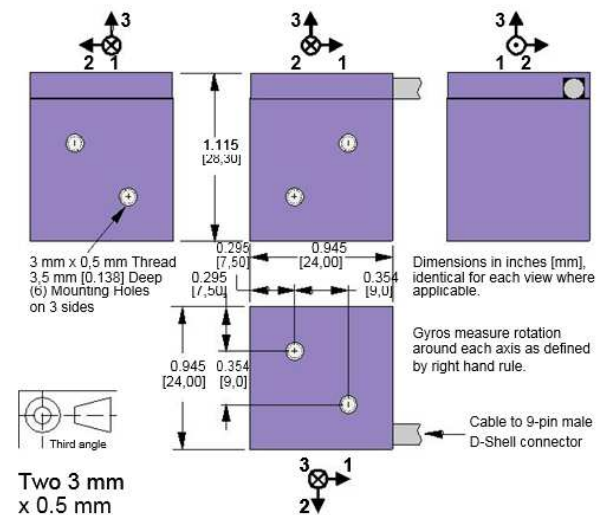
-Built-In Power Supply Regulation

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



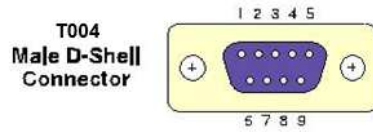
SPECIFICATIONS FOR 31207B - improved specifications available upon request

T_a = T_{min} to T_{max}; 8.5 ≤ V_s ≤ 36 V; Acceleration = ±1 g, Angular Rate = 0°/sec unless otherwise noted; within one year of calibration.

Parameter	Min	Typical	Max	Units	Conditions/Notes
Range					
Measurement Full Scale, Option R1k2		±1200†		°/sec	On each axis
Sensitivity at 25°C					
Option R1k2		1.7†		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					
Deviation from Ideal Axes		±1.5		degrees	Precise values on cal certificate 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% ±30% may indicate defective axis
Self Test Response w/ST pin grounded					
±1200°/sec FSR		0.145		V	
±1000°/sec FSR		0.125		V	
Noise Density		0.1		°/sec/√Hz	T _a = 25°C
Self Test Input Impedance	10			kΩ	Pullup. Logic "1" ≥ 3.5 V, Logic "0" ≤ 1.5 V
Temperature Sensor					
Sensitivity		9.0		mV/°K	Precise values on cal certificate
+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

†Scale linearly with range option Rnnn

CONNECTIONS



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

ORDERING INFORMATION

31207B R1k2 B100 T004

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

Bandwidth
 B100 : 0 to 100 Hz

Range
 R1k2 : $\pm 1200^{\circ}/s$
 R1k0 : $\pm 1000^{\circ}/s$

Instrument



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