



31206B

Triaxial Angular Rate Gyro Sensor

SPECIFICATIONS

- ◆ Triaxial Rate Gyro
- ◆ $\pm 50, \pm 150, \pm 300, \pm 600^\circ/\text{sec}$ Ranges
- ◆ $< \pm 6^\circ/\text{sec}$ Offset Stability

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 $\pm 50^\circ/\text{sec}$, $\pm 150^\circ/\text{sec}$, $\pm 300^\circ/\text{sec}$, and $\pm 600^\circ/\text{sec}$ 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 ± 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 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.

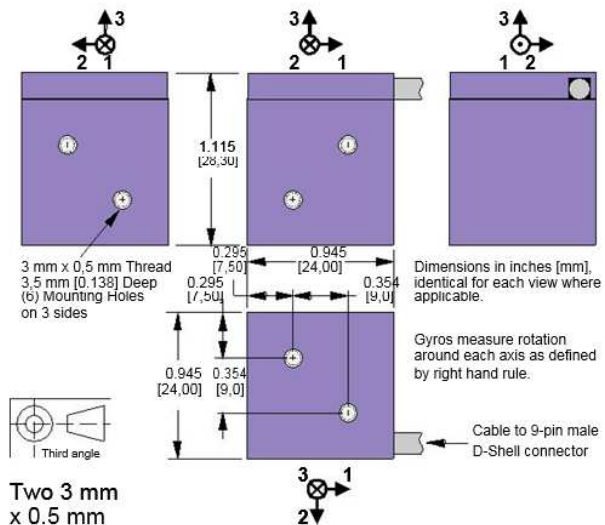
-Built-In Power Supply Regulation

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

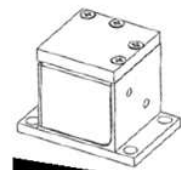
The 31206B is robust and can be used in harsh environments. The unit will survive 2000 g powered and unpowered.

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)

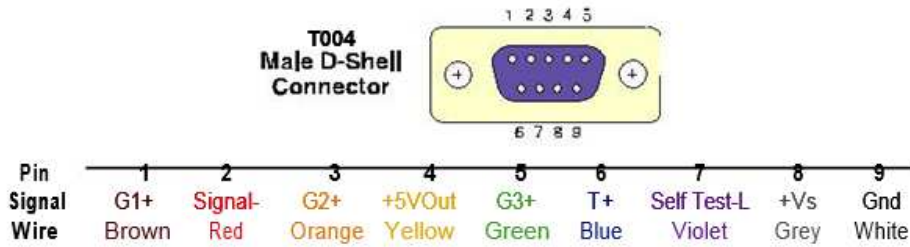


SPECIFICATIONS FOR 31206B - improved specifications available upon request

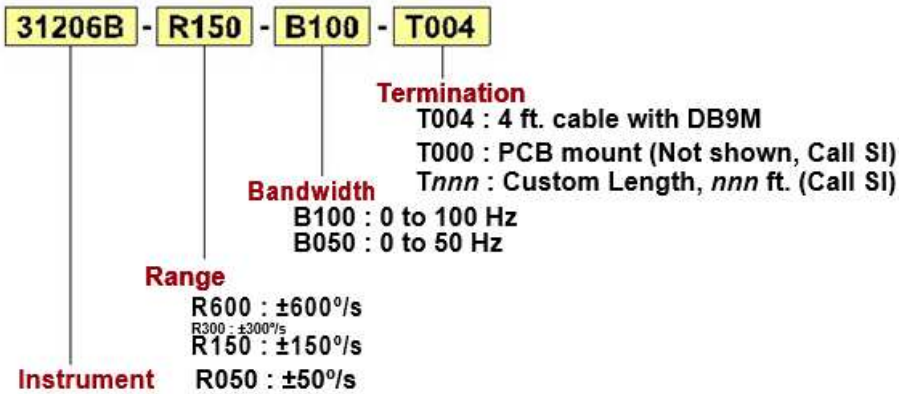
$T_a = T_{min}$ to T_{max} ; $8.5 \leq V_s \leq 36$ V; Acceleration = $\pm 1g$, Angular Rate = $0^\circ/\text{sec}$ unless otherwise noted; within one year of calibration.

| Parameter | Min | Typical | Max | Units | Conditions/Notes |
|---|-------|-----------|-----------|--------------------------------------|--|
| Range & Sensitivity at 25°C | | | | | |
| $\pm 600^\circ/\text{sec}$ FSR | 2.8 | 3.1 | 3.4 | mV/ $^\circ/\text{sec}$ | Must specify via Option Rnnn, see Ordering Info Precise values on cal certificate |
| $\pm 300^\circ/\text{sec}$ FSR | 5.6 | 6.3 | 6.9 | mV/ $^\circ/\text{sec}$ | Precise values on cal certificate |
| $\pm 150^\circ/\text{sec}$ FSR | 11.2 | 12.5 | 13.8 | mV/ $^\circ/\text{sec}$ | Precise values on cal certificate |
| $\pm 50^\circ/\text{sec}$ FSR | 22.5 | 25 | 27.5 | mV/ $^\circ/\text{sec}$ | 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 $\pm 10\%$ |
| Noise Density | | 0.05 | | $^\circ/\text{sec}/\sqrt{\text{Hz}}$ | $T_a = 25^\circ\text{C}$ |
| Self Test Input Impedance | 10 | | | k Ω | Pullup. Logic "1" ≥ 3.5 V, Logic "0" ≤ 1.5 V |
| Self Test Response w/ST pin grounded | | | | | |
| $\pm 600^\circ/\text{sec}$ FSR | | -0.275 | | V | $\pm 30\%$ may indicate defective axis |
| $\pm 300^\circ/\text{sec}$ FSR | | -0.540 | | V | |
| $\pm 150^\circ/\text{sec}$ FSR | | -1.0 | | V | |
| $\pm 50^\circ/\text{sec}$ FSR | | -1.9 | | V | |
| Temperature Sensor | | | | | |
| Sensitivity | | 9.1 | | mV/ $^\circ\text{C}$ | |
| +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 | $^\circ\text{C}$ | |
| Mass | | 35 | | grams | |
| Shock Survival | -2000 | | +2000 | g | Any axis for 0.5 ms, powered or unpowered |

CONNECTIONS



ORDERING INFORMATION



NORTH AMERICA

Measurement Specialties, Inc.,
 a TE Connectivity Company
 Phone +1-800-522-6752
 Email: customercare.akm@te.com

EUROPE

MEAS France SAS
 a TE Connectivity Company
 Phone: +49-800-440-5100
 Email: customercare.tlse@te.com

ASIA

Measurement Specialties (China), Ltd.,
 a TE Connectivity Company
 Phone: +86-400-820-6015
 Email: customercare.shzn@te.com

TE.com/sensorsolutions

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