

B-295C TRIAD

Three Axis Accelerometer

*Optimal acceleration
measurement solution
for customers worldwide
from any kind of
business*



Northrop Grumman LITEF's B-295 TRIAD represents the newest generation of three axis accelerometer, based on the latest MEMS technology. With high performance and quality characteristics, the B-295 TRIAD offers the optimal acceleration measurement solution for customers worldwide from any kind of business.

Description

The B-295C TRIAD is a small, lightweight and highly reliable three axis accelerometer, consisting of three independent B-295C single axis accelerometers in closed loop technology with all the associated hybrid electronics, packed in one housing. The output of the compensated data is carried out via a synchronous interface (IBIS - Integrated Bus for Intelligent Sensors).

Configuration

The B-295C TRIAD is the highly accurate B-295 variant for applications with high performance requirements which is not subject to German Export Restrictions. It is individually configurable, giving customers greater flexibility in terms of measurement range, data format (accelerations/velocity increments) and data compensation.

Typical Applications

Perfect in combination with Northrop Grumman LITEF's fiber optic rate sensors μ FORS, the B-295C TRIAD is optimal suited for applications that include:

- Attitude and Heading Reference Systems
- Inertial Navigation Systems
- Stabilization Systems for moving platforms
- Production Automation (e. g. robotics)

Customer Benefits

- Three measurement axis perfectly aligned in one housing
- Acceleration data of all three axis perfectly synchronized
- Extremely compact design
- Output of temperature compensated acceleration data or velocity increments
- High performance under harsh conditions
- High bandwidth
- Low noise
- Built-in test features
- Support in all project phases

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TECHNICAL DATA

Performance Parameter				
• Measurement Range	g	±5	±10	±15
• Resolution				
- Acceleration	mg/LSB	0.15	0.30	0.46
- Velocity Increment Resolution at 50 Hz data rate ⁽¹⁾	m/s/LSB	2.994e-5	5.988e-5	8.981e-5
• Internal Bandwidth (Sensor)	Hz	≥1500		
• Bias				
- Repeatability [turn-off/on]	µg	≤ 1500 (1σ)		
- Temperature Error ⁽³⁾	µg	≤ 150 (1σ)		
- Long Term Stability ⁽²⁾	µg	≤ 150 (1σ)		
- Instability [Allan Variance] ⁽⁴⁾	µg	≤ 10 (1σ)		
- Vibration Rectification Error (VRE) ⁽⁵⁾	µg/g ²	≤ 50		
• Scale Factor Error				
- Repeatability [turn-off/on]	ppm	≤ 100 (1σ)		
- Temperature Error ⁽³⁾	ppm	≤ 100 (1σ)		
- Long Term Stability ⁽²⁾	ppm	≤ 150 (1σ)		
• Misalignment Remount Repeatability	mrad	≤ 1.0 (1σ)		
• Orthogonality Composite Error	mrad	≤ 0.5 (1σ)		
• Velocity RW [Allan Variance] ⁽⁴⁾	µg/√Hz	≤ 50		
Electrical Characteristics				
• Power Supply		+5 VDC, +15 VDC		
• Current Consumption		0.20 A, 0.08 A		
• Connector		28 Pins Flatpack (pitch 1.27 mm)		
• Data Interface (serial)		Based on CCITT 1431 T1/E1 (IBIS)		
• Data Rate		8 kHz max		
Physical Characteristics				
• Size (H x W x L)		62.8 mm x 50.8 mm x 12.6 mm		
• Weight		80 grams		
Environmental Conditions				
• Operating Temperature Range		- 40 °C ... + 85 °C		
• Shock, half sine		150 g, 6 ms		
• Packaging		Hermetically sealed		

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- ¹⁾ At other data rates the resolution changes accordingly (higher rate: higher resolution)
- ²⁾ One year composite repeatability of mean value over temperature: including hysteresis and ageing
- ³⁾ Not including turn-off/on repeatability
- ⁴⁾ Without any acceleration, measured at constant temperature
- ⁵⁾ In bandwidth and measurement range

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