

## $\mu$ IMU-IC Micro Inertial Measurement Unit



- Airborne proof
- Superior bias linearity
- Insensitive to rapid temperature changes
- Exceptional vibration robustness
- Hermetically sealed
- Free of EU export restrictions (status quo)

### PRODUCT DESCRIPTION

Attached to a freely movable object, the MEMS-based  $\mu$ IMU-IC measures orientation, direction and velocity in real time. This allows a close monitoring of the object for accurate movement control.

The  $\mu$ IMU-IC is particularly suitable for demanding applications with rapid changing environmental conditions.

### TYPICAL APPLICATIONS

- Navigation and Positioning
- Mobile Mapping
- Photogrammetry
- Pipeline Inspection
- Platform Stabilization

## TECHNICAL DATA $\mu$ IMU-IC

### Micro Inertial Measurement Unit

		$\mu$ IMU-IC-SP	$\mu$ IMU-IC-HP
<b>RATE SENSOR PARAMETERS</b>			
	Typ. <sup>1)</sup>	max.	max.
Measurement Range		$\pm 499$ °/s	
Bias Instability <sup>2)</sup>	0.1 °/h		
Bias Stability over temperature range (1 $\sigma$ )	1.5 °/h	6 °/h	3 °/h
Bias Repeatability turn-on-turn-on (RMS) const. Temp.	1 °/h	10 °/h	4 °/h
Angular Random Walk	0.12 °/ $\sqrt{h}$	0.3 °/ $\sqrt{h}$	0.15 °/ $\sqrt{h}$
Scale Factor Error	200 ppm	1400 ppm	1000 ppm
Axis Misalignment (RMS)		0.5 mrad	
<b>ACCELEROMETER SENSOR PARAMETERS</b>			
Measurement Range		$\pm 15$ g	
Bias Instability <sup>2)</sup>	15 $\mu$ g		
Bias Stability over temperature range (1 $\sigma$ )	0.2 mg	3 mg	1.5 mg
Velocity Random Walk	40 $\mu$ g/ $\sqrt{Hz}$	250 $\mu$ g/ $\sqrt{Hz}$	70 $\mu$ g/ $\sqrt{Hz}$
Scale Factor Error (RMS)	150 ppm	1500 ppm	1000 ppm
Axis Misalignment (RMS)		0.5 mrad	
<b>SYSTEM PARAMETERS</b>			
Mass		0.68 kg; 1.5 lb	
Dimensions		$\varnothing$ 85 mm x H 60 mm $\varnothing$ 3.35 inch x H 2.36 inch	
Volume		340 cm <sup>3</sup> , 20.7 inch <sup>3</sup>	
Supply Voltage		+ 5 VDC	
Power Consumption		< 8 W	
Interface		RS 422, HDLC or UART	
Data Rate		50 to 1024 Hz (configurable)	
Built in Test (BIT)		Power up BIT, Continuous BIT	
Acoustic noise level		140 dB	
Random vibration level [10 ... 2000 Hz] operational / survival		4.1 g <sub>RMS</sub> / 11.7 g <sub>RMS</sub>	
Shock, operational		20 g / 11 ms / 3 axes	
Temperature operating / storage		- 45 °C to + 70 °C / - 55 °C to + 71 °C	

1) Typical Mean Values are subject to statistical fluctuations.

2) Implying Allan Variance under constant room temperature conditions and cluster time 24 h.

FOR MORE INFORMATION,  
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