

BS-IC123-M-D6EW

6-Axis High Precision Inertial Measurement Unit



The BS-IC123-M-D6EW is a compact, high-performance 6-axis inertial measurement unit with real-time output of angular velocity and acceleration measurements in three directions of motion. The product is calibrated in the full temperature range to meet the performance requirements of users under different conditions. Its stainless-steel housing provides reliable inertial measurement performance for demanding application scenarios. It has the characteristics of ultra-small size, strong environmental adaptability, low power consumption and precise time synchronization, and is suitable for small UAV navigation control, stable platform, satellite integrated navigation and other scenarios.

Product advantages

- ◆ Temperature compensation for angular rate and acceleration, mounting misalignment angle compensation, nonlinearity compensation, null compensation,
- ◆ 500Hz data update frequency, output 2ms time synchronization pulse function
- ◆ Firmware can be downloaded, upgraded, tested and calibrated through RS422 serial port.
- ◆ With self-check function

Specs

Operating voltage	4.0V ~ 6.0V
Operating current	<0.2A
Operating temperature	-40°C ~ +85°C
Storage temperature	-45°C ~ +85°C
Size	22mm*20mm*10mm
Weight	< 80g

Gyroscopic characteristics

Measuring range	$\pm 500^\circ/\text{s}$
Zero bias (after calibration and compensation) \leq	
1.9 °/H (ALLAN) Zero bias stability $\leq 8^\circ/\text{h}$ (1 σ)	
Zero-bias repeatability $\leq 60^\circ/\text{h}$ (1 σ)	
Scale factor nonlinearity \leq	400ppm (1 σ)
repeatability of scale factor \leq	400
ppm (1 σ) bandwidth	150Hz

Accelerometer characteristics

Measuring range	± 16 G (triaxial)
Zero offset (after calibration and compensation)	
stability	≤ 0.5 mg (1 σ , ALLAN) bias
Zero-bias repeatability	≤ 0.1 mg (1 σ)
factor nonlinearity	≤ 0.8 mg (1 σ) scale
repeatability of scale factor ≤ 400 ppm (1 σ)	
bandwidth	≤ 400 ppm (1 σ)
	100Hz

Note: For ± 200 G range, the X/Y axis resolution is 0.5 G and the nonlinearity is $\pm 2\%$.

Interface type

RS422 $\times 1$ baud rate: 921600 bps

synchronous clock signal

Interface definition

Serial number	Name
1 (red)	5V
2 (black)	GND
3 (white)	R+ (RS422)
4 (brown)	R- (RS422)
5 (green)	T- (RS422)
6 (yellow)	T+ (RS422)
7 (Orange)	Synchronization clock
8 (blue)	Reserved