

iFOG-IMU-1-B

Tactical Grade IMU with External or Internal Data Sampling Trigger

The iFOG-IMU-1-B is a very small size IMU consisting of 3 fiber optical gyros (FOG) in closed-loop technology of class 1 deg/hr and 3 servo-accelerometers of class 1.5 mg. It contains same technology and provides same performance as iFOG-IMU-1-A, but it is designed to fit into a **96 mm diameter / 111 mm length tube** (without vibration isolators).

The iFOG-IMU-1-B is manufactured in Germany and can be used as a replacement for IMUs like LN-200 or HG1700/1900. Compared to HG1700 the iFOG-



- < 0.9 deg/hr / 1.5 mg / up to 1'000 Hz, external triggered or free-running data output
- higher MTBF than comparable RLG systems
- UART or HDLC protocol data output (factory set)

Applications:

- stabilization and surveying tasks
- INS/GPS navigation, guidance and control
- UAV, missile and naval applications
- pipeline surveying

The IMU is designed for ruggedized applications and can be integrated at user site shock-mounted or hard-mounted, i.e. with or without shock-absorbers. The data output can be externally triggered or sent in free-running continuous mode (factory set) and the data are sent via HDLC or UART protocol.

IMU-1-B has more than 10 times higher MTBF.

The iFOG-IMU is manufactured in Germany, no export license is required for using the device worldwide in commercial or defense applications.

iMAR's iFOG-IMU-1 is in operation worldwide in more than 20 countries. It is also not covered by ITAR.

Technical Data of iFOG-IMU-1-B: (rms values)

	Angular Rate	Acceleration
Sensor Range:	± 450 °/s	± 5 g (option: ±20 g)
Bias:	< 0.9 deg/hr (1 sigma)	1.5 mg
Resolution:	0.1 arcsec / LSB	0.05 / 2 ¹⁵ m/s/LSB
Linearity / Scale error:	< 0.03 % / 0.05 %	< 0.1 % / 0.1 %
Angular random walk:	< 0.15 °/√h	< 50 µg/√Hz
Bandwidth:	> 250 Hz	> 75 Hz
Output:	3 x accumulated angular increment + 3 x accumulated velocity increment	
Axis Misalignment:	< 0.15 mrad between all sensor axes	
Digital Interface (factory set):	-UI: RS422 UART, 909.1 kBd +/- 1.5% (unidirectional) or -SI: HDLC via RS422, 2 MBit/s	
Trigger (factory set):	data output: externally triggered mode (standard) or free-running continuous mode (/C)	
Connector:	Micro SubD25 as standard; SAMTEC FTS-117-03-x-D (mating connector: SAMTEC CLP-117-x-D) as option	
Data rate:	default setting: external triggered via RS422 level pulse: 0...1'000 Hz optional setting (factory setting only): /Cxxx: free-running continuous mode, 50 / 100 / 200 or 400 Hz data output	
Temperature, Shock, Vibration:	-40...+71 °C (operating, case temperature), -40...+85 °C (storage) 30 g / 11ms; 10...2'000 Hz 6.3 g rms (endurance)	
Magnetic Insensitivity:	< 0.1 deg/hr / Gauss (< 20 Gauss)	
Environment / MTBF/ MTTR:	IP41 (open frame) / 35'000 hrs (estimated) / 10 minutes	
Weight, Size:	approx. 1'020 grams; Ø 95.4 mm x 111 mm	
Power, Start-up-Time:	+/-15 V, +5 V DC (+/-5%), 8...12 W (max. 18 W für < 10 sec); < 1 sec start-up time;; no (!) reverse-voltage or overvoltage protection; separate power conditioning required; separate circular shaped pcb available for power conditioning incl. DC/DC converter on request.	

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