

iFOG-IMU-1-A

Tactical Grade IMU with External or Internal Data Sampling Triggering

The iFOG-IMU-1-A is a very small size IMU consisting of 3 fiber optical gyros (FOG) in closed-loop technology of class 1.0 deg/hr and 3 servo-accelerometers of class 1.5 mg.

- < 1.0 deg/hr / 1.5 mg / up to 1'000 Hz, external triggered data output
- **option:** free running data output (internal data triggering)
- higher MTBF than RLG systems
- stabilization tasks
- INS/GPS navigation
- surveying applications
- guidance and control
- UAV applications
- used e.g. in pipeline surveying projects
- used in many countries / applications worldwide

The IMU is designed for ruggedized applications and is internally equipped with shock absorbers. The unit can be used shock-mounted or hard-mounted, i.e. without shock-absorbers. The data

output can be triggered (optional free running) and the data are sent via a UART or HDLC protocol.

The iFOG-IMU-1-A is manufactured in Germany and can be used as a replacement for LN-200 or HG1700 / HG1900. Compared to IMUs like

HG1700 the iFOG-IMU-1-A has more than 10 times higher MTBF.

No export license is required for using the device outside of Germany / Europe in commercial applications (only



an end use statement is required). iMAR's iFOG-IMU-1-A is in operation in China, India, Canada, Australia, Korea, UK, Belgium, Austria, Switzerland, Germany etc.

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

	Angular Rate	Acceleration
Sensor Range:	± 450 °/s	± 5 g (option: ±20 g)
Bias:	< 1.0 deg/hr	1.5 mg
Bias Stability (AV):	< 0.1 deg/hr	< 0.01 mg
Resolution:	0.1 arcsec / LSB	0.05 / 2 ¹⁵ m/s/LSB
Linearity / Scale error:	< 0.03 % / 0.03 %	< 0.1 % / 0.1 %
Angular random walk:	< 0.15 °/√h	< 50 μg/√Hz
Output:	3 x angular increment + 3 x velocity increment	
Axes Nonorthogonality:	< 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 SubD, 25 pin	
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	
Shockmounts:	-SM: delivery with external shockmounts (to be applied by user) -HM: delivery without external shockmounts	
Temperature, Shock, Vibration:	-40...+71 °C (operating, case temperature), -40...+85 °C (storage) 90g/11ms (version -SM), 30g/11 ms (version -HM); 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. 950 grams; 110x83x77 mm plus connector	
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 integrated	

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