

iIMU-FSAS-ADS

IMU with Odometer Interface and Integrated Power Regulation

The iIMU-FSAS-ADS is a very small size IMU consisting of 3 fiber optical gyros (FOG) in closed-loop technology of class 0.9 deg/hr and 3 servo-accelerometers of class 1.5 mg. It is available as triggered and free-running version.

- class 0.9 deg/hr / 1.5 mg
- free running as well as triggered version available; up to 400 Hz
- odometer interface and integrated stabilized power conditioning
- higher MTBF than tactical grade RLG systems
- used for stabilization tasks, INS/GNSS navigation, surveying, guidance & control
- 1'500+ units in the field



HDLC protocol (factory set). As an option the system can be delivered with an additional integrated odometer interface. Nevertheless the unit is designed for

industrial surveying applications, due to robustness requirements all signals are provided via a robust connector of type MIL-C-38999-III.

The iIMU-FSAS-ADS is manufactured in Germany. Despite of its industrial origin, due to its accuracy and reliability it is also used in defense applications, also as

The system is designed for ruggedized applications. The unit is delivered hard-mounted, i.e. without integrated shock-absorbers, to provide best angular stiffness in surveying applications. The iIMU-FSAS can be operated on an unregulated wide range input supply voltage and is protected against wrong polarity and moderate over-voltage.

a replacement with even additional functionality, e.g. for IMUs of type LN-200™ or HG1700/ 1900™.

The iIMU-FSAS-xxx-ADS is not restricted by any export control or ITAR regulations.

With iIMU-FSAS-HP a higher performance class IMU (0.1 deg/hr) is available with same data interface for applications, which require a higher performance.

The data output can be triggered or free-running and the data are sent via RS422 or an UART or on

Technical Data iIMU-FSAS-SI-ADS, iIMU-FSAS-EI-ADS, iIMU-FSAS-CCI-ADS:

	Angular Rate	Acceleration
Sensor Range:	± 450 °/s	± 5 g (option: ±10 g or ± 20 g) ¹⁾
Bias:	0.9 deg/hr (1 sigma)	1.5 mg
Bias Stability (AllanVariance):	< 0.1 °/hr (const. temperature)	< 10 µg
Resolution:	0.1 arcsec / LSB	0.05 / 2 ¹⁵ m/s/LSB
Linearity / Scale factor error:	< 0.03 % / 0.05 % (1 sigma)	< 0.1 % / 0.1 %
Angular random walk:	0.15 °/√h	< 50 µg/√Hz
Output:	3 x angular increment + 3 x velocity increment; option: odometer counts / velocity	
Axis Misalignment:	< 0.1 mrad between all sensor axes	
Digital Interface:	iIMU-FSAS-SI-ADS: data via HDLC (RS422), 2 MBit/s; configuration via RS422 UART iIMU-FSAS-EI-ADS-R and iIMU-FSAS-CCI-ADS-R: data and config. via RS422 UART -SI / -EI: data output externally triggered; -CCI: free running output (data rate adjustable)	
Trigger Operation:	available on iIMU-FSAS-EI-ADS / iIMU-FSAS-CCI-ADS: RS422 level, A/B quadrature	
Odometer input:	MIL-C-38999-III, 22 pin (male), type D38999/24WC35PA	
Connector:	up to 400 Hz	
Data rate:	gyro bandwidth 250 Hz, accelerometer bandwidth > 75 Hz	
Sensor bandwidth:	-40...+71 °C (operating, case temperature), -40...+85 °C (storage)	
Temperature, Shock, Vibration:	30g / 11ms; 20...2'000 Hz, 6.3 g rms (endurance)	
Magnetic Insensitivity:	< 0.1 deg/hr / Gauss (< 20 Gauss)	
Environment / MTBF/ MTTR:	IP67 / 30.000 hrs (estimated) / 10 minutes	
Size, Weight:	iIMU-FSAS-xxx-ADS: 155 x 135 x 92 mm (plus connector), approx. 2'300 grams	
Power, Start-up-Time:	10...34 V DC ; 20 W (max); < 1 sec; reverse-voltage protection Power-On/Off control line available (4...36 V, 8 mAmps)	

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¹⁾ the version with 20 g accelerometer range requires an export license according to dual-use rules

