iIMU-FSAS [-E]

IMU with Odometer Interface and Integrated Power Regulation

The iIMU-FSAS is a very small size IMU consisting of 3 fiber optical gyros (FOG) in closed-loop technology of class 0.75 deg/hr and 3 servo-accelerometers of class 1 mg. It is available as triggered and free-running version.

- class 0.75 deg/hr / 1 mg / 400 Hz
- odometer interface and integrated stabilized power conditioning
- higher MTBF than tactical grade RLG systems
- stabilization tasks
- INS/GPS navigation
- surveying, guidance & control
- 1'500+ units in the field

The IMU is designed for ruggedized applications. The unit is delivered hard-mounted (version –HM), i.e. without shock-absorbers, to provide best angular stiffnes 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. The data output can be triggered or free-running and the data are sent via RS422 on an UART or HDLC protocol. As an option the system can be delivered with an additional integrated odometer interface. All signals are provided via a robust connector of type MIL-C-38999-III.

The iIMU-FSAS is manufactured in Germany and can is used in many industrial, surveying and defense applications, also as a replacement with even additional functionality for Litton's LN-200 TM or Honeywell's HG1700/ 1900 TM. Compared to HG1700 the iIMU-FSAS has more than 10 times higher lifetime.

Technical Data iIMU-FSAS-SI, iIMU-FSAS-EI, iIMU-FSAS-CCI/NCCI [-E: export version]:

	Angular Rate		Acceleration
Sensor Range:	± 450 °/s		± 5 g (option: ±10 g or ± 20 g)
Bias:	0.75 deg/hr	(1 sigma)	1 mg [1]
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 % [1]
Angular random walk:	0.15 °/√h		< 50 µg/√Hz

Output:	3 x angular increment + 3 x velocity increment
Axis Misalignment:	< 0.1 mrad between all sensor axes
Digital Interface:	iIMU-FSAS-SI/-NCCI[-E]: data via HDLC (RS422), 2 MBit/s; config. via RS232 (-NCCI) iIMU-FSAS-EI-R[-E]: data and config. via RS422 UART
Trigger Operation:	-SI / -EI: data output externally triggered; -CCI / -NCCI: free running output
Odometer input:	available on iIMU-FSAS-EI / iIMU-FSAS-EI-E / iIMU-CCI: RS422 level, A/B
Connector:	MIL-C-38999-III, 22 pin (male), type D38999/24WC35PA
Data rate:	iIMU-FSAS-EI / -NCCI / -SI: up to 400 Hz; iIMU-FSAS-CCI (since 08/2014): up to 400 Hz
Sensor bandwidth:	gyro bandwidth 250 Hz, accelerometer bandwidth > 75 Hz
Temperature, Shock, Vibration:	-40...+71 °C (operating, case temperature), -40...+85 °C (storage) 60g/11ms (version -SM), 30g/11ms (version -HM); 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-SI [-E]: 116 x 128 x 98 mm (plus connector), approx. 1870 grams iIMU-FSAS-EI / -NCCI / -CCI [-E]: 128 x 128 x 104 mm (plus connector), approx. 2100 grams
Power, Start-up-Time:	11...34 V DC ; 20 W (max); < 1 sec; reverse-voltage protection Power-On/Off control line available (4...36 V, 8 mAmps)
Note:	For new designs use **iIMU-FSAS-NG** (fully compatible, lower power consumption, less height)

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[1] The „–E" version iIMU-FSAS-**E** (requiring no exoport license) provides an accel. scale factor of 0.15 % and bias of 2 mg

 09.10.2015 rev. 2.12 DocNo.: DOC100227025