# iIMU-FSAS-HP

## (-EI/-SI/-CCI/-NCCI)

### IMU with Odometer Interface and Integrated Power Regulation

The iIMU-FSAS-HP is a high precise small size IMU consisting of 3 fiber optical gyros (FOG) in closed-loop technology of class 0.1 deg/hr and 3 servo-accelerometers of class 1 mg. It is available as triggered and free-running version.

- class 0.1 deg/hr / 1 mg / 400 Hz
- odometer interface on-board and integrated stabilized power conditioning
- higher MTBF than tactical grade RLG systems
- used for stabilization tasks, INS/GPS navigation, surveying applications, guidance and control etc.
- 1'500+ units of predecessor iIMU-FSAS (0.75 °/h) in the field


The IMU is designed for ruggedized applications. The unit is delivered hard-mounted, i.e. without shock-absorbers, to provide best angular accuracy in surveying applications. The iIMU-FSAS-HP 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 operated triggered or free-running and the data are sent via RS422 UART or HDLC protocol. All signals are provided via an robust connector of type MIL-C-38999-III.

The iIMU-FSAS-HP is manufactured in Germany and is used in industrial, surveying and defense applications. It has 10 times lower gyro drift than tactical grade units of type HG1700 or LN200.

The iIMU-FSAS-HP has same footprint, base size and connector pinning as iIMU-FSAS, only height is slightly larger.

## Technical Data iIMU-FSAS-HP-SI, iIMU-FSAS-HP-EI-R, iIMU-FSAS-HP-CCI/NCCI:

| | Angular Rate | | Acceleration |
|---|---|---|---|
| Sensor Range: | ± 450 °/s (option: up to 1'000 °/s) | | ± 5 g (option: ±10 g or ± 20 g) |
| Bias: | 0.1 deg/hr | (1 sigma) | 1.5 mg |
| Bias Stability (AllanVariance): | < 0.01 °/hr | (const. temperature) | < 10 µg |
| Resolution: | 0.1 arcsec / LSB | | 0.05 / $2^{15}$ m/s/LSB |
| Linearity / Scale factor error: | < 0.03 % / 0.03 % | (1 sigma) | < 0.1 % / 0.1 % |
| Angular random walk: | 0.01 °/√h | | < 50 µg/√Hz |

| | |
|---|---|
| Output: | 3 x angular increments + 3 x velocity increments |
| Axis Misalignment: | < 0.1 mrad between all sensor axes |
| Digital Interface: | - iIMU-FSAS-HP-SI/-HP-NCCI: data via HDLC (RS422), 2 MBit/s; config. via RS232 (-NCCI)<br>- iIMU-FSAS-HP-EI-R: data via RS422 UART; config. via RS422 UART |
| Trigger Operation: | -HP-SI / -HP-EI-R: data output externally triggered; -HP-CCI / -HP-NCCI: free running output |
| Odometer input: | available on iIMU-FSAS-HP-EI-R / iIMU-HP-CCI: RS422 level, A/B |
| Connector: | MIL-C-38999-III, 22 pin ( male), type D38999/24WC35PA |
| Data rate: | iIMU-FSAS-HP-EI-R / -HP-NCCI / -HP-SI: up to 500 Hz; iIMU-FSAS-HP-CCI: up to 500 Hz (up to 2 kHz as option) |
| Sensor bandwidth: | gyro bandwidth 500 Hz, accelerometer bandwidth > 75 Hz |
| Temperature, Shock, Vibration: | -40...+71 °C (operating, case temperature), -40...+85 °C (storage)<br>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-HP-xx: approx. 128 x 128 x 110 mm (plus connector), approx. 2'800 grams |
| Power, Start-up-Time: | 10...34 V DC ; 25 W (max); < 1 sec; reverse-voltage protection<br>Power-On/Off control line available (4...36 V, 8 mAmps) |

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