

iIMU-MM-04

MEMS Based IMU for Surveying and ADAHRS Applications

The iIMU-MM-04 is a MEMS based IMU consisting of 3 MEMS gyros and 3 accelerometer axes.

- 0.15 deg/sqrt(hr) / 300 µg/sqrt(Hz); bias stability (AV) 10 °/hr, 2 mg OTR
- +/- 400 °/s, +/- 10 g range
- 1'000 Hz and 200 Hz data rate with calibrated data
- power supply according to DO160E; FPGA Firmware according to DO254
- Used for Attitude Heading Reference, Surveying, Guidance & Control Applications
- Also uncalibrated raw data available
- RS485 (UART) interface
- SYNC input for time stamping



land vehicles, naval vessels, helicopters and fixed wing aircrafts. The iIMU-MM-04 can be operated at

an unregulated wide range power supply (10-34 V DC) and is protected against wrong polarity, HIRF, lightning and over-voltage up to 80 V. The data output is free running and the data are sent via RS485. Two redundant outputs and power inputs are available. An version with internal additional dissimilar 3 gyros and accelerometers available on request.

An external or internal AHRS processor with optional integrated L1 GPS engine is available

to provide roll, pitch, heading and velocity information.

The iIMU-MM-04 is not export controlled and free of ITAR restrictions.

The iIMU-MM-04 can be delivered with calibrated sensor interface or as full AHRS with internal barometer and magnetometer (order code: iVRU-MM-04). The IMU is designed for ruggedized applications on

Technical Data of iIMU-MM-04:

	Angular Rate	Acceleration
Sensor Range:	± 400 °/s	± 10 g
Bias:	< 0.003 deg/s (1 sigma, OTR)	2 mg
Bias Stability, short time (from AV):	< 0.5 deg/hr (const temp.)	< 0.1 mg
Resolution:	0.002 deg/s	< 0.05 mg
Linearity / Scale error:	0.1 %	0.2 %
Angular random walk:	0.15 °/√h	< 300 µg/√Hz
Output:	angular rate, acceleration, angle increments, velocity increments	
Axis Misalignment:	< 1 mrad between all sensor axes	
Digital Interface:	RS485 (UART), 921.6 kBd full calib. data (1'000 Hz / 200 Hz) or 115.2 kBd reduced calib. data (125 Hz / 25 Hz) or 115.2 kBd uncalibrated data (50 Hz)	
Connector:	Type MIL-C-38999-III (J1, J2)	
Data rate:	1'000 Hz rates and 200 Hz increments (free running); gyro bandwidth 200 Hz, accelerometer bandwidth 200 Hz	
AHRS features (option: iVRU-MM-04):	roll/pitch < 1° dynamic flight, baro altitude, GPS based position and velocity	
SYNC:	Option: TTL SYNC input to reset internal package counter	
Temperature, Shock, Vibration:	-45...+85 °C (operating, case temperature), -56...+90 °C (storage) 6 g, 20 ms saw-tooth; 10...2000 Hz 3.5 g rms (operation)	
Bonding resistance:	better 2.5 mOhm	
Environment / MTBF/ MTTR:	IP66 / > 25.000 hrs (estimated) / 6 minutes	
Size, Weight:	approx. 120 x 120 x 120 mm (plus connector), approx. 1.2 kg	
Power, Start-up-Time:	10...34 V DC ; 6...15 W; < 4 sec; reverse-voltage protection	

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