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iNAT-FSSG
for new projects!

GESELLSCHAFT FUER INERTIALE MESS-,
AUTOMATISIERUNGS- UND REGELSYSTEME MBH
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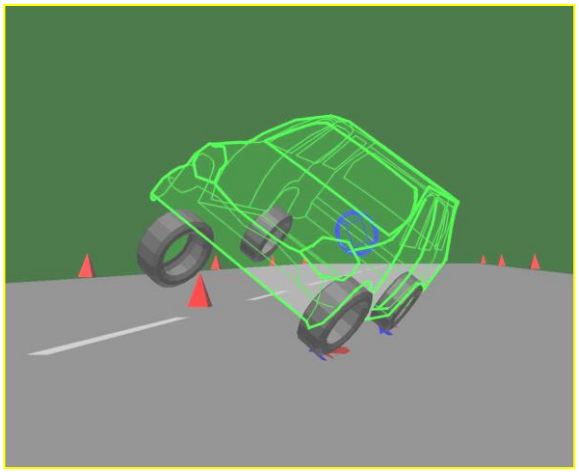
iDIS-FMS

Inertial Measurement Unit with High Accurate Fiber Optical Gyros for Vehicle Dynamics Analysis

iMAR's inertial measurement system iDIS-FMS for inertial vehicle motion analysis, 3D topology determination of test roads or trajectory surveying or stabilization and guidance is equipped with high precision multiplexed fiber optical gyros and servo-accelerometers and covers applications which require high accuracy, reliability and an open interface to the user.

- accuracy 0.05° / 1 mg / 0.001 °/s
- 2 cm position accuracy with RTK-DGPS in real-time at open sky or with post-processing
- interfaces: CAN / RS232 / Ethernet TCP/IP
- robust system designed for testing environment
- fiber optic gyro technology (FOG)
- no acceleration depending gyro drift
- small size, low weight
- connectable to steering robots

With the iDIS-FMS a measurement system is availabe which beats competitive sys-



tems in performance and bandwidth. Nevertheless the iDIS-FMS comes in a small and compact enclosure it provides most powerful interfaces, e.g. providing an internal CAN and Ethernet / TCP/IP interface as well as RS232 and analog output as an option. Furthermore the system provides interfaces for speed measurement (counter input), external marker and trigger (e.g. to synchronise an external camera or a lane marking detection system). Standard output of the iDIS-FMS are acceleration (gravity compensated), angular velocity (earth

rate compensated), roll, pitch and yaw (attitude and heading). With the integrated Kalman filter software also position (longitude, latitude, height) and velocity will be available (even when GPS is covered for a certain time). This algorithm provides a very high neighborhood accuracy in position as well as an accurate global position in real-time.

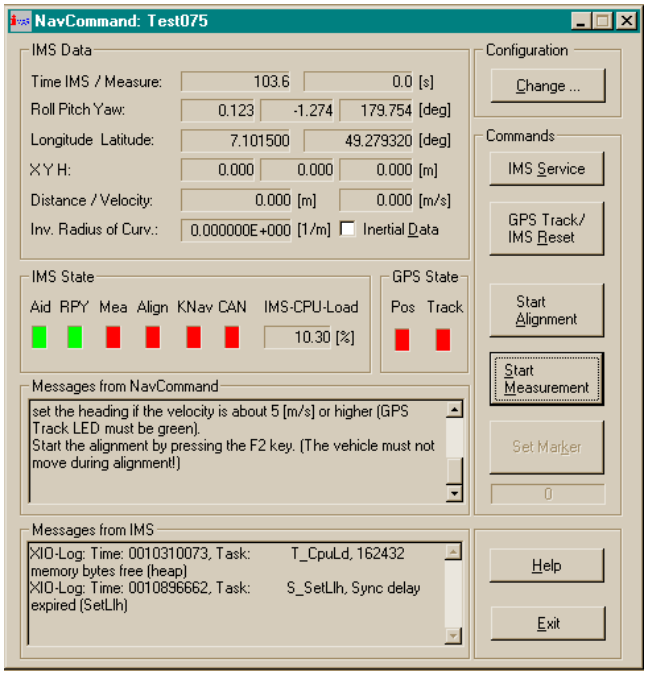
Furthermore an internal data storage on silicon-disk is available as an option (e.g. to perform post-processing).

As an option the system can be delivered with an internal power conditioning according to MIL-STD 461 C and transient protection according to MIL-STD 704A/D/E and DO-160C.

Data processing (strap-down algorithms, attitude and heading calculation, dead-reckoning navigation) is done inside of the measuring system. Data transmission can be configured.

The system can be operated from a PC under Windows™ using iMAR's NavCommand software. Furthermore an open user-interface is available using iMAR's XIO standard so the user can operate the system from his own environment. Features like "virtual measurement point" or odometer input are standard.

On request the system can be delivered with RTK-DGPS to provide absolute position accuracy with centimeter to decimeter performance.



Technical Data of iDIS-FMS-1:

Range:	± 500 deg/s		±5 g (option: ± 20 g)
Rate/Accel Accur.:	0.75 deg/h		< 1.5 mg
Bias Stability (AV):	< 0.1 deg/hr	(constant temperature)	< 10 µg
Random Walk:	< 0.10 deg/$\sqrt{h}$		< 50 µg/$\sqrt{Hz}$
Resolution:	< 0.001 deg		< 50 µg
Linearity error:	< 0.03%		< 0.03 %
Scalefactor error:	< 0.03%		< 0.05 %
Accuracy:	< 0.1 deg (Roll/Pitch, with velocity aiding)		
	< 0.1 deg Heading (with temporary GPS-aiding; 0.1 deg with DGPS)		
	< 0.1 deg side slip angle (with GPS aiding, open sky, v > 10 m/s)		
Data rate:	1...400 Hz		
Initial Alignment:	for heading using the internal GPS receiver or manually preset		
Output (options):	RS232, CAN, analog, Ethernet / TCP/IP, customer specific		
Inputs (options):	odometer (A/B), event trigger, PPS + external DGPS		
Sync. Reference:	Input or output for PPS (if available)		
Power:	11...34 V DC (optional other)		
Temperature:	-30...+63 °C (operating within specification)		
Shock:	60 g, 11 ms (depends on shock mounts)		
Weight:	6.5 kg (depends on housing; light weight version on request)		
Size:	265 x 145 x 132 mm		

For other accuracies ask also for our systems of the series iTraceRT-F200, iNAV-RQH, iVRU-FQ-E or iVRU-CB.

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