GESELLSCHAFT FUER INERTIALE MESS-,
AUTOMATISIERUNGS- UND REGELSYSTEME MBH
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iTNAV-06

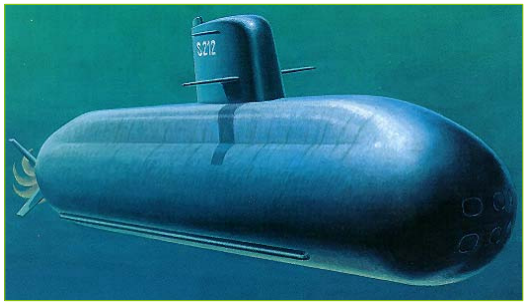
Inertial Measurement Systems for AUV and Torpedo Guidance

iMAR's iTNAV-06 has been developed as an IMU for inertial AUV stabilization, guidance and dynamically motion analysis with advanced fiber optical gyros that covers applications which require high accuracy, reliability and an open interface to the user.

- inertial guidance system for UAV / RPV applications, also used in heavy weight torpedoes (e.g. on German's Seahake Mod 4 / Seehecht / DM2A4)
- FOG technology with low angular random walk and high angular resolution (0.75 °/hr, 1.5 mg)
- high data rate, open interface
- integrated torpedo navigation as an option
- Interfaces: CAN, RS232, velocity from propellor or DVL as an option

iTNAV-06 is an IMS equipped with three fiber optical gyroscopes and three servo accelerometers.

As an option the system provides interfaces to 2 counters for monitoring the revolutions of the propelling screws, inputs for depth



sensor and external triggers and outputs for the rudders (analog or PWM). Possible digital outputs are RS232 or CAN (other on request). Special adaptation of housing and mechanical dimensions is possible. Calculation of attitude and relative heading is standard, as an option also a dead-reckoning can be provided inside of the measuring system. Data transmission of calculated data or raw data is possible.

A special derivation of the iTNAV-06 is used as the attitude and heading reference system

(AHRS) in the DM2A4 heavy weight torpedo of the German Navy (e.g. for Type U212

submarine). More detailled information is classified.
No export license is required for approved customers.

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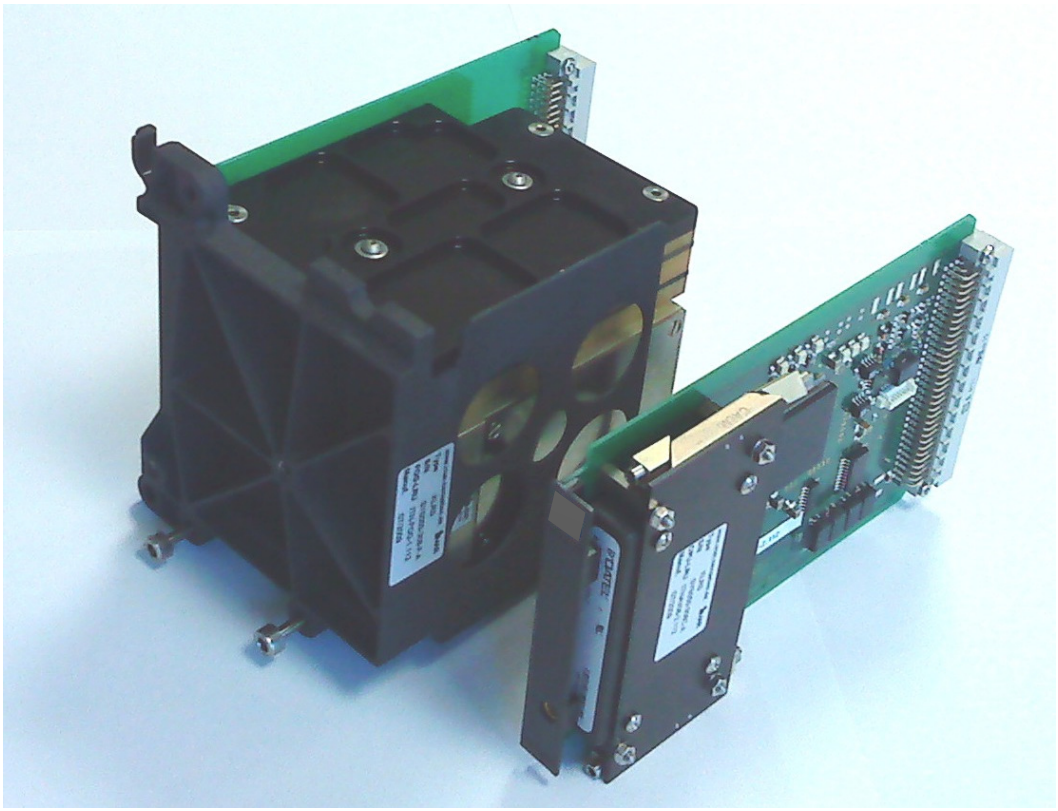

Technical Data (all 1 sigma):

Range:	± 450 deg/s	±5 g (option: ±10 g)
Drift/Offset:	0.75 deg/h	1.5 mg
Random Walk:	0.10 deg/√h	< 0.5 mg/sqrt(Hz)
Resolution:	0.0003 deg (1")	< 100 µg
Linearity error:	< 300 ppm	1,500 ppm

Alignment accuracy:	< 0.2 deg in roll/pitch (0.1 deg if proper external velocity aiding is available)
Data rate:	1...150 Hz
g-dependent drift:	none (due to advanced fiber optic technology)
North seeking:	N/A
Output:	RS232, CAN (protocol custom specific)
Inputs (options):	odometer/prop-counter, DVL, event trigger
Sync. Reference:	Input for time reference (if available)
Power:	11...34 V DC, 21 W
Temperature:	-30...+63 °C (operating within specification; proper heat sink required) -40…+85 °C (storage)
Shock:	60 g, 6 ms (depends on shock mounts), vibration 3.5 g rm (10…500 Hz)
Weight:	approx. 1.808 kg
Size:	two slot cards, approx 170x110x28 mm³ and 170x125x115 mm³ (LxHxW)

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