



iATTHEMO-M

True North Finding Stabilization Reference
for Guidance & Control in Marine and Naval Applications

iATTHEMO-M is a miniaturized dual-antenna GNSS compass for marine and naval applications with an integrated MEMS based inertial measurement system, which provides true heading as well as attitude, velocity, position, angular rates and acceleration at high performance. It is a small size unit and easy to use.

- True Heading with up to 500 Hz data rate, Dual antenna multi-frequencies / multi-constellation
- Accurate roll, pitch, WGS84 position & acceleration and standard deviation and vessel guidance & control
- Integrated propeller interface
- CAN / UART RS232 & PPS / NMEA183 / UDP and NMEA183
- Supports [iDMN](#) (Digital Motion Network)
- Supports Multi-Antenna (MVA) / Multi-Vessel (MVT)
- Real-world proven in various marine crafts
- PPS and NTP output

Due to its advanced architecture, [iATTHEMO-M](#) provides true north related heading, even under such motion conditions, where other GNSS/MEMS based systems fail (e.g. at standstill or motion with strong side slip angle). While standard GNSS based systems provide



Successor of iATTHEMO-M: iATTHEMO/TLE-LN1 (form-fit-function replacement)

[link](#)

Beside of iATTHEMO-M, with iNAT iMAR offers also other, even higher accurate dual-antenna based systems on MEMS, FOG, HRG and RLG basis. Last but not least, our iATTHEMO-TRIDENT might be of interest as well: A Gyro Compass & Motion Reference Unit, including GNSS which provides 3 marine functionalities in a single, maintenance-free device.

Technical Data of iATTHEMO-M/TLC-STAB-DA (rms):

	Gyro Performance	Accelerometer Performance
Sensor Range:	± 100 °/s	± 8 g
Bias Stability (Allan Var.):	< 1.8 °/hr	0.004 mg
ARW / Noise:	0.09 °/ \sqrt{h}	0.016 mg/ \sqrt{Hz}
Bandwidth:	0...200 Hz	0...200 Hz
Scale Factor Accuracy:	0.1 %	0.1 %
Attitude / Heading Range:	± 180 ° Roll, ± 90 ° Pitch, ± 180 ° true heading (Yaw)	
Attitude Accuracy:	< 0.1 ° rms roll/pitch under sufficient motion with GNSS aiding ¹	
Heading:	< 0.1 ° rms true heading with 2 m antenna baseline and GNSS available ¹ < 0.05 ° rms true heading with 4 m antenna baseline and GNSS available ¹ < 0.1 ° rms under sufficient motion and sufficient GNSS availability (for single antenna operation) ¹ < 0.01 °; < 0.01 °/s drift on heading during short GNSS outages	
Attitude/Heading Resol. / Drift:	using all-frequency / all-constellation GNSS and RTK: 2 cm CEP, up to 500 Hz data rate; performance: approx. 1.5 m RMS (S/A off, no RTK, no SBAS)	
Position/Velocity:	angular rate and acceleration, position e.g. in WGS84, velocity, roll, pitch, heading; BIT, status, std.dev. INS/GNSS data fusion; Dual-Antenna L1L2Lx GPS+GALILEO+GLONASS+BEIDOU; optional support: external 3D magnetometer, depth sensor, DVL; heave output	
Digital Output:	CAN (up to 1 MBit/s), UART RS422 / RS232 (up to 921.6 kBd), USB, Ethernet (TCP/IP, UDP), dig. I/O	
Integrated Features:	integer divisor of 500 Hz via CAN / RS422/ ETH; MIL-C-38999 III 37 pin; 2 x SMA for GNSS antennas -40...+71 °C (case temperature); storage: -55...+85 °C; $> 35'000$ hrs (estimated, surveying applications)	
Digital Interface:	10...34 V DC, approx. 8 W	
Output Data Rate, Connector:	approx. W x L x H = 102 x 122 x 65 (metal case, IP65); approx. 850 grams; 60 g, 11 ms; 20...2'000 Hz 5 g (rms) endurance	
Temperature; MTBF:	iXCOM-CMD (under Windows and Linux available) for configuration and data storing	
Power:	iATTHEMO-M/TLC-STAB-DA: 00193-050B2-0527	
Size:	- integrated vehicle stabilization & control algorithms (e.g. for fast ferry ride control)	
Weight, Shock, Vibration:	- versions available with higher rate range (500 deg/s), higher g range (40 g), lower angular random walk (0.03 deg/sqrt(hr) or other sensor technologies (FOG, HRG, RLG)	
Software:		
Part Number:		
Options:		

iMAR Navigation GmbH • Im Reihersbruch 3 • D-66386 St. Ingbert / Germany

Phone: +49-(0)-6894-9657-0 • Fax: +49-(0)-6894-9657-22

www.imar-navigation.de • sales@imar-navigation.de

¹ under sufficient motion dynamics and with suitable GNSS aiding

