



# iATTHEMO-C

True North Finding

High Precision Heading, Attitude, Position & Velocity Reference  
based on Dual Antenna GNSS & MEMS IMU Data Fusion

iATTHEMO-C is a miniaturized dual-antenna GNSS compass with an integrated MEMS based inertial measurement system to provide 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 due to Dual Antenna GNSS, using L1L2 GPS, plus optional GLONASS / GALILEO
- Accurate roll, pitch, WGS84 position & velocity, rates and acceleration (integrated 42+ state INS/GNSS data fusion)
- Integrated odometer interface
- CAN / UART RS232 & RS422 / Ethernet (TCP/IP, UDP) and NMEA183 interfaces
- PPS output for synchronization



angle). While standard GNSS based systems provide data only with low data rate, iATTHEMO-C provides all data with up to 500 Hz and from standstill up to high dynamic conditions.

So the iATTHEMO-C is a most suitable sensor, coming in a robust enclosure including strong EMI/ EMC filtering, to provide **Attitude**, **Heading** and **Motion** measurements for many surface, airborne, naval and automotive applications. As an option, the system is also available as single antenna version (iNAT-M200/SLN).

Furthermore with

Due to its advanced architecture, iATTHEMO-C 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

iATTHEMO-B and -A systems are available which provide lower MEMS gyro performance than iATTHEMO-C and with iNAT-FSSG-1-DA also a more accurate dual-antenna system on FOG basis is available.

## Technical Data of iATTHEMO-C (rms):

	Gyro Performance	Accelerometer Performance
Sensor Range:	$\pm 400$ °/s	$\pm 10$ g
Bias Stability (Allan Var.):	0.5 °/hr	0.06 mg
ARW / Noise:	$0.15$ °/ $\sqrt{h}$	$0.06$ mg/ $\sqrt{Hz}$
Bandwidth:	0...250 Hz	0...250 Hz
Scale Factor Accuracy:	0.1 %	0.1 %
Attitude / Heading Range:	$\pm 180$ ° Roll, $\pm 90$ ° Pitch, $\pm 180$ ° true heading (Yaw)	
Attitude Accuracy:	$< 0.03$ ° rms (typical) roll/pitch under sufficient motion with GNSS aiding <sup>1</sup>	
Heading:	$< 0.4$ ° rms true heading with 1 m antenna baseline and GNSS available <sup>1</sup>	
	$< 0.2$ ° rms true heading with 2 m antenna baseline and GNSS available <sup>1</sup>	
	$< 0.1$ ° rms under sufficient motion and sufficient GNSS availability <sup>1</sup>	
Attitude / Heading Resol./Drift:	$< 0.01$ °; <b><math>&lt; 0.001</math> %/s drift</b> on heading/roll/pitch during short GNSS outages	
Position/Velocity:	using L1L2 GNSS based position / velocity Format: WGS84, up to 500 Hz data rate, performance: 1.5 m RMS (S/A off, no SBAS) Option -R: RTK accuracy (2 cm rms)	
Digital Output:	angular rate and acceleration, position in WGS84, velocity, Roll, Pitch, heading; BIT	
Integrated Features:	Dual-Antenna L1L2 GPS (option -G: additional GLONASS); IMU, 3D magnetometer, baro sensor, odometer interface	
Digital Interface:	CAN (up to 1 MBit/s), UART RS422 (up to 921.6 kBd), USB, Ethernet	
Output Data Rate, Connector:	up to 500 Hz via CAN / RS422; MIL-C-38999 III 37 pin; 2 x SMA for GPS antennas	
Temperature:	-40...+71 °C (case temperature); storage: -55...+85 °C	
Power:	9...34 V DC, approx. 8 W	
Size:	approx. W x L x H = 102 x 138 x 65 w/o connectors (metal case, IP65);	
Weight, Shock, Vibration:	approx. 800 grams; 60 g, 11 ms ; 20...2'000 Hz 5 g (rms) endurance	
Software:	iXCOM-CMD (under Windows and Linux available) for configuration and data storing	

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<sup>1</sup> under sufficient motion and with suitable GNSS aiding

