

iCOMBANA-IV

***Combat
Navigation
System***



**for MBTs
and IFVs**

*Dynamic
on-the-move
Heading
Alignment*

compact - light – reliable – cost effective

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iCOMBANA-IV

iCOMBANA-IV is part of the INS product family of systems for inertial navigation, surveying and guidance, stabilization with integrated GNSS aided attitude, heading, position and velocity determination with fiber optical gyros, that covers applications, which require accuracy, reliability and an open interface to the user.

- inertial navigation & surveying system for land / surface, airborne, naval and other applications
- integrated L1 GPS+GLONASS receiver
- interface for external L1L2 GPS/GLONASS RTK/SAASM receiver with optional dual-antenna supported true north reference even at standstill (iDAGOS)
- FOG technology with high angular resolution and robustness; high data rate, low latency
- integrated VMS / odometer interface
- interfaces: Ethernet TCP/IP - UDP, CAN, RS422 UART, USB, ext. GNSS corrections (option)

iCOMBANA-IV consists of three accurate closed-loop fiber optical gyroscopes with low random walk and high gyro angular resolution, three servo accelerometers, a powerful strapdown processor and an open and flexible interface, which can be customized on request.

Technical Data iCOMBANA-IV

True Heading:	< 2 mils (0.1°) [RMS] with GNSS aiding on the move (also with only 1 m antenna baseline) ¹ Heading drift during short GNSS outages under motion (typical): 0.3 mils / min. Option: combination with iDAGOS (external GNSS based dual antenna system): < 2 mils (0.1°) [RMS] with 4 m baseline between the two GNSS antennas < 10 mils (0.4°) [RMS] with 1 m baseline between the two GNSS antennas ²
Position Accuracy:	< 2 m [RMS] (GPS, S/A off) < 0.3 % DT [CEP] (during short time loss of GPS, odometer aided)
Altitude:	< 6 m [RMS] (GPS, S/A off) < 0.4 % DT [RMS] (during short time loss of GPS, odometer aided)
Attitude Accuracy:	< 1 mils [RMS] (with sufficient GPS coverage); < 5 mils [RMS] (w/o GNSS aiding)
Angular Rate / Accel. Range:	±450 °/sec , ±10 g
GNSS Aiding:	integrated L1 GPS+GLONASS receiver; option: external L1L2 GPS/GLONASS receiver
Alignment Time:	< 1 min. static alignment time < 2 min. GNSS cold start, < 1 min. GNSS warm start; < 30 sec with stored heading
Data Output Rate:	1...500 Hz, internal bandwidth 500 Hz
Temperature range:	-40 to +71°C operating, -46 to +85°C storage
MTBF / MTTR / Installation:	35,000 hrs (estimated) / < 30 minutes / installation in all arbitrary orientations allowed
Shock, Vibration:	25 g, 11 ms; 60 g, 5 ms (operating); 20...2'000 Hz, 3 g rms; 6.8 g rms endurance w/o vibration isolators; isolators can be applied to the specific application
Qualification:	MIL-STD-810G, MIL-STD-461G, MIL-STD-704F
Power; Start-up-Time:	10...34 V DC, < 16 W, overvoltage protection up to 60 V ; < 15 sec
Weight / Size / Connector:	approx. 2.2 kg / approx. 120 x 128 x 125 mm ³ (without connectors) / MIL-C-38999 III, TNC
Software:	internal online Kalman filter, INS/GNSS/ODO data fusion; iXCOM-CMD interface software

¹ under sufficient GNSS conditions, motion dynamics and trajectory

² under suitable GNSS conditions

All data like attitude, heading, position, velocity, rates and acceleration are sent with up to 500 Hz via Ethernet or RS422 (UART) or CAN with time stamp related to UTC/ PPS.

The GNSS data are also accessible. All signals are fed via a robust connector of type MIL-C-38999-III.

The system is designed for "plug & play" operation and



e.g. estimates the wheel sensor's scale factor and misalignment automatically.

The system is delivered with an internal power conditioning according to MIL-STD 461 G and transient protection according to MIL-STD 704F.

With iXCOM-CMD an operation and maintenance software, operable under Linux and MS Windows, incl. moving map, waypoint navigation etc. is available. The system is manufactured in Germany and is neither covered by export control nor by ITAR regulations.

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