iCOMBANA-III-DA

Low-cost, high efficient

Combat Navigation System

with

Dual-Antenna GNSS

supported

True Heading

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iCOMBANA-III-DA

iCOMBANA-III is part of the IMS product family of systems for inertial navigation and guidance, north finding, stabilization, true heading determination and for dynamically motion analysis with fiber optical gyros, that covers applications, which require accuracy, reliability and an open interface to the user.

- Two (2) integrated L1L2 GNSS receivers (GPS/GLONASS) and dual-antenna supported true north referencing
- inertial navigation & surveying system for land / surface, airborne, naval and other applications
- FOG technology with high angular resolution
- Integrated VMS / odometer interface
- high data rate, low latency
- Interfaces: Ethernet TCP/IP - UDP, CAN, UART RS422, ARINC429, HDLC, USB, ext. GNSS corrections (option)

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

All data like attitude, heading, position, velocity, rates and acceleration are sent with up to 500 Hz via Ethernet or RS422 (UART) or CAN or ARINC429 or HDLC with time stamp related to UTC/ PPS.

The GNSS data are transmitted via the same or an alternate interface. All signals are fed via robust connectors of type MIL-C-38999-III.

The dual-antenna capability allows the system to determine true heading also at standstill conditions,

where other systems of this class cannot provide stable heading. Furthermore 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.

Technical Data iCOMBANA-III-DA

True Heading:	< 2 mils (0.1°) [RMS] with 4 m baseline between the two GNSS antennas	
	< 7 mils (0.4°) [RMS] with 1 m baseline between the two GNSS antennas [1]	
	~ 2 mils (0.1°) [RMS] with GPS aiding on the move (also with only 1 m antenna baseline) [2]	
	Heading drift during short GNSS outages under motion (typical): 0.1 mils / min.	
Position Accuracy:	< 2 m [RMS]	(GPS, S/A off)
	< 0.25% DT [CEP]	(during loss of GPS, odometer aided)
Altitude:	< 6 m [RMS]	(GPS, S/A off)
	< 0.15% DT [RMS]	(during loss of GPS, odometer aided)
Attitude Accuracy:	< 1 mils [RMS] with sufficient GPS coverage; < 2 mils [RMS] w/o GPS aiding	
Angular Rate / Accel. Range:	± 450 °/sec , ±5 g (option: +/- 20 g)	
GNSS Aiding:	integrated L1L2 GPS/GLONASS dual antenna receiver	
Alignment Time:	< 2 min. GNSS cold start, < 1 min. GNSS warm start; < 30 sec with stored hdg.	
Data Output Rate, Latency:	1...500 Hz, internal bandwidth 500 Hz; < 3 ms latency; PTP on Ethernet as option	
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 and 20…2’000 Hz, 3 g rms (operating); 6.8 g rms endurance	
Qualification:	MIL-STD-810G, MIL-STD-461G, MILSTD-704F, DO160G	
Power; Start-up-Time:	10...34 V DC, < 22 W, overvoltage protection up to 60 V ; < 15 sec	
Weight / Size / Connector:	approx. 4.6 kg / approx. 187 x 128 x 196 mm^3 (without connectors) / MIL-C-38999 III, TNC	
Software:	internal online 42+ state Kalman filter, iXCOM-CMD interface software	

[1] under suitable GNSS conditions
[2] under sufficient GNSS conditions, motion dynamics and trajectory

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