

iCOMBANA-V-DA

High efficient and reliable

Combat Navigation System



Static &
on-the-move
Alignment



iCOMBANA-V

iCOMBANA-V is part of the INS product family of inertial systems for navigation, guidance, geo localization, control, stabilization, true heading determination and pointing with MEMS based gyros, that covers applications, which require accuracy, reliability, easy integration and operation.

- integrated dual-antenna based all-constellation / multi-frequency true north referencing GNSS receiver
- inertial navigation & surveying system for land / surface, airborne, naval and other applications
- MEMS technology with high angular resolution and robustness; high data rate, low latency
- integrated VMS / odometer interface (ground)
- interfaces: Ethernet TCP/IP - UDP, CAN, UART RS422, NMEA 0183, ARINC429, ARINC825, HDLC, USB, ext. GNSS corrections (option)

iCOMBANA-V consists of three accurate MEMS 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.

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 GPS time / PPS.

The GNSS data can be transmitted via the same or an alternate interface as the results of the INS/GNSS sensor data fusion.

Its dual-antenna GNSS setup allows the system to perform a true heading determination at standstill or on-the-move. 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 461G 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-V and iCOMBANA-V-DA

True Heading:	4 mil / L[m] [RMS] by dual-antenna (-DA) operation at antenna baseline L Example: L = 2 m → heading accuracy 2 mil (under suffic. GNSS conditions) < 2 mil (0.1°) [RMS] with sufficient GNSS visibility and aiding on the move ¹
Position accuracy:	Heading drift during short GNSS outages after suffic. GNSS aiding (typical): 0.05 mils/sec < 2 m / < 0.1 m [CEP50] GNSS, S/A off / RTK GNSS < 0.15 % DT [CEP50] during short-term loss of GNSS, odometer aided (ground)
Altitude:	< 3 m / 0.06 m [PE50] GNSS, S/A off / RTK GNSS < 0.2% DT [PE50] during short-term loss of GNSS, odometer aided (ground)
Attitude Accuracy:	< 1 mils [RMS] with sufficient GNSS coverage; < 2 mils [RMS] w/o longer time without GNSS aiding
Angular Rate / Accel. Range:	±480 °/sec , ±15 g
GNSS Aiding:	integrated multi-frequency/multi-constellation dual-antenna GNSS receiver interface to connect external GNSS receivers (SAASM, M-Code) like NavHub or TopStar; internal SAASM / M-Code receiver possible on request.
Alignment Time:	< 2 min. after GNSS cold start, < 60 sec after GNSS warm start, < 30 sec with stored heading duration of in-motion alignment depends on motion profile (30 sec ... 5 minutes)
Data Output Rate, SYNC:	integer divisor of 500 Hz, internal bandwidth 500 Hz; NTP output via Ethernet
Temperature range:	-55 to +71°C operating (case temperature), -55 to +67 °C specified perf., +85 °C short term, -55 to +85°C storage
MTBF / MTTR; Installation:	35,000 hrs (estimated) / < 30 minutes / installation in all arbitrary orientations allowed
Shock, Vibration, Altitude:	6 g / 20 ms (operating); 40 g / 15 ms non-operating; 40 g / 20 ms crash safety; 10...2'000 Hz / 4.1 g rms operational / 6 g rms endurance; 60'000 ft
Qualification:	MIL-STD-810G, MIL-STD-461G, MIL-STD-704F; designed partially to meet DO160G
Power; Start-up-Time:	10...35 V DC, < 20 W, overvoltage protection up to 60 V ; < 15 sec (< 2 min. GNSS cold start)
Weight / Size / Connector:	< 5.1 kg / approx. 187 x 130 x 261 mm ³ (without connectors) / MIL-STD-38999 III, TNC
Software:	QNX based, internal online 42+ state Kalman filter sensor data fusion, iXCOM-CMD interface software
Part-Numbers:	iCOMBANA-V/T: 00190-04301-0507 (usable as single and dual antenna system)

¹ under sufficient GNSS conditions, sufficient motion dynamics and changes in heading

