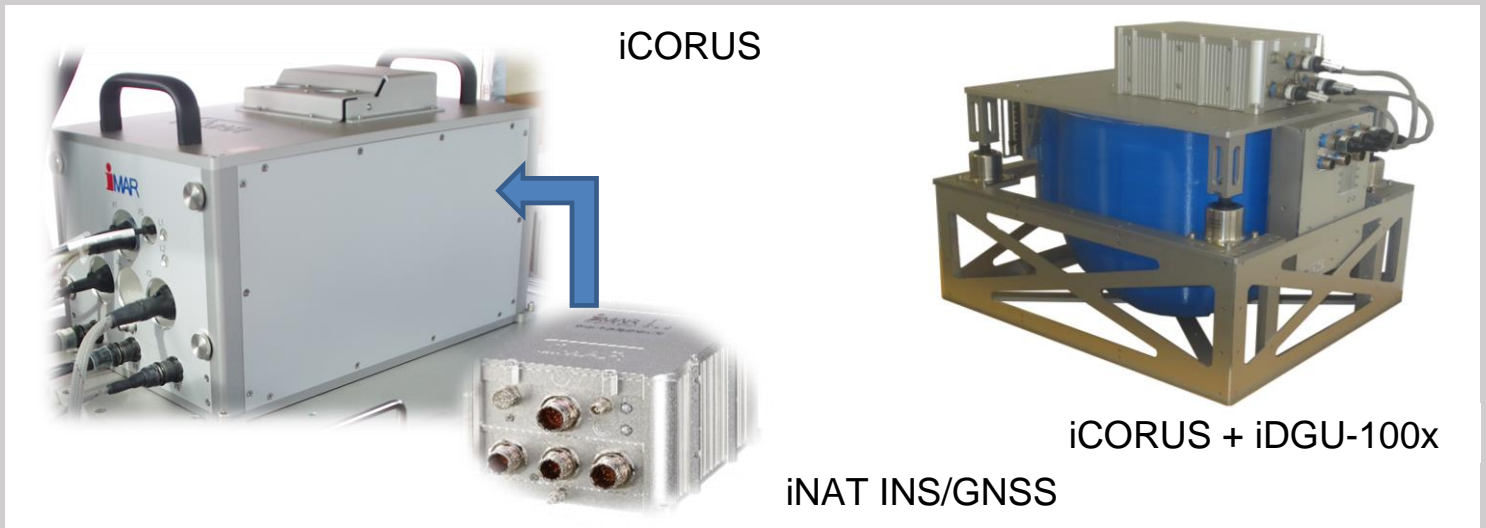


High Accurate iNAT for Gravity Measurements

light – high accurate – easy to operate



iCORUS optimally responds to today's requirements in gravity measurements. It operates stand alone, reliable and high accurate and acquires all measurement data on its integrated 32 GByte non-volatile memory. As it contains a specific member of the well-known iNAT navigation & timing system family, it also provides all motion data (position, velocity, attitude, heading, rates and acceleration) in real-time, e.g. useable for vehicle guidance.

Data processing and analysis remaining fully under customer's control supported by iMAR's consulting and support. iCORUS is part of the IMS product family of systems with gyro compassing capability for inertial navigation, surveying, guidance and stabilization with high resolution gyros and accelerometers. It is light, high accurate and easy to operate.

CAPABILITIES & FEATURES

- Best suitable gyro & accelerometer technology for gravity measurements, incl. temperature stabilization
- Designed for airborne gravimetry, applicable conditionally also for sea and land based gravimetry.
- Easy, fully autonomous operation; no manipulation during flights required.
- No recovery time required after turn flight (as known from conventional airborne gravimeters)
- Internal 32 GByte data non-volatile memory → storage of all mission data for subsequent evaluation and processing; raw data acquisition and storage with up to 500 Hz to cover really *all* carrier vehicle motion
- Low weight & low size version on request (e.g. for UAV applications)
- Maintenance-free
- Software for determination of gravimetric disturbances to be developed by customer - user access to all raw data
- Measurement range covers even disturbances up to 2 g (2,000,000 mGal) – high turbulence robustness
- Option: additional vertical stabilized accelerometer unit iDGU-100x, bias compensated, improving data to accuracy < 1 mGal absolute, when started from defined ground point. In system scale factor and bias calibration. Acceleration in NED/ENU frame -> use as conventional airborne gravimeter.
- Training and support by iMAR according to customer's request
- iCORUS is not subject on any ITAR regulations

light weight – high accurate – easy to operate – best price/performance ratio

Technical Data iCORUS

- all data are RMS values, if nothing else is stated -

Performance:

Gravimetric output:	< 3 mGal	output is acceleration, angles and GNSS solution. Can be calculated to gravimetric disturbances in PostProc
True Heading:	< 0.02°	with at least single antenna GNSS (data fusion) and under sufficient motion dynamics (no dual antenna required)
	< 0.01°	post-proc with RTK corrections, online on request
	< 0.25° seclat	gyro compassing (no GNSS aiding required)
	< 0.1°	with 4 m baseline between the two GNSS antennas (-DA)
Position accuracy:	1...2 m [CEP]	with GNSS, S/A off
	0.6 m [CEP]	with SBAS
	0.02 m [CEP]	with RTK/PPP corrections (post-proc), online on request
Altitude:	1...4 m	with GNSS, S/A off (depending on FOM & latitude)
	0.06 m	with RTK/PPP post-proc, online on request
Roll/Pitch:	0.01°	with GNSS aiding, S/A off; < 0.005° with RTK/PPP post-proc
Velocity:	0.02 m/s	with sufficient GNSS aiding; < 0.005 m/s with RTK/PPP post-proc



Output:

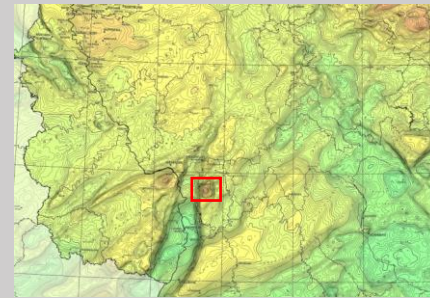
Data Output: Gravimetric disturbances, Heading, Roll, Pitch, Angular Rate, Velocity (Body and Nav frame), Position, Raw Data of INS / GNSS / GRAV incl. time-stamp, internal status information

Output Interfaces: UART RS232/422, Ethernet TCP/IP / UDP, CAN, ARINC429, ARINC825, PPT (Pulse Per Time), PPS, SYNC-I/O

Data Output Rate: 1...500 Hz, internal data rate 1'000 Hz

Data Latency: 1.2 ms (sampling accuracy better 1 µs, time-stamped acc. to PPS; jitter < 1 ms)

Data Storage: 32 GByte on internal non-volatile memory (> 36 h flight data)



Physical / Operating / Environmental Parameters:

Power Supply: 10...35 V DC, iCORUS with active temperature stabilization: < 150 W; 50 ms hold up time acc. to DO160G; continuous overvoltage protection up to 60 V for the INS

Temperature Range: Temperature Stabilization Range: Ambient temperature ± 15 K
Ambient Temperature: -20...+55 °C (other as option)
Temperature stabilization accuracy: < ± 0.2 K

Weight: iCORUS standard version < 20 kg; with optional iDGU-100 around 35 kg
customized UAV adopted versions with weight reduced to less than 10 kg possible on request

Installation: Installation in all arbitrary orientations allowed, mounting flange downside preferred

Accessories:

Included:

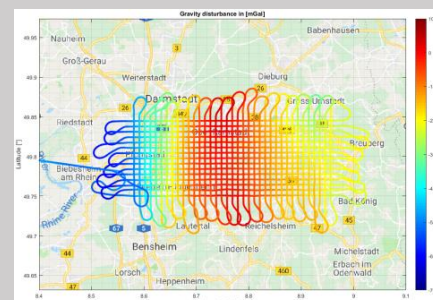
- iXCOM-CMD GUI software under MS Windows and Linux available
- iXCOM communication protocol with SDK for integration in user applications
- integrated real-time Kalman filter based data fusion (42+ states)

Options: INS/GNSS post-proc iWP+ / iIP+

iDGU-100x: 3-axis Gimbal stabilized add-on with continuous NED stabilization – allows in-situ calibration of the of integrated accelerometers for direct use as airborne gravimeter. Self-calibrating bias and scale factor of sensors.

Please refer to the separate data sheet.

iPowerPack-F: UPS with 42 Ah capacity for Airborne Surveying (e.g. for iCORUS system)



Bourger anomalie south of Darmstadt 03/2018

80% crosspoints < 1mGal

