

## iCORUS for Gravity Measurements

*lightweight – highly accurate – easy to operate*



**iCORUS-02**

**iCORUS** optimally responds to today's requirements in airborne and shipborne gravity surveying. It allows an unsupervised operation with reliable and highly accurate measurements.

All raw sensor data are stored on the integrated 128 GByte non-volatile memory. Being based on the well-known iNAT navigation & timing system family, it provides motion data (position, velocity, attitude, heading, angular rates and acceleration) in real-time, also usable for vehicle guidance.

Data processing and analysis fully remains under customer's control, supported by iMAR's consulting and support. The iCORUS is part of the iNAT product family of systems with gyro compassing capability for inertial navigation, surveying, guidance and stabilization with high resolution gyros and reference class accelerometers. A miniaturized version with even lower weight, dimensions and power consumption is under development.

### **CAPABILITIES & FEATURES**

- Best suitable gyro & accelerometer technology for gravity measurements, incl. temperature stabilization
- Designed for airborne and shipborne gravimetry applications
- Simple and fully autonomous operation: no operator is required during the flights; iXCOM-CMD wizard for setup
- Post-processing-software iPosCAL-GRAV for determination of gravimetric disturbances
- User access to all raw sensor data
- No recovery time required after turn flight (as known from conventional airborne gravimeters)
- Internal non-volatile memory for all mission data supporting subsequent evaluation and processing
- Raw data acquisition and storage with up to 400 Hz to cover all carrier vehicle motion even under dynamic conditions
- Very high robustness against turbulences - measurement range covers even disturbances up to 20 g
- Training and support by iMAR according to customer's request
- ITAR-free

*lightweight – highly accurate – easy to operate – best price/performance ratio*

## Technical Data iCORUS-02

- all performance indicators given as RMS values unless stated otherwise -

Performance	Value	Remark
Gravity (post-proc.)	< 1.0 mGal	nominal, experienced value (leveled flight)
	~ 2.0 mGal	without bias removal
	~ 0.8 - 1.0 mGAL	after line-wise bias removal (leveled flight)
Resolution 50...100 s	30 m/s * 50 s = 1.5 km (@ 30 m/s)	depending on speed
Operation range:	+/- 20 g	very robust also against strong turbulences

### Physical / Operating / Environmental Parameters

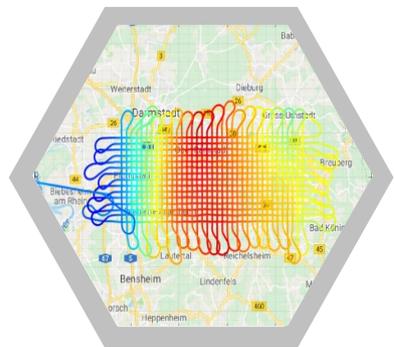
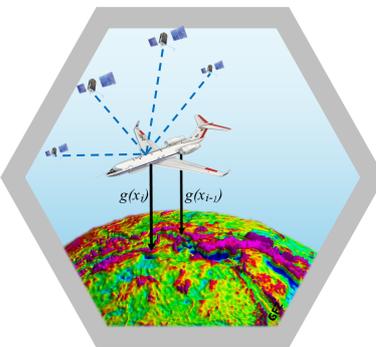
Power Supply	16...34 V DC, 250 W 50 ms hold up time according to DO160G continuous overvoltage protection up to 60 V for the INS
Performance Temp. Range	power on temperature $\pm 15$ K or adjustable
Operational Temperature	-30...+45 °C
Weight, Power Consumption	iCORUS-02 standard version: < 18.5 kg / < 250 W
Installation	mounting flange downside recommended

### Output

Data Output	raw data of IMS / GNSS incl. time stamps and system status position, heading, roll, pitch, angular rate, velocity (body and nav frame) results from post-processing: gravity and gravity disturbances
Time Stamping	data sampling accuracy better 1 $\mu$ s time-stamped according to PPS - jitter < 1 ms
Data Storage	128 GByte on internal non-volatile memory (> 14 days of flight data)

### Accessories

<b>Included</b>	iXCOM-CMD GUI software for system operation, available for MS Windows™ and Linux
<b>Included</b>	communication protocol with C++ SDK and Python and ROS 2 driver for integration in user application
<b>Included</b>	integrated real-time extended Kalman filter based sensor data fusion (42+ states)
<b>Recommended Option</b>	iPosCAL-GRAV gravimetry post-proc software



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