

"Insight through Innovation"

GTz[®] Airborne Gravimeter

The GTz[®] gravimeter is a Transparent Earth Geophysics upgrade of the GT-2A airborne gravimeter. It is significantly smaller and lighter than the GT-2A, (60 kg compared to 175 kg as mounted in the aircraft) whilst still using the same GT-2A 3-axis stabilised platform. In addition, the GTz[®] incorporates an improved Thermal Stabilisation System.

Improvements on the GT-2A:

- Significant size and weight reduction
- Improved thermal stabilisation
- Ease of installation

Advantages:

- Can be operated remotely
- Wide dynamic range
- High productivity
- Reliable performance in high turbulence
- Aircraft-independent operations
- More flexibility in aircraft selection
- Fully automated recording
- Remote or in-field Quality Control
- Remote or in-field production of preliminary gravity products
- Cost benefits due to aircraft selection and remote operations



The large dynamic range provides high precision data even in turbulent flying conditions. Data are acquired through short periods of saturation in high turbulence by the automatic application of a reduced order Kalman filter, enabling platform misalignment to be computed and hence controlled.

The automatic calibration program computes accelerometer scale factors and errors in perpendicularity between the accelerometer sensitive axis and the platform surface.

The GTz[®] is sealed for protection when operating in environmental extremes. Short lead-ins improve survey efficiency and reduce costs. Filters depend on aircraft speed and flight conditions and provide spatial resolution typically ranging from 1.2 km to 3.5 km.

Specifications:

Measurement range	9.75 to 9.85 m/s ²	Sensor noise floor	< 0.2 mGal RMS
Dynamic range	> ± 1,000 Gals	RMS error in gravity anomaly estimation Repeat Line	0.01 Hz cut-off = 0.6 mGal (± 1 LSD*)
Drift per day (corrected)	< 0.1 mGal	Power	
Attitude limits Roll & Pitch	± 35°	Input (AC)	85 - 264 V, 44 - 66 Hz
Operating temperature	-20°C to +50°C	Input (DC)	22 - 30 V
Dimensions Sensor	555 Ø x 560 mm	Operating (standard)	250 W
Installation weight (as pictured)	60.0 kg	Operating (heating)	450 W
Service life	30,000 hours		
* Least significant digit Specifications subject to change		Gravimetric Technologies: Manufacturer of the GTz [®] stabilised platform	



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The Equipment (GTz[®] and Accessories):

- Main Sensor Unit
- Uninterruptible Power Supply
- Industrial data acquisition PC for operating the gravimeter and recording the data
- Rover and Base GPS receivers and antennae
- Software to operate the gravimeter and record the data
- Software for post-processing GPS and gravimeter data
- All required cables
- Shipping cases

Platform Manufacturer Recommended Survey Constraints:

RMS error in gravity anomaly estimation is under the following conditions:

- Vertical acceleration ± 1.0 g
 - Correct installation of the gravimeter and the Rover GPS antenna
 - Dual frequency GPS receivers acquiring data at 2 Hz or 10 Hz
 - Minimum 6 visible satellites
 - PDOP < 2.5, and baseline < 100 km *
- * TEG has proven survey specifications can be met with GPS base lines in excess of 500 km, depending on the satellite constellation

