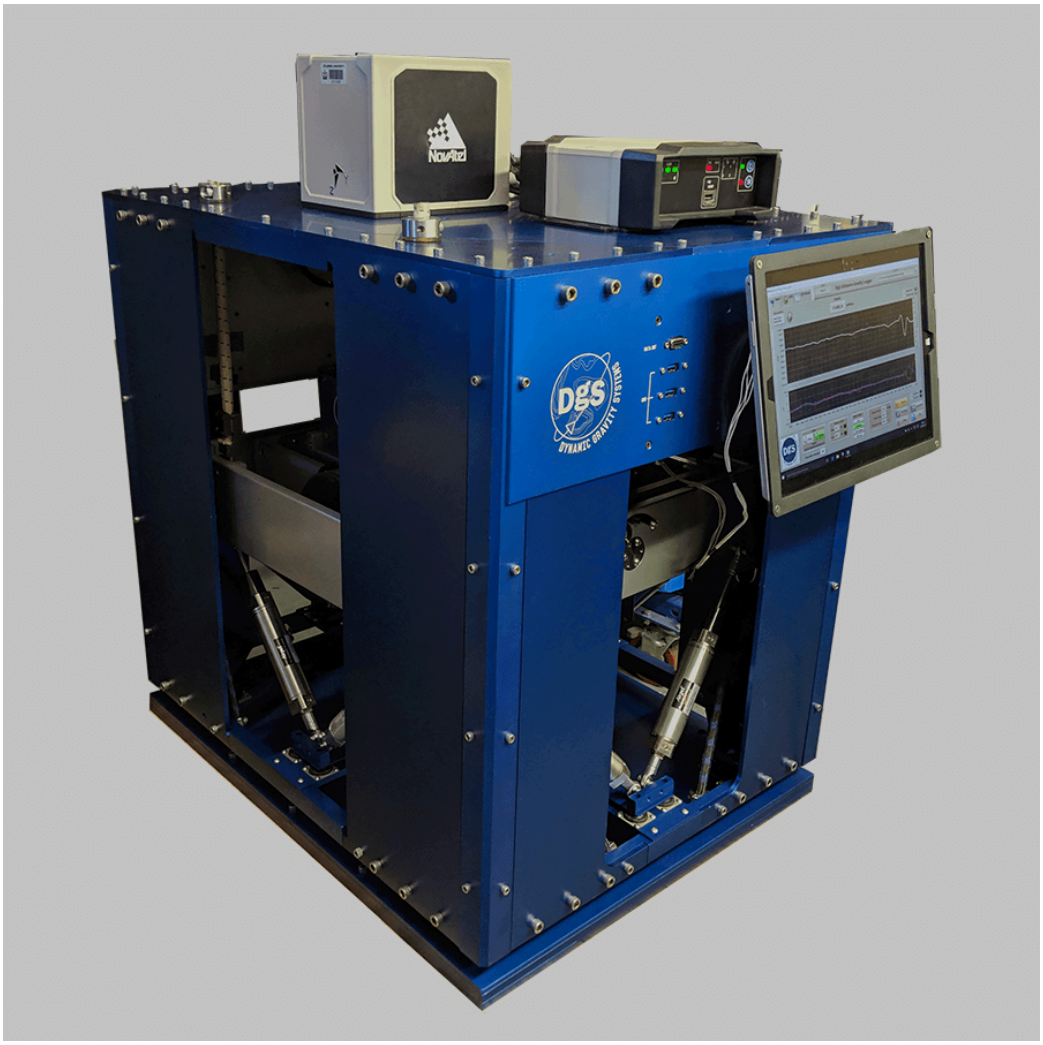
AIRBORNE GRAVIMETER

We offer dynamic airborne gravity survey system, a robust full feedback zero-length spring-based gravity meter, with worldwide gravity range of operation. Our new and upgraded systems feature full feedback magnetic damping, redesigned and improved platform control, integrated high-performance, temperature-controlled electronics, and a simplified user-friendly data display and system control interface.



1 INTRODUCTION

The DGS Gravity Data Processing Package consists of two MATLAB applications, ***DGS AT1A Gravity process*** and the ***Line crossing tool***, that facilitate the reduction and analysis of gravity data acquired with DGS AT1A meters. *DGS AT1A Gravity process* aligns gravity and GPS data and automates the standard gravity data reductions, including corrections for the Eotvos effect, Earth tides, Latitude, and free-air elevation, ultimately delivering free air gravity anomalies. The *Line crossing tool* is an interactive program that calculates cross coupling coefficients to minimize leveling discrepancies at line intersections and systematic biases introduced by instrument tilt or sensor misalignment. This manual provides a comprehensive guide to operating the DGS Gravity Data Processing Package.

2 DGS AT1A GRAVITY PROCESS TOOL (AT1AGRAV)

The *DGS AT1A Gravity process tool* is the main application used to process the gravity data acquired using the DGS AT1A meters. The key data inputs are the AT1A gravity data file and the Inertial Explorer position file. The program also requires a configuration file that defines certain required variables and parameters. The program synchronizes the gravity and position data, applies the standard gravity reductions and ultimately delivers the corrected free-air gravity. The following section highlights the computations and gravity reductions applied to the data.

Absolute gravity tie and still reading, meter offset and the Instrument scale factor (k-factor)

The AT1A meter measures relative gravity and is hence tied to an absolute gravity measurement. Still readings are typically performed before and after each survey, at a specified reference location. An absolute gravity meter is used to measure the absolute gravity at the reference location. The absolute gravity reading, usually referred to as the *Tie Gravity* is a required parameter in the configuration file set up.

Technical Specifications

Gravity Range	Full World-Wide Range (20,000 mGals)
Platform Control	High performance Fiber Optic Gyros Extended range accelerometers
Platform Period	Adjustable - 4 Minutes/8 Minutes/INS Aided
INS Platform Control	Integrated
Data and GPS Recording Frequency	10Hz
Dimension (approx)	71(l) x 56(w) x 84(h) cm
Weight (approx)	80kg +25kg with Uninterruptible Power Supply (UPS)
Power Consumption	Avg: 60 Watts Max: 150 Watts Input: 80-265 VAC
Dynamic Range	+/- 1g
Static Repeatability	0.05 mGals
Sensor Type	Full-feedback Zero-length Spring
Resolution	0.01 milliGals (mGals)
Dynamic Repeatability	0.25 mGal @ 50,000 mGal horizontal 0.50 mGal @ 100,000 mGal horizontal 0.50 mGal @ 100,000 mGal vertical

Complete Instrumentation Solutions Private Limited,
Suite # 512, Suncity Business Tower, Golf Course Road, Sector-54, Gurgaon-122011, Haryana
Tel: 0124-4929000 | E-mail: info@instrumentation-solutions.com
www.instrumentation-solutions.com