Complete
Instrumentation Solutions

Newsletter

2016 Vol.3

Technologically-innovative instruments for geophysical exploration

Advanced Geophysical Instruments

- NIO Goa – BGGS, Marine Gravimeter
- Absolute Quantum Gravimeter
- IIT Roorkee – ZLS Burris Gravimeter
- NEIST – KMS ULF System
- NEIST & Wadia- ARES II Resistivity Meter

Gravimeter

Features

BGGS Marine Gravimeter

1) High performance instrument designed for marine geophysical research projects, including oil prospecting and basic research worldwide
2) Straight line technology, free from cross-coupling.
3) Embedded microprocessors together with sophisticated programmes provide easy handling
4) Software offers corrections for free-air and bouguer anomalies. Eotvos and curve compensation applied real time.

The ZLS-BURRIS Gravity Meter

1) Lightest, Most precise and most rugged land meter on the market
2) Microprocessor-based automatic reading and data logging system, UltraGrav™ controls the meter
3) Directional permeability test.
4) Drift of less than 0.3 mGals per month when mature
5) 50 mGal Automatic Nulling Range with MicroGal Reading PrecisionTemperature controlling up to 200 deg C.
6) Sensor Type: Metal Zero-Length Spring Hardened metal micrometer screw
7) Range: +/- 5 arc-min (10 arc-min total)
8) Within 50 mGal: 0.001 - 0.003 mGal

Marine Gravity meter

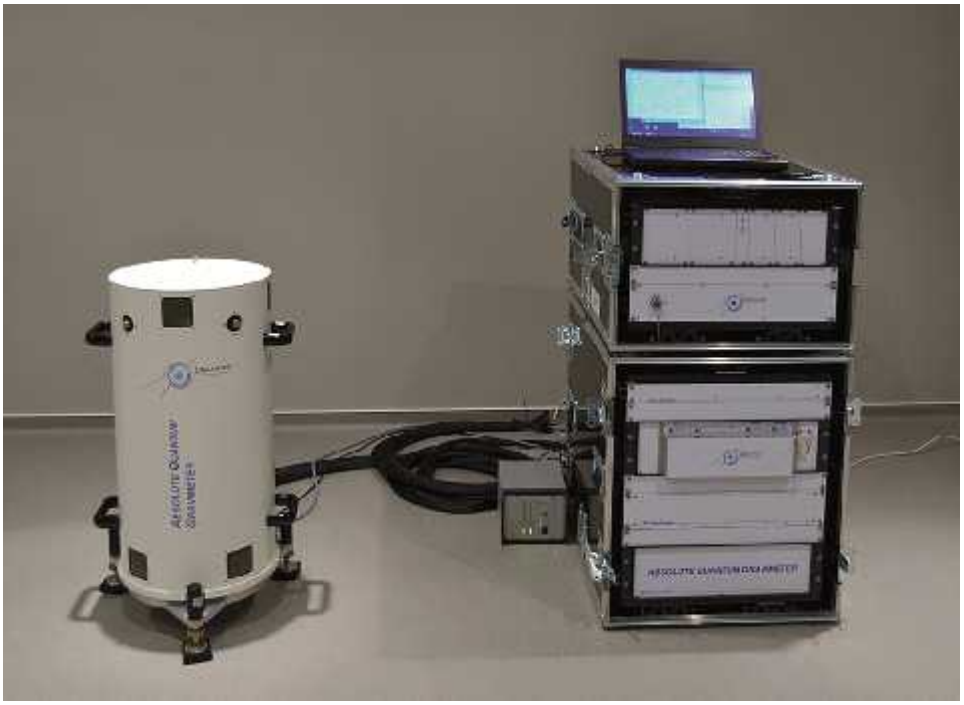
The Marine Gravity Meter designed for high performance offshore geophysical research projects, comes in a rugged housing packed with Gyro-stabilized platform, control electronics and shock absorbing mounts. Furnished with a variety of interfaces to connect to other instruments, the gravity meter enables us to have their data stored (Ship navigation data, Magnetometer, Echo-sounder etc). With the accuracy of 0.5 mGal, the instrument has very low drift and linearised measurements for up to 0.23g of vertical acceleration. A safety caging device is activated in case of an emergency or power failure to arrest any movement of the spring and the mass and hold the sensor in a safe position. The entire system can be controlled via a standard notebook and a set of manufacturer owned software. This system is being used by NIO.

ZLS – Burris Gravity meter

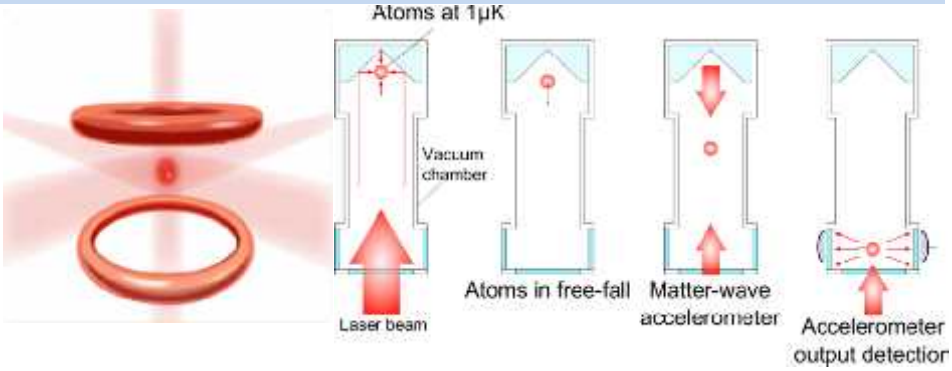
The ZLS Burris Gravimeter is the lightest, most precise and rugged Gravimeter on the market. It is a new meter using a newly developed metal designed especially to provide a superior digital performance by taking advantage of the latest advances in digital technology. Ranging in application from Petroleum exploration, Geo-technology to tectonic and geothermal research, it is fast and easy to use without compromising in accuracy. It takes the reading, applies the calibration factor, corrects for earth tides and off level position, then stores the data and displays the results, all in an instant! This Gravimeter has the smallest linear drift which can be corrected for. This system can also be used in continuous mode of recording. presently being used by IIT Roorkee

Gravimeter

Absolute Quantum Gravimeter



The Absolute Quantum Gravimeter (AQG) is the world's first commercial Absolute Gravimeter based on laser-cooled atoms. This is a new generation of ultra-high performance measurement instruments based on a unique and patented technology, which relies on the utilization of laser cooling, trapping and manipulation of neutral atoms. AQG is capable of measuring gravity with an accuracy of 10^{-9} g, dedicated to various geophysical applications. AQG provides repeatability of the absolute measurement after each change of location within a 2 µGal. Muquans has developed a disruptive technological approach, which allows them to offer at the same time quantum precision measurements, along with a real turn-key operation and simple maintenance.



Features

Absolute Quantum Gravimeter

1. Absolute gravity measurement at the µGal level, at 2 Hz repetition rate.

2. Sensitivity of 50 µGal/√Hz.

3. Automated and continuous absolute measurement over months, without any drifts nor need of calibration.

4. Excellent station-to-station repeatability (better than 2 µGal).

5. Remarkable tolerance to ground vibration (no super spring).

6. Very easy and quick to set-up and operate.

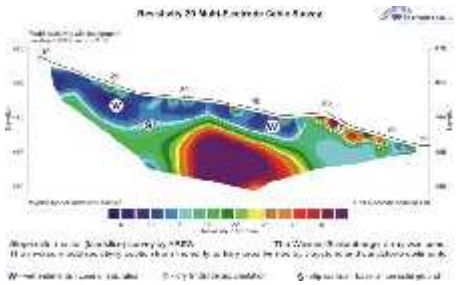
7. Compact and transportable sensor.

8. User-friendly software and data retrieval.

9. Ultra-low maintenance.

10. Low operator-dependent measurements.

Multi Channel Resistivity System & ULF



Ares II Resistivity Meter

ARES II represents a well equipped Resistivity & IP imaging system. It's advantages can be applied especially for large 2D and 3D surveys(operating up to 65,000 electrodes), for continuous survey from water level and for programmable monitoring of structures. One ruggedized weatherproof unit integrates a powerful 850 W - 2000 Vp-p - 5 A transmitter and a sensitive receiver completed with a rich support for a variety of measuring methods like 2D/3D/4D Resistivity & IP Tomography, VES, RP, SP Measurements, Continuous or Timed Survey . It also has an easy control unit with high resolution LCD and easy real time horizontal and vertical data consistency checking. The system can be equipped with Active Multi-Electrode Cables, Passive Cables with Switch Box Roll-Along Possibility

ULF System

The system consists of 3 LEMI 030 sensors & one communication unit, which connects the sensors to PC and provides their power supply, satellite synchronization of data sampling and digitizing. The ADC (CAM unit) resolution is 24 bit. The induction magnetometer is intended for the study of magnetic field fluctuations in the frequency band 0.001-30 Hz in land conditions and is ideal for ULF earthquake precursors monitoring. It can be used both as a part of the computer measuring and registration equipment and autonomously with any analogue recorder. All three LEMI 30 sensors are similar within 0, 1 dB. The total power supply voltage is 6-12 V whereas power consumption is less than 3 W. The weight of one sensor is 5.6 kg and the connecting cable is of length 200m.

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