GABL-E, AN ABSOLUTE LASER BALLISTIC GRAVIMETER

Description
GABL-E gravimeter is designed for measuring the absolute value and variations of gravity in solving fundamental geophysical, geodesic and metrological problems. The operating principle of the gravimeter is based on the ballistic method of determination of the absolute value of gravity from the measurements of the path and time of the free fall of an optical angle reflector. The path covered by a falling body is measured by a laser interferometer (the measure of the path is the laser wavelength stabilized with respect to a nuclear reference in its radiation spectrum), while the measure of the time intervals are the signals of the precision (for example, rubidium) frequency standard. An asymmetrical method of measuring the gravity is used in the series of GABL laser gravimeters.

Technical characteristics

- Root-mean-square error: less than $\pm 2\cdot 10^{-8}$ m/s$^2$
- Systematic inaccuracy: less than $\pm 5\cdot 10^{-8}$ m/s$^2$
- Overall dimensions:
  - optico-mechanical unit: 1200×700×700 mm
  - electronic unit: 620×560×660 mm.
- Weight: 180 kg

Technical appraisal and economic benefits
Small size as compared with the analogs and high measuring accuracy.

Application area
- Gravimetric points. Solution of geodynamics problems.
- Elaboration of the special state reference (group) of the measurement unit for gravimetry.
- Development of reference fields for calibration of relative gravimeters.

Development stage
Pilot sample.
**Patent situation**
Not patented.

**Commercial offers**
Investment contract for commercialization; joint commercialization; license agreement; joint production; contract for production and supply of the devices; rendering of measurement services.

**Estimated cost**
150,000 US$.
The cost of measurement services depends on the distance to the measurement point and technogenic disturbances on the place.

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