

Network and Control Surveys

Stand: 06/2008

HIGHLIGHTS

- Many years of experience in planning, measuring and analysis of large fundamental networks for tunnel construction and earth works
- Numerous national and international references on heading control surveys
- Network prognosis computations to minimise the alignment error
- Own specialised software optimised with respect to the analysis of data-intensive networks
- Using state-of-the-art surveying methods (TPS, GNSS, Gyromat 2000)



Offshore network measurement for galleries of a sewage water outfall project in Mumbai, India

Field of Application

Appropriate fundamental networks are indispensable in construction – not only in tunnel and underground construction, but also for above ground traffic infrastructure projects, for instance. To achieve the required alignment accuracies and construction tolerances, well-planned basic and tunnel networks are prerequisites. It is also important, however, to continuously check and maintain existing networks.

Description of Services

Above-ground fundamental networks

In the planning phase of a construction project already, GEODATA has a supporting role with the implementation of fundamental networks, with particular emphasis on the choice of suitable locations and the corresponding setting out of the net points. The measurements are carried out by highly qualified staff using state-of-the-art methods and equipment. Depending on requirements, GNSS receivers and highly accurate automatic total stations are deployed.



GPS-measurement for a tunnel network in India



Network survey for a mine in Bulgaria

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Underground network measurement

We generate basic networks for construction or for refurbishment underground structures to guarantee accurate and trouble-free setting out and recording (profile controls, scanner records, as-built documentation). Heading networks are controlled using accurate instrumentation including gyroscopic measurements for finding azimuths and for shaft plumbing.

The polygon nets are adapted to the specific boundary conditions and can be performed using tripods or mobile consoles.

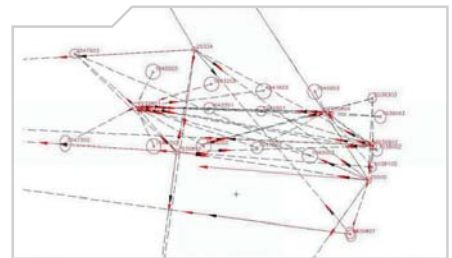
Analysis

Analysis of and calculations on the measurement data is carried out using our high-performance special EUPALINOS software which is also capable of handling large data volumes fast and efficiently. All calculations are recorded in formatted readable text files. A visualisation module enables automatic graphic representation of a net plot including all statistic data such as error and confidence ellipses in arbitrary units of measurement.

The anticipated alignment error can be computed before start of construction already to enable timely planning of possible additional surveying measures (gyroscopic measurements, plumbing, etc.).



Schaft plumbing with precision optical plumb



Network plot of a subway station

User advantages

- Minimisation of the alignment error
- The cost of errors is avoided through accurate transfer of constructions from paper to reality
- Total service range under one roof: planning, marking, measuring and analysis

Scope of services and delivery

GODATA offers all the services associated with the generation, maintenance and control of fundamental networks of all sizes, worldwide. This also includes the provision of required instrumentation and marking material, if required.