Motor Laser System

Axis3D MLS

Surveying by the miners

Axis3D MLS saves costs: Independent surveying by the miners.

Optimized tunneling process: Easy to set up, even in tight spaces.

User-friendly: Intuitive interface and ease of use, even wearing work gloves.

Mobility: Remote control with a range of up to 200m (600ft).

Station Set-up

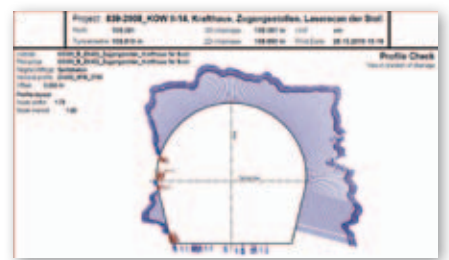Axis3D MLS consists of a total station, a Wi-Fi connection box, and a fully ruggedized notebook.
Easy stationing lets the tunneling crew set up the system **on mobile tripods** as well as on brackets. This allows the system to be used even where brackets cannot be mounted – all without a surveyor.

Stakeout

The **intuitive user guidance** supports setting out of the heading direction. Predefined functions, such as positioning of girders, setting out profiles, and configuring the drilling jumbo, **increase productivity .**

Control

Optimized **online graphics** allow the tunneling crew to **check** tunneling progress in real-time. For documentation purposes results are automatically stored as PDF files in the system.

significant s o f t w a r e

System Informationen

Hardware
- Leica Geosystems TPS1200, Viva or Nova total station with reflectorless distance measurements and automatic target recognition (other manufacturers on request)
- Wi-Fi box with approx. 200m (600ft) remote control range, and power supply (230V/110V)
- Ruggedized notebook with touchscreen (e.g. Panasonic Toughbook)
- Optional: bracket for total station
- Optional: tripod for mobile stationing

All hardware components may be purchased through **significant software**

Software
- Axis3D MLS office software for configuration, incl. USB dongle
- Axis3D MLS tunneling software, incl. SD or PC-card dongle
- Languages: German, English; French (coming soon)
- Operating systems: Windows XP, Windows Vista, Windows 7, Windows 8 (32-bit and 64-bit, respectively)

Related Products
- Axis3D COS - Construction Surveying
- Axis3D ETU - Easy Tunnel
- Axis3D NET - Network Adjustment
- Axis3D SET - Sets of Angles

Applications

Tunnel Stakeout
Drilling pattern, tunnel profile, niches, steel girders, umbrella forepoling, profile enlargement, utility ducts

Profile Check
Excavation profiles, position of lattice girders, shotcrete profile, real-time check (e.g. during spraying of shotcrete)

Machine Positioning and Control
Drilling carriage, DIBIT™ tunnel scanner

Axis3D MLS Functionality

General
- Control of multiple total stations from a single laptop
- Definition of an unlimited number of process steps
- Automatic check of available instrument functions
- Automatic orientation check
- Automatic logging of all activities
- **Optional: low-cost light edition for non-motorised totalstations**

Setting up Total Station
- Set-up on bracket with Free Station
- Alternatively: Measure a new bracket position from the previous station
- Short term tripod set-up with Free Station

Stakeout
- Unlimited number of individual points (e.g. drilling pattern, positioning lattice girders)
- User-defined continuous points along the profile (e.g. excavation profile)
- Automatic interval stakeout for individual points (e.g. mountings for utility ducts)
- Include radial, horizontal, and vertical offsets
- Automatic measurement of the current tunnel face chainage

Profile Check
- Reflectorless distance measurement
- Measurement in LOCK-mode (with reflector)
- Measurement of arbitrary or pre-defined points
- Real-time measurements (e.g. while spraying shotcrete)

- Online graphics in tunnel
- PDF graphics for documentation

Drill Guidance
- Drill guidance beam for automatic drilling carriages
- Automatic measurement of the current tunnel face chainage

Umbrella Forepoling
- Automatic stakeout of unlimited number of drilling points
- Automatic positioning of drilling carriage

Automatic Deformation Measurement
- coming soon

Database
- Management of point data, control parameters, tunnel geometry, etc.
- Interfaces for data import/export
- Database synchronization
- SQLite, Oracle, Microsoft SQL-Server, Interbase

Geometry Manager (Axis3D GeoMan)
- Analytical definition of tunnel geometry as per design
- Plausibility tests and 3D visualization
- Highly accurate transformation between project and tunnel coordinate systems

Customers

ALPINE / **Kiewit Corporation (USA)** /

PORR / **Rhomberg Sersa Rail Group**

/ **STRABAG**

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