Trimble Railways GEDO Trolley System
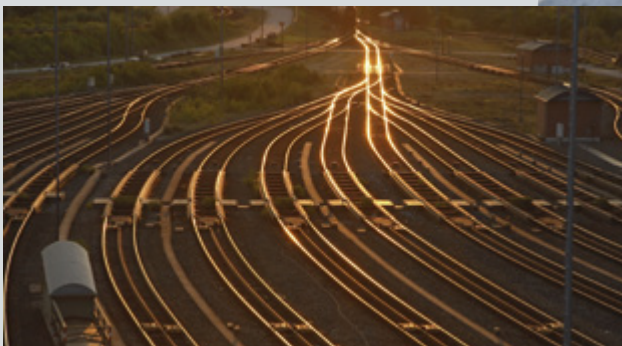
Trimble Railways GEDO Trolley System

In the railway industry, projects require different applications of measurement techniques. The Trimble Railways GEDO Trolley System offers the ideal measurement techniques for each unique project. Trimble's solution provides users a single total station, two total stations overlapping, or even a GPS/GNSS receiver, combined with powerful railways software to complete even the most complex railway projects. Therefore, the same system can be used to build slab tracks with sub-millimeter accuracy, build ballast tracks with millimeter accuracy, and for documentation with centimeter accuracy. The flexible setup of the Trimble Railways GEDO Trolley System makes it possible to convert the trolley quickly and simply on site, resulting in the best possible efficiency.

As-Built Situation Survey and Track Documentation

Railway track recording and documentation can be done easily and economically with the robust and high-precision Trimble® GEDO Trolley System. This modular track surveying system is ideally suited for surveying older railway tracks about to be modernized. Combine data collected by the Trimble GEDO CE Trolley and Trimble GEDO Rec software to enable the user to quickly survey tracks from start to finish in a highly economic way without the usage of alignment data. The collected data forms the basis for further data processing and judgment of the state of the track. With Trimble's GEDO CE Trolley and Trimble GEDO Rec software, ensure all relevant and important parameters are captured, recorded, and analyzed.

GPS/GNSS Onboard

For maximum track recording speed, we also offer vehicle and software in GPS/GNSS version. This option equips the vehicle with an additional GPS/GNSS receiver without any other constructional modifications. The latest Trimble GPS/GNSS receivers are used.

Railway Construction

Railway construction requires the highest possible performance from surveying equipment. Trimble's GEDO CE Trolley System combined with its Trimble GEDO Track, Trimble GEDO Office, and Trimble GEDO Calc software offers the perfect toolset combination to satisfy these construction railway projects' challenging, high-accuracy demands. The Trimble GEDO CE Trolley enables you to do all surveying tasks during and after the assembly of a railway. Whether you have to do a rough adjustment, a precise adjustment, a final construction check, or an after-project quality check — with the Trimble GEDO CE Trolley System you will have a precise surveying system which is easy-to-use and fit for all practical applications — all this independent of the railway construction method you utilize.

For complete railway construction information and data processing, Trimble's Railways Solution pairs the Trimble GEDO CE Trolley, with three powerful software suites; Trimble GEDO Track for correction values directly on site, Trimble GEDO Office for data handling with continuous and integrated data transfer, Trimble GEDO Calc for verification and documentation for the construction of slab track.

Utilize these software suites standalone or together and gain complete railway construction data benefits.

- **As-built situation survey and track documentation**
- **Railway track construction**
- **Alignment and reference point based pre-surveying for tamping machines**

Alignment Based Pre-Surveying for Tamping Machines

For alignment based pre-surveying for tamping machines it is essential to forward data to the machine as fast as possible. Any workflow interruption of the machine becomes a critical factor in the alignment based pre-surveying process and all data input requires the highest level of accuracy. For this application, the Trimble GEDO CE Trolley and Trimble's GEDO Track, Trimble GEDO Office, and Trimble GEDO Tamp software used in combination offer a practical system with which a highly accurate nominal/actual comparison can be easily generated. Further, it can serve as basis for position and height correction of tracks with tamping machines.

Tamp software the data may be processed in line with the tamping run (residual uplift, ramps). Due to the extremely high measurement velocity (up to 1200 m, per hour) and the great flexibility (low weight), the system is ideally suited for this usage. This solution creates a truly high-efficient nominal/actual comparison while data can be passed to the tamping machine in a completely digital way.

Reference Point Based Pre-Surveying for Tamping Machines

When a track has to be brought back to its designed position during maintenance work with a tamping machine, under extreme time pressure, a flexible measuring system for data collection for the machine has a distinct advantage compared to common means of surveying. With Trimble GEDO CE Trolley, Trimble Vorsys used as a pre-measurement system and Trimble GEDO

Trimble Railways GEDO Trolley System	
Gauge	1000 mm, 1067 mm 1435 mm, 1520 mm, 1600 mm, 1668 mm other gauges available on request
Gauge measurement – Working range – Accuracy	 −20 mm / +60 mm ±0.1 mm
Cant measurement – Working range – Accuracy	 −10° or ±265 mm ±0.5 mm
Battery lifetime	Vehicle 10 hours with a Trimble S-Series battery, Trimble TSC2® controller: 12 hours
Data exchange	USB stick PCMCIA/CompactFlash SD Card
System weight	~19.5 kg ready to measure
Temperature range	−30 °C to +60 °C
Operating system	Windows Mobile® 5.0
Software	Windows CE.NET application
Support instruments	Trimble S6, Trimble S8

Trimble Railways GEDO Trolley System Components

Trimble GEDO CE Trolley System
Robust & high-precision track surveying vehicle for fast and economic working

Key features include:

- High precision electronic sensors for gauge and cant measurement
- Trimble TSC2 controller
- Trimble S-Series Total Station
- No track blocking necessary
- Completely cable-free
- For various track gauges
- Optional for grooved rails
- Compact system <20 kg
- Highly productive power supply
- 1 battery for more than 10 hours, standard total station battery
- Control unit IP67 shielded, power supply for >12 hours with one battery, Bluetooth®, WLAN, USB, Windows Mobile, fully daylight capable display

Trimble GEDO Office Software
Data handling with continuous and integrated data transfer

Key features include:

- Central data processing on your office PC
- Simple data handling without any data loss
- Data synchronization with the field control unit
- Intelligent data editor
- Pre-calculation for manual input and track verification
- Preparation of alignment data, data import and project management

Trimble GEDO Rec Software
Economical and fast data collection for existing railroads

Key features include:

- On-board software for hardware control and data recording
- Pure track recording for documentation and planning
- All relevant information about track position with a single measurement
- Stop & Go or kinematic
- Diverse export filters, customization
- GPS option

Trimble GEDO Track Field Software
**Correction values directly on site**

Key features include:

- Choice of functions: Stationing, control point measurement, topographical point measurement, display of the main alignment points for the synchronization of the tamping machine
- Online transformation of measured points based on the alignment data
- Support of all current geometrical elements, as center line, chainage line, vertical alignment, super elevation (ramps, track shear), gauge extension
- Easy usage—customizable screen layout
- Various export formats for logging

Trimble GEDO Calc Software
Verification and documentation for the construction of slab track

Key features include:

- Measurement data analyzed and processed fit for handing to the contractor
- Inner and outer accuracy
- Calculation of long chord and short chord with adjustable chord lengths
- Graphic and table formatted output
- Data merging for multiple stations
- Fully adjustable tolerance specification
- Graphical output
- Numerical output in list form
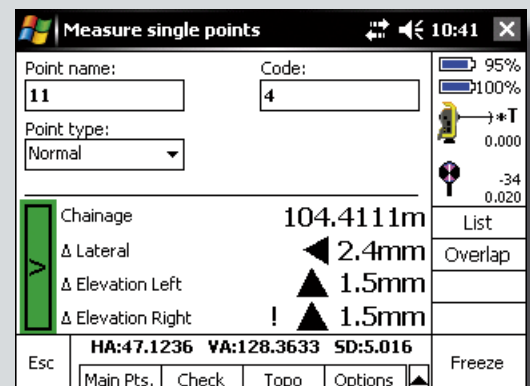
Trimble GEDO Tamp Analysis Software
Real-time generation of data for tamping machines

Key features include:

- Data analysis and data processing for tamping machines
- User friendly, flexible and fast processing of all collected data by graphical visualization
- Generation of synchronization files for tamping machines
- Data export of uplift and slue values in common formats like DOS-ALC or WIN-ALC
- Supported functions: ramps, constraint points, parallel shifting, definition of maximum uplift and slue parameters

Trimble GEDO Vorsys Software
Ideally suited for data collection due to high speed and flexibility

Key features include:

- Pre-measurement system software
- Line-based measurement principle, similar to EM Sat
- Basis: paper layout plan or alignment data
- Extremely easy handling, even without specialized knowledge – no stationing necessary
- Clearly comprehensible visualization. Displaying of:
    - Chainage
    - Position- and elevation-difference (left and right rail)
    - Main alignment points for synchronization of tamping machines
- Compatible with Trimble TSC2 controller or on an outdoor laptop
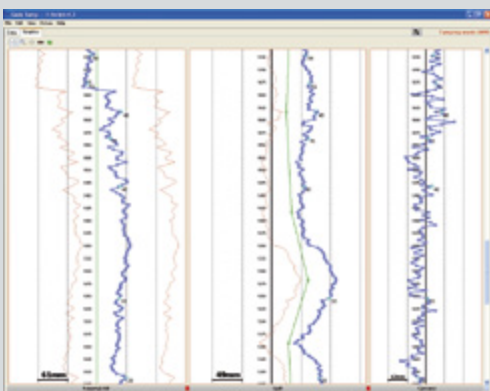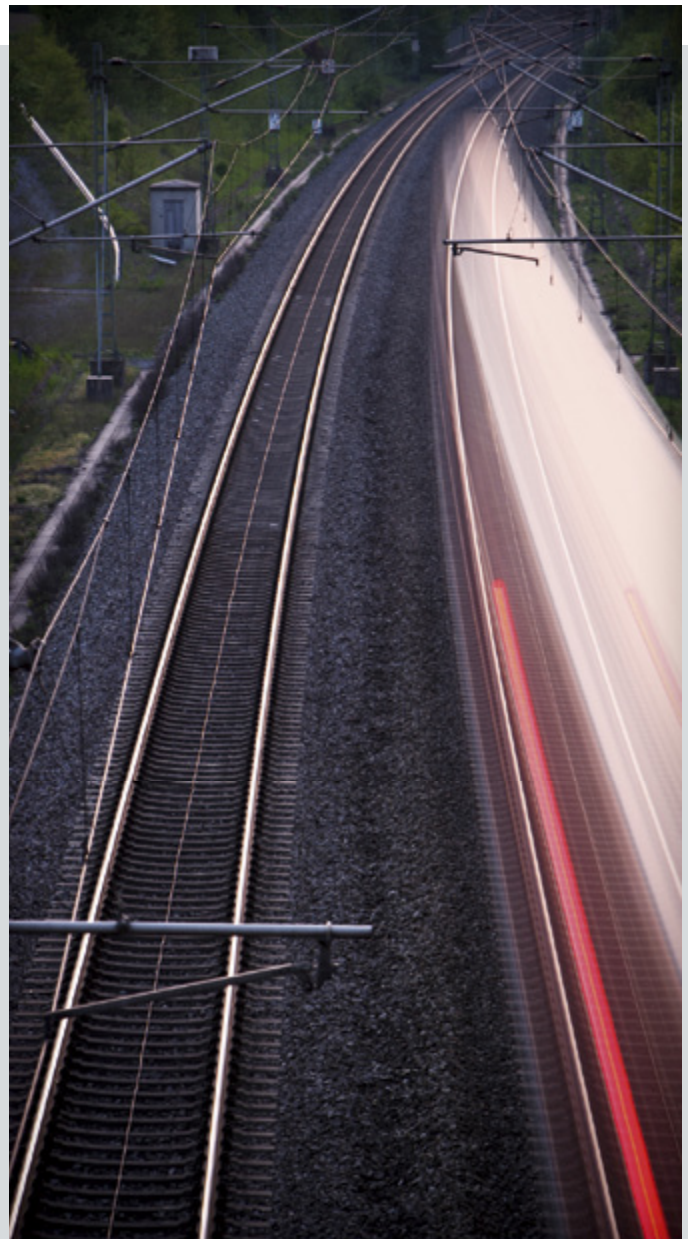
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