Trimble GEDO GX50

LASER SCANNING SYSTEM FOR KINEMATIC CLEARANCE ANALYSIS & ASSET DATA COLLECTION APPLICATIONS

Trimble GEDO GX50

The Trimble GEDO GX50 is a modern and flexible laser scanning system that is designed to operate with Trimble GEDO track measurement systems.

The Trimble GEDO GX50 is available in a Single Head configuration with one scanner and in a dual head configuration with two scanners. The modular system design allows the second scanner to be added later. Depending on application specific requirements, the scanners can be mounted in different positions and tilt angles. The scanner positioned perpendicular to the track axis provides an optimum of accuracy for high precision clearance analysis. In the butterfly configuration, objects that are perpendicular to the track become clearly visible.

The high-resolution three-dimensional data obtained with the system quickly and precisely can be used for clearance verification and as-built data collection. In terms of accuracy and resolution, the data provides an excellent basis for modeling in a BIM-compliant design and construction workflow.

Trimble GEDO Scan Systems

The Trimble GEDO GX50 can be combined with the Trimble GEDO CE 2.0 track measurement trolley to form various Trimble GEDO systems. The track measurement trolley measures the track gauge and cant in conjunction with the distance traveled.

The basic configuration, Trimble GEDO Scan, allows the acquisition of a purely relative or pseudo-absolute processed point cloud.

In the geodetic Trimble GEDO Rec-Scan configuration, the absolute track position is determined using a total station or GNSS receiver. This position is also used for absolute referencing of the point cloud.

The Trimble GEDO IMS-Scan and Trimble GEDO IMS-GNSS-Scan systems combine state-of-the-art inertial measurement technology and laser scanner into a multi-sensor system. The flexible processing allows different types of georeferencing for an absolute referenced point cloud.

APPLICATIONS

Planning, BIM and Construction

- Documentation of track corridor state
- Spatial data for 3D design modeling
- Extensive clearance analysis for current track or new track to be designed
- Overhead power line planning
- As-built documentation after completion

Operation and Maintenance

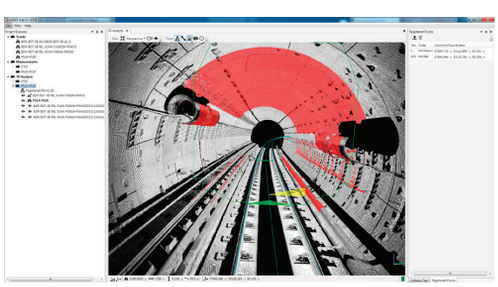
- Clearance analysis for extra-wide transports and cross-border rail traffic
- Narrow-gauge documentation for the track infrastructure owners (e.g. WinLUE for LIRA and Clearroute)

Asset Management

- Capturing rail asset objects for inventory documentation

Key Benefits

- Utilizing a universal track measurement trolley with modular expansion options
- Full 360° measurement provides visibility of all objects at the track
- Can be used with one or two scanners
- Flexible alignment of scanners for optimal visibility of objects
- High measuring frequency and rotation rate allows for fast trolley movement during recording
- Uniform power supply
- Combination with geodetic instruments for absolute referencing of point cloud
- High-resolution live display for immediate on-site clearance checks
- High productivity and flexibility reduces personnel requirements and lowers costs



DATASHEET

Trimble GEDO GX50
LASER SCANNING SYSTEM

GENERAL

Configuration options ..... Single Head / Dual Head
90° / 80° / Butterfly

System
Communication ..... WiFi [1] or USB
Data storage ..... USB Flash Drive
[1] For Japan without WiFi

Power supply
Internal ..... two batteries
Type ..... rechargeable Li-ion battery 10.8 V 6.5 Ah
Operating time ..... approx. 4.5 h for Single Head / approx. 3 h for Dual Head
External 12V

Scanner
Laser class ..... 1 (eye-safe)
Maximum range 80m
for surfaces with >80% [2] reflectivity
shortest measurement distance 0,6m
Accuracy [3] / Precision [4] ..... 2 mm / 2,5 mm @ 30 m
Scanner calibration ..... long-term stable
No individual calibration necessary

	Single Head	Dual Head
Measuring rate	500 kHz	1 MHz
Scanning speed	120Hz	240 Hz
Field of view	345°	360°

Environmental
Operating temperature ..... -20° C [5] to +50°C
Storage temperature ..... -40°C to +70° C
Relative humidity (operating) ..... 20 % to 80 %
Relative humidity (storage) ..... 20 % to 95 %
Protection against end penetration of dust and water ..... IP 65

Weight and size
Base module ..... 5,8 kg
Scanner with fixture ..... 2,5 kg
Transport case ..... 35 x 54 x 82 cm

APPLICATIONS

- Survey of existing railway lines
- Main and branch railway lines, trams, metros and industrial tracks
- Clearance analysis
- Data acquisition for modeling and design

System accuracy
Lateral distance ..... < 5 mm
Height difference (at 5 m distance to object) ..... < 7 mm
In the direction of track axis [6] ..... 10 mm to 20 mm

Performance characteristics [7]
Purely relative measurement (GEDO Scan) ..... 5.000 m/h
with total station (GEDO Rec-Scan) ..... 600 to 1.200 m/h
with IMU (GEDO IMS-Scan) ..... 4.000 m/h

[2] Under typical environmental conditions
[3] Accuracy is the degree of agreement of a measured quantity with its actual (true) value
[4] Precision is the degree to which further measurements show the same results
[5] When using an industrial-grade USB flash drive
[6] Dependent on distance between synchronization points
[7] Depends on desired resolution in chainage direction. Specifications refer to dual head system and profile spacing < 10 mm

Single Head
Entry level configuration with one scanner

Dual Head in 90° Orientation
Highest accuracy for clearance analysis

Dual Head in 80° Orientation
Good object visibility and high accuracy

Dual Head in Butterfly Orientation
Best object visibility

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