PANDROL
Partners in excellence

GeoVizio-TR-Smart

Track Measurement and Analysis

Adding Value

An innovative track geometry trolley that quantifies the condition of track and determines Track Quality Index, as required in the new European Standard EN 13848-6.

Developed in partnership with Amberg Technologies, Pandrol's GeoVizio-TR-Smart is a new smart track geometry trolley for measuring the quality of track.

The GeoVizio-TR-Smart measures the evolution of the track through five main parameters: gauge, cant, twist, longitudinal level and alignment. It comes with a tablet and software for data recording and analysis, which allows the determination of Track Quality Index (TQI), as required in the new European Standard EN 13848-6 (Characterisation of track geometry quality).

The trolley is lightweight and can be dismantled into three parts for ease of transportation. Suitable for use on a range of track gauges and with long battery autonomy, it is a convenient, versatile option for track quality control.

TECHNICAL FEATURES

Inertial measurement unit

The relative track position is measured with the aid of an inertial measurement unit.

Track gauge verification

The GeoVizio-TR-Smart provides graphical and numerical reports on track gauge measurements, including threshold monitoring and visualisation. Deviation to nominal gauge is in a predefined requested interval. Curves and sections with gauge access are taken into consideration.

Cant and twist verfication

The trolley also provides graphical and numerical reports on cross-level measurements, including cant and derived twist values. The cant measurement is deviation to nominal cant. The twist calculation is based on different, configurable twist calculation base lengths.

Inner track geometry assessment

Longitudinal level and alignment are assessed, including threshold monitoring and verification that considers track and line characteristics. The maintenance and safety thresholds are 'alert', 'intervention' and 'immediate action'. The GeoVizio-TR-Smart can be used on different line and speed categories, and can also be adjusted for country-specific needs.

Monitoring track quality

The GeoVizio-TR-Smart provides data and tools for further analysis of various track parameters and determination of TQI.

Tablet and software

The IP65 trolley comes with an IP67 tablet and easy-to-use software that provides geographic information, displays values, calculates TQI and allows for the addition of comments. A version can be transcribed for reading on Google Earth™, and geometric defects and the quality index can be shown on an offline map.

ADVANTAGES

- The GeoVizio-TR-Smart's versatility means that it can be used for several gauges, thanks to a removable gauge extension
- Weighing just 25kg, the GeoVizio-TR-Smart is easy for a single operator to use and move on and off track
- Supplied with two batteries, the trolley has a long battery autonomy – it can be used for three days before it needs recharging
- The trolley can be dismantled into three parts for ease of transportation
- Double data backup and high storage capacity ensure the security of data collected
- The trolley is robust and durable, with anti-wear ceramic side guards for extra protection

COMPONENTS

1. Gauge Extension
2. Onboard computer
3. Battery
4. Odometer + Gauge sensor
5. Cant sensor
6. GNSS
7. Brake

TECHNICAL SPECIFICATIONS

Technical data		
Parameter	**Reproductibilty 20 (95%) [mm]**	**Range [mm]**
Gauge	± 0,5	-15; +40
Cant	± 2,0	± 250
Twist (any twist base)	± 0,7	± 13
Longitudinal level - Top (D1 waveband 3÷23 m)	± 0,9	-15 +12
Horizontal Aligment (D1 waveband 3÷23 m)	± 1,0	±25
Longitudinal level - Top (D2 waveband 25÷70 m)	± 1,5	-15 +12
Horizontal Aligment (D2 waveband 25÷70 m)	± 3,0	± 25
Longitudinal level - Top Chords 40m (configurable)	± Depending on chord lenght, typical ± 1 mm	± 150
Horizontal Aligment Chords ≤ 40m (configurable)	± Depending on chord lenght, typical ± 1 mm	± 50
Track distance	2%	No limits

SOFTWARE FEATURES

- Easy to use, even for beginners
- Map provided with location of sensitive areas
- Display of all values and/or curves
- Pre-configured events
- Possible annotation of remarks related to the geographical position
- Calculation of track geometric quality indices according to Standard EN 13848-6
- Possibility to transcribe in .kml version for reading on Google Earth
- Positioning of geometric defects and quality index on an offline map
- Possibility to put certain criteria at different places on the line according to track parameters, e.g. straight line, curve, type of crossing, sloping track, speed.

EUROPEAN STANDARDS

Pandrol has developed the GeoVizio-TR-Smart to meet the European Standards for Track Geometry Quality:

- EN 13848-1: Characterisation of track geometry
- EN 13848-4: Measuring systems – manual and lightweight devices
- EN 13848-5: Geometric quality levels – plain line, switches and crossings
- EN 13848-6: Characterisation of track geometry quality

Manufactured by

AMBERG TECHNOLOGIES

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