



Profile measurement of mounted tram rails

Pictures: Dr. Peter & Alexander Thiemann GbR IT Projekte <https://www.tramcloud.net>

Modern operating conditions for trams lead to increased wear of the wheels and rail. In order to document the wear of the rail, our customer has developed a measurement system that detects, automatically evaluates and analyses this data. scanCONTROL laser profile scanners from Micro-Epsilon record the profile of the rail.

These non-contact measurements create a cross-section of the rail, providing an innovative, time-saving solution compared to the more common, visual inspection. The customer determines the specific, permissible deviation. The Cloud software application creates a detailed, interactive map of the rail network where the respective condition of single sections of rail is coloured and actual measurements can be reviewed.

Advantages

- Transmission of the entire, raw data profile
- Integration of the laser scanner into the measurement system using a free SDK
- Low cost profile scanner provides measurements with high accuracy

Requirements for the measurement system

- Measurement accuracy: $\pm 12\mu\text{m}$
- Measurement speed: 60 profiles per second
- Track width: 1000 - 1500mm

Ambient conditions

- Outdoor measurement
- Ambient temperatures: 0-45°C

System design

- 2 x scanCONTROL 2600-100
- Manual measurement wagon
- Computer for evaluation and wireless data transfer

