


RAIL PROFILE



**High-Precision
Rail Profile scan
for Inspection and
Grinding Operations**





The Rail Profile Measurement System is an optical diagnostic solution for high-precision, non-contact rail profile detection.

Easily mountable on virtually any type of vehicle and orientable toward the target, it is suitable for both rail wear inspections, integration on grinding machines or third rail detection and measuring.



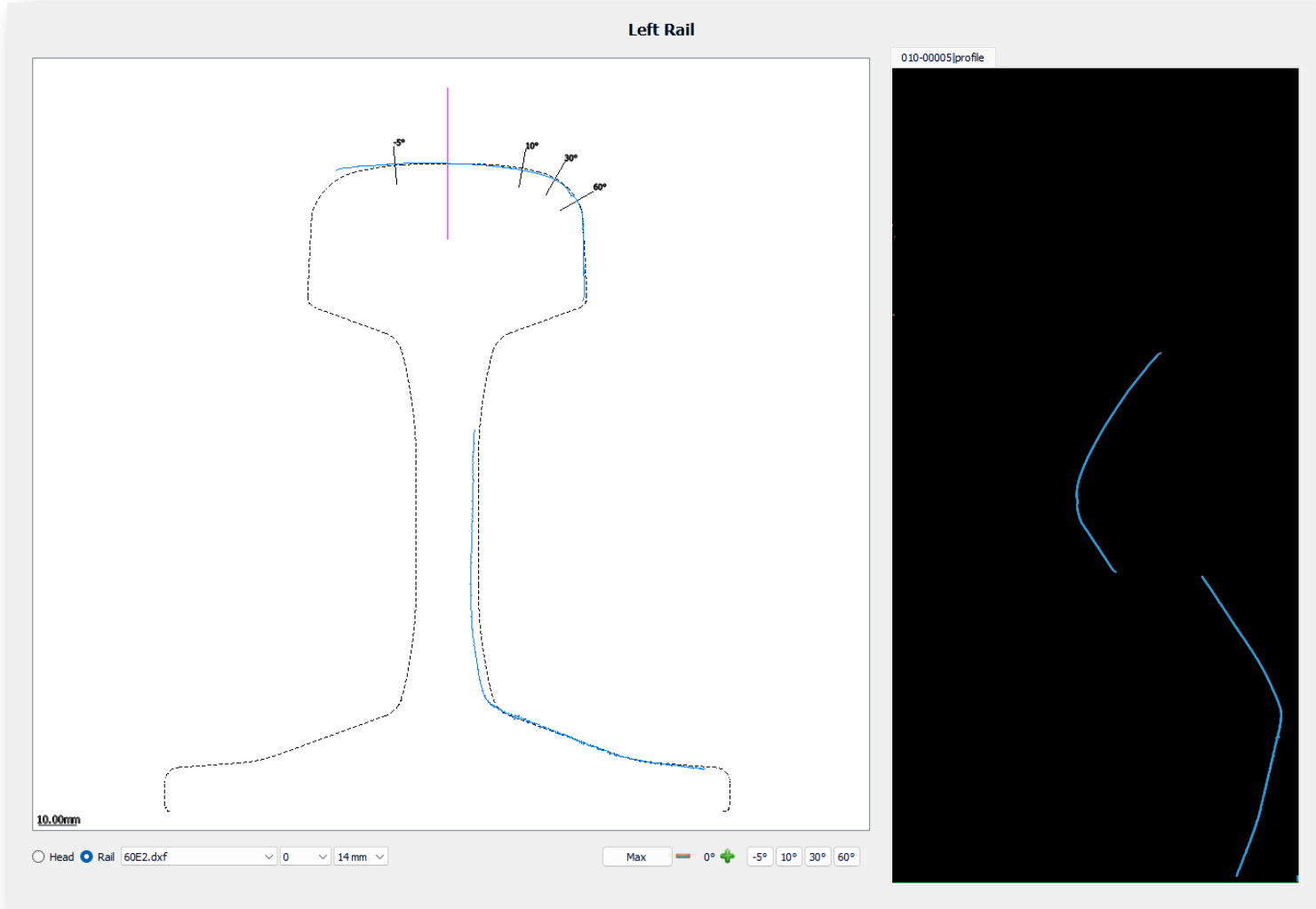
Laser triangulation-based vision system



Metric correlation via connection with the vehicle's encoder



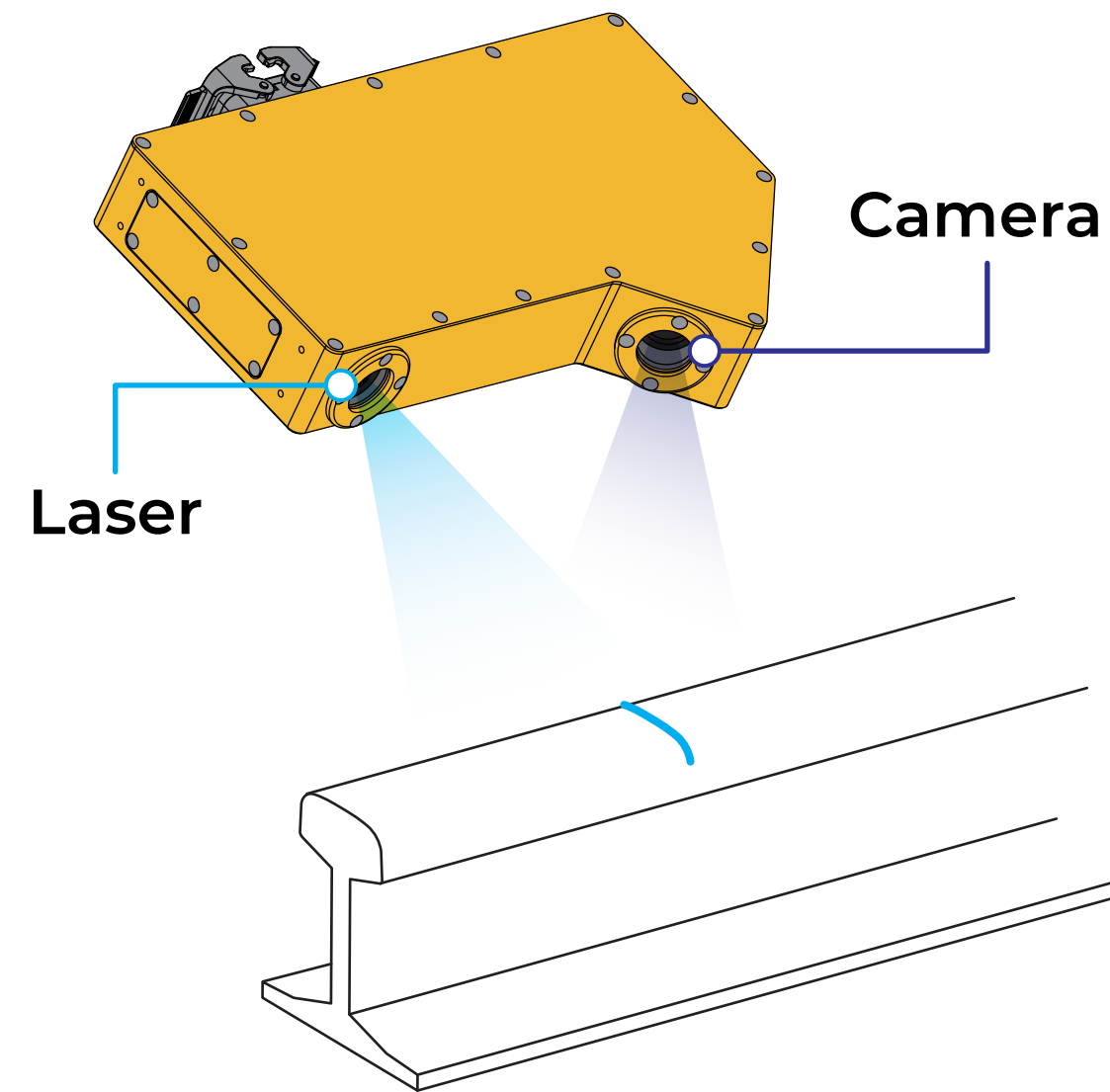
Operator-friendly interface with real-time visual feedback



Performance

Max Sampling frequency	Up to 350 fps
Accuracy	± 0,1 mm
Laser Class	3B, 450 nm + 3B, 405 nm (FRP only)
Operating temperature	-20°C / + 60°C Optional extension to EN 50155
Measuring Speed	Max operational speed

How it works



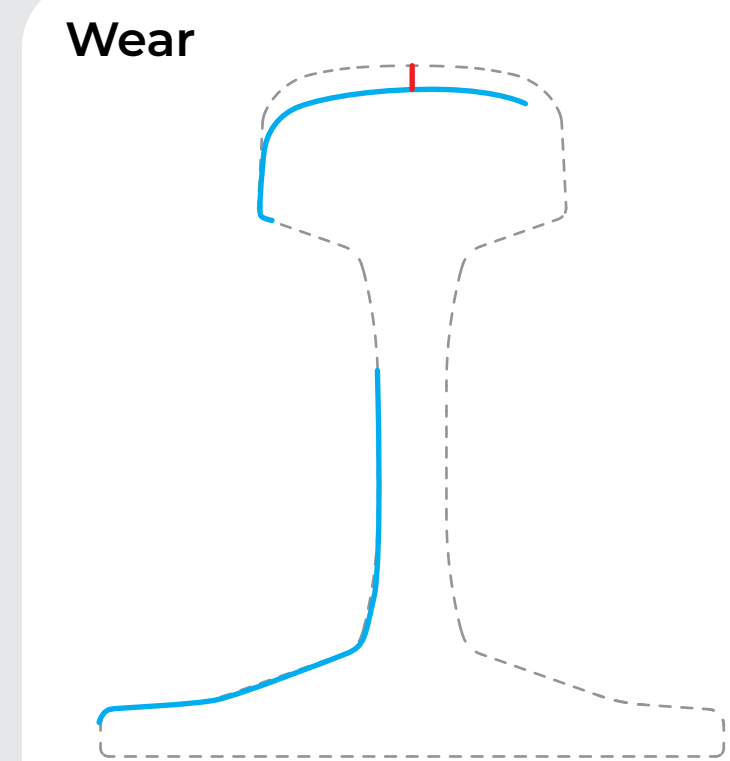
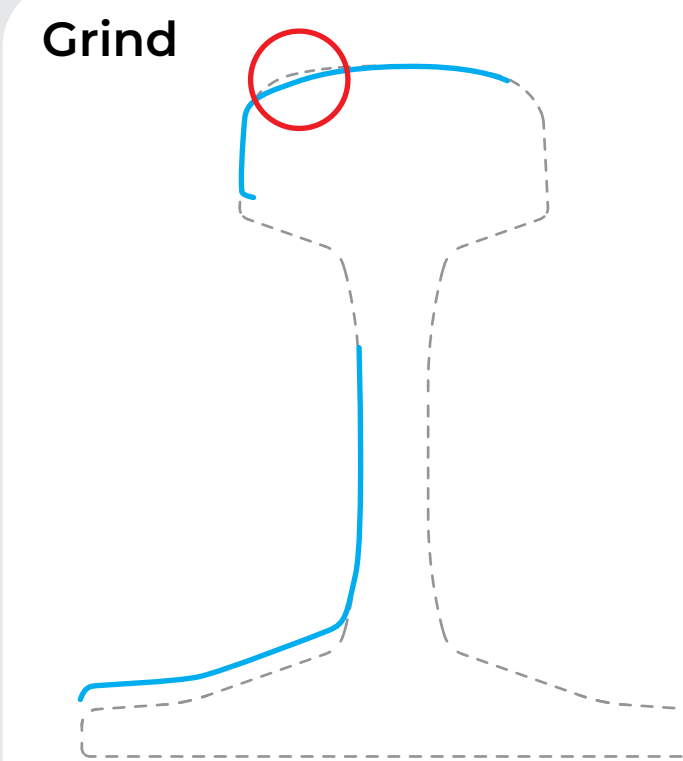
- 1 The laser projects a line onto the rail, while the camera captures the profile along the entire track.

Raw profile



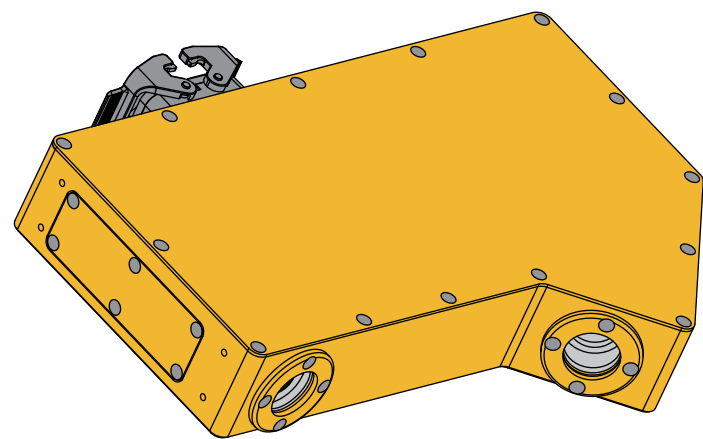
- 2 The software acquires the RAW image and isolates the rail profile.

Elaborated profile



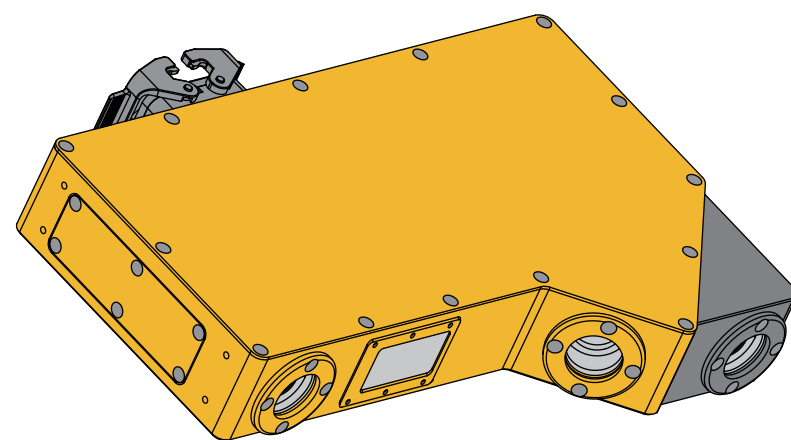
- 3 The RAW profile is processed and compared to the reference profile:
 - The **grind** method, where the acquire profile is aligned on the upper and inner part of the rail head, optimizes material removal in the areas targeted for grinding.
 - The **wear** method, which aligns the profile on the web and foot, enables accurate rail wear analysis.

Models and Configurations



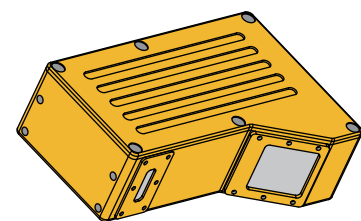
RP - Rail Profile Measurement System

High-precision device for rail profile detection, featuring laser and camera technology; ideal for wear assessment and geometry monitoring.



RP-V - Rail Profile Vision add-on

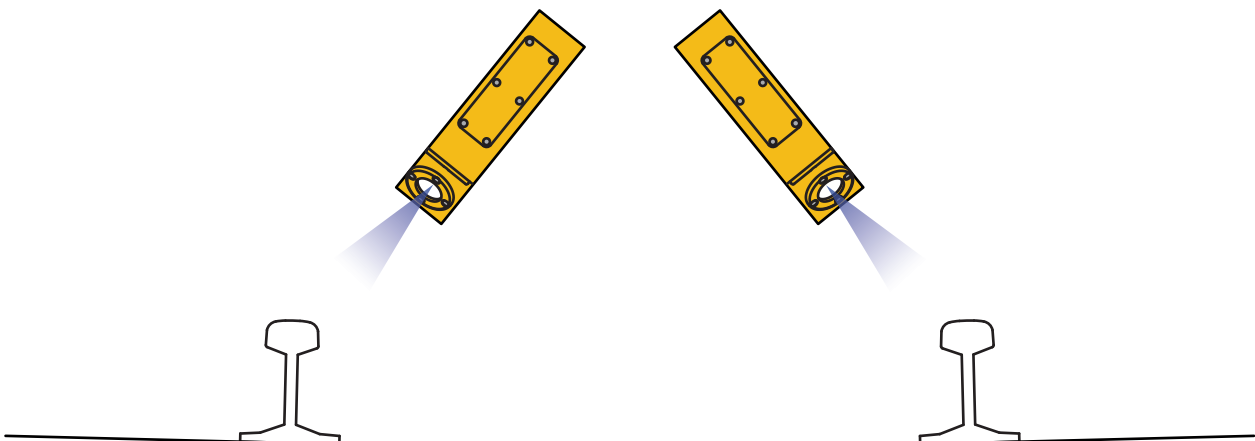
Rail profile device with add-on camera and lighting module for visual inspection and rail surface image capture.



3RD RAIL

Measures height and stagger of third rail.

Rail Profile Configuration



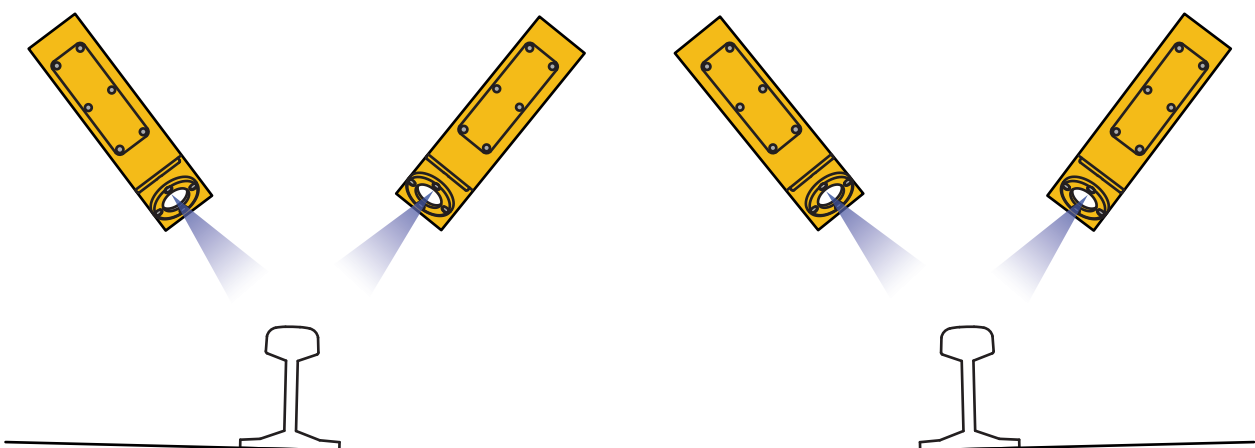
Devices:

- **2 x RP** (or RP-V)

Application:

- **Grinding operations**
- **Inner profile inspection**
- **Track monitoring**

Full Rail Profile Configuration



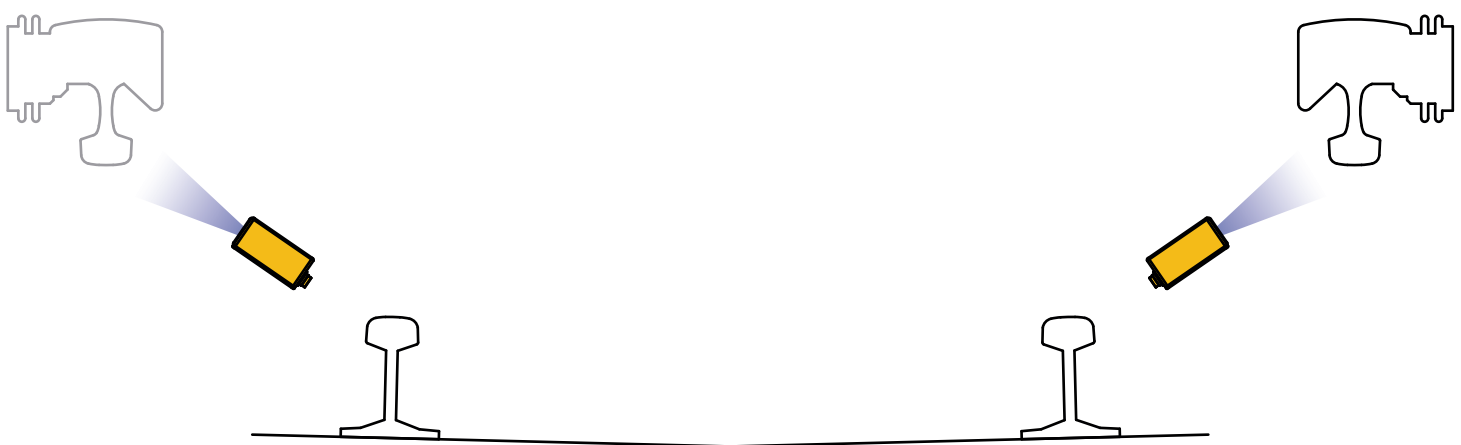
Devices:

- **4 x RP** (or RP-V)

Application:

- **Grinding operations**
- **Full profile inspection**
- **Track monitoring**

Third Rail Profile Configuration



Devices:

- **2 x 3RD RAIL**

Application:

- **Third Rail detection and measuring**