



FUGRO

RILA TRACK GEOMETRY

Fugro provides essential infrastructure information for rail professionals. We offer a safer, faster and more affordable way to gather accurate, up-to-date rail infrastructure data and analysis, with limited disruption to service.

RILA SYSTEM

Fugro's unique rail infrastructure alignment acquisition system (RILA) measures absolute track position and geometry with engineering-level accuracy. Compact and easily transportable, it connects to the back of a regular passenger train in less than two minutes. From here, it surveys the rail tracks at line speed and acquires actual, accurate positional information together with value-added georeferenced video of track assets.

RILA uses a sophisticated GPS measurement system, combined with inertial measurement units, laser scan

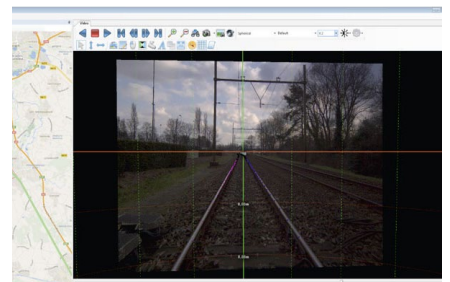
technology and video cameras to collect the X, Y and Z position of the track, the rail profile and parameters such as track gauge and cant.

Using RILA greatly reduces the risk to surveyors working on or near the line, supplying measurement data in a non-disruptive way at significantly lower cost than traditional survey methods.

RILA also reduces the environmental impact (energy and ecological), as the system is connected to regular trains combining rail measurements with scheduled train services.



RILA track measurement system connects to almost any train in under two minutes.



Georeferenced video of the route collected simultaneously with track geometry data.

SERVICE FLYER



RILA PRODUCTS

With RILA you measure once, but the data can be used for many different applications, including engineering services and asset management of railway infrastructure.

The RILA system is particularly well-suited to rail measurement before and after maintenance works. Track position is calculated to a very high level of absolute accuracy, referenced to a customer defined grid, using advanced processing software. Track engineers use the data to optimise design and to check alignment following maintenance.

RILA data can also be used to calculate track geometry; track safety parameters, such as track gauge and cant; identify rail wear and the condition of switches and crossings; determine ride comfort parameters; and contribute to Building Information Models (BIMs).

THE BENEFITS

RILA data can provide the digital backbone for a total rail network and offer a solution for accurate track position and other uses, including input to the European signalling system, ETCS. Every track is available in XYZ coordinates and individual point strings can be converted into alignments (straights, transitions and curves). The cant and super elevation build up is available as a 3D model.

RILA data provides the superior levels of accuracy needed to measure track position and geometry, whilst acting as a control base for airborne and train-mounted LiDAR systems.



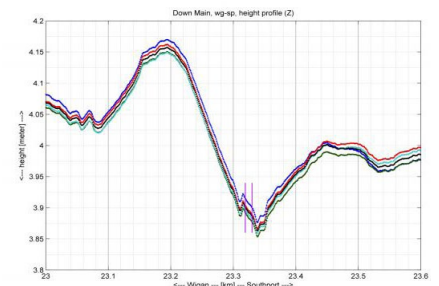
Fugro's RILA system gathers absolute and relative position, rail wear and video information.

RILA is a unique solution that offers key operational advantages:

- Greatly reduces the safety hazards associated with survey crews working on or near the track, and disruption caused by track possessions
- Operates at high speeds (up to 100 mph/160 kmh), gathering data at significantly lower cost
- Removes the need for special measurement trains and additional train paths
- Limited disruption to train services, therefore more efficient
- Improves the usability and functionality of less accurate datasets
- No environmental impact, as measurements are combined with regular train services
- Approved and accredited by international rail network bodies
- Can be used anywhere in the world and operated from nearly all trains due to excellent portability.



RILA sensors mounted on a track recording vehicle to acquire a 3D model of the railway corridor.



Graph showing the 4 individual track runs acquired by RILA, and the computed actual track position in black.