



LEADER 2.0

Energy is more valuable than ever, and Europe's climate targets – as set down, for example, in the European Green Deal – are ambitious, especially for the rail industry. The European version of the **LEADER** (Locomotive Engineer Assist Display & Event Recorder) Driver Advisory System (DAS) represents a powerful response to challenging questions such as how to improve operational energy efficiency and traffic flow.

“LEADER 2.0 is the next evolution of our well established LEADER which is in service since 2018. A bunch of new features will lead to significant improvements in energy saving, traffic flow and driver experience.”

Driver Advisory System are designed to save energy by displaying driving recommendations on an ergonomically optimized display. To achieve the best saving result in the entire network traffic flow must be optimized and each vehicle must run in the optimal speed. To achieve this LEADER provides 3 levels of optimization:

- Live traffic information via infrastructure time windows to improve traffic flow and energy efficiency from network perspective
- Live traffic information via blocks / signals to improve local traffic flow and energy efficiency for our train
- Global driving advice optimization by using highly available GNSS, topography, train model, physical driving resistances, weather information and electronic timetable



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All this information is worked out with the right priorities in one single driving recommendation which makes it very easy for the driver to contribute to a maximum of energy saving.

Our long experience with this product leads to customer-friendly options like

- **Timetable Customization:** Specifically designed for freight operation, it allows to select / unselect individual stops, including estimated time of arrival
- **Two driving modes:** Traffic flow mode, designed for freight trains, is capable of driving with the flow, independent from any timetable. Absolute mode, designed for passenger trains, is following the given timetable as far as possible

Which will be implemented in LEADER.

It is capable to handle multiple input data, such as SFERA, railML and customer specific proprietary data formats. This provides the necessary flexibility to introduce LEADER in all markets.

The LEADER license fee is based on the actual energy saving, which is a win-win situation with the following advantages

- Extremely Low investment in hardware and software
- Low risk for the customer
- No maintenance costs
- Access to back office with a wide range of functionality
- Benefits from global experience from Knorr-Bremse with continuous improvement
- Customer can influence the development roadmap



Further customer benefits

- No vehicle interface required – high level of flexibility. Prepared for an easy integration into existing hardware
- Tool for real-time monitoring and analytics that operates in tandem with a carbon-neutral, cloud- and web-based back office
- Increased energy efficiency in rail operations, also in terms of traction and wear & tear
- Major contribution to enhancing and improving traffic flow, as well as rail infrastructure capacity
- Comprehensive User Interface is guiding the driver intuitively, very few drivers education required to achieve maximum saving from day 1 on.





High flexibility to use:

LEADER can run on tablet computers as well as on installed panel PCs in the driver's cab.

LEADER can be made available as a standalone solution or as LEADER4DiLoc embedded in cn-mobility GmbH DiLoc|Sync workflow environment for driver's cab processes running on mobile devices.

With its many applications, DiLoc|Sync acts something like a Swiss Army knife for digitizing the driver's cab.



Driver Advisory Systems built into driver's cab runs on a panel PC permanently installed in the driver's cab. Both operators and their personnel benefit from an ergonomically optimized user interface with a clear layout that uses the entire screen to display driving recommendations. This makes interpreting the recommendations as intuitive and stress-free as possible.



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