



LEADER[®] Driver Advisory System



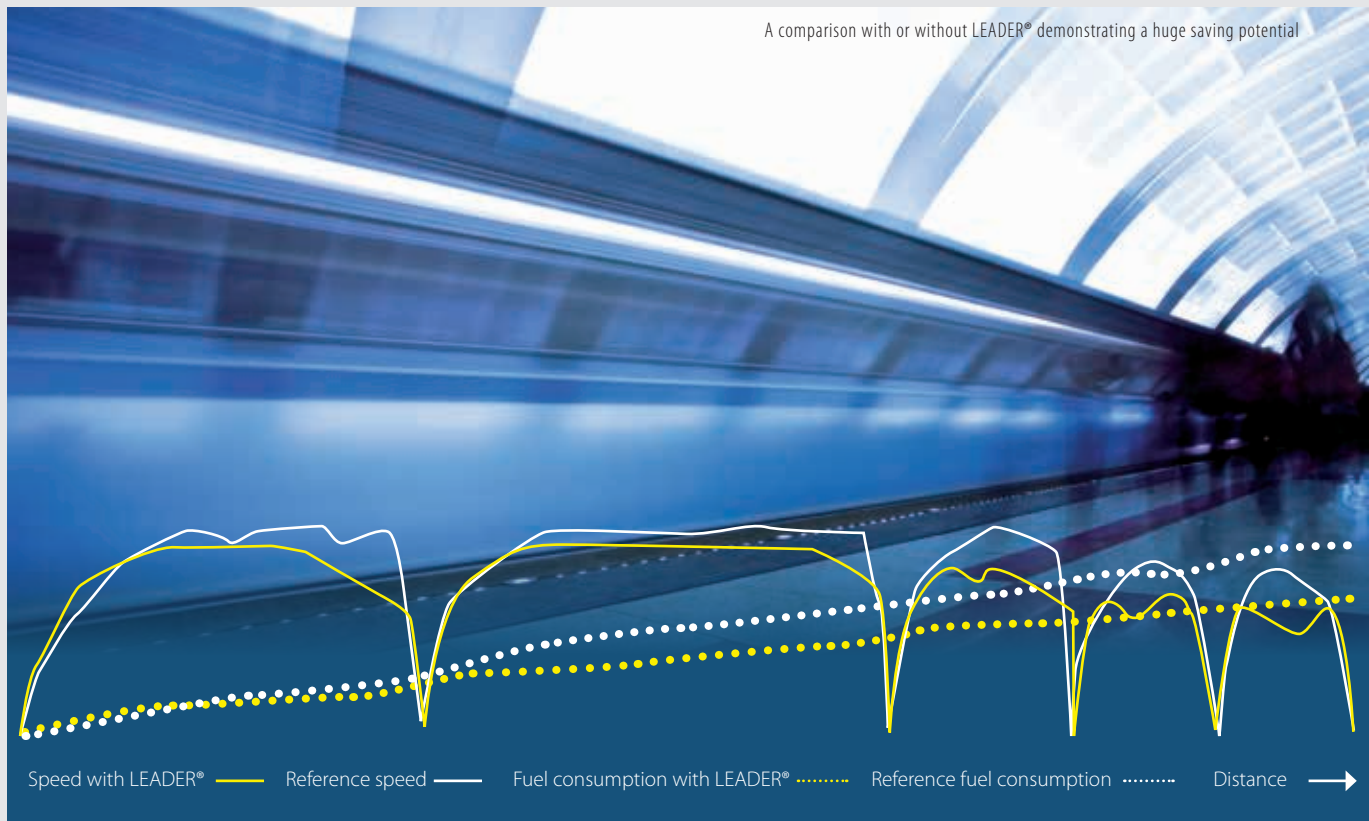
APPLICATIONS

Freight and Passenger Trains | High-Speed Trains | Locomotives |
Regional and Commuter Trains

KNORR-BREMSE



ADVANCED DRIVER ADVISORY SYSTEM



DESIGNED TO IMPROVE TRAIN HANDLING AND PROVEN IN OPERATION TO YIELD SIGNIFICANT ENERGY SAVINGS. LEADER® is an advanced driver advisory system that helps train drivers operate their trains in a smooth and energy-efficient manner. The system offers on-board advice and comes with a back-office application with sophisticated analysis functionality.

For every trip in freight and passenger operations there is a fuel-optimal run that largely depends, in addition to other parameters, on the variation between actual and scheduled timing. As the performance of the train driver varies according to experience and train-handling techniques, the LEADER® system presents operational advices to all drivers in a format that fits to their needs. The information is continuously adjusted in real time and ensures that the driver is supplied with the best possible advice for punctual arrival with minimal energy consumption. LEADER® is available as a stand-alone on-board system, as part of a closed loop solution including a back-office application. So all functions for a C-DAS (connected DAS) are provided. An interface to a simulator-based driver training is available.

ADVANTAGES

- Energy savings
- Increases punctuality
- Reduces wear
- Improves driver skills
- Increases customer satisfaction

LEADER® DRIVER ADVISORY

LEADER® calculates optimum speed profiles in real time and continuously displays speed recommendations as well as information on the train's current position and timetable. By following the recommendations from LEADER®, train drivers can actively reduce energy consumption during their trip. In addition to this core driver advisory function, the LEADER® product family also includes data administration, performance analysis and driver training. The global experience of Knorr-Bremse in the rail sector, combined with more than ten years of practical experience with driver advisory operations has resulted in a state-of-the-art product portfolio that meets individual customer needs. A certified product development process and railway-compliant hardware guarantee maximum performance coupled with high reliability.

ENERGY SAVINGS

- Traction recommendations for running engine and motors with maximum efficiency
- Recommendations of reduced top speed to avoid unnecessary build-up of kinetic energy and minimize speed-dependent factors (e.g. air resistance)
- Early coasting suggestions to cut off traction power consumption
- Harmonization of driver performance

**LEADER® ON-BOARD**

The intuitive display layout provides drivers with all the important information without distracting them.

Different sections offer the driver:

- Clear recommendations for required actions
- Most important track information, such as milepost and gradients, as well as upcoming stations with estimated arrival time

**BACK OFFICE**

The LEADER® back-office solution combines real-time database and upload functions with advanced analysis features.

In addition to real-time dynamic data, comprehensive statistical reports are also available. The back-office function is capable of managing bi-directional data flows between a single central server terminal and an entire train fleet. The connection to the on-board unit is via GPRS or other communication standards.

**SIMULATOR**

As part of the Knorr-Bremse Group, Sydac offers a wide range of highly sophisticated simulators for driver training.

Simulators can be combined with the LEADER® system:

- Prior to installation in rail vehicles in order to define the layout and features of the driver advisory system.
- During series application, with the LEADER® system being used to re-run critical and exemplary trips that have been identified by back-office evaluation

Knorr-Bremse Systeme für Schienenfahrzeuge GmbH

Moosacher Straße 80
80809 Munich
Germany
Tel: +49 89 3547-0
Fax: +49 89 3547-2767

WWW.KNORR-BREMSE.COM



Knorr-Bremse Group

This publication may be subject to alteration without prior notice. A printed copy of this document may not be the latest revision. Please contact your local Knorr-Bremse representative or check our website www.knorr-bremse.com for the latest update. The figurative mark „K“ and the trademarks KNORR and KNORR-BREMSE are registered in the name of Knorr-Bremse AG. Copyright 2013 © Knorr-Bremse AG. All rights reserved. Including industrial property rights applications. Knorr-Bremse AG retains any power of disposal, such as for copying and transferring.