

Signalling system renewal

# Banedanmark

FAdC® and RSR123

**Country**  
Denmark

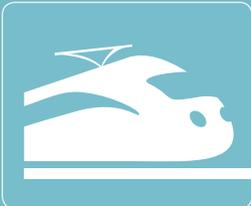
**Segment**  
Main Lines

**Application**  
Train detection

**Project start**  
2009



CASE STUDY | EN



## Requirement

Banedanmark's total renewal strategy will introduce the latest proven signalling technology, based on standard industrial hardware components and redundant system configurations. This would enable the implementation of uniform system interfaces whilst reducing signalling failures, thus achieving better reliability and punctuality.

## Solution

Banedanmark, the Danish railway infrastructure owner, has awarded Alstom a contract to replace the existing signalling system in the eastern region of Denmark with Alstom's proven Atlas solution, comprising Automatic Train Protection (ATP) and Smartlock computer based interlocking system. Frauscher will deliver the latest generation of axle counting system FAdC and RSR123 wheel sensors.

## Benefit

Thanks to the software interface the FAdC system can be fully integrated into Alstom's Smartlock interlocking. This communication interface offers a range of benefits: extended functionality, reduced need of hardware components and space, cost savings and lower operating costs.

**FRAUSCHER**

SENSOR TECHNOLOGY

# Signalling system renewal Banedanmark FAdC® and RSR123



FAdC



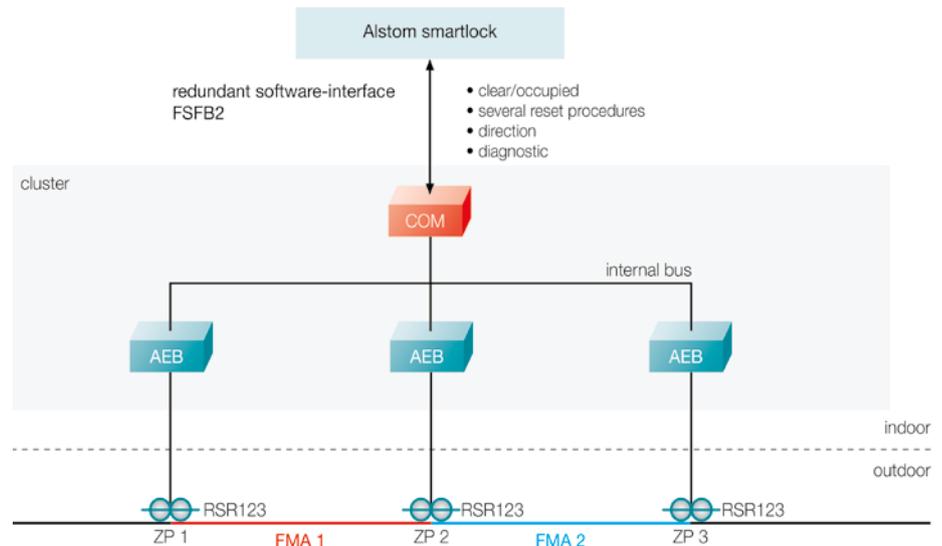
Frauscher Diagnostics System



Mounted RSR123

## Project details

To ensure that the design and configuration of Frauscher Advanced Counter is fully integrated into the design of the interlocking system, Frauscher implements Alstom's interface protocol FSFB2 into FAdC. All information, such as the configuration files and design documentation, will be generated automatically. This not only reduces the configuration and test outlay considerably, but allows further changes to be made in the course of the project without incurring high additional cost.



## Frauscher Diagnostics System FDS

The preventative maintenance, the optimisation of fault rectification, the unrestricted online access to the axle counting system data and the minimisation of maintenance work lead to a reduction in life cycle costs. The FDS features the possibility to totally integrate the FAdC diagnostics via a software interface into the operator's overall diagnostic and maintenance system.

## Highly interference tolerant wheel detection

The advanced features of RSR123 wheel sensor qualify it as the state of the art in wheel detection, especially thanks to its ability to work reliably in the conditions of strong electromagnetic interference. Due to the fact that no active electronic components are used trackside, the availability of this Frauscher wheel detection system is very high. The automatic calibration process, triggered remotely, guarantees that users spend as little time as possible in the track and helps to avoid calibration errors.

**Operator**

Banedanmark

**Client**

Alstom

**Scope of Supply**

Trials, delivery of components, implementation of FSFB2 software protocol

**Scope of Project**

Approx. 2500 track sections, 3000 counting heads

**Axle Counting System**

FAdC with FSFB2 interface

**Wheel Sensor**

RSR123 with rail claw