



# SABIK

Projects

## SABIK LED signals ensuring safety on the Ring Rail Line in Finland



For more than 20 years there have been plans to have a rail connection from Helsinki City center to the Helsinki Airport which is located in the neighboring community Vantaa about 18km to north from Helsinki City center. Planning of this new rail connection started early 21st Century and the final decision was to made for a favor of building a new east-west connection between two of the existing radial railway lines – this topology also gave the name for the new rail connection: the Ring Rail Line.

### ESPECIALLY HIGH REQUIREMENTS FOR DURABILITY AND RELIABILITY OF LED SIGNALS

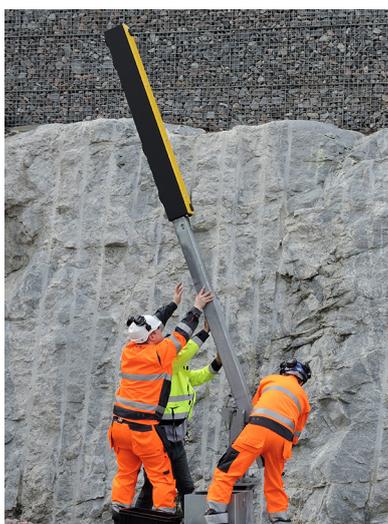
The building of this new railway connection started finally 2009 and the project will be completed in July 2015. With total length of 18km, of which there is tunnel for 8km, the Ring Rail Line is one of the major civil construction projects in Finland of its time. Especially the tunnel below the airport has been proven to be even more challenging than expected. The railway will be linking not only airport but also several big residential and industrial areas.

When opened to traffic in 2015 there will be five stations with a reservation for three more. Trains will be travelling on this railway every 10 minutes to both directions and they will stop at each station. Up to 16 000 commuters is estimated to be using this new rail connection every day.

The dense traffic and short train intervals are causing high availability demands for the train control. These circumstances combined with the harsh environmental conditions the requirements for the durability and reliability of the LED signal lanterns cannot be higher.

### FOR THIS PROJECT SABIK DEVELOPED A NEW ADVANCED COMBINED SIGNAL

In this project Sabik's customer Thales Transportation System GmbH will deliver their adapted Thales interlocking system, which was intentionally developed for main line applications in export markets and adapted to fulfill the Finnish Interlocking Requirements (FIR). The Ring Rail Line project is the first project in which the new Finnish Signaling System 2010 will be realized in a larger scale. For the Ring Rail Line project Sabik finalized the production of the new so called "combined signal" where three main signals (red, green, yellow) are combined with two flashing distant signals (green and yellow) and two shunting signals (white and blue) all together into one single housing. All the signal units at the combined signal are RSLx100.12 FI(F) LED lanterns with Ø100mm light opening. A lot of test work has been conducted both at Sabik as well as Thales in order to ensure the compatibility of Sabik LED signals with Thales interlocking system.





Johan Lönnqvist and Vesa Rasinen from Sabik and Frank-Peter Sterna from Thales are assembling Sabik combined signal.

### RELIABILITY OF NEW SABIK SIGNAL INTENSELY TESTED

The idea for this new signaling system emerged in Finland already 2005 and since then several prototypes of the combined signal housing with different shapes and topologies were made for demos and also for field experiments. At field tests all optical parameters such as most suitable luminous intensities, colors and flashing functionality of the LED signals were tested. Also the overall visibility of the new signal concept to the locomotive drivers was examined during all different northern ambient light and weather conditions.

Sabik customer Thales Transportation System GmbH has also high expectations on Sabik products:

“We are expecting that the system will meet the desired stability in operation. We have seen Sabik products in use previously and believe that Sabik products will be as reliable as before”, says Oliver Ipp, the Sales Manager for International Business at Thales Transportation System GmbH. “During the integration of the Sabik signal lanterns into the Thales interlocking system, the easy adaption of the Thales Field Element Controller (FEC) showed the flexibility of the Sabik lanterns. We were able to achieve all the correct optical and electrical parameters with Sabik signals. This was to ensure the reliable operation with Thales FEC with all cable types and lengths which are used not only in Finland but also in our other export countries”



### HIGH EXPECTATIONS FROM THE CUSTOMER FULFILLED

In this project the Sabik products are challenged not only by the highest reliability requirements but also because of the damp environment inside the tunnels together with the vibration and heavy impacts of the piston effect. Also the EMC disturbances caused by passing trains will affect greatly on the signals.



MORE INFORMATION:  
Kari Taskula  
Director Projects, Sabik  
tel +358 400 871708  
kari.taskula@sabik.com  
[www.sabik.com](http://www.sabik.com)

Author: Joanna Viileinen, Marketing, Sabik Oy

