

# factsheet # 12



### ERTMS DEPLOYMENT IN BELGIUM



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Located at the very heart of Europe, Belgium is a country which has invested massively in the past few years to upgrade its railway network. It subsequently became the first European country to have a complete network of High-speed lines from border to border in commercial service, with links to the UK, France, The Netherlands and Germany. By the end of 2009 Belgium, with the Netherlands, were the first to achieve a High-speed ERTMS Level 2 cross-border connection in revenue service.

Infrabel builds, operates and maintains the Belgian rail infrastructure. Its mission is to develop a safe and qualitative railway network for all the trains of tomorrow. Infrabel has set the goal of being one of the safest railway networks in Europe. So since 2009, the European Train Control System (ETCS) is being installed on the national railway network. In 2017 NMBS/SNCB operated a network of 6,399 km of mainline tracks electrified at 3000 V DC with 351 km electrified at 25 kV 50 Hz AC.

In 2010, Infrabel and SNCB launched an ambitious ETCS master plan, representing a total investment of €3.8 billion (€2 billion for the trackside). The approved plan, financed by the Belgian government, will be progressively deployed with the European Train Control System (ETCS) up to 2023. Depending on the interlocking technologies and the line types, the Master Plan is based on deployment of ETCS Level 1 Full Supervision or ETCS Level 2 Full Supervision or ETCS Level 1 Limited Supervision and as considered appropriate for the respective traffic demands.

#### What are the main High-speed projects in Belgium? What is the status of ERTMS deployment?

The two most recent connections to Germany (HSL3) and the Netherlands (HSL4), are already running in commercial service with ERTMS level 2:

HSL 3	connects the city of Liège to the German border. The 56 km long line (42 km dedicated high-speed tracks, 14 km modernized lines) came into commercial operation on the 15th June 2009. It is currently used by international Thalys trains and ICE trains. After completion of the line, the travel time between Liège and Cologne was cut to one hour, whilst Liège to Aachen is achieved in approx. 20 minutes at speeds of up to 260 km/h.
HSL 4	connects Antwerp to the Dutch border, where it meets the HSL Zuid. The line in Belgium is 40 km long, and consists of a dedicated high speed track. It is connected to a modernized railway line that runs from Brussels to Antwerp. HSL4 first opened in June 2009 and since December 2009 Thalys trains are running using ERTMS Level 2. Trains are now travelling at up to 160 km/h from Brussels to Antwerp (47 km), whilst on the "dedicated" part of the line reaching speeds up to 300km/h. HSL 4 is currently used by Thalys and fast internal InterCity trains.

# What are the benefits brought by ERTMS to passengers on the high-speed line crossing Belgium and on into the Netherlands?

Amsterdam, Paris and Brussels are now closer than ever thanks to the new High-speed line linking Belgium and The Netherlands, whilst travelling times to Paris and Cologne have equally been reduced thanks to HSL3:

- From Amsterdam, it now takes 3h18 to reach Paris (51 minutes travelling time reduction) and 1h54 to reach Brussels;
- From Paris, travelling time to Cologne has been cut to 3h14 (36 minutes reduction).

These considerable travelling time reductions bring benefits to passengers, facilitating and improving travel of both tourist and business travellers.

As a further advantage and side effect of the railway investments, modernization and upgrade, Belgium now enjoys two of the most spectacular railway stations in Europe: the fully-renovated "Antwerpen Centraal" Station, and the scenic, futuristic Liège-Guillemins station, which was designed by Santiago Calatrava and has become the city's iconic landmark.

#### Will ERTMS also benefit directly infrastructure managers and train operators?

Yes - ERTMS also considerably reduces infrastructure and maintenance costs and increases safety, reliability, capacity and interoperability. Once the full line from Paris to Amsterdam is equipped, it will also strongly reduce from seven to one, the number of signalling systems required to run this line. This will greatly facilitate operations along the lines for both existing operators and new entrants.



## Are Belgium planning ERTMS investment on their freight and conventional networks?

On the Belgian side, the country goes forward to fully equip its entire network in the longer term. Frame contracts have been signed in this respect comprising a migration strategy at thousands of signals via the existing Belgian legacy system TBL1+ together with ETCS level 1. TBL1+ ensures a fast increase of the safety level and ETCS Level 1 makes the network interoperable for ETCS trains. The whole network plan is finally to be operated in the ETCS level 2 mode but as expressed above depending on the needs of the appropriate lines and their anticipated traffic needs. The migration plan is expected to be finalized by 2023. There are also plans to upgrade the High Speed connections with France and the UK up to ERTMS technology.

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