Case Study

Norwegian State Railways (NSB), Oslo

Summary

75 new trains run by The Norwegian State Railways (NSB) for traffic in the Oslo area and southern part of Norway have been equipped with Univox TLS-2 Loop system. The trains have a special focus on customer friendliness for families, the elderly and the disabled. All train cars are now safer, easier and more relaxing for hearing disabled, especially when travelling alone.

Challenge

NSB has purchased 75 five-part electrical trains of the FLIRT family from Swiss train manufacturer Stadler Rail. Passenger Information System (PIS) supplier has been the Finnish company Mitron.

Some of the trains are used as Long Local version for the S-Bahn traffic in the Oslo area, with travelling times of up to 90 minutes. Others are used as Short Regional, and will traffic the area of Southern Norway for connections with travelling times of up to 3 hours.

These different traffic conditions and the high ambition of user friendliness for disabled travellers along with the harsh Norwegian climate, posed a real challenge. The ambition was also to reduce the time and costs for installation of the systems.

As always when installing loop systems on-board rolling stock, there are a number of technical challenges: Attenuation of the magnetic field due to the metal in the cars (in this case the train cars were made of aluminium), magnetic background noise from braking systems and electrical cables, available electrical power, interface to the on-board Passenger Information System, vibrations, temperature variations, dust, cramped installation space... All these challenges had to be overcome by choosing the right mix of power, loop design, loop wire placement and of course – the right loop driver for the job!

Solution

The train cars are characterised by an advanced thermal and acoustic insulation and fulfil the high requirements needed for winter operation in Norway. This fact made it easier to succeed, but nevertheless the demands on a hearing loop amplifier installed on board rolling stock is higher than for most other professional settings.

Norwegian State Railways (NSB), Oslo

After thorough testing in a real environment and with careful design of the loop itself (placement in the ceiling), a pre-set pattern of all input and output levels was established. This, together with the compact physical measures of the driver itself, made the installation of the loop drivers in the train cars relatively easy. No additional measurement or adjustment was needed on-sight!

Conclusion

Following a close collaboration with both train manufacturer and PIS supplier, 375 train cars have been equipped with hearing loops completely covering each train car. The supply of pre-set loop drivers made the installation both faster and easier, completely eliminating the risk of non-conformant loop systems.

The rugged design of the driver, including dust coated PCB, glued capacitors and dip switch settings of all levels, will ensure many years of problem-free service for the hearing impaired.

Products used

30 Univox® TLS-1 Transportation Loop System

345 Univox® TLS-2 Transportation Loop System

Responsible companies

Loop design and technical planning: Univox, Sweden

Passenger Information System design:
Mitron Oy, Finland

Loop system installation and integration with PIS:
Mitron Oy, Finland

Train supplier: Stadler Rail, Switzerland

Univox by edin, the world's leading expert and producer of high quality hearing loop systems, created the very first true loop amplifier 1969. Ever since our mission is to serve the hearing community with the highest degree of service and performance with strong focus on Research and Development for new technical solutions.

Bo Edin AB Stockby Hantverksby 3, SE-18175 Lidingö, Sweden
Visit Förrådsvägen 2 B, SE-18141 Lidingö, Sweden
Phone +46 8 767 18 18
Fax +46 8 767 18 20
E-mail info@edin.se
Internet edin.se • univox.eu