

# SWEG Ortenau-S-Bahn

## Success Story – WiFi for Passengers



**Since September 2015, the passengers of the SWEG on the railway lines of the Ortenau-S-Bahn can enjoy free WiFi. In the meantime, WiFi is available in almost the entire fleet. This project was realized with the devices of NetModule.**

### The Project

The trains of the Ortenau-S-Bahn serve an extensive rail network of 200 kilometers and travel the remarkable distance of around 2 million kilometers per year. Since the beginning of September 2015 all 28 vehicles are equipped with WiFi for the passengers. In the meantime, the fleet, including buses, in about three quarters of the SWEG transportation area is equipped with WLAN technology. Thereby SWEG has successfully implemented a task of the transport organization authority.

The usage of the free WiFi is as easy as it can be. The passengers only have to connect with their device to the network and then the browser will automatically forward to a landing page. After accepting the Terms of Use, each passenger has 50 MB data volume at one's disposal. The users don't have to give any personal information.

With this project, SWEG won the public transport innovation award in March 2017 in the category "Customer advantage through digitalization" of the state of Baden-Württemberg. The project was praised, among other things, for its fast implementation, easy access and technical safety.

### Requirements

The following requirements have been defined for the routers of NetModule:

- Certification for use in trains and vehicles
- Uninterruptible usage of the mobile network (3G and 4G)
- WiFi access at least at 30% of the seats
- Interface to providers of captive portals

### Solution

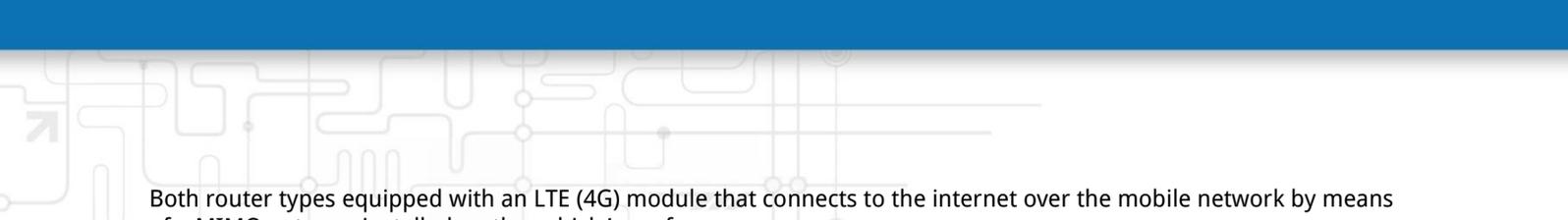
In order to meet the previously mentioned requirements, one device of the type NB3700 was installed in each railcar of the Ortenau-S-Bahn. With fulfillment of the railway standard EN 50155 and the fire protection standard EN 45545, these devices are specifically designed for use in trains. In the buses, routers of type NB2700 with automotive approval are used.

### Testimonial

*"NetModule's price-performance ratio is absolutely correct. Our requirements were implemented quickly and competently."*

Timo Jung, Leitung Fachbereich  
Fahrzeuge und Werkstätten  
Eisenbahnen SWEG





Both router types equipped with an LTE (4G) module that connects to the internet over the mobile network by means of a MIMO antenna installed on the vehicle's roof.

Thus the passengers can surf the internet from their seats, the router act as hotspot that supports WiFi IEEE 802.11 a/b/g/n. With two high-performance antennas the signal is extended over the whole train. As soon the passengers connect to the WLAN with their devices, they get forwarded to a captive portal. This portal as well as the youth protection and the data volume control was realized in collaboration with the provider Hotspots. To use this services, the router establishes a secure VPN connection the servers of Hotspots.

During the preliminary stage of the project, one railcar was equipped with a router to carry out a study about the network coverage. This study showed, that 4G (LTE) is not yet available everywhere on the rail network. However, the routers recognize this immediately and switch automatically to the next available mobile radio standard without the terminals perceive any interruption.

The SWEG installed the routers independently in their vehicles. In order to roll out quickly and easily, the devices can be configured automatically via USB auto-run. Once an USB drive with valid security keys is inserted, the configuration process starts. For security reasons, USB auto-run is disabled after the successful configuration.