



PA/VA

# Samsun – Kalin rail

## Introduction

Ambient System has supplied a state-of-the-art networked Public Address and Voice Alarm (PA/VA) system for a **mainline rail route covering around 380 kilometers from Samsun to Kalin in Turkey**. The line links the port of Samsun on the Black Sea with the railway junction of Kalin in Central Anatolia.

Modernization of the railway has cut the journey time between Samsun and Kalin from nine hours to five and the PA/VA keeps passengers informed on all 21 stations **using the Ambient miniVES systems with noise sensing technology**. Siemens Mobility undertook the complete modernization process for the rail line including electronic interlocking systems, points machines, level-crossing technology and the train control system ETCS as well as the PA/VA communication technology supplied by Ambient System.



21

stations equipped  
with miniVES

380 km

of total  
rail routeEN  
54-16

compliance

## Challenge

Key technical requirements of the project included:



**Long range IP Network Integration** for Passenger Information System  
(live and automated messaging)



**Automatic volume control for maximum intelligibility** using IP66  
Noise sensing microphones rated for extreme temperatures



**Messages are stacked and played into zones** as they become free  
when live local messages conflict with broadcasts from central point

- » Central monitoring and control of the PA devices installed in remote locations from centralized software at the OCC (Operation Command Centre)
- » Multicast broadcast of messages to all locations from the OCC using existing optical cable infrastructure
- » Passenger safety through Voice Alarm



## Solution

For the Samsun – Kalin rail project Ambient System delivered the **full network concept and four different system designs** for the different types of the stations.

The architecture of the system is based on **23 miniVES standalone PA/VA units and a single rack MULTIVES PAVA system** all connected to dedicated optical cable across the entire rail line. To complement the miniVES systems, 21 stations are equipped with **Ambient Desktop Microphone Stations (DMS)** for local announcements as well as with the Ambient advanced noise sensing microphone system for automatic level adjustment.

Each DMS provides local recording of custom operator messages as well as standard live broadcasts. There is call stacking implemented on every TCP/IP desktop microphone station giving automatic recording of the live or pre-recorded message from DMS when platform speakers are broadcasting higher priority multicast message from the OCC and for these messages to be played out when the designated speaker zones are free.

All of the miniVES central units have extended internal memory for storing local train announcements (up to 32 GB of industrial SLC SD cards) in case of network failure and loss of OCC control.

As the line stretches over 380 km, maintenance is very important to the rail company. All of the stations systems are controlled and monitored over centralized **Ambient YELLOW software**. In case of failure of any element of public address system anywhere along the rail line, YELLOW sends detailed report information directly to the nearest maintenance centre, allowing for a fast response from maintenance engineers. This increases overall system availability.

The functionality of the system is designed in **accordance with EN 54-4 and EN 54-16**, a mandatory standard which has been applicable in Europe since 31<sup>st</sup> March 2011. Integrated EN 54-4 certified battery charging systems with the extremely small footprint of digital and fully networked plug and play system was a key point for fast and successful deployment.

