



# PUBLIC TRANSPORT COMPANY OPTS FOR DIGITAL SOLUTION TO RAISE PASSENGER SAFETY AND SATISFACTION

MOTOTRBO™ KEEPS DEBRECEN ON THE MOVE



Hungary's second largest city, Debrecen, is the region's cultural and economic hub, with a rich history and rapidly expanding industry. Protecting the environment and improving service delivery for its 205,000 inhabitants are high on the municipality's agenda.

Public service company DKV (Debreceni Közlekedési Zrt.) operates Debrecen's network of buses, trams and trolleys to reduce the use of private transport and provide environmentally-friendly alternatives for getting around the city. The company carries around 40 million passengers each year.

Having recently upgraded its fleet, DKV decided it was time to make the transition to a digital two-way radio communications system that would enable it to enhance passenger services through extended coverage and advanced applications such as GPS-based fleet management.

Distribution partner Fercom demonstrated the advantages of the MOTOTRBO™ digital two-way radio solution and subsequently installed 250 DM 3400 mobile radios throughout DKV's fleet.

#### CUSTOMER PROFILE

**Company**  
DKV (Debreceni Közlekedési Zrt)  
Hungary

**Partner**  
Fercom Limited

**Industry**  
Transportation

**Product Name**  
• DM 3400 mobile radios  
• DR 3000 repeaters

**Solution Features**  
• Double call capacity  
• Integrated voice and data  
• Greater coverage  
• Excellent audio quality

**Benefits**  
• More efficient dispatch  
• Enhanced service and safety  
• Quicker response in an emergency  
• Adapts to changing needs

In addition to expanding the range of our communications, we have the reassurance of clearer audio which has improved the safety of our staff and passengers and helped to boost efficiency. The sophisticated features and applications available to us will support our growth and ensure we continue to meet high standards of customer service well into the future.

Csaba Pongor  
Technical Director, DKV



## THE CHALLENGE

### More Flexible Communications Needed to Keep Abreast of Economic Development

Debrecen's rapid economic growth has given rise to ongoing development as the city starts to realise its potential for attracting foreign investment and becoming north east Hungary's trade centre. In line with this expansion, DKV has had to cover a larger area, adding new routes to service more urban zones.

The analogue communication system the company was using had reached the limit of its capabilities and was no longer able to provide reliable coverage across the city's reach of 462 square kilometres. Making the transition to a digital two-way radio network would provide more flexibility to cater for DKV's changing communication needs and allow them to benefit from a wider range of features.

However, ongoing construction and development in the city meant that there was a high level of interference and many of the ideal antenna installation points were already overloaded. Debrecen also has a large protected forest area, which could further impede radio transmissions.

## THE SOLUTION

### Additional Capacity and Error-Correction Technology Expands Communications While Enhancing Quality

MOTOTRBO's use of TDMA (Time-Division Multiple Access) technology provides twice the capacity of an existing licensed channel, making it possible for more people to communicate on the same network. The channel is split into two slots to allow voice and data communication – or two separate conversations – to take place simultaneously. This additional capacity does not require extra equipment and it makes far more efficient use of the available frequency spectrum.

These qualities made MOTOTRBO a viable solution for DKV and, following several site investigations, Fercom was able to overcome the installation challenges while at the same time expanding DKV's communications capacity. Using only five repeaters, they managed to provide reliable coverage for all 250 radios operating throughout the city.

While analogue radio is susceptible to signal interference which impacts on the range and quality of voice communication, digital radio uses error-correction technology so even if the signal strength weakens, it can reconstitute the original voice quality with virtually no loss over a greater area.

The MOTOTRBO digital radio system also compresses background noise such as traffic, ensuring clear audio is transmitted to avoid miscommunication – an important feature for transport operators such as DKV who work in noisy city environments. And when drivers are unable to take a call, text messaging services offer an alternative means of communication, ensuring dispatch can keep in contact without posing a risk to driver safety.

As DKV undergoes ongoing expansion, MOTOTRBO provides sufficient flexibility which allows the system to be configured to meet the organisation's specific needs and to improve the efficiency of personnel in the field. For example, the second time slot on the existing channel can be allocated for dispatch data to enhance scheduling or for pre-programmed emergency alerts to increase safety.

## THE BENEFITS

### More Efficient Dispatch Improves Customer Service and Safety

The MOTOTRBO network provides non-stop communications between the dispatch centre and DKV's buses, trams and trolleys. It is divided into two user groups to cover public transport services in the city and urban areas. Calls are logged and recorded for historical data and future review to assist DKV in optimising its operations and meeting high standards of passenger safety and satisfaction.

The improved quality and range ensures a reliable communications system for more efficient dispatch and if delays or breakdowns occur, the company can react instantly and keep passengers updated on any changes to schedules. The ability to override all communications in an emergency is another important feature contributing to greater security for staff and passengers.

DKV plans to further enhance its services with additional applications such as GPS-based fleet management, which will allow dispatch to monitor buses, trams and trolleys in real time and to pinpoint their location on a map. If an incident occurs, the driver can press the emergency button on his radio and the location of the incident can be viewed using the mapping application. This extra functionality will greatly improve the management of DKV's different transportation services and enable the company to deal with unexpected problems more efficiently.

## PUBLIC TRANSPORTATION SERVICE ON TRACK WITH MOTOTRBO

Debrecen's public transportation company, DKV, has switched to a MOTOTRBO digital radio infrastructure to improve the management of its buses, trams and trolleys and maintain high levels of customer service and safety.

The system can be easily scaled to accommodate future growth, as the company expands to meet the demand for more services across a greater area.

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