



MINGA research project: Automated MAN electric bus in regular service

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MAN is pushing ahead with the use of automated city buses. As part of the MINGA research project, the company will test an electric city bus with automation in real-life operation in Munich. Drivers for automated driving in the city bus sector are mainly high TCO savings and the shortage of driving personnel, which can be countered by this.

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- **Optimised public transport can reduce motorised private transport**
- **In the MINGA project, MAN is cooperating with the City of Munich, the Münchner Verkehrsgesellschaft (MVG), the Münchner VerkehrsVerbund (MVV) as well as companies and research institutes.**
- **Pilot operation of an automated MAN bus planned from 2025 onwards**

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The population in Munich and the neighbouring districts has increased significantly in recent years. Parallel to this, the volume of traffic in the city has also increased. In order to meet this mobility challenge, new public transport services are needed - in addition to the classic scheduled services, also "on-demand" services that transport passengers comfortably and without transfers.

However, the expansion of public transport services is difficult to finance due to rising costs. In addition, the nationwide driver shortage limits the possible extension. Both problems can be solved with automated city buses: The intelligent technology not only reduces the need for personnel - the total cost of ownership (TCO) can also be reduced by up to 50 percent.

MAN Truck & Bus identified this potential at an early stage and has therefore been working intensively on the automation of its buses for years. To this end, they are equipped with an intelligent Automated Driving System (ADS) with highly developed sensor technology. MAN has already successfully tested the automated approach to bus stops in the "@CITY" project.

MAN Truck & Bus is one of Europe's leading commercial vehicle manufacturers and transport solution providers, with an annual revenue of about 11 billion euros (2022). The company's product portfolio includes vans, trucks, buses/coaches and diesel and gas engines along with services related to passenger and cargo transport. MAN Truck & Bus is a company of TRATON GROUP and employs approximately 35,000 people worldwide.



MINGA (Munich's Automated Local Transport with Ridepooling, Solobus and Bus-Platoons) is pursuing a similar goal. The project partners want to test the operation of highly automated modes of transport in the urban and rural public transport system. For this purpose, a ride pool with three to five automated vehicles will be set up for on-demand operation, and the scheduled operation of an automated solo bus is also planned.

Automated Lion's City E on Munich bus route

MAN is a commercial vehicle partner of the operating company Stadtwerke München (SWM) and is providing an automated and fully electric MAN Lion's City E. It will be used on bus route 144 through the Olympic Park, which is characterised by tourism and leisure. Pilot operation of this first automated city bus from MAN accompanied by a safety driver is planned from 2025. "Sustainability is a central part of our corporate strategy," says Barbaros Oktay, Head of Bus at MAN Truck & Bus. "That is why, on the one hand, we are consistently transforming our products to electric drives. On the other hand, we are pushing ahead with automation and digitalisation. The MINGA project is an important step for us on the way to the mobility transition."

Around a dozen project partners from the fields of public administration, research, business and industry are working together on the MINGA project. The mobility department of the City of Munich is responsible for the overall project as consortium leader. In addition to MAN, project partners include the University of Stuttgart, the Karlsruhe Institute of Technology, the Research Centre for Information Technology (FZI) as well as ioki GmbH, Ebusco Deutschland GmbH, Benz + Walter GmbH and Fryce GmbH Partner. The Pfennigparade Foundation, the Association of German Transport Companies (VDV), Yunex Traffic and the district of Munich are involved as associated partners.

In six work packages, they are dealing with, among other things, the integration of automated vehicles into the existing mobility ecosystem, on-demand services, automated bus route operation and the simulation of automated public transport. The project, which has now been launched, is scheduled to run until December 2025. It is being funded by the Federal Ministry for Digital and Transport (BMDV) with around 13 million euros as part of the funding guideline "Autonomous and Connected Driving in Public Transport".