



Transports
Metropolitans
de Barcelona

Press Office
Press release

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Barcelona pioneers testing of the Lion's City 18E, the first 18-metre electric bus that charges overnight

The innovative vehicle, lent by MAN to TMB, will run for a year on various high-demand lines to verify its range and suitability for urban service

From this July, Transports Metropolitans de Barcelona (TMB) will launch an exhaustive, year-long test of the **innovative e-bus Lion's City 18E**, an articulated bus manufactured by MAN that stands out for its extensive range and zero emissions. **Barcelona** will thus become one of only two cities in Europe (the other is Cologne, Germany) to have a test unit of this the first 18-metre long, high-capacity model that can carry out a day's service with only an overnight charge of its batteries.



The MAN Lion's City 18E on loan to TMB for one year

The Lion's City 18E belongs to a proven line of city buses whose origins date back to 1996, but this variant comes with advanced technological solutions. To begin with, the 18-metre articulated bus is powered by two central electric motors located on the second and third axles. Unlike electric motors that are located close to wheel hubs, their position facilitates accessibility for mounting and allows for a simpler design of the entire drive system. The configuration of its electric powertrain, which does not require a transmission system between axles, benefits the space available on board and optimises the rear of the vehicle so that the bus can carry up to 120 passengers.

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The two **electric motors** produce a rated output of 320 kW (429 HP), although their available peak power reaches 480 kW (644 HP) for full-load and uphill situations. The energy that powers them comes from modular batteries connected in such a way that the set is capable of offering up to 640 kWh of capacity. A total of eight battery packs are located on the roof of the vehicle where, as with the motors, easy access reduces maintenance costs.

MAN's new electric articulated vehicle is equipped with a DC fast-charging system using the CCS standard, which achieves an average output of 100 kW (150 kW peak) enabling it to be ready for operation in just four hours. For the test in Barcelona, the charger is located in the Triangle business operation centre. According to the manufacturer, the Lion's City 18E has a range, guaranteed for the life of the batteries, of 200 kilometres on a mixed route and up to 270 in favourable conditions.

This is key since the most efficient articulated electric buses marketed so far in Europe combine night-time charging with opportunity charging during rest time at terminal stops, which means equipping the lines to power up with the necessary fast-charging infrastructure.

Routes with passengers on several lines

TMB's Bus Engineering Department has had the Lion's City 18E on loan from MAN since the beginning of the month and has been equipping and adapting it for its entry into commercial service next July. It will initially provide passenger transport services on the H16 line, on which other articulated electric buses operate, to allow for comparison of their operating data and performance. It will later provide service on other high-demand lines in the TMB network.

The MAN Lion's City 18E test is part of TMB's desire to collaborate closely with the automotive industry in the development and fine-tuning of clean vehicles with performance and total costs (including those of the entire life cycle) comparable to those of conventional propulsion vehicles, in order to accelerate replacement and thus contribute to improving air quality and preventing climate change.

Barcelona's bus network is in the midst of a transition towards decarbonisation and greater efficiency. The roadmap for the adoption of green energy anticipates acquiring 210 battery electric vehicles in the 2021-2024 period. Three high-demand bus lines – H16, H12 and V15 – will switch to e-vehicles in the short term. The aim is for 50% of the TMB fleet to run on electricity by 2030.