

ENI-SPANT/OPPCHARGE AND ENI-LW400 CHARGING STATIONS FOR TORUŃ



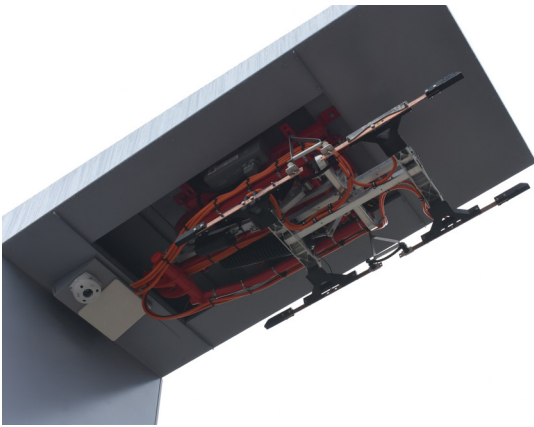
In 2026, ENIKA supplied ENI-SPANT/400/AC charging stations to MKK Toruń, designed for operation in accordance with the OppCharge standard. The order also included five smaller ENI-LW400/2x60 kW charging stations in a less common stationary configuration. The entire charging infrastructure is intended to support the city's growing fleet of Solaris Urbino 12 electric buses.

Toruń began electrifying its bus fleet in 2022, when the first six Solaris Urbino 12 electric buses entered service. Four additional vehicles of the same type followed a year later. The next major contract, providing for the replacement of approximately one quarter of the city's entire bus fleet, was signed in the spring of 2025. It covered the delivery of 40 standard-length battery-electric buses manufactured by Solaris Bus & Coach.

A separate procurement procedure was conducted for the charging infrastructure. In April 2025, ENIKA was selected to supply a total of seven charging stations. Together with its partner, the company also provided the full scope of design and construction work, with a total value exceeding PLN 4 million net (approximately €963,000).

OppCharge charging stations were installed at the Kolankowskiego and Olimpijska bus terminals to enable rapid opportunity charging during daytime operation. The OppCharge standard, established in 2016 through an agreement between vehicle and charging infrastructure manufacturers, defines an open interface ensuring compatibility between battery-electric buses and charging equipment. Originally voluntary, the standard was later formalized through European standard EN 50696:2021.

The ENI-SPANT/OppCharge charging station can be powered from a three-phase 3 × 400 V AC / 50 Hz electrical network. A version designed for connection to traction power (600 V DC or 750 V DC) is also available. For the Toruń project, both charging



Detail of the pantograph assembly on an OppCharge charging station in Toruń.

stations were supplied from the three-phase utility grid with a connected load of 420 kVA.

The base of the charging mast measures 1,400 × 800 mm. Charging power reaches up to 400 kW, while charging current can reach 680 A (depending on the pantograph type used, battery management system limitations, and other factors). As a result, only a few minutes at the charging point are sufficient to provide enough energy for several dozen additional kilometers of operation.

The station features a modern, minimalist design with integrated visual signaling. The mechanical structure complies with IK10 impact-resistance requirements, while environmental protection corresponds to IP54 (IP23 for the cooling system). As an option, the station may also be equipped with a CCS2 connector for conductive charging.

In addition to the two high-power OppCharge fast-charging stations, the contract also included five smaller 2 × 60 kW charging units intended for overnight charging and energy balancing. These units were installed at the Legionów depot. The selected model was the ENI-LW400, which is normally offered as a mobile unit equipped with wheels. At the request of the Toruń operator, however, the stations were supplied in a stationary configuration designed for permanent installation at prepared charging positions.

ENI-LW400 charging stations may be equipped either with a single charging output rated at up to 120 kW or with two 60 kW outputs, enabling the simultaneous charging of two vehicles. Toruń selected the latter configuration, allowing the five stations to serve up to 10 battery electric buses simultaneously. Maximum charging current was limited to 200 A (100 A per output). The dimensions of the charging station (W × L × H) are 1,050 × 1,041.5 × 1,228 mm. Power is supplied from a three-phase 3 × 400 V AC / 50 Hz electrical network.

The charging station structure is manufactured from aluminum and complies with IK10 mechanical impact resistance requirements and IP54 ingress protection requirements (IP23 for the cooling section).

In addition to the charging stations themselves, the scope of supply included ENIKA's eCMS (Charger Management System) together with the additional SPM (Smart Power Management) module. The eCMS software enables remote monitoring of every charging point and the export of operational data defined by the customer. Access is provided through standard web browsers via a secure connection to the manufacturer's server. The additional SPM module enables real-time power management, adjusting charger operation to the operator's current requirements.

Construction and installation of the ENI-LW400 charging stations and both OppCharge charging stations were completed in the spring of 2026, when the first test runs also began. The new charging infrastructure entered service on June 17, 2026.



Mobile ENI-LW400 charging station. In Toruń, this charging station type is used in a stationary configuration (without wheels).



ENI-SPANT/OppCharge charging station for fast charging of battery-electric buses.