Why Safety Certification Matters for Micromobility Charging Equipment

Micromobility are increasingly popular, keeping public spaces safe is essential

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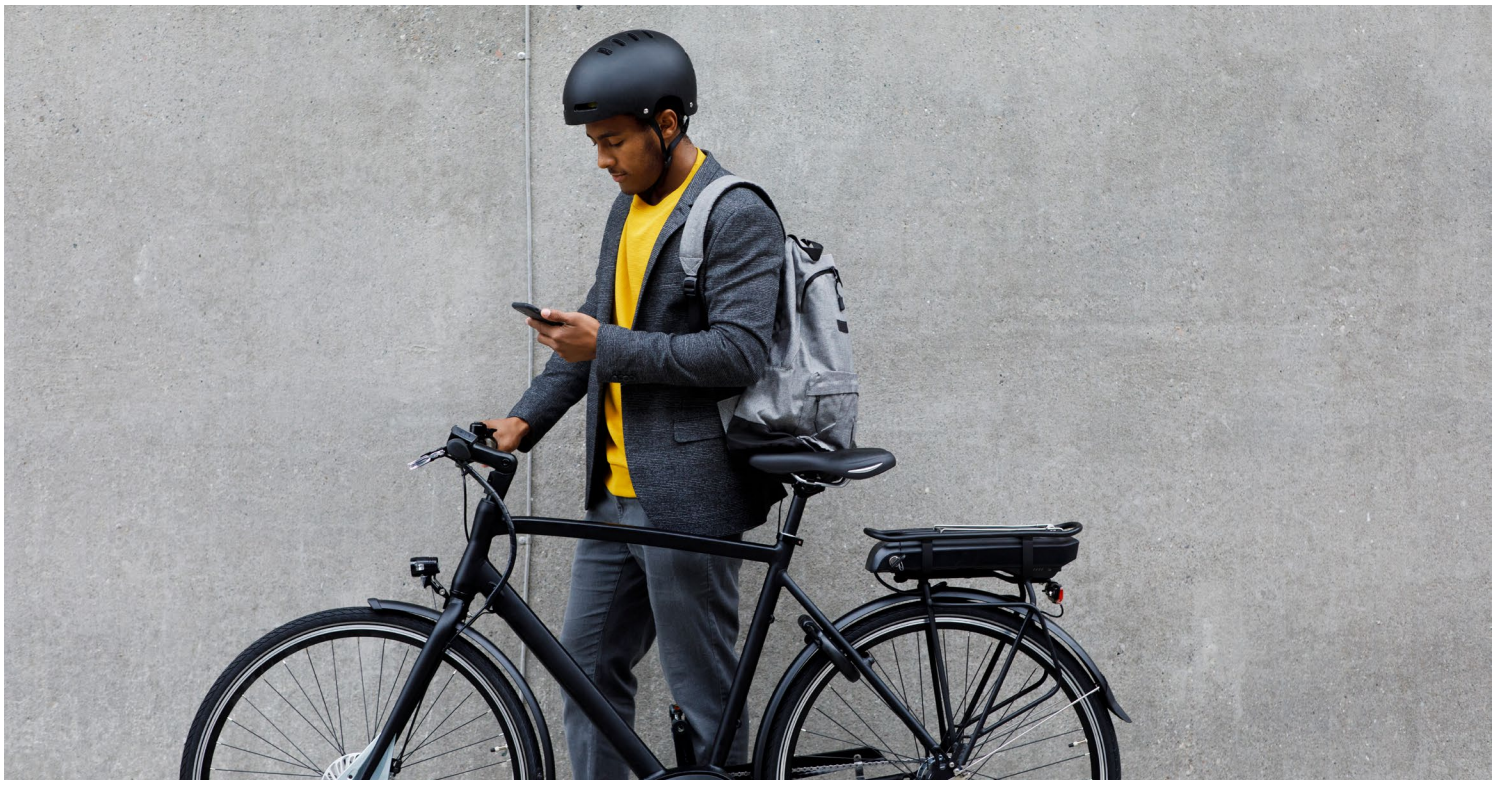


Micromobility products are small, lightweight electric vehicles that operate at low speeds. This category includes products such as e-bikes, electric pedal-assisted bicycles, electric scooters, electric skateboards, hoverboards and more.

Several factors are now contributing to the rising demand for micromobility products, including the increased call for environmentally-friendly modes of transport, as well as volatile gas and oil prices. These green and cost-effective vehicles provide cheap and clean alternatives to traditional transportation, and they have created a new segment in the recreational, fitness, and health and wellness industries. They also offer time-saving travel in cities that have become increasingly clogged with slow-moving automobile traffic.

These are just some of the reasons local governments are encouraging residents to use micromobility via initiatives such as setting up micromobility vehicle lanes, charging stations and parking zones within their boundaries.

As micromobility products have become an increasingly popular mode of urban transportation, shared micromobility services are set to grow at a dramatic pace over the next several years. By 2030, the shared micromobility market could reach up to $90 billion (USD), with a roughly 40% annual increase each year between 2019 and 2030, according to some studies.

As you might expect, micromobility charging infrastructure and equipment will grow in tandem with the popularity of shared micromobility services — one study puts the rate at an impressive compounded annual growth rate (CAGR) of 26.9% from 2022 to 2028, reaching a value of $17.6 billion (USD) by 2028.

But micromobility products require electrical power, which is typically provided by charging infrastructure and equipment that includes kiosks, charging interfaces, built-in charging circuits and battery management systems, power conversion units and field wiring/installation. This equipment is typically intended to be permanently connected to an electrical grid, located outdoors, and open to public access. In some cases, the stations may also include battery-swapping capabilities.

Due to these factors, there are numerous safety, performance and durability considerations around micromobility charging equipment, such as:

- Protection against weather and other outdoor influences
- Protection of charging cables and interfaces
- Personnel protective system
- Safety of battery swap (exchange)
- Safety of field wiring connections

Safety is a strong concern for micromobility products themselves — there have been more than 200 reports of micromobility devices catching fire or overheating over the last few years, according to the U.S. Consumer Product Safety Commission. Therefore, it is critical that micromobility charging infrastructure equipment is also tested by an accredited independent third party, such as UL Solutions, to demonstrate compliance with safety and performance requirements. This would help enhance public safety as well as the consumer experience of this growing segment.

UL Solutions is already the leader in micromobility safety, contributing to standards such as UL 2849, the Standard for Electrical Systems for eBikes, as well as UL 2272, the Standard for Safety for Electrical Systems for Personal e-Mobility Devices.

A brief history of shared micromobility services

Before we go too far into micromobility, it might be helpful to review its history (largely focusing on bicycles). Shared micromobility services began in 1965 with the White Bikes (or Witte Fietsen) program in Amsterdam. Dutch inventor Luud Schimmelpennink originated the program by leaving white-painted bikes around the city — one could find a bike, ride it to their destination and leave it for the next user. Alas, it did not go smoothly, as bikes were thrown into the canals or simply stolen. The program was summarily canceled.

Another bike-sharing program was created within smaller cities in Denmark in 1993, followed by a larger program in Copenhagen in 1995. Bycyklen, or City Bikes, offered bikes that were specially designed for everyday use and could be picked up and returned at specific locations throughout the central city.

The next evolution occurred at Portsmouth University in Portsmouth, England, which was the first location to use a rack-locking technology. In this program, a user unlocked a bike with a credit card and was charged a one-time fee.

As previously noted, micromobility is now a remarkably popular mode of transportation, to the point where countries all over the world boast bike-sharing programs, including France, Brazil, Chile, China, New Zealand, South Korea and the United States.

Skyrocketing popularity necessitates greater safety

As charging stations have proliferated and technology has advanced, so too have the features offered by charging stations. Now, there are intelligent wireless charging systems specifically for e-scooters; an electric vehicle startup that's sponsored 5,000 battery-swapping facilities in 100 cities across India; 150 docking, locking and charging points; on the Paris Left Bank; and a network of solar-powered micromobility charging stations across Miami, Florida, that provide clean, renewable energy to e-scooters.

This increase in infrastructure also requires vigilant testing for safety, durability and performance. By tapping into our technical expertise and knowledge of emerging micromobility standards, UL Solutions delivers rigorous, independent testing to safety and performance regulations and standards around the world.

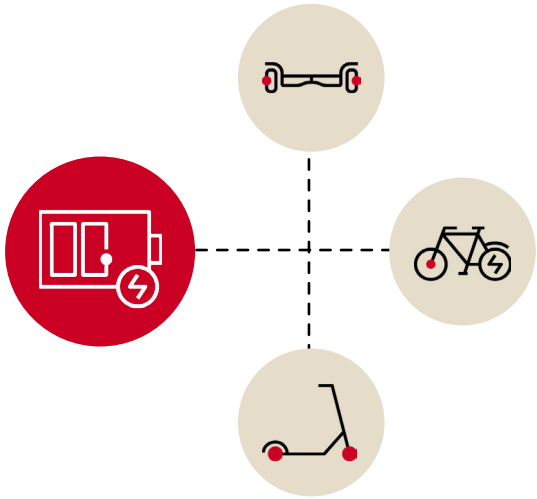
By tapping into our technical expertise and testing capabilities, we can assess compliance and evaluate the performance of micromobility charging equipment.

UL certification also tells your customers that your product, process, service or company has successfully met stringent requirements. Communicating this achievement can help you strengthen your product's presence and differentiate it from competitors.

Here's a list of our offerings for micromobility charging equipment:

- UL 4900, Outline of Investigation for Safety of Micromobility Charging Equipment
- Electromagnetic compatibility (EMC) testing
- E-bike safety testing and certification to UL 2849 or EN 15194
- E-scooter safety testing and certification to UL 2272 or EN 17128
- Battery safety testing and certification to standards, such as UL 2271, the Standard for Batteries for Use in Light Electric Vehicle (LEV) Applications
- Other single-product battery chargers:
  - UL 62368-1, the Standard for Audio/Video, Information and Communication Technology Equipment - Part 1: Safety Requirements
  - UL 1310, the Standard for Class 2 Power Units
  - UL 1012, the Standard for Power Units Other Than Class 2
- Energy efficiency
- Global Market Access services
- Performance and reliability testing services

To learn more about UL Solutions testing and certification services for micromobility charging infrastructure and equipment, visit us or contact us.



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