

# ANSI/CAN/UL 2252 – Standard for Adapters for Use With Electric Vehicle Couplers

When electric vehicles (EVs) were first brought to market, a standard interface for coupling their onboard charging equipment to charging stations was unavailable. Consequently, manufacturers instituted various options for connecting the EVs and chargers they produced.

These dissimilar designs can restrict drivers to using either a dedicated home-based charger or a limited number of compatible public charging stations.

As EV adoption continues to grow, the value of the U.S. vehicle charging infrastructure market is expected to grow at a compound annual rate of 30.3% from \$6.41 billion (USD) in 2025 to \$24.07 billion (USD) by 2030.<sup>1</sup> However, coupler disparities are limiting where and when drivers can recharge their vehicles and hinder wider EV adoption and use. Standardized adaptive connectors can enable vehicles to interface with chargers that use dissimilar connectors.

ANSI/CAN/UL 2252, the Standard for Adapters for Use with Electric Vehicle Couplers, specifies requirements for the design, performance and testing of standard adaptive couplers.

## What is a coupler adapter?

A coupler adapter is a single device for interfacing dissimilar charger and vehicle connectors. It connects power conductors for battery charging as well as communication circuits that enable control devices in a charging station and a vehicle to interact. Adapters thus enable power to flow from charging stations that use differing connectors to an EV's storage battery. This can enhance EV adoption and use by providing drivers with access to a wider selection of recharge locations in the areas where they travel.

## Why is an EV adapter Standard needed?

The EV industry has not settled on a standardized connector type, resulting in incompatible charger and EV combinations. Additionally, in 2024, the U.S. Department of Transportation (DOT) announced funding to install EV charging stations along U.S. interstate highways and has chosen connectors that conform to the North American Charging Standard (NACS).

Following the DOT announcement, multiple automotive manufacturers selected NACS connectors for their vehicles. Because many of the EVs already in service have been fitted with non-NACS connectors, an EV adapter standard can help to confirm that these vehicles can safely recharge using NACS-equipped chargers. The Standard is also needed to confirm EV charger flexibility for new EVs.

While NACS was identified by the DOT, charging stations that are not located along interstate highways are still able to use both NACS and non-NACS connector EV chargers.

The NACS connector is one of several types that enable EV charging. Other commonly used connectors in the U.S. include CCS1 and SAE J1772 Type 1, which address both AC and DC connectors, which UL Solutions can certify.



<sup>1</sup> U.S. Electric Vehicle Charging Infrastructure Market Size, Share & Trends Analysis Report By Charger Type (Slow Charger, Fast Charger), By Connector Type, By Level Of Charging, By Connectivity, By Application, And Segment Forecasts, 2025 - 2030. Grand View Research. <https://www.grandviewresearch.com/industry-analysis/us-electric-vehicle-charging-infrastructure-evci-market>. Accessed Feb. 12, 2025.

## Why ANSI/CAN/UL 2252 certification?

ANSI/CAN/UL 2252 is the Standard for evaluating EV coupler adapters for safety, performance and interoperability. By evaluating products to this Standard, manufacturers may be able to obtain a UL certification (Listing) for an EV coupler adapter, helping manufacturers, charging station operators and drivers alike with EV adoption challenges. With ANSI/CAN/UL 2252 certification, a manufacturer demonstrates compliance through the highly recognizable UL Mark.

## Why certify through UL Solutions?

UL Solutions is a globally recognized testing and certification provider committed to enhancing safety. Leveraging our extensive expertise, impartiality and historical legacy, we stand as a beacon of trust, helping manufacturers achieve their global compliance goals.

- **Industry-leading perspective**

Our safety science experts possess in-depth knowledge of the ANSI/CAN/UL 2252 technical requirements. At our Northbrook, Illinois, and Fremont, California, facilities, we can test EV charging infrastructure against existing standards for safety and interoperability for the U.S. and global markets. With a global footprint, our expanded laboratories demonstrate our commitment to helping the EV industry advance safety, performance, security and sustainability and build stakeholder confidence.

- **Deep compliance expertise**

With a deep understanding of the ANSI/CAN/UL 2252 testing method, our team can guide manufacturers through the certification process for innovative technologies and products. By partnering with us, a manufacturer can streamline the commercialization of electric vehicle supply equipment (EVSE) by using ANSI/CAN/UL 2252 protocols and evaluating safety and functionality through compliance with industry standards.



## ANSI/CAN/UL 2252 testing and certification services include:

- Evaluation of an adapter's design and construction
- Testing of the flammability and electrical properties of the materials used in adapter fabrication
- Performance testing for temperature, endurance, vehicle drive over, vibration and more
- Electrical testing for insulation resistance, short circuit and grounding
- Evaluation of marking and instructions

In many instances, we offer flexibility to evaluate unique aspects of products that are not covered by existing industry standards. We offer gap analyses to help manufacturers focus their ANSI/CAN/UL 2252 design and compliance strategies.

For further details, please visit us at [UL.com](https://www.ul.com).



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