

NACS – the charging standard that is conquering the American market

The North American Charging Standard, also known as the NACS and SAE J3400 standard, will play a central role in the electrification of the transport sector. The NACS standard will support and shape the development of the charging infrastructure for electric vehicles in North America.



Joe S. Boyer, E-Mobility Product Marketing Specialist, Phoenix Contact USA

In an interview with Joe S. Boyer, E-Mobility Product Marketing Specialist, Phoenix Contact USA, he explains how NACS will revolutionize the charging infrastructure in the USA in the coming years. Boyer is responsible for the technical support of internal sales staff and for the technical training of Phoenix Contact's internal service teams in North America.

The key to the e-mobility revolution in North America is NACS

“NACS became very popular when it was opened up for use by others besides Tesla,” explains Joe S. Boyer. “The NACS charging system developed by Tesla for electric vehicles in Canada, the USA, and Mexico is supported by a reliable and robust charging infrastructure network. The rapid market penetration has prompted many players in the North American e-mobility market to adopt NACS for their own products. The Tesla standard was opened up to other manufacturers in 2023 and was quickly adopted by many of them for their upcoming electric cars. In the meantime, almost all electric car manufacturers are planning to use it in the future,” reports Joe S. Boyer. “By opening up the standard, other manufacturers besides Tesla can produce NACS charging cables and NACS vehicle charging interfaces, including Phoenix Contact. In 2025 and 2026, the first non-Tesla electric cars for the North American market will roll off the production line with an NACS charging interface. With the new players in the NACS sector, we can expect many more developments in the market – including the expansion of the NACS charging infrastructure,” says Joe S. Boyer.

What impact will this have on the type I charging standard in North America?

“The North American Charging Standard (NACS) is gaining momentum and will replace the CCS type I charging standard in the long term. However, the J1772 (AC) and CCS type I (DC) charging standards will not disappear from the market immediately. They will remain in place for at least the next 6 to 8 years and then gradually become less important as the number of NACS vehicles increases,” says Joe S. Boyer.



2 Type 1 standard HPC charging connector

“There are a large number of electric vehicles that still have CCS type I vehicle charging inlets, so we have to continue to support them with charging infrastructure. The nature of the market for utility vehicles also indicates that the CCS type I standard will remain in place for the time being. In the long term, however, the new NACS standard will also prevail here,” reports Boyer.

Is it possible to easily switch from type I to NACS?

“Whether electric vehicles with an existing type I interface can be converted to an NACS charging interface depends on whether or not they are designed with the same basic profile for the connection. From the point of view of the hardware, the installation dimensions can be the same as for type I, but the cabling would have to be drastically changed,” explains Joe S. Boyer. “The software must also take all these changes into consideration, as the same pins are used for AC charging and DC charging in the NACS charging inlet.

All in all, retrofitting the charging interface in the vehicle is too expensive and is therefore not recommended. The simpler solution for EV owners is to use an NACS-to-CCSI adapter and/or to use charging stations that offer both a CCSI and an NACS charging connector.”

And what about the charging stations?

“The changes to the charging stations are not as significant as those on the vehicle side. NACS and the J1772/CCSI standard have the same necessary contacts for charging, so the cables can be easily swapped if necessary. Depending on the design of the charging station, minor changes may have to be made inside in order to establish the new connection. Not much is needed to physically update a charging station.



3 CCS1 charging station, USA

Thanks to the standardized communication methods in the industry, communication with the vehicle will be no different.”

How is the market in North America developing with regard to the new NACS charging standard?

“The focus is currently on preparations for 2025 and 2026. Companies are evaluating future options and working with test samples, but overall, the NACS rollout will take some time. The requirements for the connectors vary depending on the application, but are essentially comparable with the type I standard. Charging power expectations are based on the standards used in North America, with development aimed at making charging faster and more efficient over time. Charging connectors and vehicle charging inlets must be designed to be reliable and have a long service life, reflecting the proven quality of Phoenix Contact.”

Are there specific policy objectives for the ramp-up of NACS charging infrastructure in the USA?

“Nothing is planned at the moment,” is how Joe S. Boyer summarizes the current situation. “The federally funded National Electric Vehicle Infrastructure (NEVI) program to expand charging infrastructure on all major highways currently requires the use of CCS type I. The program would need to be amended for NACS to receive government-funded support. However, NACS is already supported by a robust charging infrastructure network, which means that it can stand on its own two feet.”



4 E-mobility charging park, USA

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More information

<https://www.phoenixcontact.com/en-us/industries/e-mobility/nacs-charging-standard-american-market>