

Standards and specifications



This regular column provides news from standardization bodies and nonprofit associations regarding CAN-related documents. Covered are also recommended practices, application notes, implementation guidelines, technical reports, and open-source projects.

(Source: Adobe Stock)

Gateway to IVNs for car drivers with mobility impairments

Many people with disabilities are able to drive thanks to special adaptations made to their vehicles. These modifications – such as hand controls or customized electronic systems – help ensure safe and independent mobility. However, new cybersecurity rules for modern cars could unintentionally make these adaptations harder or even impossible to install. As a result, some drivers with disabilities risk losing the ability to drive altogether. To prevent this, industry experts and organizations are working together to find practical solutions.

One promising approach is the development of a standardized gateway to in-vehicle networks (IVN) through add-on electronic control units (ECUs), which allows approved adaptive systems to safely connect to a car's internal electronic network. This idea was recently supported at a meeting organized by CAN in Automation (CiA), together with European Mobility Group (EMG), and the German association representing vehicle adaptors for people with reduced mobility (VFMP).

A standardized gateway based on CAN (controller area network) technology would make it much easier to install specialized electronic components needed for vehicle adaptations. Similar systems are already used in commercial vehicles, taxis, and police cars.

Some industry groups have already committed to developing solutions that follow the CiA 447 specification series, and other manufacturers are encouraged to join. While new EU regulations may eventually be needed, there is an urgent request for short-term solutions.

CiA, EMG, and VFMP are calling on EU institutions, vehicle manufacturers, and industry associations such as ACEA and VDA to support the rapid development of standardized gateways to in-vehicle networks.

The CiA 447 series of documents specifies CAN-based interfaces for special car add-on devices including an IVN gateway. The first CiA 447 version was launched in 2008. The CiA 447 gateway has been implemented in German police cars and taxis. The entire CiA application profile series is currently under review. hz

Brief news

- ◆ **ISO 15765-2:** The CAN transport layer protocol for automotive applications is under revision; a solution for CAN XL mapping will be included. This approach is supported by experts from Cariad (VW Group). It will use the SDT (service data unit type) of 9 as defined in CiA 611-1.
- ◆ **ISO 26343:** The CANopen-based standard for fire-fighting equipment is in development. It is based on the DIN 14700 document and will be slightly improved. Project leader is Ingo Boden from Ziegler, a German fire-fighting truck manufacturer.
- ◆ **ISO 11898-2:** The CAN physical media attachment (PMA) standard has passed the FDIS (final draft international standard) ballot and will be published in a few weeks. The document includes the specification for CAN HS (high-speed), CAN FD, CAN SIC (signal improvement capability), and CAN SIC XL transceivers.
- ◆ **CiA 320:** The updated CiA document (version 2.0.0) specifies CANopen services and protocols for sleep and wake-up handling. Because of a stricter PM (power management) manager livesign, the specification is not completely backwards compatible with the legacy version. Clarifications and editorial improvements have been introduced, too. A new informative annex provides some power-management use cases. The document includes a detailed reasoning for sleep objections and requests.
- ◆ **ISO 16845-2:** The revised conformance test plan for CAN transceivers is in DIS (draft international standard) ballot. It includes test cases for CAN HS (high-speed), CAN FD (flexible data rate), CAN SIC (signal improvement), and CAN SIC XL (extended data-field length).
- ◆ **ISO 25200:** This document is in DIS (draft international standard) ballot. It standardizes body builder networks for commercial road vehicles. It comprises parameter specifications for several body application units, an in-vehicle gateway unit, a telematic gateway unit, and a fleet management unit. It is based on DIN 4630.
- ◆ **ISO 11783-3:** In March 2025, the Isobus application, transport, and network layer standard has been published.
- ◆ **CiA 462:** CiA members review the CANopen item detection profile. The planned extension will cover radar sensors, too. The specification is also suitable for sensor-fusion devices, providing information about distance, velocity, material, etc. of detected objects. These values can be measured or calculated with or without AI inference.
- ◆ **ISO 26753:** This PWI (preliminary work item) has been registered for the ISO/TC 22/SC 3/WG 4. The purpose is to develop the basics for a communication technology independent parameter standard, which could be referenced by external commercial vehicle interfaces (e.g., ISO 11992, ISO 25200, etc.). It is intended to provide the parameter specification in a machine-readable format.
- ◆ **CiA 604-4:** This recently released document specifies the CAN FD light high-speed mode (more than 1 Mbit/s) and some clarifications of the CAN FD light protocol as standardized in ISO 11898-1:2024. hz