

Standards and specifications



(Source: Adobe Stock)

This section provides news from standardization bodies and nonprofit associations regarding CAN-related documents. Included are also recommended practices, application notes, implementation guidelines, and technical reports.

End-of-life activation of in-vehicle pyrotechnic devices

ISO has released the ISO 26021-1 document. It standardizes the application and communication interface for end-of-life activation of in-vehicle pyrotechnic devices. This standard describes use cases and specifies technical requirements in order to support the end-of-life activation of in-vehicle pyrotechnic devices via electronic communication interfaces. This document references the ISO 14229 series (unified diagnostic services implemented on diagnostic communication over DoCAN Classical CAN or DoIP Internet Protocol transport layers). In practice, most passenger cars use the CAN-based solution. Part 2 of the ISO 26021 series is still in development. It specifies the conformance test plan for the communication interfaces standardized in ISO 26021-1. ■

SAE J1939 related documents

SAE has released a new version of the J1939 digital Annex, which includes parameter group (PG) and suspect parameter (SP) specifications. This document is provided as Excel spread sheet and is updated quarterly.

Additionally, the nonprofit association has published a revised version of the J1939/14 physical layer recommended practice (500 kbit/s). The new J1939/14 version has been harmonized with other J1939 physical layer specifications. It is limited to Classical CAN applications; it does not support CAN FD. The SAE J1939/17 document specifies the CAN FD physical layer. ■

ISO 11898-1 and ISO 11898-2 under review

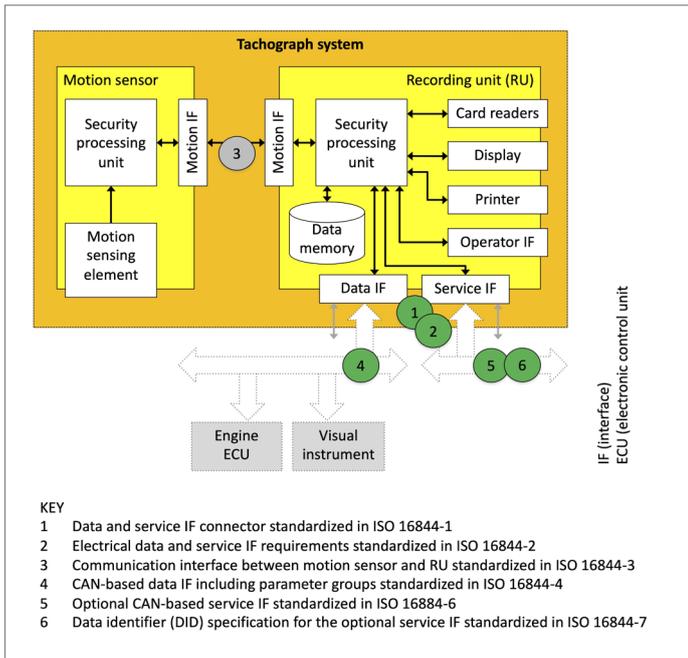
ISO is reviewing the CAN data link layer and physical signaling sub-layer (ISO 11898-1) and the CAN high-speed physical medium access sub-layer (ISO 11898-2). It is planned to integrate the CiA 610-1 respectively the CiA 610-3 CAN XL specifications. In a second step, the related conformance test plans standardized in ISO 16845-1 respectively ISO 16845-2 will be updated. CiA prepares them and will submit the CiA 610-2 and CiA 610-4 documents, when these have been finalized. Currently, they are still under development. ■

New edition of ISO 14229-3

ISO has released the second edition of UDSONCAN (unified diagnostic services on CAN) implementation. The ISO 14299-3 document specifies an application profile for the implementation of unified diagnostic services (UDS) on CAN. It references the generic application, presentation, and session layers as specified in ISO 14229-1 and ISO 14229-2. Additionally, the standard references the CAN data link layer and high-speed CAN transceiver as specified in the ISO 11898 series. It makes use of the transport and network layers given in the DoCAN standards ISO 15765-2 respectively ISO 15765-5. ISO 14229-3 does not specify any requirement for the in-vehicle CAN architecture.

The main changes in the new edition include the restructuring of the document, the introduction of requirement numbers, names, and definitions as well as technical improvements based on implementation feedback from the automotive industry. ■

Tachograph standard updated



Block diagram of an ISO 16844 compliant tachograph system with CAN connectivity (Source: CiA)

The ISO 16844 standard series specifies tachograph systems for commercial road vehicles. The entire series is under review. The first parts of the third edition have been released (Part 1: Electromechanical components; Part 2: Electrical interface with recording unit). The parts specifying the CAN interfaces are Part 4 (Display unit communication interface), Part 6 (Diagnostics), and Part 7 (Parameters). The CAN interfaces use the J1939 application layer specifications. Part 6 provides also an optional K-line communication.

CiA profile specifications to be released

CiA is going to release the following profile specifications as Draft Specifications in the next few weeks or has done it already:

- ◆ CiA 444 series (CANopen profile for container-handling machine add-on devices)
- ◆ CiA 445 (CANopen profile for RFID devices)
- ◆ CiA 450 (CANopen device profile for pumps)
- ◆ CiA 453 (CANopen device profile for power supply)
- ◆ CiA 459 series (CANopen profile for on-board weighing devices)
- ◆ CiA 462 (CANopen profile for item detection devices)
- ◆ CiA 463 series (CANopen interface profile for IO-Link gateways)

CiA documents in Draft Specification (DS) status can be purchased by means of an annual subscription of CiA document series (e.g. CiA 3XX, CiA 4XX, or CiA 6XX).

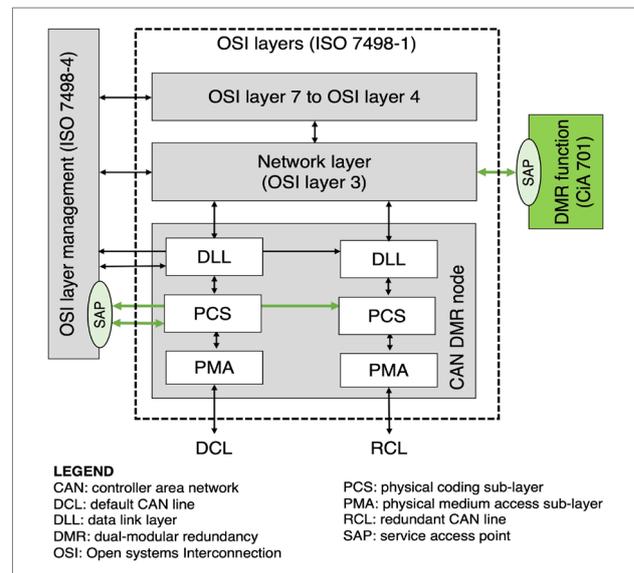
CiA SIG fire-fighting

This SIG (special interest group) backs the development of DIN standards related to fire-fighting trucks. This includes the DIN 14704 standard (gateway to in-vehicle networks) and the DIN 14700 standard (specific fire-fighting units such as water cannon unit (WCU), portable water-pump unit (PWU), powder extinguishing unit (PEU), etc. This standard is also known as FireCAN specification.

The SIG is currently discussing the requirements for the telematic gateway unit (TGU) as specified in DIN 4630 (truck body application network). This standard is under review and new fire-fighting specific body application units (BAU) can be submitted. Besides the FireCAN unit (FCU), this could include an AWP (aerial working platform) unit, a TTL (turntable ladder) unit, and an OCU (outrigger control unit). When these units are not considered in the new DIN versions, CiA (CAN in Automation) is going to specify them as CiA profile specifications.

CiA works on dual-mode redundancy

The IG (interest group) high-availability develops the CiA 701-1 document specifying a network layer add-on function for dual-mode redundancy (DMR). This was originally desired by the maritime electronic suppliers. It is assumed that such nodes implementing the DMR function provide two independent CAN interfaces. They send simultaneously identical data frames on both network interfaces. But on the receiving side only the data frame of the active network is processed. This is done by the DMR add-on function of the network layer.



The relation of the DMR function to the OSI layer model (Source: CiA)

The switching of the active receiver function from one CAN interface to the other CAN interface is controlled by a finite state automaton as specified in CiA 701-1. The IG has already developed a work draft, which is out to CiA members for comments. Of course, this DMR function is not limited to marine applications.