Standards and specifications

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.

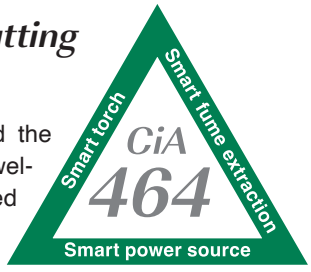
Revision of ISO 11898-1 and ISO 11898-2

CiA has submitted several specifications to be included in the ISO 11898 standard series. Therefore, the standards ISO 11898-1 (CAN data link layer and physical coding sublayer) and ISO 11898-2 (CAN high-speed physical medium attachment sublayer) are under revision. Both documents are currently in Draft International Standard (DIS) status. This means you can buy them in the ISO webstore or purchase them from your national standardization body (in Germany from the Beuth Verlag).

The ISO DIS 11898-1:2023 document specifies all three CAN protocol generations: classical CAN, CAN FD, and CAN XL. In the annex, the document specifies the CAN FD Light protocol, a variant of CAN FD. CAN FD Light is intended for commander/responder applications providing a cost-effective solution for simple network applications similar to LIN, but requiring more throughput. The CAN XL and the CAN FD Light protocols were pre-developed by CiA members. With the release of the ISO DIS 11898-1:2023 document, CiA has withdrawn the CiA 610-1 (CAN XL) and CiA 604-1 (CAN FD Light) specifications. This DIS ballot is still ongoing and terminates mid of September. Depending of the submitted comments by the voting national standardization bodies, the document will be released directly as ISO 11898-1 standard or there will be an FDIS (Final Draft International Standard) ballot. An FDIS ballot is necessary, when significant technical changes are requested by the submitted DIS comments.

The DIS ballot of the revised ISO 11898-2 standard resulted in significant technical changes. This means, an FDIS ballot is needed. The ISO FDIS 11898-2 document will be submitted, soon. The revised document specifies the normal high-speed transceivers, the transceivers with signal improvement capability (SIC), and those with CAN SIC XL functionality using PWM (pulse-width modulation) coding. Therefore, CiA has withdrawn the CiA 601-4 (SIC) and CiA 610-3 (SIC XL) specifications. The FDIS ballot will start, soon. Technical comments are not allowed, the national standardization bodies can only vote positively or negatively, but may still submit editorial comments. *hz*

CiA SIC welding and cutting established



CiA members have established the Special Interest Group (SIG) welding and cutting. The SIG chaired by Dr. Andreas Matz from Abicor Binzel is going to develop the open CiA 464 interface framework for advanced manual arc welding and plasma cutting systems. The SIG comprises representatives from different manufacturers of related equipment. This includes suppliers of power source, fume extraction, and torch units. The framework provides plug-and-play functionality for basic setups, which includes physical layer requirements such as cables and connectors.

The resulting system provides contradiction-free data to the Asset Administration Shell (AAS) as well as facilitates regulatory compliance and protecting the worker's health. The SIG has identified the interfaces for several functions that will be covered by the CiA 464 application profile for welding and cutting. The functions will be specified by the following Task Forces (TF):

- System architecture and protocols (TF01);
- Power source, wire feeder, cooling, and calibration units (TF02);
- Human machine interface unit (TF03);
- Torch unit (TF04);
- Fume extraction unit (TF05).

In a first step, the CiA 464 profile will be mapped to classic CANopen. CiA cooperates with EWA (European Welding Association) and ZVEI (German Electro and Digital Industry) to develop and promote the CiA 464 application profile for welding and cutting. *hz*

Brief news

IEC TS 61851-3 series: This set of IEC Technical Specifications (Electric vehicles conductive power supply systems for light electric vehicles) describes the requirements for a CANopen-based profile. It originates from the CiA 454 application profile series. It includes parameter specifications and defines also a connector.

CiA 106: The new version 1.1.0 has been editorially improved and provides definitions for CANaerospace connectors. The main purpose of this technical report is the recommendation of pin-assignments for CAN_H and CAN_L as well as for a common ground. Some pin-assignment recommendations also define the pins for power supply.

SAE J1939DA: As usual, SAE has updated the Digital Annex (DA) for J1939. The July 2023 issue of this spreadsheet contains Suspect Parameter (SP) and Parameter Group (PG) specifications. The DA is updated quarterly. It is part of the one-year SAE onboard diagnostics for light- and medium-duty vehicles subscription.

CiA 401 series: CiA has restructured the document series of the CANopen profile for modular I/O devices. Part B specifies the functional behavior and process data parameters. Part C standardizes the mapping to the classic CANopen application layer (CiA 301) and Part F specifies the mapping to the CANopen FD application layer (CiA 1301). The specification for joysticks is annexed.

CiA 462: The CANopen profile for item detection devices has been editorially reviewed and is now available as CiA Draft Specification (DS). This means, the document is part of the CiA 4XX subscription, which is available for CiA non-members, too.

ISO 11783-2/-3: The so-called Isobus physical layer (ISO 11783-2) and Isobus application (including transport and network layer) layer (ISO 11783-3) standards are in revision. Isobus is based on the J1939 application layer, but uses an adapted transport layer. The documents need to be improved editorially, in order to avoid misunderstandings and misinterpretations.

3,3-V CAN transceiver specification: CiA is discussing the need of standardizing 3,3-V CAN transceivers. In September, the IG (interest group) lower layers is going to evaluate this topic. *hz*

CiA

CAN in Automation

The nonprofit CiA organization promotes CAN. CiA and its members shape the future of CAN-based networking, by developing and maintaining specifications and recommendations for classical CAN, CAN FD, and CAN XL.

Join the community!

- Access to all CiA specifications, already in work draft status
- Get CANopen vendor-IDs free-of-charge
- Develop partnerships with other CiA members
- Participate in plugfests and workshops
- Receive the exclusive, monthly CiA Member News (CMN) email service
- Initiate and influence CiA specifications
- Get credits on CiA training and education events
- Get credits on CiA publications
- Get the classic CANopen conformance test tool
- Participate in joint marketing activities
- Get credits on CiA testing services

For more details please contact CiA office at headquarters@can-cia.org

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