

CANopen in rolling stock

CAN in Automation (CiA) currently has some CAN in railway-related actions in the pipeline. There are a free-of-charge webinar (later also available on Youtube), free-of-charge workshop, and the participation at the Innotrans 2022 exhibition.



(Source: Adobe Stock)

The IEC 61375-3-3 standard provides the general requirements for classic CANopen networks in train consists. Additionally, CiA has specified and released CiA-internally several CANopen application profiles for locomotives and coaches. This includes specifications for controlling diesel engines, doors, lighting, etc. They are based on UIC leaflets. These profiles need to be updated regarding new application features, said CiA. Additionally, CANopen FD can be suitable for some rolling stock applications. CAN XL can also be of interest.

CAN in rail vehicles webinar and Innotrans 2022

This is why CiA has scheduled several meetings to initiate discussions about the usage of CAN networks in rail vehicles. For those parties, who like to get an overview of what has been developed so far, there is the CiA webinar scheduled on September 8. It provides basic information on possible CiA

specification improvements. The recorded webinar will be later also available on CiA's Youtube channel. To discuss these topics personally, interested persons can meet CiA staff at the Innotrans trade show in Berlin from September 20 to September 23 in hall 27, stand 290.

CAN in rail vehicles workshop

CiA has also scheduled an online workshop on September 30. The participation is limited to members and invited guests. This workshop is intended to discuss in detail the work plans of the Special Interest Group (SIG) rail vehicles, which is currently in dormant state. This includes the identification of feature requests and improvement of existing technical CiA documents. Interested parties may contact the CiA office.

On occasion of this workshop, CiA intends to discuss requirements of embedded control in rail vehicles. Some years ago, CiA and its members developed several CANopen-based profiles for devices and sub-systems, used in locomotives and coaches; among others:

- CiA 421 - Train vehicle control system,
- CiA 423 - Train power drive system,
- CiA 424 - Rail vehicle door control system;
- CiA 426 - Rail vehicle exterior lighting control system;
- CiA 430 - Rail vehicle auxiliary operating system;
- CiA 433 - Rail vehicle interior lighting control system;
- CiA 449 - Rail vehicle HVAC system.

These profiles were based on UIC leaflets as well as additional requirements, submitted by the railway industry or stakeholders. The profiles were submitted to IEC and were considered, when the CANopen Consist Network was standardized in IEC 61375-3-3. CiA intends to discuss, whether the existing profiles meet still the requirements. In addition, CiA likes to discuss, whether CAN technology, such as CAN FD or CAN XL need to be considered. At the end of the workshop the results will be collected. The workshop may serve as a starting point for new activities of the SIG rail vehicles that discusses the collected challenges and update requests, explained CiA.

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