

Events on CANopen in special-purpose cars

CAN in Automation (CiA) has scheduled two CiA technology days with special regard to CANopen in special-purpose cars (CiA 447). The 4-hour events take place at two different starting times.

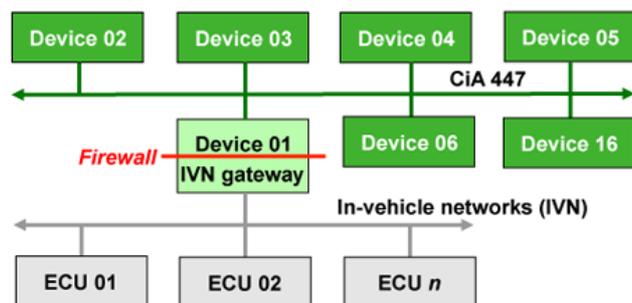


(Source: Adobe Stock)

CAN in Automation (CiA) has scheduled two CiA technology days online with the topic "CANopen in special-purpose cars (CiA 447)". The events take place on October 27 (start 09:00 to 13:00, Berlin time) and October 28 (start 15:00 to 19:00, Berlin time), 2020. Thus, people from all over the world can participate at a suitable local time.

These CiA technology days provide an insight to the status and future of CANopen in special-purpose cars (CiA 447). The presentation language will be English. Participation is free of charge, but registration is obligatory to receive the dial-in data. CiA members have also the option to take part with technical-oriented presentations, to inform about experiences with CiA 447 solutions. The agenda can be found [here](#).

This profile standardizes the electronic interfaces of the add-on equipment for special-purpose passenger cars such as taxis, police cars, emergency vehicles, vehicles for handicapped persons etc. Use of CiA 447 allows the car manufacturer to choose appropriate add-on devices (e.g. taximeter, roof bar, camera) from diverse suppliers. Standardized interfaces simplify the integration of the add-on devices based on the plug-and-play principle. Development effort, time and costs are minimized. The effort for testing and for authorization of special add-on devices is reduced. Vehicle manufacturers do not require additional agreements with device suppliers.



(Source: CiA)

The device suppliers benefit from the possibility to sell the same devices to diverse car manufacturers. The devices do not have to be adapted to a particular manufacturer or to a type of vehicle. Diagnostics of the special equipment may be done via off-the-shelf CANopen tools.

The four-part application profile specifies the CAN physical layer, application, configuration and diagnostic parameters transmitted within a car add-on device network. Add-on devices communicate with the car's IVN (in-vehicle network) gateway, which provides IVN-signals in a pre-defined manner and serves as an NMT (network management) master in the add-on network.

Part 1 defines the physical layer (e.g. connectors), the general system architecture, the boot-up procedure, and some common communication parameter objects. For node-ID assignment it is recommended to use LSS (layer setting services) Fastscan procedure as defined in CiA 305. Further, services and protocols for power management (sleep and wake-up mechanisms) as well as timely relationships of the CiA 447 protocols are specified. Part 2 gives an overview about the defined virtual devices (indivisible functionality of a device e.g. IVN gateway, taximeter, printer) and the corresponding configuration and process parameters. The detailed process data and configuration parameter definitions are provided in part 3.

Part 4 specifies pre-defined CAN-IDs (CAN identifier) for SDOs and PDOs as well as the content of the process data objects (PDOs). As the number of devices in the car add-on network is limited to 16, a full meshed SDO communication (each device communicates with all other devices via SDO) is possible. Further CAN-IDs are specified for use of extended diagnostic functions according to ISO 14229-1 (UDS) and ISO 14229-3 (ISO-TP).

The related SIG (special interest group) is currently working on the CiA 312-5 document, which defines the test specification for the CiA 447 devices. It is also intended to submit the CiA 447 profile for the international standardization.