



The error history domain data is filled during independently of the life time of the CANopen FD communication interface. An active CANopen communication interface just enables access to the error history domain data via the CANopen FD communication services. The size of the error history domain depends on the CANopen FD device's available resources in its internal RAM area. The system maintainer can read the number of recorded error events in sub-index 01<sub>h</sub>. The type of recording error events, can be adjusted via sub-index 02<sub>h</sub> Error history command. This allows storing of only relevant errors; e.g. errors of a specific priority, or to assure that no events are overwritten, in case the active error history is filled up.

Due to the broadcast communication in a real bus-line architecture, a data-logger would record all error events, communicated by EMCY write protocols. This way system designer's can benefit from the enhanced error information. Using a common time base in a system allows bringing all error events of a system in the chronological order; thanks to the new time stamp. To get an quick overview on the currently active errors, a CANopen FD device provides the active error list in data object 1032<sub>h</sub>. In contrast to the DOMAIN in data object 1031<sub>h</sub>, this object displays just devices errors that are currently present at the device and they are removed from the list, if they are solved.

### **CAN FD and CANopen FD seminars**

In June, CAN in Automation will offer seminars about [CAN FD](#) and [CANopen FD](#).

The CAN FD seminar on 04 June 2019 focuses on the improved CAN FD protocol, as specified in ISO 11898- 1:2015. Attendees learn the details of the CAN FD protocols and the differences to Classical CAN. Additionally, the seminar discusses further relevant aspects with regard to CAN FD device design, system design, as well as diagnostics. Furthermore it gives an overview on the impacts of CAN FD on CAN-based higher layer protocols.

The CANopen FD seminar on 05 June 2019 explains in detail the CANopen FD protocol as specified in CiA 1301. Attendees get familiar with the embedded network design options provided by CANopen FD. Additionally, it provides know-how about that most of already available classic CANopen knowledge is applicable in CANopen FD networking, as well.

CiA members can attend the seminars free-of-charge.

### **Summary**

CAN FD is already in use by commercially available passenger cars and CAN hardware is available in various formats. CANopen has been updated with regard to CAN FD and can support system designers in their tasks to setup modern CAN-based systems that meet the requirements of todays and tomorrows embedded networking. This covers also means for diagnostics and trouble shooting.

Detailed evaluations of the CAN FD physical layer require typically tools that allow an analysis of the bit timing, termination of the system or the signal quality. The CAN FD protocol provides already an Error State Indicated (ESI-bit) that serves as first indicator for the quality of the CANopen FD system. In CANopen FD, the enhanced error handling, implemented in an Active error history, the updated EMCY write protocol and some well-known features for diagnostics, derived from CANopen, support system designers to keep the runtime of their CANopen FD based system high. First CANopen FD devices were exhibited at CiA's booth on occasion of Embedded World 2019.

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