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**Road vehicles - Controller area network(CAN) - Part 4:
Time-triggered communication**

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Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents.

This Document is Part 4 of GB/T 41588 Road Vehicles - Controller Area Network. GB/T 41588

has published the following parts:

- Part 1: Data Link Layer and Physical Signaling;
- Part 2: High-Speed Medium Access Unit;
- Part 3: Low-Speed Fault-Tolerant, Medium-Dependent Interface;
- Part 4: Time-Triggered Communication.

This Document equivalently adopts ISO 11898-4:2004 Road Vehicles - Controller Area Network (CAN) - Part 4: Time-Triggered Communication.

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Road Vehicles - Controller Area Network (CAN) - Part 4:

Time-Triggered Communication

1 Scope

This Document specifies time-triggered communication in the controller area network (CAN):

a serial communication protocol that supports distributed real-time control and multiplexing for use within road vehicles.

This Document is applicable to setting up a time-triggered interchange of digital information between electronic control units (ECU) of road vehicles equipped with CAN; and specifies the

frame Synchronisation entity that coordinates the operation of both logical link and media access controls in accordance with ISO 11898-1, to provide the time-triggered communication

schedule.

NOTE: Time-triggered CAN is a higher-level protocol layer additional to the CAN protocol itself, which

remains unchanged within the time-triggered communication. Time-triggered communication keeps the

latency time of each message at a specified value independent of the CAN bus load.

Time-triggered CAN

Is implemented on two levels: Level 1 is restricted to the cyclic message transfer, while Level 2, in

addition, supports a global system time. Time-triggered CAN's cyclic, periodical

communication is based

on reference messages transmitted by a time master. Each period starting with a reference message is

called a basic cycle and is subdivided into several time windows. The reference messages are used to

synchronize and calibrate the time bases of all nodes to the time master's time base, providing a global

time for the network. A mechanism is provided for alternative time masters to substitute for a failing time

master.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates

indicated are applicable to this Document; for the undated documents, only the latest version

(including all the amendments) is applicable to this Document.

ISO 11898-1 Road Vehicles - Controller Area Network (CAN) - Part 1: Data Link Layer and Physical Signaling

NOTE: GB/T 41588.1-2022 Road Vehicles - Controller Area Network (CAN) - Part 1: Data Link

Layer and Physical Signaling (ISO 11898-1:2015, IDT)

ISO 11898-2 Road Vehicles - Controller Area Network (CAN) - Part 2: High-Speed Medium Access Unit

NOTE: GB/T 41588.2-2022 Road Vehicles - Controller Area Network (CAN) - Part 2: High-Speed

Medium Access Unit (ISO 11898-2:2016, IDT)

ISO 11898-3 Road Vehicles - Controller Area Network (CAN) - Part 3: Low-Speed Fault-Tolerant, Medium Dependent Interface

NOTE: GB/T 41588.3-2022 Road Vehicles - Controller Area Network (CAN) - Part 3: Low-Speed