



International  
Standard

**ISO 11898-2**

**Road vehicles — Controller area  
network (CAN) —**

**Part 2:  
High-speed physical medium  
attachment (PMA) sublayer**

*Véhicules routiers — Gestionnaire de réseau de  
communication (CAN) —*

*Partie 2: Sous-couche de l'unité d'accès au support à haute  
vitesse (PMA)*

**Third edition  
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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at [www.iso.org/patents](http://www.iso.org/patents). ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

This third edition cancels and replaces the second edition (ISO 11898-2:2016), which has been technically revised.

The main changes are as follows:

- [Clause 5](#) is restructured, the parameters are categorized by static parameter and dynamic parameter;
- Table 13 with bit rates above 1 Mbit/s and up to 2 Mbit/s is in this edition [Table 15](#) (parameter set A). Table 14 with bit rates above 2 Mbit/s and up to 5 Mbit/s is now [Table 16](#) (parameter set B). The parameter set C (see [Table 17](#) and [Table 18](#)) in this edition is newly introduced;
- [Annex A](#) in this edition is newly introduced; it specifies HS-PMAs with the SIC mode and the FAST mode. [Annex B](#) and [Annex C](#) in this edition are Annex A and Annex B in the previous edition. The content is unchanged.

A list of all parts in the ISO 11898 series can be found on the ISO website.

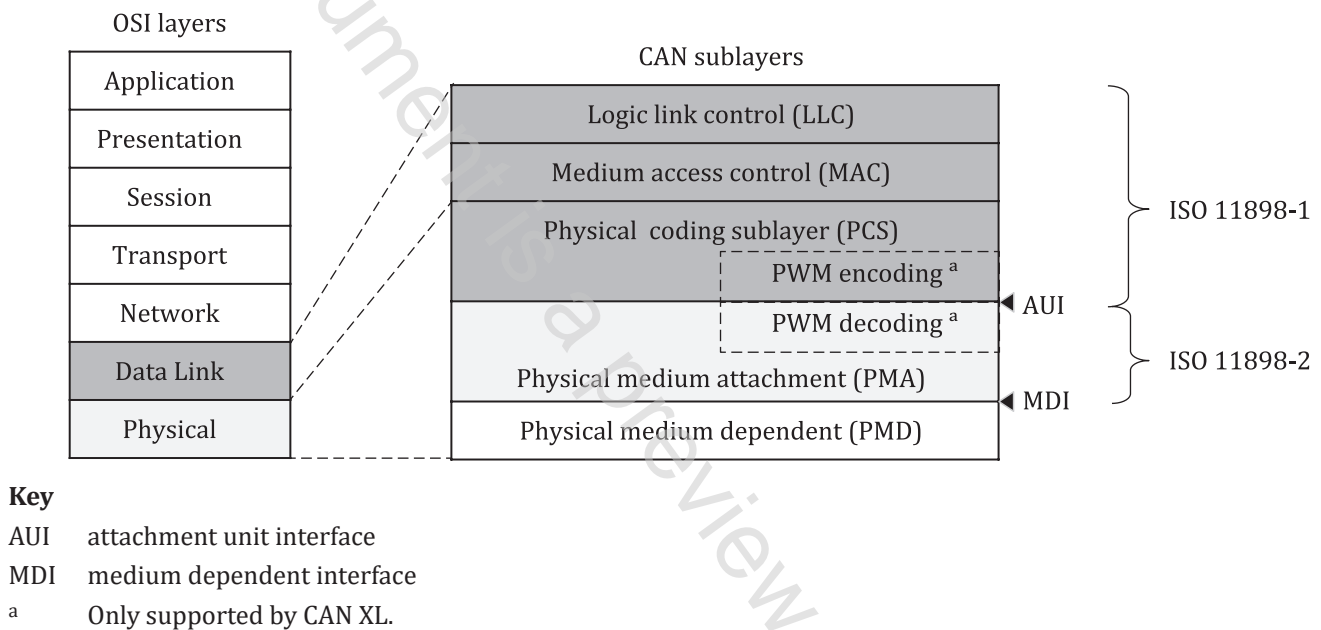
Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

The ISO 11898 series provides requirement specifications for the CAN data link layer and physical layer. It is intended for chip implementers, e.g. ISO 11898-1 for CAN protocol controllers and this document for CAN transceivers. Related conformance test plans are given in the ISO 16845 series. The CAN data link layer models the open system interconnect (OSI) data link layer; it is internally subdivided into logic link control (LLC) and medium access control (MAC). ISO 11898-1 also specifies the CAN physical coding sublayer (PCS) by means of the attachment unit interface (AUI). Optionally, the PCS also provides the PWM encoding to be linked to a CAN SIC XL transceiver, which provides the PWM decoding.

The open system interconnect (OSI) layers above the data link layer (e.g. the network layer) are not specified in the ISO 11898 series.

[Figure 1](#) shows the relation between the OSI layers and the CAN sublayers.



**Figure 1 — CAN data link and physical sublayers relation to the OSI model**



# Road vehicles — Controller area network (CAN) —

## Part 2: High-speed physical medium attachment (PMA) sublayer

### 1 Scope

This document specifies physical medium attachment (PMA) sublayers for the controller area network (CAN). This includes the high-speed (HS) PMA without and with low-power mode capability, without and with selective wake-up functionality. Additionally, this document specifies PMAs supporting the signal improvement capability (SIC) mode and the FAST mode in [Annex A](#). The physical medium dependent (PMD) sublayer is not in the scope of this document.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 7498-1, *Information technology — Open Systems Interconnection — Basic Reference Model: The Basic Model*

ISO 11898-1<sup>1)</sup>, *Road vehicles — Controller area network (CAN) — Part 1: Data link layer and physical signalling*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 7498-1, ISO 11898-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

#### 3.1

##### **active recessive**

intermediate high-speed physical medium attachment (HS-PMA) output drive with a dedicated lower than nominal impedance at transitions from dominant state or level\_0 state towards the *passive recessive* ([3.14](#)) state with a dedicated duration

#### 3.2

##### **attachment unit interface**

##### **AUI**

interface between the *physical coding sublayer (PCS)* ([3.15](#)) and the *physical medium attachment (PMA)* ([3.16](#)) sublayer

#### 3.3

##### **bus**

shared medium of any topology

1) Third edition under preparation. Stage at the time of publication: ISO/DIS 11898-1:2024.