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Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles —

Part 3: Application layer for equipment other than brakes and running gear

Véhicules routiers — Échange d'informations numériques sur les connexions électriques entre véhicules tracteurs et véhicules tractés —

Partie 3: Couche d'application pour les équipements autres que les équipements de freinage et les organes de roulement

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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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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.

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 11992-3:2003), which has been technically revised. It also incorporates the Amendment ISO 11992-3:2003/Amd. 1:2008.

The main changes compared to the previous edition are as follows:

— introduced requirements structure;

— Clause 7: added new parameters;

— Clause 8: added new messages;

— added Annex A (informative) object detection (OD) sensor states; and

— added Annex B (informative) message flow.

A list of all parts in the ISO 11992 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.

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Introduction

The ISO 11992 series specifies the interchange of digital information between road vehicles with a maximum authorised total mass greater than 3 500 kg, and towed vehicles, including communication between towed vehicles in terms of parameters and requirements of the lower OSI layers (physical and data link layer) of the electrical connection used to connect the electrical and electronic systems.

This document is structured according to the Open Systems Interconnection (OSI) Basic Reference Model, in accordance with ISO/IEC 7498-1 and ISO/IEC 10731 [5], which structures communication systems into seven layers. When mapped on this model, the application layer protocol and data link layer framework requirements specified/referenced in the ISO 11992 series are structured according to Figure 1.

Figure 1 illustrates a simplified communication framework:

— vehicle normal communication framework,

— vehicle diagnostic communication framework,

— vehicle-specific use case framework, and the

— vehicle lower-layers framework.

The vehicle normal communication framework is composed of ISO 11992-2 and ISO 11992-3.

The vehicle diagnostic communication framework is composed of ISO 14229-1 [8], ISO 14229-2 [9], ISO 14229-3 [10] and ISO 11992-4 [6].

The vehicle-specific use case framework is composed of ISO 11992-4 [6], ISO 22901-1 [13] or vehicle manufacturer-specific diagnostic data definition.

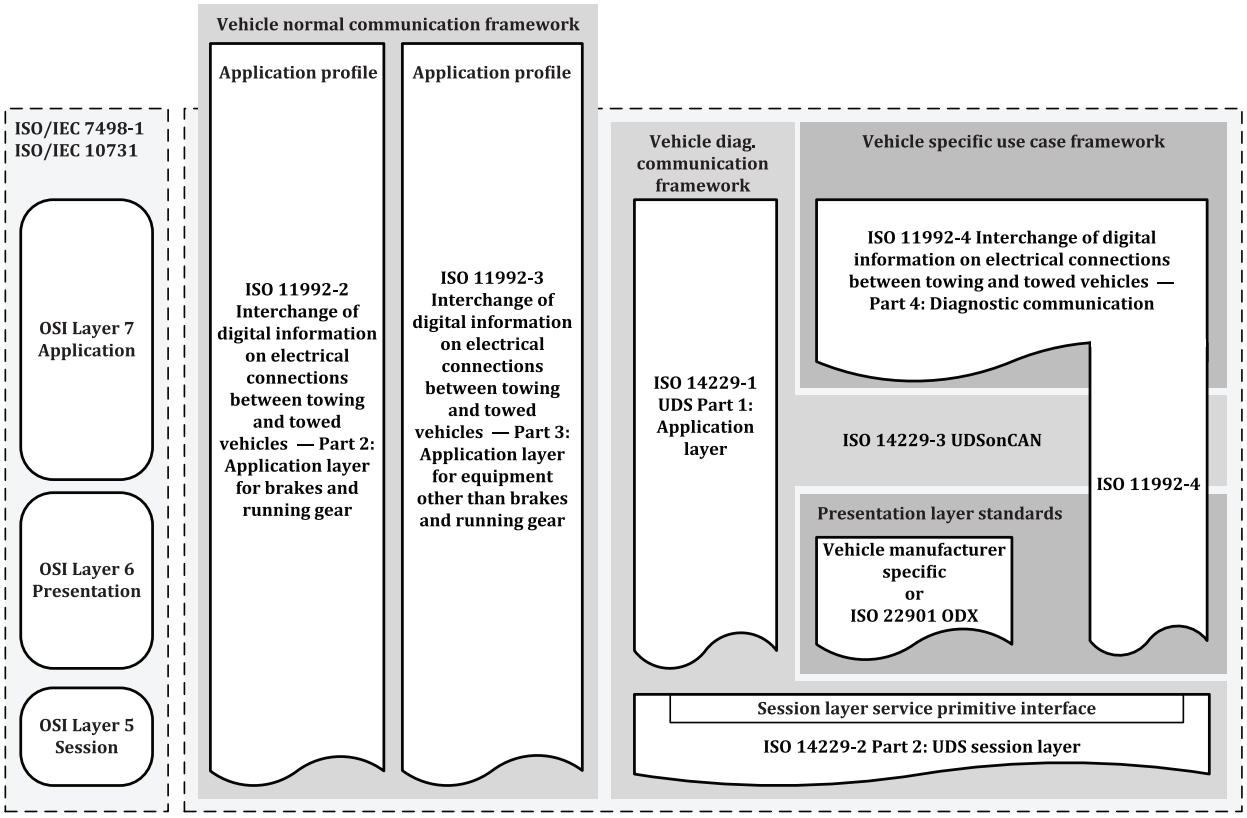


Figure 1 — ISO 11992 documents reference according to the OSI model

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Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles —

Part 3: Application layer for equipment other than brakes and running gear

1 Scope

This document specifies the application layer, the payload of messages, and parameter groups for equipment other than brakes and running gears, to ensure the interchange of digital information between road vehicles with a maximum authorized total mass greater than 3 500 kg and their towed vehicles, including communication between towed vehicles.

This document supports the parameters and message sets for object detection (OD). The installation of the object detection (OD) device compliant to this document in the towed vehicle is identified by a dedicated message.

Additionally, some lighting parameters and messages are specified.

The conformance and interoperability test plans are not part 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 612, *Road vehicles — Dimensions of motor vehicles and towed vehicles — Terms and definitions*

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO 11992-2, *Road vehicles — Interchange of digital information on electrical connections between towing and towed vehicles — Part 2: Application layer for brakes and running gear*

ISO 80000-1, *Quantities and units — Part 1: General*

SAE J1939-21, *Data Link Layer*

SAE J1939-71:2020, *Vehicle Application Layer*

SAE J1939-DA, *J1939 Digital Annex*

SAE J1850, *Class B Data Communications Network Interface*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11992-2 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
mean value
sum of all sample values divided by the number of samples

Note 1 to entry: to entry:

$$\bar{x} = \frac{\sum_{i=1}^{N} x_i}{N}$$

where

$\{x_1, x_2, \ldots x_N\}$ are the observed values of the sample items;

N is the number of observations in the sample.

3.2
standard deviation
positive square root of the variance

Note 1 to entry: to entry:

$$s = \sqrt{\frac{\sum_{i=1}^{N} (x_i - \bar{x})^2}{N-1}}$$

where

x is the sample value;

$\bar{x}$ is the mean value;

i is the sample counter;

N is the number of observations in the sample.

[SOURCE: IEC Electropedia, 103-08-13, modified — Note 1 to entry has been added.]

3.3
trailer
towed or towing vehicle but not a commercial vehicle

4 Abbreviated terms

ABS	anti-lock braking system
APP	application
ASR	anti-spin regulation (traction control system)
CAN	controller area network
DA	destination address

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