ICS 43.120 SLOVENSKÁ TECHNICKÁ NORMA Jún 2025

STN	**Cestné vozidlá Sieťové komunikačné rozhranie vo vozidlách Časť 10: Požiadavky na fyzickú vrstvu a vrstvu dátového spoja pre jednopárový ethernet (ISO 15118-10: 2025)**	**STN EN ISO 15118-10** 30 0611

Road vehicles - Vehicle to grid communication interface - Part 10: Physical layer and data link layer requirements for single-pair Ethernet (ISO 15118-10:2025)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/25

Obsahuje: EN ISO 15118-10:2025, ISO 15118-10:2025

140535

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 15118-10

March 2025

ICS 43.120

English Version

Road vehicles - Vehicle to grid communication interface - Part 10: Physical layer and data link layer requirements for single-pair Ethernet (ISO 15118-10:2025)

Véhicules routiers - Interface de communication entre véhicule et réseau électrique - Partie 10: Exigences relatives à la couche physique et à la couche liaison de données pour Ethernet à paire unique (ISO 15118-10:2025)

Straßenfahrzeuge - Kommunikationsschnittstelle zwischen Fahrzeug und Ladestation - Teil 10: Anforderungen an die physikalische Schicht und Sicherungsschicht für Zweidraht Ethernet (ISO 15118-10:2025)

This European Standard was approved by CEN on 5 March 2025.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN ISO 15118-10:2025 E

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European foreword

This document (EN ISO 15118-10:2025) has been prepared by Technical Committee ISO/TC 22 "Road vehicles" in collaboration with Technical Committee CEN/TC 301 “Road vehicles” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2025, and conflicting national standards shall be withdrawn at the latest by September 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 15118-10:2025 has been approved by CEN as EN ISO 15118-10:2025 without any modification.

International Standard

ISO 15118-10

First edition
2025-03

Road vehicles — Vehicle to grid communication interface —

Part 10: Physical layer and data link layer requirements for single-pair Ethernet

Véhicules routiers — Interface de communication entre véhicule et réseau électrique —

Partie 10: Exigences relatives à la couche physique et à la couche liaison de données pour Ethernet à paire unique

Reference number
ISO 15118-10:2025(en)

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Published in Switzerland

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Foreword

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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).

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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.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, SC 31, *Data communication*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 301, *Road vehicles,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 15118 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 atwww.iso.org/members.html.

Introduction

The looming energy crisis and necessity to reduce greenhouse gas emissions has forced vehicle manufacturers to find ways to scale down how much energy their vehicles consume. The vehicles they are currently developing are propelled either entirely or in part by electric energy. If this energy is generated from renewable sources, this will weaken dependency on oil, improve the global energy efficiency and cut CO_2 emissions. However, a dedicated charging infrastructure is needed to charge the batteries that power these vehicles.

Much of the standardization work on dimensional and electrical specifications of the charging infrastructure and the vehicle interface is already treated in the relevant ISO or IEC groups. However, the question of information transfer between the electric vehicles (EV) and electric vehicle supply equipment (EVSE) has not been treated sufficiently.

This communication is key to optimizing energy resources and energy production systems so vehicles can be charged cheaply and efficiently.

In this document, messages are exchanged between the vehicle and the infrastructure over single-pair Ethernet (which is embedded in the cable assembly).

The relevant information on use-case definitions requirements can be found in ISO 15118-1. Network and application protocol requirements can be found in ISO 15118-20, respectively.

International Standard **ISO 15118-10:2025(en)**

Road vehicles — Vehicle to grid communication interface —

Part 10: Physical layer and data link layer requirements for single-pair Ethernet

1 Scope

This document specifies the physical and data link layer of high-level communication (HLC) between electric vehicles (EV) and electric vehicle supply equipment (EVSE) based on single-pair Ethernet communication. Single-pair Ethernet communication uses differential twisted pair wires that are dedicated and balanced. This document applies to 10BASE-T1S only.

This document covers the overall information exchange between all actors involved in electrical energy exchange. The ISO 15118 series applies to charging between EV and EVSE.

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 15118-20:2022, *Road vehicles — Vehicle to grid communication interface — Part 20: 2nd generation network layer and application layer requirements*

IEC 61851-23-3[1)], *Electric vehicle conductive charging system — Part 23-3: DC electric vehicle supply equipment for Megawatt charging systems*

IEEE 802.3:2022, *IEEE Standard for Ethernet*

1) Under preparation. Stage at the time of publication: IEC/CCDV 61851-23-3:2025.