PISTIKUD, PISTIKUPESAD, SÕIDUKILIIDESED JA SÕIDUKISISENDID. ELEKTRISÕIDUKITE JUHTIVUSLIK LAADIMINE. OSA 1: ÜLDNÕUDED

Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 62196-1:2026 sisaldab Euroopa standardi EN IEC 62196-1:2026 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 62196-1:2026 consists of the English text of the European standard EN IEC 62196-1:2026.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.01.2026.	Date of Availability of the European standard is 30.01.2026.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.120.30, 43.120

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62196-1

January 2026

ICS 29.120.30; 43.120

Supersedes EN IEC 62196-1:2022

English Version

Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements (IEC 62196-1:2025)

Fiches, socles de prise de courant, prises mobiles de véhicule et socles de connecteurs de véhicule - Charge conductive des véhicules électriques - Partie 1: Exigences générales
(IEC 62196-1:2025)

Stecker, Steckdosen, Fahrzeugkupplungen und Fahrzeugstecker - Konduktives Laden von Elektrofahrzeugen - Teil 1: Allgemeine Anforderungen
(IEC 62196-1:2025)

This European Standard was approved by CENELEC on 2025-12-30. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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

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European foreword

The text of document 23H/579/FDIS, future edition 5 of IEC 62196-1, prepared by SC 23H "Plugs, Socket-outlets and Couplers for industrial and similar applications, and for Electric Vehicles" of IEC/TC 23 "Electrical accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62196-1:2026.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2027-01-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-01-31

This document supersedes EN IEC 62196-1:2022 and all of its amendments and corrigenda (if any).

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

This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62196-1:2025 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60068-2-75:2014	NOTE	Approved as EN 60068-2-75:2014 (not modified)
IEC 60309-1:2021	NOTE	Approved as EN IEC 60309-1:2022 (not modified)
IEC 60309-2	NOTE	Approved as EN IEC 60309-2
IEC 60512-2-2	NOTE	Approved as EN 60512-2-2
IEC 60947-1:2020	NOTE	Approved as EN IEC 60947-1:2021 (not modified)
IEC 60947-7-4	NOTE	Approved as EN IEC 60947-7-4
IEC 60999-1:1999	NOTE	Approved as EN 60999-1:2000 (not modified)
IEC 60999-2:2003	NOTE	Approved as EN 60999-2:2003 (not modified)
IEC 61008-1	NOTE	Approved as EN 61008-1
IEC 61009-1	NOTE	Approved as EN 61009-1
IEC 61140	NOTE	Approved as EN 61140

IEC 61300-2-4	NOTE	Approved as EN IEC 61300-2-4
IEC 61300-2-6	NOTE	Approved as EN IEC 61300-2-6
IEC 61300-2-7	NOTE	Approved as EN 61300-2-7
IEC 61439-1:2020	NOTE	Approved as EN IEC 61439-1:2021 (not modified)
IEC 61540	NOTE	Approved as HD 639 S1
IEC 61851 (series)	NOTE	Approved as EN IEC 61851 (series)
IEC 61851-1	NOTE	Approved as EN IEC 61851-1
IEC 62196-2:2022	NOTE	Approved as EN IEC 62196-2:2022 (not modified)
IEC 62196-3:2022	NOTE	Approved as EN IEC 62196-3:2022 (not modified)
ISO 1456	NOTE	Approved as EN ISO 1456
ISO 2081	NOTE	Approved as EN ISO 2081
ISO 2768-1	NOTE	Approved as EN 22768-1

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INTERNATIONAL STANDARD

Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles -
Part 1: General requirements

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IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC 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, IEC 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 https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62196-1 has been prepared by IEC subcommittee 23H: Plugs, socket-outlets and couplers for industrial and similar applications, and for electric vehicles, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2022. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of new tests for latching devices and retaining means;
b) inclusion of type 4 accessories.

The text of this International Standard is based on the following documents:

Draft	Report on voting
23H/579/FDIS	23H/586/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

Subsequent parts of IEC 62196 deal with the requirements of particular types of accessories. The clauses of those particular requirements supplement or modify the corresponding clauses in this document.

In this document, the following print types are used:

– requirements proper: in roman type;
– *test specifications: in italic type*;
– notes: in smaller roman type.

A list of all parts in the IEC 62196 series, published under the general title *Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

INTRODUCTION

The IEC 61851 series specifies requirements for electric vehicle (EV) conductive charging systems.

The IEC 62196 series specifies the requirements for plugs, socket-outlets, vehicle connectors, vehicle inlets and cable assemblies as described in the IEC 61851 series and in IEC 62752.

In some situations, a cable assembly is used to directly connect an electric vehicle to a standard socket-outlet connected to a supply network (mains or electrical grid). In other situations, the electric vehicle is connected to a supply network through EV supply equipment that incorporates control and communication circuits. The IEC 62196 series covers the mechanical, electrical and performance requirements for

– vehicle connectors and vehicle inlets for the direct connection between an electric vehicle and a standard socket-outlet, and
– EV plugs, EV socket-outlets, vehicle connectors and vehicle inlets for the connection between the EV supply equipment and the electric vehicle.

The IEC 62196 series consists of the following parts:

– IEC 62196-1: General requirements, comprising clauses of a general character;
– IEC 62196-2: Dimensional compatibility requirements for AC pin and contact-tube accessories;
– IEC 62196-3: Dimensional compatibility requirements for DC and AC/DC pin and contact-tube vehicle couplers;
– IEC TS 62196-4: Dimensional compatibility and interchangeability requirements for DC pin and contact-tube accessories for class II or class III applications;
– IEC 62196-6: Dimensional compatibility requirements for DC pin and contact-tube vehicle couplers intended to be used for DC EV supply equipment where protection relies on electrical separation.
– IEC TS 62196-7[1]: Vehicle adapter.

[1] Under preparation. Stage at the time of publication: IEC TS/ADTS 62196-7:2025.

1 Scope

This part of IEC 62196 is applicable to EV plugs, EV socket-outlets, vehicle connectors, vehicle inlets, herein referred to as "accessories", and to cable assemblies for electric vehicles (EV) intended for use in conductive charging systems which incorporate control means, with a rated operating voltage not exceeding

– 690 V AC 50 Hz to 60 Hz, at a rated current not exceeding 250 A, and
– 1 500 V DC at a rated current not exceeding 800 A.

These accessories and cable assemblies are intended to be installed by instructed persons (IEV 195-04-02) or skilled persons (IEV 195-04-01) only.

These accessories and cable assemblies are intended to be used for circuits specified in the IEC 61851 series, which operate at different voltages and frequencies, and which can include extra-low voltage circuits, such as control and communication circuits.

These accessories and cable assemblies are anticipated to be used at an ambient temperature between −30 °C and +40 °C.

NOTE 1 In some countries, other requirements can apply.

NOTE 2 In the following country, −40 °C applies: SE.

NOTE 3 The manufacturer can enlarge the temperature range on the condition that the specified range information is provided.

These accessories are intended to be connected only to cables with copper or copper-alloy conductors.

The accessories covered by this document are intended for use in electric vehicle supply equipment in accordance with IEC 61851 (all parts).

This document does not apply to standard plugs and standard socket-outlets used for mode 1 and mode 2 according to IEC 61851-1:2017, 6.2.

NOTE 4 In the following countries, mode 1 is not allowed: UK, US, CA, SG.

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.

IEC 60068-2-14, *Environmental testing - Part 2-14: Tests - Test N: Change of temperature*

IEC 60068-2-20, *Environmental testing - Part 2-20: Tests - Test Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-30, *Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60228:2023, *Conductors of insulated cables*

IEC 60245-4, *Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 4: Cords and flexible cables*

IEC 60269-1, *Low-voltage fuses - Part 1: General requirements*

IEC 60269-2, *Low-voltage fuses - Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to K*

IEC 60309-4:2021, *Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes - Part 4: Switched socket-outlets with or without interlock*

IEC 60352-5, *Solderless connections - Part 5: Press-in connections - General requirements, test methods and practical guidance*

IEC 60417, *Graphical symbols for use on equipment*, available at http://www.graphical-symbols.info/equipment

IEC 60529:1989, *Degrees of protection provided by enclosures (IP code)*
IEC 60529:1989/AMD1:1999
IEC 60529:1989/AMD2:2013

IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests*

IEC 60664-3, *Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60695-2-11, *Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end products (GWEPT)*

IEC 60695-10-2, *Fire hazard testing - Part 10-2: Abnormal heat - Ball pressure test method*

IEC 60947-3, *Low-voltage switchgear and controlgear - Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units*

IEC 60947-5-1, *Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices*

IEC 61032:1997, *Protection of persons and equipment by enclosures - Probes for verification*

IEC 61058-1:2016, *Switches for appliances - Part 1: General requirements*

IEC 61851-1:2017, *Electric vehicle conductive charging system - Part 1: General requirements*

IEC 61851-23:2023, *Electric vehicle conductive charging system - Part 23: DC electric vehicle supply equipment*

IEC 62196-2:2025, *Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 2: Dimensional compatibility requirements for AC pin and contact-tube accessories*

IEC 62196-3:—, *Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 3: Dimensional compatibility requirements for DC and AC/DC pin and contact-tube vehicle couplers*[2]

IEC 62752, *In-cable control and protection device (IC-CPD) for mode 2 charging of electric road vehicles*

ISO 12103-1, *Road vehicles - Test contaminants for filter evaluation - Part 1: Arizona test dust*

ISO 4521:2008, *Metallic and other inorganic coatings - Electrodeposited silver and silver alloy coatings for engineering purposes - Specification and test methods*

ISO 5474 (all parts), *Electrically propelled road vehicles - Functional and safety requirements for power transfer between vehicle and external electric circuit*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

– ISO Online browsing platform: available at http://www.iso.org/obp

NOTE The application of accessories is shown in Figure 1.

[2] Under preparation. Stage at the time of publication: IEC/AFDIS 62196-3:2025.