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LAADIMINE. OSA 1: ÜLDNÕUDED

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

| | |
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| <p>See Eesti standard EVS-EN IEC 62196-1:2026 sisaldab Euroopa standardi EN IEC 62196-1:2026 ingliskeelset teksti.</p> <p>Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 30.01.2026.</p> <p>Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.</p> | <p>This Estonian standard EVS-EN IEC 62196-1:2026 consists of the English text of the European standard EN IEC 62196-1:2026.</p> <p>This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.</p> <p>Date of Availability of the European standard is 30.01.2026.</p> <p>The standard is available from the Estonian Centre for Standardisation and Accreditation.</p> |
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ICS 29.120.30, 43.120

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EUROPEAN STANDARD

EN IEC 62196-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

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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)

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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

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- latest date by which the national standards conflicting with the (dow) 2029-01-31 document have to be withdrawn

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

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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 |
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| 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 |

INTERNATIONAL STANDARD

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



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CONTENTS

| | |
|---|----|
| FOREWORD | 6 |
| INTRODUCTION | 8 |
| 1 Scope | 9 |
| 2 Normative references | 9 |
| 3 Terms and definitions | 11 |
| 4 General | 22 |
| 4.1 General requirements | 22 |
| 4.2 Components | 22 |
| 4.2.1 Ratings | 22 |
| 4.2.2 Mechanical assembly | 22 |
| 4.2.3 Current-carrying parts of incorporated components | 22 |
| 4.2.4 Electrical connections | 23 |
| 4.3 General notes on tests | 23 |
| 5 Ratings | 26 |
| 5.1 Preferred rated operating voltage ranges | 26 |
| 5.2 Preferred rated currents | 27 |
| 5.2.1 General | 27 |
| 5.2.2 Rated current for signal or control purposes | 27 |
| 5.2.3 Accessories not suitable for making and breaking an electrical circuit under load | 27 |
| 5.2.4 Accessories suitable for, or not suitable for, making and breaking an electrical circuit under load | 27 |
| 6 Connection between the power supply and the electric vehicle | 28 |
| 6.1 Interfaces | 28 |
| 6.2 Basic interface | 28 |
| 6.3 DC interface | 28 |
| 6.4 Combined interface | 28 |
| 7 Classification of accessories | 28 |
| 7.1 According to purpose | 28 |
| 7.2 According to the method of connecting the conductors | 28 |
| 7.3 According to serviceability | 28 |
| 7.4 According to electrical operation | 28 |
| 7.5 According to interface | 28 |
| 7.6 According to locking facilities | 29 |
| 7.7 According to interlock facilities | 29 |
| 7.8 According to the presence of shutter(s) | 29 |
| 8 Marking | 29 |
| 9 Dimensions | 32 |
| 10 Protection against electric shock | 32 |
| 10.1 General | 32 |
| 10.2 Accessories with shutters | 33 |
| 10.3 Contact sequencing and order of contact insertion and withdrawal | 36 |
| 10.4 Misassembly | 37 |
| 11 Size and colour of protective earthing and neutral conductors | 37 |
| 12 Provisions for earthing | 38 |
| 13 Terminals | 40 |

| | | |
|--------|--|----|
| 13.1 | Common requirements | 40 |
| 13.2 | Screw terminals | 42 |
| 13.3 | Mechanical tests on terminals | 44 |
| 14 | Interlocks..... | 47 |
| 14.1 | Accessories with interlock..... | 47 |
| 14.2 | Accessories with integral switching device | 55 |
| 14.3 | Control circuit devices and switching elements | 55 |
| 14.4 | Pilot contacts and auxiliary circuits | 55 |
| 15 | Resistance to ageing of rubber and thermoplastic material | 55 |
| 16 | General construction | 56 |
| 17 | Construction of EV socket-outlets | 59 |
| 18 | Construction of EV plugs and vehicle connectors..... | 60 |
| 19 | Construction of vehicle inlets | 61 |
| 20 | Degrees of protection | 61 |
| 21 | Insulation resistance and dielectric strength | 64 |
| 22 | Breaking capacity | 65 |
| 23 | Normal operation..... | 68 |
| 23.1 | Mechanical, electrical, and thermal stresses and contaminants..... | 68 |
| 23.2 | Load endurance test | 68 |
| 23.3 | No-load endurance test..... | 69 |
| 23.4 | Lid springs | 70 |
| 24 | Temperature rise | 70 |
| 25 | Flexible cables and their connection | 72 |
| 25.1 | Strain relief | 72 |
| 25.2 | Requirements for EV plugs and vehicle connectors..... | 73 |
| 25.2.1 | Non-rewirable EV plugs and vehicle connectors | 73 |
| 25.2.2 | Rewirable EV plugs and vehicle connectors..... | 73 |
| 25.3 | EV plugs and vehicle connectors provided with a flexible cable..... | 73 |
| 25.4 | Cables | 75 |
| 26 | Mechanical strength | 75 |
| 26.1 | General..... | 75 |
| 26.2 | Ball impact..... | 76 |
| 26.3 | Drop test..... | 78 |
| 26.4 | Flexing test | 79 |
| 26.5 | Cable gland test..... | 80 |
| 26.6 | Shutters | 81 |
| 26.7 | Insulated end caps..... | 81 |
| 26.7.1 | General | 81 |
| 26.7.2 | Insulated end caps – Change of temperature test | 82 |
| 26.7.3 | Insulated end caps – Pull test..... | 82 |
| 27 | Screws, current-carrying parts and connections..... | 82 |
| 28 | Creepage distances, clearances and distances through sealing compound..... | 85 |
| 29 | Resistance to heat and to fire | 86 |
| 30 | Corrosion and resistance to rusting | 87 |
| 31 | Conditional short-circuit current | 88 |
| 31.1 | General..... | 88 |

| | | |
|---|--|-----|
| 31.2 | Ratings and test conditions | 88 |
| 31.3 | Test circuit | 89 |
| 31.4 | Calibration | 93 |
| 31.5 | Test procedure..... | 93 |
| 31.6 | Behaviour of the equipment under test..... | 93 |
| 31.7 | Acceptance conditions | 93 |
| 32 | Electromagnetic compatibility | 93 |
| 32.1 | Immunity | 93 |
| 32.2 | Emission..... | 93 |
| 33 | Vehicle drive over..... | 93 |
| 34 | Thermal cycling | 94 |
| 34.1 | General..... | 94 |
| 34.2 | Initial temperature rise test | 94 |
| 34.3 | Thermal cycling test..... | 95 |
| 34.4 | Final temperature rise test | 95 |
| 35 | Humidity exposure | 95 |
| 35.1 | General..... | 95 |
| 35.2 | Initial temperature rise test | 95 |
| 35.3 | Humidity test..... | 95 |
| 35.4 | Final temperature rise test | 96 |
| 36 | Misalignment | 96 |
| 36.1 | General..... | 96 |
| 36.2 | Samples | 96 |
| 36.3 | Misalignment test..... | 97 |
| 37 | Contact endurance test..... | 99 |
| 37.1 | Equipment | 99 |
| 37.2 | Test sequence | 99 |
| 37.3 | Compliance..... | 101 |
| Annex A (normative) Standard sheets for test gauges in 14.1.9 | | 102 |
| Annex B (informative) EV accessories directly connected to printed circuit boards (PCBs) | | 106 |
| B.1 | General..... | 106 |
| B.2 | Terminals..... | 106 |
| B.2.1 | General | 106 |
| B.2.2 | Accessories intended to be directly connected to PCBs..... | 106 |
| B.3 | Temperature rise | 107 |
| Bibliography..... | | 108 |
| | | |
| Figure 1 – Diagram showing the use of the accessories..... | | 12 |
| Figure 2 – Lug terminals | | 16 |
| Figure 3 – Mantle terminals | | 16 |
| Figure 4 – Pillar terminals | | 17 |
| Figure 5 – Saddle terminals | | 19 |
| Figure 6 – Screw terminals | | 19 |
| Figure 7 – Stud terminals..... | | 20 |
| Figure 8 – Test piston | | 31 |
| Figure 9 – Gauge "A" for checking shutters..... | | 34 |

| | |
|---|-----|
| Figure 10 – Gauge "B" for checking shutters..... | 35 |
| Figure 11 – Gauges for testing insertability of round unprepared conductors having the maximum specified cross-section..... | 43 |
| Figure 12 – Equipment test arrangement | 45 |
| Figure 13 – Apparatus for checking the withdrawal force | 50 |
| Figure 14 – Verification of the latching device..... | 51 |
| Figure 15 – Apparatus for checking the maximum force (F2) exerted by the retaining means..... | 52 |
| Figure 16 – Test gauge "vehicle inlet" and test arrangement in mated position for checking retaining means zone..... | 54 |
| Figure 17 – Example of an apparatus for checking the proper functioning of the latching device..... | 54 |
| Figure 18 – Nomenclature for a mounted vehicle inlet..... | 62 |
| Figure 19 – Circuit diagrams for breaking capacity and normal operation tests | 67 |
| Figure 20 – Example of points of measurement for DUT containing pin contacts..... | 72 |
| Figure 21 – Apparatus for testing the cable anchorage | 74 |
| Figure 22 – Ball impact test | 76 |
| Figure 23 – Arrangement for mechanical strength test for EV plugs and vehicle connectors..... | 78 |
| Figure 24 – Apparatus for flexing test..... | 80 |
| Figure 25 – Diagram of the test circuit for the verification of short-circuit current withstand of two-pole equipment on a single-phase AC or DC..... | 90 |
| Figure 26 – Diagram of the test circuit for the verification of short-circuit current withstand of three-pole equipment | 91 |
| Figure 27 – Diagram of the test circuit for the verification of short-circuit current withstand of four-pole equipment | 92 |
| Figure 28 – Overview of the mechanical load test | 97 |
| Figure 29 – Application of external mechanical load (mounted according to Figure 28)..... | 98 |
| Figure 30 – Temperature rise criteria under external mechanical load..... | 98 |
| Figure 31 – Forced-air circulating oven | 99 |
| Figure 32 – Thermal cycling..... | 100 |
| Figure 33 – Pass/fail based on temperature rise criteria..... | 101 |
| | |
| Table 1 – Test sequence A | 24 |
| Table 2 – Parallel testing | 26 |
| Table 3 – Size for conductors | 37 |
| Table 4 – Short-time test currents..... | 39 |
| Table 5 – Values for flexing under mechanical load test..... | 46 |
| Table 6 – Value for terminal pull test..... | 47 |
| Table 7 – Interlock testing..... | 48 |
| Table 8 – Withdrawal force with respect to ratings | 51 |
| Table 9 – External force values for tests | 55 |
| Table 10 – Cable length used to determine pull force on retaining means | 57 |
| Table 11 – Test voltage for dielectric strength test..... | 65 |
| Table 12 – Breaking capacity..... | 66 |
| Table 13 – Normal operation..... | 68 |

| | |
|---|-----|
| Table 14 – Test current and nominal cross-sectional areas of copper conductors for temperature rise test..... | 71 |
| Table 15 – Pull force and torque test values for cable anchorage..... | 75 |
| Table 16 – Summary of mechanical tests..... | 76 |
| Table 17 – Impact energy for ball impact test..... | 77 |
| Table 18 – Mechanical load flexing test..... | 79 |
| Table 19 – Torque test values for glands..... | 81 |
| Table 20 – Pulling force on insulated end caps..... | 82 |
| Table 21 – Tightening torque for verification of mechanical strength of screw-type terminals..... | 83 |
| Table B.1 – Standards for connecting methods..... | 106 |

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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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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 62196-7¹: 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 $+40\text{ °C}$.

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.