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

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. 05/15

Obsahuje: EN 62196-1:2014, IEC 62196-1:2014

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EUROPEAN STANDARD

EN 62196-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2014

ICS 29.120.30; 43.120

Supersedes EN 62196-1:2012

English Version

**Plugs, socket-outlets, vehicle connectors and vehicle inlets -
Conductive charging of electric vehicles - Part 1: General
requirements
(IEC 62196-1:2014 , modified)**

Fiches, socles de prise de courant, prises mobiles de
véhicule et socles de connecteur de véhicule - Charge
conductive des véhicules électriques - Partie 1: Règles
générales
(CEI 62196-1:2014 , modifiée)

Stecker, Steckdosen, Fahrzeugkupplungen und
Fahrzeugstecker - Konduktives Laden von
Elektrofahrzeugen - Teil 1: Allgemeine Anforderungen
(IEC 62196-1:2014 , modifiziert)

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 23H/302/FDIS, future edition 3 of IEC 62196-1, prepared by IEC/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 62196-1:2014.

A draft amendment, which covers common modifications to IEC 62196-1, was prepared by CLC/TC 23BX "Switches, boxes and enclosures for household and similar purposes, plugs and socket outlets for d.c. and for the charging of electrical vehicles including their connectors" and approved by CENELEC.

This document supersedes EN 62196-1:2012.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-10-06
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2019-10-06

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62196-1:2014 are prefixed "Z".

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This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 62196-1:2014 was approved by CENELEC as a European Standard with agreed common modifications.

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

IEC 60068-2-75:1997	NOTE	Harmonized as EN 60068-2-75:1997 (not modified).
IEC 60309-1	NOTE	Harmonized as EN 60309-1.
IEC 60947-1	NOTE	Harmonized as EN 60947-1.
IEC 60999-1:1999	NOTE	Harmonized as EN 60999-1:2000 (not modified).
IEC 60999-2:2003	NOTE	Harmonized as EN 60999-2:2003 (not modified).
IEC 61008-1	NOTE	Harmonized as EN 61008-1.
IEC 61009-1	NOTE	Harmonized as EN 61009-1.
IEC 61300-2-4	NOTE	Harmonized as EN 61300-2-4.
IEC 61300-2-6	NOTE	Harmonized as EN 61300-2-6.
IEC 61300-2-7	NOTE	Harmonized as EN 61300-2-7.
IEC 62752	NOTE	Harmonized as EN 62752.

COMMON MODIFICATIONS

9 Dimensions

Addition to subclause 9.2:

9.2.Z1 If other non-EV standardized accessories may be physically joined together with the EV accessories, these shall not be able to function.

EXAMPLE No function can be achieved by switching off the main contacts when no appropriate EV plug and vehicle inlet is inserted (see EN 61851-1).

Annex ZA
(normative)
**Normative references to international publications
with their corresponding European publications**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-14	-	Environmental testing -- Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	-
IEC 60112	-	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	-
IEC 60227	series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750	-	-
IEC 60228	2004	Conductors of insulated cables	EN 60228 +corrigendum May 2005	2005 2005
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	EN 60269-1	-
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	HD 60269-2	-
IEC 60309-4 (mod)	2006	Plugs, socket-outlets and couplers for industrial purposes -- Part 4: Switched socket-outlets and connectors with or without interlock	EN 60309-4	2007
IEC 60449	-	Voltage bands for electrical installations of buildings	HD 193 S2	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 +corrigendum May 1993	1991 1993
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems -- Part 1: Principles, requirements and tests	EN 60664-1	2007

IEC 60664-3	-	Insulation coordination for equipment within low-voltage systems -- Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	-
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)	EN 60695-2-11	-
IEC 60695-10-2	-	Fire hazard testing -- Part 10-2: Abnormal heat - Ball pressure test method	EN 60695-10-2	-
IEC 61851-1	2010	Electric vehicle conductive charging system -- Part 1: General requirements	EN 61851-1	2011
IEC 61851-23	2014	Electric vehicle conductive charging system -- Part 23: D.C. electric vehicle charging station	EN 61851-23	2014
ISO 1456	-	Metallic and other inorganic coatings - Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and of copper plus nickel plus chromium	EN ISO 1456	-
ISO 2081	-	Metallic and other inorganic coatings - Electroplated coatings of zinc with supplementary treatments on iron or steel	EN ISO 2081	-
ISO 2093	-	Electroplated coatings of tin; Specification and test methods	-	-



INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Fiches, socles de prise de courant, prises mobiles de véhicule et socles de connecteur de véhicule – Charge conductive des véhicules électriques –
Partie 1: Règles générales**





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IEC 62196-1

Edition 3.0 2014-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Fiches, socles de prise de courant, prises mobiles de véhicule et socles de connecteur de véhicule – Charge conductive des véhicules électriques –
Partie 1: Règles générales**

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ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references	9
3 Terms and definitions	11
4 General	19
4.1 General requirements	19
4.2 General notes on tests	19
5 Ratings.....	20
5.1 Preferred rated operating voltage ranges	20
5.2 Preferred rated currents.....	20
5.2.1 General	20
5.2.2 Rated current for signal or control purposes	20
5.2.3 Accessories not suitable for making and breaking an electrical circuit under load	21
5.2.4 Accessories suitable for, or not suitable for, making and breaking an electrical circuit under load.....	21
6 Connection between the power supply and the electric vehicle	21
6.1 General.....	21
6.2 Types of vehicle inlets	21
6.3 Types of vehicle connectors.....	21
6.4 Universal interface	22
6.5 Basic interface.....	23
6.6 D.C. configurations	24
6.7 Combined interface.....	25
6.8 Contact sequencing	26
7 Classification of accessories.....	26
7.1 According to purpose	26
7.2 According to the method of connecting the conductors.....	27
7.3 According to serviceability	27
7.4 According to electrical operation	27
7.5 According to interface	27
7.6 According to use with cable management systems.....	27
7.7 According to the locking and interlock functions:.....	27
7.7.1 According to locking facilities.....	27
7.7.2 According to interlock facilities:	27
7.8 According to the presence of shutter(s).....	27
8 Marking	27
9 Dimensions	29
10 Protection against electric shock	30
11 Size and colour of protective earthing conductors.....	35
12 Provisions for protective earthing	35
13 Terminals	37
13.1 Common requirements.....	37
13.2 Screw type terminals.....	40

13.3	Mechanical tests on terminals	43
14	Interlocks.....	45
14.1	Accessories with interlock.....	45
14.2	Accessories with integral switching device	49
14.3	Control circuit devices and switching elements	49
14.4	Pilot contacts and auxiliary circuits	49
15	Resistance to ageing of rubber and thermoplastic material	50
16	General construction	50
17	Construction of socket-outlets	53
17.1	General.....	53
17.2	Contact tubes	53
18	Construction of plugs and vehicle connectors	55
19	Construction of vehicle inlets	56
20	Degrees of protection	56
21	Insulation resistance and dielectric strength	58
22	Breaking capacity	59
23	Normal operation	62
24	Temperature rise	63
25	Flexible cables and their connection	65
25.1	Strain relief	65
25.2	Requirements for plugs and vehicle connectors	65
25.2.1	Non-rewirable plugs and vehicle connectors	65
25.2.2	Rewirable plugs and vehicle connectors	65
25.3	Plugs and vehicle connectors provided with a flexible cable.....	66
26	Mechanical strength	67
26.1	General.....	67
26.2	Degree of protection	68
26.3	Rewirable plugs and vehicle connectors.....	69
26.4	Non-rewirable accessories	70
26.5	Cable glands.....	72
26.6	Shutters	72
26.7	Insulated end caps.....	72
26.8	Change of temperature test.....	73
26.9	Pull test	73
27	Screws, current-carrying parts and connections.....	73
28	Creepage distances, clearances and distances	76
29	Resistance to heat, to fire and to tracking.....	77
30	Corrosion and resistance to rusting	79
31	Conditional short-circuit current withstand test.....	79
31.1	General.....	79
31.2	Ratings and test conditions	79
31.3	Test circuit.....	80
31.4	Calibration	83
31.5	Test procedure.....	83
31.6	Behaviour of the equipment under test.....	83
31.7	Acceptance conditions	84

32	Electromagnetic compatibility	84
32.1	Immunity	84
32.2	Emission	84
33	Vehicle driveover	84
	Bibliography.....	86
	Figure 1 – Diagram showing the use of the accessories	11
	Figure 2 – Examples of terminals	16
	Figure 3 – Standard test finger.....	31
	Figure 4 – Gauge “A” for checking shutters	33
	Figure 5 – Gauge “B” for checking shutters	34
	Figure 6 – Gauges for testing insertability of round unprepared conductors having the maximum specified cross-section.....	41
	Figure 7 – Equipment test arrangement	43
	Figure 8 – Apparatus for checking the withdrawal force	47
	Figure 9 – Verification of the latching device.....	48
	Figure 10 – Circuit diagrams for breaking capacity and normal operation tests	61
	Figure 11 – Apparatus for testing the cable anchorage	66
	Figure 12 – Ball Impact test	68
	Figure 13 – Arrangement for mechanical strength test for plugs and vehicle connectors	70
	Figure 14 – Apparatus for flexing test	71
	Figure 15 – Diagram of the test circuit for the verification of short-circuit current withstand of a two-pole equipment on a single-phase a.c. or d.c.	81
	Figure 16 – Diagram of the test circuit for the verification of short-circuit current withstand of a three-pole equipment	82
	Figure 17 – Diagram of the test circuit for the verification of short-circuit current withstand of a four-pole equipment	83
	Table 1 – Compatibility of mating accessories at vehicle.....	22
	Table 2 – Overview of the universal vehicle interface.....	23
	Table 3 – Overview of the basic vehicle interface.....	24
	Table 4 – Overview of the d.c. vehicle interface	25
	Table 5 – Overview of the combined a.c./d.c. vehicle interface	26
	Table 6 – Short-time test currents	36
	Table 7 – Size for conductors	37
	Table 8 – Values for flexing under mechanical load test.....	44
	Table 9 – Value for terminal pull test.....	45
	Table 10 – Withdrawal force with respect to ratings	49
	Table 11 – Cable length used to determine pull force on retaining means	51
	Table 12 – Gauges to measure withdrawal force.....	54
	Table 13 – Diameter of pins of the test plug.....	54
	Table 14 – Maximum withdrawal force	55
	Table 15 – Test voltage for dielectric strength test.....	59
	Table 16 – Breaking capacity.....	62

Table 17 – Normal operation.....	63
Table 18 – Test current and nominal cross-sectional areas of copper conductors for temperature rise test.....	64
Table 19 – Pull force and torque test values for cable anchorage.....	67
Table 20 – Impact energy for ball impact test.....	69
Table 21 – Mechanical load flexing test	71
Table 22 – Torque test values for glands	72
Table 23 – Pulling force on insulated end caps	73
Table 24 – Tightening torque for verification of mechanical strength of screw-type terminals.....	74

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PLUGS, SOCKET-OUTLETS, VEHICLE CONNECTORS AND VEHICLE INLETS – CONDUCTIVE CHARGING OF ELECTRIC VEHICLES –

Part 1: General requirements

FOREWORD

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

This third edition cancels and replaces the second edition published in 2011 and constitutes a technical revision.

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

- a) addition of a preferred operating voltage of 1 000 V d.c.;
- b) addition of a preferred rated current of 80 A d.c.;
- c) addition of a provision for a combined interface a.c./d.c.;
- d) description of d.c. configurations (previously under consideration);

- e) addition of requirements pertaining to the locking mechanism, the interlock and the latching device;
- f) addition of a test for accessories not suitable for making and breaking an electrical circuit under load;
- g) addition of requirements and tests for insulated end caps.

The text of this standard is based on the following documents:

FDIS	Report on voting
23H/302/FDIS	23H/305/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

Subsequent parts of IEC 62196 deal with the requirements of particular types of accessories. The clauses of these particular requirements supplement or modify the corresponding clauses in Part 1.

In this standard, the following print types are used:

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

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

IEC 61851-1 specifies electric vehicle conductive charging equipment.

The IEC 62196 series specifies the requirements for plugs, socket-outlets, vehicle connectors, vehicle inlets and cable assemblies as described in IEC 61851-1.

Some charging can be achieved by direct connection from an electric vehicle to common mains socket-outlets.

Some modes of charging require a dedicated supply and charging equipment incorporating control and communication circuits.

IEC 62196 covers the mechanical, electrical and performance requirements for dedicated plugs, socket outlets, vehicle connectors and vehicle inlets for interfacing between such dedicated charging equipment and the electric vehicle.

IEC 62196 is divided into several parts as follows:

- Part 1: General requirements, comprising clauses of a general character.
- Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories.
- Part 3¹: Dimensional compatibility and interchangeability requirements for d.c. and a.c./d.c. pin and contact-tube vehicle couplers.

¹ To be published

PLUGS, SOCKET-OUTLETS, VEHICLE CONNECTORS AND VEHICLE INLETS – CONDUCTIVE CHARGING OF ELECTRIC VEHICLES –

Part 1: General requirements

1 Scope

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

- 690 V a.c. 50 Hz to 60 Hz, at a rated current not exceeding 250 A,
- 1 500 V d.c. at a rated current not exceeding 400 A.

These accessories are intended to be installed by instructed persons (IEC 60050-195:1998, IEC 60050-195/AMD1:2001, 195-04-02) or skilled persons (IEC 60050-195:1998, IEC 60050-195/AMD1:2001, 195-04-01) only.

These accessories and cable assemblies are intended to be used for circuits specified in IEC 61851-1 which operate at different voltages and frequencies and which may include extra-low voltage and communication signals.

These accessories and cable assemblies are to be used at an ambient temperature between –30 °C and +50 °C.

NOTE 1 In some countries, other requirements may apply.

NOTE 2 the following countries, –35 °C applies: SE.

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

The accessories covered by this part of IEC 62196 are for use in certain modes of charging electric vehicles. These modes are defined in IEC 61851-1. These definitions and a description of the types of connection (cases A, B and C), are described in IEC 61851-1:2010, 6.2 and 6.3.1.

NOTE 3 In the following countries, mode 1 will not be allowed: UK, US, CA, SG.

This part of IEC 62196 does not apply to those standardised accessories used in charging systems where the use of such accessories constructed to the requirements of other standards is permitted (e.g. in mode 1 and mode 2). Such standardized accessories may be used for those situations (mode and case) identified in IEC 61851-1.

This part of IEC 62196 may be used as a guide for accessories with a lesser number of contacts and lower ratings for use with light duty vehicles.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 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 60228:2004, *Conductors of insulated cables*

IEC 60245-4, *Rubber insulated cables of 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 authorised persons (fuses mainly for industrial application) – Examples of standardized systems of fuses A to K*

IEC 60309-4:2006, *Plugs, socket-outlets and couplers for industrial purposes – Part 4: Switched socket-outlets and connectors with or without interlock*

IEC 60449, *Voltage bands for electrical installations of buildings*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP code)*

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage 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*

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

IEC 61851-1:2010, *Electric vehicle conductive charging system – Part 1: General requirements*

IEC 61851-23:2014, *Electric vehicle conductive charging system – Part 23: d.c. electric vehicle charging station*

ISO 1456, *Metallic and other inorganic coatings – Electrodeposited coatings of nickel, nickel plus chromium, copper plus nickel and of copper plus nickel plus chromium*

ISO 2081, *Metallic and other inorganic coatings – Electroplated coatings of zinc with supplementary treatments on iron or steel*

ISO 2093, *Electroplated coatings of tin – Specification and test methods*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN