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**Vtiči, vtičnice, konektorji in uvodnice na vozilih - Kabelsko napajanje električnih vozil - 2. del: Zahteve za dimenzijsko skladnost in zamenljivost pribora s trni in cevastimi kontakti za izmenični tok (a.c.) (IEC 62196-2:2011)**

Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories (IEC 62196-2:2011)

Stecker, Steckdosen, Fahrzeugkupplungen und Fahrzeugstecker - Konduktives Laden von Elektrofahrzeugen - Teil 2: Anforderungen und Hauptmaße für die Kompatibilität und Austauschbarkeit von Stift- und Buchsensteckvorrichtungen für Wechselstrom (IEC 62196-2:2011)

[SIST EN 62196-2:2012](https://standards.iteh.ai/catalog/standards/sist/2683caa3-7174-4d04-82e6-d71b34f24f86/sist-en-62196-2-2012)

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Prises de courant et connecteurs de véhicule - Charge conductive de véhicules électriques - Partie 2: Règles de compatibilité et d'interchangeabilité dimensionnelle pour les appareils à broches et alvéoles pour courant alternatif (CEI 62196-2:2011)

**Ta slovenski standard je istoveten z: EN 62196-2:2012**

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**ICS:**

29.120.30	Vtiči, vtičnice, spojke	Plugs, socket-outlets, couplers
43.120	Električna cestna vozila	Electric road vehicles

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## Foreword

The text of document 23H/267/FDIS, future edition 1 of IEC 62196-2, prepared by SC 23H, "Industrial plugs and socket-outlets", of IEC TC 23, "Electrical accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62196-2:2012.

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) 2012-11-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-02-01

EN 62196-2 is to be read in conjunction with EN 62196-1. The clauses of the particular requirements in Part 2 supplement or modify the corresponding clauses in Part 1. Where the text indicates an "addition" to or a "replacement" of the relevant requirement, test specification or explanation of Part 1, these changes are made to the relevant text of Part 1, which then becomes part of the standard. Where no change is necessary, the words "This clause of Part 1 is applicable" are used.

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

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

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### Endorsement notice

The text of the International Standard IEC 62196-2:2011 was approved by CENELEC as a European Standard without any modification.

## 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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

**Addition to Annex ZA of EN 62196-1:2012:**

<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	-

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## Annex ZB (normative)

### Special national conditions

**Special national condition:** National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions.

NOTE If it affects harmonization, it forms part of the European Standard / Harmonization Document.

For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.

<u>Clause</u>	<u>Special national condition</u>
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<b>1</b>	<b>Finland</b>
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In Finland, accessories and cable assemblies according to this standard are to be used in an ambient temperature between  $-35\text{ °C}$  and  $+50\text{ °C}$ .

<b>6.1</b>	<b>United Kingdom</b>
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Mode 1 is considered unsafe and will not be used in the United Kingdom.

<b>10.101</b>	<b>France</b>
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Add a 2<sup>nd</sup> paragraph: When plugs & socket-outlets are used and socket-outlets are accessible to uninstructed persons, they shall be provided with shutters (as presently defined in Type 3).

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

**Part 2: Dimensional compatibility and interchangeability requirements  
for a.c. pin and contact-tube accessories**

## 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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- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62196-2 has been prepared by IEC subcommittee 23H: Industrial plugs and socket-outlets, of IEC technical committee 23: Electrical accessories.

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

FDIS	Report on voting
23H/267/FDIS	23H/270/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.

This part of IEC 62196 is to be read in conjunction with IEC 62196-1. The clauses of the particular requirements in Part 2 supplement or modify the corresponding clauses in Part 1. Where the text indicates an "addition" to or a "replacement" of the relevant requirement, test specification or explanation of Part 1, these changes are made to the relevant text of Part 1, which then becomes part of the standard. Where no change is necessary, the words "This clause of Part 1 is applicable" are used.

In this standard, the following print types are used:

- *compliance statements: in italic 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.

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## INTRODUCTION

Responding to global challenges of CO<sub>2</sub> reduction and energy security, the automobile industries have been accelerating the development and commercialization of electric vehicles and hybrid electric vehicles. In addition to the prevailing hybrid electric vehicles, battery electric vehicles including plug-in hybrid electric vehicles are going to be mass-marketed. To support the diffusion of such vehicles, this standard provides the standard interface configurations of a.c. vehicle couplers and accessories to be used in conductive charging of electric vehicles, taking the most frequent charging situations into consideration.

IEC 62196 is divided into several parts:

Part 1: General requirements

Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories

Part 3: Dimensional compatibility and interchangeability requirements for pin and contact-tube accessories for dedicated d.c. charging or for combined a.c./d.c.charging (under consideration)

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

## Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories

### 1 Scope

This standard applies to plugs, socket-outlets, vehicle connectors and vehicle inlets with pins and contact-tubes of standardized configurations, herein referred to as accessories. They have a nominal rated operating voltage not exceeding 500 V a.c., 50 to 60 Hz, and a rated current not exceeding 63 A three-phase or 70 A single phase, for use in conductive charging of electric vehicles.

This standard covers the basic interface accessories for vehicle supply as specified in IEC 62196-1, and intended for use in conductive charging systems for circuits specified in IEC 61851-1:2010.

Electric vehicles covers all road vehicles including plug-in hybrid road vehicles (PHEV), that derive all or part of their energy from on-board batteries.

NOTE 1 These accessories may provide a contact that can be used for the proximity contact function.

These accessories are intended to be used for circuits specified in IEC 61851-1:2010 which operate at different voltages and frequencies and which may include ELV and communication signals.

These accessories may be used for bidirectional energy transmission (under consideration).

This standard applies to the accessories to be used in an ambient temperature of between – 30 °C and + 50 °C.

NOTE 2 In the following country, other requirements may apply: FI.

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

Vehicle inlet and vehicle connector to this standard are intended to be used for charging in modes 1, 2 and 3, cases B and C. The socket-outlets and plugs covered by this standard are intended to be used for charging mode 3 only, case A and B.

The modes and permissible connections are specified in Part 1.

### 2 Normative references

This clause of Part 1 is applicable except as follows:

*Addition:*

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

### 3 Terms and definitions

This clause of Part 1 is applicable.

### 4 General

This clause of Part 1 is applicable, except as follows:

*Addition at the end of the subclause:*

Accessories according to this standard are intended for modes 1, 2 and 3, cases A to C. The socket-outlets and plugs covered by this standard shall be used only in mode 3.

### 5 Ratings

This clause of Part 1 is applicable except as follows:

#### 5.1 Replacement:

Rated operating voltage range:

0 to 30 V (signal or control purposes only);

200 to 250 V a.c.

380 to 480 V a.c.

#### 5.2 Replacement:

2 A (signal or control purposes only);

13 A single phase

16 A single and three-phase

20 A single and three-phase

30-32 A single and three-phase

60-63 A single and three-phase

70 A single phase, only

NOTE In the following countries, the branch circuit overcurrent protection device is based upon 125 % of the accessory rating: US.

### 6 Connection between the power supply and the electric vehicle

This clause of Part 1 is applicable except as follows:

#### 6.1 Replacement:

This section provides a description of the physical conductive electrical interface requirements between the vehicle and the power supply, which allows the following design at the vehicle interface:

a basic interface that provides for current ratings up to 63 A a.c. three-phase and up to 70 A a.c. single phase.

Different configuration types for the basic interface may allow different application of mode and current ratings. See introduction to relevant standard sheets for more details.

NOTE In the following country, Mode 1 will not be allowed: UK.

## 6.2 Replacement:

There shall be the following type of vehicle inlets:

basic

## 6.3 Replacement:

There shall be the following type of vehicle connectors:

basic

## 6.4 Not applicable

## 6.5 Replacement:

The basic interface may contain up to 7 power or signal contacts, with unique physical configurations of contact positions for single or three phases. The electrical ratings and their function are described in Table 101. The electrical ratings and their function are described in the Standard Sheets.

Each vehicle inlet shall only mate with the corresponding type of vehicle connector. Each plug shall only mate with the corresponding type of socket-outlet.

The accessories, configuration Types 1, 2 or 3 are rated as follows:

- configuration Type 1 vehicle coupler is rated 250 V 32 A single phase;
- configuration Type 2 vehicle coupler, socket-outlet and plug are rated:
  - 250 V, 13 A or 20 A or 32 A or 63 A or 70 A single phase,
  - 380-480 V, 13 A or 20 A or 32 A or 63 A, three-phase.
- configuration Type 3 vehicle coupler is rated:
  - 250 V, 16 A or 32 A, single phase,
  - 380-480 V, 32 A, or 63 A three-phase.
- Configuration Type 3 socket-outlet and plug are rated:
  - 250 V, 16 A or 32 A single phase,
  - 380-480 V, 32 A, or 63 A three-phase.