SLOVENSKI STANDARD
SIST EN 62196-2:2017

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SIST EN 62196-2:2012
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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 62196-2:2016)

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 62196-2:2016)

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 62196-2:2016)

Fiches, socles de prise de courant, prises mobiles de véhicule et socles de connecteurs de véhicule - Charge conductive des véhicules électriques - Partie 2: Exigences dimensionnelles de compatibilité et d'interchangeabilité pour les appareils à broches et alvéoles pour courant alternatif (IEC 62196-2:2016)

Ta slovenski standard je istoveten z: **EN 62196-2:2017**

ICS:

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43.120	Električna cestna vozila	Electric road vehicles

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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Supersedes EN 62196-2:2012

English Version

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 62196-2:2016)

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(IEC 62196-2:2016)

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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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

European foreword

The text of document 23H/324/CDV, future edition 2 of IEC 62196-2, 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 62196-2:2017.

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) 2017-10-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-04-28

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.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

Endorsement notice

The text of the International Standard IEC 62196-2:2016 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 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.

Annex ZA of Part 1 applies.

Addition

Publication	Year	Title	EN/HD	Year
IEC 62196-1 (mod)	2014	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements	EN 62196-1	2014

IEC 62196-2

Edition 2.0 2016-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

Fiches, socles de prise de courant, prises mobiles de véhicule et socles de connecteurs de véhicule – Charge conductive des véhicules électriques – Partie 2: Exigences dimensionnelles de compatibilité et d'interchangeabilité pour les appareils à broches et alvéoles pour courant alternatif

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

FOREWORD

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International Standard IEC 62196-2 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.

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

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

a) Standard sheets for configurations type 2 and type 3 have been updated.

b) Configuration type 2 is now available with optional shutter.

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

CDV	Report on voting
23H/324/CDV	23H/342/RVC

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 62196-1:2014. The clauses of the particular requirements in Part 2 supplement or modify the corresponding clauses in Part 1. Where the text indicates "addition" to or "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 this standard. Where no change is necessary, the words "Clause X of IEC 62196-1:2014 is applicable" are used.

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 website 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

Responding to global challenges of CO_2 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 d.c. and a.c./d.c. pin and contact-tube vehicle couplers

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 part of IEC 62196 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 480 V a.c., 50 Hz 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 part of IEC 62196 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.

NOTE 1 Electric road vehicles (EV) implies all road vehicles, including plug-in hybrid road vehicles (PHEV), that derive all or part of their energy from RESS.

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 extra-low voltage (ELV) and communication signals.

These accessories may be used for bidirectional power transfer (under consideration).

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

NOTE 2 In the following country, other requirements regarding the lower temperature may apply: NO.

NOTE 3 In the following country, –35 °C applies: SE.

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 IEC 62196-1:2014.

2 Normative references

Clause 2 of IEC 62196-1:2014 applies except as follows:

Addition:

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

3 Terms and definitions

Clause 3 of IEC 62196-1:2014 applies.

4 General

Clause 4 of IEC 62196-1:2014 applies.

5 Ratings

Clause 5 of IEC 62196-1:2014 applies except as follows:

5.1 *Replacement:*

Rated operating voltages:

30 V (signal or control purposes only);

250 V a.c.

480 V a.c.

5.2 *Replacement:*

The rated currents are:

2 A (signal or control purposes only)

13 A single phase

16 A single and three-phase

20 A single and three-phase

30 A or 32 A single and three-phase

60 A or 63 A single and three-phase

70 A single phase only

NOTE 1 In the following countries, the branch circuit overcurrent protection device is based upon 125 % of the accessory rating: US.

NOTE 2 Reference to "30 A or 32 A" and "60 A or 63 A" rating is made in accordance with National requirements.

6 Connection between the power supply and the electric vehicle

Clause 6 of IEC 62196-1:2014 applies except as follows:

6.1 *Replacement:*

This Clause 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.

6.2 *Replacement:*

There is one type of vehicle inlet:

– basic

6.3 *Replacement:*

There is one type of vehicle connector:

– 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 Tables 201 and 202. 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,
  - 480 V, 13 A or 20 A or 32 A or 63 A, three-phase.
– configuration type 3 vehicle coupler, socket-outlet and plug are rated:
  - 250 V, 16 A or 32 A, single phase,
  - 480 V, 32 A or 63 A three-phase.

Table 201 – Overview of the basic vehicle interface, configuration type 1, single phase

Position number [a]	a.c.	Functions [c]
1	250 V 32 A[b]	L1 (mains 1)
2	250 V 32 A	L2 (mains 2) / N (neutral)
3	Rated for fault	PE (ground/earth)
4	30 V 2 A	CP (Control pilot)
5	30 V 2 A	CS (Connection switch)

[a] Position number does not refer to the location and/or identification of the contact in the accessory.

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

[c] For contacts 4 and 5, environmental conditions may demand larger conductor cross-sections.