

### SLOVENSKI STANDARD SIST EN IEC 62196-2:2023

01-maj-2023

Nadomešča: SIST EN 62196-2:2017

#### Vtiči, vtičnice, konektorji in uvodnice na vozilih - Kabelsko napajanje električnih vozil - 2. del: Zahteve za dimenzijsko skladnost za pribor s trni in cevastimi kontakti za izmenični tok (a.c.) (IEC 62196-2:2022)

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 62196-2:2022)

Stecker, Steckdosen, Fahrzeugkupplungen und Fahrzeugstecker - Konduktives Laden von Elektrofahrzeugen - Teil 2: Maßliche Kompatibilitätsanforderungen an Wechselspannungssteckvorrichtungen mit Stiften und Buchsen (IEC 62196-2:2022)

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 pour les appareils à broches et alvéoles pour courant alternatif (IEC 62196-2:2022)

Ta slovenski standard je istoveten z: EN IEC 62196-2:2022

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43.120 Električna cestna vozila

couplers Electric road vehicles

Plugs, socket-outlets,

SIST EN IEC 62196-2:2023

en,fr,de

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### EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

### EN IEC 62196-2

November 2022

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Supersedes EN 62196-2:2017

**English Version** 

#### 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 62196-2:2022)

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 pour les appareils à broches et alvéoles pour courant alternatif (IEC 62196-2:2022) Stecker, Steckdosen, Fahrzeugkupplungen und Fahrzeugstecker - Konduktives Laden von Elektrofahrzeugen - Teil 2: Maßliche Kompatibilitätsanforderungen an Wechselspannungssteckvorrichtungen mit Stiften und Buchsen (IEC 62196-2:2022)

This European Standard was approved by CENELEC on 2022-11-23. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member. PNCTRC 62196(2):2003

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

#### European foreword

The text of document 23H/502/FDIS, future edition 3 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 IEC 62196-2:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2023-08-23 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2025-11-23 document have to be withdrawn

This document supersedes EN 62196-2:2017 and all of its amendments and corrigenda (if any).

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This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

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### (standards.iteh.ai)

#### Endorsement notice

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The text of the International Standard IEC 62196-2:2022 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 61851 (series) NOTE Harmonized as EN IEC 61851 (series)

IEC 62196-3:2022 NOTE Harmonized as EN IEC 62196-3:2022 (not modified)

# Annex ZA (normative)

# Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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: <u>www.cenelec.eu</u>.

Annex ZA of EN IEC 62196-1:2022 applies, except as follows. Add the following reference:

Publication	Year	<u>Title</u>	<u>EN/HD</u>	Year
IEC 62196-1	2022	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General	-	-
		requirements		

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Edition 3.0 2022-10

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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

#### <u>SIST EN IEC 62196-2:2023</u>

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 pour les appareils à broches et alvéoles pour courant alternatif

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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#### INTERNATIONAL ELECTROTECHNICAL COMMISSION

#### 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

#### 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 for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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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. It is an International Standard.

This third edition cancels and replaces the second edition published in 2016. This edition constitutes a technical revision.

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

- a) interchangeability requirements have been removed from the title of Part 2;
- b) alignment with IEC 62196-1:2022 and IEC 62196-3:2022;
- c) alignment with IEC 61851-1:2017.

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

Draft	Report on voting
23H/502/FDIS	23H/506/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.

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

This document is to be read in conjunction with IEC 62196-1:2022. The clauses of the particular requirements in this document supplement or modify the corresponding clauses in IEC 62196-1:2022. Where the text indicates "addition" to or "replacement" of the relevant requirement, test specification or explanation of IEC 62196-1:2022, these changes are made to the relevant text of IEC 62196-1:2022, which then becomes part of this document. Where no change is necessary, the words "Clause X of IEC 62196-1:2022 is applicable" are used.

Subclauses, figures, tables, or notes which are additional to those in IEC 62196-1:2022 are numbered starting from 201.

In this document, 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 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,
- replaced by a revised edition, or
- amended.

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#### INTRODUCTION

IEC 61851 (all parts) specifies requirements for electric vehicle (EV) conductive supply equipment.

IEC 62196 (all parts) specifies the requirements for plugs, socket-outlets, vehicle connectors, vehicle inlets and cable assemblies as described in IEC 61851 (all parts).

Some charging using on-board vehicle chargers can be achieved by direct connection from an electric vehicle to an AC supply network using common socket-outlets or by the use of equipment incorporating control and communication circuits.

To support the connection of AC power for such vehicles, this document provides the standard interface configurations of AC vehicle couplers and accessories to be used in conductive charging of electric vehicles, taking the most frequent charging situations into consideration.

IEC 62196 consists of the following parts:

- Part 1: General requirements, comprising clauses of a general character.
- Part 2: Dimensional compatibility requirements for AC pin and contact-tube accessories.
- Part 3: Dimensional compatibility requirements for DC and AC/DC pin and contact-tube vehicle couplers.
- Part 3-1: Vehicle connector, vehicle inlet and cable assembly intended to be used with a thermal management system for DC charging.
- Part 4: Dimensional compatibility requirements for DC pin and contact-tube accessories for Class II or Class III applications.
- Part 6: Dimensional compatibility requirements for DC pin and contact-tube couplers for applications using a system of protective electrical separation.

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#### 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

#### 1 Scope

This part of IEC 62196 applies to EV plugs, EV socket-outlets, vehicle connectors and vehicle inlets with pins and contact-tubes of standardized configurations, herein referred to as accessories. These accessories have a nominal rated operating voltage not exceeding 480 V AC, 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 document covers the basic interface accessories for vehicle supply as specified in IEC 62196-1:2022.

NOTE 1 The term "Electric road vehicles (EV)" comprises all road vehicles, including plug-in hybrid road vehicles (PHEV) that derive all or part of their energy from the rechargeable energy storage systems (RESS).

These accessories are intended to be used for circuits specified in IEC 61851-1:2017, which operate at different voltages and frequencies, and which can include extra-low voltage (ELV) and communication signals.

The use of these accessories for bidirectional power transfer is under consideration.

This document applies to accessories to be used in an ambient temperature between -30 °C and +40 °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 inlets and vehicle connectors described in this document are intended to be used for charging in modes 1, 2 and 3, cases B and C. The EV socket-outlets and EV plugs covered by this document are intended to be used for charging mode 3 only, case A and B.

The modes and permissible connections are specified in IEC 61851-1:2017.

#### 2 Normative references

Clause 2 of IEC 62196-1:2022 applies, except as follows:

Addition:

IEC 62196-1:2022, 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 62196-1:2022 applies.

#### 4 General

Clause 4 of IEC 62196-1:2022 applies.

#### 5 Ratings

Clause 5 of IEC 62196-1:2022 applies, except as follows:

#### 5.1 Preferred rated operating voltage ranges

Replacement:

Replace the existing text and title of IEC 62196-1:2022, 5.1 with the following:

#### 5.1 Rated operating voltage ranges

Rated operating voltages are as follows:

- 30 V (signal or control purposes only)
- 250 V AC
- 480 V AC

## 5.2 Preferred rated currents SIST EN IEC 62196-2:2023

Replacement: ps://standards.iteh.ai/catalog/standards/sist/fa033df6-f922-470e-a89a-

1e27b3172bbb/sist-en-iec-62196-2-202

Replace the existing title of IEC 62196-1:2022, 5.2 and the existing text of Subclause 5.2.1 with the following:

#### 5.2 Rated currents

#### 5.2.1 General

The rated currents are as follows:

- 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 country, 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 62196-1:2022 applies, except as follows:

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#### 6.1 Interfaces

Replacement:

Replace the existing text of IEC 62196-1:2022, 6.1 with the following:

This Clause 6 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 AC three-phase and up to 70 A AC 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 Basic interface

Replacement:

Replace the existing text of IEC 62196-1:2022, 6.2 with the following:

There is one type of vehicle inlet:

- basic iTeh STANDARD PREVIEW

The basic interface may contain up to seven 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 201 and Table 202. The electrical ratings and their function are described in the standard sheets.

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Each vehicle inlet shall only mate with the corresponding type of vehicle connector. Each EV plug shall only mate with the corresponding type of EV 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, EV socket-outlet and EV 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, EV socket-outlet and EV plug are rated:
  - 250 V, 16 A or 32 A, single phase,
  - 480 V, 32 A or 63 A three phase.