



BSI Standards Publication

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

National foreword

This British Standard is the UK implementation of EN IEC 62196-3:2022. It is identical to IEC 62196-3:2022. It supersedes BS EN 62196-3:2014, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PEL/23/4, Protected type plugs and sockets.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

**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
(IEC 62196-3:2022)**

Fiches, socles de prise de courant, prises mobiles de véhicule et socles de connecteurs de véhicule - Charge conductive des véhicules électriques - Partie 3: Exigences dimensionnelles de compatibilité pour les prises de courant de véhicule à broches et alvéoles pour courant continu et pour courants alternatif et continu
(IEC 62196-3:2022)

Stecker, Steckdosen und Fahrzeugsteckvorrichtungen - Konduktives Laden von Elektrofahrzeugen - Teil 3: Maßliche Kompatibilitätsanforderungen an Fahrzeugsteckvorrichtungen mit Stiften und Buchsen für Gleichstrom und kombiniert für Gleich- und Wechselstrom
(IEC 62196-3:2022)

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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/500/FDIS, future edition 2 of IEC 62196-3, 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 62196-3:2022.

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) 2023-08-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-11-23

This document supersedes EN 62196-3:2014 and all of its amendments and corrigenda (if any).

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Endorsement notice

The text of the International Standard IEC 62196-3:2022 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) |
| ISO 2768-1 | NOTE | Harmonized as EN 22768-1 |
| ISO 17409:2020 | NOTE | Harmonized as EN ISO 17409:2020 (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: www.cenelec.eu.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60364-5-54	2011	Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements and protective conductors	HD 60364-5-54	2011
-	-		+ A11	2017
IEC 62196-1	2022	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements	-	-
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	-	-



INTERNATIONAL STANDARD

NORME INTERNATIONALE

**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**

**Fiches, socles de prise de courant, prises mobiles de véhicule et socles de connecteurs de véhicule – Charge conductive des véhicules électriques –
Partie 3: Exigences dimensionnelles de compatibilité pour les prises de courant de véhicule à broches et alvéoles pour courant continu et pour courants alternatif et continu**

INTERNATIONAL
ELECTROTECHNICAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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**

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 62196-3 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. It is an International Standard.

This second edition cancels and replaces the first edition published in 2014. 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 3;
- b) increased ratings for all configurations;
- c) reference to new tests in IEC 62196-1 (Clauses 34, 35, 36 and 37).

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

Draft	Report on voting
23H/500/FDIS	23H/504/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, socket-outlets, 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 an "addition" to or a "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 301.

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.

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).

Charging using off-board DC charging equipment can be achieved by the direct connection of an electric vehicle to DC EV supply equipment incorporating control and communication circuits.

To support the connection of DC power for such vehicles, this document provides the standard interface configurations of DC 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 as follows:

- 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.

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

1 Scope

This part of IEC 62196 is applicable to vehicle couplers with pins and contact tubes of standardized configuration, herein also referred to as "accessories", intended for use in electric vehicle conductive charging systems which incorporate control means, with rated operating voltage and current in accordance with IEC 62196-1:2022.

This document applies to high power DC interfaces and combined AC/DC interfaces of vehicle couplers that are intended for use in conductive charging systems for circuits specified in IEC 61851-1:2017 and IEC 61851-23:—¹.

The DC vehicle connectors and inlets covered by this document are used only in charging mode 4, according to IEC 61851-1:2017, 6.2.4, and case C, as shown in IEC 61851-1:2017, Figure 3.

These vehicle couplers are intended to be used for circuits specified in IEC 61851-23:— which operate at different voltages, and which can include ELV and communication signals.

This document applies to the vehicle couplers to be used in an ambient temperature between –30 °C and +40 °C.

NOTE 1 In some countries, other requirements may apply.

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

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

2 Normative references

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

Additional normative references:

IEC 60364-5-54:2011, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors*

IEC 62196-1:2022, *Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 1: General requirements*

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*

¹ Second edition under preparation. Stage at the time of publication: IEC PRVC 61851-23:2022.