

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**

**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**



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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	8
4 General	8
5 Ratings.....	8
6 Connection between the power supply and the electric vehicle.....	8
7 Classification of accessories.....	11
8 Marking	11
9 Dimensions.....	11
10 Protection against electric shock	12
11 Size and colour of protective earthing and neutral conductors	12
12 Provisions for earthing.....	12
13 Terminals	13
14 Interlocks.....	13
15 Resistance to ageing of rubber and thermoplastic material.....	13
16 General construction	13
17 Construction of EV socket-outlets – General.....	13
18 Construction of EV plugs and vehicle connectors.....	13
19 Construction of vehicle inlets.....	13
20 Degrees of protection	13
21 Insulation resistance and dielectric strength	13
22 Breaking capacity	13
23 Normal operation	14
24 Temperature rise	14
25 Flexible cables and their connection.....	14
26 Mechanical strength.....	14
27 Screws, current carrying parts and connections.....	14
28 Creepage distances, clearances and distances through sealing compound.....	14
29 Resistance to heat and to fire	14
30 Corrosion and resistance to rusting	14
31 Conditional short-circuit current.....	14
32 Electromagnetic compatibility (EMC)	14
33 Vehicle drive over.....	15
34 Thermal cycling	15
35 Humidity exposure.....	15
36 Misalignment	15
37 Contact endurance test.....	15
201 Resistor coding.....	15
STANDARD SHEETS.....	16
CONFIGURATION TYPE 1	16

CONFIGURATION TYPE 2	27
CONFIGURATION TYPE 3	42
Annex A (informative) Legacy drawings from IEC 62196-2:2016	61
Bibliography.....	66
Table 201 – Overview of the basic vehicle interface, configuration type 1, single phase.....	10
Table 202 – Overview of the basic vehicle interface, configuration types 2 and 3, three phase or single phase	10
Table 203 – Configuration types and standard sheets	12
Table 204 – Interoperation of configuration type 2 accessories	27

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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

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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.

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, 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 "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.

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.

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 $-30\text{ }^{\circ}\text{C}$ and $+40\text{ }^{\circ}\text{C}$.

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

NOTE 3 In the following country, $-35\text{ }^{\circ}\text{C}$ 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*