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TECHNICAL SPECIFICATION

Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 4: Dimensional compatibility and interchangeability requirements for DC pin and contact-tube accessories for Class II or Class III applications

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Part 4: Dimensional compatibility and interchangeability requirements for DC pin and contact-tube accessories for Class II or Class III applications

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IEC TS 62196-4 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 a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
23H/382/DTS	23H/385B/RVDTS 23H/385A/RVDTS 23H/385/RVDTS

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 Technical Specification 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/publications.

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 4 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.

Subclauses, figures, tables or notes which are additional to those in IEC 62196-1 are numbered starting from 401.

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 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 conductive transfer of electric power can be achieved by direct connection from an electric vehicle to common mains socket-outlets.

IEC 62196-4 covers the mechanical, electrical and performance requirements for dedicated accessories for conductive transfer of electric power between the supply network and a light electric road vehicle according to IEC TS 61851-3 (all parts).

IEC 62196 is divided into several parts:

- Part 1: General requirements, comprising clauses of a general character;
- Part 2: Dimensional compatibility and interchangeability requirements for AC pin and contact-tube accessories;
- Part 3: Dimensional compatibility and interchangeability requirements for DC and AC/DC pin and contact-tube vehicle couplers;
- Part 4: Dimensional compatibility and interchangeability requirements for dedicated DC pin and contact-tube accessories for Class II or Class III applications.

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of a patent no. EP1537632 B1 concerning Standard sheets 4-I.

IEC takes no position concerning the evidence, validity and scope of this patent right.

The holder of this patent right has assured the IEC that he/she is willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statement of the holder of this patent right is registered with IEC. Information may be obtained from:

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

Part 4: Dimensional compatibility and interchangeability requirements for DC pin and contact-tube accessories for Class II or Class III applications

1 Scope

This part of IEC 62196 is applicable to plugs, socket-outlets, vehicle connectors and vehicle inlets, herein referred to as “accessories”, of standardized configuration for DC power supply of electric road vehicles, where the protection against electric shocks relies on double or reinforced insulation between all AC and DC inputs and outputs of the EV supply equipment, intended for use in conductive power supply systems which can incorporate control means, with a maximum operating voltage up to 120 V DC, not exceeding 60 A.

These accessories are intended to be used for circuits specified in IEC 61851-3 (all parts).

The accessories covered by this part of IEC 62196 are intended to be used only with electric vehicles that provide a vehicle power supply circuit with double or reinforced insulation or battery systems covered by IEC 61851-3 (all parts).

These accessories and cable assemblies are intended to be used in an ambient temperature of between −30 °C and +50 °C.

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

2 Normative references

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

Addition:

NOTE All EMC related standard references are given in IEC 61851-21-1 and IEC 61851-21-2.

IEC TS 61851-3-1:–[1], *Electric vehicle conductive charging system – Part 3-1: DC EV supply equipment where protection relies on double or reinforced insulation – General rules and requirements for stationary equipment*

IEC TS 61851-3-2:–[2], *Electric vehicle conductive charging system – Part 3-2: DC EV supply equipment where protection relies on double or reinforced insulation – Particular requirements for portable and mobile equipment*

IEC TS 61851-3-4:–[3], *Electric vehicle conductive charging system – Part 3-4: DC EV supply equipment where protection relies on double or reinforced insulation – General definitions and requirements for CANopen communication*

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1 Under preparation. Stage at the time of publication: IEC DTS 61851-3-1:2022.

2 Under preparation. Stage at the time of publication: IEC DTS 61851-3-2:2022.

3 Under preparation. Stage at the time of publication: IEC TS 61851-3-4:2022.

IEC 61851-21-1, *Electric vehicle conductive charging system – Part 21-1 Electric vehicle on-board charger EMC requirements for conductive connection to AC/DC supply*

ISO 17409, *Electrically propelled road vehicles – Connection to an external electric power supply – Safety requirements*