PD CLC IEC/TS 61851-3-2:2023



BSI Standards Publication

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

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National foreword

This Published Document is the UK implementation of CLC IEC/TS 61851-3-2:2023. It is identical to IEC TS 61851-3-2:2023.

The UK participation in its preparation was entrusted to Technical Committee PEL/69, Electric vehicles.

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

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Konduktive Ladesysteme für Elektrofahrzeuge - Teil 3-2: Gleichstrom-Versorgungseinrichtungen für Elektrofahrzeuge mit Schutzwirkung durch doppelte oder verstärkte Isolierung - Besondere Anforderungen für tragbare und ortsveränderliche Betriebsmittel (IEC/TS 61851-3-2:2023)

This Technical Specification was approved by CENELEC on 2023-12-04.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (CLC IEC/TS 61851-3-2:2023) consists of the text of IEC/TS 61851-3-2:2023, prepared by IEC/TC 69 "Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks".

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This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Technical Specification IEC/TS 61851-3-2:2023 was approved by CENELEC as a European Technical Specification without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60309 series	NOTE	Approved as EN IEC 60309 series
IEC 60364-7-722:2018	NOTE	Approved as HD 60364-7-722:2018
IEC 60990:2016	NOTE	Approved as EN 60990:2016 (not modified)
ISO 18246:2023	NOTE	Approved as EN ISO 18246:2023 (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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60038	-	IEC standard voltages	EN 60038	-
IEC 60335-1	2020	Household and similar electrical appliances - Safety - Part 1: General requirements	-	-
IEC 60335-2-29 (mod)	2016	Household and similar electrical appliances - Safety - Part 2-29: Particular requirements for battery chargers	EN 60335-2-29	2021
+ A1	2019		+ A1	2021
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC/TS 61851-3-1	2023	Electric vehicles 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 62196-4	2022	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	-	-
CiA 454-12[1]	-	CANopen application profile for energy management systems - Part 12: Gateway unit	-	-

[1] Under preparation.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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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

FOREWORD

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IEC TS 61851-3-2 has been prepared by IEC technical committee 69: Electrical power/energy transfer systems for electrically road vehicles and industrial trucks. It is a Technical Specification.

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

Draft	Report on voting
69/846/DTS	69/883/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.

This part is to be used in conjunction with IEC 60335-2-29:2016 and IEC 60335-1:2020.

The clauses of the particular requirements in this document supplement or modify the corresponding clauses of IEC 60335-2-29:2016 and IEC 60335-1:2020. Where the text indicates an "addition" to or a "replacement" of the relevant requirement, test specification or explanation of IEC 60335-2-29:2016 and IEC 60335-1:2020, these changes are made to the relevant text of IEC 60335-2-29:2016 and IEC 60335-1:2020, which then becomes part of this document. Where no change is necessary, the words "The xxx of portable and mobile DRI EV supply equipment shall be in accordance with the relevant requirements (for class II appliances or heating appliances) of IEC 60335-2-29:2016" are used, where "xxx" represents the relevant title of the clause referred to. See also Annex DD. Additional annexes are lettered AA, BB, CC and DD.

In this document, the following print types are used:

– requirements: in roman type;
– *test specifications: in italic type*;
– notes: in small roman type.

A list of all parts in the IEC 61851 all parts, published under the general title *Electric vehicles conductive charging system,* can be found on the IEC website.

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

This document is published in separate parts according to the following structure:

IEC TS 61851-3-1, *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, *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, *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*

IEC TS 61851-3-5, *Electric vehicle conductive charging system – Part 3-5: DC EV supply equipment where protection relies on double or reinforced insulation – Pre-defined communication parameters and general application objects*

IEC TS 61851-3-6, *Electric vehicle conductive charging system – Part 3-6: DC EV supply equipment where protection relies on double or reinforced insulation – Voltage converter unit communication*

IEC TS 61851-3-7, *Electric vehicle conductive charging system – Part 3-7: DC EV supply equipment where protection relies on double or reinforced insulation – Battery system communication*

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

1 Scope

This part of IEC 61851, which is a Technical Specification, applies to the portable and mobile DRI EV supply equipment where the protection against electric shocks relies on double or reinforced insulation, and with double or reinforced insulation between all AC and DC inputs and outputs with a rated input voltage being not more than 250 V AC and output voltages not more than 120 V DC.

NOTE 1 In the following countries, the acceptable nominal supply voltage is up to 600 V AC: CA, US.

NOTE 2 These specified rated input and output voltages supersede all references.

This document applies to

- VCUs intended to be a part of portable and mobile DRI EV supply equipment,
- portable and mobile DRI EV supply equipment according to the IEC 61851-3 series intended to be installed and/or used at an altitude of up to 2 000 m, and
- portable and mobile DRI EV supply equipment for the conductive transfer of electric power between the supply network and an electric road vehicle/RESS according to the IEC 61851-3 series intended to be connected to vehicles where the vehicle power supply circuit is protected against electric shock by double or reinforced insulation.

NOTE 3 For information regarding protection against electric shock by double or reinforced insulation of the EV or of the vehicle power supply circuit, see ISO 18246:2023, 6.1.1 b) and Table 3.

The aspects covered in this document include

- the characteristics and operating conditions of the portable and mobile DRI EV supply equipment,
- the specification for required level of electrical safety for the portable and mobile DRI EV supply equipment,
- requirements for bidirectional power transfer from DC to DC, and
- requirements for command and control basic communication for safety and process matters, if required.

This document does not apply to

- safety aspects related to maintenance, and
- electrical devices and components, which are covered by their specific product standards.