ICS 43.120 PREDBEŽNÁ SLOVENSKÁ TECHNICKÁ NORMA Apríl 2024

STN P	**Systém nabíjania elektrických vozidiel Časť 3-4: Zariadenia na napájanie elektrických vozidiel jednosmerným prúdom, kde ochrana spočíva v dvojitej alebo zosilnenej izolácii Všeobecné definície a požiadavky na komunikáciu CANopen**	**STN P CLC IEC/TS 61851-3-4** 34 1590

Electric vehicles 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

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/24

Obsahuje: CLC IEC/TS 61851-3-4:2023, IEC TS 61851-3-4:2023

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TECHNICAL SPECIFICATION

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English Version

Electric vehicles 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 61851-3-4:2023)

Système de charge conductive pour véhicules électriques - Partie 3-4 : Exigences relatives aux véhicules électriques légers - Définitions générales relatives à la communication (IEC/TS 61851-3-4:2023)

Konduktive Ladesysteme für Elektrofahrzeuge - Teil 3-4: Gleichstrom-Versorgungseinrichtungen für Elektrofahrzeuge mit Schutzwirkung durch doppelte oder verstärkte Isolierung - Allgemeine Definitionen und Anforderungen für CANopen Kommunikation (IEC/TS 61851-3-4:2023)

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

CENELEC members are required to announce the existence of this TS in the same way as for an EN and to make the TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force.

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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

This document (CLC IEC/TS 61851-3-4:2023) consists of the text of IEC/TS 61851-3-4:2023, prepared by IEC/TC 69 "Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks".

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

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 61851-3-4:2023 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 60309	series	Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes	EN IEC 60309	series
IEC 60364	series	Low-voltage electrical installations	HD 60364	series
IEC 60884	series	Plugs and socket-outlets for household and similar purposes	-	-
IEC 61850	series	Communication networks and systems for power utility automation	EN 61850	series
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 61851-3-5	2023	Electric vehicles 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	2023	Electric vehicles 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	2023	Electric vehicles conductive charging system - Part 3-7: DC EV supply equipment where protection relies on double or reinforced insulation - Battery system communication	-	-
IEC/TS 62196-4	2022	Plugs, socket-outlets, vehicle connectors and vehicles inlet - 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	-	-

Publication	Year	Title	EN/HD	Year
ISO/IEC 646	1991	Information technology - ISO 7-bit coded character set for information interchange	-	-
ISO/IEC 14443	series	Cards and security devices for personal identification - Contactless proximity objects	-	-
ISO/IEC 18092	2013	Information technology - Telecommunications and information exchange between systems - Near Field Communication - Interface and Protocol (NFCIP-1)	-	-
ISO 11898-2	2016	Road vehicles - Controller area network (CAN) - Part 2: High-speed medium access unit	-	-
ISO 11898-5	2007	Road vehicles - Controller area network (CAN) - Part 5: High-speed medium access unit with low-power mode	-	-
ISO 11898-6	2013	Road vehicles - Controller area network (CAN) - Part 6: High-speed medium access unit with selective wake-up functionality	-	-
CiA 302-1	2009	CANopen additional application layer functions - Part 1: General definitions	-	-
CiA 302-2	2009	CANopen additional application layer functions - Part 2: Network management	-	-
CiA 302-3	2010	CANopen additional application layer functions - Part 3: Configuration and program download	-	-
CiA 305	2013	CANopen layer setting services (LSS) and protocols	-	-
		Industrial communications subsystem based on ISO 11898 (CAN) for controller-device interfaces - Part 4: CANopen	EN 50325-4	2002
		Secondary lithium batteries for light EV (electric vehicle) applications - Part 1: General safety requirements and test methods	EN 50604-1	2016

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TECHNICAL SPECIFICATION

colour inside

Electric vehicles 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 61851-3-4:2023-07(en)

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Electric vehicles 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

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRIC VEHICLES 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

FOREWORD

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IEC TS 61851-3-4 has been prepared by IEC technical committee 69: Electrical power/energy transfer systems for electrically propelled 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
69/650/DTS	69/671/RVDTS 69/671A/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.

In this document, the following print types are used:

– requirements: in roman type;

– notes: in small roman type;

– **text formatted in bold and using mixed capital and underline are used as state names and are not to be translated**.

A list of all parts in the IEC 61851 series, 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

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

IEC TS 61851-3-1, *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 61851-3-2, *Electric vehicles conductive charging system – Part 3-2: r DC EV supply equipment where protection relies on double or reinforced insulation – Portable and mobile DRI EV supply equipment*

IEC TS 61851-3-4, *Electric vehicles 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 vehicles 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 vehicles 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 vehicles conductive charging system – Part 3-7:DC EV supply equipment where protection relies on double or reinforced insulation – Battery system communication*

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

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– EnergyBus e.V.: Koskauerstrasse 100, 07922 Tanna, Germany.
– Unicorn Energy GmbH: Universitaetspark 1/1, 73525 Schwaebisch Gmuend, Germany.

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ISO (www.iso.org/patents) and IEC (http://patents.iec.ch) maintain on-line data bases of patents relevant to their standards. Users are encouraged to consult the data bases for the most up to date information concerning patents.

ELECTRIC VEHICLES 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

1 Scope

This part of IEC 61851, which is a Technical Specification, applies to CANopen communication for the conductive transfer of electric power between the supply network and an electric road vehicle or a removable rechargeable energy storage system (RESS) or on-board rechargeable energy storage systems (RESS) of an electric road vehicle.

The energy management system (EMS) for control of power transfer between battery systems and voltage converter units (VCU) provides the communication for all devices that can take part in energy management control.

The basic application profile for energy management systems (EMS) consists of IEC TS 61851-3-4, IEC TS 61851-3-5, IEC TS 61851-3-6, IEC TS 61851-3-7.

2 Normative references

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.

IEC 60309 (all parts), *Plugs, socket-outlets and couplers for industrial purposes*

IEC 60364 (all parts), *Low-voltage electrical installations*

IEC 60884 (all parts), *Plugs and socket-outlets for household and similar purposes*

IEC 61850 (all parts), *Communication networks and systems for power utility automation*

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 – AC and DC conductive power supply systems*

IEC TS 61851-3-5:2023, *Electric vehicles 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 61851-3-6:2023, *Electric vehicles conductive charging system – Part 3-6: DC EV supply equipment where protection relies on double or reinforced insulation – Voltage converter unit communication*

IEC TS 61851-3-7:2023, *Electric vehicles conductive charging system – Part 3-7: DC EV supply equipment where protection relies on double or reinforced insulation – Battery system communication*

IEC TS 62196-4: *Plugs, socket-outlets, vehicle connectors and vehicles inlet – 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]

ISO/IEC 646:1991, *Information technology – ISO 7-bit coded character set for information interchange*

ISO/IEC 14443 (all parts), *Identification cards — Contactless integrated circuit(s) cards — Proximity cards*

ISO/IEC 18092:2013, *Information technology – Telecommunications and information exchange between systems – Near Field Communication – Interface and Protocol (NFCIP-1)*

ISO 11898-2:2016, *Road vehicles – Controller area network (CAN) – Part 2: High speed medium access unit*

ISO 11898-5:2007, *Road vehicles – Controller area network (CAN) – Part 5: High speed medium access unit with low-power mode*

ISO 11898-6:2013, *Road vehicles – Controller area network (CAN) – Part 6: High speed medium access unit with selective wake-up functionality*

CiA 302-1:2009, *CANopen additional application layer functions – Part 1: General definitions (available at www.can-cia.org)*

CiA 302-2:2009, CANopen *additional application layer functions – Part 2: Network management* (available at www.can-cia.org)

CiA 302-3:2010, *CANopen additional application layer functions – Part 3: Configuration and program download (available at www.can-cia.org)*

CiA 305:2013, *CANopen layer setting services (LSS) and protocols* (available at www.can-cia.org)

EN 50325-4:2002, *Industrial communications subsystem based on ISO 11898 (CAN) for controller- device interfaces – Part 4: CANopen*

EN 50604-1:2016, *Secondary lithium batteries for light EV (electric vehicle) applications – Part 1: General safety requirements and test methods*