SLOVENSKI STANDARD
SIST EN IEC 61851-24:2025

01-februar-2025

Nadomešča:
SIST EN 61851-24:2014
SIST EN 61851-24:2014/AC:2015

Sistem kabelskega napajanja električnih vozil - 24. del: Digitalna komunikacija med enosmerno (DC) EV-napajalno postajo in električnim vozilom za krmiljenje enosmernega (DC) napajanja (IEC 61851-24:2023)

Electric vehicle conductive charging system - Part 24: Digital communication between a DC EV charging station and an electric vehicle for control of DC charging (IEC 61851-24:2023)

Konduktive Ladesysteme für Elektrofahrzeuge - Teil 24: Digitale Kommunikation zwischen einer Gleichstromladestation für Elektrofahrzeuge und dem Elektrofahrzeug zur Steuerung des Gleichstromladevorgangs (IEC 61851-24:2023)

Système de charge conductive pour véhicules électriques - Partie 24: Communication digitale entre la borne de charge à courant continu et le véhicule électrique pour le contrôle de la charge à courant continu (IEC 61851-24:2023)

Ta slovenski standard je istoveten z: **EN IEC 61851-24:2024**

ICS:

43.120	Električna cestna vozila	Electric road vehicles

SIST EN IEC 61851-24:2025 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61851-24

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ICS 43.120

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English Version

Electric vehicle conductive charging system - Part 24: Digital communication between a DC EV supply equipment and an electric vehicle for control of DC charging (IEC 61851-24:2023)

Système de charge conductive pour véhicules électriques - Partie 24: Communication numérique entre le système d'alimentation à courant continu et le véhicule électrique pour le contrôle de la charge à courant continu (IEC 61851-24:2023)

Konduktive Ladesysteme für Elektrofahrzeuge - Teil 24: Digitale Kommunikation zwischen einer Gleichstromversorgungseinrichtung für Elektrofahrzeuge und dem Elektrofahrzeug zur Steuerung des Gleichstromladevorgangs (IEC 61851-24:2023)

This European Standard was approved by CENELEC on 2024-10-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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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

Ref. No. EN IEC 61851-24:2024 E

European foreword

The text of document 69/909/FDIS, future edition 2 of IEC 61851-24, prepared by TC 69 "Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61851-24:2024.

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) 2025-12-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2027-12-31

This document supersedes EN 61851-24:2014 and all of its amendments and corrigenda (if any).

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 Standard IEC 61851-24:2023 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 61851-1:2017	NOTE	Approved as EN IEC 61851-1:2019 (not modified)
ISO 8751	NOTE	Approved as EN ISO 8751

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 61851-23	2023	Electric vehicle conductive charging system - Part 23: DC electric vehicle supply equipment	-	-
ISO/TR 8713	-	Electrically propelled road vehicles - Vocabulary	-	-
ISO 11898-1	2015	Road vehicles - Controller area network (CAN) - Part 1: Data link layer and physical signalling	-	-
ISO 11898-2	2016	Road vehicles - Controller area network (CAN) - Part 2: High-speed medium access unit	-	-
ISO 15118-2	2014	Road vehicles - Vehicle-to-Grid Communication Interface - Part 2: Network and application protocol requirements	EN ISO 15118-2	2016

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

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Système de charge conductive pour véhicules électriques – Partie 24: Communication numérique entre le système d'alimentation à courant continu et le véhicule électrique pour le contrôle de la charge à courant continu

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRIC VEHICLE CONDUCTIVE CHARGING SYSTEM –

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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 61851-24 has been prepared by IEC technical committee 69: Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks. 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) Annex A and Annex B have been updated in line with IEC 61851-23:2023 and relevant standards.

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

Draft	Report on voting
69/909/FDIS	69/914/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/publications.

A list of all parts in the IEC 61851 series, published under the general title *Electric vehicle 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, or
- revised.

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

ELECTRIC VEHICLE CONDUCTIVE CHARGING SYSTEM –

Part 24: Digital communication between a DC EV supply equipment and an electric vehicle for control of DC charging

1 Scope

This part of IEC 61851, together with IEC 61851-23, applies to digital communication between a DC EV supply equipment and an electric road vehicle (EV) for control of conductive DC power transfer, with a rated supply voltage up to 1 000 V AC or up to 1 500 V DC and a rated output voltage up to 1 500 V DC.

This document also applies to digital communication between the DC EV charging/discharging station and the EV for system A, as specified in Annex A.

The EV charging mode is mode 4, according to IEC 61851-23.

Annex A, Annex B, and Annex C give descriptions of digital communications for control of DC charging specific to DC EV charging systems A, B and C as defined in IEC 61851-23.

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 61851-23:2023, *Electric vehicle conductive charging system – Part 23: DC electric vehicle supply equipment*

ISO TR 8713, *Electrically propelled road vehicles – Vocabulary*

ISO 11898-1:2015, *Road vehicles – Controller area network (CAN) – Part 1: Data link layer and physical signalling*

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

ISO 15118-2:2014, *Road vehicles – Vehicle-to-grid communication interface – Part 2: Network and application protocol requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO TR 8713 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

This clause of IEC 61851-23:2023 is applicable except as follows:

Additional terms and definitions:

3.1
parameter
single piece of information relevant to charging control, and that is exchanged between a DC EV supply equipment and an EV using a form of digital communication

3.2
signal
data element that is communicated between a DC EV supply equipment and an EV using any means other than digital communication

4 System configuration

The system configuration shall be in accordance with GG.2 of IEC 61851-23:20—.

5 Digital communication architecture

In this document, two digital communication architectures are used:

- based on CAN using a dedicated data communication circuit; CAN protocol is given in ISO 11898-1. Refer to Annex A and Annex B for specific implementation details.
- based on Homeplug® Green PHY™[1] (see IEEE 1901) over the control pilot line; refer to Annex C for specific implementation details.

6 Charging control process

GG.3 of IEC 61851-23:2023 provides general information on the charging process and the state of DC EV supply equipment.

Specific requirements of charging process are given in AA.4 and AA.6.3 for system A, BB.4 and BB.6 for system B, and CC.3 for system C in IEC 61851-23:2023 respectively.

7 Overview of charging control

The digital communication of DC charging control covered by this document is as shown in Figure 1, identifying the SECC (supply equipment communication controller) and EVCC (EV communication controller), as defined in IEC 61851-23. This document does not cover the control protocol internal to the DC EV supply equipment, nor the vehicle, such as power control protocol for AC/DC inverter of DC EV supply equipment and battery management control in the vehicle.

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[1] Homeplug® and Green PHY™ are examples of suitable products available commercially. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of these products.

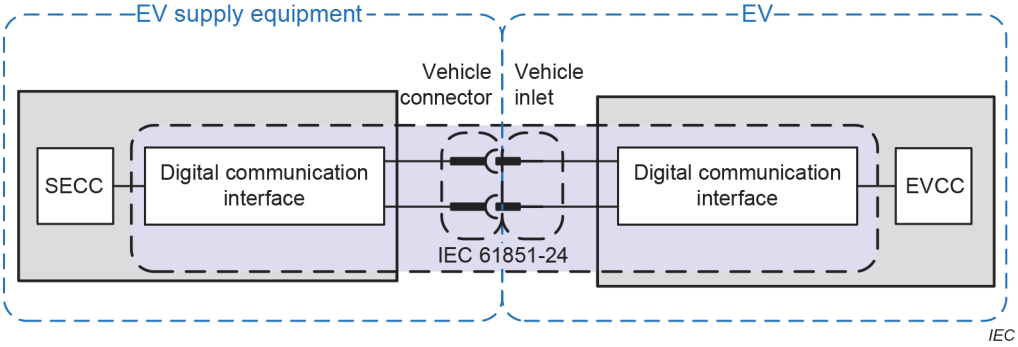

Figure 1 – Digital communication between a DC EV supply equipment and an electric vehicle for control of DC charging

8 Exchanged information for DC charging control

This clause describes information which shall be exchanged between a DC EV supply equipment and a vehicle during the charging process according to IEC 61851-23. The information in Table 1 is common to all systems described in Annex A, Annex B and Annex C. Each information listed in Table 1 is defined as a parameter in each annex. Each system can have additional parameters, and these parameters are defined in each annex.

Table 1 – Exchanged information for DC charging control

No.	Information	Description	Relevant requirement in IEC 61851-23:2023
a-1	Current request for the controlled current charging (CCC) system	Exchange of current value requested by EV	6.3.1.101
a-2	Voltage request for the controlled voltage charging (CVC) system	Exchange of voltage value requested by EV	
a-3	Maximum rated voltage of DC EV supply equipment	Exchange of maximum rated voltage value of DC EV supply equipment	6.3.1.101 6.3.1.104
a-4	Maximum rated current of DC EV supply equipment	Exchange of maximum rated current value of DC EV supply equipment	6.3.1.101 6.3.1.104
b-1	Communication protocol	Exchange of software version of a charging system	6.3.1.104 6.3.1.106
b-2	Maximum voltage limit of EV	Exchange of maximum voltage limit value of vehicle.	
b-3	EV minimum current limit, only for the controlled voltage charging (CVC) system	Under consideration	
b-4	Implementation of optional control function	Exchange information about available optional function, such as high current control and dynamic control.	6.3.1.104 6.3.2.102
c	Insulation check result	Exchange of the result of insulation check before charging – If insulation check fails, a signal is sent that charging is not allowed.	6.3.1.105
d	Short circuit test before charging	Exchange of information on short circuit test before charging	6.3.1.109
e	Charging stopped by user	Exchange of information on charge stop command by the user of DC EV supply equipment	6.3.1.110