



SLOVENSKI STANDARD
oSIST prEN IEC 61851-23-1:2025
01-april-2025

Sistem kabskega napajanja električnih vozil - 23-1. del: Napajanje električnega vozila z enosmernim tokom z avtomatskim sklopnim sistemom

Electric vehicle conductive charging system - Part 23-1: DC charging with an automatic connection system

Konduktive Ladesysteme für Elektrofahrzeuge – Teil 23-1: Gleichstromladestation für Elektrofahrzeuge mit einer automatischen Kontaktvorrichtung

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Ta slovenski standard je istoveten z: prEN IEC 61851-23-1:2025

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43.120 Električna cestna vozila Electric road vehicles

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69/1030/CDV

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SECRETARIAT: Belgium	SECRETARY: Mr Peter Van den Bossche
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 23H	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED:	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Electric vehicle conductive charging system - Part 23-1: DC Charging with an automatic connection system

PROPOSED STABILITY DATE: 2027

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTRIC VEHICLE CONDUCTIVE CHARGING SYSTEM –

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Part 23-1: DC electric vehicle supply equipment with an automated connection device

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FOREWORD

145

146 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising
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 148 co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and
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179 International Standard IEC 61851-23-1 has been prepared by IEC technical committee 69:
 180 Electric road vehicles and electric industrial trucks.

181 The text of this standard is based on the following documents:

FDIS	Report on voting
69/XX/FDIS	69/XX/RVD

182

183 Full information on the voting for the approval of this standard can be found in the report on
 184 voting indicated in the above table

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187 This publication has been drafted in accordance with the ISO/IEC Directives, 185 Part 2.

188 This standard is to be read in conjunction with [IEC 61851-23 Ed 2.0] and [IEC 61851-1:2017].

189 The clauses of particular requirements in this standard supplement or modify the corresponding
190 clauses in [IEC 61851-23 Ed 2.0] and [IEC 61851-1:2017]. Where the text of subsequent
191 clauses indicates an "addition" to or a "replacement" of the relevant requirement, test
192 specification or explanation of Part 23, these changes are made to the relevant text of Part 23,
193 which then becomes part of this standard. Where no change is necessary, the words "This
194 clause of Part 23 is applicable" are used. The new clauses, which are not included in Part 23,
195 have a clause number starting from 201, e.g. 3.201, 201.1, etc. The annexes of this standard
196 are numbered using double-alphabet, e.g. Annex AA, to be in line with the annexes in Part 23.
197 If the in [IEC 61851-23 Ed 2.0] and [IEC 61851-1:2017] is read in conjunction with this document
198 the following terms have to be replaced:

199 - Vehicle coupler, as defined by IEC 61851-1:2017, by 'Automatic coupler' as defined in
200 clause 3

201 - Vehicle connector, as defined by IEC 61851-1:2017, by 'part of the automatic coupler
202 mounted on the EV supply equipment'

203 - Vehicle inlet, as defined by IEC 61851-1:2017, by 'part of the automatic coupler mounted
204 on the EV'

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

207 In this standard, the following print types are used:

208 — *test specifications: italic type.*

209 — notes: smaller roman type.

210

211 The committee has decided that the contents of this publication will remain unchanged until the
212 stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to
213 the specific publication. At this date, the publication will be

- 214 • reconfirmed,
- 215 • withdrawn,
- 216 • replaced by a revised edition, or
- 217 • amended.

218

The National Committees are requested to note that for this publication the stability date is December 2019.

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

219

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.

220

221

222

INTRODUCTION

223

224 The introduction and commercialisation of electric vehicles has been accelerated in the global
225 market, responding to the global concerns on CO2 reduction and energy security. Concurrently,
226 the development of charging infrastructure for electric vehicles has also been expanding. As a
227 complement to the DC EV supply equipment with a vehicle connector, DC supply equipment
228 using an Automated connection device is recognized as an alternative solution for electric
229 vehicles e.g. buses and trucks.

230 The international standardization of charging infrastructure with an automated connection
231 device is indispensable for the diffusion of electric vehicles, and this standard is developed for
232 the manufacturers' convenience by providing general and basic requirements for DC EV supply
233 equipment using an automatic conductive connection to the vehicle.

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ELECTRIC VEHICLE CONDUCTIVE CHARGING SYSTEM –

Part 23-1: DC electric vehicle supply equipment with an Automated connection device

1 Scope

This part of the IEC 61851 series, together with [IEC 61851-1:2017] and [IEC 61851-23 Ed 2.0], provides the requirements for DC EV supply equipment with an automated connection device (ACD) for conductive connection to the vehicle, with a rated maximum voltage at side A of up to 1 000 V AC or up to 1 500 V DC and a rated maximum voltage at side B up to 1 500 V DC.

NOTE 1 This standard includes information on EV for conductive connection, but limited to the necessary content for describing the power and signalling interface.

This document specifies the DC EV supply equipment with an automated connection device based on

- system B described in Annex BB of [IEC 61851-23 Ed 2.0].
- system C described in Annex CC of [IEC 61851-23 Ed 2.0].

The requirements for reverse power transfer (RPT) and BPT are under consideration and are not specified in this document.

EMC requirements for DC EV supply equipment are defined in [IEC 61851-21-2:2018].

This standard provides the general requirements for the control communication between a DC EV supply equipment and an EV.

The requirements for digital communication between DC EV supply equipment and electric vehicle for control of DC energy transfer are defined in [ISO 15118-20:2022] and [IEC 61851-24 Ed 2.0 CD].

This part only applies to automatic couplers of category 2: using an electro-mechanical interface: automatic coupler for an automated charging system according to [IEC 63407].

This part does not apply to automatic coupler of category 1 as described in [IEC 61851-27 CD]

This part does not apply to automatic coupler of category 3 as described in [IEC 61851-26 CD]

This standard does not cover all safety aspects related to maintenance.

Requirements for systems not providing simple separation or protective separation between side A and side B are under consideration.

Requirements for EV supply equipment without current, voltage and/or power control are under consideration.

EV supply equipment in compliance with this document are not intended to provide energy transfer to a single EV with:

- multiple vehicle connectors of the same EV supply equipment; or
- multiple EV supply equipment.

NOTE Requirements for EVs mated to an EV supply equipment are specified in ISO 17409: 2020. ISO 17409 will be revised to ISO 5474 series (under development).

2 Normative references

IEC 61851-23:2023, Clause 2, is applicable except as follows:

277

278 *Addition:*

279 IEC 61496-1:2012 Safety of machinery - Electro-sensitive protective equipment - Part 1: General
280 requirements and tests

281

282 ISO 13855:2010 Safety of machinery — Positioning of safeguards with respect to the approach
283 speeds of parts of the human body

284

285 IEC 62128-1:2013 RAILWAY APPLICATIONS – FIXED INSTALLATIONS – ELECTRICAL SAFETY,
286 EARTHING AND THE RETURN CIRCUIT – Part 1: Protective provisions against electric shock

287

288 ISO 15118-8 Ed. 1 Vehicle to grid communication interface - Part 8: Physical layer and data link layer
289 requirements for wireless communication

290

291 ISO 15118-20 Road vehicles — Vehicle to grid communication interface — Part 20: 2nd generation
292 network and application protocol requirements

293

294 IEC 63407 Conductive charging of electric vehicles – Contact interface for automated connection
295 device (ACD).¹

296

297 **3 Terms and definitions**

298 IEC 61851-23:2023, Clause 3, is applicable except as follows:

299 *Addition:*

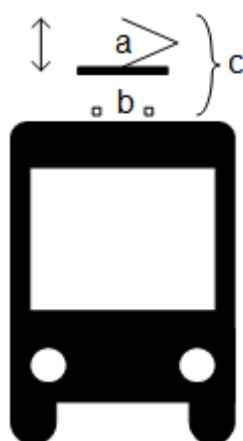
300 **3.1 Electric supply equipment**

301 **3.1.1 3.1.201**

302 **case D**

303 connection of an EV to a supply network utilizing an automatic coupler which has an ACD on
304 the EV supply equipment

¹ Under preparation. Stage at the time of publication: CD



305

306 **Key**

a automated connection device

c automatic coupler

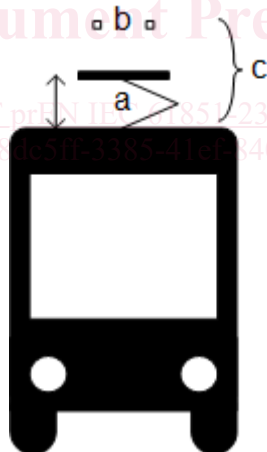
b ACD counterpart

307

308

Figure 201 – Case D connection

309 Note 1 to entry: The position of the ACD is an example implementation.

310 **3.1.2 3.1.202**311 **case E**312 connection of an EV to a supply network utilizing an automatic coupler which has an ACD on
313 the EV

314

315 **Key**

a automated connection device

c automatic coupler

b ACD counterpart

316

Figure 202 – Case E connection

317 Note 1 to entry: The position of the ACD is an example implementation.

318 **3.1.3 3.1.203**319 **automated connection device**320 **ACD**321 active device where the physical connection providing an electromechanical interface between
322 EV supply equipment and vehicle is made without user interaction