BS EN 61851-23:2014

Incorporating corrigendum May 2016

BSI Standards Publication

Electric vehicle conductive charging system

Part 23: DC electric vehicle charging station (IEC 61851-23:2014)

bsi.

National foreword

This British Standard is the UK implementation of EN 61851-23:2014. It is identical to IEC 61851-23:2014, incorporating corrigendum May 2016.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Text altered by IEC corrigendum May 2016 is indicated in the text by AC1 AC1.

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 secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2016

ISBN 978 0 580 94715 5

ICS 43.120

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2014.

Amendments/corrigenda issued since publication

Date	Text affected
31 July 2016	Implementation of IEC corrigendum May 2016

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61851-23

May 2014

ICS 43.120

English Version

Electric vehicle conductive charging system - Part 23: DC electric vehicle charging station (IEC 61851-23:2014)

Système de charge conductive pour véhicules électriques - Partie 23: Borne de charge en courant continu pour véhicules électriques (CEI 61851-23:2014)

Konduktive Ladesysteme für Elektrofahrzeuge - Teil 23: Gleichstromladestationen für Elektrofahrzeuge (IEC 61851-23:2014)

This European Standard was approved by CENELEC on 2014-04-15. 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 69/272/FDIS, future edition 1 of IEC 61851-23, prepared by IEC/TC 69 "Electric road vehicles and electric industrial trucks" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61851-23:2014.

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)	2015-01-15
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-04-15

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

Endorsement notice

The text of the International Standard IEC 61851-23:2014 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 standards indicated:

IEC 60364-7-722	NOTE	Harmonised as EN 60364-7-722 (not modified).
IEC 61851-21-2	NOTE	Harmonised as en 61851-21-2 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When 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.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60364-5-54	2011	Low-voltage electrical installations - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements and protective conductors	HD 60364-5-54	2011
IEC 60950-1 (mod)	2005	Information technology equipment - Safety - Part 1: General requirements	EN 60950-1	2006
+A1 (mod)	2009		+A1	2010
+A2 (mod)	2013		+A2	2013
IEC 61140		Protection against electric shock - Common aspects for installation and equipment	EN 61140	
IEC 61439-1	2011	Low-voltage switchgear and controlgear assemblies - Part 1: General rules	EN 61439-1	2011
IEC/TS 61479-1	2005	Effects of current on human beings and livestock - Part 1: General aspects	-	-
IEC 61557-8	-	Electrical safety in low voltage distribution systems up to 1 000 v a.c. And 1 500 v d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 8: insulation monitoring devices for it systems	EN 61557-8	-
IEC 61558-1	2005	Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests	EN 61558-1	2005
IEC 61851-1	2010	Electric vehicle conductive charging system - Part 1: General requirements	EN 61851-1	2011
IEC 61851-24	2014	Electric vehicle conductive charging system - Part 24: Digital communication between a d.c. EV charging station and an electric vehicle for control of d.c. charging	EN 61851-24	2013
IEC 62052-11	-	Electricity metering equipment (AC) - General requirements, tests and test conditions - Part 11: Metering equipment	EN 62052-11	-
IEC 62053-21	-	Electricity metering equipment (a.c.) - Particular requirements - Part 21: Static meters for active energy (classes 1 and 2)	EN 62053-21	-

Publication	Year	Title	EN/HD	Year
IEC 62196-3	-	Plugs, socket-outlets, and vehicle couplers - conductive charging of electric vehicles - Part 3: Dimensional compatibility and interchangeability requirements for dedicated d.c. and combined a.c./d.c. pin and contact-tube vehicle couplers	EN 62196-3	-
ISO/IEC 15118-2	-	Road vehicles – Vehicle to grid communication interface - Part 2: Technical protocol description and open systems interconnections (OSI) layer requirements	-	-
ISO/IEC 15118-3	-	Road vehicles - Vehicle to grid communication interface - Part 3 Physical layer requirements	-	-
IEC/TS 61479-1	2005	Effects of current on human beings and livestock - Part 1: General aspects	-	-
ISO 11898-1	-	Road vehicles - Controller area network (CAN) - Part 1: Data link layer and physical signalling	-	-
DIN SPEC 70121	-	Electromobility - Digital communication between a d.c. EV charging station and an electric vehicle for control of d.c. charging in the Combined Charging System	-	-

CONTENTS

INTRODUCTION

The introduction and commercialisation of electric vehicles has been accelerated in the global market, responding to the global concerns on CO_2 reduction and energy security. Concurrently, the development of charging infrastructure for electric vehicles has also been expanding. As a complement to the a.c. charging system, d.c. charging is recognized as an effective solution to extend the available range of electric vehicles. The international standardization of charging infrastructure is indispensable for the diffusion of electric vehicles, and this standard is developed for the manufacturers' convenience by providing general and basic requirements for d.c. EV charging stations for conductive connection to the vehicle.

ELECTRIC VEHICLE CONDUCTIVE CHARGING SYSTEM –

Part 23: DC electric vehicle charging station

1 Scope

This part of IEC 61851, together with IEC 61851-1:2010, gives the requirements for d.c. electric vehicle (EV) charging stations, herein also referred to as "DC charger", for conductive connection to the vehicle, with an a.c. or d.c. input voltage up to 1 000 V a.c. and up to 1 500 V d.c. according to IEC 60038.

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

This part covers d.c. output voltages up to 1 500 V.

Requirements for bi-directional power flow are under consideration.

NOTE 2 Typical diagrams and variation of d.c. charging systems are shown in Annex DD.

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

This part specifies the d.c. charging systems A, B and C as defined in Annexes AA, BB and CC.

NOTE 3 Typical configuration of d.c. EV charging system is shown in Annex EE.

EMC requirements for d.c. EV charging stations are defined in IEC 61851-21-2.

This standard provides the general requirements for the control communication between a d.c. EV charging station and an EV. The requirements for digital communication between d.c. EV charging station and electric vehicle for control of d.c. charging are defined in IEC 61851-24.

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

IEC 60364-5-54:2011, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors*

IEC/TS 60479-1:2005, *Effects of current on human beings and livestock - Part 1: General aspects*

IEC 60950-1:2005, *Information technology equipment - Safety - Part 1: General requirements*
Amendment 1:2009
Amendment 2:2013

IEC 61140, *Protection against electric shock – Common aspects for installation and equipment*