

MADALPINGELISED ELEKTRIPAIGALDISED. OSA 7-722:  
NÕUDED ERIPAIGALDISTELE JA -PAIKADELE.  
ELEKTRISÕIDUKITE TOIDE

Low-voltage electrical installations - Part 7-722:  
Requirements for special installations or locations -  
Supplies for electric vehicles (IEC 60364-7-722:2018,  
modified)

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-HD 60364-7-722:2019 sisaldab Euroopa standardi HD 60364-7-722:2018 ingliskeelset teksti.	This Estonian standard EVS-HD 60364-7-722:2019 consists of the English text of the European standard HD 60364-7-722:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 21.12.2018.	Date of Availability of the European standard is 21.12.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile [standardiosakond@evs.ee](mailto:standardiosakond@evs.ee).

ICS 43.120, 91.140.50

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:  
Koduleht [www.evs.ee](http://www.evs.ee); telefon 605 5050; e-post [info@evs.ee](mailto:info@evs.ee)

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage [www.evs.ee](http://www.evs.ee); phone +372 605 5050; e-mail [info@evs.ee](mailto:info@evs.ee)

English Version

**Low-voltage electrical installations - Part 7-722: Requirements  
for special installations or locations - Supplies for electric  
vehicles  
(IEC 60364-7-722:2018 , modified)**

Installations électriques à basse tension - Partie 7-722:  
Exigences pour les installations et emplacements spéciaux  
- Alimentation des véhicules électriques  
(IEC 60364-7-722:2018 , modifiée)

Errichten von Niederspannungsanlagen - Teil 7-722:  
Anforderungen für Betriebsstätten, Räume und Anlagen  
besonderer Art - Stromversorgung von Elektrofahrzeugen  
(IEC 60364-7-722:2018 , modifiziert)

This Harmonization Document was approved by CENELEC on 2018-08-27. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document at national level.

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

This Harmonization Document exists in three official versions (English, French, German).

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

The text of document 64/2285/FDIS, future edition 2 of IEC 60364-7-722, prepared by IEC/TC 64 "Electrical installations and protection against electric shock" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as HD 60364-7-722:2018.

A draft amendment, which covers common modifications to IEC 60364-7-722 (64/2285/FDIS), was prepared by CLC/TC 64, "Electrical installations and protection against electric shock" and approved by CENELEC.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2019-08-27
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2021-08-27

HD 60364-7-722:2018 supersedes HD 60364-7-722:2016.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60364-7-722:2018 are prefixed "Z".

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 mandate given to CENELEC by the European Commission and the European Free Trade Association.

## Endorsement notice

The text of the International Standard IEC 60364-7-722:2018 was approved by CENELEC as a European Standard with agreed common modifications.

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

IEC 60309-4:2006	NOTE Harmonized as EN 60309-4:2007 (modified).
IEC 60364-5-51:2005	NOTE Harmonized as HD 60364-5-51:2009 (modified).
IEC 60364-5-53	NOTE Harmonized as HD 60364-5-53.
IEC 61557-9	NOTE Harmonized as EN 61557-9.
ISO 17409:2015	NOTE Harmonized as EN ISO 17409:2017 (not modified).

## COMMON MODIFICATION

### 722.53 Selection and erection of electrical equipment-Isolation, switching and control

This title is modified as: *Selection and erection of electrical equipment – Switchgear and controlgear.*

#### 722.530.3 General and common requirements

This subclause is renumbered as Subclause 722.530.4.

##### 722.530.3.101

This subclause is renumbered as Subclause 722.530.4.101.

##### 722.530.3.102

This subclause is renumbered as Subclause 722.530.4.102.

### 722.531 Devices for protection against indirect contact by automatic disconnection of supply

This title is modified as: *Devices for protection against electric shock by automatic disconnection of the supply*

#### 722.531.2 Residual current protective devices

This clause is renumbered as clause 722.531.3: and its title is modified as: *Residual current devices (RCDs)*

##### 722.531.2.101

This subclause is renumbered as Subclause 722.531.3.101.

In the NOTE, replace 722.531.2.101 by 722.531.3.101.

##### 722.531.2.1.1

This subclause is renumbered as Subclause 722.531.3.1.

Replace the contents of this subclause by:

*The first paragraph is replaced by:*

RCD shall disconnect all live conductors.

**722.531.3 Insulation monitoring device**

This subclause is renumbered as Subclause 722.538.1: and its title is modified as: *Insulation monitoring devices for IT systems (IMD)*.

**722.531.3.101**

This subclause is renumbered as Subclause 722.538.1.101

**722.535 Co-ordination of various protective devices**

This subclause is renumbered as Subclause 722.536 and the title is modified as: *Coordination of electric equipment for protection, isolation, switching and control*.

**722.535.3 Discrimination between residual current protective devices**

This subclause is renumbered as Subclause 722.536.4.1.4.1, the title is modified as: *General requirements*.

Replace the contents of this subclause by:

*Add the following:*

Where required for service reasons, selectivity shall be maintained between the RCD protecting a connecting point and an RCD installed upstream

**722.551.7.2**

Replace the contents of this subclause by:

*Item ii) is replaced by*

ii) the socket-outlet or vehicle connector shall comply with EN 62196 series; and

## 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 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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60269	series	Low-voltage fuses	HD 60269	series
IEC 60309-1	1999	Plugs, socket-outlets and couplers for industrial purposes - Part 1: General requirements	EN 60309-1	1999
IEC 60309-2	-	Plugs, socket-outlets and couplers for industrial purposes - Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories	EN 60309-2	-
IEC 60364	series	Low-voltage electrical installations	HD 60364	series
IEC 60364-4-41 (mod)	2005	Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock	HD 60364-4-41	2017
+A1	2017		+A11	2017
IEC 60364-8-2 <sup>1</sup>	-	Low-voltage electrical installations - Part 8-2: Prosumer's low-voltage electrical installations	HD 60364-8-2 <sup>2</sup>	-
IEC 60898	series	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations	-	-
IEC 60947-2	-	Low voltage switchgear and controlgear - Part 2: Circuit-breakers	EN 60947-2	-
IEC 60947-6-2	-	Low-voltage switchgear and controlgear - Part 6-2: Multiple function equipment - Control and protective switching devices (or equipment) (CPS)	EN 60947-6-2	-
IEC 61008-1	-	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) - Part 1: General rules	EN 61008-1	-
IEC 61009-1	-	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules	EN 61009-1	-

<sup>1</sup> Under preparation. Stage at the time of publication IEC RFDIS 60364-8-2:2018.

<sup>2</sup> At draft stage.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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 61558-2-4	-	Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V - Part 2-4: Particular requirements and tests for isolating transformers and power supply units incorporating isolating transformers	EN 61558-2-4	-
IEC 61851	series	Electric vehicle conductive charging system	EN 61851	series
IEC 61980	series	Electric vehicle wireless power transfer (WPT) systems	EN 61980/ CLC/TS 61980	series
IEC 62196	series	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles	EN 62196	series
IEC 62196-1	-	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 1: General requirements	EN 62196-1	-
IEC 62196-2	-	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 2: Dimensional compatibility and interchangeability requirements for a.c. pin and contact-tube accessories	EN 62196-2	-
IEC 62196-3	-	Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 3: Dimensional compatibility and interchangeability requirements for d.c. and a.c./d.c. pin and contact-tube vehicle couplers	EN 62196-3	-
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 d.c. pin and contact-tube accessories for class II or class III applications		-
IEC 62262	-	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	-
IEC 62423	-	Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses	EN 62423	-
IEC 62955	-	Residual direct current detecting device (RDC-DD) to be used for mode 3 charging of electric vehicles	-	-



## Annex ZB (normative)

### Special national conditions

**Special national condition:** National characteristic or practice that cannot be changed even over a long period, e.g. climatic conditions, electrical earthing conditions.

NOTE If it affects harmonization, it forms part of the Harmonization Document.

For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.

<u>Clause</u>	<u>Special national condition</u>
722.1	<b>In Norway</b> , the requirements of this part of HD 60364 do not apply to circuits intended to supply energy to electric vehicles where the rated charging current is less or equal to 5 A.
722.3.3	<b>In Germany</b> , definition 722.3.3 is deleted
722.31	<b>In Germany</b> , following note apply  NOTE: In Germany see also the requirements of the DSO regarding unsymmetric load.
722.311	<b>In Germany</b> , the following note is deleted:  Note: For this application the demand factor of the final circuit supplying the connecting point (e.g. the socket-outlet) is equal to 1
722.314.101	<b>In Norway</b> , where a connecting point for private use shall be installed in an existing installation, e.g. for a dwelling or similar locations, an existing circuit may be used for such purpose, provided the risk is accepted by the installation owner.
722.415.2	<b>In France</b> , a new subclause is added:  For outdoor installations, this additional protection shall also be installed taking into account the risk of simultaneous access to extraneous exposed conductive parts.
722.512.2.101	<b>In Germany</b> , where the connection point is installed outdoors, the equipment shall be selected with a degree of protection of at least IPX4 in order to protect against water splashes
722.512.2.102	<b>In Germany</b> , Where the connecting point is installed outdoors, the equipment shall be selected or provided with a degree of protection of at least IP4X in order to protect against the ingress of small objects
722.512.2.103	<b>In Germany</b> , equipment installed in public areas and car park sites shall be protected against mechanical damage (impact of medium severity). Protection of the equipment shall be afforded by one or more of the following: <ul style="list-style-type: none"> <li>– the position or location shall be selected to avoid damage by any reasonably foreseeable impact;</li> <li>– local or general mechanical protection shall be provided.</li> </ul>
722.531.2.101	<b>In Norway</b> , RCDs protecting each connecting point in accordance to 722.411.3.3 shall comply at least with the requirements of RCD type B and a rated residual operating current not exceeding 30 mA.
722.55.101.1	<b>In Norway</b> , where the connecting point is a: <ul style="list-style-type: none"> <li>- socket-outlet, it shall be in accordance with EN 60309-2 or EN 62196-2, and</li> <li>- vehicle connector, it shall be in accordance EN 62196-1</li> </ul>

<u>Clause</u>	<u>Special national condition</u>
722.55.101.1	<b>In Switzerland</b> , for charging currents of more than 8 A (2 kVA), the use of plugs and socket-outlets according to EN 60309-2 is recommended for Mode 1 and Mode 2 connections.
722.55.101.3	<b>In Germany</b> , 722.55.101.3 does not apply.
722.55.103	<b>In Norway</b> , EV charging stations shall be located in such a distance from any "Ex-zone" that charging cannot take place inside the EX-zone.
722.55.104	<b>In Norway</b> , where the connecting point is intended to be connected by an in-cable control box, the connection point shall be provided with means to fasten the in-cable control box in order to offload the mechanical stresses on the contacts in the socket-outlet due to the weight of the in-cable control box.

## Annex ZC (informative)

### A- deviations

A-deviation: National deviation due to regulations, the alteration of which is for the time being outside the competence of the CENELEC national member.

This Harmonization Document does not fall under any Directive of the EC.

In the relevant CENELEC countries these A-deviations are valid instead of the provisions of the Harmonization Document until they have been removed.

<u>Clause</u>	<u>Deviation</u>
<b>Austria</b>	
	Regulations for electrical low voltage installations, statutory order BGBl. II/223/2010, issued 12. July 2010
722.411.3.3	See for AT Subclause 722.415.1.
722.415.1	To add the subclause and the following text  Except circuits protected by electrical separation (see 722.413), circuits supplying connection points shall be additionally protected by RCDs having a rated residual operating current not exceeding 30 mA. Devices selected shall disconnect all live conductors including the neutral (see 722.531.2). The function of fault protection for the circuit shall be fulfilled separately
722.512.2.101	To add the following text:  In case of the plug (according to national standards or IEC 60884-1) is plugged in and a degree of protection of IPX4 cannot be reached additional measures shall be provided to protect the connecting point against splashing water from all directions.
<b>France</b>	
722	In France, special requirements apply (Décret n°2017-26 du 12 janvier 2017)
722.55.101.1	In France according "Décret 2017-26 du 12 Janvier 2017 » for each connecting point, related to the delivery point of a building, until 32A socket-outlet or vehicle connector shall be provided with shutter.
<b>Spain</b>	
722	In Spain, according to the Royal Decree 1053/2014, special requirements apply to the electrical installations for the supply of electric vehicles.
722.443.4	In Spain, according to the Royal Decree 1053/2014, Clause 6.4 of the ITC-BT-52, all the circuits intended to supply energy to electric vehicles must be protected against transient and temporary overvoltages.

# CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
722 Supplies for electric vehicles.....	6
722.1 Scope .....	6
722.2 Normative references .....	6
722.3 Terms and definitions .....	7
722.31 Purposes, supplies and structure .....	8
722.311 Maximum demand and diversity .....	8
722.312 Conductor arrangement and system earthing .....	9
722.314 Division of installation.....	9
722.4 Protection for safety .....	9
722.41 Protection against electric shock.....	9
722.411 Protective measure: automatic disconnection of supply .....	9
722.413 Protective measure: electrical separation .....	10
722.44 Protection against voltage disturbances and electromagnetic disturbances.....	10
722.443 Protection against transient overvoltages of atmospheric origin or due to switching.....	10
722.444 Measures against electromagnetic influences.....	10
722.5 Selection and erection of electrical equipment.....	10
722.51 Common rules .....	10
722.511 Compliance with standards .....	10
722.512 Operational conditions and external influences.....	11
722.53 Selection and erection of electrical equipment – Isolation, switching and control.....	11
722.530 Introduction .....	11
722.531 Devices for protection against indirect contact by automatic disconnection of supply .....	11
722.533 Devices for protection against overcurrent .....	12
722.535 Co-ordination of various protective devices .....	13
722.54 Earthing arrangements and protective conductors .....	13
722.543 Protective conductors .....	13
722.55 Other equipment.....	13
722.551 Low voltage generating sets .....	14
722.6 Verification .....	14
Annex A (informative) List of notes concerning certain countries .....	16
Bibliography .....	25