# SLOVENSKI STANDARD
# SIST HD 60364-7-722:2012

**01-junij-2012**

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**Električne inštalacije zgradb - 7-722. del: Zahteve za posebne inštalacije ali lokacije - Napajanje električnih vozil**

Low voltage electrical installations - Part 7-722: Requirements for special installations or locations - Supply of Electric vehicle

Errichten von Niederspannungsanlagen - Teil 7-722: Anforderungen für Betriebsstätten, Räume und Anlagen besonderer Art - Stromversorgung von Elektrofahrzeugen



Installations électriques à basse tension - Partie 7-722: Exigences pour les installations et emplacements spéciaux - Alimentation des véhicules électriques



**Ta slovenski standard je istoveten z:** **HD 60364-7-722:2012**

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**ICS:**

| | | |
|---|---|---|
| 29.160.40 | Električni agregati | Generating sets |
| 43.120 | Električna cestna vozila | Electric road vehicles |

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HARMONIZATION DOCUMENT

DOCUMENT D'HARMONISATION

HARMONISIERUNGSDOKUMENT

# HD 60364-7-722

April 2012

ICS 29.160.40; 43.120

English version

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CENELEC

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

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Ref. No. HD 60364-7-722:2012 E

# Contents

## Foreword

This document (HD 60364-7-722:2012) has been prepared by CLC/TC 64, "*Electrical installations and protection against electric shock*".

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) | 2013-01-23 |
| • latest date by which the national standards conflicting with this document have to be withdrawn | (dow) | 2015-01-23 |

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## Introduction

The requirements of this part of HD 60364 supplement, modify or replace certain of the general requirements in Parts 1 to 6 of HD 60364.

The clause numbering of Part 7-722 follows the pattern and corresponding references of HD 60364. The numbers following the particular number of Part 7-722 are those of the corresponding parts or clauses of HD 60364.

The absence of reference to a part or a clause means that the corresponding general requirements of HD 60364 are applicable.

## 722.1 Scope

The particular requirements contained in this part of HD 60364 apply to:

- circuits intended to supply electric vehicles for charging purposes;
- protection for safety when feeding back electricity from the electric vehicles into the private and public supply network.

Inductive charging is not covered.

Electrical vehicles charging modes 3 and 4, as defined in EN 61851, require dedicated supply and charging equipment incorporating control and communication circuits (see EN 61851). Modes 1 and 2, as defined in EN 61851, can be achieved by connection of an electric vehicle to mains socket outlets.

## 722.2 Normative references

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.

EN 60309 (series), *Plugs, socket-outlets and couplers for industrial purposes (IEC 60309, series)*

HD 60364 (series), *Low-voltage electrical installations (IEC 60364, series)*



EN 61851, *Electric vehicle conductive charging system (IEC 61851)*

EN 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code) (IEC 62262:2002, equivalent)*



IEC 60038, *IEC standard voltages*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 62196 (all parts), *Plugs, socket-outlets, vehicle connectors and vehicle inlets — Conductive charging of electric vehicles*

## 722.3 Terms and definitions

To add the following:

For the purposes of this document, the following terms and definitions apply.

**722.3.1**
**Electric Vehicle (EV)**
**electric road vehicle (ISO)**
any vehicle propelled by an electric motor drawing current from a rechargeable storage battery or from other portable energy storage devices (rechargeable, using energy from a source off the vehicle such as a residential or public electric service), which is manufactured primarily for use on public streets, roads or highways

[SOURCE: EN 61851-1]

**722.3.2**
**connecting point**
the point where the electric vehicle is connected to the fixed installation

Note 1 to entry The connecting point is a socket outlet where the charging cable belongs to the vehicle, or a connector, where the charging cable is a fixed part of the EVSE.

**722.3.3**
**mode 1 charging**
connection of the EV to the a.c. supply network (mains) utilizing standardized socket-outlets not exceeding 16 A and not exceeding 250 V a.c. single-phase or 480 V a.c. three-phase, at the supply side, and utilizing the power and protective earth conductors (according to EN 61851-1)

[SOURCE: EN 61851-1]

**722.3.4**
**mode 2 charging**
connection of the EV to the a.c. supply network (mains) not exceeding 32 A and not exceeding 250 V a.c. single-phase or 480 V a.c. three-phase utilizing standardized single-phase or three-phase socket-outlets, and utilizing the power and protective earth conductors together with a control pilot function and system of personnel protection against electric shock (RCD) between the EV and the plug or as a part of the in-cable control box

[SOURCE: EN 61851-1, mod.]

**722.3.5**
**mode 3 charging**
connection of the EV to the a.c. supply network (mains) utilizing dedicated EVSE where the control pilot function extends to control equipment in the EVSE, permanently connected to the a.c. supply network (mains)

[SOURCE: EN 61851-1]



**722.3.6**
**mode 4 charging**
connection of the EV to the a.c. supply network (mains) utilizing an off-board charger where the control pilot function extends to equipment permanently connected to the a.c. supply

[SOURCE: EN 61851-1]

## 722.30 Assessment of general characteristics

## 722.31 Purposes, supplies and structure

### 722.311 Maximum demand and diversity

To add the following:

The diversity factor of the final circuit supplying directly the connecting point (e.g. the socket-outlet) shall be taken as equal to 1.

NOTE It is considered that in normal use each single connecting point is used at its rated current.

The diversity factor of the distribution circuit supplying multiple connecting points may be reduced if a load control is available.

A dedicated circuit shall be provided for the connection to electric vehicles.

### 722.312 Conductor arrangement and system earthing

#### 722.312.2.1 TN-systems

To add the following:

For a TN-system, the final circuit supplying a connection point for electric vehicle shall not include a PEN conductor.

## 722.41 Protection for safety - Protection against electric shock

### 722.410.3.5

Replace the requirements as follows:

The protective measures protection by obstacles and protection by placing out of reach according to Annex 41B of HD 60364-4-41:2007 shall not be used.

### 722.410.3.6

Replace the requirements as follows:

The protective measure protection by earth free local equipotential bonding according to Annex 41C of HD 60364-4-41:2007 shall not be used.

## 722.413 Protective measure: electrical separation

### 722.413.1.2



Replace the requirements as follows:



This protective measure shall be limited to the supply of one electrical vehicle supplied from one unearthed source with simple separation.



### 722.413.1.3

Not applicable.

### 722.413.3.101

To add the following:

The circuit shall be supplied through a fixed isolating transformer complying with EN 61558-2-4.

## 722.443 Protection against overvoltages of atmospheric origin or due to switching

### 722.443.1 General

To add the following:

NOTE To prevent possible damage to the electric vehicle from overvoltages a Surge Protective Device should protect the circuit supplying the electric vehicle.

## 722.51 Selection and erection of electrical equipment – Common rules

## 722.512 Operational conditions and external influences

### 722.512.2 External influences

To add the following: