



SLOVENSKI STANDARD

SIST EN 1648-2:2012

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Nadomešča:
SIST EN 1648-2:2005

**Bivalna počitniška vozila - 12 V enosmerna električna napeljava male napetosti - 2.
del: Avtodomi**

Leisure accommodation vehicles - 12 V direct current extra low voltage electrical
installations - Part 2: Motor caravans

Bewohnbare Freizeitfahrzeuge - Elektrische Anlagen für DC 12 V - Teil 2: Motorcaravans

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Véhicules habitables de loisirs - Installations électriques à très basse tension de 12 V en
courant continu - Partie 2: Autocaravanes

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ICS:

43.040.10	Električna in elektronska oprema	Electrical and electronic equipment
43.100	Osebni avtomobili. Bivalne prikolice in lahke prikolice	Passenger cars. Caravans and light trailers

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EUROPEAN STANDARD

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Leisure accommodation vehicles - 12 V direct current extra low voltage electrical installations - Part 2: Motor caravans

Véhicules habitables de loisirs - Installations électriques à très basse tension de 12 V en courant continu - Partie 2: Autocaravanes

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This European Standard was approved by CEN on 16 June 2012.

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EN 1648-2:2012 (E)**Foreword**

This document (EN 1648-2:2012) has been prepared by Technical Committee CEN/TC 245 "Leisure accommodation vehicles", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2013, and conflicting national standards shall be withdrawn at the latest by January 2013.

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

This document supersedes EN 1648-2:2004.

The main technical changes since the previous edition are:

- a) Requirements on tube diameter deleted in 4.2.6 b);
- b) Reference to EC directive 2007/46/EC, Annex II added in 4.2.6;
- c) Clarification added to 4.2.7 and Clause 8 that the warning notice shall be written in the language(s) of the country in which the caravan is to be sold for the first time;
- d) Sub-clause 4.4 amended;
- e) Sub-clause 5.2 "Fixed wiring" amended;
- f) Note added in 6.2;
- g) Clause 7 "Installation of appliances" amended;
- h) Normative references adapted to above changes;
- i) Annex A revised editorially
- j) Figure 1 added to Foreword.

EN 1648, *Leisure accommodation vehicles - 12 V direct current extra low voltage electrical installations* contains the following parts:

- *Part 1: Caravans*;
- *Part 2: Motor caravans* (the present document).

This document is one of a series covering the habitation aspects of leisure accommodation vehicles.

Requirements for 12 V direct current extra low voltage electrical installations for caravans are specified in EN 1648-1.

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Figure 1 gives an overview of the relevant European Standards for caravans, motor caravans and caravan holiday homes.

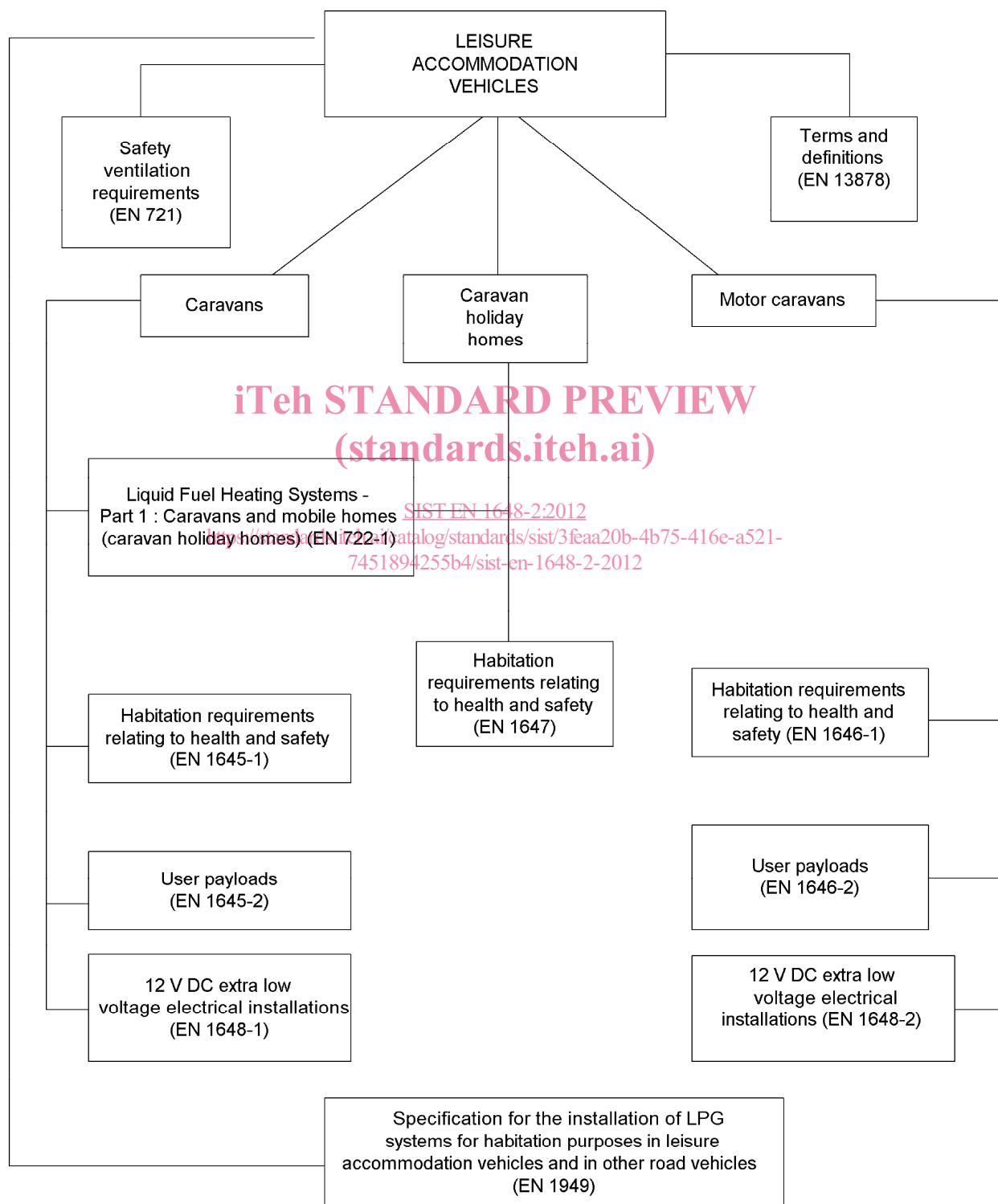


Figure 1 — Overview of relevant European Standards applying to leisure accommodation vehicles

EN 1648-2:2012 (E)**1 Scope**

This European Standard specifies safety, health and functional requirements for 12 V direct current (DC) extra low voltage (ELV) electrical installations for habitation aspects of motor caravans.

It applies only to installations which are electrically connected with the electrical installation of the base vehicle or which can be electrically connected with it by means of change-over devices.

This European Standard also specifies the ELV output requirements of low voltage (LV) equipment that may be used to provide an ELV supply but it does not specify safety, technical and functional requirements for LV appliances and installations. Requirements for LV installations are specified in HD 60364-7-721 [2].

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 1646-1, *Leisure accommodation vehicles — Motor caravans — Part 1: Habitation requirements relating to health and safety*

EN 13878:2003, *Leisure accommodation vehicles — Terms and definitions*

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

EN 60898-2, *Electrical accessories — Circuit-breakers for overcurrent protection for household and similar installations — Part 2: Circuit-breakers for a.c. and d.c. operation (IEC 60898-2)*

HD 21 (series), *Cables of rated voltages up to and including 450/750 V and having thermoplastic insulation*
<https://standards.iteh.ai/catalog/standards/sist/3fcaa20b-4b75-416e-a521-7d5190125514/sist-450-750-2012>

HD 22 (series), *Cables of rated voltages up to and including 450/750 V and having cross-linked insulation*

ISO 6722 (series), *Road vehicles — 60 V and 600 V single-core cables*

ISO 7010, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

ISO 8820-1, *Road vehicles — Fuse-links — Part 1: Definitions and general test requirements*

ISO 8820-3, *Road vehicles — Fuse-links — Part 3: Fuse-links with tabs (blade type) Type C (medium), Type E (high current) and Type F (miniature)*

ISO 8820-4, *Road vehicles — Fuse-links — Part 4: Fuse-links with female contacts (type A) and bolt-in contacts (type B) and their test fixtures*

3 Terms and definitions

For the purposes of this document the terms and definitions given in EN 13878:2003 apply.

4 Power supply**4.1 General**

The power supply shall be a nominal DC 12 V (minimum 11 V and maximum 15 V) obtained from an auxiliary battery, except in the case of a motor caravan where the overall length multiplied by the overall width does not exceed 8,5 m² plan area. In this case, it is permissible to use only the base vehicle battery.

NOTE A power supply with a nominal voltage different than DC 12 V is not allowed.

The supply of the auxiliary battery shall be obtained from the electrical installation of the base vehicle or from one or more of the following sources:

a) battery charger (see 7.4);

Where the charger is combined with an AC/DC converter (see d) and 4.3.1) fixed within the motor caravan, then individual items of current using equipment can also be supplied with electricity directly from this AC/DC converter.

b) generator that is driven by any form of energy (see 4.3);

c) solar energy cells (see 4.3);

d) LV supply via an on-board mounted AC/DC converter (e.g. transformer, switching power supply) that complies with the requirements of the relevant standards in accordance with directive 2006/95/EC and subsequent amendments.

It shall be ensured that the auxiliary battery will be automatically disconnected from the 12 V power supply of the base vehicle when the engine of the base vehicle is turned off.

If several sources of supply are used it shall be ensured that there is no unfavourable interaction.

4.2 Auxiliary batteries

4.2.1 General

An auxiliary battery shall only be intended for the electric power supply of the living area.

4.2.2 Type of battery

An auxiliary battery shall be of the rechargeable type.

Non-rechargeable batteries are not auxiliary batteries according to 4.2. They may be used however, provided that they are used in circuits separated from other sources of electrical supply.

4.2.3 Capacity

An auxiliary battery shall have a minimum capacity of at least 60 Ampere-hours (Ah) at 20 h discharge rate.

NOTE It is recommended to use a battery designed to be discharged over long periods at a relatively low current.

4.2.4 Terminals

Auxiliary battery terminals shall be clearly and durably marked “+” and “-“. Connections to auxiliary battery terminals shall be securely clamped or bolted to ensure continuous contact and shall be insulated unless the auxiliary battery is provided with an insulating cover.

4.2.5 Location

If an auxiliary battery is not installed in the engine compartment, it shall be placed in a compartment according to 4.2.6, which is designed to protect it from mechanical damage, with easy access for maintenance and/or removal and secured to prevent movement of the battery, e.g. when the motor caravan is in motion.

4.2.6 Auxiliary battery compartment

An acid resistant liquid tight tray shall be installed under an auxiliary battery whose electrolyte is liquid capable of holding at least 20 % of the electrolyte capacity of the recommended battery, when in place.