SLOVENSKI STANDARD
SIST EN 1648-2:2018

01-marec-2018

Nadomešča:
SIST EN 1648-2:2012

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

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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

SIST EN 1648-2:2018 **en,fr,de**

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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

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

This European Standard was approved by CEN on 20 November 2017.

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European foreword

This document (EN 1648-2:2018) 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of an identical text or by endorsement, at the latest by July 2018, and conflicting national standards shall be withdrawn at the latest by July 2018.

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

This document supersedes EN 1648-2:2012.

EN 1648, *Leisure accommodation vehicles — 12 V direct current extra low voltage electrical installations*, is currently composed with the following parts:

— *Part 1: Caravans*;

— *Part 2: Motor caravans*.

In relation to EN 1648-2:2012, the main technical changes are:

a) Figure 1 modified by removing EN 1645-2 and EN 1646-2 which were withdrawn;

b) Clause 4 “Power supply” restructured;

c) in 4.3.6 “Auxiliary battery compartment”, structure modified and specified;

d) in 4.3.7 “Warning notice” the graphical symbol and marking changed;

e) in 5.2.6 “Auxiliary battery cables”, thickness for sheathing and taping added;

f) in 6.1 “Protection of positive conductors”, distance to base vehicle to specified and new Figure 2 added;

g) 6.4 “Prohibited locations” modified;

h) in Clause 8 “User's handbook”, information, when no provision for installation of auxiliary battery is given, added;

i) normative references updated;

j) editorially modified.

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

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

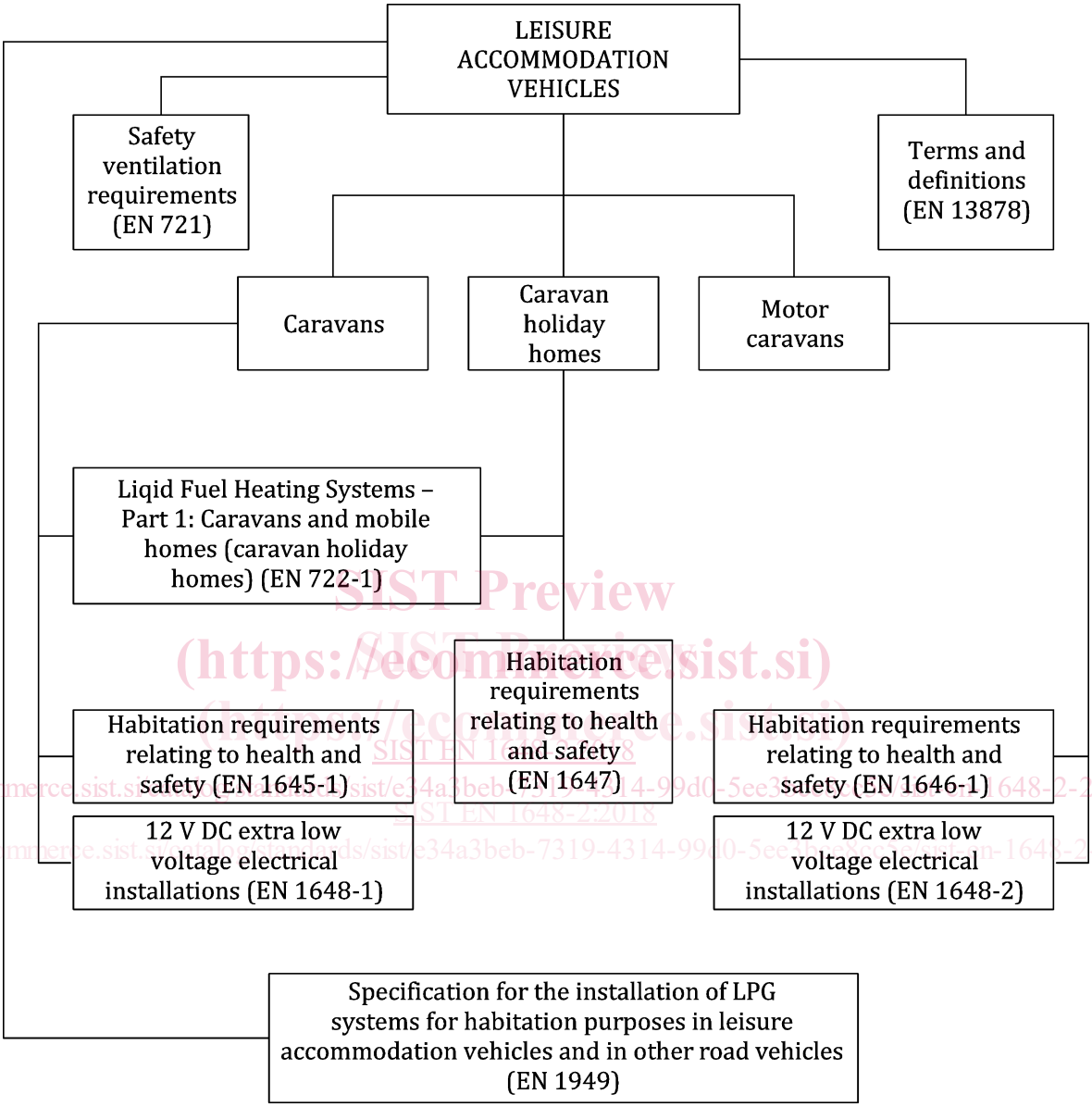

Figure 1 — Overview of relevant European Standards applying to leisure accommodation vehicles

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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 Normative references

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.

EN 50525 (all parts), *Electric cables — Low voltage energy cables of rated voltages up to and including 450/750 V (U_0/U)*

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

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

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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)*

(https://ecommerce.sist.si)

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

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

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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 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

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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 plan area does not exceed 8,5 m^2 plan area. In this case, it is permissible to use only the base vehicle battery.

Where the base vehicle battery/batteries is/are operating at > DC 12 V, connection to the habitation ELV electrical system shall only be made at DC 12 V.

4.2 Sources of supply

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 4.4.1) 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 4.4);

c) solar energy cells (see 4.4);

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 2014/35/EU and subsequent amendments.

It shall be ensured that the auxiliary battery will be automatically disconnected from the 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.

4.3 Auxiliary batteries

4.3.1 Type of battery

An auxiliary battery shall be of the rechargeable type.

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

4.3.2 Capacity

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

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

4.3.3 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.

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4.3.4 Location

If an auxiliary battery is not installed in the engine compartment, it shall be placed in a compartment according to 4.3.6, 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.

4.3.5 Motor caravans without auxiliary battery

For motor caravans over 8,5 m^2 where an auxiliary battery is intended to be used but not provided, then the position and instructions for the installation shall be included in the user's handbook according to Clause 8 and a notice shall be fixed in its compartment or near the proposed location.

If a motor caravan is not designed to accept an auxiliary battery, it shall be clearly stated in the user's handbook.

4.3.6 Auxiliary battery compartment

4.3.6.1 General

The user’s handbook shall include instructions on auxiliary battery installation, when necessary.

For underslung battery, a minimum ground clearance shall be observed: see Directive 2007/46/EC, Annex II.

4.3.6.2 Resistant tray

Under an auxiliary battery whose electrolyte can flow, an electrolyte resistant tray shall be installed, capable of holding at least 20 % of the electrolyte capacity of the recommended battery, when in place.

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4.3.6.3 Ventilation

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Except for:

— sealed auxiliary battery that incorporates an external ventilating kit that is taken to the exterior of the motor caravan, or

— battery whose electrolyte cannot flow in case of malfunction,

the interior of an auxiliary battery compartment shall be ventilated and protected against the corrosive effect of acid-laden gases, by ventilating the compartment at both low-level and high-level to the exterior of the motor caravan.

The construction of the compartment shall have gas tight joints and shall be sealed to prevent ingress into the habitable compartment and be of an electrolyte resistant material of the installed battery or have an anti-corrosive finish. The minimum size of ventilation shall be not less than 80 mm^2 at low level and not less than 80 mm^2 at high level. If the compartment opens into the interior of the motor caravan, the lid shall be sealed.

4.3.7 Warning notice

A warning notice shall be fixed in a prominent position near the auxiliary battery or displayed on the lid of the auxiliary battery compartment. This warning shall be in the official language(s) of the country in which the motor caravan is to be sold for the first time and shall state:

“Switch off all appliances and lamps before connecting or disconnecting the auxiliary battery.”

The auxiliary battery compartment shall be additionally marked with a graphical symbol in accordance with ISO 7010-P003.