SLOVENSKI STANDARD
oSIST prEN IEC 62991:2021

01-september-2021

Posebne zahteve za opremo za preklapljanje virov (SSE)

Particular requirements for Source-Switching Equipment (SSE)

Exigences particulières relatives au matériel de commutation de source (SSE)

Ta slovenski standard je istoveten z: **prEN IEC 62991:2021**

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91.140.50	Sistemi za oskrbo z elektriko	Electricity supply systems

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23K/60/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 23K : ELECTRICAL ENERGY EFFICIENCY PRODUCTS	
SECRETARIAT: France	SECRETARY: Mr Philippe Vollet
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 23,TC 64,SC 121A	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING
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TITLE:

Particular requirements for Source-Switching Equipment (SSE)

PROPOSED STABILITY DATE: 2024

NOTE FROM TC/SC OFFICERS:

After resolution of 23K/50/CD comments, officiers support the circulation of this CVD.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PARTICULAR REQUIREMENTS FOR SOURCE-SWITCHING EQUIPMENT (SSE)

FOREWORD

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International Standard IEC 62962 has been prepared by subcommittee 23K: Electrical Energy Efficiency products, of IEC technical committee 23: Electrical accessories.

The text of this standard is based on the following documents:

FDIS	Report on voting
23K/XX/FDIS	23K/XX/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard, the following print types are used:

– *conformity statements: in italic type.*

329 The committee has decided that the contents of this publication will remain unchanged until the
330 stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to
331 the specific publication. At this date, the publication will be

332 • reconfirmed,
333 • withdrawn,
334 • replaced by a revised edition, or
335 • amended.

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INTRODUCTION

The optimization of electrical energy usage can be facilitated by appropriate design and installation considerations. An electrical installation can provide the required level of service and safety for the lowest electrical consumption.

This is considered by designers as a general requirement of their design procedures to establish the best use of electrical energy.

The optimization of the use of electricity is based on energy efficiency management taking into consideration the price of electricity, electrical consumption of the loads and real-time adaptation, as described Figure 1 according to IEC 60364-8-1:2019.

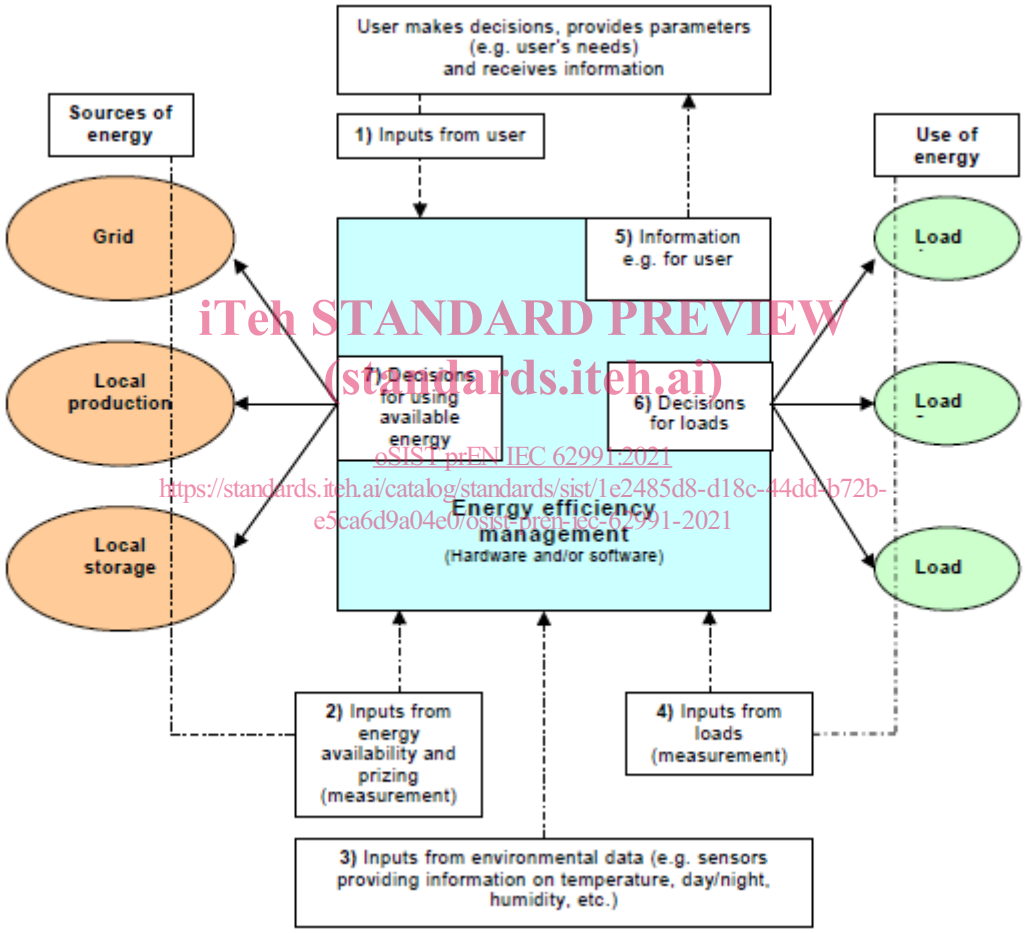

Figure 1 – Energy Efficiency Management System (EEMS)

This document applies to Source Switching Equipment (SSE), for household and similar uses.

The objective of this document is to specify requirements for the SSE (See Figure 2):

– to make transparent to the end-user the energy sources;
– taking into account the generation/storage;
– to optimize the electrical energy either from the grid or from other local sources/storage.

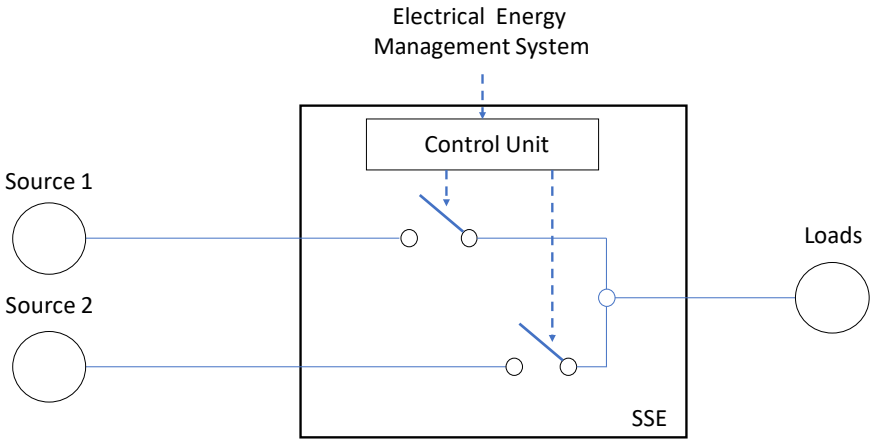

Figure 2 – Principle of management of 2 sources with a Source Switching Equipment (SSE)

NOTE Examples of use of SSEs are given Annex A.

As defined by IEC 60364-8-2:2018, main operating modes of a Source Switching Equipment (SSE) are:

– direct feeding mode: corresponding to the normal source (supply from the grid). Storage units can supply current-using-equipment or be charged by the grid or local power supplies;

– island mode: loads supplied by local energy sources and storage units, disconnected from the grid;

– reverse feeding mode: corresponding to the supply of the grid. Storage units can supply current-using-equipment and/or the grid or be charged by local power supplies.

Transfer from/to the Direct feeding mode to island mode and vice versa can be achieved by the operation of the Source Switching Equipment (SSE) which can be either directly controlled (manually or remotely) or automatically controlled.

NOTE In this edition, the SSE is not covering all the “Switching Device For Islanding” (SDFI) function according to IEC 60364-8-2:2018. Additional requirements may be considered in a future revision of this Standard or in a dedicated standard

Operation of an SSE is supposed to happen in safe conditions as described in IEC 60364-8-2:2018.

This standard does not cover communication aspects such as protocols and interoperability nor data security or other related aspects.

SSE switching operations are based on similar principles as Transfer Switching Equipment (TSE). For applications with higher currents, e.g. for industrial applications, the reader may refer to standard IEC 60947-6-1.

PARTICULAR REQUIREMENTS FOR SOURCE-SWITCHING EQUIPMENT (SSE)

1 Scope

This International Standard applies to Source Switching Equipment, hereafter referred to as SSE(s), for household and similar uses, primarily intended to be used for Energy Efficiency purposes with local production and/or storage of energy.

This standard has been drafted following principles of:

- IEC guides 118 and 119 for Energy Efficiency;
- IEC guide 110 for safety.

SSEs are intended to be installed in low voltage prosumer electrical installations (PEI) to deliver the electrical energy:

- either to current-using equipment (direct feeding mode or island mode);
- or to the grid (reverse feeding mode).

SSEs are intended to select and/or combine two power sources (e.g. selected among grid, local power source, storage units) within an Electrical Energy Management system (EEMS). SSEs may also be used for backup supply.

NOTE SSEs capable to select more than two sources are under consideration.

SSEs are part of the fixed electrical installation.

This standard applies to SSEs for operation in:

- AC single or multiphase circuits with rated voltages not exceeding 440 V AC, frequencies of 50 Hz, 60 Hz or 50/60 Hz and rated currents not exceeding 125 A. They are intended to be used in installations with prospective short circuit current not exceeding 25 000 A, or
- DC circuits. SSE for DC circuits are under consideration (next edition).

SSEs may be operated:

- manually (M-SSE), or
- remotely (R-SSE), or
- automatically (A-SSE), or
- a combination of the above methods of operation, e.g. manual and remote.

SSEs are constructed either as Combined-SSEs (C-SSEs, based on dedicated products such as circuit breakers, switches or contactors) or Non-Combined SSEs (NC-SSEs).

SSEs are intended for use in circuits where protection against electrical shock and over-current according to IEC 60364 is provided, unless the SSE already contains such protective function.

SSEs are normally installed by instructed persons (IEC 60050-195:1998, 195-04-02) or skilled persons (IEC 60050-195:1998, 195-04-01). SSEs are normally used by ordinary persons (IEC 60005-195:1998, 195-04-03) and do not require maintenance.

The requirements of this standard apply for standard environmental conditions as given in clause 7. They are applicable to SSEs intended for use in an environment with pollution degree 2 and overvoltage categories III according to IEC 60664-1:2020. SSEs have at least a degree of protection IP 20 according to IEC 60529. Additional requirements may be necessary for devices used in locations having more severe environmental conditions.

SSEs do not, by their nature, provide an isolation function nor the overcurrent protection. However, isolation and overcurrent protection functions as covered by relevant product standards may be provided by Combined SSEs.

In some countries, it is not permitted to have synchronization of local sources with the grid for particular grid conditions, e.g. when fluctuations of the grid voltage or frequency are outside the tolerance limits.

This document does not apply to transfer switching equipment (TSE) intended to be used by skilled persons, as covered by IEC 60947-6-1:2021.

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.

IEC 60065:2014, *Audio, video and similar electronic apparatus - Safety requirements*

IEC 60085, *Electrical insulation – Thermal evaluation and designation*

IEC 60127, *Miniature fuses*

IEC 60212, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60317-0-1:2019, *Specifications for particular types of winding wires - Part 0-1: General requirements - Enamelled round copper wire*

IEC 60364 (all parts), *Low-voltage electrical installations*

IEC 60364-8-1:2019, *Low voltage electrical installations- Part 8-1: Functional aspects - Energy efficiency*

IEC 60364-8-2:2018, *Low voltage electrical installations- Part 8-2: Prosumer's low-voltage electrical installations*

IEC 60384-14:2016, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60417, *Graphical symbols for use on equipment* (available at http://www.graphical-symbols.info/equipment)

IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests*