



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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ICS:

27.015	Energijska učinkovitost. Ohranjanje energije na splošno	Energy efficiency. Energy conservation in general
91.140.50	Sistemi za oskrbo z elektriko	Electricity supply systems

oSIST prEN IEC 62991:2021

en,fr,de

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23K/60/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: IEC 62991 ED1	
DATE OF CIRCULATION: 2021-06-18	CLOSING DATE FOR VOTING: 2021-09-10
SUPERSEDES DOCUMENTS: 23K/50/CD, 23K/58A/CC	

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: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: iTeh STANDARD PREVIEW (standards.iteh.ai)	
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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, officers support the circulation of this CVD.

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281 INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**PARTICULAR REQUIREMENTS FOR
SOURCE-SWITCHING EQUIPMENT (SSE)**

FOREWORD

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321 Efficiency products, of IEC technical committee 23: Electrical accessories.

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

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

323

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

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

327 In this standard, the following print types are used:

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329 The committee has decided that the contents of this publication will remain unchanged until the
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- 333 • withdrawn,
- 334 • replaced by a revised edition, or
- 335 • amended.

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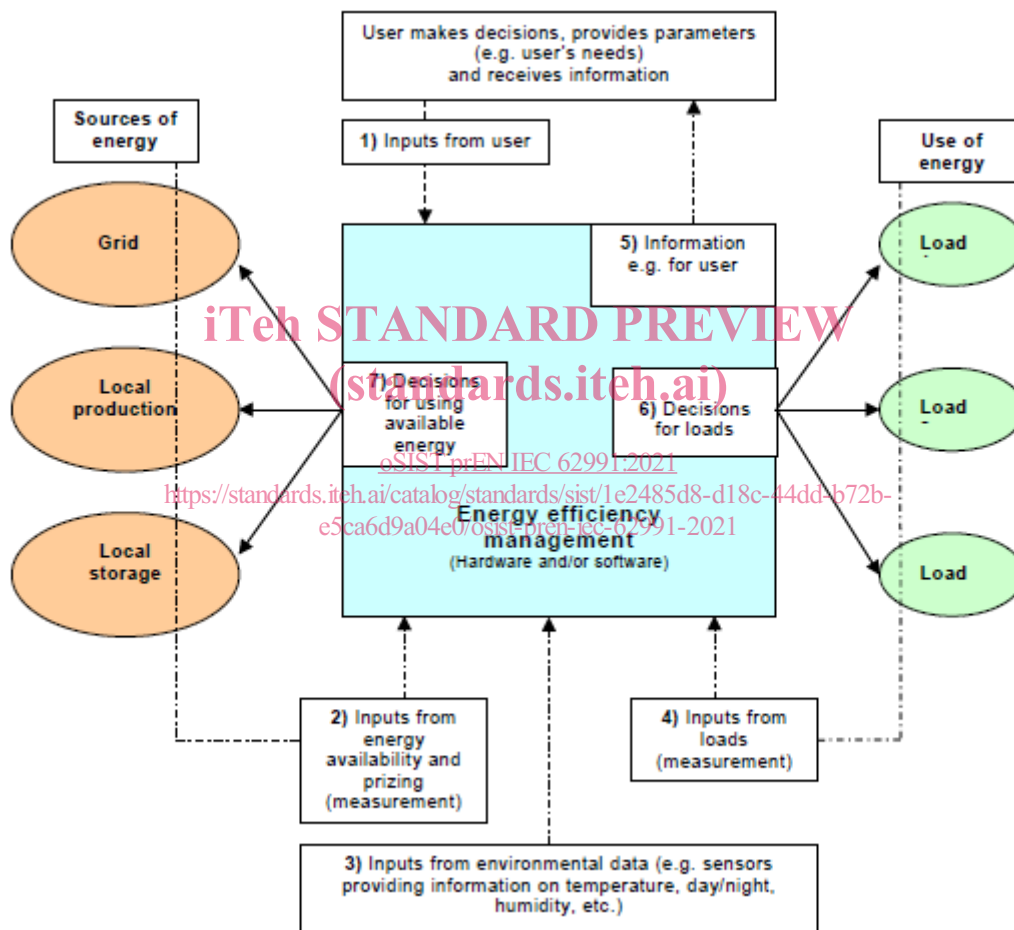
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INTRODUCTION

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

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

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



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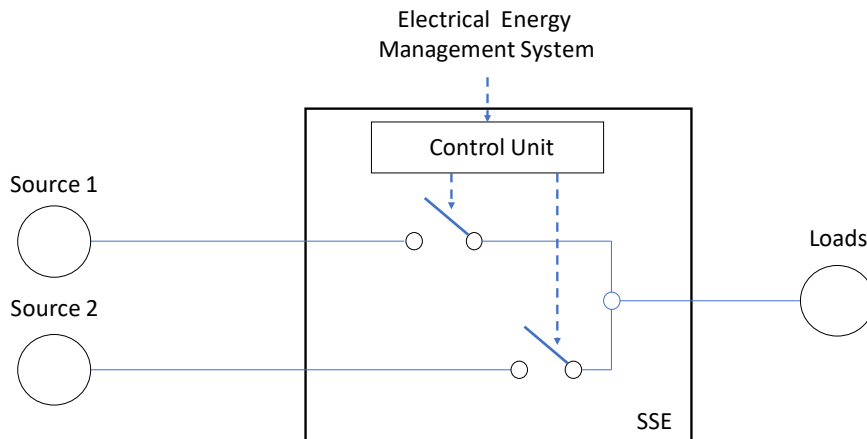
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Figure 1 – Energy Efficiency Management System (EEMS)

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

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

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



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

359 NOTE Examples of use of SSEs are given Annex A.

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

- 362 – direct feeding mode: corresponding to the normal source (supply from the grid). Storage
363 units can supply current-using-equipment or be charged by the grid or local power supplies;
- 364 – island mode: loads supplied by local energy sources and storage units, disconnected from
365 the grid;
- 366 – reverse feeding mode: corresponding to the supply of the grid. Storage units can supply
367 current-using-equipment and/or the grid or be charged by local power supplies.

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

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

374 Operation of an SSE is supposed to happen in safe conditions as described in IEC 60364-8-
375 2:2018.

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

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

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PARTICULAR REQUIREMENTS FOR SOURCE-SWITCHING EQUIPMENT (SSE)

387 1 Scope

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

391 This standard has been drafted following principles of:

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

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

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

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

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

402 SSEs are part of the fixed electrical installation.

403 This standard applies to SSEs for operation in:

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

408 SSEs may be operated:

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

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

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

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

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

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

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

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

433 2 Normative references

434 The following documents are referred to in the text in such a way that some or all of their content
 435 constitutes requirements of this document. For dated references, only the edition cited applies.
 436 For undated references, the latest edition of the referenced document (including any
 437 amendments) applies.

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

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

[https://standards.iteh.ai/catalog/standards/sist/1e2485d8-d18c-44dd-b72b-](https://standards.iteh.ai/catalog/standards/sist/1e2485d8-d18c-44dd-b72b-e5ca6d9a04e0/osist-pren-iec-62991-2021)

440 IEC 60127, *Miniature fuses* [e5ca6d9a04e0/osist-pren-iec-62991-2021](https://standards.iteh.ai/catalog/standards/sist/1e2485d8-d18c-44dd-b72b-e5ca6d9a04e0/osist-pren-iec-62991-2021)

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

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

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

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

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

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

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

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