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**BSI Standards Publication**

## **Central safety power supply systems**

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## National foreword

This British Standard is the UK implementation of EN 50171:2021. It supersedes BS EN 50171:2001, which will be withdrawn on 15 November 2024.

The UK participation in its preparation was entrusted to Technical Committee PEL/22, Power electronics.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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### Amendments/corrigenda issued since publication

Date	Text affected
31 May 2022	Correction to supersession details in national foreword

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## EUROPÄISCHE NORM

December 2021

ICS 29.240

Supersedes EN 50171:2001 and all of its amendments  
and corrigenda (if any)

English Version

## Central safety power supply systems

Systèmes d'alimentation de sécurité à source centrale

Zentrale Sicherheitsstromversorgungssysteme

This European Standard was approved by CENELEC on 2021-11-15. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

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## European foreword

This document (EN 50171:2021) has been prepared by CLC/TC 22X "Power electronics".

The following dates are fixed:

- latest date by which this document has (dop) 2022-11-15 to be implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national (dow) 2024-11-15 standards conflicting with this document have to be withdrawn

This document supersedes EN 50171:2001 and all of its amendments and corrigenda (if any).

EN 50171:2021 includes the following significant technical changes with respect to EN 50171:2001:

- The scope and the normative references have been updated.
- A new clause, with general safety requirements, has been added.
- A new operation mode "Mode without interruption with an additional control switching device for central switching of the load" has been added.
- EMC requirements have been added.
- Maximum superimposed alternating currents of the battery charger have been defined.
- Further requirements on inverters and converters have been added.
- A new clause "Test systems" has been added.
- A new chapter "Required Information for safe installation and operation of central safety power supply Systems" has been added.
- A new chapter "Tests" has been added.
- A new subclause regarding requirements on parallel battery strings has been added.

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

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

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## 1 Scope

This document specifies the general requirements for central power supply systems for an independent energy supply to essential safety equipment. This document covers systems that are permanently connected to AC supply voltages not exceeding 1 000 V and use batteries as an alternative power source.

Central safety power supply systems are intended to ensure energy supply to emergency escape lighting in the event of normal supply failure and could be suitable for energizing other essential safety equipment, for example:

- electric circuits of automatic fire extinguishing installations;
- paging systems and signalling safety installations;
- smoke extraction equipment;
- carbon monoxide warning systems;
- special safety installations related to specific buildings, e.g. high-risk areas.

The power supply of CPS systems is expected to be dedicated only to the essential safety equipment, and not for other type of loads such as general purpose IT or industrial systems etc.

Combinations of the aforementioned safety equipment types can be used together on the same central safety power supply system providing the availability for safety equipment loads is not impaired. A fault occurring in a circuit is expected to not cause the interruption in any other circuit used to supply essential safety equipment.

Schematic representations of typical central safety power supply equipment are depicted in Clause 4.

Power supply systems for fire alarm equipment that are covered by EN 54 (series) are excluded.

## 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 1838, *Lighting applications - Emergency lighting*

EN 50274, *Low-voltage switchgear and controlgear assemblies - Protection against electric shock - Protection against unintentional direct contact with hazardous live parts*

EN 50525-2-31, *Electric cables - Low voltage energy cables of rated voltages up to and including 450/750 V (U0/U) - Part 2-31: Cables for general applications - Single core non-sheathed cables with thermoplastic PVC insulation*

EN 60038:2011, *CENELEC standard voltages (IEC 60038:2009)*

EN 60051 (series), *Direct acting indicating analogue electrical measuring instruments and their accessories (IEC 60051 series)*

EN 60146-1-1, *Semiconductor converters - General requirements and line commutated converters - Part 1-1: Specification of basic requirements (IEC 60146-1-1)*

EN 60269 (series), *Low-voltage fuses (IEC 60269 series)*

HD 60364-6:2016, *Low-voltage electrical installations - Part 6: Verification (IEC 60364-6:2016)*