



**BSI Standards Publication**

## **Uninterruptible power systems (UPS)**

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Part 1: Safety requirements

This is a preview of BS EN IEC 62040-1:2019+A2:2025. [Click here to purchase the full version from the ANSI store](#)

## National foreword

This British Standard is the UK implementation of EN IEC 62040-1:2019+A2:2025. It is derived from IEC 62040-1:2017, incorporating corrigendum October 2019, amendment 1:2021 and amendment 2:2022. It supersedes BS EN IEC 62040-1:2019+A1:2023, which will be withdrawn on 31 March 2028.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Text altered by IEC corrigendum October 2019 is indicated in the text by **AC1** ~~AC1~~.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by **A1** ~~A1~~.

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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Annex ZA/ZZ in the European text, and references to EU legislation, are still valid for this market.

UK Government is responsible for legislation. For information on legislation and policies relating to that legislation, consult the relevant pages of [www.gov.uk](http://www.gov.uk).

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#### **Amendments/corrigenda issued since publication**

Date	Text affected
30 November 2019	Implementation of IEC corrigendum October 2019
31 August 2020	Correction to supersession information in national foreword
28 February 2021	Implementation of CENELEC amendment A11:2021: addition of Annex ZZ
31 December 2023	Implementation of IEC amendment 1:2021 with CENELEC endorsement A1:2023
31 March 2025	Implementation of IEC amendment 2:2022 with CENELEC endorsement A2:2025

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**EUROPÄISCHE NORM**

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English Version

## Uninterruptible power systems (UPS) - Part 1: Safety requirements (IEC 62040-1:2017)

Alimentations sans interruption (ASI) - Partie 1: Exigences de sécurité  
(IEC 62040-1:2017)

Unterbrechungsfreie Stromversorgungssysteme (USV) - Teil 1: Sicherheitsanforderungen  
(IEC 62040-1:2017)

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European Committee for Electrotechnical Standardization  
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## European foreword

The text of document 22H/217/FDIS, future edition 2 of IEC 62040-1, prepared by SC 22H "Uninterruptible power systems (UPS)" of IEC/TC 22 "Power electronic systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62040-1:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-01-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-07-19

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The text of the International Standard IEC 62040-1:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60076-11:2004	NOTE	Harmonized as EN 60076-11:2004 (not modified)
IEC 60364-5-52	NOTE	Harmonized as HD 60364-5-52
IEC 60947-1:2007	NOTE	Harmonized as EN 60947-1:2007 (not modified)
IEC 60947-3:2008	NOTE	Harmonized as EN 60947-3:2009 (not modified)
IEC 60947-6-1:2005	NOTE	Harmonized as EN 60947-6-1:2005 (not modified)
IEC 60947-6-1:2005/A1:2013	NOTE	Harmonized as EN 60947-6-1:2005/A1:2014 (not modified)
IEC 61347 (series)	NOTE	Harmonized as EN 61347 (series)
IEC 61439-1:2011	NOTE	Harmonized as EN 61439-1:2011 (not modified)
IEC 61508 (series)	NOTE	Harmonized as EN 61508 (series)
IEC 62040-3:2011	NOTE	Harmonized as EN 62040-3:2011 (not modified)
IEC 62310-1	NOTE	Harmonized as EN 62310-1
IEC 62368-1:2014	NOTE	Harmonized as EN 62368-1:2014/AC:2015 (not modified)

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## Foreword to amendment A11

This document (EN IEC 62040-1:2019/A11:2021) has been prepared by CLC/TC 22X "Power electronics".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-08-05
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For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

## European foreword to amendment A1

The text of document 22H/269/FDIS, future IEC 62040-1/A1, prepared by SC 22H "Uninterruptible power systems (UPS)" of IEC/TC 22 "Power electronic systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62040-1:2019/A1:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2024-04-20
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-10-20

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## **European foreword to Amendment 2**

The text of document 22H/288/CDV, future edition 2 of IEC 62040-1/AMD2, prepared by SC 22H "Uninterruptible power systems (UPS)" of IEC/TC 22 "Power electronic systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62040-1:2019/A2:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2026-03-31 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2028-03-31 document have to be withdrawn

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60364-4-42- (mod)		Low-voltage electrical installations - Part 4-42: Protection for safety - Protection against thermal effects	EN 60364-4-42	-
IEC 60384-14	-	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	-
IEC/TR 60755	-	General requirements for residual current-operated protective devices		-
IEC 60947-2	2006	Low-voltage switchgear and controlgear - Part 2: Circuit-breakers	EN 60947-2	2006
IEC 60950-1 (mod)	2005	Information technology equipment - Safety - Part 1: General requirements	EN 60950-1 + A11 + A12	2006 2009 2011
IEC 61000-2-2	2002	Electromagnetic compatibility (EMC) - Part 2-2: Environment - Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems	EN 61000-2-2	2002
IEC 61008-1 (mod)	-	Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) - Part 1: General rules	EN 61008-1	-
IEC 61009-1 (mod)	-	Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules	EN 61009-1	-
IEC 62040-2	2005	Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements	EN 62040-2	2006

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62477-1	2012	Safety requirements for power electronic converter systems and equipment - Part 1: General	EN 62477-1	2012

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(informative)

## Relationship between this European Standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European Standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

**Table ZZ.1 — Correspondence between this European Standard and Annex I of Directive 2014/35/EU [2014 OJ L96]**

Safety objectives of Directive 2014/35/EU	Clause(s) / sub-clause(s) of this EN	Remarks / Notes
<b>1. General</b>		
1 a) the essential characteristics, the recognition and observance of which will ensure that electrical equipment will be used safely and in applications for which it was made, shall be marked on the electrical equipment, or, if this is not possible, on an accompanying document	6	
1 b) the electrical equipment, together with its component parts, shall be made in such a way as to ensure that it can be safely and properly assembled and connected;	4.3 4.8 4.11, 4.102, 4.103 6.3 Annex CC	
1 c) the electrical equipment shall be so designed and manufactured as to ensure that protection against the hazards set out in points 2 and 3 is assured, providing that the equipment is used in applications for which it was made and is adequately maintained.	1, 2, 3 6.2, 6.4, 6.5	refer to 2a to 2d and 3a to 3c in this table
<b>2. Protection against hazards arising from the electrical equipment</b>		

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Directive 2014/35/EU	of this EN	
2 a) persons and domestic animals are adequately protected against the danger of physical injury or other harm which might be caused by direct or indirect contact;	4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.9, 4.101. 4.103 Annex A, Annex D, Annex F 5.1, 5.2.1, 5.2.2, 5.2.3, 5.2.4	
2 b) temperatures, arcs or radiation which would cause a danger, are not produced	4.1, 4.2, 4.3, 4.5, 4.6, 4.9, 4.11, 4.12 5.1, 5.2.6 5.2.3.9, 5.2.4, 5.2.3.10, 5.2.5	Hazards arising from electric, magnetic and electromagnetic fields, other ionizing and non-ionizing radiation are covered by separate standards.
2 c) persons, domestic animals and property are adequately protected against non-electrical dangers caused by the electrical equipment which are revealed by experience;	4.1, 4.2, 4.7, 4.12 5.1 5.2.1, 5.2.2, 5.2.4	
2 d) the insulation is suitable for foreseeable conditions.	4.1, 4.2, 4.4.7, 4.6.4, 4.101 5.1 5.2.1, 5.2.3, 5.2.4, 5.2.3.10, 5.2.5	
<b>3. Protection against hazards which may be caused by external influences on the electrical equipment</b>		
3 a) meets the expected mechanical requirements in such a way that persons, domestic animals and property are not endangered;	4.1, 4.2, 4.7, 4.9, 4.12 5.1 5.2.1, 5.2.2, 5.2.4, 5.2.6 Annex GG	
3 b) is resistant to non-mechanical influences in expected environmental conditions, in such a way that persons, domestic animals and property are not endangered;	4.2, 4.9, 5.1 5.2.1, 5.2.6, 5.2.7	EMC is not covered.
3 c) does not endanger persons, domestic animals and property in foreseeable conditions of overload.	4.1, 4.2, 4.3 5.1 5.2.1, 5.2.4 Annex CC	

**WARNING 1:** Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

**WARNING 2:** Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

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