

Svenska Elektriska Kommissionen, SEK

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Utrustning för avbrottsfri elförsörjning (UPS) – Del 1-2: Allmänna fordringar och säkerhetsfordringar på UPS i driftrum

*Uninterruptible power systems (UPS) –**Part 1-2: General and safety requirements for UPS used in restricted access locations*

Som svensk standard gäller europastandarden EN 62040-1-2:2003. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62040-1-2:2003.

Nationellt förord

Europastandarden EN 62040-1-2:2003

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62040-1-2, First edition, 2002 - Uninterruptible power systems (UPS) - Part 1-2: General and safety requirements for UPS used in restricted access locations**

jämte

Corrigendum, December 2002

utarbetad inom International Electrotechnical Commission, IEC.

Standarden skall användas tillsammans med SS-EN 60950-1.

Tidigare utgiven svensk standard SS-EN 50091-1-2, utgåva 1, 1998 och SS-EN 50091-1-2 C1, utgåva 1, 1999, gäller ej fr o m 2005-11-01.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

Svenska Elektriska Kommissionen, SEK, svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK

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EUROPEAN STANDARD

EN 62040-1-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2003

ICS 29.200

Supersedes EN 50091-1-2:1998

English version

**Uninterruptible power systems (UPS)
Part 1-2: General and safety requirements for UPS
used in restricted access locations
(IEC 62040-1-2:2002 + corrigendum 2002)**

Alimentations sans interruption (ASI)
Partie 1-2: Prescriptions générales
et règles de sécurité pour les ASI
utilisées dans des locaux d'accès restreint
(CEI 62040-1-2:2002 + corrigendum 2002)

Unterbrechungsfreie
Stromversorgungssysteme (USV)
Teil 1-2: Allgemeine Anforderungen
und Sicherheitsanforderungen an USV
in abgeschlossenen Betriebsräumen
(IEC 62040-1-2:2002 + Corrigendum 2002)

This European Standard was approved by CENELEC on 2002-11-01. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 22H/23FDIS, future edition 1 of IEC 62040-1-2 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 was approved by CENELEC as EN 62040-1-2 on 2002-11-01.

This European Standard supersedes EN 50091-1-2:1998 + corrigendum August 1999.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2003-08-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-11-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes L, M, N, P and ZA are normative and annex H is informative.

Annex ZA has been added by CENELEC.

In this standard, the following print types are used:

- Requirements proper and normative annexes: in roman type;
- *Compliance statements and test specifications: in italic type;*
- Notes and other informative matter: in smaller roman type;
- Normative conditions within tables: in smaller roman type;
- Terms that are defined in clause 3: **bold**.

Endorsement notice

The text of the International Standard IEC 62040-1-2:2002 and its corrigendum December 2002 was approved by CENELEC as a European Standard without any modification.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60364(mod)	Series	Electrical installations of buildings	HD 384 HD 60364	Series Series
IEC 60364-4-41	2001	Part 4-41: Protection for safety - Protection against electric shock	-	-
IEC 60364-4-482	1982	Part 4: Protection for safety Chapter 48: Choice of protective measures as a function of external influences Section 482: Protection against fire where particular risks or danger exist	-	-
IEC 60417	Series	Graphical symbols for use on equipment	EN 60417	Series
IEC 60439-1	1999	Low-voltage switchgear and controlgear assemblies Part 1: Type-tested and partially type- tested assemblies	EN 60439-1	1999
IEC 60445	1999	Basic and safety principles for man- machine interface, marking and identification - Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system	EN 60445	2000
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60950-1 (mod)	2001	Information technology equipment - Safety Part 1: General requirements	EN 60950-1	2001
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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61140	2001	Protection against electric shock - Common aspects for installation and equipment	EN 61140	2002
IEC 62040-1-1 + corr. December	2002 2002	Uninterruptible power systems (UPS) Part 1-1: General and safety requirements for UPS used in operator access areas	EN 62040-1-1	2003
IEC 62040-2	1999	Part 2: Electromagnetic compatibility (EMC) requirements	-	-
IEC 62040-3 (mod)	1999	Part 3: Method of specifying the performance and test requirements	EN 62040-3	2001

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UNINTERRUPTIBLE POWER SYSTEMS (UPS) –

Part 1-2: General and safety requirements for UPS used in restricted access locations

1 Scope and specific applications

1.1 Scope

This standard applies to electronic **uninterruptible power systems** with an electrical energy storage device in the d.c. link. It is to be used with IEC 60950-1 which is referred to in this standard as “RD”.

When any item is referred to by the phrase “The definitions or the provisions of item/RD apply”, this phrase is intended to mean that the definitions or provisions in that item of IEC 60950-1 apply, except any which are clearly inapplicable to **uninterruptible power systems**. National requirements additional to those in IEC 60950-1 apply and are found as notes under relevant clauses of the RD.

The primary function of the **UPS** covered by this standard is to ensure continuity of an alternating power source. The UPS may also serve to improve the quality of the power source by keeping it within specified characteristics.

This standard is applicable to **UPS** which are movable, stationary, fixed or for building-in, for use on low-voltage distribution systems and intended to be installed in **restricted access locations**. It specifies requirements to ensure safety for the **service person**.

This standard is intended to ensure the safety of installed **UPS**, both as a single **UPS** unit or as a system of interconnected **UPS** units, subject to installing, operating and maintaining the **UPS** in the manner prescribed by the manufacturer.

This standard does not cover d.c. supplied electronic ballasts (IEC 60924 and IEC 60925) and **UPS** based on rotating machines.

The relevant general and safety requirements for **UPS** intended to be installed in operator access areas are given in IEC 62040-1-1; electromagnetic compatibility (EMC) requirements and definitions are given in IEC 62040-2.

1.2 Specific applications

Even if this standard does not cover all types of **UPS**, it may be taken as a guide for such equipment. Requirements additional to those specified in this standard may be necessary for specific applications, for example:

- **UPS** intended for operation while exposed, for example, to extremes of temperature; to excessive dust, moisture, or vibration; to flammable gases; to corrosive or explosive atmospheres;
- electromedical applications with the **UPS** located within 1,5 m from the patient contact area;
- **UPS** subject to transient overvoltages exceeding those for Overvoltage Category II according to IEC 60664, additional protection might be necessary in the mains supply to the **UPS**.
- **UPS** intended for use where ingress of water and foreign objects are possible, additional requirements may be necessary; for guidance on such requirements and for relevant testing, see annex H.

- **UPS** with trapezoidal output waveforms and long run times (greater than 30 min) are subject to voltage distortion tests for the purpose of load compatibility.

NOTE For **UPS** intended to be used in vehicles, on board ships or aircraft, in tropical countries, or on elevations greater than 1 000 m, different requirements may be necessary.

2 Normative references

The following referenced documents are indispensable for the application 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 60364 (all parts), *Electrical installations of buildings*

IEC 60364-4-41:2001, *Electrical installations of buildings – Part 4-41: Protection for safety – Protection against electric shock*

IEC 60364-4-482:1982, *Electrical installations of buildings – Part 4: Protection for safety – Chapter 48: Choice of protective measures as a function of external influences – Section 482: Protection against fire*

IEC 60417 (all parts), *Graphical symbols for use on equipment*

IEC 60439-1:1999, *Low-voltage switchgear and controlgear assemblies – Part 1: Type-tested and partially type-tested assemblies*

IEC 60445:1999, *Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60950-1:2001, *Safety of information technology equipment*

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*

IEC 61140:2001, *Protection against electric shock – Common aspects for installation and equipment*

IEC 62040-1-1: *Uninterruptible Power Systems (UPS) – Part 1-1: General and safety requirements for UPS used in operator access areas*¹

IEC 62040-2:1999, *Uninterruptible Power Systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements*

IEC 62040-3: 1999, *Uninterruptible Power Systems (UPS) – Part 3: Method of specifying the performance and test requirements*

¹ To be published