Madalpinge alalisvooluväljundiga elektrivarustusseadmed. Talitlusomadused ja ohutusnõuded

Low-voltage power supply devices, d.c. output - Performance characteristics and safety requirements

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 61204:2001 sisaldab Euroopa standardi EN 61204:1995 ingliskeelset teksti.	This Estonian standard EVS-EN 61204:2001 consists of the English text of the European standard EN 61204:1995.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks .	Date of Availability of the European standard is .
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.160.40

Võtmesõnad: electrical power supply, low voltage, overcurrent protection, overvoltage protection, performance evaluation, safety, tests,

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61204

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Descriptors: Electrical power supply, low voltage, performance evaluation, safety, overvoltage protection, overcurrent protection, tests

English version

Low-voltage power supply devices, d.c. output Performance characteristics and safety requirements (IEC 1204:1993, modified)

Dispositifs d'alimentation à basse tension, à sortie en courant continu Caractéristiques de fonctionnement et prescriptions de sécurité (CEI 1204:1993, modifiée)

Stromversorgungsgeräte für Niederspannung mit Gleichstromausgang Eigenschaften und Sicherheitsanforderungen (IEC 1204:1993, modifiziert)

This European Standard was approved by CENELEC on 1994-12-06. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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 the International Standard IEC 1204:1993, prepared by SC 22E, Stabilized power supplies, of IEC TC 22, Power electronics, together with common modifications prepared by CENELEC BTTF 64-2, was submitted to the formal vote and was approved by CENELEC as EN 61204 on 1994-12-06.

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) 1995-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1995-12-01

For products which have complied with the relevant national standard before 1995-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2000-12-01.

Annexes designated "normative" are part of the body of the standard.
In this standard, annexes A, B, C, D and ZA are normative.
Annex ZA has been added by CENELEC.

NORME INTERNATIONALE
INTERNATIONAL STANDARD

CEI
IEC
1204

Première édition
First edition
1993-02

Dispositifs d'alimentation à basse tension, à sortie en courant continu – Caractéristiques de fonctionnement et prescriptions de sécurité

Low-voltage power supply devices, d.c. output – Performance characteristics and safety requirements

Numéro de référence
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Numéros des publications

Depuis le 1er janvier 1997, les publications de la CEI sont numérotées à partir de 60000.

Publications consolidées

Les versions consolidées de certaines publications de la CEI incorporant les amendements sont disponibles. Par exemple, les numéros d'édition 1.0, 1.1 et 1.2 indiquent respectivement la publication de base, la publication de base incorporant l'amendement 1, et la publication de base incorporant les amendements 1 et 2.

Validité de la présente publication

Le contenu technique des publications de la CEI est constamment revu par la CEI afin qu'il reflète l'état actuel de la technique.

Des renseignements relatifs à la date de reconfirmation de la publication sont disponibles dans le Catalogue de la CEI.

Les renseignements relatifs à des questions à l'étude et des travaux en cours entrepris par le comité technique qui a établi cette publication, ainsi que la liste des publications établies, se trouvent dans les documents ci-dessous:

- **«Site web» de la CEI***
- **Catalogue des publications de la CEI**
  Publié annuellement et mis à jour régulièrement (Catalogue en ligne)*
- **Bulletin de la CEI**
  Disponible à la fois au «site web» de la CEI* et comme périodique imprimé

Terminologie, symboles graphiques et littéraux

En ce qui concerne la terminologie générale, le lecteur se reportera à la CEI 60050: *Vocabulaire Electrotechnique International* (VEI).

Pour les symboles graphiques, les symboles littéraux et les signes d'usage général approuvés par la CEI, le lecteur consultera la CEI 60027: *Symboles littéraux à utiliser en électrotechnique,* la CEI 60417: S*ymboles graphiques utilisables sur le matériel. Index, relevé et compilation des feuilles individuelles,* et la CEI 60617: *Symboles graphiques pour schémas.*

* Voir adresse «site web» sur la page de titre.

Numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series.

Consolidated publications

Consolidated versions of some IEC publications including amendments are available. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Validity of this publication

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology.

Information relating to the date of the reconfirmation of the publication is available in the IEC catalogue.

Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is to be found at the following IEC sources:

- **IEC web site***
- **Catalogue of IEC publications**
  Published yearly with regular updates (On-line catalogue)*
- **IEC Bulletin**
  Available both at the IEC web site* and as a printed periodical

Terminology, graphical and letter symbols

For general terminology, readers are referred to IEC 60050: *International Electrotechnical Vocabulary* (IEV).

For graphical symbols, and letter symbols and signs approved by the IEC for general use, readers are referred to publications IEC 60027: *Letter symbols to be used in electrical technology*, IEC 60417: *Graphical symbols for use on equipment. Index, survey and compilation of the single sheets* and IEC 60617: *Graphical symbols for diagrams.*

* See web site address on title page.

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Commission Electrotechnique Internationale
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Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE POWER SUPPLY DEVICES, D.C. OUTPUT – PERFORMANCE CHARACTERISTICS AND SAFETY REQUIREMENTS

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.

3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

This International Standard IEC 1204 has been prepared by sub-committee 22E: Stabilized power supplies, of IEC technical committee 22: Power electronics.

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

DIS	Report on Voting
22E(CO)24	22E(CO)26

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

Annexes A to D form an integral part of this standard.

INTRODUCTION

This International Standard, based on the British Standard BS6688: 1986, has been reworked and extended to take into account existing and forthcoming IEC standards. With regard to safety, there was close collaboration with IEC technical committee 74, working group 6: Safety requirements for power supplies.

LOW-VOLTAGE POWER SUPPLY DEVICES, D.C. OUTPUT – PERFORMANCE CHARACTERISTICS AND SAFETY REQUIREMENTS

1 General

1.1 *Scope and object*

This international Standard describes a method for specifying requirements for low-voltage power supply devices (including switching types) providing d.c. output(s) up to 200 V d.c. at a power level of up to 30 kW, operating from a.c. or d.c. source voltages of up to 600 V. The devices are for use within class I equipment or for free-standing operation when used with adequate electrical and mechanical protection.

This standard is intended to cover all types of a.c. or d.c. driven units with any number of outputs including power supply devices used in military, industrial, telecommunications and commercial applications. Special considerations apply for medical applications and toys.

It permits to specify a power unit to meet a particular application by the specification of parameters at required performance levels, to establish the essential definitions related to this type of equipment, and to establish a selection of levels of performance. These levels are carefully graded to enable manufacturers and users to select and specify a range of power supply devices suitable for their application.

1.2 *Normative references*

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently international Standards.

IEC 38: 1983, *IEC standard voltages*

IEC 68: *Environmental testing*

IEC 68-2-1: 1990, *Environmental testing – Part 2: Tests – Test A: Cold*

IEC 68-2-2: 1974, *Environmental testing – Part 2: Tests – Test B: Dry heat*

IEC 68-2-3: 1985, *Environmental testing – Part 2: Tests – Test Ca: Damp heat, steady state*

IEC 68-2-6: 1982, *Environmental testing – Part 2: Tests – Test Fc and guidance: Vibration (sinusoidal)*

IEC 68-2-27: 1987, *Environmental testing – Part 2: Tests – Test Ea and Guidance: Shock*

IEC 68-2-29: 1987, *Environmental testing – Part 2: Tests – Test Eb and Guidance: Bump*

IEC 478: *Stabilized power supplies, d.c. output*

IEC 478-1: 1974, *Stabilized power supplies, d.c. output – Part 1: Terms and definitions*

IEC 478-2: 1986, *Stabilized power supplies, d.c. output – Part 2: Rating and performance*

IEC 478-3: 1989, *Stabilized power supplies, d.c. output – Part 3: Reference levels and measurement of conducted electromagnetic interference (EMI)*

IEC 478-4: 1976, *Stabilized power supplies, d.c. output – Part 4: Tests other than radio-frequency interference*

IEC 478-5: 1993, *Stabilized power supplies, d.c. output – Part 5: Measurement of the magnetic component of the reactive near field*

IEC 651: 1979, *Sound level meters*

IEC 664-1: 1992, *Insulation co-ordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 721: *Classification of environmental conditions*

IEC 721-3-1: 1987, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities. Storage*

IEC 721-3-2: 1985, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities. Transport*

IEC 801: *Electromagnetic compatibility for industrial-process measurement and control equipment*

IEC 801-4: 1988, *Electromagnetic compatibility for industrial-process measurement and control equipment – Part 4: Electrical fast transient/burst requirements*

IEC 950: 1991, *Safety of information technology equipment, including electrical business equipment*

MIL-HDBK-217E: 1974, *Reliability prediction of electronic equipment*

1.3 *Definitions*

For the purpose of this International Standard the definitions given in IEC 950 and IEC 478-1 apply, except where redefined in this standard.