SLOVENSKI STANDARD
SIST EN 60664-3:2004

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Nadomešča:
SIST HD 625.3 S1:1999

Uskladitev izolacije za opremo v okviru nizkonapetostnih sistemov - 3. del: Zaščita pred onesnaženjem s prevlekami, zapiranjem v ohišja ali zalivanjem

Insulation coordination for equipment within low-voltage systems -- Part 3: Use of coating, potting or moulding for protection against pollution

Isolationskoordination für elektrische Betriebsmittel in Niederspannungsanlagen -- Teil 3: Anwendung von Beschichtungen, Eingießen oder Vergießen zum Schutz gegen Verschmutzung

Coordination de l'isolement des matériels dans les systèmes (réseaux) à basse tension -- Partie 3: Utilisation de revêtement, d'empotage ou de moulage pour la protection contre la pollution

Ta slovenski standard je istoveten z: **EN 60664-3:2003**

ICS:

29.080.30	Izolacijski sistemi	Insulation systems

SIST EN 60664-3:2004 **en**

EUROPEAN STANDARD **EN 60664-3**

NORME EUROPÉENNE

EUROPÄISCHE NORM April 2003

ICS 29.080.30 Supersedes HD 625.3 S1:1997

English version

Insulation coordination for equipment within low-voltage systems Part 3: Use of coating, potting or moulding for protection against pollution
(IEC 60664-3:2003)

Coordination de l'isolement des matériels dans les systèmes (réseaux) à basse tension
Partie 3: Utilisation de revêtement, d'empotage ou de moulage pour la protection contre la pollution
(CEI 60664-3:2003)

Isolationskoordination für elektrische Betriebsmittel in Niederspannungsanlagen
Teil 3: Anwendung von Beschichtungen, Eingießen oder Vergießen zum Schutz gegen Verschmutzung
(IEC 60664-3:2003)

This European Standard was approved by CENELEC on 2003-04-01. 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

Ref. No. EN 60664-3:2003 E

Foreword

The text of document 109/24/FDIS, future edition 2 of IEC 60664-3, prepared by IEC TC 109, Insulation co-ordination for low-voltage equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60664-3 on 2003-04-01.

This European Standard supersedes HD 625.3 S1:1997.

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)	2004-01-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2006-04-01

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

Endorsement notice

The text of the International Standard IEC 60664-3:2003 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.

Publication	Year	Title	EN/HD	Year
IEC 60068-2-1	1990	Environmental testing Part 2: Tests - Tests A: Cold	EN 60068-2-1	1993
A1	1993		A1	1993
A2	1994		A2	1994
IEC 60068-2-2	1974	Basic environmental testing procedures		
+ IEC 60068-2-2A	1976	Part 2: Tests - Test B: Dry heat	EN 60068-2-2	1993
A1	1993		A1	1993
A2	1994		A2	1994
IEC 60068-2-14	1984	Part 2: Tests - Test N: Change of		
+ A1	1986	temperature	EN 60068-2-14	1999
IEC 60068-2-78	2001	Environmental testing Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	2001
IEC 60249-1	1982	Base materials for printed circuits Part 1: Test methods	EN 60249-1 [1)]	1993
A4	1993		A4 + corr. March	1994 1994
IEC 60249-2	Series	Part 2: Specifications	EN 60249-2	Series
IEC 60326-2	1990	Printed boards Part 2: Test methods	-	-
A1	1992		-	-
IEC 60454-3-1	1998	Pressure-sensitive adhesive tapes for electrical purposes Part 3-1: Specifications for individual materials - PVC film tapes with pressure-sensitive adhesive	EN 60454-3-1	1998
IEC 60664-1 + A1 + A2	1992 2000 2002	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	EN 60664-1	2003

[1)] EN 60249-1 includes A1:1984 + A2:1989 + A3:1991 to IEC 60249-1.

Publication	Year	Title	EN/HD	Year
IEC 60664-5	- [2)]	Part 5: A comprehensive method for determining clearances and creepage distances equal to or less than 2 mm	-	-
IEC Guide 104	1997	The preparation of safety publications and the use of basic safety publications and group safety publications	-	-

[2)] At draft stage.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
60664-3

Deuxième édition
Second edition
2003-02

PUBLICATION FONDAMENTALE DE SÉCURITÉ
BASIC SAFETY PUBLICATION

Coordination de l'isolement des matériels dans les systèmes (réseaux) à basse tension –

Partie 3: Utilisation de revêtement, d'empotage ou de moulage pour la protection contre la pollution

Insulation coordination for equipment within low-voltage systems –

Part 3: Use of coating, potting or moulding for protection against pollution

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INSULATION COORDINATION FOR EQUIPMENT WITHIN LOW-VOLTAGE SYSTEMS –

Part 3: Use of coating, potting or moulding for protection against pollution

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 co-operation 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 express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, 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.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60664-3 has been prepared by IEC technical committee 109: Insulation coordination for low-voltage equipment.

This second edition cancels and replaces the first edition, published in 1992, and constitutes a technical revision.

It has the status of a basic safety publication in accordance with IEC Guide 104.

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

FDIS	Report on voting
109/24/FDIS	109/31/RVD

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

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

The major changes made during the revision of IEC 60664-3 were the following:

- Part 3 has been exactly aligned with Part 1 (including amendments 1 and 2). It has been made clear that Part 3 can only be used as a whole document together with Part 1 of IEC 60664.
- The scope of Part 3 has been greatly extended including now also potting and moulding and similar procedures providing protection against pollution. The standard also applies to all kinds of coated printed boards including the surface of inner-layers of multi-layer boards, substrates and similar protected assemblies. The distances through an inner layer of multi-layer boards however are covered by the requirements for solid insulation in Part 1.
- The difference between the two types of protection has been clarified. Type 1 (formerly type A) protection leads to a reduction of the pollution degree present beyond the protection to pollution degree 1. Type 2 (formerly type B) protection introduces protection systems which can be considered similar to solid insulation. Consequently the dimensioning and test requirements have been aligned more correctly.
- The area of application has been extended including now functional, basic, supplementary and reinforced insulation.
- Type 1 and type 2 protection now can both be used under the conditions of pollution degree 3 (formerly only type B).
- Not only type 2 protection but also type 1 protection requires that between two conductive parts 100 % of the distance across the spacing shall be covered by the protection.
- For type 2 protection minimum distances have been introduced. In any case the spacings shall not be lower than the minimum value of 10 µm.
- Also the new Part 5 of IEC 60664 is referred to.
- The tests follow much more closely the different requirements for type 1 and type 2 protection. The protected assembly shall withstand the electrical tests for solid insulation in 4.1.2 of IEC 60664-1. For type 1 protection, the partial discharge test is not applicable. For type 2 protection, the partial discharge test is required. The required partial discharge extinction voltage and the test method are specified in 4.1.2.4 of IEC 60664-1.
- The requirements for the test specimen have been aligned with the extended scope.
- The tests for the “adhesion of coating” and the “scratch resistance test” have been updated.

IEC 60664 consists of the following parts under the general title *Insulation coordination for equipment within low-voltage systems*:

Part 1: Principles, requirements and tests

Part 2: Application guide

Part 3: Use of coating, potting or moulding for protection against pollution

Part 4: Consideration of high-frequency voltage stress

Part 5: A comprehensive method for determining clearances and creepage distances equal to or less than 2 mm

The committee has decided that the contents of this publication will remain unchanged until 2008. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

INTRODUCTION

This part of IEC 60664 details the conditions in which the reduction of clearance and creepage distances can apply to rigid assemblies such as printed boards or terminals of components. Protection against pollution can be achieved by any kind of encapsulation such as coating, potting or moulding. The protection may be applied to one or both sides of the assembly. This standard specifies the insulating properties of the protecting material.

Between any two unprotected conductive parts, the clearance and creepage distance requirements of IEC 60664-1 or IEC 60664-5 apply.

This standard refers only to permanent protection. It does not cover assemblies after repair.

Technical committees need to consider the influence on the protection of overheated conductors and components, especially under fault conditions, and to decide if any additional requirements are necessary.

Safe performance of assemblies is dependent upon a precise and controlled manufacturing process for the application of the protective system. Requirements for quality control, e.g. by sampling tests, should be considered by technical committees.