SVENSK STANDARD SS-EN 60947-5-3

Fastställd	Utgåva	Sida	Ansvarig kommitté
1999-08-20	1	1 (1+31)	SEK TK 17B

Kopplingsapparater för högst 1000 V – Manöverkretsapparater och kopplingselement – Del 5-3: Fordringar för beröringsfria anordningar med definierat uppträdande vid fel (PDF)

Low-voltage switchgear and controlgear –
Part 5-3: Control circuit devices and switching elements –
Requirements for proximity devices with defined behaviour under fault conditions (PDF)

Som svensk standard gäller europastandarden EN 60947-5-3:1999. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60947-5-3:1999.

Nationellt förord

Europastandarden EN 60947-5-3:1999[*)]

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60947-5-3, First edition, 1999 - Low-voltage switchgear and controlgear - Part 5-3: Control circuit devices and switching elements - Requirements for proximity devices with defined behaviour under fault conditions (PDF)**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 60947-1 och SS-EN 60947-5-2.

[*)] EN 60947-5-3:1999 ikraftsattes 1999-08-20 som SS-EN 60947-5-3 genom offentliggörande, d v s utan utgivning av något svenskt dokument.

ICS 29.120.99

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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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.

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Stora delar av arbetet sker internationellt

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Var med och påverka!

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

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60947-5-3

May 1999

ICS 29.130; 29.120.99

English version

Low-voltage switchgear and controlgear
Part 5-3: Control circuit devices and switching elements
Requirements for proximity devices with defined behaviour under fault conditions (PDF)
(IEC 60947-5-3:1999)

Appareillage à basse tension
Partie 5-3: Appareils et éléments de commutation pour circuits de commande
Prescriptions pour dispositifs de détection de proximité à comportement défini dans des conditions de défaut (PDF)
(CEI 60947-5-3:1999)

Niederspannungsschaltgeräte
Teil 5-3: Steuergeräte und Schaltelemente
Anforderungen für Näherungsschalter mit definiertem Verhalten unter Fehlerbedingungen (PDF)
(IEC 60947-5-3:1999)

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 60947-5-3:1999 E

Foreword

The text of document 17B/963/FDIS, future edition 1 of IEC 60947-5-3, prepared by SC 17B, Low-voltage switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60947-5-3 on 1999-05-01.

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) 2000-02-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2002-05-01

This standard is to be used in conjunction with EN 60947-1 and EN 60947-5-2.

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

Endorsement notice

The text of the International Standard IEC 60947-5-3:1999 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 60050-191	1990	International Electrotechnical Vocabulary (IEV) Chapter 191: Dependability and quality of service	-	-
IEC 60068-2-1	1990	Environmental testing Part 2: Tests - Tests A: Cold	EN 60068-2-1	1993
IEC 60068-2-2	1974	Part 2: Tests - Test B: Dry heat	EN 60068-2-2[1)]	1993
IEC 60204-1	1997	Safety of machinery - Electrical equipment of machines Part 1: General requirements	EN 60204-1 + corr. May	1997 1994
IEC 60249-2	series	Base materials for printed circuits Part 2: Specifications	EN 60249-2	series
IEC 60446	1989[2)]	Identification of conductors by colours or numerals	-	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60664-1 (mod)	1992	Insulation coordination for equipment within low-voltage systems Part 1: Principles, requirements and tests	HD 625.1 S1 + corr. November	1996 1996
IEC 60664-3	1992	Part 3: Use of coatings to achieve insulation coordination of printed board assemblies	HD 625.3 S1	1997
IEC 60742 (mod)	1983	Isolating transformers and safety isolating transformers - Requirements	EN 60742[3)]	1995

1) EN 60068-2-2 includes supplement A:1976 to IEC 60068-2-2.

2) IEC 60446:1999 is harmonized as EN 60446:1999.

3) EN 60742 includes A1:1992 to IEC 60742.

Publication	Year	Title	EN/HD	Year
IEC 60812	1985	Analysis techniques for system reliability Procedure for failure mode and effects analysis (FMEA)	HD 485 S1	1987
IEC 60947-1 (mod)	1996	Low-voltage switchgear and controlgear Part 1: General rules	EN 60947-1[4)]	1997
IEC 60947-5-1	1997	Part 5-1: Control circuit devices and switching elements -- Section 1: Electromechanical control circuit devices	EN 60947-5-1	1997
IEC 60947-5-2 (mod)	1997	Part 5-2: Control circuit devices and switching elements - Proximity switches	EN 60947-5-2	1998
IEC 61025	1990	Fault tree analysis (FTA)	HD 617 S1	1992
IEC 61131-2	1992	Programmable controllers Part 2: Equipment requirements and tests	EN 61131-2	1994
IEC 61496-1	1997	Safety of machinery - Electro-sensitive protective equipment Part 1: General requirements and tests	EN 61496-1	1997
IEC 61508	series	Functional safety of electrical/electronic/programmable electronic safety-related systems	-	-
ISO 9000-3	1997	Quality management and quality assurance standards Part 3: Guidelines for the application of ISO 9001:1994 to the development, supply, installation and maintenance of computer software	EN ISO 9000-3	1997
ISO 9001	1994	Quality systems - Model for quality assurance in design/ development, production, installation and servicing	EN ISO 9001	1994
ISO/TR 12100-1	1992	Safety of machinery - Basic concepts, general principles for design Part 1: Basic terminology, methodology	-	-
ISO/DIS 13849-1		Safety of machinery - Safety-related parts of control systems Part 1: General principles for design	-	-
ISO/TR 14119	1998	Safety of machinery - Interlocking devices associated with guards - Principles for design and selection	-	-

4) EN 60947-1 is superseded by EN 60947-1:1999, which is based on IEC 60947-1:1999.

CONTENTS

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 5-3: Control circuit devices and switching elements – Requirements for proximity devices with defined behaviour under fault conditions (PDF)

1 General

The provisions of General Rules in IEC 60947-1 and IEC 60947-5-2 are only applicable to this international Standard where specifically called for.

General rules, clauses and subclauses thus applicable, as well as tables, figures and annexes are identified by references to those standards.

The types of PDF referred to in this standard are intended to form the basis for the selection of devices with appropriate characteristics for the application. They take into account the general principles of ISO/DIS 13849-1, but they are not directly equivalent to the categories defined in clause 6 of that standard.

1.1 Scope

This part of IEC 60947 applies to proximity devices with an enhanced resistance to failure (PDF).

It specifies requirements for four different types of PDF.

NOTE – Due to their enhanced resistance to failure, PDFs apply for instance to:

– interlocking devices (see ISO 14119);

– the detection of the presence or absence of protective devices (see ISO/TR 12100-1).

For a PDF used in applications where additional characteristics, dealt with in other standards, are required, it will be necessary to satisfy the requirements of all relevant standards.

1.2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60947. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60947 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

IEC 60050(191):1990, *International Electrotechnical Vocabulary (IEV) – Chapter 191: Dependability and quality of service*

IEC 60068-2-1:1990, *Environmental testing – Part 2: Tests. Tests A: Cold*

IEC 60068-2-2:1974, *Environmental testing – Part 2: Tests. Tests B: Dry heat*

IEC 60204-1:1997, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements*

IEC 60249-2 (all specifications), *Base materials for printed circuits – Part 2: Specifications*

IEC 60446:1989, *Identification of conductors by colours or numerals*

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

IEC 60664-1:1992, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60664-3:1992, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coatings to achieve insulation coordination of printed board assemblies*

IEC 60742:1983, *Isolating transformers and safety isolating transformers – Requirements*

IEC 60812:1985, *Analysis techniques for system reliability – Procedure for failure mode and effects analysis (FMEA)*

IEC 60947-1:1996, *Low-voltage switchgear and controlgear – Part 1: General rules*

IEC 60947-5-1:1997, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

IEC 60947-5-2:1997, *Low-voltage switchgear and controlgear – Part 5-2: Control circuit devices and switching elements – Proximity switches*

IEC 61025:1990, *Fault tree analysis (FTA)*

IEC 61131-2:1992, *Programmable controllers – Part 2: Equipment requirements and tests*

IEC 61496-1:1997, *Safety of machinery – Electrosensitive protective equipment – Part 1: General requirements and tests*

IEC 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems* [1)]

ISO 9000-3:1997, *Quality management and quality assurance standards – Part 3: Guidelines for the application of ISO 9001:1994 to the development, supply, installation and maintenance of computer software*

1) To be published

ISO 9001:1994, *Quality systems – Model for quality assurance in design, development, production, installation and servicing*

ISO/TR 12100-1:1992, *Safety of machinery – Basic concept, general principles for design – Part 1: Basic terminology, methodology*

ISO/DIS 13849-1, *Safety of machinery – Safety related parts of control systems – Part 1: General principles for design* [1)]

ISO/TR 14119:1998, *Safety of machinery – Interlocking devices associated with guards – Principles for design and selection*

1) To be published