SVENSK STANDARD SS-EN 60947-5-9

Fastställd	Utgåva	Sida	Ansvarig kommitté
2008-04-28	1	1 (1+37)	SEK TK 17B

Kopplingsapparater för högst 1000 V – Del 5-9: Manöverkretsapparater och kopplingselement – Flödesvakter

Low-voltage switchgear and controlgear –
Part 5-9: Control circuit devices and switching elements –
Flow rate switches

Som svensk standard gäller europastandarden EN 60947-5-9:2007. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60947-5-9:2007.

Nationellt förord

Europastandarden EN 60947-5-9:2007

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60947-5-9, First edition, 2006 - Low-voltage switchgear and controlgear - Part 5-9: Control circuit devices and switching elements - Flow rate switches**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 60947-1, utgåva 4, 2004 och SS-EN 60947-5-2, utgåva 2, 1999.

ICS 29.130.20

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.

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

SEK Svensk Elstandard 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.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60947-5-9

November 2007

ICS 29.130.20

English version

Low-voltage switchgear and controlgear - Part 5-9: Control circuit devices and switching elements - Flow rate switches

(IEC 60947-5-9:2006)

Appareillage à basse tension - Partie 5-9: Appareils et éléments de commutation pour circuit de commande - Détecteurs de débit (CEI 60947-5-9:2006)

Niederspannungsschaltgeräte - Teil 5-9: Steuergeräte und Schaltelemente - Durchflussmengenschalter (IEC 60947-5-9:2006)

This European Standard was approved by CENELEC on 2007-09-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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 60947-5-9:2007 E

SEK Svensk Elstandard

Foreword

The text of document 17B/1500/FDIS, future edition 1 of IEC 60947-5-9, 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 60947-5-9 on 2007-09-01.

This standard is to be used in conjunction with EN 60947-1:2004 and EN 60947-5-2:1998.

The provisions of the general rules, EN 60947-1, are applicable to this part of EN 60947, where specifically called for. General rules clauses and subclauses thus applicable, as well as tables, figures and annexes are identified by a reference to IEC 60947-1, for example 1.2.3 or Annex A of IEC 60947-1.

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)	2008-06-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-09-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive EMC (2004/108/EC). See Annex ZZ.

Annexes ZA and ZZ have been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60947-5-9:2007 was approved by CENELEC as a European Standard without any modification.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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 60446	1999	Basic and safety principles for man-machine interface, marking and identification - Identification of conductors by colours or numerals	EN 60446	1999[1)]
IEC 60947-1	2004	Low-voltage switchgear and controlgear - Part 1: General rules	EN 60947-1 + corr. November	2004[2)] 2004
IEC 60947-5-2 (mod) A1 A2	1997 1999 2003	Low-voltage switchgear and controlgear - Part 5-2: Control circuit devices and switching elements - Proximity switches	EN 60947-5-2 A1 A2	1998 1999 2004
IEC 61000-3-2	2005	Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤16 A per phase)	EN 61000-3-2	2006
IEC 61000-3-3 A1 A2	1994 2001 2005	Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection	EN 61000-3-3 + corr. July A1 A2	1995 1997 2001 2005
IEC 61000-4-2 A1 A2	1995 1998 2000	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2 A1 A2	1995 1998 2001
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006
IEC 61000-4-4	2004	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2004

[1)] EN 60446:1999 is superseded by EN 60446:2007, which is based on IEC 60446:2007.

[2)] EN 60947-1:2004 is superseded by EN 60947-1:2007, which is based on IEC 60947-1:2007.

Publication	Year	Title	EN/HD	Year
IEC 61000-4-6 + A1 + A2	2003 2004 2006	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6 + corr. August	2007 2007
IEC 61000-4-8 A1	1993 2000	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8 A1	1993 2001
IEC 61000-4-11	2004	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	2004
IEC 61000-4-13	2002	Electromagnetic compatibility (EMC) - Part 4-13: Testing and measurement techniques - Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests	EN 61000-4-13	2002
IEC 61140 A1 (mod)	2001 2004	Protection against electric shock - Common aspects for installation and equipment	EN 61140 A1	2002 2006
IEC 61558-2-6	1997	Safety of power transformers, power supply units and similar - Part 2-6: Particular requirements for safety isolating transformers for general use	EN 61558-2-6	1997
CISPR 11 (mod) + A1	2003 2004	Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement	EN 55011	2007

Annex ZZ
(informative)

CONTENTS

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR –

Part 5-9: Control circuit devices and switching elements – Flow rate switches

1 General

1.1 Scope and object

This part of IEC 60947 applies to flow rate switches that sense the rate of flow of a gas, a liquid or a granular solid. These switches change their output state if a pre-set value for the speed of flow is exceeded.

These flow rate switches are self-contained, have semiconductor switching element(s) and are intended to be connected to circuits, the rated voltage of which does not exceed 250 V 50 Hz/60 Hz a.c. or 300 V d.c.

This standard does not specify the additional measures that are necessary for flow rate switches used in conjunction with explosive sensing materials and/or in an explosive location.

This standard is not intended to cover devices with analogue outputs.

The object of this standard is to state for flow rate switches:

– definitions;
– classifications;
– characteristics;
– product information;
– normal service, mounting and transport conditions;
– constructional and performance requirements;
– tests to verify rated characteristics.

1.2 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 60446:1999, *Basic and safety principles for man-machine interface, marking and identification – Identification of conductors by colours or numerals*

IEC 60947-1:2004, *Low-voltage switchgear and controlgear – Part 1: General rules*

IEC 60947-5-2:1997, *Low-voltage switchgear and controlgear – Part 5-2: Control circuit devices and switching elements – Proximity switches*
Amendment 1 (1999)
Amendment 2 (2003)