SVENSK STANDARD SS-EN 60077-3

Fastställd	Utgåva	Sida	Ingår i
2002-12-04	1	1 (1+28)	SEK Område 9

Svenska Elektriska Kommissionen, SEK

Järnvägsanläggningar – Elutrustning för rälsfordon – Del 3: Effektbrytare för likström

Railway applications – Electric equipment for rolling stock – Part 3: Rules for d.c. circuit-breakers

Som svensk standard gäller europastandarden EN 60077-3:2002. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60077-3:2002.

Nationellt förord

Europastandarden EN 60077-3:2002

består av:

- **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
- **IEC 60077-3, First edition, 2001 - Railway applications - Electric equipment for rolling stock - Part 3: Rules for d.c. circuit-breakers**

  utarbetad inom International Electrotechnical Commission, IEC.

Standarden skall användas tillsammans med SS-EN 60077-1 och SS-EN 60077-2.

ICS 29.280

Denna standard är fastställd av Svenska Elektriska Kommissionen, SEK, som också kan lämna upplysningar om **sakinnehållet** i standarden.
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EUROPEAN STANDARD **EN 60077-3**

NORME EUROPÉENNE

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English version

Railway applications - Electric equipment for rolling stock Part 3: Electrotechnical components - Rules for d.c. circuit-breakers

(IEC 60077-3:2001)

Applications ferroviaires - Equipements électriques du matériel roulant Partie 3: Composants électrotechniques - Règles pour disjoncteurs à courant continu (CEI 60077-3:2001)

Bahnanwendungen - Elektrische Betriebsmittel auf Bahnfahrzeugen Teil 3: Elektrotechnische Bauteile - Regeln für DC-Leistungsschalter (IEC 60077-3:2001)

This European Standard was approved by CENELEC on 2002-03-01. 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, Iceland, Ireland, Italy, Luxembourg, Malta, 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

Ref. No. EN 60077-3:2002 E

Foreword

The text of document 9/651/FDIS, future edition 1 of IEC 60077-3, prepared by IEC TC 9, Electric railway equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60077-3 on 2002-03-01.

This European Standard should be read in conjunction with EN 60077-1 and EN 60077-2.

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) 2003-03-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-03-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes A and ZA are normative and annex B is informative.
Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60077-3:2001 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

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 60050-441	1984	International Electrotechnical Vocabulary (IEV) Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60077-1 (mod)	1999	Railway applications - Electric equipment for rolling stock Part 1: General service conditions and general rules	EN 60077-1	2002
IEC 60077-2 (mod)	1999	Part 2: Electrotechnical components - General rules	EN 60077-2	2002
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60571	1998	Electronic equipment used on rail vehicles	-	-
IEC 60850	2000	Railway applications - Supply voltages of traction systems	-	-
IEC/TR3 60943	1998	Guidance concerning the permissible temperature rise for parts of electrical equipment, in particular for terminals	-	-
IEC 60947-2	1989	Low-voltage switchgear and controlgear Part 2: Circuit-breakers	EN 60947-2 [1)]	1991
IEC 61373	1999	Railway applications - Rolling stock equipment - Shock and vibration tests	EN 61373	1999
IEC 61992-2	2001	Railway applications - Fixed installations - D.C. switchgear Part 2: Circuit-breakers	-	-

1) EN 60947-2:1991 is superseded by EN 60947-2:1996 + corrigendum June 1997 + A11:1997, which is based on IEC 60947-2:1995.

CONTENTS

RAILWAY APPLICATIONS – ELECTRIC EQUIPMENT FOR ROLLING STOCK –

Part 3: Electrotechnical components – Rules for d.c. circuit-breakers

1 Scope and object

In addition to the general requirements of IEC 60077-2, this part of IEC 60077 gives the rules for circuit-breakers, the main contacts of which are to be connected to d.c. power and/or auxiliary circuits. The nominal voltage of these circuits does not exceed 3 000 V d.c. according to IEC 60850.

This part of IEC 60077, together with IEC 60077-2, states specifically

a) the characteristics of the circuit-breakers;

b) the service conditions with which circuit-breakers have to comply with reference to
   - operation and behaviour in normal service;
   - operation and behaviour in the case of short circuit;
   - dielectric properties;

c) the tests for confirming the compliance of the components with the characteristics under the service conditions and the methods to be adopted for these tests;

d) the information to be marked on, or given with, the circuit breaker.

NOTE 1 Circuit-breakers which are dealt with in this part of IEC 60077 may be provided with devices for automatic opening under predetermined conditions other than those of over-current, for example, under-voltage and reversal of power current. This part of IEC 60077 does not deal with the verification of operation under such predetermined conditions.

NOTE 2 The incorporation of electronic components or electronic sub-assemblies into electrotechnical components is now common practice.

Although this standard is not applicable to electronic equipment, the presence of electronic components does not provide a reason to exclude such electrotechnical components from the scope.

Electronic sub-assemblies included in circuit-breakers should comply with the relevant standard for electronics (IEC 60571).

NOTE 3 Certain of these rules may, after agreement between the user and the manufacturer, be used for electro-technical components installed on vehicles other than rail rolling stock such as mine locomotives, trolleybuses, etc. In this case, particular additional requirements may be necessary.

This standard does not cover

a) multi-connection of electro-technical components to achieve a particular duty;

b) industrial circuit-breakers which have to comply with IEC 60947-2;

c) d.c. circuit-breakers for fixed installations which have to comply with IEC 61992-2.

For b) and c), in order to ensure satisfactory operation, this standard should be used to specify only the particular requirements for rolling stock. In such cases, a specific document should state the additional requirements with which the industrial or fixed installations circuits breakers are to comply, for example:

– either to be adapted (for example, for control voltage, environmental conditions, etc.);
– or to be installed and used in such a way that they do not have to endure specific rolling stock conditions;
– or to be additionally tested to prove that these components can withstand satisfactorily the rolling stock conditions.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60077. 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 60077 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 IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(441):1984, *International Electrotechnical Vocabulary – Switchgear, controlgear and fuses*

IEC 60077-1:1999, *Railway applications – Electric equipment for rolling stock – Part 1: General service conditions and general rules*

IEC 60077-2:1999; *Railway applications – Electric equipment for rolling stock – Part 2: Electrotechnical components – General rules*

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

IEC 60571:1998, *Electronic equipment used on rail vehicles*

IEC 60850:2000, *Railway applications – Supply voltage of traction systems*

IEC/TR3 60943:1998, *Guidance concerning the permissible temperature rise for parts of electrical equipment, in particular for terminals*

IEC 60947-2:1989, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*

IEC 61373:1999, *Railway applications – Rolling stock equipment – Shock and vibration tests*

IEC 61992-2:2001, *Railway applications – Fixed installations – DC switchgear – Part 2: Circuit-breakers*