

**SLOVENSKI
STANDARD**

SIST EN 60898-2:2003

marec 2003

Circuit-breakers for overcurrent protection for household and similar installations -
Part 2: Circuit-breakers for a.c. and d.c. operation (IEC 60898-2:2000)

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EUROPEAN STANDARD

EN 60898-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2001

ICS 29.120.50

English version

**Circuit-breakers for overcurrent protection
for household and similar installations
Part 2: Circuit-breakers for a.c. and d.c. operation
(IEC 60898-2:2000)**

Disjoncteurs pour la protection contre
les surintensités pour installations
domestiques et analogues
Partie 2: Disjoncteurs pour
le fonctionnement en courant alternatif
et en courant continu
(CEI 60898-2:2000)

Leitungsschutzschalter für
Hausinstallationen und ähnliche Zwecke
Teil 2: Leitungsschutzschalter für
Wechsel- und Gleichstrom
(IEC 60898-2:2000)

STANDARD PREVIEW
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This European Standard was approved by CENELEC on 2000-08-01. 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, 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 document 23E/412/FDIS, future edition 1 of IEC 60898-2, prepared by SC 23E, Circuit-breakers and similar equipment for household use, of IEC TC 23, Electrical accessories, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60898-2 on 2000-08-01.

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) 2001-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2003-08-01

This part 2 is to be used in conjunction with EN 60898:1991 and its amendments.

This part 2 supplements or modifies the clauses of EN 60898. When a particular subclause of part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. Where this part 2 states "addition", "modification" or "replacement", the relevant text of part 1 is to be adapted accordingly.

In this standard, the following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.

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Endorsement notice

The text of the International Standard IEC 60898-2:2000 was approved by CENELEC as a European Standard without any modification.

NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC

60898-2

Première édition
First edition
2000-06

**Disjoncteurs pour la protection
contre les surintensités pour installations
domestiques et analogues –**

**Partie 2:
Disjoncteurs pour le fonctionnement
en courant alternatif et en courant continu**

**Circuit-breakers for overcurrent protection
for household and similar installations –**

**Part 2:
Circuit-breakers for a.c. and d.c. operation**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CIRCUIT-BREAKERS FOR OVERCURRENT PROTECTION
FOR HOUSEHOLD AND SIMILAR INSTALLATIONS –

Part 2: Circuit-breakers for a.c. and d.c. operation

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 60898-2 has been prepared by subcommittee 23E: Circuit-breakers and similar equipment for household use, of IEC technical committee 23: Electrical accessories.

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

FDIS	Report on voting
23E/412/FDIS	23E/424/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 3.

This Part 2 is to be used in conjunction with IEC 60898-1.

Where a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies as far as is reasonable. Where this Part 2 states "addition", "modification" or "replacement", the corresponding requirement, test specification or explanatory material in Part 1 should be adapted accordingly.

In this publication, the following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

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

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CIRCUIT-BREAKERS FOR OVERCURRENT PROTECTION FOR HOUSEHOLD AND SIMILAR INSTALLATIONS –

Part 2: Circuit-breakers for a.c. and d.c. operation

1 General

This clause of Part 1 is applicable except as follows:

1.1 Scope

Addition at the end of the first paragraph:

This standard gives additional requirements for single- and two-pole circuit-breakers suitable for operation with direct current, having a rated d.c. voltage not exceeding 220 V for single-pole and 440 V for two-pole circuit-breakers, a rated current not exceeding 125 A and a rated d.c. short-circuit capacity not exceeding 10 000 A.

NOTE This standard applies to circuit-breakers able to make and break both a.c. current and d.c. current.

Delete the last two paragraphs.

1.2 Object

Delete item 6.

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2 Normative references

Clause 2 of Part 1 applies with the following modification:

Delete IEC 61009-1:1991, IEC 61009-2-1:1991 and IEC 61009-2-2:1991.

3 Definitions

Clause 3 of Part 1 applies with the following modification:

Addition:

3.5.20

time constant

the rise time $T = L/R$ (ms) of a prospective direct current to reach a value of 0,63 times the maximum peak current

4 Classification

Clause 4 of Part 1 applies with the following modifications:

4.1 According to the number of poles

Replacement:

- single-pole circuit-breakers;
- two-pole circuit-breakers with two protected poles.

4.5 According to the instantaneous tripping current (see 3.5.17)

Delete D-Type.

Addition:

4.7 According to the time constant

- Circuit-breakers suitable for d.c. circuits with a time constant of $T \leq 4$ ms.
- Circuit-breakers suitable for d.c. circuits with a time constant of $T \leq 15$ ms.

NOTE It is assumed that short-circuit currents of 1 500 A are not exceeded in installations in which, due to the loads connected, time constants in normal service up to 15 ms can occur. Where higher short-circuit currents may occur, the time constant of $T = 4$ ms is considered sufficient.

5 Characteristics of circuit-breakers

Clause 5 applies with the following modification:

5.3.1 Preferred values of rated voltage

Replacement:

The preferred values of rated voltages are given in table 1.

Examples of connections of circuit-breakers in d.c. systems are given in figure 17.

Table 1 – Preferred values of rated voltage

Circuit-breakers	AC		DC ^b	
	AC circuit supplying the circuit-breaker	Rated voltage a.c.	Rated voltage d.c.	DC wiring examples
Single-pole	Single-phase (phase to neutral)	230 V	220 V	Figure 17a
	Single-phase (phase to earthed middle conductor, or phase to neutral)	120 V	125 V	
	Single-phase (phase to neutral) or: three-phase (3 single-pole circuit-breakers) (3-wire or 4-wire)	230/400 V	220 V	
Two-pole	Single-phase (phase-to-phase)	400 V	220/440 V	Figures 17b, 17c, 17d
	Single phase (phase-to-phase, 3-wire)	120/240 V ^a	125/250 V ^a	
<p>Applicable for d.c. voltages:</p> <p>^a Also for single-pole circuit-breakers to be used in pairs at 250 V d.c. (respectively 240 V a.c.) and individually at 125 V d.c. (respectively 120 V a.c.).</p> <p>^b The rated voltage per pole shall not exceed 220 V d.c.</p> <p>Applicable for a.c. voltages:</p> <p>NOTE 1 In IEC 60038 the network voltage value of 230/400 V has been standardized. This value should progressively supersede the values of 220/380 V and 240/415 V.</p> <p>NOTE 2 Wherever in this standard there is a reference to 230 V, or 400 V, it may be read as 220 V or 240 V, and 380 V or 415 V respectively.</p> <p>NOTE 3 Circuit-breakers complying with the requirements of this standard may be used in IT systems.</p>				

The manufacturer shall declare in his literature the minimum voltage for which the circuit-breaker is designed.

Relevant tests are under consideration.

5.3.5 Standard ranges of instantaneous tripping

Replacement:

Table 2 – Ranges of instantaneous tripping

Type	Ranges for a.c.	Ranges for d.c.
B	Above 3 I_n up to and including 5 I_n	Above 4 I_n up to and including 7 I_n
C	Above 5 I_n up to and including 10 I_n	Above 7 I_n up to and including 15 I_n