



Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 60898-2:2021

Electrical accessories - Circuit- breakers for overcurrent protection for household and similar installations - Part 2: Circuit-breakers for a.c. and d.

Elektrisches Installationsmaterial -
Leitungsschutzschalter für
Hausinstallationen und ähnliche Zwecke
- Teil 2: Leitungsschutzschalter für

Petit appareillage électrique -
Disjoncteurs pour la protection contre les
surintensités pour installations
domestiques et analogues - Partie 2:

08/2021



National Foreword

This European Standard EN 60898-2:2021 was adopted as Luxembourgish Standard ILNAS-EN 60898-2:2021.

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- Participate in the design of standards
- Foresee future developments
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EUROPEAN STANDARD ^{ILNAS-EN 60898-2:2021} **EN 60898-2**
NORME EUROPÉENNE
EUROPÄISCHE NORM

August 2021

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English Version

**Electrical accessories - Circuit-breakers for overcurrent
protection for household and similar installations - Part 2: Circuit-
breakers for a.c. and d.c. operation
(IEC 60898-2:2016, modified)**

Petit appareillage électrique - 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
(IEC 60898-2:2016, modifiée)

Elektrisches Installationsmaterial - Leitungsschutzschalter
für Hausinstallationen und ähnliche Zwecke - Teil 2:
Leitungsschutzschalter für Wechsel- und Gleichstrom (AC
und DC)
(IEC 60898-2:2016, modifiziert)

This European Standard was approved by CENELEC on 2021-07-13. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN 60898-2:2021) consists of the text of IEC 60898-2:2016 prepared by SC 23E “Circuit-breakers and similar equipment for household use” of IEC/TC 23 “Electrical accessories”, together with the common modifications prepared by CLC/TC 23E “Circuit breakers and similar devices for household and similar applications”.

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2022-07-13
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with (dow) 2024-07-13
this document have to be withdrawn

This Part 2 is to be used in conjunction with EN 60898-1:2019 referred hereafter as Part 1.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60898-2:2016 are prefixed “Z”.

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 60898-2:2016 was approved by CENELEC as a European Standard with agreed common modifications.

1 Modification to the Scope

Replace the 1st paragraph with:

“Clause 1 of Part 1 is applicable except as follows:”

2 Modifications to Clause 2, “Normative references”

Replace the 1st paragraph with:

“Clause 2 of Part 1 is applicable except as follows:”

Add the following note at the end of the clause:

”

NOTE See Annex ZB for corresponding European publications.”

3 Modification to Clause 3, “Terms and definitions”

Replace the 1st paragraph with:

“Clause 3 of Part 1 is applicable except as follows:”

4 Modification to Clause 4, “Classification”

Replace the 1st paragraph with:

“Clause 4 of Part 1 is applicable except as follows:”

5 Modifications to Clause 5, “Characteristics of circuit-breakers”

Replace the 1st paragraph with:

“Clause 5 of Part 1 is applicable except as follows:”

Replace 5.3.1 with:

“5.3.1 Standard values of rated voltage

Replacement:

The standard values of rated voltage are given in Table 1.

Examples of connections of circuit-breakers in DC systems are given in Figure 18.

Table 1 — Standard values of rated voltage

Circuit-breakers	AC		DC ^b		
	AC circuit supplying the circuit-breaker	Rated AC voltage	DC circuit supplying the circuit-breaker	Rated DC voltage	DC wiring examples
Single-pole	Single phase (phase to neutral or phase to phase)	230 V	Two wires (unearthed system)	220 V	Figure 18a
	Single phase (phase to neutral) or three-phase (3 single-pole circuit-breakers) (3-wire or 4-wire)	(230/400) V	—	—	
Two-pole	Single phase (phase to phase)	400 V	Two wires (earthed system)	(220/440) V	Figures 18b, 18c, 18d

Applicable for AC voltages:

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.

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.

NOTE 3 Circuit-breakers complying with the requirements of this standard may be used in IT systems.

Applicable for DC voltages:

^a Void

^b The rated voltage per pole shall not exceed 220 V DC.

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

Relevant tests are under consideration.

6 Modifications to Clause 6, “Marking and other product information”

Replace the 1st paragraph with:

“Clause 6 of Part 1 is applicable except as follows:”

Add after the 1st paragraph the title for subclause 6.1:

“6.1 Standard marking”

After item f) delete:

“Delete j)”

Rename item m) to item n).

Replace the 4th paragraph from the end of the clause with:

“The information under a), b), f), g), l), m) and n) may be marked on the side or on the back of the device and be visible only before the device is installed.”



Add at the end of the Clause:

“**Replace** the paragraph starting by “Irrespective of type (B, C or D), the manufacturer shall publish...” with: “Irrespective of type (B or C), the manufacturer shall publish in his literature the I_{2t} characteristic (see 3.5.13).”

Replace Clause 6.3 with:

“

6.3 Guidance table for marking

Marking and other product information Each circuit-breaker shall be marked in a durable manner with all or, for small apparatus, part of the following data:		Markings may be on the circuit-breaker itself			Product information in catalogue
		If, for small devices the space available does not allow all the above data to be marked, at least this information shall be marked and visible when the device is installed.	This information may be marked on the side or on the back of the device and be visible only before the device is installed.	Alternatively the information may be on the inside of any cover which has to be removed in order to connect the supply wires.	Any remaining information not marked shall be given in the manufacturer's catalogues .
a)	manufacturer's name or trademark		X		
b)	type designation, catalogue number or serial number		X		
c)	rated AC voltage with the symbol ~ and rated DC voltage with the symbol 	X			
d)	rated current without symbol "A" preceded by the symbol of overcurrent instantaneous tripping (B or C), for example B 16	X			
e)	rated frequency if the circuit-breaker is designed only for one frequency (see 5.3.3)				X
f)	rated short-circuit capacity for AC and DC in amperes in one rectangle, without the symbol A, if valid for both AC and DC (see example 1 in 6.1). If the rated short-circuit capacity is different for AC and DC this shall be indicated in two adjacent rectangles, without the symbol A, with the symbol ~ near the rectangle containing the AC value and with the symbol  near the rectangle containing the DC value (see example 2 in 6.1)		X (*)		
g)	wiring diagram, unless the correct mode of connection is evident		X	X	
h)	reference calibration temperature, if different from 30 °C				X
i)	the degree of protection (only if different from IP20)				X
j)	Void				
k)	Void				
l)	breaking capacity on one pole of multipole MCBs in case of short-circuit to earth Icn1		X		

Marking and other product information Each circuit-breaker shall be marked in a durable manner with all or, for small apparatus, part of the following data:		Markings may be on the circuit-breaker itself			Product information in catalogue
		If, for small devices the space available does not allow all the above data to be marked, at least this information shall be marked and visible when the device is installed.	This information may be marked on the side or on the back of the device and be visible only before the device is installed.	Alternatively the information may be on the inside of any cover which has to be removed in order to connect the supply wires.	Any remaining information not marked shall be given in the manufacturer's catalogues .
m)	energy limiting class in a square in accordance with Annex ZA, if applied. I_{cn} and the energy limiting class, when applied, shall be both on the device and combined;		X (*)		X (**)
n)	time constant T15 within a rectangle, if applicable, associated with the marking for the short-circuit capacity at the time constant of 15 ms		X		
	The position of use (symbol according to EN 60051 series), if necessary.		X		
	indication of the terminal for the neutral with "N"		X		
	additional marking of performance to other standards		X		
	terminals marked with + or – if necessary		X		
(*) I_{cn} and the energy limiting class, if applied, shall be both on the device and combined together.					
(**) The manufacturer shall publish in his literature the I^2t characteristic.					

7 Modification to Clause 7, "Standard conditions for operating in service"

Replace the 1st paragraph with:

"Clause 7 of Part 1 applies."

8 Modifications to Clause 8, "Requirements for construction and operation"

Replace the 1st paragraph with:

"Clause 8 of Part 1 is applicable except as follows:"

Add after the 1st paragraph:

"8.1.3 Clearances and creepage distances (see Annex B)

Addition of the following note 3 to Table 4:

"

NOTE 3 The values given for 230 V, 230/400V and 400 V AC are also valid for 220 V and 440 V DC."

9 Modifications to Clause 9, "Tests"

Replace the 1st paragraph with:

“Clause 9 of Part 1 is applicable except as follows”:

Add after the 1st paragraph:

“

9.1 Type tests and test sequences

Replacement of the second paragraph after “Table 9”:

The test sequences and the number of samples to be submitted are stated in Annex C of this standard.”

Add at the end of 9.10.3.2, “For circuit-breakers of the B-type”:

“Moreover, the circuit-breaker shall perform the test of 9.10.2.2.”

Add at the end of 9.10.3.3, “For circuit-breakers of the C-type”:

“Moreover, the circuit-breaker shall perform the test of 9.10.2.2.”

Add after subclause 9.10.3.3:

“Delete sub-Clause 9.10.3.4”

Add after title of 9.12.11.2, “Tests at reduced short-circuit currents and at small direct currents” the following:

“

Replacement of the title of 9.12.11.2.1 with:

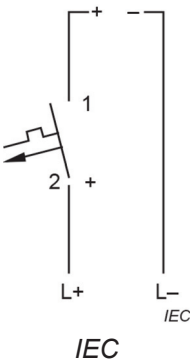
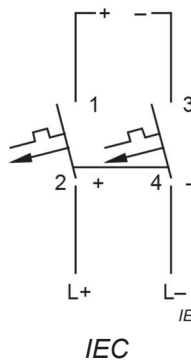
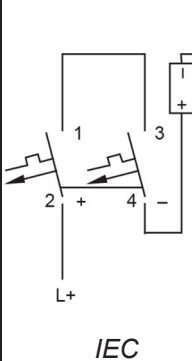
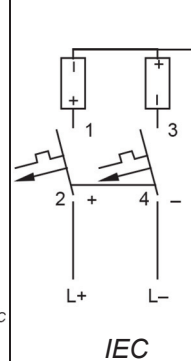
9.12.11.2.1 Tests at reduced AC short-circuit currents”

Replace the 1st paragraph of 9.12.11.4.4, “Performance at rated making and breaking capacity (I_{cn1}) on individual poles of two-pole circuit-breakers” with:

“For alternating currents (AC), 9.12.11.4.4 of Part 1 applies.”

Replace Figure 18, “Methods of connection of the circuit-breakers in different DC systems” with:

“

	a	b	c	d
Circuit-breaker rated voltage	220 V	220/440 V	220/440 V	220/440 V
Maximum voltage between the conductors	220 V	440 V	440 V	440 V
Maximum voltage between conductor and earth			440 V^a	220 V
Circuit-breaker	Single-pole	Two-pole	Two-pole	Two-pole
Distribution system connected to earth	No	No	Yes	Yes
Circuit				
^a For applications with an earthed negative pole, where the voltage to earth is higher than the rated voltage of a single-pole circuit-breaker.				

10 Modifications to the annexes

Replace the text with:

“The annexes of Part 1 are applicable, except as follows:

Annex C (normative)

Test sequences and number of samples”

Replace the 1st paragraph with:

“

Annex C of Part 1 applies with the following modifications:”

Add after Annex C the following:

“

Annex ZB of Part 1 applies with the following addition:

IEC 60898-1	2015	Electrical accessories - Circuit-breakers for overcurrent protection for household and similar installations - Part 1: Circuit-breakers for a.c. operation	EN 60898-1	2019
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“

Add the following new Annexes:

“

Annex ZD

(informative)

List of clauses that require retesting

Based on EN 60898-2:2006 (that refers to EN 60898-1:2003 and A1:2004), the following tests and/or requirements have been technically modified and may require retesting or inspection as applicable:

- 9.5.2 in 9.5 Tests of reliability of screw-type terminals for external copper conductors;
- 6 Marking and other product information (including the comparison of already measured i^2t values with new Tables ZA.1 and ZA.2 of Part 1);
- 9.7.4 Insulation resistance and dielectric strength of auxiliary circuits;
- 9.10.3 Test of instantaneous tripping, of correct opening of the contacts and of the trip-free function;
- 9.12.11.4.4 Performance at rated making and breaking capacity (I_{cn1}) on individual poles of two-pole circuit-breakers;
- 9.15 Test Resistance to abnormal heat and to fire.

Annex ZZ (informative)

Relationship between this European standard and the safety objectives of Directive 2014/35/EU [2014 OJ L96] aimed to be covered

This European standard has been prepared under a Commission's standardization request relating to harmonized standards in the field of the Low Voltage Directive, M/511, to provide one voluntary means of conforming to safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits [2014 OJ L96].

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZZ.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding safety objectives of that Directive, and associated EFTA regulations.

Table ZZ.1 — Correspondence between this European standard and Annex I of Directive 2014/35/EU [2014 OJ L96]

Safety objectives of Directive 2014/35/EU	Clause(s) / subclause(s) of this EN	Remarks / Notes
(1)(a)	4, 5, 6 – 9.3	
(1)(b)	8.1 – 9.4 and 9.5 Annex J, Annex K	
(1)(c)	7 – 9.1 and 9.2, Annex I	
(2)(a), (b), (c) and (d)	8.2 – 9.6, 8.5 – 9.9, 8.6 – 9.10, 8.7 – 9.11, 8.8 – 9.12, Annex H, Annex C 8.4 – 9.8, 8.5 – 9.9, 8.6 – 9.10, 8.7 – 9.11, 8.8 – 9.12, Annex H, 8.13 – 9.8.5, Annex C 8.1.2 – 9.10.3, 8.1.3 – 9.7, Annex B, 8.3 – 9.7	
(3)(a), (b) and (c)	8.9 – 9.13, 8.12 – 9.16 8.10 – 9.14, 8.11 – 9.15, 8.14, 8.15 8.6 – 9.10, 8.8 – 9.12, Annex H	

WARNING 1 — Presumption of conformity stays valid only as long as a reference to this European standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

WARNING 2 — Other Union legislation may be applicable to the product(s) falling within the scope of this standard.

“



INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations –
Part 2: Circuit-breakers for AC and DC operation**

**Petit appareillage – 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**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2: Circuit-breakers for AC and DC operation

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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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.

This second edition cancels and replaces the first edition published in 2000 and Amendment 1:2003. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) alignment with second edition of IEC 60898-1;
- b) introduction of test I_{cn1} .

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

FDIS	Report on voting
23E/951A/FDIS	23E/976/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.

A list of all parts in the IEC 60898 series, published under the general title *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations*, can be found on the IEC website.

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”, “deletion” or “replacement”, the corresponding requirement, test specification or explanatory material in Part 1 should be adapted accordingly.

In this standard, the following print types are used:

- Requirements proper: in roman type.
- *Test specifications: in italic type.*
- Explanatory matter: in smaller roman type.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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