



NSAI
Standards

Irish Standard
I.S. EN 50550:2011&AC:2012&A1:2014

Power frequency overvoltage protective device for household and similar applications (POP)

I.S. EN 50550:2011&AC:2012&A1:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 50550:2011/A1:2014

EN 50550:2011/AC:2012

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 50550:2011

Published:

2011-02-25

*This document was published
under the authority of the NSAI
and comes into effect on:*

2014-09-29

ICS number:

29.120.50

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

EN 50550:2011/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2014

ICS 29.120.50

English Version

Power frequency overvoltage protective device for household and similar applications (POP)

Dispositif de protection contre les surtensions à fréquence
industrielle pour les applications domestiques et analogues

Schutzeinrichtung gegen netzfrequente Überspannungen
für Hausinstallationen und für ähnliche Anwendungen

This amendment A1 modifies the European Standard EN 50550:2011; it was approved by CENELEC on 2014-07-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 amendment 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, 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: Avenue Marnix 17, B-1000 Brussels

Foreword

This document (EN 50550:2011/A1:2014) has been 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 at national level by publication of an identical national standard or by endorsement (dop) 2015-07-28
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2017-07-28

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

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

Annex A

Replace Table A.1 by the following new table:

Table A.1 – Test sequences

Test sequence	Clause or subclause	Test or inspection
A	6 8.1.1 8.1.2 9.3.5 8.1.3 and 8.1.4 9.12 9.13 9.14 9.15 9.16 9.17	Marking General Mechanism Indelibility of marking Clearance and creepage distances Reliability of screws, current carrying parts and connections Reliability of terminals for external conductors Protection against electric shock Resistance to mechanical shock and impact Resistance to heat Resistance to abnormal heat and to fire
B	9.4 9.5 9.11 9.6	Dielectrics properties Temperature rise Verification of safety performance of overstressed POPs Operating characteristics
C	9.7	Verification of the mechanical and electrical endurance
D	9.3.1 9.3.2.3 b) 1)	Operating characteristics of the main protective device Short circuit test (only for devices according to 4.2.3)
E	9.3.2.3 a) 9.3.2.3 b) 2) 9.3.2.3 c) ^{b)}	Short circuit test (only for devices according to 4.2.1) Short circuit test (only for devices according to 4.2.3) Short circuit test (only for devices according to 4.2.2)
F	9.3.3	Ageing of electronic components
G ^{a)}	9.10	Electromagnetic compatibility
H	9.8 and 9.9	Tests of creepage distances and clearances for electronic circuits
I	9.18	Verification of the correct operation at low ambient air temperatures for RCCBs for use at temperatures between -25 °C and +40 °C
^{a)} EMC tests may be conducted on three sets of three samples. First set with tests T7.3 and T8.3, second set with tests T8.1, T8.5, T8.4 and T8.2, third set with tests T10.1, T10.2, T8.6 and T9.1, according to Tables 4, 5, 6 and 7 as applicable. ^{b)} Only for Icn tests.		

This page is intentionally left blank



Corrigendum to EN 50550:2011

English version

*In 8.1.3, first sentence, **replace** "Table 3" with "Table 2" to read "The minimum required clearances and creepage distances are given in Table 2 which is based on the POP being designed for operating in an environment with pollution degree 2."*

*In 8.1.3, headline of Table 2 continuation, **replace** "Table 3" with "Table 2" to read "Table 2 – Minimum clearances and creepage distances (continued)".*

*In 8.1.3, Table 2, footnote g, **replace** "RCCB" with "POP" to read "This applies also to clearance and creepage distances between live parts of different polarity of the POP and equipments mounted close to it."*

*In 9.8.3, item a), last paragraph, **replace** "Table 3" with "Table 2" to read "Clearances and creepage distances complying with the requirements of Table 2, and printed boards with type B coating complying with EN 60664-3 are excluded from this test;"*

*In 9.10.1.3, Table 6, footnote a, third sentence, **replace** "RCD" with "POP" to read "The point to which discharges shall be applied is selected by an exploration of the accessible surfaces of the POP, when installed as for normal use."*

March 2012

This page is intentionally left blank

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50550

February 2011

ICS 29.120.50

English version

Power frequency overvoltage protective device for household and similar applications (POP)

Dispositif de protection contre les
surtensions à fréquence industrielle pour
les applications domestiques et analogues

Schutzeinrichtung gegen netzfrequente
Überspannungen für Hausinstallationen
und für ähnliche Anwendungen

This European Standard was approved by CENELEC on 2011-01-17. 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, Croatia, 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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

This European Standard was prepared by the CENELEC BTTF 128-1, Power frequency overvoltage protective device for household and similar applications.

It was submitted to the formal vote and was approved by CENELEC as EN 50550 on 2011-01-15.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates are proposed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2012-01-15
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2014-01-15

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 2004/108/EC. See Annex ZZ.

Contents

1	Scope	5
2	Normative references	6
3	Terms and definitions	7
4	Classification	8
4.1	According to the method of construction	8
4.2	According to the main protective device	8
4.3	According to the range of ambient air temperature (only for POP according to 4.2.2 and 4.2.3)	8
4.4	According to the number of monitored line to neutral conductor voltages	8
5	Characteristics	9
5.1	Summary of characteristics	9
5.2	Limit values of the break times and non-actuating times	9
6	Marking and other product information	9
6.1	Standard marking	9
6.2	Additional marking	10
7	Standard conditions for operation in service	11
7.1	General	11
7.2	Conditions of installation	11
7.3	Pollution degree	11
8	Requirements for construction and operation	11
8.1	Mechanical design	11
8.2	Protection against electric shock	16
8.3	Dielectric properties and isolating capability	16
8.4	Temperature rise	16
8.5	Operating characteristic	16
8.6	Mechanical and electrical endurance	16
8.7	Performance at short-circuit currents	17
8.8	Resistance to mechanical shock and impact	17
8.9	Resistance to heat	17
8.10	Resistance to abnormal heat and to fire	17
8.11	Ageing of electronic components	17
8.12	Behaviour at low ambient air temperature	18
8.13	Electromagnetic compatibility	18
8.14	Safety performance of overstressed POPs	18
9	Tests	18
9.1	General	18
9.2	Test condition	19
9.3	Verification of the influence of the POP on the correct operation of the main protective device	19
9.4	Test of dielectric properties	21
9.5	Temperature rise	21
9.6	Verification of the operating characteristics	21
9.7	Verification of the mechanical and electrical endurance	23
9.8	Tests of creepage distances and clearances for electronic circuits (abnormal conditions)	24
9.9	Requirements for capacitors and specific resistors and inductors used in electronic circuits	27
9.10	Electromagnetic compatibility	28
9.11	Test of safety performance of overstressed POPs	32
9.12	Test of reliability of screws, current-carrying parts and connections	32
9.13	Test of reliability of terminals for external conductors	32
9.14	Verification of protection against electric shock	32
9.15	Verification of resistance to mechanical shock and impact	33
9.16	Test of resistance to heat	33
9.17	Resistance to abnormal heat and to fire	33
9.18	Verification of the correct operation at low ambient air temperatures for RCDs for use at temperatures between -25 °C and +40 °C	33

Annex A (normative) Test sequences	36
Annex B (normative) Determination of clearances and creepage distances.....	37
Annex C (informative) Examples of terminal designs	39
Annex D (normative) Number of samples for full test procedure	42
Annex ZZ (informative) Coverage of Essential Requirements of EC Directives	44
Bibliography	45

Figures

Figure 1 – Minimum creepage distances and clearances measured in millimetres	34
Figure 2 – Minimum creepage distances and clearances as a function of peak value of operating voltage	35
Figure B.1 – Illustrations of the application of creepage distances	38
Figure C.1 – Examples of pillar terminals	39
Figure C.2 – Examples of screw terminals and stud terminals.....	40
Figure C.3 – Examples of saddle terminals	41
Figure C.4 – Examples of lug terminals	41

Tables

Table 1 – Limit values of break times and non-actuating times.....	9
Table 2 – Minimum clearances and creepage distances.....	13
Table 3 – Maximum permissible temperatures under abnormal conditions	26
Table 4 – Low frequency immunity test conditions	29
Table 5 – High frequency immunity test conditions	30
Table 6 – Test conditions for electrostatic discharges	31
Table 7 – Emissions test conditions.....	31
Table A.1 – Test sequences	36
Table D.1 – Number of samples for full test procedure	42
Table D.2 – Additional tests for POP already fully tested together with one kind of main protective device	43

1 Scope

This European Standard applies to power frequency overvoltage protection devices (hereafter referred to as “POP”) for household and similar uses, with a rated frequency of 50 Hz, a rated voltage 230 V a.c. (between phase and neutral), intended to be used in combination with a main protective device being either a CB in compliance with EN 60898-1 or EN 60898-2, a RCCB in compliance with EN 61008-1 or a RCBO in compliance with EN 61009-1.

NOTE 1 Requirements for POPs in combination with switching devices other than a main protective device, or a POP integrated in a MPD, are under consideration.

NOTE 2 Requirements for POP with functional earth connection regarding temporary overvoltage withstand are under consideration.

NOTE 3 A POP is not a protective device to be used for automatic disconnection of the supply in the meaning of HD 60364-4-41.

They are intended for use in an environment with pollution degree 2 and overvoltage category III.

They can be designed for factory assembly or for assembly on site.

These devices are intended to mitigate the effects of power frequency overvoltages between phase and neutral conductor (e.g. caused by loss of neutral conductor in the three phase supply upstream the POP) for downstream equipment by actuating the main protective device when an overvoltage between phase and neutral is detected.

NOTE 4 To mitigate means in this context that the POP will provide protection in most cases of power frequency overvoltages.

NOTE 5 Protection in case of overvoltage between phases is under consideration. In case of phase to phase electrical supply system with rated voltage between phases 230 V a.c. and no neutral conductor, one line monitored POP in compliance to this standard can be used according to manufacturer's instruction.

The POP does not impair the protective function of the main protective device.

This European Standard does not apply for protection against common mode over voltages.

This European Standard does not apply to surge protective devices.

This European Standard states:

- the definitions of terms used for POP (Clause 3);
- the classification of POP (Clause 4);
- the characteristics of POP (Clause 5);
- the preferred values of the operating and influencing quantities (Clause 5);
- the marking and information to be provided for POP (Clause 6);
- the standard conditions for installation and operation in service (Clause 7);
- the requirements for construction and operation (Clause 8);
- the list of minimum requirements to be tested (Clause 9).

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-