
Gospodinjski in podobni električni aparati - Varnost - 2-102. del: Posebne zahteve za aparate na plin, olje in trdna goriva z električnimi priključki (IEC 60335-2-102:2004, spremenjen)

(istoveten EN 60335-2-102:2006)

Household and similar electrical appliances - Safety - Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections (IEC 60335-2-102:2004, modified)

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**Household and similar electrical appliances -
Safety**

**Part 2-102: Particular requirements for gas, oil and solid-fuel burning
appliances having electrical connections
(IEC 60335-2-102:2004, modified)**

Appareils électrodomestiques
et analogues -
Sécurité
Partie 2-102: Règles particulières
pour les appareils à combustion au gaz,
au mazout et à combustible solide
comportant des raccordements
électriques
(CEI 60335-2-102:2004, modifiée)

Sicherheit elektrischer Geräte
für den Hausgebrauch
und ähnliche Zwecke
Teil 2-102: Besondere Anforderungen
für Gas-, Öl- und Festbrennstoffgeräte
mit elektrischen Anschlüssen
(IEC 60335-2-102:2004, modifiziert)

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This European Standard was approved by CENELEC on 2006-04-01. 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, 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

Foreword

The text of document 61/2532/FDIS, future edition 1 of IEC 60335-2-102, prepared by the IEC Technical Committee 61, was submitted to the IEC-CENELEC parallel vote in December 2003 but did not receive sufficient support. Document CLC/TC 61(SEC)1489, containing common modifications prepared by CENELEC/TC 61 WG 3, was discussed during the Milan meeting of CENELEC/TC 61 in November 2004. It was decided to submit a draft for a European Standard to the CENELEC Unique Acceptance Procedure.

The draft was circulated in July 2005 and was approved by CENELEC as EN 60335-2-102 on 2006-04-01.

This European Standard supersedes EN 50165:1996 + corrigendum February 1998 + A1:2001.

The following dates are applicable:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2007-04-01
- date on which national standards conflicting with the EN have to be withdrawn (dow) 2009-04-01

This Part 2 has to be used in conjunction with EN 60335-1, Household and similar electrical appliances – Safety – Part 1: General requirements. It was established on the basis of the 2002 edition of that standard. Amendments and revisions of Part 1 have also to be taken into account and the dates when such changes become applicable will be stated in the relevant amendment or revision of Part 1.

This Part 2 supplements or modifies the corresponding clauses of EN 60335-1, so as to convert it into the European Standard: Safety requirements for gas, oil and solid fuel burning appliances having electrical connections.

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When a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies as far as is reasonable. When this standard states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

This standard is intended to be used in addition to the standards for non-electrical appliances and to any Part 2 of EN 60335, if applicable.

NOTE 1 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.;
- subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letter Z.

NOTE 2 The following print types are used:

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

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

There are no special national conditions causing a deviation from this European Standard, other than those listed in Annex ZA to EN 60335-1.

National deviations from this European Standard are listed in Annex ZB and are in addition to those in EN 60335-1.

p NOTE In this document, p is used in the margin to indicate instructions for preparing the printed version.

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SIST EN 60335-2-102:2007

<https://standards.iteh.ai/catalog/standards/sist/39aeb068-04e8-41fc-9a49-a8a8ffac902e/sist-en-60335-2-102-2007>

Endorsement notice

The text of the International Standard IEC 60335-2-102:2004 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

1 Scope

- p Add before Note 102:

This standard has to be applied in conjunction with the relevant standards for appliances and for control devices. Examples are listed in Annexes ZAA and ZBB.

2 Normative references

- p Add:

EN 298:2003, *Automatic gas burner control systems for gas burners and gas burning appliances with or without fans*

IEC 60747-5-2, *Discrete semiconductor devices and integrated circuits – Part 5-2: Optoelectronic devices - Essential ratings and characteristics*

IEC 61810-1, *Electromechanical elementary relays – Part 1: General and safety requirements*

3 Definitions

- p Replace 3.106 by:

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3.106

lock-out

process in which the appliance goes into one of two lock-out conditions following **shut-down**

3.106.Z1

non-volatile lock-out

condition following **shut-down** from which the appliance can only be restarted by a manual reset

3.106.Z2

volatile lock-out

condition following **shut-down** from which the appliance can be restarted by either a manual reset or by an interruption of the power supply and its subsequent restoration

8 Protection against access to live parts

- p **8.101** Replace the text by:

Parts of **spark-ignition circuits** shall not be accessible if the following limits are exceeded, unless they are piezoelectric igniters:

- **pulse spark ignition** discharge 100 µC per pulse

- **continuous spark ignition**
 - current 0,7 mA (peak)
 - no load voltage ≤ 10 kV (peak)
- or
 - no load voltage > 10 kV (peak) with
 - discharge ≤ 45 μ C per pulse and
 - frequency ≤ 25 Hz
- **pulse repetition ignition**
 - discharge ≤ 45 μ C per pulse
 - pulse repetition frequency ≤ 25 Hz

p Add the following notes:

NOTE Z101 A suitable measuring instrument is a 20 MHz oscilloscope with a high voltage test probe having an impedance > 100 M Ω , a capacitance < 3 pF at 100 kHz and surge protection up to 20 kV.

NOTE Z102 The voltage waveform is given in Figure 101.

NOTE Z103 An example of the test set-up is given in Figure Z101.

13 Leakage current and dielectric strength at operating temperature

p Add:

13.1 Addition:

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For appliances which are assembled on site, the leakage current and electrical strength tests on the complete appliance need not be performed if the components and sub-assemblies have been separately tested and the interconnection is carried out in accordance with the manufacturer's instructions.

*If the disconnection of **protective impedance** or radio interference filters is not possible, the limit specified for leakage currents is to be calculated taking into account the current through those circuits or components.*

p **13.2** Replace the text of the modification by:

For gas, oil and solid-fuel burning appliances the limit is 5mA.

15 Moisture resistance

p Replace the text by:

This clause of Part 1 is applicable.

p **15.2** Delete the addition.

16 Leakage current and electric strength

p **16.2** Replace the text of the modification by:

For gas, oil and solid-fuel burning appliances the limit is 5 mA.

- p **16.3** Replace the text of the addition by:

Compliance of **spark ignition circuits** is checked by inspection and only in case of doubt by the following test:

Spark ignition circuits or crucial parts are submitted to an endurance test under the following conditions:

- maximum duration of switch-on given by the manufacturer (complete switch-on duration shall correspond with the realistic time of use);
- the relation between on/off cycles as declared by the manufacturer;
- maximum rated voltage;
- maximum ambient temperature of all parts under test.

During the test no breakdown to other circuits or, if the limits specified in 8.101 are exceeded, **accessible surfaces** shall occur. Breakdown to conductive parts which are connected to earth is allowed if this does not result in a critical failure of **circuits with safety related functions**.

NOTE In case of doubt compliance may normally be achieved by increasing the clearance at any part of the **spark ignition circuit** likely to cause an unacceptable breakdown.

19 Abnormal operation

- p Add:

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- 19.2** Replace the text by:

NOTE Z101 If electrical heating elements are incorporated, the relevant Parts 2 apply.

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- p Add:

- 19.3** Replace the text by:

NOTE Z101 If electrical heating elements are incorporated, the relevant Parts 2 apply.

- p Add:

- 19.5** Replace the text by:

NOTE Z101 If electrical heating elements are incorporated, the relevant Parts 2 apply.

- p Add:

- 19.6** Replace the text by:

NOTE Z101 If electrical heating elements are incorporated, the relevant Parts 2 apply.

- p Add:

- 19.9** Replace the text by:

NOTE Z101 If electrical heating elements are incorporated, the relevant Parts 2 apply.

p Add:

19.10 Replace the text by:

NOTE Z101 If electrical heating elements are incorporated, the relevant Parts 2 apply.

p Add:

19.11.2 Addition:

g) "short-circuit" and "mechanical break-down" of relay contacts in **protective electronic circuits**. The failure modes need not be considered if components comply with footnote g) to Table A.1 of EN 298:2003.

Modification:

Replace the last paragraph by:

In each case, the test is ended:

- for risks of electrical origin, if interruption of the supply occurs within the appliance;
- for risks concerning the fuel, if **shut-down** occurs.

p Add:

19.11.3 Addition:

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Tests are not repeated for **protective electronic circuits** complying with the relevant control standard listed in Annex ZBB.

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NOTE Z101 There is no need to investigate again fault behaviour of already approved fail safe systems.

p **19.13** Replace the text of the addition by:

*During the tests of 19.11.4, the appliance shall either continue to operate normally or reach a safe situation for risks concerning the fuel (**shut-down, non-volatile lock-out** or **volatile lock-out**, if this is permitted in the relevant appliance standard, see Annex ZAA).*

24 Components

p Add:

24.1 Addition:

NOTE Z101 A list of standards applicable to controls and safety devices is given in Annex ZBB.

p Add:

24.1.1 Addition:

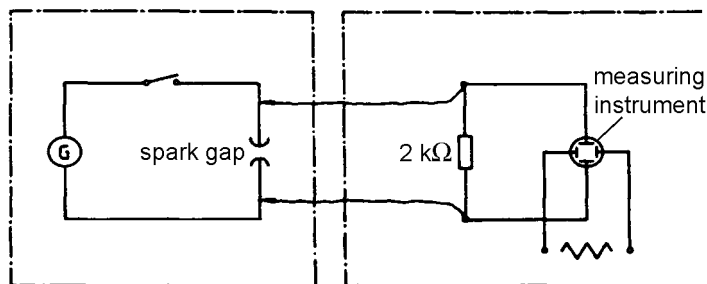
Relays and optocouplers which ensure electrical isolation between live parts and accessible metal parts shall comply with IEC 61810-1 and IEC 60747-5-2.

27 Provision for earthing

- p 27.1 Replace “shall” by “may” (English version only).

Figures

- p Add figure Z101:



Ignition circuit of the appliance

Test equipment

NOTE A suitable measuring instrument is a 20 MHz oscilloscope with a high voltage test probe having an impedance $> 100 \text{ M}\Omega$, a capacitance $< 3 \text{ pF}$ at 100 kHz and surge protection up to 20 kV.

Figure Z101 - Test set-up for ignition measurements

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Annexes

p Replace the text by the following:

The annexes of Part 1 are applicable except as follows:

Annex Q (informative)

Sequence of tests for the evaluation of electronic circuits

Addition:

NOTE Repeat testing of a **protective electronic circuit** is not required where the system has already been certified to comply with published European Standards where compliance requires that the fault behaviour of the fail-safe system is assessed on a second fault analysis basis.

Annex ZB (informative)

A-deviations

Addition:

Clause Deviation

General

Austria

(Bundesgesetzblatt 19. Verordnung: Luftreinhalteverordnung 1989 (LVR-K 1989, air clean keeping decree for vessel equipment); last valid modification Nov. 4, 1997 by 324. Verordnung: Änderung der Luftreinhalteverordnung für Kesselanlagen 1989 (modification of LVR-K 1989, air clean keeping decree for vessel equipment))

Whenever steam boilers are equipped with burners concerned by the following standards, these standards have to be applied:

- ÖNORM EN 267/1991: Atomizing oil burners of monobloc type - Testing;
- ÖNORM M 7540-1/1994: Atomizing oil burners of monobloc type for the heating fuels "fuel oil light", "fuel oil medium" and "fuel oil heavy" - Terminology, requirements, testing, marking of conformity;
- ÖNORM M 7445/1984: Forced-air gas burners;
- ÖNORM M 7445/1990: Fan-assisted gas burners with low NOx-emission; nitrogen oxide measurement.

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