

**MAJAPIDAMIS- JA MUUD TAOLISED ELEKTRISEADMED.
OHUTUS. OSA 2-102: ERINÕUDED ELEKTRILISI
ÜHENDUSI OMAVATELE GAASI, ÕLI JA TAHKEKÜTUSE
PÕLETAMISE SEADMETELE**

**Household and similar electrical appliances - Safety -
Part 2-102: Particular requirements for gas, oil and
solid-fuel burning appliances having electrical
connections**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60335-2-102:2016 sisaldab Euroopa standardi EN 60335-2-102:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 60335-2-102:2016 consists of the English text of the European standard EN 60335-2-102:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.01.2016.	Date of Availability of the European standard is 22.01.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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English Version

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 + A1:2008 , modified
+ A2:2012 , 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
(IEC 60335-2-102:2004 , modifiée + A1:2008 , modifiée
+ A2:2012 , 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 + A1:2008 , modifiziert
+ A2:2012 , modifiziert)

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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.

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

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European foreword

This document (EN 60335-2-102:2016) consists of the text of IEC 60335-2-102:2004 + A1:2008 + A2:2012 prepared by IEC/TC 61 "Safety of household and similar electrical appliances", together with the common modifications prepared by CLC/TC 61, "Safety of household and similar electrical appliances".

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-07-22
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-01-22

This document supersedes EN 60335-2-102:2006.

This Part 2 has to be used in conjunction with EN 60335-1, *Household and similar electrical appliances – Safety – Part 1: General requirements*, and with IEC 60335-2-102, Edition 1.2, 2012-11¹⁾, *Household and similar electrical appliances – Safety – Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections*.

When this standard states "addition", "modification" or "replacement", the relevant text of the IEC 60335-2-102 is to be adapted; if the subclause is not mentioned in IEC 60335-2-102, the corresponding subclause 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, tables and annexes that are additional to those in the IEC standards 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.

1) IEC 60335-2-102, Edition 1.2, 2012-11 is the consolidated edition of IEC 60335-2-102:2004 + A1:2008 + A2:2012.

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

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

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

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).

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

Endorsement notice

The text of the International Standard IEC 60335-2-102:2004 + A1:2008 + A2:2012 was approved by CENELEC as a European Standard with agreed common modifications.

COMMON MODIFICATIONS

INTRODUCTION

p *Add:*

The principal objectives of the Low Voltage Directive, 2006/95/EC, are covered by this standard. The Essential Health and Safety Requirements (EHSR) (except 1.7.4.2 u) of the Directive 2006/42/EC, which can be applicable to some of the appliances covered by this standard, have also been taken into account.

1 Scope

p *Replace the second and third paragraphs by:*

This European Standard deals with the safety of gas, oil and solid-fuel burning appliances having electrical connections, their rated voltage being not more than 250 V for single-phase appliances and 480 V for other appliances.

This standard covers the electrical safety and some other safety aspects of these appliances. All safety aspects of these appliances, including those relevant to the noise emitted, are only covered when the appliance also complies with the relevant product standard for the fuel-burning appliance.

If the appliance incorporates electric heating sources, it also has to comply with the relevant Part 2 of EN 60335.

Additional requirements for appliances and machines with moving parts and intended for commercial use are given in Annex ZE.

p *Replace the paragraph after NOTE 101 by:*

NOTE Z1 Examples of appliance for household environment are appliances for typical housekeeping functions used in the household environment and appliances for typical housekeeping functions used by non-expert users:

- in shops, offices and other similar working environments,
- in farm houses,
- by clients in hotels, motels and other residential type environments,
- in bed and breakfast type environments.

NOTE Z2 Household environment includes the dwelling and its associated buildings, the garden, etc.

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 298:2012, *Automatic burner control systems for burners and appliances burning gaseous or liquid fuels*

EN 60747-5-2, *Discrete semiconductor devices and integrated circuits – Part 5-2: Optoelectronic devices - Essential ratings and characteristics (IEC 60757-5-2)*

EN 61310-1, *Safety of machinery – Indication, marking and actuation – Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1)*

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

3 Terms and definitions

p *Replace 3.106 by:*

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 either by a manual reset or by an interruption of the power supply and its subsequent restoration

7 Marking and instructions

7.10 *Replace the fourth paragraph by:*

Devices if any, used to start/stop such operational functions of the appliance, which may cause hazards, shall be distinguished from other manual devices by means of shape, or size, or surface texture, or position, etc.

13 Leakage current and dielectric strength at operating temperature

p Add:

13.1 Addition:

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 5 mA.

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 (the 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**.*

*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:*

19.2 *Replace the text by:*

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

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 **19.11.1** *Modification:*

In the first paragraph, replace “a) to g)” by “a) to g) and za)”.

p **19.11.2** *Modification:*

In the first paragraph starting with “The following fault conditions...”, add the following new fault condition:

za) *“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 ⁹ to Table E.1 of EN 298:2012.*

p *Add:*

19.11.3 *Modification:*

In the first paragraph, replace “a) to g)” by “a) to g) and za)”.

19.11.3 *Addition:*

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

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 EN 61810-1 and EN 60747-5-2 respectively.

27 Provision for earthing

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

Figure 6

p *Replace in Part 1 “a) to g)” by “a) to g) and za)”.*

Annexes

p *Replace the text by:*

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 be assessed on a second fault analysis basis.

Modification:

Add the following text twice in the corresponding boxes in the diagram, after “a) to g)”: “and za)”.

Annex ZC

(normative)

Normative references to international publications with their corresponding European publications

Addition:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
–	–	Automatic burner control systems for burners and appliances burning gaseous or liquid fuels	EN 298	2012
IEC 60747-5-2	–	Discrete semiconductor devices and integrated circuits – Part 5-2: Optoelectronic devices - Essential ratings and characteristics	EN 60747-5-2	–
IEC 61310-1	–	Safety of machinery - Indication, marking and actuation Part 1: Requirements for visual, acoustic and tactile signals	EN 61310-1	–
IEC 61558-2-3	–	Safety of transformers, reactors, power supply units and combinations thereof - Part 2-3: Particular requirements and tests for ignition transformers for gas and oil burners	EN 61558-2-3	–
IEC 61810-1	–	Electromechanical elementary relays - Part 1: General and safety requirements	EN 61810-1	–
ISO 3808	–	Road vehicles - Unscreened high-voltage ignition cables - General specifications, test methods and requirements	–	–

Annex ZE (normative)

Specific additional requirements for appliances and machines with moving parts and intended for commercial use

p *Annex ZE of Part 1 is applicable with the following modifications:*

Introduction

For the verification of compliance of appliances or machines intended for commercial use with the Essential Health and Safety Requirements (EHSR) of the Directive 2006/42/EC, the requirements in this Annex ZE shall apply.

1 Scope

This annex specifies additional requirements concerning appliances and machines intended to be used by expert or trained users in shops, in light industry and on farms, and appliances and machines which are declared to be for commercial use by lay persons.

EXAMPLES Examples of appliances within the scope of this amendment:

- commercial heating appliances
- commercial laundry and cleaning appliances
- commercial air heating systems

Some requirements of this annex may be superseded if, for a specific hazard, specific requirements are given in the relevant fuel appliance standard.

3 Terms and definitions

This clause of Annex ZE of Part 1 is applicable.

4 General requirements

This clause of Annex ZE of Part 1 is applicable.

7 Marking and instructions

7.12.ZE1 *The sixth dashed item is not applicable.*

20 Stability and mechanical hazards

This clause of Annex ZE of Part 1 is applicable except as follows:

20.1 *Replace the second paragraph by:*

Compliance is checked by inspection and the relevant tests as specified in the relevant appliance standard for the fuel-burning appliance. If the appliance incorporates electric heating sources, it has also to comply with the relevant Part 2 of EN 60335.

20.2 *Add after the second dashed item:*

In case it is not possible for technical reasons to provide a guard, adequate warnings according to EN 61310-1 shall be provided to the appliance.

EXAMPLES Mechanical fuel/air ratio controls, air damper flap.

21 Mechanical strength

This clause of Annex ZE of Part 1 is applicable.

22 Construction

This clause of Annex ZE of Part 1 is applicable.

Annex ZAA

(informative)

Standards for non-electric appliances

The following table gives a list of examples of standards for non-electric appliances to which this standard may apply.

Table ZAA.1

Energy	EN reference	Appliance
Gas	EN 26	Appliances for instantaneous production of hot water
	EN 30	Domestic cooking appliances
	EN 89	Storage water heaters for sanitary use
	EN 203	Catering equipment - safety requirements
	EN 303-3	Central heating boilers
	EN 484	LPG fired independent hotplates
	EN 497	LPG fired boiling burners
	EN 498	LPG fired barbecues for outdoor use
	EN 509	Decorative fuel effect gas appliances
	EN 525	Forced convection air heaters
	EN 613	Independent convection heaters
	EN 621	Convection air heaters for space heating without fan, ≤ 300 kW
	EN 656	Central heating boilers, > 70 kW ≤ 300 kW
	EN 676	Gas burners using fans
	EN 732	Absorption refrigerating appliances using LPG
	EN 777	Radiant tube heaters systems for non-domestic use
	EN 778	Convection air heaters for space heating without fan, ≤ 70 kW
	EN 1020	Convection air heaters for space heating with fan, ≤ 300 kW
	EN 1266	Convection air heaters incorporating a fan
	EN 1458	Tumble dryers
	EN 13836	Central heating boilers, > 300 kW ≤ 1000 kW
	EN 15502-2-1	Gas-fired central heating boilers - Part 2-1: Specific standard for type C appliances and type B2, B3 and B5 appliances of a nominal heat input not exceeding 1 000 kW
	EN 15502-2-2	Gas-fired central heating boilers - Part 2-2: Specific standard for type B1 appliances
	EN 50465	Gas appliances - Combined heat and power appliance of nominal heat input inferior or equal to 70 kW
Oil	EN 1	Fluid oil stoves with vaporizing burners
	EN 303-1	Central heating boilers
Solid fuel	EN 303-5	Central heating boilers

Annex ZBB
(informative)

Standards for control and safety devices

The following table gives a list of examples of standards for control and safety devices.

Table ZBB.1

Energy	EN reference	Device
Gas	EN 125	Thermoelectric flame failure devices
	EN 126	Multifunctional controls for gas burning appliances
	EN 161	Automatic shut-off valves for gas burners
	EN 298	Automatic gas burner control units for gas burners
	EN 1643	Gas valve proving systems
	EN 1854	Air/gas pressure switches
	EN 12067-2	Gas/air ratio controls for gas burning appliances
	EN 13611	Safety and control devices for gas-burning appliances
Oil	EN 298	Automatic burner control systems for burners and appliances burning gaseous or liquid fuels
	ISO 23553-1	Safety and control devices for oil burners and oil-burning appliances - Particular requirements - Part 1: Automatic and semi-automatic valves
Gas, oil, solid fuel	EN 60730-1	Automatic electrical controls for household and similar use Part 1: General requirements
	EN 60730-2-2	Thermal motor protectors
	EN 60730-2-5	Automatic electrical burner control systems
	EN 60730-2-6	Automatic electrical pressure sensing controls
	EN 60730-2-7	Timers and time switches
	EN 60730-2-8	Electrically operated water valves
	EN 60730-2-9	Temperature sensing controls
	EN 60730-2-10	Motor starting relays
	EN 60730-2-11	Energy regulators
	EN 60730-2-12	Electrically operated door locks
	EN 60730-2-14	Electric actuators
	EN 60730-2-19	Oil valves