SLOVENSKI STANDARD
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SIST EN 60730-2-9:2002
SIST EN 60730-2-9:2002/A1:2004
SIST EN 60730-2-9:2002/A11:2003
SIST EN 60730-2-9:2002/A12:2005
SIST EN 60730-2-9:2002/A2:2005

Avtomatske električne krmilne naprave za uporabo v gospodinjstvu in za podobno uporabo - 2-9. del: Posebne zahteve za temperaturne regulatorje (IEC 60730-2-9:2008, spremenjen)

Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2008, modified)

Automatische elektrische Regel- und Steuergeräte für den Hausgebrauch und ähnliche Anwendungen - Teil 2-9: Besondere Anforderungen an temperaturabhängige Regel- und Steuergeräte (IEC 60730-2-9:2008, modifiziert)

Dispositifs de commande électrique automatiques à usage domestique et analogue - Partie 2-9: Règles particulières pour les dispositifs de commande thermosensibles (CEI 60730-2-9:2008, modifiée)

Ta slovenski standard je istoveten z: **EN 60730-2-9:2010**

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97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use

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English version

Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls

(IEC 60730-2-9:2008, modified)

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(IEC 60730-2-9:2008, modifiziert)

This European Standard was approved by CENELEC on 2010-11-01. 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, 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

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Foreword

The text of the International Standard IEC 60730-2-9:2008, prepared by IEC TC 72, Automatic controls for household use, together with the common modifications prepared by the Technical Committee CENELEC TC 72, Automatic controls for household use, was submitted to the CENELEC Unique Acceptance Procedure.

A draft amendment was prepared by the Technical Committee CENELEC TC 72, Automatic controls for household use. It was submitted to the Unique Acceptance Procedure.

The combined texts were approved by CENELEC as EN 60730-2-9 on 2010-11-01.

This document supersedes EN 60730-2-9:2002 + A1:2003 + A2:2005 + A11:2003 + A12:2004.

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 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) 2011-11-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2013-11-01

This Part 2-9 is to be used in conjunction with EN 60730-1:2000, *Automatic electrical controls for household and similar use – Part 1: General requirements*, and any subsequent amendments.

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.

Annexes ZA and ZZ have been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60730-2-9:2008 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

1 1 Scope and normative references

1.5 Normative references

Add the following as the first reference:

EN 60216-1, Electrical insulating materials – Properties of thermal endurance – Part 1: Ageing procedures and evaluation of test results (IEC 60216-1)

2 2 Definitions

Add the following definition:

2.2.101.2
non-bimetallic single operation device
single operation device having a temperature sensing element which is part of a combination action control, the operation of which cannot be separated from other functions of the control and having a non-bimetallic thermal element that operates only once and then requires complete or partial replacement

NOTE 1 When such parts can be tested separately, they are considered to be thermal links within the scope of EN 60691.

NOTE 2 The ageing period and thermal response of the device is dependent on the intended use of the device. As a result, the nature of the testing applicable to the device should be representative of the application conditions for which the protective control is intended (see 7.2).

NOTE 3 Non-bimetallic single operation devices provide the equivalent of micro-disconnection.

2.2.101.2.2 **Delete** this definition.

2.2.101.2.3 **Delete** this definition.

4 General notes on test

4.1.101 **Delete** the note.

4.2.1 *Addition:*

Replace the text with:

Six samples of bimetallic SODs are used for the test of Clause 15 and a further six for the test of Clause 17.

6 Classification

6.4.3.105 **Replace** with:

– an action which cannot be reset under electrically loaded conditions and at temperatures above -20 °C or at a lower temperature if so declared (Type 1.AK or 2.AK);

6.7 According to ambient temperature limits of the switch head

Add the following subclause:

6.7.104 Non-bimetallic SOD for incorporation into appliances for heating or employing liquids or steam.

NOTE Not suitable for use in instantaneous water heaters.

7 Information

7.2 Methods of providing information

Table 7.2

Replace requirements for 103, 115 and 116 as follows:

	Information	Clause or subclause	Method
103	SOD reset temperature (either –35 °C or 0 °C) (17.15.2.2)	2.2.101 11.4.103 17.15.2.2	X
115	Ageing temperature for non-bimetallic SOD [106]	17.15.2.2.1 17.15.2.2.2	D
116	Rate of rise of temperature for testing non-bimetallic SOD [107]	17.15.2.2.1 17.15.2.2.2	D

Add the following new item to Table 7.2.

601	The minimum voltage at which a voltage maintained thermal cut-out will not reset (this shall not be higher than 0,85 times the minimum rated voltage).	11.4.106	

In the additional notes **replace** Note 102 with:

102) Controls using liquid metal are allowed only with a special marking on the control. Documentation (D) shall contain a clear warning of the actual danger that may occur. The following symbol shall be used for marking the control:

Add the following additional notes at the bottom of the table:

106) Determined by the control manufacturer based on the opening temperature of the thermal-cut out.

107) Determined by the control manufacturer referring to the actual maximum rate of rise probable in the projected end-use equipment.

11 Constructional requirements

11.1.102 **Add** the following at the end of the first sentence:

Insulating material used in non-bimetallic SODs as defined in this standard shall comply with the requirements of EN 60216-1:2001 and be suitable for the application.

11.4.3.101 Delete the note.

11.4.101 Delete the note.

11.4.106

Replace the title and the text of this clause by the following:

11.4.106 Voltage maintained thermal cut-out (Type 1.AK or Type 2.AK)

A voltage maintained thermal cut-out shall be so designed that it does not automatically reset at any temperature higher than -20 °C or any lower temperature declared in Table 7.2, Requirement 111.

Compliance is checked by the following test which is carried out as part of 17.14:

The voltage maintained thermal cut-out shall be maintained, in an operated condition, at - 20 °C or at any lower temperature declared by the manufacturer in Table 7.2, Requirement 111.

The voltage maintained thermal cut-out is connected to the voltage value declared in Table 7.2, Requirement 601, in series with a resistance of a value which will limit the current through the control to not more than the maximum rated current together with a suitable means to detect resetting of the thermal cut-out.

The test will continue for 1 h. The device shall not reset during this period.

11.101 Time factor

Delete the note.

12 Moisture and dust resistance

12.101.3 Delete the note.

13 Electric strength and insulation resistance

Replace the entire text with:

This clause of Part 1 is applicable.

15 Manufacturing deviation and drift

15.5.3.109 Replace the subclause as follows:

15.5.3.109 *For SODs, after the contacts have operated, satisfactory disconnection is determined by subjecting each SOD device to the voltage specified in Table 13.2, with no prior humidity treatment.*

16 Environmental stress

Addition:

Replace the additional subclause as follows:

All controls except bimetallic SODs shall be environmentally conditioned as per Clause 16 of EN 60730-1.

17 Endurance

17.8.4 *Additional subclause:*

17.8.4.101 **Delete** the note.

17.15.1.3

Replace the first sentence of the clause by the following:

For bimetallic single operation devices with a declared reset temperature of - 35 °C, six untested samples shall be subjected to an over-voltage test for one cycle under the electrical conditions of Table 17.2-1.

17.15.1.3.1

Replace the first sentence of the clause by the following:

For bimetallic single operation devices with a declared reset temperature of 0 °C, one sample shall be subjected to an over-voltage test of 50 cycles under the electrical conditions of Table 17.2-1.

17.15.2 **Replace** the subclause as follows:

17.15.2 Non-bimetallic single operation devices

Non-bimetallic Single Operation Devices are subject to the following tests:

For a non-bimetallic SOD, automatic temperature sensing functions except those for the non-bimetallic part of the control, such as thermostat, temperature limiter and/or the thermal-cut-out, shall comply with 17.16.101, 17.16.103 and 17.16.104 respectively.

These tests are conducted on separate samples.

The apparatus used for the tests of 17.15.2.1 and 17.15.2.2 shall be constructed so that heat can be applied to the thermal sensing element of the single operation device whilst taking care that other parts of the control are protected from exposure to temperatures in excess of their intended use.

17.15.2.1 Six untested samples are then to be mounted in a suitable apparatus and the thermal sensing elements are conditioned for an ageing period equal to either 750 h or the result of the specified number of cycles declared by the end product application divided by 4 (calculation value is the number of hours), whichever is greater. The ageing temperature is declared in Table 7.2, Item 115, tolerance of 0 K -5 K. No operation of the single operation devices shall occur during this ageing period. Operation of the devices shall be detected as indicated in 15.5.3.107.

17.15.2.2 At the end of the ageing period, the samples are removed from the apparatus.

The appropriate tests of Clause 15 shall be repeated on six untested samples and the six samples subjected to the conditioning of 17.15.2.1 and the temperatures measured shall be within the declared deviation limits, with the electrical conditions of the test V_{Rmax} and I_{Rmax}.

For non-bimetallic SOD's where any sensing element has a declared reset temperature, the SOD's shall be held at the temperature declared in Table 7.2, the test shall continue for 7 h. The device shall not reset during this period as determined as indicated in 15.5.3.109.

All samples shall then be subjected to the test of Clause 13, carried out at the temperature limits declared in Table 7.2, Requirement 36.

NOTE: The apparatus used for the tests of 17.15.2.1 and 17.15.2.2 shall be constructed so that heat can be applied to the thermal sensing element of the SOD whilst taking care that other parts of the control are protected from exposure to temperatures in excess of their intended use.

17.16.101 **Delete** the 'in Canada and the USA' note and the following related subclauses: 17.16.102, 17.16.102.1, 17.16.102.2 and 17.16.102.3.

17.16.105 **Replace** this subclause by "Void".

18 Mechanical strength

18.102.3 **Delete** the note.

23 Electromagnetic compatibility (EMC) requirements – emission

23.101 **Delete** the note:

Annex H Requirements for electronic controls

H.26.10 **Replace** 'Ring wave test' by "Void".

H.26.10.5 **Replace** the addition by "Void".

Annex AA Maximum manufacturing deviation and drift

Delete the note 'In Canada and the USA, Annex AA is normative.'

Annex CC Number of cycles

Delete Table CC.2.

Annex DD Controls for use in agricultural confinement buildings

DD.9.2 **Delete** the note.

Annex EE Guide to the application of temperature sensing controls within the scope of IEC 60730-2-9

EE.3.6 **Delete** the note 'In Canada and the USA, flying leads are allowed.

Add the following annexes.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60216-1	-	Electrical insulating materials - Properties of thermal endurance - Part 1: Ageing procedures and evaluation of test results	EN 60216-1	-
IEC 60335	series	Household and similar electrical appliances - Safety	EN 60335	series
IEC 60691 + A1	2002 2006	Thermal-links - Requirements and application guide	EN 60691 + A1	2003 2007
IEC 60730-2-4	-	Automatic electrical controls for household and similar use - Part 2-4: Particular requirements for thermal motor protectors for motor-compressors of hermetic and semi-hermetic type	EN 60730-2-4	-

Annex ZZ
(informative)

Coverage of Essential Requirements of EC Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Article 1 of Annex I of the EC Directive EMC (2004/108/EC).

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.

WARNING: Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.

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NORME INTERNATIONALE

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