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

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EUROPEAN STANDARD

EN 60730-2-9

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EUROPÄISCHE NORM

May 2002

ICS 97.120

Supersedes EN 60730-2-9:1995 + A1:1996 + A11:1997 + A2:1997 + A12:2001

English version

Automatic electrical controls for household and similar use
Part 2-9: Particular requirements for temperature sensing controls
(IEC 60730-2-9:2000, modified)

Dispositifs de commande électrique
automatiques à usage domestique
et analogue
Partie 2-9: Règles particulières pour
les dispositifs de commande
thermosensibles
(CEI 60730-2-9:2000, modifiée)

Automatische elektrische Regel- und
Steuergeräte für den Hausgebrauch
und ähnliche Anwendungen
Teil 2-9: Besondere Anforderungen
an temperaturabhängige Regel- und
Steuergeräte
(IEC 60730-2-9:2000, modifiziert)

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This European Standard was approved by CENELEC on 2001-12-04. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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 the International Standard IEC 60730-2-:2000, 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 formal vote and was approved by CENELEC as EN 60730-2-9 on 2001-12-04.

This European Standard supersedes EN 60730-2-9:1995 + corrigendum March 2001 + A1:1996 + A1:1996/corrigendum March 2001 + A11:1997 + A11:1997/corrigendum March 2001+ A2:1997 + A2:1997/corrigendum March 2001 + A12:2001.

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 2002-12-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn dow 2008-12-01

This Part 2-9 is to be used in conjunction with EN 60730-1:1995, Automatic electrical controls for household and similar use - Part 1: General requirements, and its amendments. Consideration may be given to future editions of EN 60730-1.

This Part 2-9 supplements or modifies the corresponding clauses of EN 60730-1 so as to convert it into the European Standard: Particular requirements for temperature sensing controls.

Where a particular clause or subclause of Part 1 is not mentioned in this Part 2-9, that clause or subclause applies as far as is reasonable. Where this Part 2-9 states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

Where reference is made to other international or harmonized standards, the edition of that standard quoted in annex ZA (normative) is applicable.

Special national conditions (snc) causing a deviation from this European Standard are listed in annex ZB (normative) and are in addition to those in EN 60730-1.

There are no national deviations from this European Standard other than those listed in Annex ZC of EN 60730-1.

In this standard:

- 1) The following print types are used:
 - Requirements proper: in roman type;
 - *Test specifications: in italic type*;
 - Explanatory matter: in small roman type.
- 2) Subclauses, notes, tables and figures which are additional to those in Part 1 are numbered starting from 101, additional annexes are lettered AA, BB, etc.

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes H, J, ZA and ZB are normative and annexes AA, BB and CC are informative.

Annexes ZA and ZB have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60730-2-9:2000 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

Foreword Delete

1 Scope and normative references

1.1 Add an explanation paragraph as follows:

Examples of such controls include boiler thermostats, fan controls, temperature limiters and thermal cut-outs.

1.1.1 Delete the second sentence of the first paragraph, and the explanation paragraph.

1.1.3 Replace the first paragraph by:

EN 60730-2-1 is not applicable to temperature sensing controls.

2 Definitions

2.2.9 Delete 'bi-metallic' from the title.

Add the following text to the replacement.

a part of a control the operation of which cannot be separated from other functions of the control and having a non bi-metallic temperature sensing element which operates only once and then requires complete or partial replacement.

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

Add the following definition:

2.2.601

voltage maintained thermal cut-out

a thermal cut-out which is maintained in its operated condition by the voltage which appears across it in that condition

4 General notes on tests

4.1.101 Delete the 'in some countries' note.

4.2.1 Delete 'bi-metallic' in the addition.

7 Information

Table 7.2 Add:

Replace item 48 (of EN 60730-1) by:

48	Operating value (or values) or operating time	2.3.11, 2.3.12, 6.4.3.10, 11, 12, 15.4, 15.6, 17	D
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In item 103, add "bi-metallic" before "SOD".

Add the following further items:

601	Automatic reset temperature of a manual reset thermal cut-out (this shall not be higher than minus 20 °C).	11.4.601 2.2.9	X
602	$T_{\max 1}$ is the maximum ambient temperature in which the control may remain continuously in the operated condition so that Table 14.1 temperatures are not exceeded ⁶⁰¹⁾	14.4.3.1	D
603	Time period t_1 , is the maximum time during which the ambient temperature can be higher than $T_{\max 1}$ after the control has operated ^{601) 602)}	14.4.3.1	D
604	The click rate N or switching operations per minute for the purposes of testing to EN 55014-1	23	X

Add the following to NOTE 3:

A manual reset thermal cut-out and a voltage maintained thermal cut-out shall not reset automatically at a higher temperature than - 20 °C, or at a lower temperature if this has been declared.
This requirement applies to a voltage maintained thermal cut-out in the operated condition with the voltage across it.

In the additional notes, replace NOTE 102) by "¹⁰²⁾ Refer snc".

Add the following new notes:

⁶⁰¹⁾ Consideration should be given to the provision of information relating to the minimum time that a voltage maintained thermal cut-out has to be disconnected from the supply to allow reset to take place.

⁶⁰²⁾ Not applicable if the maximum operating temperature is lower than the declared $T_{\max 1}$.

8

Protection against electric shock

Replace with 'This clause of Part 1 is applicable' and **delete** 8.2 and 8.2.3.

9

Provision for protective earthing

Replace with 'This clause of Part 1 is applicable' and **delete** 9.1, 9.1.2, 9.3 and 9.3.1.

10

Terminals and terminations

Replace with 'This clause of Part 1 is applicable'.

11

Constructional requirements

11.4.3.101

Delete the 'in some countries' note.

11.4.101

Delete the 'in some countries' note.

Add new subclause.

11.4.601 Manual reset thermal cut-out

A manual reset thermal cut-out shall be so designed that it does not automatically reset at any temperature higher than that declared in Table 7.2 requirement 601.

11.101

Delete the 'in some countries' note.

12 Moisture and dust resistance

12.101.3 **Delete** the 'in some countries' note.

13 Electric strength and insulation resistance

13.2 **Delete** the addition.

14 Heating

14.4.3.1 **Replace** by:

Addition:

For a voltage maintained thermal cut-out the heating test of 14.4.3.1 is completed after which the temperature of the sensing element is raised until the contacts open. At this time the ambient temperature surrounding the sensing element is adjusted to $T_{max}1$ in time, t_1 assuming a linear time constant, and maintained at this temperature until the conditions specified in 14.6.1 are met. The test of 14.5.1 is then carried out with the load disconnected.

15 Manufacturing deviation and drift

15.5.3.109 **Delete** 'bi-metallic' in two places.

16 **Environmental stress** [SIST EN 60730-2-9:2002](https://standards.iteh.ai/catalog/standards/sist/ac2c6234-682d-4ec6-bee0-9c2ad1b78ad2/sist-en-60730-2-9-2002)
<https://standards.iteh.ai/catalog/standards/sist/ac2c6234-682d-4ec6-bee0-9c2ad1b78ad2/sist-en-60730-2-9-2002>
Delete 'bi-metallic' in the addition.

17 Endurance

17.8.4.101 **Delete** the 'in some countries' note.

17.15 **Delete** 'bi-metallic' in the title and in the first paragraph.

17.15.1 **Replace** by the following:

After the appropriate tests of clause 15, the same six samples of bi-metallic single operation devices shall be maintained at minus 35 °C or 0 °C as declared in Table 7.2, requirement 103.

The test will continue for 7 hours. The device shall not reset during this period, as determined by the tests of 15.5.3.109.

17.15.2 **Delete** 'bi-metallic' in the first line.

17.15.2.1 **Delete** 'bi-metallic' in two places.

17.15.3 **Replace** by the following:

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

The test of 15.5.3.109 shall be repeated.

17.15.3.1 **Delete** in the first paragraph the words '(or, in some countries, overload)' and at the end of the first paragraph the words 'or 17.2-2, as appropriate'.

17.16.102 **Delete** up to 17.16.102.3 inclusive.

17.16.105 **Delete**.

18 **Mechanical strength**

18.102.3 **Delete** both 'in some countries' paragraphs.

20 **Creepage distances, clearances and distances through insulation**

Delete the addition.

Table 20.1 **Delete** the addition.

20.3.1 **Delete** (already deleted in Part 1).

23 **Radio interference suppression**

23.101 **Delete** the 'in some countries' note.

Annexes

Annex C **Delete**

Annex D **Delete**

Annex H
H.26.4 **Replace** with 'Not applicable'.

H.26.7 **Replace** with 'Not applicable'.

H.26.9 **Delete** the 'replacement'

H.26.10 **Replace** with 'H 26.10 Void'.

Annex CC

Table CC.2 **Delete**

Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

Additions to annex ZA of EN 60730-1:1995

Add under IEC publications:

IEC 60335	Series	Safety of household and similar electrical appliances	EN 60335	Series
IEC 60691	1993	Thermal links – Requirements and application guide	EN 60691	1995

Annex ZB
(normative)


Special national conditions

The following special national condition which is in addition to those in EN 60730-1, exists in the country mentioned.

Clause **Special national condition**

Table 7.2 106) **Germany**

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:

 (Symbol No. 0434 of ISO 7000....caution)

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2000-05

**Dispositifs de commande électrique
automatiques à usage domestique et analogue –**

**Partie 2-9:
Règles particulières pour les dispositifs
de commande thermosensibles**

**Automatic electrical controls for
household and similar use –**

**Part 2-9:
Particular requirements for
temperature sensing controls**

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