SLOVENSKI STANDARD
SIST EN IEC 60730-2-9:2019

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SIST EN 60730-2-9:2011

Avtomatske električne krmilne naprave - 2-9. del: Posebne zahteve za temperaturne regulatorje

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

Automatische elektrische Regel- und Steuergeräte für den Hausgebrauch und ähnliche Anwendungen - Teil 2-9: Besondere Anforderungen an temperaturabhängige Regel- und Steuergeräte

Dispositifs de commande électrique automatiques à usage domestique et analogue - Partie 2-9: Règles particulières pour les dispositifs de commande thermosensibles

Ta slovenski standard je istoveten z: **EN IEC 60730-2-9:2019**

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English Version

Automatic electrical controls - Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2015)

Dispositifs de commande électrique automatiques - Partie 2-9: Règles particulières pour les dispositifs de commande thermosensibles (IEC 60730-2-9:2015)

Automatische elektrische Regel- und Steuergeräte - Teil 2-9: Besondere Anforderungen an temperaturabhängige Regel- und Steuergeräte (IEC 60730-2-9:2015)

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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

The text of document 72/990/FDIS, future edition 4 of IEC 60730-2-9, prepared by IEC/TC 72 "Automatic electrical controls" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60730-2-9:2019.

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) 2019-08-22
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-02-22

This document supersedes EN 60730-2-9:2010.

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 document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Endorsement notice

The text of the International Standard IEC 60730-2-9:2015 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated :

IEC 60079	NOTE	Harmonized in EN 60079 series.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Annex ZA of EN 60730-1:2016 applies, except as follows:

Publication	Year	Title	EN/HD	Year
Addition:				
IEC 60216-1	2013	Electrical insulating materials - Thermal endurance properties - Part 1: Ageing procedures and evaluation of test results	EN 60216-1	2013
IEC 60691	-	Thermal-links - Requirements and application guide	EN 60691	-
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	-

IEC 60730-2-9

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INTERNATIONAL STANDARD

Automatic electrical controls –
Part 2-9: Particular requirements for temperature sensing control

INTERNATIONAL
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COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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AUTOMATIC ELECTRICAL CONTROLS –

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FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60730-2-9 has been prepared by technical committee TC 72: Automatic electrical controls.

The text of this standard is based on the following documents:

FDIS	Report on voting
72/990/FDIS	72/998/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This fourth edition cancels and replaces the third edition published in 2008, and its Amendment 1:2011. This edition constitutes a technical revision. This edition includes alignment with the text of 60730-1 fifth edition and the following significant technical changes with respect to the previous edition:

a) modification of heating-freezing tests in Clause 12;

b) alignment of the EMC requirements in H.26 to those in other part 2 standards;

c) addition of requirements in Clause H.27 to cover class B and C control functions of temperature sensing controls;

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 2-9 is intended to be used in conjunction with IEC 60730-1. It was established on the basis of the fifth edition (2013) of that publication. Consideration may be given to future editions of, or amendments to, IEC 60730-1.

This Part 2-9 supplements or modifies the corresponding clauses in IEC 60730-1 so as to convert that publication into the IEC standard: Particular requirements for temperature sensing controls.

Where this Part 2-9 states "addition", "modification", or "replacement", the relevant requirement, test specification or explanatory matter in part 1 should be adapted accordingly.

Where no change is necessary, this part 2 indicates that the relevant clause or subclause applies.

In the development of a fully international standard, it has been necessary to take into consideration the differing requirements resulting from practical experience in various parts of the world and to recognize the variation in national electrical systems and wiring rules.

The “in some countries” notes regarding differing national practices are contained in the following subclauses:

4.1.101	17.8.4.101	Annex AA
7.2, Table 1	17.16.101	Clause CC.2
11.4.101	17.16.102	DD.9.2
11.101	17.16.105	EE.3.6
12.101.3	18.102.3	
13.2	23.101	

In this publication:

1) The following print types are used:
   - Requirements proper: in roman type;
   - *Test specifications: in italic type;*
   - Notes; in small roman type;
   - Words defined in Clause 2: **bold**.
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.

A list of all parts of the IEC 60730 series, published under the title *Automatic electrical controls* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

AUTOMATIC ELECTRICAL CONTROLS –

Part 2-9: Particular requirements for temperature sensing controls

1 Scope and normative references

This clause of Part 1 is applicable except as follows:

1.1 Scope

Replacement:

This part of IEC 60730 applies to automatic electrical temperature **sensing controls** for use in, on or in association with equipment, including **electrical controls** for heating, air-conditioning and similar applications. The equipment may use electricity, gas, oil, solid fuel, solar thermal energy, etc., or a combination thereof.

NOTE Throughout this standard, the word "equipment" includes "appliance" and "control system".

This standard is applicable to automatic electrical temperature **sensing controls** forming part of a building automation **control system** within the scope of ISO 16484.

This standard also applies to automatic electrical temperature **sensing controls** for equipment that may be used by the public, such as equipment intended to be used in shops, offices, hospitals, farms and commercial and industrial applications.

This standard does not apply to automatic electrical temperature **sensing controls** intended exclusively for industrial process applications, unless explicitly mentioned in the relevant equipment standard.

1.1.1

Replacement:

This standard applies to the inherent safety, to the **operating values**, **operating times**, and **operating sequences** where such are associated with equipment safety, and to the testing of automatic electrical temperature **sensing control** devices used in, or in association with, equipment.

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

This standard is also applicable to the functional safety of low complexity safety-related temperature **sensing controls** and **systems**.

1.1.2

Addition:

This standard also applies to the electrical safety of temperature sensing controls with non-electrical outputs such as refrigerant flow and gas **controls**.

1.1.3 Not applicable.

1.1.4

Replacement:

This standard applies to **manual controls** when such are electrically and/or mechanically integral with automatic temperature **sensing controls**.

NOTE Requirements for manual switches not forming part of an **automatic control** are contained in IEC 61058-1.

1.1.5

Replacement:

This standard applies to a.c. or d.c. powered temperature **sensing controls** with a rated voltage not exceeding 690 V a.c. or 600 V d.c.

1.1.6

Replacement:

This standard does not take into account the **response value** of an **automatic action** of a temperature **sensing control**, if such a **response value** is dependent upon the method of mounting it in the equipment. Where a **response value** is of significant purpose for the protection of the **user**, or surroundings, the value defined in the appropriate equipment standard or as determined by the manufacturer shall apply.

1.1.7

Replacement:

This standard applies also to temperature **sensing controls** incorporating **electronic devices**, requirements for which are contained in Annex H and to temperature **sensing controls** using **NTC thermistors** or **PTC thermistors**, requirements for which are contained in Annex J.

Additional subclause:

1.1.101 This standard applies to **single operation devices** as defined in this standard.

1.1 Normative references

Addition:

IEC 60216-1:2013, *Electrical insulating materials – Thermal endurance properties – Part 1: Ageing procedures and evaluation of test results*

IEC 60691, *Thermal links – Requirements and application guide*

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*

2 Terms and definitions

This clause of Part 1 is applicable except as follows:

2.2 Definitions of types of control according to purpose

2.2.19
operating control

Add, to the definition, the following note:

Note 1 to entry: In general, a **thermostat** is an **operating control**.

2.2.20
protective control

Add, to the definition, the following note:

Note 1 to entry: In general, a **thermal cut-out** is a **protective control**.

Additional definitions:

2.2.101
single-operation device
SOD
control having a temperature **sensing element** which is intended to operate only once and then requires complete replacement

2.2.101.1
bimetallic single-operation device
single operation device (**SOD**) having a bimetallic temperature **sensing element**

Note 1 to entry: A **bimetallic single operation device** (**SOD**) does not reset above a declared temperature (see 11.4.103).

Note 2 to entry: Requirements for thermal links (which are not allowed to reset) are contained in IEC 60691.

2.2.101.2
non-bimetallic single-operation device
single operation device (**SOD**) 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 to entry: When such parts can be tested separately, they are considered to be thermal links within the scope of IEC 60691.

Note 2 to entry: 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 is representative of the application conditions for which the **protective control** is intended (see 7.2).

Note 3 to entry: **Non-bimetallic SODs** provide the equivalent of **micro-disconnection**.

2.2.101.2.1
rated functioning temperature
T_f
temperature of the **sensing element** of a **non-bimetallic SOD** which causes it to change the state of conductivity of the **control** when measured under specified conditions as declared by the manufacturer

2.2.102
room thermostat
independently mounted or incorporated **thermostat** intended to control the temperature of habitable space