SLOVENSKI STANDARD
SIST EN IEC 60730-2-9:2019/A1:2019

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Avtomatske električne krmilne naprave - 2-9. del: Posebne zahteve za temperaturne regulatorje - Dopolnilo A1

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

Automatische elektrische Regel- und Steuergeräte - Teil 2-9: Besondere Anforderungen an temperaturabhängige Regel- und Steuergeräte

Amendement 1: 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/A1:2019**

ICS:

97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use

SIST EN IEC 60730-2-9:2019/A1:2019   **en**

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EUROPEAN STANDARD

NORME EUROPÉENNE

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EN IEC 60730-2-9:2019/A1

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English Version

Automatic electrical controls - Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2015/A1:2018)

Dispositifs de commande électrique automatiques - Partie 2-9: Règles particulières pour les dispositifs de commande thermosensibles
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Automatische elektrische Regel- und Steuergeräte - Teil 2-9: Besondere Anforderungen an temperaturabhängige Regel- und Steuergeräte
(IEC 60730-2-9:2015/A1:2018)

This amendment A1 modifies the European Standard EN IEC 60730-2-9:2019; it was approved by CENELEC on 2018-03-02. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 CEN-CENELEC Management Centre or to any CENELEC member.

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CENELEC

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

The text of document 72/1112/FDIS, future IEC 60730-2-9:2015/A1, 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/A1:2019.

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

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC 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/A1:2018 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60335-2-2   NOTE   Harmonized as EN 60335-2-2.

IEC 60335-2-3   NOTE   Harmonized as EN 60335-2-3.

IEC 60335-2-4   NOTE   Harmonized as EN 60335-2-4.

IEC 60335-2-5   NOTE   Harmonized as EN 60335-2-5.

IEC 60335-2-6   NOTE   Harmonized as EN 60335-2-6.

IEC 60335-2-7   NOTE   Harmonized as EN 60335-2-7.

IEC 60335-2-8   NOTE   Harmonized as EN 60335-2-8.

IEC 60335-2-9   NOTE   Harmonized as EN 60335-2-9.

IEC 60335-2-11   NOTE   Harmonized as EN 60335-2-11.

IEC 60335-2-13   NOTE   Harmonized as EN 60335-2-13.

IEC 60335-2-14   NOTE   Harmonized as EN 60335-2-14.

IEC 60335-2-15   NOTE   Harmonized as EN 60335-2-15.

IEC 60335-2-16   NOTE   Harmonized as EN 60335-2-16.

IEC 60335-2-17   NOTE   Harmonized as EN 60335-2-17.

IEC 60335-2-21   NOTE   Harmonized as EN 60335-2-21.

IEC 60335-2-23   NOTE   Harmonized as EN 60335-2-23.

IEC 60335-2-24   NOTE   Harmonized as EN 60335-2-24.

IEC 60335-2-25   NOTE   Harmonized as EN 60335-2-25.

IEC 60335-2-29   NOTE   Harmonized as EN 60335-2-29.

IEC 60335-2-30   NOTE   Harmonized as EN 60335-2-30.

IEC 60335-2-34   NOTE   Harmonized as EN 60335-2-34.

IEC 60335-2-35   NOTE   Harmonized as EN 60335-2-35.

IEC 60335-2-41   NOTE   Harmonized as EN 60335-2-41.

IEC 60335-2-61   NOTE   Harmonized as EN 60335-2-61.

IEC 60335-2-73   NOTE   Harmonized as EN 60335-2-73.

IEC 60335-2-75   NOTE   Harmonized as EN 60335-2-75.

IEC 60335-2-80   NOTE   Harmonized as EN 60335-2-80.

IEC 60335-2-89   NOTE   Harmonized as EN 60335-2-89.

IEC 60730-2-22   NOTE   Harmonized as EN 60730-2-22.

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IEC 60730-2-9

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INTERNATIONAL
STANDARD

colour
inside

AMENDMENT 1

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

Warning! Make sure that you obtained this publication from an authorized distributor.

FOREWORD

This amendment has been prepared by subcommittee IEC technical committee 72: Automatic electrical controls.

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

FDIS	Report on voting
72/1112A/FDIS	72/1118/RVD

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

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website 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.

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IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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Table 1 – Required information and methods of providing information

Replace the existing Note 102 by the following:

In China, the use of liquid metal in or on cooking or food handling equipment is not allowed.

In Canada parts of controls containing mercury is not allowed.

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

EE.1.2   Overview

Replace the third paragraph by the following:

Controls classified as type 2 are also assessed to provide a degree of confidence in terms of their operating temperature. Tests are made to determine that the spread of operating temperature in the new condition is within the manufacturer's declared value, and also to determine that drift of operating temperature is within the manufacturer's declared value after the specified tests.

NOTE   A temperature **sensing control** can be classified for more than one purpose, depending upon the application.

EE.3.3   Types of temperature sensing controls according to their purpose

Replace the existing text of this subclause by the following:

EE.3.3.1   Thermostat

Cycling temperature **sensing control**, which is intended to keep a temperature between two particular values under normal operating conditions of the controlled equipment and which may have provision for **setting by the user**. A **thermostat** is therefore also classified as an **operating** control with at least type 1 action (electromechanical) or at least Class A control function (electronic control). A typical usage of **thermostats** is to control the normal running temperature of a room heater or hot plate.

Thermostats are defined in IEC 60335-1 as follows:

thermostat
temperature-sensing device, the operating temperature of which may be either fixed or adjustable and which during normal **operation** keeps the temperature of the controlled part between certain limits by automatically opening and closing a circuit

EE.3.3.2   Temperature limiter

Temperature **sensing control** which is intended to keep a temperature below or above one particular value during normal operating conditions of the controlled equipment and which may have provision for **setting by the user**. A **temperature limiter** is therefore also classified as an **operating control** with Class A control functions. Under certain applications, a **temperature limiter** may be classified as an **operating control** with Class B control functions. A typical usage of a **temperature limiter** with Class A function is to switch off a kettle on boiling.

A **temperature limiter** may be of the automatic or of the manual reset type. It does not make the reverse **operation** during the normal duty cycle of the appliance.

Temperature limiters are defined in IEC 60335-1 as follows:

temperature limiter
temperature-sensing device, the operating temperature of which may be either fixed or adjustable and which during normal **operation** operates by opening or closing a circuit when the temperature of the controlled part reaches a predetermined value

NOTE 1   A **temperature limiter** does not make the reverse **operation** during the normal duty cycle of the appliance. It can require manual resetting.

NOTE 2   A **temperature limiter** control is used to limit the temperature of part of the appliance/equipment during normal **operation** of the appliance. The differential between the operating and remake temperature of a **temperature limiter** is large.

NOTE 3   An electromechanical **temperature limiter** can be either a type 1 or type 2 control depending on the application.

NOTE 4   An electronic **temperature limiter** is classified as an **operating control** with Class A control functions. Under certain applications, a **temperature limiter** may be classified as an **operating control** with Class B control functions.

EE.3.3.3 Thermal cut-out

Temperature **sensing control** intended to keep a temperature below or above one particular value during abnormal operating conditions of the controlled equipment and which has no provision for **setting by the user**. A **thermal cut-out** is therefore also classified as a protective control with a type 2 action (electromechanical) or at least Class B control function (electronic control). Under certain applications, an electronic **thermal cut-out** may be classified as a protective control with Class C control functions, for example, water heaters. Typical usage of **thermal cut-outs** is to provide overheating protection of a room heater, hot plate or water heater.

A **thermal cut-out** may be of the automatic or manual reset type.

Thermal cut-outs are defined in IEC 60335-1 as follows:

a) **thermal cut-out**
device which during abnormal **operation** limits the temperature of the controlled part by automatically opening the circuit, or by reducing the current, and is constructed so that its setting cannot be altered by the user

NOTE 1 A **thermal cut-out** control does not operate during normal **operation** of the appliance. It is used to regulate or limit the temperature of part of the appliance/equipment in fault conditions.

NOTE 2 When a **thermal cut-out** is built-in or on a motor, and is specifically intended to protect the motor against overheating due to running overload and failure to start and carries the motor current and is sensitive to motor temperature and current, it is a **thermal motor protector**. **Thermal motor protectors** are covered by IEC 60730-2-22.

b) **self-resetting thermal cut-out**
thermal cut-out that automatically restores the current after the relevant part of the appliance has cooled down sufficiently

NOTE 1 A **self-resetting thermal cut-out** control does not operate during normal **operation** of the appliance. It is used to regulate the temperature of part of the appliance/equipment in fault conditions.

NOTE 2 A **self-resetting thermal cut-out** is normally a type 2 control depending on the application and a declaration of number of cycles is between 300 and 10 000 (depending upon the end product application).

c) **non-self-resetting thermal cut-out**
thermal cut-out that requires a manual **operation** for resetting, or replacement of a part, in order to restore the current

NOTE 1 Manual **operation** includes disconnection of the appliance from the supply mains.

NOTE 2 A **non-self- resetting thermal cut-out** control does not operate during normal **operation** of the appliance. It is used to limit the temperature of part of the appliance/equipment in fault conditions and can disconnect the appliance from the supply mains.

NOTE 3 A **non-self- resetting thermal cut-out** control is usually a type 2 control that provides either micro-disconnection or full-disconnection. A declaration of the number of cycles of **operation** would be at least 30 cycles.

The following **thermal cut-out** is not specifically defined in IEC 60335 but can be used in appliances:

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

NOTE 1 A **voltage maintained thermal cut-out** control can only be reset if the appliance is disconnected from the electrical supply.

NOTE 2 A **voltage maintained thermal cut-out** control does not operate during normal **operation** of the appliance. It is used to limit the temperature of part of the appliance/equipment in fault conditions and can disconnect the appliance from the supply mains.

NOTE 3 A **voltage maintained thermal cut-out** control is a type 2 control. A declaration of the number of cycles of **operation** would be at least 1 000 cycles.

EE.3.3.3.1   Motor protector

Automatic control that is specifically intended to protect the windings of an electric motor from overheating.

EE.3.3.3.2   Thermal motor protector

Automatic control, built-in or on a motor, that is specifically intended to protect the motor against overheating due to running overload and failure to start. The control carries the motor current and is sensitive to motor temperature and current.

NOTE 1   These are covered by IEC 60730-2-22.

NOTE 2   If it is not built-in or on a motor, does not carry the motor current, is not sensitive to motor temperature and current, it is a **thermal cut-out**, which is covered by IEC 60730-2-9.

EE.3.3.4   Single operation device (SOD)

EE.3.3.4.1   Bimetallic

Control having a bimetallic temperature **sensing element**, which is intended to operate only once, and then requires complete replacement. A **single operation device** is therefore also classified as a **protective control** with type 2 action (electromechanical). Typical usage of single **operation** devices is to provide overheating protection of an electric kettle or water heater.

A bimetallic single **operation** device does not reset above a declared temperature.

EE.3.3.4.2   Non-bimetallic

A **non-bimetallic single operation device** denotes a control having a non-bimetallic sensing device, the **operation** of which cannot be separated from other functions of the control, and which operates only once and then requires complete replacement. Such a device is classified as a protective control.

If such parts can be tested separately, then they are identified as thermal links, which are not within the scope of IEC 60730-2-9 and are covered by IEC 60691.

Typical usage of single **operation** devices is to provide overheating protection of an electric kettle or water heater.

EE.3.3.5   Protective controls

These are defined in IEC 60335-1 as follows:

protective device
device, the **operation** of which prevents a hazardous situation under abnormal **operation** conditions

NOTE 1   The aim of a **protective device** is to reduce the risk of a hazard by restoring the appliance to a fail-safe under abnormal conditions of the end product. Based on the application, the protective device could be automatically or manually resettable. Examples of a temperature protective device are **single operation devices** (**SOD**), **thermal links** and **thermal cut-outs**.

NOTE 2   An electromechanical **protective device** control is a type 2 control. A declaration of the number of cycles of **operation** would be 1 cycle.

NOTE 3   An electronic **protective device** is classified as a control with Class B or C control functions (depending upon the application).