

SLOVENSKI STANDARD

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

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

Dispositifs de commande électrique automatiques - Partie 2-9: Exigences particulières pour les dispositifs de commande thermosensibles

Ta slovenski standard je istoveten z: EN IEC 60730-2-9:2026

ICS:

97.120

Avtomatske krmilne naprave
za dom

Automatic controls for
household use

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 60730-2-9

July 2026

ICS 97.120

Supersedes EN IEC 60730-2-9:2019; EN IEC 60730-2-9:2019/A1:2019; EN IEC 60730-2-9:2019/A2:2020

English Version

**Automatic electrical controls - Part 2-9: Particular requirements
for temperature sensing controls
(IEC 60730-2-9:2026)**

Dispositifs de commande électrique automatiques - Partie
2-9: Exigences particulières pour les dispositifs de
commande thermosensibles
(IEC 60730-2-9:2026)

Automatische elektrische Regel- und Steuergeräte - Teil 2-
9: Besondere Anforderungen an temperaturabhängige
Regel- und Steuergeräte
(IEC 60730-2-9:2026)

This European Standard was approved by CENELEC on 2026-06-22. 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 CEN-CENELEC Management Centre 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 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

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

EN IEC 60730-2-9:2026 (E)**European foreword**

The text of document 72/1534/FDIS, future edition 5 of IEC 60730-2-9, prepared by TC 72 "Automatic electrical controls" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60730-2-9:2026.

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) 2027-07-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-07-31

This document supersedes EN IEC 60730-2-9:2019 and all of its amendments and corrigenda (if any).

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 is read in conjunction with EN IEC 60730-1.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

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Endorsement notice

The text of the International Standard IEC 60730-2-9:2026 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 standard indicated:

IEC 60079 series	NOTE	Approved as EN IEC 60079 series
IEC 60335-2-2	NOTE	Approved as EN IEC 60335-2-2
IEC 60335-2-3	NOTE	Approved as EN 60335-2-3
IEC 60335-2-4	NOTE	Approved as EN IEC 60335-2-4
IEC 60335-2-5	NOTE	Approved as EN 60335-2-5
IEC 60335-2-6	NOTE	Approved as EN 60335-2-6
IEC 60335-2-7	NOTE	Approved as EN IEC 60335-2-7
IEC 60335-2-8	NOTE	Approved as EN 60335-2-8
IEC 60335-2-9	NOTE	Approved as EN IEC 60335-2-9
IEC 60335-2-11	NOTE	Approved as EN IEC 60335-2-11
IEC 60335-2-13	NOTE	Approved as EN 60335-2-13
IEC 60335-2-14	NOTE	Approved as EN IEC 60335-2-14

IEC 60335-2-15	NOTE	Approved as EN 60335-2-15
IEC 60335-2-16	NOTE	Approved as EN 60335-2-16
IEC 60335-2-17	NOTE	Approved as EN 60335-2-17
IEC 60335-2-21	NOTE	Approved as EN 60335-2-21
IEC 60335-2-23	NOTE	Approved as EN IEC 60335-2-23
IEC 60335-2-24	NOTE	Approved as EN IEC 60335-2-24
IEC 60335-2-25	NOTE	Approved as EN IEC 60335-2-25
IEC 60335-2-29	NOTE	Approved as EN 60335-2-29
IEC 60335-2-30	NOTE	Approved as EN 60335-2-30
IEC 60335-2-34	NOTE	Approved as EN IEC 60335-2-34
IEC 60335-2-35	NOTE	Approved as EN 60335-2-35
IEC 60335-2-41	NOTE	Approved as EN IEC 60335-2-41
IEC 60335-2-61	NOTE	Approved as EN 60335-2-61
IEC 60335-2-73	NOTE	Approved as EN 60335-2-73
IEC 60335-2-75	NOTE	Approved as EN IEC 60335-2-75
IEC 60335-2-80	NOTE	Approved as EN IEC 60335-2-80
IEC 60335-2-89	NOTE	Approved as EN IEC 60335-2-89
IEC 60691	NOTE	Approved as EN IEC 60691
IEC 60730-2-22	NOTE	Approved as EN IEC 60730-2-22

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where 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 IEC 60730-1, applies, except as follows:

Add:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60216-1	-	Electrical insulating materials - Thermal endurance properties - Part 1: Ageing procedures and evaluation of test results	EN IEC 60216-1	-

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IEC 60730-2-9

Edition 5.0 2026-05

INTERNATIONAL STANDARD

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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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IEC 60730-2-9 has been prepared by IEC technical committee 72: Automatic electrical controls. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2015, Amendment 1:2018 and Amendment 2:2020. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) adoption of IEC 60730-1:2022 with all of its significant changes to IEC 60730-1:2013, IEC 60730-1:2013/AMD1:2015 and IEC 60730-1:2013/AMD2:2020.

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The text of this International Standard is based on the following documents:

Draft	Report on voting
72/1534/FDIS	72/1540/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

This part 2-9 is intended to be used in conjunction with IEC 60730-1. It was established on the basis of the sixth edition of that standard (2022). Consideration can 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.

When a particular subclause of Part 1 is not mentioned in this Part 2, that 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 reader's attention is drawn to the fact that Annex R, Annex S and Annex T list all of the "in-some-country" clauses on differing practices of a less permanent nature relating to the subject of this document.

In this publication:

The following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type*;
- explanatory matter: in smaller roman type;
- Defined terms: **bold type**.

Subclauses, notes or items 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, under the general title: *Automatic electrical controls*, can be found on the IEC website.

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The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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1 Scope

This clause of Part 1 is replaced by the following:

This document applies to temperature sensing controls

- for use in, on, or in association with equipment for household appliance and similar use, including equipment for heating, air-conditioning and similar applications. The equipment can use electricity, gas, oil, solid fuel, solar thermal energy, etc., or a combination thereof.

NOTE 1 Throughout this document, the word "equipment" means "appliance and equipment" and "controls" means "temperature sensing controls".

- for building automation within the scope of ISO 16484 series and IEC 63044 series (HBES/BACS);

EXAMPLE 1 Independently mounted temperature sensing controls, controls in smart grid systems and controls for building automation systems within the scope of ISO 16484-2.

- for equipment that is used by the public, such as equipment intended to be used in shops, offices, hospitals, farms and commercial and industrial applications;

EXAMPLE 2 Controls for commercial catering, heating and air-conditioning equipment.

- that are **smart enabled controls**;

EXAMPLE 3 Smart grid control, remote interfaces/control of energy-consuming equipment including computer or smart phone.

- that are AC or DC powered controls with a rated voltage not exceeding 690 V AC or 600 V DC;
- used in, on, or in association with equipment that use electricity, gas, oil, solid fuel, solar thermal energy, etc., or a combination thereof;
- utilized as part of a control system or controls which are mechanically integral with multifunctional controls having non-electrical outputs;
- using NTC or **PTC thermistors** and to discrete **thermistors**, requirements for which are contained in Annex J;
- that have electrical circuits and **control** circuits which are, for example, operated by bimetals, magnet coils, memory metals, pressure elements, temperature-sensitive expansion elements or electronic elements.
- as well as manual controls when such are electrically and/or mechanically integral with automatic controls.

NOTE 2 Requirements for manually actuated mechanical switches not forming part of an automatic control are contained in IEC 61058-1-1.

This document applies to

- the inherent safety of automatic electrical controls, and
- functional safety of temperature **sensing controls** and safety related systems,
- controls where the performance (for example the effect of EMC phenomena) of the product can impair the overall safety and performance of the controlled system,
- 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,

EXAMPLE 4 **Boiler thermostats, fan controls, temperature limiters** and **thermal cut-outs**.

- electrical safety of temperature sensing controls with non-electrical outputs such as refrigerant flow and gas **controls**,
- **single-operation devices** as defined in this document.

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This document specifies the requirements for construction, operation and testing of automatic electrical controls used in, on, or in association with an equipment.

This document does not

- apply to automatic electrical temperature **sensing controls** intended exclusively for industrial process applications unless explicitly mentioned in the relevant part 2 or the equipment standard. However, this document can be applied to evaluate automatic electrical controls intended specifically for industrial applications in cases where no relevant safety standard exists.
- take into account the response value of an automatic action of a control, if such a response value is dependent upon the method of mounting the control 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 will apply.
- address the integrity of the output signal to the network devices, such as interoperability with other devices unless it has been evaluated as part of the control system.

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

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

3 Terms and definitions

This clause of Part 1 is applicable except as follows:

3.2 Definitions of types of controls according to purpose

Additional definitions:

3.2.101

single-operation device

SOD

control having a temperature **sensing element** which is intended to operate only once and then requires complete replacement

3.2.102

bimetallic single-operation device

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

Note 101 to entry: A **bimetallic single-operation device (SOD)** does not reset above a declared temperature (see 9.4.103).

Note 102 to entry: Requirements for thermal links (which are not allowed to reset) are contained in IEC 60691.

3.2.103**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 needs complete or partial replacement

Note 101 to entry: When such parts can be tested separately, they are considered to be thermal links within the scope of IEC 60691.

Note 102 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 103 to entry: **Non-bimetallic SODs** provide the equivalent of **micro-disconnection**.

3.2.104**room thermostat**

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

3.2.105**boiler thermostat**

thermostat intended to control boiler/liquid temperature

3.2.106**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 101 to entry: A **voltage maintained thermal cut-out** control can only be reset if disconnected from the electrical supply.

3.2.107**agricultural thermostat**

thermostat intended for use in **agricultural confinement buildings**

3.2.108**agricultural confinement building**

farm structure characterized by being heated and/or cooled by artificial means, where accumulation of animal food and waste can result in concentrations of corrosive compounds not normally found in freely ventilated farm buildings (e.g. barns) and periodically disinfected prior to subsequent similar use

3.3 Definitions relating to the function of controls

Additional definition:

3.3.101**time factor**

transient response of temperature **sensing controls** by defined change of the **activating quantity**

3.5 Definitions of types of control according to construction

Additional definitions:

3.5.101**push-and-turn actuation**

two-step actuation accomplished by first pushing, then rotating the **actuating member** of the control