BS EN IEC 60730-2-9:2019+A2:2020

BSI Standards Publication

Automatic electrical controls

Part 2-9: Particular requirements for temperature sensing controls

bsi.

National foreword

This British Standard is the UK implementation of EN IEC 60730-2-9:2019+A2:2020. It is identical to IEC 60730-2-9:2015, incorporating amendments 1:2018 and 2:2020. It supersedes BS EN IEC 60730-2-9:2019+A1:2019, which will be withdrawn on 14 May 2023.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to IEC text carry the number of the IEC amendment. For example, text altered by IEC amendment 1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee CPL/72, Electrical control devices for household equipment and appliances.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2020

ISBN 978 0 539 02683 2

ICS 97.120

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2019.

Amendments/corrigenda issued since publication

Date	Text affected
30 June 2020	Implementation of IEC amendment 2:2020 with CENELEC endorsement A2:2020

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60730-2-9:2019+A2

May 2020

ICS 97.120

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)

This European Standard was approved by CENELEC on 2015-07-01. 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 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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 60730-2-9:2019+A2:2020 (E)

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.

Foreword to amendment A1

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.

Foreword to amendment A2

The text of document 72/1225/FDIS, future IEC 60730-2-9/A2, 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/A2:2020.

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)	2021-02-14
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2023-05-14

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/A2:2020 was approved by CENELEC as a European Standard without any modification.

CONTENTS

IEC 60730-2-9:2015+A2:2020

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.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

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.

IEC 60730-2-9:2015+A2:2020

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**.