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INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

AUTOMATIC ELECTRICAL CONTROLS FOR HOUSEHOLD AND SIMILAR USE –

Part 2-9: Particular requirements for temperature sensing controls

FOREWORD

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This consolidated version of IEC 60730-2-9 consists of the third edition (2008) [documents 72/763/FDIS and 72/767/RVD] and its amendment 1 (2011) [documents 72/815/FDIS and 72/827/RVD]. It bears the edition number 3.1.

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience. A vertical line in the margin shows where the base publication has been modified by amendment 1. Additions and deletions are displayed in red, with deletions being struck through.

International Standard IEC 60730-2-9 has been prepared by IEC technical committee 72: Automatic controls for household use.

This edition of IEC 60730-2-9 contains a new Annex EE, which is an informative guide to the application of temperature sensing controls. Additionally, a new requirement to 17.3.1 (there is an error in the FDIS document - 17.7.3 should be 17.3.1) was added to address the endurance requirement for temperature sensing devices where the whole control is declared as the sensing element for ambient temperatures below 0° C. This document contains also some editorial changes due to new editions of referenced standards.

This publication has been drafted in accordance with 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 third edition of that standard (1999) and its Amendment 1 (2003) and Amendment 2 (2007). 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 2-9 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 practice are contained in the following subclauses:

– 4.1.101
– Table 7.2, note 102
– 11.4.3.101
– 11.4.101
– 11.101
– 12.101.3
– 13.2
– 17.8.4.101
– 17.15.1.3
– 17.15.1.3.1
– 17.16.101
– 17.16.105
– 18.102.3
– 23.101
– Annex AA
– CC.2
– DD.9.2
– EE.3.6

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.

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 for household and similar use*, can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendments 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.

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 publication using a colour printer.

AUTOMATIC ELECTRICAL CONTROLS FOR HOUSEHOLD AND SIMILAR USE –

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 *Replacement:*

This part of IEC 60730 applies to automatic electrical temperature sensing controls for use in, on or in association with equipment for household and similar use, 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.

1.1.1 *Replace the explanatory matter with the following new explanatory matter:*

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

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

1.1.2 *Replacement:*

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.

Additional subclause:

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

1.5 Normative references

Addition:

IEC 60216-1:2001, *Electrical insulating materials – Properties of thermal endurance – Part 1: Ageing procedures and evaluation of test results*

IEC 60335 (all parts), *Household and similar electrical appliances – Safety*

IEC 60691:2002, *Thermal links – Requirements and application guide*
Amendment 1 (2006)

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 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 explanatory paragraph:

In general, a thermostat is an operating control.

2.2.20
protective control

Add, to the definition, the following explanatory paragraph:

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 having a bimetallic temperature sensing element

NOTE 1 A bimetallic single operation device does not reset above a declared temperature (see 11.4.103).

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

2.2.101.2
non-bimetallic single operation device
~~part of a control the operation of which cannot be separated from other functions of the control and having a non-bimetallic sensing element that operates only once and then requires complete or partial replacement~~

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

NOTE 2 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 should be representative of the application conditions for which the protective control is intended (see 7.2).

NOTE 3 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