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BSI Standards Publication

Automatic electrical controls

Part 2-22: Particular requirements for thermal motor protectors

bsi.

National foreword

This British Standard is the UK implementation of EN IEC 60730-2-22:2020. It is identical to IEC 60730-2-22:2014. It supersedes BS EN 60730-2-2:2002 and BS EN 60730-2-4:2007, which will be withdrawn on 14 February 2023.

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.

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Dispositifs de commande électrique automatiques - Partie 2-22: Exigences particulières pour les protecteurs thermiques
(IEC 60730-2-22:2014)

Automatische elektrische Regel- und Steuergeräte - Teil 2-22: Besondere Anforderungen an thermisch wirkende Motorschutzeinrichtungen
(IEC 60730-2-22:2014)

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European foreword

The text of document 72/941/FDIS, future edition 1 of IEC 60730-2-22, prepared by IEC/TC 72 "Automatic electrical controls" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60730-2-22:2020.

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) 2020-08-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-02-14

This document supersedes EN 60730-2-4:2007 and EN 60730-2-2:2002 and all of their amendments and corrigenda (if any).

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Endorsement notice

The text of the International Standard IEC 60730-2-22:2014 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 60034-11:2004	NOTE	Harmonized as EN 60034-11:2004 (not modified)
IEC 60335 (series)	NOTE	Harmonized as EN 60335 (series)
IEC 60730 (series)	NOTE	Harmonized as EN IEC 60730 (series)
IEC 60730-2-9:2008	NOTE	Harmonized as EN 60730-2-9:2010 (modified)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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AUTOMATIC ELECTRICAL CONTROLS–

Part 2-22: Particular requirements for thermal motor protectors

FOREWORD

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International Standard IEC 60730-22 has been prepared by IEC technical committee 72: Automatic electrical controls.

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

FDIS	Report on voting
72/941/FDIS	72/950/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 publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 2-22 is intended to be used in conjunction with IEC 60730-1. It was established on the basis of the fourth edition (2010) of that standard[1]. Consideration may be given to future editions of, or amendments to, IEC 60730-1.

This Part 2-22 supplements or modifies the corresponding clauses in IEC 60730-1 so as to convert that publication into the IEC standard: Safety requirements for automatic electrical thermal motor protectors.

Where this Part 2-22 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 2-22 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:

– 7.2.6 (Canada, USA)
– 12.2 (Canada, Japan, USA)
– 17.101.2.1.2 (Canada, USA)
– 18.1.3.101.2 (Canada, USA)
– BB17.205.1.2 (Canada, USA)

In this publication:

1) The following print types are used:
   – Requirements proper: in roman type;
   – *Test specifications: in italic type;*
   – Explanatory matter; 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, under the general title *Automatic electrical controls for household and similar use*, can be found on the IEC website.

[1] A fifth edition of IEC 60730-1 was published in 2013.

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.

AUTOMATIC ELECTRICAL CONTROLS–

Part 2-22: Particular requirements for thermal motor protectors

1 Scope and normative references

This clause of Part 1[2] is applicable except as follows:

1.1 *Replacement:*

This part of IEC 60730 applies to the partial evaluation of **thermal motor protectors** as defined in IEC 60730-1 for household and similar use, including heating, air conditioning and similar applications as well as for sealed (hermetic and semi-hermetic type) motor-compressors.

NOTE A **thermal motor protector** is considered an **integrated control** since its protective functionality is dependent on the correct mounting and fixing in or on a motor and which can only be fully tested in combination with the relevant motor. This dependency is illustrated by:

- the ability of the **thermal motor protector** to accurately and reliably sense the heat of the motor windings; thus, addressing the over-temperature protection due to motor overload conditions;
- the ability of the **thermal motor protector** to accurately and reliably sense the current due to motor locked-rotor conditions; thus, reducing the response time and not being adversely affected by heat-sink at the assembly spot in the application;
- the influence of the motor's electromagnetic field on the switch behaviour of the **thermal motor protector**; particularly, affecting the arc direction between the contacts resulting in uneven wear of the contact material and eventually leading to failure of operation.

Requirements concerning the testing of the combination of sealed (hermetic and semi-hermetic type) motor-compressors and **thermal motor protectors** are given in IEC 60335-2-34.

This standard applies to **thermal motor protectors** using NTC or PTC thermistors, additional requirements for which are contained in Annex J.

1.1.1 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 **thermal motor protectors** used in or on household or similar equipment as well as sealed (hermetic and semi-hermetic type) motor-compressors.

This standard applies to **thermal motor protectors** for appliances within, but not limited to, the scope of IEC 60335-1 and its Part 2's.

NOTE Throughout this standard, the word "equipment" means "appliance and equipment".

Thermal motor protectors not intended for normal household use, but which nevertheless may be used by the public, such as equipment intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

This standard does not apply to **thermal motor protectors** designed exclusively for industrial applications.

1.1.2 This standard does not apply to other means of motor protection.

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2 References to "Part 1" in this document pertain to the fourth edition of IEC 60730-1 published in 2010.