Irish Standard
I.S. EN 60730-1:2016

Automatic electrical controls - Part 1: General requirements

I.S. EN 60730-1:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

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National Foreword

I.S. EN 60730-1:2016 is the adopted Irish version of the European Document EN 60730-1:2016, Automatic electrical controls - Part 1: General requirements

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

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60730-1

July 2016

ICS 97.120

Supersedes EN 60730-1:2011

English Version

Automatic electrical controls - Part 1: General requirements (IEC 60730-1:2013 , modified + COR1:2014)

Dispositifs de commande électrique automatiques - Partie 1: Exigences générales (IEC 60730-1:2013 , modifiée + COR1:2014)

Automatische elektrische Regel- und Steuergeräte - Teil 1: Allgemeine Anforderungen (IEC 60730-1:2013 , modifiziert + COR1:2014)

This European Standard was approved by CENELEC on 2016-03-01. 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.

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 60730-1:2016 E

EN 60730-1:2016

European foreword

This document (EN 60730-1:2016*)* consists of the text of IEC 60730-1:2013 + corrigendum 1:2014 prepared by IEC/TC 72 "Automatic electrical controls", together with the common modifications prepared by CLC/TC 72 "Automatic controls for household use*"*.

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)	2017-01-29
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	- *

** Justification for no dow:*
This European Standard supersedes EN 60730-1:2011. However, EN 60730-1:2011 remains valid until all the Part 2's which are used in conjunction with it have been withdrawn. No date of withdrawal (dow) has been given pending the updating of all the Part 2's to align with this EN 60730-1:2016. The applicable date of withdrawal is given in each Part 2. It is intended the dow for this Part 1 will be fixed once all the Part 2's have been updated.

This document supersedes EN 60730-1:2011.

EN 60730-1:2016 includes the following significant technical changes with respect to EN 60730-1:2011:

– changes of the title of the Standard into "*Automatic electrical controls – Part 1: General requirements*";
– revisions to Clause H.26 based on changes in technology, applications, and to improve consistency and layout;
– modification to Table H.12 to align with CISPR 22;
– revisions to Annex J to correlate the fault modes of thermistors, and to exempt thermistors used in conjunction with type 1 controls in SELV low power circuits from the tests specified in Annex J;
– new requirements covering battery-powered controls, and the use of batteries in controls;
– revision addressing the relay faults in Table H.24;
– new/updated requirements in Clause 24, for switch mode power supplies;
– revisions covering the allowance of screwless-type clamping units complying with IEC 60999-1;
– new requirements addressing remotely actuated control functions;
– addition of a new/updated leakage current diagram to align the Annex E diagram with the diagram in IEC 60990;
– updated requirements for temperature sensing controls.

This Part 1 is to be used in conjunction with the appropriate Part 2 for a particular type of control, or for controls for particular applications. This Part 1 may also be applied, so far as reasonable, to controls not mentioned in a Part 2, and to controls designed on new principles, in which case additional requirements may be considered to be necessary.

Where, for a particular clause or subclause, the text of Part 2 indicates:

Addition: the Part 1 text applies with the additional requirement indicated in a Part 2;

Modification: the Part 1 text applies with a minor change as indicated in a Part 2;

Replacement: the Part 2 text contains a change which replaces the Part 1 text in its entirety.

Where no change is necessary, the Part 2 indicates that the relevant clause or subclause applies.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

_____

IEC 60730-1
(Edition 5.0 – 2013)

Automatic electrical controls –

Part 1: General requirements

IEC 60730-1
(Édition 5.0 – 2013)

Dispositifs de commande électrique automatiques –

Partie 1: Exigences générales

CORRIGENDUM 1

7.2.9, Table 1

Replace, in item 95, the French text with English text:

"Maximum short circuit current as declared"

7.2.9, Tableau 1

La correction ne concerne que le texte anglais.

H.27.1.1.1

Replace, in the first paragraph:

"Table 25" with "Table H.24".

H.27.1.1.1

Remplacer, dans le premier paragraphe:

"Tableau 25" par "Tableau H.24".

IEC 60730-1:2013-11/COR1:2014-09(en-fr)

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IEC 60730-1

Edition 5.0 2013-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Automatic electrical controls – Part 1: General requirements

Dispositifs de commande électrique automatiques – Partie 1: Exigences générales

IEC 60730-1:2013

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IEC 60730-1

Edition 5.0 2013-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Automatic electrical controls – Part 1: General requirements

Dispositifs de commande électrique automatiques – Partie 1: Exigences générales

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

AUTOMATIC ELECTRICAL CONTROLS –

Part 1: General requirements

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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International Standard IEC 60730-1 has been prepared by IEC technical committee 72: Automatic electrical controls.

This fifth edition cancels and replaces the fourth edition published in 2010. It constitutes a technical revision. The major changes with respect to the previous edition are as follows.

– modification of the title and scope;
– revisions to Clause H.26 based on changes in technology, applications, and to improve consistency and layout;
– modification to Table H.12 to align with CISPR 22;
– revisions to Annex J to correlate the fault modes of thermistors and to exempt thermistors used in conjunction with type 1 controls in SELV low power circuits from the tests specified in Annex J;
– new requirements covering battery-powered controls, and the use of batteries in controls;
– revision addressing the exclusion of relay faults;
– new/updated requirements in Clause 24, for switch mode power supplies;

– revisions covering the allowance of screwless-type clamping units complying with IEC 60999-1;

– new requirements addressing remotely actuated control functions;

– addition of a new/updated leakage current diagram to align the Annex E diagram with the diagram in IEC 60990;

– updated requirements for temperature sensing controls.

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

FDIS	Report on voting
72/899/FDIS	72/928/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.

A list of all parts of the IEC 60730 series, under the general title: *Automatic electrical controls*, can be found on the IEC website.

In the development of a fully international standard to cover automatic controls for household and similar use, 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:

2.1.5
2.7.2
2.7.3
2.14.2
4.2.1
6.6.1
Table 1 (7.2), footnote d
7.4.3
7.4.3.2
8.1.1.1
8.4
9.3.2
9.3.4
9.5.2
Table 3 (10.1.4), footnote b
10.1.4.1
10.1.14
10.1.16
10.1.16.1
Table 6 (10.2.1), footnote b
11.5
Table 10 (11.8.2), footnote b
11.11.1.2
11.11.1.3
11.11.1.4
12.1.6
12.3
Table 12 (13.2.1), footnote a
13.3.4
14.4
Table 13 (14.7.4), footnote f
15.1
16.2.1
17.1.3.1
17.2.2
17.2.3
17.2.3.1
Table 14 (17.2.5)
Table 15 (17.2.5)
Table 16 (17.2.5)
17.5.1
17.7.7
17.8.4.1
17.10
17.10.4
17.12.5
18.1.6
18.1.6.1
18.1.6.2
18.1.6.3
18.4
19.2.4.1
19.2.5.1
21.1
21.4
27.2.3.1
Annex C
Annex D
H.26.10
Table H.18 (H.26.10.4)
H.27.1.1.3
Table K.1, footnote b
Table K.2, footnote b
T.3.2

It is envisaged that in the next edition of this standard it will be found possible to remove those differences that are covered by new IEC standards now being prepared by other technical committees.

This part 1 is to be used in conjunction with the appropriate part 2 for a particular type of control, or for controls for particular applications. This part 1 may also be applied, so far as reasonable, to controls not mentioned in a part 2, and to controls designed on new principles, in which cases additional requirements may be considered to be necessary.

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Replacement: the part 2 text contains a change which replaces the part 1 text in its entirety.

Where no change is necessary, the part 2 indicates that the relevant clause or subclause applies.

NOTE In this standard 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**.

Some table titles contain reference in brackets to table numbers in IEC 60730-1, edition 3 for ease of correlation between parts 2 and the Part 1.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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
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AUTOMATIC ELECTRICAL CONTROLS –

Part 1: General requirements

1 Scope and normative references

1.1 Scope

In general, this part of IEC 60730 applies to automatic **electrical controls** for use in, on, or in association with equipment for household and similar use. The equipment may use electricity, gas, oil, solid fuel, solar thermal energy, etc., or a combination thereof.

NOTE 1 Throughout this standard the word "equipment" means "appliance and equipment."

EXAMPLE 1 **Controls** for appliances within the scope of IEC 60335.

This International Standard is applicable to **controls** for building automation within the scope of ISO 16484.

This standard also applies to automatic **electrical 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.

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

This standard is also applicable to individual **controls** utilized as part of a **control** system or **controls** which are mechanically integral with multifunctional **controls** having non-electrical outputs.

EXAMPLE 3 Independently mounted water valves, **controls** in smart grid systems and **controls** for building automation systems within the scope of ISO 16484-2.

This standard is also applicable to relays when used as **controls** for IEC 60335 appliances. Additional requirements for the safety and **operating values** of relays when used as **controls** for IEC 60335 appliances are contained in Annex U.

NOTE 2 These requirements are referred to in the scope of IEC 61810-1.

NOTE 3 This standard is intended to be used for the testing of any stand-alone relay which is intended to be used as a **control** of an appliance according to IEC 60335-1. It is not intended to be used for any other stand-alone relay, or to replace the IEC 61810 series of standards.

This standard does not apply to automatic **electrical controls** intended exclusively for industrial process applications unless explicitly mentioned in the relevant part 2 or the equipment standard.

1.1.1 This International 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 control** devices used in, or in association with, equipment.

This standard applies to **controls** using **thermistors**, see also Annex J.

This standard is also applicable to the **functional safety** of **low complexity safety related systems** and **controls**.

1.1.2 This standard applies to automatic **electrical controls**, mechanically or electrically operated, responsive to or controlling such characteristics as temperature, pressure, passage of time, humidity, light, electrostatic effects, flow, or liquid level, current, voltage, acceleration, or combinations thereof.

1.1.3 This standard applies to starting relays, which are a specific type of automatic **electrical control**, intended to switch the starting winding of a motor. Such **controls** may be built into, or be separate from, the motor.

1.1.4 This standard applies to **manual controls** when such are electrically and/or mechanically integral with **automatic controls**.

NOTE Requirements for manual switches not forming part of an **automatic control** are contained in IEC 61058-1.

1.1.5 This standard applies to a.c. or d.c. powered **controls** with a rated voltage not exceeding 690 V a.c. or 600 V d.c.

1.1.6 This standard does not 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 household equipment standard or as determined by the manufacturer shall apply.

1.1.7 This standard applies also to **controls** incorporating **electronic devices**, requirements for which are contained in Annex H.

1.1.8 This standard applies also to **controls** using NTC or PTC **thermistors**, requirements for which are contained in Annex J.

1.2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60038, *IEC standard voltages*

IEC 60065:2001, *Audio, video and similar electronic apparatus – Safety requirements*[1]
Amendment 1:2005
Amendment 2:2010

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60085, *Electrical insulation – Thermal evaluation and designation*

IEC 60099-1, *Surge arresters – Part 1: Non-linear resistor type gapped arresters for a.c. systems*[2]

IEC 60112:2003, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*[3]
Amendment 1:2009

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1 There exists a consolidated edition 7.2:2011 including IEC 60065:2001 and its Amendments 1:2005 and 2:2010.

2 Withdrawn.

3 There exists a consolidated edition 4.1:2009 including IEC 60112:2003 and its Amendment 1:2009.