

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Automatic electrical controls –  
Part 1: General requirements**

**Dispositifs de commande électrique automatiques –  
Partie 1: Exigences générales**





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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## AUTOMATIC ELECTRICAL CONTROLS –

### Part 1: General requirements

#### FOREWORD

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

This sixth edition cancels and replaces the fifth edition published in 2013, Amendment 1:2015 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) | Structure of the main clauses           | <p>The clauses of the standard are grouped into two sections of requirements, where</p> <ul style="list-style-type: none"> <li>• the first section consists of the Clauses 5 to 13 that, in general, addresses the construction of the product. It is noted that certain construction requirements may have verification requirements integrated within the clause to facilitate usage of the standard, and</li> <li>• the second section consists of Clauses 14 to 26 that addresses the verification requirements;</li> </ul> |
| b) | Scope                                   | Relocated and deleted clauses to better reflect the products covered under the part 1 and for easier reading;   |
| c) | Normative references                    | Updated references;   |
| d) | Terms and definitions                   | Revised text in certain clauses and relocated relevant Clause H.3 subclauses into Clause 3;   |
| e) | General requirements                    | General structure of the standard explained along with a figure to depict the intent;   |
| f) | General notes on tests                  | Reduced sample size from 3 to 1, yet requiring analysis; order of tests more flexible; relocation of battery requirements from Annex V;   |
| g) | Rating                                  | Deleted – covered under the scope;  |
| h) | Classification                          | Deleted – covered under information;  |
| i) | Information                             | Updated Table 1 to reflect entries from the classification clause, and all cross-references;  |
| j) | Protection against electric shock       | Revised Clause 8 to include Clause H.8 and Clause V.8 subclauses, revised clauses as appropriate to distinguish between a live part and a hazardous live part;  |
| k) | Provision for protective earthing       |   |
| l) | Construction requirements               | One Y1 capacitor allowed; relocated relevant requirements of Clause H.11 and Clause V.11 into Subclause 9.2.5 and Subclause 9.13.4.4 respectively;  |
| m) | Moisture and dust                       | Relocated IP table from classification to Clause 14; updated references;  |
| n) | Manufacturing deviation and drift       | All clauses moved to Annex H since the requirements pertain to functional safety of controls;   |
| o) | EMC-Emissions                           | Moved Clause H.23 into Clause 23;   |
| p) | EMC-Immunity                            | New EMC requirements (performance) for all controls except incorporated/integrated controls with Class A control functions. Products intended for HBES/BACS are also subjected to these requirements;   |
| q) | Fault assessment on electronic circuits | Fault assessment moved from Annex H to Clause 13; deleted test abnormal voltage for electronic disconnection;   |

- r) Annex H Relocated all relevant requirements for electronics to the respective clauses within the body of the standard and retained requirements related to functional safety in this annex;
- s) Annex T Revised clauses for clarity in Annex P;
- t) Annex U Removed, the necessity of the annex was not seen anymore;
- u) Annex V Included in the main part of the standard.

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

| Draft        | Report on voting |
|--------------|------------------|
| 72/1307/FDIS | 72/1320/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at <https://www.iec.ch/publications>.

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 electrical controls, 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" clauses have been moved to the regional respectively national differences in Annex Q to Annex T.

It is envisaged that in the next edition of this document, 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.

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.

NOTE In this document 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**.

The committee has decided that the contents of the base publication and its amendment 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 document using a colour printer.**