

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Automatic electrical controls
Part 2-11: Particular requirements for energy regulators

Dispositifs de commande électrique automatiques
Partie 2-11: Exigences particulières pour les régulateurs d'énergie





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

AUTOMATIC ELECTRICAL CONTROLS**Part 2-11: Particular requirements for energy regulators****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 60730-2-11 has been prepared by IEC technical committee 72: Automatic electrical controls.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition:

- a) revision to the title to remove "for household and similar use";
- b) changes to the scope and related modifications;
- c) changes to definitions in Annex H.

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

CDV	Report on voting
72/1137/CDV	72/1167/RVC

Full information on the voting for the approval of this International 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 2-11 is intended to be used in conjunction with IEC 60730-1. It was established on the basis of the fifth edition of that standard (2013) including Amendment 1 (2015). Consideration may be given to future editions of, or amendments to, IEC 60730-1.

This Part 2-11 supplements or modifies the corresponding clauses in IEC 60730-1 so as to convert that publication into the IEC standard: Particular requirements for energy regulators.

Where this Part 2-11 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 2-11 indicates that the relevant clause or subclause applies.

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,
- defined terms: **bold type**.

Subclauses, notes, tables and figures which are additional to those in Part 1 are numbered starting from 101.

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

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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 2-11: Particular requirements for energy regulators

1 Scope and normative references

This clause of Part 1 is applicable except as follows:

1.1 Scope

Replacement:

In general, this part of IEC 60730 applies to energy regulators for use in, on, or in association with equipment, including energy regulators 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 These energy regulators can be thermally, mechanically or electrically operated.

This standard applies to the inherent safety, to the operating values, operating times and operating sequence where these are associated with equipment safety, and to the testing of automatic electrical energy regulator devices used in, or in association with, equipment.

This standard is also applicable to energy regulators for appliances within the scope of IEC 60335-1.

Throughout this standard the word “equipment” means “appliance and equipment”.

This standard also applies to automatic electrical energy regulators 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 energy regulators designed exclusively for industrial process applications unless explicitly mentioned in the equipment standard.

This standard does not apply to equipment that are specifically within the scope of building automation equipment.

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

This standard applies to **controls** powered by primary or secondary batteries, requirements for which are contained within the standard, including Annex V.

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 energy regulators as defined in 2.2.10 of Part 1.

1.1.3 Not applicable.

1.1.4 *Replacement:*

This standard applies to manual energy regulators which are electrically and/or mechanically integral with automatic controls.

Requirements for manual switches not forming part of an automatic energy regulator are contained in IEC 61058-1.

1.1.5 *Replacement:*

This standard applies to energy regulators with a rated voltage not exceeding 690 V AC or 600 V DC.

1.1.6 Not applicable.

1.1.7 *Replacement:*

This standard applies also to energy regulators incorporating electronic devices, requirements for which are contained in Annex H.

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

1.1.9 This standard applies to the electrical and **functional safety** of **controls** capable of receiving and responding to communications signals, including signals for power billing rate and demand response.

The signals may be transmitted to or received from external units being part of the **control** (wired), or to and from external units which are not part of the **control** (wireless) under test.

1.1.10 This standard does not address the integrity of the output signal to the network devices, such as interoperability with other devices unless it has been evaluated as part of the **control system**.

2 Terms and definitions

This clause of Part 1 is applicable except as follows:

2.2 Definitions of types of control according to purpose

2.2.20 protective control

Addition:

Note 1 to entry: In general, energy regulators using software have functions classified as software class A.

2.5 Definitions of type of control according to construction

Addition:

2.5.101**push-and-turn actuation**

two-step actuation accomplished by first pushing, and then turning, the actuating member of the control

2.5.102**pull-and-turn actuation**

two-step actuation accomplished by first pulling, and then rotating, the actuating member of the control

3 General requirements

This clause of Part 1 is applicable.

4 General notes on tests

This clause of Part 1 is applicable.

5 Rating

This clause of Part 1 is applicable.

6 Classification

This clause of Part 1 is applicable except as follows:

6.4 According to features of automatic action

Addition:

6.4.3.101 – an action which is initiated only after a push-and-turn or pull-and-turn actuation and in which only rotation is required to return the actuating member to the off or rest position (type 1.X and 2.X);

6.4.3.102 – an action which is initiated only after a push-and-turn or pull-and-turn actuation (type 1.Z or 2.Z).

6.7 According to ambient temperature limits of the switch head

Addition:

6.7.101 Energy regulator for use in or on cooking appliances.

7 Information

This clause of Part 1 is applicable except as follows:

Table 1 – Required information and methods of providing information

Addition to item i):

For energy regulators, limits of the activating quantity are not declared (see 17.7 and 17.8).