

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Automatic electrical controls –
Part 2-6: Particular requirements for automatic electrical pressure sensing
controls including mechanical requirements**

**Dispositifs de commande électrique automatiques –
Partie 2-6: Exigences particulières pour les dispositifs de commande électrique
automatiques sensibles à la pression, y compris les exigences mécaniques**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2015 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 21 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Automatic electrical controls –
Part 2-6: Particular requirements for automatic electrical pressure sensing
controls including mechanical requirements**

**Dispositifs de commande électrique automatiques –
Partie 2-6: Exigences particulières pour les dispositifs de commande électrique
automatiques sensibles à la pression y compris les exigences mécaniques**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 97.120

ISBN 978-2-8322-5268-0

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
1 Scope and normative references	7
2 Terms and definitions	8
3 General requirements	9
4 General notes on tests	10
5 Rating.....	10
6 Classification.....	10
7 Information	11
8 Protection against electric shock	11
9 Provision for protective earthing	11
10 Terminals and terminations.....	11
11 Constructional requirements	12
12 Moisture and dust resistance	14
13 Electric strength and insulation resistance	14
14 Heating.....	14
15 Manufacturing deviation and drift.....	14
16 Environmental stress	15
17 Endurance	15
18 Mechanical strength	16
19 Threaded parts and connections.....	17
20 Creepage distances, clearances and distances through solid insulation.....	17
21 Resistance to heat, fire and tracking	17
22 Resistance to corrosion	18
23 Electromagnetic compatibility (EMC) requirements – Emission	18
24 Components	18
25 Normal operation.....	18
26 Electromagnetic compatibility (EMC) requirements – Immunity	18
27 Abnormal operation	18
28 Guidance on the use of electronic disconnection	18
Annexes	19
Annex H (normative) Requirements for electronic controls	20
Annex A\ (normative) Number of cycles	27
A.1 Number of cycles for independently mounted controls.....	27
A.2 Cycling rate for independently mounted controls.....	27
Annex BB (informative) Stainless steel for bellows, bourdon tubes or similar elements	28
Annex CC (informative) Deviation and drift requirements for pressure operating controls.....	31
Bibliography.....	32

Table 1 (7.2 of edition 3) – Required information and methods of providing information 11
Table H.101 – Compliance criteria 22
Table BB.1 – Stainless steel for bellows, bourdon tubes or similar elements 28

Currently in preview, click buy full version

INTERNATIONAL ELECTROTECHNICAL COMMISSION

AUTOMATIC ELECTRICAL CONTROLS –

Part 2-6: Particular requirements for automatic electrical pressure sensing controls including mechanical 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, accept IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60730-2-6 has been prepared by IEC technical committee 72: Automatic electrical controls.

This bilingual version (2018-01) corresponds to the monolingual English version, published in 2015-04.

This third edition cancels and replaces the second edition published in 2007. This edition constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition:

- a) aligns the text with IEC 60730-1, Edition 5;
- b) modifies requirements for Class B control function (H.27.1.2.2);
- c) modifies requirements for Class C control function (H.27.1.2.3);
- d) modifies requirements for faults during lock-out or safety- shut-down.

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

FDIS	Report on voting
72/980/FDIS	72/992/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.

The French version of this standard has not been voted upon.

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

This part 2 is intended to be used in conjunction with IEC 60730-1. It was established on the basis of the fifth edition (2013) of that publication. Consideration may be given to future editions of, or amendments to, IEC 60730-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60730-1 so as to convert that publication into the IEC standard: Particular requirements for automatic electrical pressure sensing controls including mechanical requirements.

Where this part 2 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 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 practices are contained in the following subclauses:

10.1.4

15.1.101

18.101

Annex CC

In this publication:

- 1) The following print types are used:
 - Requirements proper: in roman type;
 - Test specifications: *in italic type*;
 - Notes; 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, published under the title *Automatic electrical controls* can be found on the IEC website.

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.

Currently in preview, click buy full version

AUTOMATIC ELECTRICAL CONTROLS –

Part 2-6: Particular requirements for automatic electrical pressure sensing controls including mechanical requirements

1 Scope and normative references

This clause of Part 1 is applicable except as follows:

1.1 Scope

Replacement:

This part of IEC 60730 applies to automatic electrical pressure **sensing controls** with a minimum gauge pressure rating of –60 kPa and a maximum gauge pressure rating of 4,2 MPa, for use in, on or in association with, equipment. The equipment may use electricity, gas, oil, solid fuel, solar thermal energy, etc. or a combination thereof.

NOTE Throughout this standard, the word “equipment” includes “appliances” and “control system”.

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

Automatic electrical pressure **sensing controls** for equipment 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 pressure **sensing controls** intended exclusively for industrial process applications unless explicitly mentioned in the relevant equipment standard.

1.1.1 *Replacement:*

This standard applies to inherent safety, **operating values**, **operating sequences** where such are associated with equipment protection, and to the testing of automatic electrical pressure **sensing controls** used in, on or in association with equipment.

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

This standard is also applicable to pressure **sensing controls** for appliances within the scope of IEC 60335-1.

See also Annex J.

1.1.2 *Addition:*

This standard applies to automatic **electrical controls**, mechanically or electrically operated, responsive to or controlling a pressure or vacuum.

1.1.3 Not applicable.