

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Automatic electrical controls –
Part 2-13: Particular requirements for humidity sensing controls
[\(standards.iteh.ai\)](https://standards.iteh.ai/)

Dispositifs de commande électrique automatiques –
Partie 2-13: Exigences particulières pour les dispositifs de commande sensibles
à l'humidité
<https://standards.iteh.ai/catalog/standards/sist/05954705-0017-42a7-aba7-6351278c780c/iec-60730-2-13-2017>





THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2017 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 2-13: Particular requirements for humidity sensing controls**

**Dispositifs de commande électrique automatiques –
Partie 2-13: Exigences particulières pour les dispositifs de commande sensibles
à l'humidité**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 97.120

ISBN 978-2-8322-5545-2

**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.....	3
1 Scope and normative references	5
2 Terms and definitions	5
3 General requirements	6
4 General notes on tests	6
5 Rating.....	6
6 Classification	6
7 Information	6
8 Protection against electric shock	6
9 Provision for protective earthing	6
10 Terminals and terminations.....	6
11 Constructional requirements	6
12 Moisture and dust resistance	6
13 Electric strength and insulation resistance	7
14 Heating.....	7
15 Manufacturing deviation and drift.....	7
16 Environmental stress	7
17 Endurance	7
18 Mechanical strength	8
19 Threaded parts and connections	8
20 Creepage distances, clearances and distances through solid insulation	8
21 Resistance to heat, fire and tracking	8
22 Resistance to corrosion	8
23 Electromagnetic compatibility (EMC) requirements – Emission	8
24 Components	8
25 Normal operation	9
26 Electromagnetic compatibility (EMC) requirements – Immunity	9
27 Abnormal operation	9
28 Guidance on the use of electronic disconnection	9
Annex H (normative) Requirements for electronic controls	10
Annex AA (normative) Independently mounted and in-line cord controls	17
Annex BB (normative) Regional differences	18
Annex CC (informative) Specific regional requirements in Japan.....	20
Bibliography.....	21
Table H.101 – Compliance criteria	12
Table AA.1 – Number of cycles	17
Table BB.1 – Minimum number of cycles for independently mounted and in-line cord controls (United States)	18
Table BB.2 – Minimum number of cycles for independently mounted and in-line cord controls (Canada)	19

INTERNATIONAL ELECTROTECHNICAL COMMISSION

AUTOMATIC ELECTRICAL CONTROLS –

Part 2-13: Particular requirements for humidity sensing controls

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.
<https://standards.iteh.ai/catalog/standards/sic/02934705-6617-42a7-ab37-316a7a7a7a7a/iec-60730-2-13-2017>
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to 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 60730-2-13 has been prepared by IEC technical committee 72: Automatic electrical controls.

This bilingual version (2018-04) corresponds to the monolingual English version, published in 2017-10.

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

FDIS	Report on voting
72/1078/FDIS	72/1108/RVD

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.

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

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

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision. This edition includes alignment with the text of 60730-1 fifth edition and the following significant technical changes with respect to the previous edition:

- a) alignment of the EMC requirements in Clause H.26 to those in other part 2 standards;
- b) addition of requirements in Clause H.27 to cover class B and C control functions of humidity sensing controls.

This Part 2-13 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). Consideration may be given to future editions of, or amendments to, IEC 60730-1.

This Part 2-13 supplements or modifies the corresponding clauses in IEC 60730-1, so as to convert that publication into the IEC standard: Particular requirements for humidity sensing controls.

Where this Part 2-13 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 2-13 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.

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.

Subclauses, notes or items 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* can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

AUTOMATIC ELECTRICAL CONTROLS –

Part 2-13: Particular requirements for humidity sensing controls

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 humidity sensing controls for use in, on or in association with equipment, including controls 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 Throughout this standard, the word "equipment" includes "appliance" and "control system".

This International Standard is applicable to automatic electrical humidity sensing controls forming part of a building automation control system within the scope of ISO 16484.

This standard also applies to automatic electrical humidity sensing 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.

This standard does not apply to automatic electrical humidity sensing controls intended exclusively for industrial process applications unless explicitly mentioned in the equipment standard.

1.1.2 Replacement:

This standard applies to automatic electrical controls, mechanically or electrically operated, responsive to or controlling humidity.

1.1.3 Not applicable.

2 Terms and definitions

This clause of Part 1 is applicable except as follows:

2.2 Definitions of types of control according to purpose

2.2.19 Addition:

Note 1 to entry: In general, a **humidity sensing control** is an **operating control**.

Additional definitions:

2.2.101

humidity sensing control

automatic **electrical control** which is either intended to keep the controlled humidity above, below or between a particular value(s)

2.2.102

room humidistat

independently mounted or incorporated **humidity sensing control** intended to control the humidity of habitable space

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:

6.3.9 Additional subclauses:

6.3.9.101 – humidity sensing control;

6.3.9.102 – room humidistat;

IEC 60730-2-13:2017
<https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-6351278c780c/iec-60730-2-13-2017>

7 Information

This clause of Part 1 is applicable.

8 Protection against electric shock

This clause of Part 1 is applicable.

9 Provision for protective earthing

This clause of Part 1 is applicable.

10 Terminals and terminations

This clause of Part 1 is applicable.

11 Constructional requirements

This clause of Part 1 is applicable.

12 Moisture and dust resistance

This clause of Part 1 is applicable.

13 Electric strength and insulation resistance

This clause of Part 1 is applicable except as follows:

Table 12 (13.2 of edition 3) – Insulation or disconnection test voltages

Addition to footote p:

In the case of **humidity sensing controls**, it may be necessary to provide specially calibrated samples to enable this test to be performed.

14 Heating

This clause of Part 1 is applicable.

15 Manufacturing deviation and drift

This clause of Part 1 is applicable except as follows:

15.4 Addition:

*Alternatively, the declared **manufacturing deviation** and **drift** may be expressed separately as a tolerance value to the declared **operating value**.*

15.5.3 Additional subclauses:

15.5.3.101 Controls intended for setting by the user shall be set at the maximum humidity value permitted by the adjustment unless otherwise declared by the manufacturer.

15.5.3.102 The operation of the control shall be sensed by a suitable device with a sensing current not exceeding 0,05 A.

The circuit voltage may be any convenient value that will give reliable indication of the function being monitored.

15.5.4 Not applicable.

16 Environmental stress

This clause of Part 1 is applicable.

17 Endurance

This clause of Part 1 is applicable except as follows:

17.1.3 Test sequence and conditions

Additional subclause:

17.1.3.101 For humidity sensing controls, the tests of Clause 17 are conducted with the activating quantity agreed between the manufacturer and testing authority.

17.8 Test of automatic action at accelerated rate

Additional subclause:

17.8.4.101 *The number of automatic and manual cycles for independently mounted and in-line cord controls shall be as indicated in Clause AA.1, unless a higher number is declared by the manufacturer.*

17.16 Tests for particular purpose controls

Additional subclause and note:

17.16.101 Humidity sensing controls

- Subclauses 17.1 to 17.5 inclusive are applicable.
- 17.6 is applicable to actions classified as type 1.M or 2.M, the value of "X" being agreed between manufacturer and testing authority.
- 17.7 is applicable.
- 17.8 is applicable.
- 17.9 is applicable, except:
- 17.9.3.1 is not applicable.
- 17.10 to 17.14 inclusive are applicable.

ITeH STANDARD PREVIEW
(standards.iteh.ai)

18 Mechanical strength

This clause of Part 1 is applicable.

[IEC 60730-2-13:2017](#)

<https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7->

19 Threaded parts and connections

[https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-60730-2-13-2017](#)

This clause of Part 1 is applicable.

20 Creepage distances, clearances and distances through solid insulation

This clause of Part 1 is applicable.

21 Resistance to heat, fire and tracking

This clause of Part 1 is applicable.

22 Resistance to corrosion

This clause of Part 1 is applicable.

23 Electromagnetic compatibility (EMC) requirements – Emission

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable.

25 Normal operation

This clause of Part 1 is applicable.

26 Electromagnetic compatibility (EMC) requirements – Immunity

This clause of Part 1 is applicable. See also Annex H.

27 Abnormal operation

This clause of Part 1 is applicable. See also Annex H.

28 Guidance on the use of electronic disconnection

This clause of Part 1 is applicable.

Figures

The figures of Part 1 are applicable.

Annexes

The annexes of Part 1 are applicable except as follows:

iTeh STANDARD PREVIEW
(standards.iteh.ai)
[IEC 60730-2-13:2017](https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-6351278c780c/iec-60730-2-13-2017)
<https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-6351278c780c/iec-60730-2-13-2017>

Annex H (normative)

Requirements for electronic controls

This annex of Part 1 is applicable except as follows:

H.2 Terms and definitions

H.2.23 Definitions relating to functional safety

Additional definitions:

H.2.101

permanent operation

continuous monitoring of the protective function during the **operation** of the appliance or system for longer than 24 h

Note 1 to entry: 24 h is considered the typical time interval between a first and a second **fault**.

H.2.102

non-permanent operation

continuous monitoring of the protective function during the **operation** of the appliance or system for less than 24 h

Note 1 to entry: 24 h is considered the typical time interval between a first and a second **fault**.

H.6 Classification

[IEC 60730-2-13:2017](https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-6351278c780c/iec-60730-2-13-2017)

[https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-](https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-6351278c780c/iec-60730-2-13-2017)

[6351278c780c/iec-60730-2-13-2017](https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-6351278c780c/iec-60730-2-13-2017)

H.6.18 According to classes of control functions

H.6.18.1

Additional note:

NOTE 101 In general, **humidity sensing controls** perform **class A control functions**.

H.7 Information

Additional requirements to Table 1:

	Information	Clause or subclause	Method
58a	See footnote a of Table H.101		
101	The output condition of Type 2 humidity sensing controls after operation ¹⁰¹	H.26.2.103, H.26.2.104, H.26.2.105	X
102	Frequency of the defined state test function	H.27.1.2.2.2, H.27.1.2.3.2, H.27.1.2.3.3	X
103	The control is for permanent or non-permanent operation	H.2.101.1, H.2.101.2, H.27.1.2.2.2, H.27.1.2.3.2	X
<i>Additional footnote:</i>			
¹⁰¹ For example, conducting or non-conducting, as applicable.			

H.11 Constructional requirements

H.11.12 Controls using software

H.11.12.2.6 *Modification:*

Replace the second paragraph by the following note:

NOTE The values declared in Table 1, requirement 71, may be given in the applicable appliance standard.

H.11.12.2.7 *Additional note:*

NOTE 101 The values declared in Table 1, requirement 72, may be given in the applicable appliance standard.

H.23 Electromagnetic compatibility (EMC) requirements – Emission

H.23.1.2 Radio frequency emission

Addition:

Integrated and incorporated electronic **humidity sensing controls** are not subjected to the tests of H.23.1.2, as the results of these tests are influenced by the incorporation of the **humidity sensing control** into the equipment and the use of measures to control emissions used therein. They may, however, be carried out under declared conditions if so requested by the manufacturer.

ITEH STANDARD PREVIEW

(standards.iteh.ai)

H.26 Electromagnetic compatibility (EMC) requirements – Immunity

[IEC 60730-2-13:2017](https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-6351278c780c/iec-60730-2-13-2017)

H.26.2 *Addition:* <https://standards.iteh.ai/catalog/standards/sist/03934705-6617-42a7-aba7-6351278c780c/iec-60730-2-13-2017>

After each test, one or more of the following criteria (see Subclauses H.26.2.101 to H.26.2.106) shall apply, as permitted in Table H.101.

Additional subclauses:

H.26.2.101 The **control** shall remain in its current condition and thereafter shall continue to operate as declared within the limits verified in Clause 15, if applicable.

H.26.2.102 The **control** shall assume the condition declared in Table 1, requirement 101 and thereafter shall operate as in H.26.2.101.

H.26.2.103 The **control** shall assume the condition declared in Table 1, requirement 101, such that it cannot be **reset** automatically or manually. The output waveform shall be sinusoidal or as declared in Table 1, requirement 53 for normal **operation**.

H.26.2.104 The **control** shall remain in the condition declared in Table 1, requirement 101. A non-self-resetting **control** shall be such that it can only **reset** manually. After the humidity which caused cut-out to occur is removed, it shall operate as in H.26.2.101 or shall remain in the declared condition as in H.26.2.103.

H.26.2.105 The **control** may return to its initial state and thereafter shall operate as in H.26.2.101.

NOTE If a **control** is in the condition declared in Table 1, requirement 101, it may **reset** but shall resume the declared condition again if the humidity which caused it to operate is still present.