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Edition 3.0 2017-10

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

IEC 60730-2-13:2017-10 (en-fr)

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AUTOMATIC ELECTRICAL CONTROLS –

Part 2-13: Particular requirements for humidity sensing controls

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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.

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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

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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)

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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;

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.

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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.*

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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.

18 Mechanical strength

This clause of Part 1 is applicable.

19 Threaded parts and connections

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.

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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:

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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

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 control**s 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
Additional footnote: [101] For example, conducting or non-conducting, as applicable.			

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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.

H.26 Electromagnetic compatibility (EMC) requirements – Immunity

H.26.2 *Addition:*

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.

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H.26.2.106 The output and functions shall be as declared in Table 1, requirement 58a or 58b and the **control** shall comply with the requirement of 17.5.

Table H.101 – Compliance criteria

Applicable Clause H.26 tests	**Compliance criteria permitted**					
Type 2 **humidity sensing controls**	H.26.2.101	H.26.2.102	H.26.2.103	H.26.2.104	H.26.2.105	H.26.2.106 [a]
H.26.4 to H.26.14 inclusive	B	B	B	A	A	X
Other **humidity sensing controls**	H.26.2.101	H.26.2.102	H.26.2.103	H.26.2.104	H.26.2.105	H.26.2.106 [a]
H.26.8, H.26.9	X				X	X
X = Permitted A = Permitted when the disturbance is applied after **operation** B = Permitted when the disturbance is applied before **operation**						
[a] This compliance criterion is permitted only for integrated or **incorporated controls**, since the acceptability of the output must be judged in the appliance.						

H.26.5 Voltage dips, voltage interruptions and voltage variations in the power supply network

H.26.5.2 Voltage variation test

H.26.5.2.2 Test procedure

Replacement of the last paragraph:

The **humidity sensing control** is subjected to each of the specified voltage test cycles three times with 10 s intervals between each test cycle. For a **humidity sensing control** declared under Table 1, requirement 101, each test cycle is performed three times when the **control** is in the declared condition and three times when it is not.

H.26.8 Surge immunity test

H.26.8.3 Test procedure

Additional subclause:

H.26.8.3.101 For **controls** declared under Table 1, requirement 101, the tests are performed when the **control** is in the declared condition and when it is not.

H.26.9 Electrical fast transient/burst immunity test

H.26.9.3 Test procedure

Additional subclause:

H.26.9.3.101 The **control** is subjected to five tests. For **controls** declared under Table 1, requirement 101, the tests are performed when the **control** is in the declared condition and when it is not.

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