



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 60730-2-6:2024**  
**01-maj-2024**

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**Avtomatske električne krmilne naprave - 2-6. del: Posebne zahteve za avtomatske električne krmilne naprave z zaznavanjem tlaka, vključno z mehanskimi zahtevami**

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

Automatische elektrische Regel- und Steuergeräte - Teil 2-6: Besondere Anforderungen an automatische elektrische Druckregel- und Steuergeräte einschließlich mechanischer Anforderungen

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

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**ICS:**

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|--------|-----------------------------------|--------------------------------------|
| 97.120 | Avtomatske krmilne naprave za dom | Automatic controls for household use |
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**oSIST prEN IEC 60730-2-6:2024**      **en**





# 72/1409/CDV

## COMMITTEE DRAFT FOR VOTE (CDV)

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| PROJECT NUMBER:<br><b>IEC 60730-2-6 ED4</b> |   |
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|--|---|
| IEC TC 72 : AUTOMATIC ELECTRICAL CONTROLS  |   |
| SECRETARIAT:<br>United States of America   | SECRETARY:<br>Ms Grace Roh  |
| OF INTEREST TO THE FOLLOWING COMMITTEES:   | PROPOSED HORIZONTAL STANDARD:<br><input type="checkbox"/><br>Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary. |
| FUNCTIONS CONCERNED:<br><input checked="" type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY |   |
| <input type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING   | <input checked="" type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING   |

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Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

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

PROPOSED STABILITY DATE: 2028

NOTE FROM TC/SC OFFICERS:

This CDV is based on 72/1373/DC and 72/1394/INF.

1

## CONTENTS

|    |  |    |
|----|--|----|
| 2  | CONTENTS .....   | 2  |
| 3  | 1 Scope .....  | 7  |
| 4  | 2 Normative references .....   | 8  |
| 5  | 3 Terms and definitions .....  | 8  |
| 6  | 3.2 Definitions of types of control according to purpose .....                 | 8  |
| 7  | 3.3 Definitions relating to the function of controls .....                     | 9  |
| 8  | 3.8 Definitions relating to component parts of controls .....                  | 9  |
| 9  | 4 General .....  | 9  |
| 10 | 4.3 General notes on tests .....   | 9  |
| 11 | 5 Required technical information .....   | 10 |
| 12 | 6 Protection against electric shock .....                                      | 10 |
| 13 | 7 Provision for protective earthing .....                                      | 10 |
| 14 | 8 Terminals and terminations .....   | 11 |
| 15 | 9 Constructional requirements .....  | 11 |
| 16 | 9.4 Actions .....  | 11 |
| 17 | 9.11 Requirements during mounting, use, maintenance and servicing .....        | 11 |
| 18 | 9.101 Construction requirements relating to operating mechanism .....          | 12 |
| 19 | 10 Threaded parts and connections .....  | 12 |
| 20 | 11 Creepage distances, clearances and distances through solid insulation ..... | 13 |
| 21 | 12 Components .....  | 13 |
| 22 | 13 Fault assessment on electronic circuits .....                               | 13 |
| 23 | 13.1 Fault assessment for inherent safety .....                                | 13 |
| 24 | 14 Moisture and dust resistance .....  | 13 |
| 25 | 14.1 Protection against ingress of water and dust .....                        | 13 |
| 26 | 15 Electric strength and insulation resistance .....                           | 13 |
| 27 | 16 Heating .....   | 13 |
| 28 | 17 Manufacturing deviation and drift .....                                     | 13 |
| 29 | 18 Environmental stress .....  | 13 |
| 30 | 19 Endurance .....   | 13 |
| 31 | 19.1 General requirement .....   | 14 |
| 32 | 19.15 Test for particular purpose controls .....                               | 14 |
| 33 | 20 Mechanical strength .....   | 15 |
| 34 | 20.101 Medium leakage .....  | 15 |
| 35 | 20.102 Strength of parts (hydrostatic) .....                                   | 15 |
| 36 | 21 Resistance to heat, fire and tracking .....                                 | 16 |
| 37 | 22 Resistance to corrosion .....   | 16 |
| 38 | 23 Electromagnetic compatibility (EMC) requirements – Emission .....           | 16 |
| 39 | 24 Normal operation .....  | 16 |
| 40 | 25 Electromagnetic compatibility (EMC) requirements – Immunity .....           | 16 |
| 41 | 26 Abnormal operation tests .....  | 16 |
| 42 | Annex H (normative) Requirements related to functional safety .....            | 17 |
| 43 | H.5 Information .....  | 17 |
| 44 | H.13 Fault assessment on electronic circuits .....                             | 18 |
| 45 | H.17 Manufacturing deviation and drift .....                                   | 19 |

|    |   |  |    |
|----|---|--|----|
| 46 | H.19  | Endurance .....  | 20 |
| 47 | H.25  | Electromagnetic compatibility (EMC) requirements – Immunity.....     | 21 |
| 48 | Annex R (informative)   | National differences relevant in the United States of America.....   | 29 |
| 49 | R.2   | Normative references.....  | 29 |
| 50 | Annex S (informative)   | National differences relevant in Japan .....                         | 30 |
| 51 | S.2   | Normative references.....  | 30 |
| 52 | Annex T (informative)   | National differences relevant in Canada .....                        | 31 |
| 53 | T.2   | Normative references.....  | 31 |
| 54 | Annex AA (normative)  | Number of cycles .....   | 33 |
| 55 | AA.1  | Number of cycles for independently mounted controls.....             | 33 |
| 56 | AA.2  | Cycling rate for independently mounted controls .....                | 33 |
| 57 | Annex BB (informative)  | Stainless steel for bellows, bourdon tubes or similar elements ..... | 34 |
| 58 | Annex CC (informative)  | Deviation and drift requirements for pressure operating              |    |
| 59 | controls  | .....  | 37 |
| 60 | Bibliography.....   |  | 38 |
| 61 |   |  |    |
| 62 | Table H.1 – Additional items to Table 1.....  |  | 17 |
| 63 | Table BB.1 – Stainless steel for bellows, bourdon tubes or similar elements (1 of 3)..... |  | 34 |
| 64 | Table CC.1 – Deviation and drift requirements for pressure operating controls .....       |  | 37 |

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### AUTOMATIC ELECTRICAL CONTROLS –

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

#### FOREWORD

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IEC 60730-2-6 has been prepared by IEC technical committee 72: AUTOMATIC ELECTRICAL CONTROLS. It is an International Standard.

This 4.0 edition cancels and replaces the 3. edition published in 2005, Amendment 1:2019. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

...;.adoption to IEC 60730-1 Ed.6.0 with all of its significant changes to IEC 60730-1 Ed.5.0,

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

|            |                  |
|------------|------------------|
| Draft      | Report on voting |
| XX/XX/FDIS | XX/XX/RVD        |

116

117 Full information on the voting for its approval can be found in the report on voting indicated in  
118 the above table.

119 The language used for the development of this International Standard is English.

120 This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in  
121 accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available  
122 at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are  
123 described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

124 A list of all parts of the IEC 60730 series, under the general title: AUTOMATIC ELECTRICAL  
125 CONTROL, can be found on the IEC website.

126 This part 2-6 is intended to be used in conjunction with IEC 60730-1. It was established on the  
127 basis of the sixth edition of that standard (2022). Consideration may be given to future editions  
128 of, or amendments to, IEC 60730-1.

129 This part 2-6 supplements or modifies the corresponding clauses in IEC 60730-1, so as to  
130 convert that publication into the IEC standard: Particular requirements for electric actuators.

131 Where this part 2-6 states "addition", "modification" or "replacement", the relevant requirement,  
132 test specification or explanatory matter in part 1 should be adapted accordingly.

133 Where no change is necessary part 2-6 indicates that the relevant clause or subclause applies.

134 In the development of a fully International standard it has been necessary to take into  
135 consideration the differing requirements resulting from practical experience in various parts of  
136 the world and to recognize the variation in national electrical systems and wiring rules.

137 The reader's attention is drawn to the fact that Annex Q, Annex R, Annex S and Annex T list all  
138 of the "in-some-country" clauses on differing practices of a less permanent nature relating to  
139 the subject of this document.

140 In this publication:

141 1) The following print types are used:

- 142 – requirements proper: in roman type;
- 143 – *test specifications: in italic type*;
- 144 – explanatory matter: in smaller roman type.
- 145 – Defined terms: **bold type**.

146 2) Subclauses, notes or items which are additional to those in Part 1 are numbered starting  
147 from 101, additional annexes are lettered AA, BB, etc.

148

149  
150

151 The committee has decided that the contents of this document will remain unchanged until the  
152 stability date indicated on the IEC website under [webstore.iec.ch](https://webstore.iec.ch) in the data related to the  
153 specific document. At this date, the document will be

- 154 • reconfirmed,  
155 • withdrawn,  
156 • replaced by a revised edition, or  
157 • amended.

158

**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.**

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## AUTOMATIC ELECTRICAL CONTROLS –

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

#### 1 Scope

##### *Replacement:*

This document applies to **automatic electrical pressure sensing controls**

- for use in, on, or in association with equipment for household appliance and similar use;

NOTE 1 Throughout this document, the word "equipment" means "appliance and equipment" and „controls“ means „pressure sensing controls“.

- for building automation within the scope of ISO 16484 series and IEC 63044 series (HBES/BACS);

EXAMPLE 1 Independently mounted **automatic electrical pressure sensing controls**, controls in smart grid systems and controls for building automation systems within the scope of ISO 16484-2.

- for equipment that is used by the public, such as equipment intended to be used in shops, offices, hospitals, farms and commercial and industrial applications;

EXAMPLE 2 **automatic electrical pressure sensing controls** for commercial catering, heating and air-conditioning equipment.

- that are **smart enabled automatic electrical pressure sensing controls**;

EXAMPLE 3 Smart grid **automatic electrical pressure sensing controls**, remote interfaces/control of energy-consuming equipment including computer or smart phone.

- that are AC or DC powered controls with a rated voltage not exceeding 690 V AC or 600 V DC where the DC source is provided by primary or secondary batteries;

- used in, on, or in association with equipment that use electricity, gas, oil, solid fuel, solar thermal energy, etc., or a combination thereof;

- utilized as part of a control system or controls which are mechanically integral with multifunctional controls having non-electrical outputs;

- using NTC or **PTC thermistors** and to discrete **thermistors**, requirements for which are contained in Annex J;

- that are mechanically or electrically operated, responsive to or controlling a pressure or vacuum.;

- as well as manual controls when such are electrically and/or mechanically integral with automatic controls.

NOTE 2 Requirements for manually actuated mechanical switches not forming part of an automatic control are contained in IEC 61058-1-1.

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 multifunctional controls having non-electrical outputs.

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

This document applies to

- the inherent safety of pressure **sensing controls**, and
- functional safety of pressure **sensing controls** and safety related systems,

- 206 – pressure **sensing controls** where the performance (for example the effect of EMC  
207 phenomena) of the product can impair the overall safety and performance of the controlled  
208 system,
- 209 – the operating values, operating times, and operating sequences where such are associated  
210 with equipment safety.

211 This document specifies the requirements for construction, operation and testing of automatic  
212 electrical controls used in, on, or in association with an equipment.

213 This document does not

- 214 • apply to pressure **sensing controls** intended exclusively for industrial process applications  
215 unless explicitly mentioned in the relevant part 2 or the equipment standard. However, this  
216 document can be applied to evaluate automatic electrical controls intended specifically for  
217 industrial applications in cases where no relevant safety standard exists.
- 218 • take into account the response value of an automatic action of a pressure **sensing control**,  
219 if such a response value is dependent upon the method of mounting the control in the  
220 equipment. Where a response value is of significant purpose for the protection of the user,  
221 or surroundings, the value defined in the appropriate equipment standard or as determined  
222 by the manufacturer will apply.
- 223 • address the integrity of the output signal to the network devices, such as interoperability  
224 with other devices unless it has been evaluated as part of the control system.

225 This standard contains requirements for electrical features of pressure **sensing controls** and  
226 requirements for mechanical features that affect their intended **operation**.

227 NOTE Subclause 20.101, as it pertains to gas and/or oil **controls**, is under consideration pending review or revision  
228 of ISO 22967, ISO 22968 and ISO 23550 series, if applicable.

229 In general, these pressure **sensing controls** are integrated or incorporated with the equipment  
230 or are intended to be integrated in, or on the equipment. This standard also covers these  
231 **controls** when they are independently mounted. **In-line cord controls** are not covered by this  
232 standard.

233

## 234 **2 Normative references**

235 This clause of Part 1 is applicable.

## 236 **3 Terms and definitions**

237 This clause of Part 1 is applicable except as follows:

### 238 **3.2 Definitions of types of control according to purpose**

239 *Add the following definitions:*

#### 240 **3.2.101**

##### 241 **pressure limiter**

242 pressure sensing control which is intended to keep a pressure below or above a predetermined  
243 value during normal operating conditions and which may have provision for setting by the user

244 Note 1 to entry: A pressure limiter may be of the automatic or of the manual reset type. It does not make the  
245 reverse operation during the normal duty cycle of the equipment.

#### 246 **3.2.102**

##### 247 **pressure operating control**

248 pressure sensing control set at a high or low pressure, or both, between which limits the  
249 equipment is normally intended to operate

250 **3.2.103**251 **pressure cut-out**

252 pressure **sensing control** intended to keep a pressure below or above one particular value  
253 during abnormal operating conditions of the equipment and which has no provisions for **setting**  
254 **by the user**

255 Note 1 to entry: A pressure cut-out may be of the automatic or of the manual reset type.

256 Note 2 to entry: A pressure cut-out will provide a Type 2 action.

257 Note 3 to entry: A pressure cut-out may have an adjustable stop intended to be set by the **control manufacturer**,  
258 the **equipment manufacturer** or the **installer**.

259

260 **3.3 Definitions relating to the function of controls**

261 *Add the following definitions:*

262 **3.3.101**263 **pressure medium**

264 medium used to transmit the pressure to the pressure sensing element

265 Note 1 to entry: Pressure medium as used in this standard refers to either gases or liquids.

266

267 **3.8 Definitions relating to component parts of controls**

268 *Add the following definitions:*

269 **3.8.101**270 **vent**

271 that opening from the atmospheric side of a diaphragm to the atmosphere through which air is  
272 discharged or drawn in when the control is functioning

273

274 **4 General**

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275 This clause of Part 1 is applicable except as follows:

276 **4.3 General notes on tests**277 **4.3.2 Conditions of test**278 **4.3.2.7 Replacement:**

279 *The rates of pressure change declared in Table 1 requirement 31, and used in Clause 19 (i.e.*  
280  *$\alpha_1, \beta_1, \alpha_2, \beta_2$ ) shall have test tolerances as declared by the manufacturer.*

281 **4.3.4 Instructions for test**282 **4.3.4.1 According to submission**

283 *Additional subclause:*

284 4.3.4.1.101 The values in Annex AA apply for the testing of independently mounted pressure  
285 **sensing controls** in Clause 19. Values for integrated and **incorporated controls** are specified  
286 in the appropriate equipment standard.

287 **5 Required technical information**

288 This clause of Part 1 is applicable except as follows:

289 **Table 1 – Required technical information and methods of providing these information**

|   | Information   | Clause or subclause      | Method |
|---|---|--------------------------|--------|
| <i>Modifications:</i>   |   |                          |        |
| 19  | Number of cycles of <b>actuation (M)</b> for each <b>manual action</b><br>Preferred values are: 100 000 cycles; 30 000 cycles; 10 000 cycles; 6 000 cycles; 3 000 cycles <sup>1</sup> ; 300 cycles <sup>1</sup> ; 30 cycles <sup>1</sup><br>NOTE For controls with more than one manual action, a different value can be declared for each. If a control has more than one intended "OFF" position, then a cycle of actuation is regarded as a movement from one "OFF" position to the next "OFF" position.   | Annex AA                 | X      |
| 20  | Number of automatic cycles (A) for each automatic action.<br>Preferred values are: 300 000 cycles; 200 000 cycles; 100 000 cycles; 30 000 cycles; 20 000 cycles; 10 000 cycles; 6 000 cycles; 3 000 cycles <sup>1</sup> ; 1 000 cycles <sup>1</sup> ; 300 cycles <sup>2</sup> ; 30 cycles <sup>2</sup> <sup>4</sup> ; 1 cycle <sup>3</sup> .<br>1) Not applicable to thermostats or to other fast cycling actions.<br>2) Applicable only to manual reset.<br>3) Applicable only to actions which require the replacement of a part after each operation.<br>4) Can only be reset during manufacturer servicing.<br>NOTE For controls having more than one automatic action, a different value can be declared for each. | Annex AA                 | X      |
| 29  | Not applicable  |                          |        |
| 38  | Not applicable  |                          |        |
| 42  | Operating pressure (or pressures)   | 3.3.11, 17, H.17.4       |        |
| <i>Addition:</i>  |   |                          |        |
| 101   | <b>Pressure medium</b>  | 3.3.101, 9.3.101, 20.101 | X      |
| 102   | <b>Operating differential</b>   | 3.3.25, H.17.4, H.17.6   | D      |
| 103   | <b>Maximum working pressure</b>   | 3.3.28, 9, 19, 20        | D      |
| Additional notes:   |   |                          |        |
| <i>Addition to Note h:</i><br>For pressure <b>sensing controls</b> , limits of activating quantity are specified either in the applicable appliance standard, by the appliance manufacturer or as declared by the pressure <b>sensing control manufacturer</b> (see 19.7 and 19.8). |   |                          |        |

290

291

292 **6 Protection against electric shock**

293 This clause of Part 1 is applicable.

294 **7 Provision for protective earthing**

295 This clause of Part 1 is applicable.