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

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IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

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

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CONTENTS

FOREWORD 9
1 Scope 12
2 Normative references 13
3 Terms and definitions 17
3.1 Definitions relating to ratings, voltages, currents, frequencies, and wattages 17
3.2 Definitions of types of control according to purpose 20
3.3 Definitions relating to the function of controls 22
3.4 Definitions relating to disconnection and interruption 26
3.5 Definitions of types of control according to construction 27
3.6 Definitions of type of automatic action of a control 28
3.7 Definitions relating to protection against electric shock and type of insulation 28
3.8 Definitions relating to component parts of controls 32
3.9 Definitions of types of terminals and terminations of controls 34
3.10 Definitions relating to the connections to controls 36
3.11 Definitions relating to the performance of type 2 actions 37
3.12 Definitions relating to the requirements for creepage distances and clearances 37
3.13 Miscellaneous definitions 38
3.14 Definitions relating to manufacturer and user 40
3.15 Definitions pertaining to thermistors 40
3.16 Definitions relating to the structure of controls using software 40
3.17 Definitions relating to error avoidance in controls using software 40
3.18 Definitions relating to fault/error control techniques for controls using software 40
3.19 Definitions relating to memory tests for controls using software 40
3.20 Definitions of software terminology – General 40
3.21 Definitions relating to classes of control functions 40
3.22 Definitions relating to functional safety 40
3.23 Definitions related to access to data exchange 40
3.24 Definitions related to EMC performance 41
4 General 43
4.1 General structure of the document 43
4.2 General requirements 44
4.3 General notes on tests 44
5 Required technical information 48
5.1 General requirements 48
5.2 Methods of providing technical information 48
5.3 Class II symbol 56
5.4 Additional requirements for marking 56
5.5 Warning or cautionary markings 58
6 Protection against electric shock 58
6.1 General requirements 58
6.2 Actuating members and actuating means 60
6.3 Capacitors 61
6.4 Covers and uninsulated live or hazardous parts 61
6.5 Battery operated controls provided with a user accessible mains supply input connector 61

7 Provision for protective earthing 62
7.1 Class 0I and Class I controls 62
7.2 Class II and class III controls 62
7.3 Adequacy of earth connections 62
7.4 Corrosion resistance 63
7.5 Other requirements 64
7.6 Protective equipotential bonding 64
8 Terminals and terminations 64
8.1 Terminals and terminations for external copper conductors 64
8.2 Terminals and terminations for internal conductors 69
8.3 Terminals and terminations for integrated conductors 71
9 Constructional requirements 71
9.1 Materials 71
9.2 Protection against electric shock 71
9.3 Actuation and operation 74
9.4 Actions 77
9.5 Openings in enclosures 80
9.6 Mounting of controls 80
9.7 Attachment of cords 81
9.8 Size of cords – non-detachable 82
9.9 Inlet openings 83
9.10 Equipment inlets and socket-outlets 83
9.11 Requirements during mounting, use, maintenance and servicing 84
9.12 Controls using software 87
9.13 Protective controls and components of protective control systems 90
9.101 Construction requirements relating to operating mechanism 92
9.102 A pressure cut-out shall not reset or be resettable manually or otherwise at a value above the maximum or below the minimum operating pressure, whichever is declared. 93
9.103 A pressure cut-out with a manually operated reset device shall be trip-free. 93
10 Threaded parts and connections 93
10.1 Threaded parts moved during mounting or servicing 93
10.2 Current-carrying connections and connections providing protective earthing continuity 95
11 Creepage distances, clearances and distances through solid insulation 96
11.1 General 96
11.2 Clearances 97
11.3 Creepage distances 101
11.4 Solid insulation 105
12 Components 106
12.1 Transformers 106
12.2 Switch mode power supplies and converters 106
12.3 Capacitors 107
12.4 Fuses 107
12.5 Varistors 107
12.6 Thermistors 107
12.7 Relays 108
12.8 Other components 108
13 Fault assessment on electronic circuits 108

13.1 Fault assessment for inherent safety 108
13.2 Fault assessment to ensure functional safety 114
14 Moisture and dust resistance 114
14.1 Protection against ingress of water and dust 114
14.2 Protection against humid conditions 115
14.3 Touch current test for in-line cord controls and free-standing controls 116
15 Electric strength and insulation resistance 117
15.1 Insulation resistance 117
15.2 Electric strength 117
15.3 Additional tests for in-line cord and free-standing controls 119
16 Heating 120
17 Manufacturing deviation and drift 124
18 Environmental stress 124
18.1 Transportation and storage 124
18.2 Environmental stress of temperature 124
19 Endurance 125
19.1 General requirements 125
19.2 Electrical conditions for the tests 126
19.3 Thermal conditions for the tests 132
19.4 Manual and mechanical conditions for the tests 132
19.5 Dielectric strength requirements 133
19.6 Ageing test 133
19.7 Overvoltage test or overload test in all countries using an overload test of automatic action at accelerated rate 133
19.8 Test of automatic action at accelerated rate 134
19.9 Test of automatic action at slow rate 134
19.10 Overvoltage test or overload test in all countries that use the overload test of manual action at accelerated speed 135
19.11 Test of manual action at slow speed 135
19.12 Test of manual action at high speed which has multiple poles, and where polarity reversal occurs during the action 135
19.13 Test of manual action at accelerated speed 135
19.14 Evaluation of compliance 136
19.15 Test for particular purpose controls 136
20 Mechanical strength 137
20.1 General requirements 137
20.2 Impact resistance 138
20.3 Free-standing controls 138
20.4 In-line cord controls 139
20.5 Pull-cord actuated controls 139
20.6 Foot actuated controls 139
20.7 Actuating member and actuating means 140
20.8 Flexing – test 140
20.9 Cord anchorages – test 141
20.101 Medium leakage 141
20.102 Strength of parts (hydrostatic) 142
21 Resistance to heat, fire and tracking 143
21.1 General requirements 143

21.2 Integrated, incorporated and in-line cord controls 143
21.3 Independently mounted, free-standing controls 144
22 Resistance to corrosion 145
22.1 Resistance to rusting 145
23 Electromagnetic compatibility (EMC) requirements – Emission 145
23.1 General requirement 145
23.2 High frequency emission 145
23.3 Low frequency emission 149
24 Normal operation 149
25 Electromagnetic compatibility (EMC) requirements – Immunity 149
25.1 General 149
25.2 EMC test plan and report 150
25.3 Immunity requirements 152
25.4 Performance criteria 155
25.5 Surge immunity test 156
25.6 Electrical fast transient immunity test 156
25.7 Radio-frequency electromagnetic field immunity 157
25.8 Electrostatic discharge 157
25.9 Immunity to power-frequency magnetic fields 157
25.10 Test of the influence of voltage dips and voltage interruption in the power supply network 157
26 Abnormal operation tests 158
26.1 Abnormal temperature test 158
26.2 Overload tests 159
26.3 Battery short-circuit test 160
Annex A (normative) Indelibility of markings 177
Annex B (normative) Measurement of creepage distances and clearances in air 179
Annex C (informative) Nominal voltages of supply systems for different modes of overvoltage control 183
Annex D (normative) Overvoltage categories 185
Annex E (informative) Typical usage of controls and related overvoltage categories 186
Annex F (normative) Pollution degrees 187
F.1 Pollution 187
F.2 Degrees of pollution in the micro-environment 187
Annex G (normative) Resistance to heat, fire and tracking tests 188
G.1 Glow-wire test 188
G.2 Proof tracking test 188
G.3 Ball pressure test 188
Annex H (normative) Requirements related to functional safety 190
H.3 Terms and definitions 190
H.5 Information 201
H.9 Constructional requirements 203
H.13 Fault assessment on electronic circuits 219
H.17 Manufacturing deviation and drift 223
H.19 Endurance 225
H.25 Electromagnetic compatibility (EMC) requirements – Immunity 226
Annex I (normative) Requirements for certain types of DC supplied controls 244

I.1 Scope 244
Annex J (normative) Requirements for thermistor elements and controls using thermistors 246
J.1 Scope 246
Annex K (normative) Circuit for measuring touch current 263
Annex L (normative) Printed circuit board coating performance test 264
Annex M (normative) Printed circuit board protection 266
Annex N (informative) Explanatory notes for surge immunity test 269
N.1 Different source impedances 269
N.2 Application of the tests 269
N.3 Installation classification 270
Annex O (informative) Guidance for applying Clause 11 273
Annex P (normative) Requirements for SELV and PELV 276
P.1 Overview of the requirements for SELV and PELV 276
P.2 Protection against electric shock by SELV system or PELV system 276
P.3 Protective measures for SELV system and PELV system 277
Annex Q (informative) Regional differences relevant for the member countries of Cenelec 279
Annex R (informative) National differences relevant in the United States of America 283
R.2 Normative references 283
Annex S (informative) National differences relevant in Japan 284
S.2 Normative references 284
Annex T (informative) National differences relevant in Canada 285
T.2 Normative references 285
Annex AA (normative) Number of cycles 286
AA.1 Number of cycles for independently mounted controls 286
AA.2 Cycling rate for independently mounted controls 286
Annex BB (informative) Stainless steel for bellows, bourdon tubes or similar elements 287
Bibliography 290

Figure 1 – Example of ports 41
Figure 2 – Structure of the document with respect to inherent safety and functional safety 44
Figure 3 – Example of an electronic circuit with low power points 109
Figure 4 – Test pin probe 13 of IEC 61032:1997 160
Figure 5 – Test finger probe B of IEC 61032:1997 161
Figure 6 – Test fingernail 162
Figure 7 – Impact test for free-standing controls 163
Figure 8 – Tumbling barrel 163
Figure 9 – Apparatus for testing durability of markings on rating labels 164
Figure 10 – Apparatus for flexing test 164
Figure 11 – Screw terminals and stud terminals 165
Figure 12 – Pillar terminals 166
Figure 13 – Mantle terminals 167
Figure 14 – Saddle and lug terminals 168
Figure 15 – Tabs 169

Figure 16 – Tabs for non-reversible connectors 170
Figure 17 – Receptacles 171
Figure 18 – Measurement of creepage distance and clearance 172
Figure 19 – Diagram for touch current measurement at operating temperature for single-phase connection of class II controls 173
Figure 20 – Diagram for touch current measurement at operating temperature for single-phase connection of controls other than class II 173
Figure 21 – Diagram for touch current measurement at operating temperature for three-phase connection of class II controls 174
Figure 22 – Diagram for touch current measurement at operating temperature for three-phase connection of controls other than class II 175
Figure 23 – Diagram for touch current measurement at operating temperature for single-phase connection of controls to three-wire, ground neutral supply other than class II 175
Figure 24 – Diagram for touch current measurement at operating temperature for two-phase connection of controls to three-wire, ground neutral supply other than class II 176
Figure B.1 – Narrow groove 180
Figure B.2 – Wide groove 180
Figure B.3 – V-shaped groove 180
Figure B.4 – Rib 180
Figure B.5 – Uncemented joint with narrow groove 181
Figure B.6 – Uncemented joint with wide groove 181
Figure B.7 – Uncemented joint with narrow and wide grooves 181
Figure B.8 – Diverging side walls 182
Figure B.9 – Narrow recess 182
Figure B.10 – Wide recess 182
Figure B.11 – Conductive floating part 182
Figure H.1 – V-Model for the software life cycle 211
Figure H.2 – Voltage variation test 230
Figure J.1 – Generic test circuit for inrush-current limiting thermistor endurance test 262
Figure K.1 – Circuit for measuring touch currents 263
Figure L.1 – Test sample 265
Figure M.1 – Example of type 1 protection 267
Figure M.2 – Example of type 2 protection 268
Figure N.1 – Example of surge protection by shielding in buildings with common earth reference systems 271
Figure N.2 – Example of secondary surge protection in buildings with separate common earth reference systems 272
Figure N.3 – Example of primary and secondary surge protection of indoor/outdoor equipment 272
Figure O.1 – Guidance flowchart for application of requirements of Clause 11 274

Table 1 – Required technical information and methods of providing these information 51
Table 2 – Cross-sectional area of conductors 65
Table 3 – Terminal conductors 67

Table 4 – Conductor pull test values 67
Table 5 – Nominal cross-sectional areas of conductors 69
Table 6 – Axial force values for tab insertion and withdrawal 70
Table 7 – Minimum cord conductor sizes 82
Table 8 – Data exchange 89
Table 9 – Threaded parts torque test values 95
Table 10 – Rated impulse voltage for equipment energized directly from the supply mains (from IEC 60664-1:2007, Table F.1) 98
Table 11 – Clearances for insulation co-ordination (from IEC 60664-1:2007, Table F.2) 99
Table 12 – Minimum creepage distances for basic insulation 103
Table 13 – Minimum creepage distances for functional insulation 104
Table 14 – Electrical/electronic component fault modes 110
Table 15 – Minimum insulation resistance 117
Table 16 – Insulation or disconnection test voltages 118
Table 17 – Maximum heating temperatures 122
Table 18 – Electrical conditions for the overvoltage and endurance tests 128
Table 19 – Electrical conditions for the overload tests of 19.7 and 19.10 130
Table 20 – Electrical conditions for the endurance tests of 19.8, 19.9, 19.11, 19.12 and 19.13 131
Table 21 – Pull-cord force test values 139
Table 22 – Pull and torque values 141
Table 23 – Emission limit for residential electromagnetic environment 147
Table 24 – Emission limit for industrial electromagnetic environment 148
Table 25 – The applicable EMC test in relation to the class of control function and type of Action 150
Table 26 – Immunity test requirements for residential electromagnetic environments 152
Table 27 – Immunity test requirements for industrial electromagnetic environment 154
Table 28 – Performance criteria 156
Table 29 – Maximum winding temperature (for test of mechanical blocked output conditions) 159
Table B.1 – Value of X 179
Table C.1 – Inherent control or equivalent protective control 183
Table C.2 – Cases where protective control is necessary and control is provided by surge arresters having a ratio of clamping voltage to rated voltage not smaller than that specified by IEC 60099-1 184
Table E.1 – Typical usage 186
Table H.1 – Additional items to Table 1 201
Table H.2 – Acceptable measures to address fault/errors [a] 204
Table H.3 – Examples of techniques/measures for semi-formal methods 211
Table H.4 – Examples of techniques/measures for software architecture specification 212
Table H.5 – Examples of techniques/measures for module design specification 213
Table H.6 – Examples of techniques/measures for design and coding standards 213
Table H.7 – Examples of techniques/measures for software module testing 214
Table H.8 – Examples of techniques/measures for software integration testing 215
Table H.9 – Examples of techniques/measures for software safety validation 215

Table H.10 – Combinations of analytical measures during hardware development 216
Table H.11 – Examples of defences against unauthorised access and transmission failure modes 218
Table H.12 – Applicable test levels in addition to Clause 25 227
Table H.13 – Voltage dips, short interruptions and voltage variations 229
Table H.14 – Test values for voltage variations 230
Table H.15 – Test voltages for test level 2 (depending on the installation class conditions) 233
Table H.16 – Test level for electrical fast transient burst test 235
Table H.17 – Test levels for conducted disturbances on mains and I/O lines 237
Table H.18 – Test level for immunity to radiated electromagnetic fields 238
Table H.19 – Increased test level for radiated immunity 239
Table H.20 – Test level for supply frequency variations 240
Table H.21 – Test level for continuous fields 242
Table I.1 – Electrical transient conduction immunity in accordance with ISO 7637-2 244
Table I.2 – Electrical transient conduction immunity in accordance with ISO 7637-3 245
Table J.1 – Maximum current 248
Table J.2 – Normal operating conditions 249
Table J.3 – Samples for the test (clause reference) 250
Table J.4 – Electrical and thermal ratings of a thermistor 251
Table J.5 – Additional items to Table 1 252
Table J.6 – Sequence of calibration and conditioning tests for PTC thermistors 254
Table J.7 – Classes for PTC sensing thermistors 255
Table J.8 – Sequence of calibration and conditioning tests for NTC thermistors 256
Table J.9 – Classes for NTC sensing thermistors 256
Table J.10 – Number of cycles for endurance test 260
Table J.11 – Ageing test temperature 260
Table J.12 – Number of cycles for endurance test 261
Table L.1 – Environmental cycling conditions 264
Table M.1 – IEC 60664-3 test levels or conditions 266
Table O.1 – Example A – Using Annex O guidance for applying Clause 11 275
Table O.2 – Example B – Using Annex O guidance for applying Clause 11 275
Table Q.1 – Additional aging parameters for windings 280
Table AA.1 – Number of cycles for independently mounted controls 286
Table AA.2 – Cycling rate for independently mounted controls 286
Table BB.1 - Stainless steel for bellows, bourdon tubes or similar elements 287

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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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This extended version (EXV) of the official IEC Standard provides the user with the full content of the Standard.

IEC 60730-2-6:2025 EXV includes the content of IEC 60730-2-6:2025, and the references made to IEC 60730-1:2022.

The specific content of IEC 60730-2-6:2025 is displayed on a blue background.

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

This fourth edition cancels and replaces the third edition published in 2015 and its Amendment 1:2019. This edition constitutes a technical revision.

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

Adoption of IEC 60730-1:2022 with all of its significant changes to IEC 60730-1:2013, IEC 60730-1:2013/AMD 1:2015 and IEC 60730-1:2013/AMD2:2020.

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

Draft	Report on voting
72/1486/FDIS	72/1504/RVD

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

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

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

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

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

When a particular subclause of Part 1 is not mentioned in this Part 2, that 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 reader's attention is drawn to the fact that Annex Q, Annex R, Annex S and Annex T list all of the "in-some-country" clauses on differing practices of a less permanent nature relating to the subject of this document.

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 or items which are additional to those in Part 1 are numbered starting from 101, additional annexes are lettered AA, BB, etc.

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

– reconfirmed,

– withdrawn, or

– revised.

1 Scope

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;

– 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 document 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.

This document 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,

– pressure **sensing controls** where the performance (for example the effect of EMC phenomena) of the product can impair the overall safety and performance of the controlled system,

– the operating values, operating times, and operating sequences where such are associated with equipment safety.

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

This document does not

– apply to pressure **sensing controls** intended exclusively for industrial process applications unless explicitly mentioned in the relevant part 2 or the equipment standard. However, this document can be applied to evaluate automatic electrical controls intended specifically for industrial applications in cases where no relevant safety standard exists;
– take into account the response value of an automatic action of a pressure **sensing control**, if such a response value is dependent upon the method of mounting the control in the equipment. Where a response value is of significant purpose for the protection of the user, or surroundings, the value defined in the appropriate equipment standard or as determined by the manufacturer will apply;
– 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.

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

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

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

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60038, *IEC standard voltages*

IEC 60065:2014, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60085, *Electrical insulation – Thermal evaluation and designation*

IEC 60099-1:1991, *Surge arresters – Part 1: Non-linear resistor type gapped surge arresters for a.c. systems*[1]

IEC 60112:2020, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60127 (all parts), *Miniature fuses*

IEC 60227-1, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 1: General requirements*

IEC 60245-1, *Rubber insulated cables – Rated voltages up to and including 450/750 V – Part 1: General requirements*

[1] Withdrawn.

IEC 60269 (all parts), *Low-voltage fuses*

IEC 60335-1:2020, *Household and similar electrical appliances – Safety – Part 1: General requirements*

IEC 60384-14, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60384-16, *Fixed capacitors for use in electronic equipment – Part 16: Sectional specification – Fixed metallized polypropylene film dielectric DC capacitors*

IEC 60384-17, *Fixed capacitors for use in electronic equipment – Part 17: Sectional specification – Fixed metallized polypropylene film dielectric AC and pulse capacitors*

IEC 60417, *Graphical symbols for use on equipment*

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CONTENTS

FOREWORD 3
1 Scope 6
2 Normative references 7
3 Terms and definitions 7
4 General 8
5 Required technical information 9
6 Protection against electric shock 10
7 Provision for protective earthing 10
8 Terminals and terminations 10
9 Constructional requirements 10
10 Threaded parts and connections 12
11 Creepage distances, clearances and distances through solid insulation 12
12 Components 12
13 Fault assessment on electronic circuits 12
14 Moisture and dust resistance 12
15 Electric strength and insulation resistance 12
16 Heating 12
17 Manufacturing deviation and drift 13
18 Environmental stress 13
19 Endurance 13
20 Mechanical strength 14
21 Resistance to heat, fire and tracking 15
22 Resistance to corrosion 15
23 Electromagnetic compatibility (EMC) requirements - Emission 15
24 Normal operation 15
25 Electromagnetic compatibility (EMC) requirements - Immunity 16
26 Abnormal operation tests 16
Annex H (normative) Requirements related to functional safety 17
Annex Q (informative) Regional differences relevant for the member countries of Cenelec 28
Annex R (informative) National differences relevant in the United States of America 29
Annex S (informative) National differences relevant in Japan 30
Annex T (informative) National differences relevant in Canada 31
Annex AA (normative) Number of cycles 32
Annex BB (informative) Stainless steel for bellows, bourdon tubes or similar elements 33
Bibliography 36

Table 1 – Required technical information and methods of providing these information 9
Table H.1 – Additional items to Table 1.....17
Table AA.1 – Number of cycles for independently mounted controls 32
Table AA.2 – Cycling rate for independently mounted controls.....32
Table BB.1 - Stainless steel for bellows, bourdon tubes or similar elements.....33

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 fourth edition cancels and replaces the third edition published in 2015 and its Amendment 1:2019. This edition constitutes a technical revision.

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

Adoption of IEC 60730-1:2022 with all of its significant changes to IEC 60730-1:2013, IEC 60730-1:2013/AMD 1:2015 and IEC 60730-1:2013/AMD2:2020.

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

Draft	Report on voting
72/1486/FDIS	72/1504/RVD

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

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

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

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

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

When a particular subclause of Part 1 is not mentioned in this Part 2, that 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 reader's attention is drawn to the fact that Annex Q, Annex R, Annex S and Annex T list all of the "in-some-country" clauses on differing practices of a less permanent nature relating to the subject of this document.

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 or items which are additional to those in Part 1 are numbered starting from 101, additional annexes are lettered AA, BB, etc.

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

– reconfirmed,
– withdrawn, or
– revised.

1 Scope

This clause of Part 1 is replaced by the following:

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;

– 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 document 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.

This document 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,

– pressure **sensing controls** where the performance (for example the effect of EMC phenomena) of the product can impair the overall safety and performance of the controlled system,

– the operating values, operating times, and operating sequences where such are associated with equipment safety.

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

This document does not

– apply to pressure **sensing controls** intended exclusively for industrial process applications unless explicitly mentioned in the relevant part 2 or the equipment standard. However, this document can be applied to evaluate automatic electrical controls intended specifically for industrial applications in cases where no relevant safety standard exists;
– take into account the response value of an automatic action of a pressure **sensing control**, if such a response value is dependent upon the method of mounting the control in the equipment. Where a response value is of significant purpose for the protection of the user, or surroundings, the value defined in the appropriate equipment standard or as determined by the manufacturer will apply;
– 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.

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

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

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

2 Normative references

This clause of Part 1 is applicable.