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Edition 4.0 2025-08

INTERNATIONAL STANDARD

EXTENDED VERSION

This full version of IEC 60730-2-6:2025 includes the content of the references made to IEC 60730-1:2022

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

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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

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.
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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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

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:

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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.

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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**.

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– reconfirmed,

– withdrawn, or

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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*

IEC 60423, *Conduit systems for cable management – Outside diameters of conduits for electrical installations and threads for conduits and fittings*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP code)*
IEC 60529:1989/AMD1:1999
IEC 60529:1989/AMD2:2013

IEC 60539 (all parts), *Directly heated negative temperature coefficient thermistors*

IEC 60664-1:2007[2], *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC TR 60664-2 (all parts), *Insulation coordination for equipment within low-voltage systems*

IEC 60664-3:2016, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60664-4, *Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress*

IEC 60695-2-10, *Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure*

IEC 60695-2-11:2021, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 60695-10-2, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*

IEC 60738 (all parts), *Thermistors – Directly heated positive temperature coefficient*

IEC 60747-5-5, *Semiconductor devices – Part 5-5: Optoelectronic devices – Photocouplers*

IEC 60884-1, *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements*

[2] Withdrawn.

IEC 60884-2-5:2017, *Plugs and socket-outlets for household and similar purposes – Part 2-5: Particular requirements for adaptors*

IEC 60998-2-2, *Connecting devices for low-voltage circuits for household and similar purposes – Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units*

IEC 60998-2-3, *Connecting devices for low-voltage circuits for household and similar purposes – Part 2-3: Particular requirements for connecting devices as separate entities with insulation-piercing clamping units*

IEC 60999-1, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm^2 up to 35 mm^2 (included)*

IEC 61000-3-2, *Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)*

IEC 61000-3-3, *Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤16 A per phase and not subject to conditional connection*

IEC 61000-3-11, *Electromagnetic compatibility (EMC) – Part 3-11: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems – Equipment with rated current ≤ 75 A and subject to conditional connection*

IEC 61000-3-12, *Electromagnetic compatibility (EMC) – Part 3-12: Limits – Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤ 75 A per phase*

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:2014, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*
IEC 61000-4-5:2014/AMD1:2017

IEC 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-8, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with current up to 16 A per phase*

IEC 61000-4-13:2002, *Electromagnetic compatibility (EMC) – Part 4-13: Testing and measurement techniques – Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests*

IEC 61000-4-13:2002 /AMD1:2009
IEC 61000-4-13:2002 /AMD2:2015

IEC 61000-4-20, *Electromagnetic compatibility (EMC) – Part 4-20: Testing and measurement techniques – Emission and immunity testing in transverse electromagnetic (TEM) waveguides*

IEC 61000-4-21, *Electromagnetic compatibility (EMC) – Part 4-21: Testing and measurement techniques – Reverberation chamber test methods*

IEC 61000-4-22, *Electromagnetic compatibility (EMC) – Part 4-22: Testing and measurement techniques – Radiated emissions and immunity measurements in fully anechoic rooms (FARs)*

IEC 61000-4-28, *Electromagnetic compatibility (EMC) – Part 4-28: Testing and measurement techniques – Variation of power frequency, immunity test for equipment with input current not exceeding 16A per phase*

IEC 61000-6-1:2016, *Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity standard for residential, commercial and light-industrial environments*

IEC 61000-6-2:2016, *Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments*

IEC 61000-6-3:2020, *Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for equipment in residential environments*

IEC 61000-6-4:2018, *Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments*

IEC 61051-1, *Varistors for use in electronic equipment – Part 1: Generic specification*

IEC 61051-2, *Varistors for use in electronic equipment – Part 2: Sectional specification for surge suppression varistors*

IEC 61051-2-2, *Varistors for use in electronic equipment – Part 2: Blank detail specification for zinc oxide surge suppression varistors. Assessment level E*

IEC 61210, *Connecting devices – Flat quick-connect terminations for electrical copper conductors – Safety requirements*

IEC 61249 (all parts), *Materials for printed boards and other interconnecting structures*

IEC 61558-2-6, *Safety of transformers, reactors, power supply units and combinations thereof − Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers for general applications*

IEC 61558-2-16, *Safety of transformers, reactors, power supply units and combinations thereof − Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units for general applications*

IEC 61810-3, *Electromechanical elementary relays – Part 3: Replays with forcibly guided (mechanically linked) contacts*

IEC 62151, *Safety of equipment electrically connected to a telecommunication network*

IEC 62319 (all parts), *Polymeric thermistors – Directly heated positive step function temperature coefficient*

IEC 62326 (all parts), *Printed boards*

IEC 62368-1, *Audio/video, information and communication technology equipment – Part 1: Safety requirements*

IEC 63044 (all parts), *Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)*

CISPR 11, *Industrial, scientific and medical equipment – Radio-frequency disturbance characteristics – Limits and methods of measurement*

CISPR 14-1:2020, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission*

CISPR 32:2015, *Electromagnetic compatibility of multimedia equipment – Emission* requirements
CISPR 32:2015/AMD1:2019

ISO 4046-4:2016, *Paper, board, pulps and related terms − Vocabulary − Part 4: Paper and board grades and converted products*

ISO 7637-2:2011, *Road vehicles – Electrical disturbances from conduction and coupling – Part 2: Electrical transient conduction along supply lines only*

ISO 7637-3:2016, *Road vehicles – Electrical disturbances from conduction and coupling – Part 3: Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines*

ISO 16484 (all parts), *Building automation and control systems (BACS)*

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– 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.