



SLOVENSKI STANDARD

SIST EN 60730-2-5:1996

01-marec-1996

Automatic electrical controls for household and similar use - Part 2: Particular requirements for electrical controls for burner control systems (IEC 730-2-5:1993, modified)

Automatic electrical controls for household and similar use -- Part 2: Particular requirements for automatic electrical burner control systems

Automatische elektrische Regel- und Steuergeräte für den Hausgebrauch und ähnliche Anwendungen -- Teil 2: Besondere Anforderungen an automatische elektrische Brenner-Steuerungs- und Überwachungssysteme

Dispositifs de commande électrique automatiques à usage domestique et analogue -- Partie 2: Règles particulières pour les systèmes de commande électrique automatiques des brûleurs

Ta slovenski standard je istoveten z: EN 60730-2-5:1995

ICS:

97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use
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en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60730-2-5

March 1995

ICS 97.120

Supersedes EN 60730-2-5:1991

Descriptors: Electrical household appliance, control, automatic control, burner, operating safety, rating, requirement, test

English version

Automatic electrical controls for household and similar use
Part 2: Particular requirements for automatic
electrical burner control systems
(IEC 730-2-5:1993, modified)

Dispositifs de commande électrique
automatiques à usage domestique et
analogue
Partie 2: Règles particulières pour les
systèmes de commande électrique
automatiques des brûleurs
(CEI 730-2-5:1993, modifiée)

Automatische elektrische Regel- und
Steuergeräte für den Hausgebrauch und
ähnliche Anwendungen
Teil 2: Besondere Anforderungen an
automatische elektrische
Brenner-Steuerungs- und
Überwachungssysteme
(IEC 730-2-5:1993, modifiziert)

This European Standard was approved by CENELEC on 1994-12-06. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard has been prepared by the Technical Committee CENELEC TC 72, Automatic controls for household use.

It consists of the text of IEC 730-2-5:1993 and a number of common modifications which were submitted to the Unique Acceptance Procedure and approved by CENELEC as EN 60730-2-5 on 1994-12-06.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1995-12-15
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1997-12-15

For products which have complied with EN 60730-2-5:1991 before 1997-12-15, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2002-12-15.

This part 2 is to be used in conjunction with EN 60730-1:1995, Automatic electrical controls for household and similar use - Part 1: General requirements. Consideration may be given to future editions of, or amendments to, EN 60730-1.

This part 2 supplements or modifies the corresponding clauses of EN 60730-1 so as to convert it into the European Standard: Safety requirements for automatic electrical burner control systems.

Where a particular clause or subclause of part 1 is not mentioned in this part 2, that clause or subclause applies as far as is reasonable. Where this part 2 states "addition", "modification" or "replacement", the relevant text of part 1 is to be adapted accordingly.

Subclauses, notes, tables and figures which are in addition to those in part 1 are numbered 101, 102, etc.

Where reference is made to other international or harmonized standards, the edition of that standard quoted in annex ZA is applicable.

There are no special national conditions (snc) causing a deviation from this European Standard other than those listed in annex ZB of EN 60730-1.

National deviations from this European Standard are listed in annex ZC and are in addition to those in EN 60730-1:1995.

- NOTE: In this document, the following print types are used:
- requirements proper: in roman type;
 - *test specifications: in italic type;*
 - explanatory matter: in smaller roman type;
 - instructions for modification of the reference document: in bold type.

Endorsement notice

The text of the International Standard IEC 730-2-5:1993 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS**6 Classification**

6.11 Delete the addition and add to the text of 6.11:

... which shall not be less than 250 000

Replace "6.11.4 to 6.11.12 Not applicable" by:

6.11.1 to 6.11.12 Not applicable.

7 Information

Table 7.2 For item 34, add Method "D".

11 Constructional requirements

11.3.105 Replace by "void".

14 Heating

14.7 Delete "¹³⁾ Under consideration."

15 Manufacturing deviation and drift

15.7 Delete the explanation paragraph.

17 Endurance

17.16.102.1 a) Delete the explanation paragraph.

Annex H

H 26.9 Delete the explanation paragraph.

H 26.10 Delete.

H 26.11 Delete the explanation paragraph.

H 26.12.5 Replace the table by:

Frequency	Severity level	
	1	2
9 kHz to ≤ 27 MHz	under consideration	
> 27 MHz to ≤ 500 MHz	3 V/m	10 V/m
> 500 MHz to ≤ 1 GHz	under consideration	

Annex ZA (normative)

**Autres publications internationales citées dans la présente norme
avec les références des publications européennes correspondantes**

Addition:

<u>Publication</u>	<u>Date</u>	<u>Titre</u>	<u>EN/HD</u>	<u>Date</u>
CEI 989	1991	Transformateurs d'isolement à enroulements séparés, autotransformateurs, transformateurs variables et bobines d'inductance	-	-

Annexe ZB (normative)**Conditions nationales particulières**

Il n'y a pas de conditions nationales particulières (snc) conduisant à une déviation de la présente norme européenne autres que celles détaillées dans l'annexe ZB (normative) de l'EN 60730-1.

Annexe ZC (informative)**Divergences A***Addition:*

Annexe H Autriche (Bundesgesetzblatt - 19. Verordnung: Luftreinhalteverordnung für Kesselanlagen 1989 [LVR-K 1989, décret sur la protection de la pureté de l'air concernant l'équipement des chaudières]):

§ 8(1): les brûleurs atomiseurs de fuel ayant une puissance limite supérieure (quantité de chaleur du combustible à puissance maximale) jusqu'à 3 MW doivent satisfaire à l'ÖNORM M 7540, édition de décembre 1984: "Brûleurs à fuel. Définition des termes, exigences, identification des normes, essais"; les brûleurs à soufflage de gaz doivent répondre à l'ÖNORM M 7445, édition de juillet 1984, "brûleurs à soufflage de gaz".

Autriche (Oberösterreichische Gasverordnung - Verordnung der oberösterreichischen Landesregierung vom 6. April 1981 [décret du gouvernement de la Haute Autriche sur le gaz]).

§ 3, paragraphe 4.1.1.1: "Sont destinés à l'usage uniquement les appareils à gaz et lieux de consommation de gaz équipés de pleines sécurités anti-allumage conformément au paragraphe 6.3.7.1, et seuls sont autorisés à la connexion et au premier usage les dispositifs à pleine protection anti-allumage conformes à l'ÖNORM M 7416, parties 1 et 2."

**NORME
INTERNATIONALE
INTERNATIONAL
STANDARD**

**CEI
IEC
730-2-5**

Deuxième édition
Second edition
1993-11

**Dispositifs de commande électrique
automatiques à usage domestique
et analogue**

Partie 2:

Règles particulières pour les systèmes
de commande électrique automatiques
des brûleurs

**Automatic electrical controls for
household and similar use**

Part 2:

Particular requirements for automatic
electrical burner control systems

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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PRICE CODE

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Pour prix, voir catalogue en vigueur
For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**AUTOMATIC ELECTRICAL CONTROLS
FOR HOUSEHOLD AND SIMILAR USE**
**Part 2: Particular requirements for automatic
electrical burner control systems**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international cooperation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters, prepared by technical committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 3) They have the form of recommendations for international use published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

This part of International Standard IEC 730 has been prepared by IEC technical committee 72: Automatic controls for household use.

It forms the second edition of IEC 730-2-5 and supersedes the first edition (1990).

The text of this standard is based on the following documents

DIS	Report on voting
72(CO)87	72(CO)113
72(CO)88	72(CO)114
72(CO)110	72(CO)127
72(CO)125	72(CO)133

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Full information on the voting for the approval of this part can be found in the reports on voting indicated in the above table.

This part 2 is intended to be used in conjunction with IEC 730-1. It was established on the basis of the second edition (1993) of that publication. Consideration may be given to future editions of, or amendments to, IEC 730-1.

This part 2 supplements or modifies the corresponding clauses in IEC 730-1 so as to convert into the IEC standard: Safety requirements for automatic electrical burner control systems.

Where this part 2 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 part 2 indicates that the relevant clause of 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 country and to recognize the variation in national electrical systems and wiring rules.

The "in some countries" notes regarding differing national practice are contained in the following subclauses:

6.11	H26.9
15.7	H26.10
17.16.102.1	H26.11

NOTES

1 The following print types are used:

- Requirements proper: in roman type;
- *Test specifications: in italic type;*
- Explanatory matter; in small roman type.

2 Subclauses, notes, tables and figures which are additional to those in part 1 are numbered starting from 101.

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AUTOMATIC ELECTRICAL CONTROLS FOR HOUSEHOLD AND SIMILAR USE

Part 2: Particular requirements for automatic electrical burner control systems

1 Scope and normative references

This clause of part 1 is applicable except as follows:

1.1 *Replacement:*

This part of International Standard IEC 730 applies to automatic electrical burner control systems for the automatic control of burners for oil, gas, coal or other combustibles for household and similar use including heating, air conditioning and similar use.

This part 2 is applicable to a complete burner control system and to a separate programming unit. This part 2 is also applicable to a separate electronic high voltage ignition source and to a separate flame detector.

Separate ignition devices (electrodes, pilot burners, etc.) are not covered by this part 2 unless they are submitted as part of a burner control system.

Requirements for separate ignition transformers are contained in IEC 989.

Burner controls systems utilizing thermoelectric flame supervision are not covered by this part 2.

1.1.1 This part 2 applies to the inherent safety, to the manufacturer's declared operating values, operating times and operating sequences where such are associated with burner safety and to the testing of automatic electrical burner control systems used in, on, or in association with burners.

Requirements for specific operating values, operating times and operating sequences are given in the standards for appliances and equipment.

Automatic electrical controls for equipment not intended for normal household use, but which nevertheless may be used by the public, such as equipment intended to be used by laymen in shops, in light industry and on farms, are within the scope of this part 2.

This part 2 applies to automatic electric controls using NTC or PTC thermistors, additional requirements for which are contained in annex J.

This part 2 does not apply to automatic electrical controls designed exclusively for industrial applications.

1.1.2 This part 2 applies to manual controls when such are electrically and/or mechanically integral with automatic controls.

Requirements for manual switches not forming part of an automatic control are contained in IEC 1058-1.

Throughout this part 2, the word "equipment" means "appliance and equipment".

1.2 Replacement:

This part 2 applies to controls with a rated voltage not exceeding 660 V and with a rated current not exceeding 63 A.

1.3 Replacement:

This part 2 does not take into account the response value of an automatic action of a 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 household equipment standard or as determined by the manufacturer shall apply.

This part 2 includes controls responsive to flame properties.

1.4 Replacement:

This part 2 applies also to controls incorporating electronic devices, requirements for which are contained in annex H.

1.5 Normative references:

Addition:

IEC 989: 1991, *Separating transformers, autotransformers, variable transformers and reactors.*

2 Definitions

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This clause of part 1 is applicable except as follows:

2.2 Definitions of types of controls according to purpose

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Additional definitions:

2.2.101 burner control system: A system which monitors the operation of fuel burners. It includes a programming unit, a flame detector and may include an ignition source and/or ignition device.

The various functions of an automatic burner control system may be in one or more housings.

2.2.102 flame detector: A device which provides the programming unit with a signal indicating the presence or absence of flame.

It includes the flame sensor and may include an amplifier and a relay for signal transmission. The amplifier and relay may be in its own housing or combined with the programming unit.

2.2.103 flame sensor: A device which senses the flame and provides the input signal to the flame detector amplifier.

Examples are optical sensors and flame electrodes (flame rods).

2.2.104 Ignition source: An electrical or electronic system which provides energy to an ignition device.

It may be separated from or incorporated in the programming unit. Examples are ignition transformers and electronic high voltage generators.

2.2.105 Ignition device: A device mounted on or adjacent to a burner for igniting fuel at the burner.

Examples are pilot burners, spark electrodes and hot surface igniters.

2.2.106 programming unit: A device which controls the burner operation in a declared sequence from start-up to shutdown within declared timings and in response to signals from regulating, limiting and monitoring devices.

2.3 Definitions relating to the function of controls

2.3.30 T_{\max}

Replace "switch head" by "burner control system."

Additional definitions:

2.3.101 automatic recycling: The automatic repetition of the start-up procedure, without manual intervention, following loss of the supervised flame and subsequent fuel supply shut off.

2.3.102 controlled shutdown: The de-energization of the fuel flow means as a result of the opening of a control loop by a control device such as a thermostat. The burner control system returns to the start position.

Controlled shutdown may include additional actions by the burner control system.

2.3.103: flame detector response time: The period of time between the loss of the sensed flame and the signal indicating the absence of flame.

2.3.104 flame detector operating characteristics: That function of the flame detector which indicates absence or presence of flame as the output signal of the flame detector relating to the input signal.

Normally the input signal is provided by a flame sensor.

2.3.104.1 signal for presence of flame (S_p): The minimum signal which indicates the presence of flame when there was previously no flame.