

**BRITISH STANDARD**

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**BS EN  
60730-2-10 :  
1995**

*Incorporating  
Amendment No. 1*

**Specification for**

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

**Part 2. Particular requirements**

**Section 2.10 Motor starting relays**

The European Standard EN 60730-2-10 : 1995, with the incorporation of amendment A1 : 1996, has the status of a British Standard

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## Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee CPL/72, Electrical control devices for household equipment and appliances, upon which the following bodies were represented:

Association of Control Manufacturers (BEAMA Ltd.)  
 Association of Manufacturers of Domestic Electrical Appliances  
 British Combustion Equipment Manufacturers' Association  
 British Electrotechnical Approvals Board  
 British Gas plc  
 British Refrigeration Association  
 Consumer Policy Committee of BSI  
 Department of the Environment (Building Research Establishment)  
 Department of Trade and Industry (Consumer Safety Unit, CA Division)  
 Electricity Association  
 ERA Technology Ltd.  
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 Society of British Gas Industries

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Page	Issue	Page	Issue
Front cover	2	4a	1
Inside front cover	2	4b	blank
a	1	5	original
b	blank	6	original
i	original	7	original
ii	2	8	original
iii	1	9	2
iv	blank	9a	1
EN cover page	2	9b	1
2	2	10	original
3	2	Inside back cover	original
4	2	Back cover	original



## Contents

	Page
Committees responsible	Inside front cover
National foreword	i
Foreword	2
Text of EN 60730-2-10	3
National annex NA (informative) Original IEC text amended by CENELEC common modifications	Inside back cover



\*S\*

## National foreword

This British Standard has been prepared by Technical Committee CPL/72 and is the English language version of EN 60730-2-10 : 1995 *Automatic electrical controls for household and similar use Part 2: Particular requirements for motor starting relays*, including its corrigendum March 1995 and Amendment A1 : 1996, published by the European Committee for Electrotechnical Standardization (CENELEC). It was derived by CENELEC from IEC 730-2-10: 1991 *Automatic electrical controls for household and similar use Part 2: Particular requirements for electrically operated motor starting relays*, including Amendment 1 : 1994 published by the International Electrotechnical Commission (IEC).

The CENELEC common modifications have been implemented at the appropriate places in the text and are indicated by a side line in the margin. Parts of the original IEC text that have been modified by CENELEC have been quoted in national annex NA.

The foreword EN 60730-2-10 makes reference to the 'date of withdrawal', dow, of the relevant national standard. In this case the relevant national standard is BS 3955 which will cease to be applicable to motor starting relays within the scope of BS EN 60730-2-10 on 1 July 1998. Certification and marks will not be awarded after this date with respect to BS 3955. However, such certification and marks, already awarded, may continue to apply to production until 1 July 2003. BS 3955 will be progressively amended to delete specific controls at the dates of withdrawal agreed.

The foreword of amendment A1 to EN 60730-2-10 makes reference to the 'date of withdrawal' (dow) of conflicting national standards as 1996-12-01. In this case the conflicting national standard is BS EN 60730-2-10 : 1995 but the 'dow' relates only to those parts of the British Standard subject to Amendment No. 1. Certificates and Marks will not be awarded after this date with respect to the British Standard not incorporating Amendment No. 1. They will be awarded with respect only to the amended British Standard. However, such certificates and marks already awarded with respect to the British Standard not incorporating Amendment No. 1 may continue to apply to production until 2001-12-01.

This British Standard is to be read in conjunction with BS EN 60730-1 : 1992 *General requirements* and its amendments 1 and 2, which it supplements or modifies. The many references to Part 1 should be read as references to BS EN 60730-1 : 1992, which is the English language version of EN 60730-1 : 1991 which was derived from IEC 730-1 : 1986. Consideration may be given to future editions of, or amendments to, BS EN 60730-1.

#### Cross-references

International Standard	Corresponding British Standard
IEC 947-4-1 : 1990	BS EN 60947 : 1992 <i>Specification for low-voltage switchgear and controlgear</i> Part 4. <i>Contactors and motor-starters</i> Section 1 : 1992 <i>Electromechanical contactors and motor-starters</i>
HD 419 Series	BS 5425 <i>Specification for controlgear for voltages up to and including 1000 V a.c. and 1200 V d.c.</i>
EN 60730-2-1 : 1991	BS EN 60730 <i>Automatic electrical controls for household and similar use</i> Part 2. <i>Particular requirements</i> Section 2.1 : 1992 <i>Electrical controls for electrical household appliances</i>
EN 61058-1 : 1992	BS EN 61058 : 1992 <i>Switches for appliances</i> Part 1 : 1992 <i>General requirements</i>

**Product approval.** Attention is drawn to the fact that products conforming to this British Standard may be approved by the British Electrotechnical Approvals Board for the purposes of participation in the CENELEC Certification Agreement and in the CB Scheme of the IECEE. (Details of the BEAB Approval Scheme are given on the inside back cover.)

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 60730-2-10

February 1995

+ A1

February 1996

ICS 97.120

Incorporates corrigendum March 1995

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English version

Automatic electrical controls for household and  
similar use  
Part 2: Particular requirements for motor starting relays  
(includes amendment A1 : 1996)

(IEC 730-2-10 : 1991 + A1 : 1994, modified)

Dispositifs de commande électrique  
automatiques à usage domestique et analogue  
Partie 2: Règles particulières pour les relais  
électriques de démarrage de moteur  
(inclut l'amendement A1 : 1996)  
(CEI 730-2-10 : 1991 + A1 : 1994, modifiée)

Automatische elektrische Regel- und  
Steuergeräte für den Hausgebrauch und  
ähnliche Anwendungen  
Teil 2: Besondere Anforderungen an  
Motorstartrelais (enthält Änderung A1 : 1996)  
(IEC 730-2-10 : 1991 + A1 : 1994, modifiziert)

This European Standard was approved by CENELEC on 1994-09-01, amendment A1 was approved by CENELEC on 1995-11-28. 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.

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

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

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Ref. No. EN 60730-2-10 : 1995 + A1 : 1996 E

## Foreword

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

It consists of the text of IEC 730-2-10 : 1991 and a number of common modifications which were submitted to the formal vote and approved by CENELEC as EN 60730-2-10 on 1994-09-01.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1995-07-01
- latest date of withdrawal of conflicting national standards (dow) 1998-07-01

For products which have complied with the relevant national standard before 1998-07-01 as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2003-07-01.

This Part 2 has to be used in conjunction with EN 60730-1 : 1991 *Automatic electrical controls for household and similar use — Part 1: General requirements*, and its amendments A1 : 1991, A11 : 1991 and A12 : 1993. Consideration may be given to future editions of, or amendments to, EN 60730-1.

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

Subclauses which are in addition to those in IEC 730-1 are numbered 101, 102, etc., additional appendices are labelled AA, BB etc. CENELEC annexes are numbered ZA, ZB, etc.

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

Where reference is made to other international or harmonized standards, the edition of that standard quoted in annex ZB (normative) is applicable

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**

## Foreword to amendment A1

The text of amendment 1 : 1994 to the International Standard IEC 730-2-10 : 1991, prepared by IEC TC 72, Automatic controls for household use, was submitted to the formal vote and was approved by CENELEC as amendment A1 to EN 60730-2-10 ; 1995 on 1995-11-28 without any modification.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-12-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1996-12-01

For products which have complied with EN 60730-2-10 : 1995 before 1996-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2001-12-01.

NOTE. EN 60730-2-10 originally referred to EN 60730-1 : 1991 and its amendments A1 : 1991, A11 : 1991 and A12 : 1993. This amendment enables EN 60730-2-10 to be used with EN 60730-1 : 1995.



**CONTENTS**

	<b>Page</b>
FOREWORD .....	2
<b>Clause</b>	
1 Scope and normative references.....	4
2 Definitions .....	5
3 General requirements .....	5
4 General notes on tests .....	5
5 Rating .....	6
6 Classification .....	6
7 Information .....	7
8 Protection against electric shock .....	7
9 Provision for protective earthing .....	7
10 Terminals and terminations .....	7
11 Constructional requirements .....	7
12 Moisture and dust resistance .....	7
13 Electric strength and insulation resistance .....	7
14 Heating .....	8
15 Manufacturing deviation and drift .....	8
16 Environmental stress .....	8
17 Endurance .....	8
18 Mechanical strength .....	8
19 Threaded parts and connections .....	8
20 Creepage distances, clearances and distances through insulation .....	8
21 Resistance to heat, fire and tracking .....	8
22 Resistance to corrosion .....	9
23 Radio interference suppression .....	9
24 Components .....	9
25 Normal operation .....	9
26 Operation with mains-borne perturbations, magnetic and electromagnetic disturbances .....	9
27 Abnormal operation .....	9
28 Guidance on the use of electronic disconnection.....	9
FIGURES .....	9
ANNEXES.....	9
Annex ZB (normative) Other international publications quoted in this standard with the references of the relevant European publications.....	10



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## AUTOMATIC ELECTRICAL CONTROLS FOR HOUSEHOLD AND SIMILAR USE

### Part 2: Particular requirements for motor starting relays

#### 1 Scope and normative references

This clause of Part 1 is replaced as follows:

1.1 This part of European Standard EN 60730 applies to controls for automatically controlling the starting windings of single phase motors associated with equipment for household and similar use.

This standard applies to motor-starting relays using NTC or PTC thermistors, additional requirements for which are contained in Appendix J.

**1.1.1 This Part 2 applies to the inherent safety, to the operating values, operating times and operating sequences where such are associated with equipment safety, and to the testing of motor starting relays used in, or in association with, household or similar equipment.**

Motor-starting relays 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 standard.

This standard does not apply to motor-starting relays designed exclusively for industrial applications.

Throughout this Part 2, the word "equipment" means "appliance and equipment". The words "starting relay" mean "motor starting relay".

EN 60730-2-1 does not apply to electrically operated motor starting relays.

**1.1.2 This Part 2 applies to starting relays incorporating electronic devices, starting relays using thermistor elements, thermal elements and magnetic elements.**

1.1.3 This Part 2 does not apply to general purpose relays or to contactors and motor starters of the type covered by HD 419 and IEC 947-4-1. This standard does not apply to mechanical timers or mechanically operated motor starting devices.

**1.1.4 This Part 2 applies to manual controls when such are electrically and/or mechanically integral with starting relays.**

Requirements for manual switches not forming part of a starting relay are contained in IEC 1058-1.

**1.2 This Part 2 applies to starting relays with a rated voltage not exceeding 660 V and with a rated current not exceeding 63 A.**

**1.3 This Part 2 does not take into account the response value of an automatic action of a starting relay, if such a response value is dependent upon the method of mounting the starting relay 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.**

|| 1.4 This standard applies also to motor-starting relays incorporating electronic devices, requirements for which are contained in annex H.

|| 1.5 *Normative references*

|| This subclause of Part 1 is applicable.



## 2 Definitions

This clause of Part 1 is applicable except as follows:

### 2.2 Definitions of types of control according to purpose

*Additional definition:*

#### 2.2.101 Motor starting relay

Motor starting relay denotes an electrically operated control intended for integration or incorporation in an appliance and used within a motor circuit to control the connection between the main winding and the auxiliary starting winding for the purpose of starting single-phase motors in household appliances and similar applications.

Normally a motor starting relay will provide a Type 1 action.

### 2.3 Definitions relating to the function of controls

*Additional definitions:*

#### 2.3.101 Pick-up value

Pick-up value denotes the value of voltage or current at which an electro-magnetic starting relay operates on a rise in voltage or current.

#### 2.3.102 Drop-out value

Drop-out value denotes the value of voltage or current at which an electro-magnetic starting relay operates on a fall in voltage or current.

#### 2.3.103 Contact change value

Contact change value denotes the declared value of voltage or current at which an electro-thermal starting relay operates on a rise in voltage or current.

#### 2.3.104 Contact hold value

Contact hold value denotes the declared value of voltage or current at which an electro-thermal starting relay remains in its operated state on a fall in voltage or current.

## 3 General requirements

This clause of Part 1 is applicable.

## 4 General notes on tests

This clause of Part 1 is applicable.

## 5 Rating

This clause of Part 1 is applicable.

## 6 Classification

This clause of Part 1 is applicable except as follows:

### 6.3 According to their purpose

*Additional subclauses:*

6.3.101 - motor starting relays;

6.3.101.1 • voltage sensing;

6.3.101.2 • current sensing;

6.3.101.3 • PTC;

6.3.101.4 • thermally operated.

6.13 According to value of proof tracking index (PTI) for the insulation material used.

6.13.1 Not applicable.

### 6.15 According to construction

*Replacement:*

#### 6.15 Integrated or incorporated

6.15.1 - electronic;

6.15.2 - electro-magnetic;

6.15.3 - PTC thermistor;

6.15.4 - thermally operated.

The constructions in 6.15.2 to 6.15.4 inclusive may incorporate electronic parts even though their primary construction is as indicated.

**7 Information**

This clause of Part 1 is applicable except as follows:

Table 7.2

*Addition:*

Requirement	Information	Clause or subclause	Method
101	Pick-up value	2.3.101	x
102	Drop-out value	2.3.102	x
103	Contact change value	2.3.103	x
104	Contact hold value	2.3.104	x

**8 Protection against electric shock**

This clause of Part 1 is applicable.

**9 Provision for protective earthing**

This clause of Part 1 is applicable.

**10 Terminals and terminations**

This clause of Part 1 is applicable.

**11 Constructional requirements**

This clause of Part 1 is applicable.

**12 Moisture and dust resistance**

This clause of Part 1 is applicable.

**13 Electric strength and insulation resistance**

This clause of Part 1 is applicable.

**14 Heating**

This clause of Part 1 is applicable except as follows:

14.4.3.1 Not applicable.

14.4.3.2 Not applicable.

**15 Manufacturing deviation and drift**

This clause of Part 1 is applicable.

**16 Environmental stress**

This clause of Part 1 is applicable.

**17 Endurance**

This clause of Part 1 is applicable except as follows:

17.9 to 17.13 Not applicable.

17.15 Not applicable.

**18 Mechanical strength**

This clause of Part 1 is applicable.

**19 Threaded parts and connections**

This clause of Part 1 is applicable.

**20 Creepage distances, clearances and distances through insulation**

This clause of Part 1 is applicable.

**21 Resistance to heat, fire and tracking**

This clause of Part 1 is applicable.

**22 Resistance to corrosion**

This clause of Part 1 is applicable.

**23 Radio Interference suppression**

This clause of Part 1 is applicable.

**24 Components**

| This clause of Part 1 is applicable.

**25 Normal operation**

See Appendix H.

**26 Operation with mains-borne perturbations, magnetic and electromagnetic disturbances**

See Appendix H.

**27 Abnormal operation**

|| This clause of Part 1 is applicable.

|| See also annex H.

**28 Guidance on the use of electronic disconnection**

|| See annex H.

**FIGURES**

The figures of Part 1 are applicable.





**Annexes**

The annexes of Part 1 are applicable, except as follows:

**Annex C**  
(normative)**Cotton used for mercury switch test**

Not applicable.

**Annex E**  
(normative)**Circuit for measuring leakage current**

Not applicable.

**Annex H**  
(normative)**Requirements for electronic controls**

The annex of Part 1 is applicable except as follows.

**H17 Endurance**

|| This clause of Annex H is applicable except as follows:

**H17.1.4.2 Thermal cycling test****a) Replacement:**

The duration of the test is 18 days.

**H26 Operation with mains-borne perturbations, magnetic and electromagnetic disturbances****H26.2.1 Replacement:**

*For motor-starting relays, compliance is checked by the tests of H26.8 and H26.9.*

*For motor-starting relays, the remaining disturbances of H26.4 to H26.12 will not result in an inherent hazard. Inherent hazards and changes in output are assessed by the remaining tests of this standard.*

**H26.9 Fast transient bursts test**

*Add the following subclause:*

**H26.9.101 Test procedure**

The control is subjected to five tests.

**H26.13 Evaluation of compliance****H26.13.2 Replace first explanatory paragraph by:**

*Failure to operate is permitted. In case of compliance with the second alternative, the acceptability of the declared output must be assessed in the final application to determine if such an output does not result in an unsafe operation.*

**H27 Abnormal operation****H27.2 Burn-out test**

*Modify the explanatory paragraph:*

*For motor-starting relays, compliance with this requirement is established by successful completion of the test of clause 17.*

**H27.3 Over-voltage and under-voltage test**

Not applicable.

**Annex ZB (normative)**

**Other international publications quoted in this standard with the references of the relevant European publications**

**Additions/modifications to EN 60730-1 : 1991 annex ZB**

**Replace** the reference to prEN 61058-1 : 1992 by EN 61058-1 : 1992.

**Add** under IEC Publication:

158(mod) 292	Series	<i>Low-voltage controlgear</i>	HD 419	Series
superseded by: 947-4-1	1990	<i>Low-voltage switchgear and controlgear Part 4: Contactor and motor-starters Section One — Electromechanical contactors and motor-starters</i>	EN 60947-4-1	1992

## National annex NA

### Original IEC text amended by CENELEC common modifications

#### Title

The words 'electrically operated' have been deleted from the title.

#### 1. Scope

1.1 The words 'International Standard IEC 730' have been replaced by 'European Standard EN 60730'.

1.1.3 'IEC 158 and 292' have been replaced by 'HD 419 and IEC 947-4-1'.

1.1.4 'IEC 328' has been replaced by 'IEC 1058-1'.

#### 6. Classification

6.13 The words 'comparative tracking index (CTI)' have been replaced by 'proof tracking index (PTI)'.

#### 13. Electric strength and insulation resistance

The text of this clause has been replaced. It read as follows.

This clause of Part 1 is applicable except as follows:

*Additional note to Table 13.2:*

101) In Canada and the USA other values are applicable.

#### 20. Creepage distances, clearances and distances through insulation

The text of this clause has been replaced. It read as follows.

This clause of Part 1 is applicable except as follows:

*Modification:*

*After title, delete '(under consideration).'*

#### 24. Components

The text of this clause has been replaced. It read as follows. 'Under consideration.'

#### Appendix H Requirements for electronic controls

##### H26 Operation with mains-borne perturbations, magnetic and electromagnetic disturbance.

The text of this clause has been replaced. It read as follows. 'Under consideration.'

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## List of references

See national foreword.

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**Specification for automatic electrical controls for household and similar use**  
**Part 2. Particular requirements**  
**Section 2.10 Motor starting relays**

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- Department of the Environment (Building Research Establishment)
- Department of Trade and Industry (Consumer Safety Unit, CA Division)
- Electricity Association
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iii	1	9	2
iv	blank	9a	1
EN cover page	2	9b	1
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3	2	Inside back cover	original
4	2	Back cover	original



## Contents

	Page
Committees responsible	Inside front cover
National foreword	i
Foreword	2
Text of EN 60730-2-10	3
National annex NA (informative) Original IEC text amended by CENELEC common modifications	Inside back cover



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## National foreword

This British Standard has been prepared by Technical Committee CPL/72 and is the English language version of EN 60730-2-10 : 1995 *Automatic electrical controls for household and similar use Part 2: Particular requirements for motor starting relays*, including its corrigendum March 1995 and Amendment A1 : 1996, published by the European Committee for Electrotechnical Standardization (CENELEC). It was derived by CENELEC from IEC 730-2-10: 1991 *Automatic electrical controls for household and similar use Part 2: Particular requirements for electrically operated motor starting relays*, including Amendment 1 : 1994 published by the International Electrotechnical Commission (IEC).

The CENELEC common modifications have been implemented at the appropriate places in the text and are indicated by a side line in the margin. Parts of the original IEC text that have been modified by CENELEC have been quoted in national annex NA.

The foreword EN 60730-2-10 makes reference to the 'date of withdrawal', dow, of the relevant national standard. In this case the relevant national standard is BS 3955 which will cease to be applicable to motor starting relays within the scope of BS EN 60730-2-10 on 1 July 1998. Certification and marks will not be awarded after this date with respect to BS 3955. However, such certification and marks, already awarded, may continue to apply to production until 1 July 2003. BS 3955 will be progressively amended to delete specific controls at the dates of withdrawal agreed.

The foreword of amendment A1 to EN 60730-2-10 makes reference to the 'date of withdrawal' (dow) of conflicting national standards as 1996-12-01. In this case the conflicting national standard is BS EN 60730-2-10 : 1995 but the 'dow' relates only to those parts of the British Standard subject to Amendment No. 1. Certificates and Marks will not be awarded after this date with respect to the British Standard not incorporating Amendment No. 1. They will be awarded with respect only to the amended British Standard. However, such certificates and marks already awarded with respect to the British Standard not incorporating Amendment No. 1 may continue to apply to production until 2001-12-01.

This British Standard is to be read in conjunction with BS EN 60730-1 : 1992 *General requirements* and its amendments 1 and 2, which it supplements or modifies. The many references to Part 1 should be read as references to BS EN 60730-1 : 1992, which is the English language version of EN 60730-1 : 1991 which was derived from IEC 730-1 : 1986. Consideration may be given to future editions of, or amendments to, BS EN 60730-1.

#### Cross-references

International Standard	Corresponding British Standard
IEC 947-4-1 : 1990	BS EN 60947 : 1992 <i>Specification for low-voltage switchgear and controlgear</i> Part 4. <i>Contactors and motor-starters</i> Section 1 : 1992 <i>Electromechanical contactors and motor-starters</i>
HD 419 Series	BS 5425 <i>Specification for controlgear for voltages up to and including 1000 V a.c. and 1200 V d.c.</i>
EN 60730-2-1 : 1991	BS EN 60730 <i>Automatic electrical controls for household and similar use</i> Part 2. <i>Particular requirements</i> Section 2.1 : 1992 <i>Electrical controls for electrical household appliances</i>
EN 61058-1 : 1992	BS EN 61058 : 1992 <i>Switches for appliances</i> Part 1 : 1992 <i>General requirements</i>

**Product approval.** Attention is drawn to the fact that products conforming to this British Standard may be approved by the British Electrotechnical Approvals Board for the purposes of participation in the CENELEC Certification Agreement and in the CB Scheme of the IECEE. (Details of the BEAB Approval Scheme are given on the inside back cover.)

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 60730-2-10

February 1995

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Descriptors: Electrical household appliance, control, automatic control, definition, requirement, test, electrical relay, single phase motor

English version

Automatic electrical controls for household and  
similar use  
Part 2: Particular requirements for motor starting relays  
(includes amendment A1 : 1996)

(IEC 730-2-10 : 1991 + A1 : 1994, modified)

Dispositifs de commande électrique  
automatiques à usage domestique et analogue  
Partie 2: Règles particulières pour les relais  
électriques de démarrage de moteur  
(inclut l'amendement A1 : 1996)  
(CEI 730-2-10 : 1991 + A1 : 1994, modifiée)

Automatische elektrische Regel- und  
Steuergeräte für den Hausgebrauch und  
ähnliche Anwendungen  
Teil 2: Besondere Anforderungen an  
Motorstartrelais (enthält Änderung A1 : 1996)  
(IEC 730-2-10 : 1991 + A1 : 1994, modifiziert)

This European Standard was approved by CENELEC on 1994-09-01, amendment A1 was approved by CENELEC on 1995-11-28. 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.

## 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

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Ref. No. EN 60730-2-10 : 1995 + A1 : 1996 E

**Foreword**

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

It consists of the text of IEC 730-2-10 : 1991 and a number of common modifications which were submitted to the formal vote and approved by CENELEC as EN 60730-2-10 on 1994-09-01.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1995-07-01
- latest date of withdrawal of conflicting national standards (dow) 1998-07-01

For products which have complied with the relevant national standard before 1998-07-01 as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2003-07-01.

This Part 2 has to be used in conjunction with EN 60730-1 : 1991 *Automatic electrical controls for household and similar use — Part 1: General requirements*, and its amendments A1 : 1991, A11 : 1991 and A12 : 1993. Consideration may be given to future editions of, or amendments to, EN 60730-1.

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

Subclauses which are in addition to those in IEC 730-1 are numbered 101, 102, etc., additional appendices are labelled AA, BB etc. CENELEC annexes are numbered ZA, ZB, etc.

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

Where reference is made to other international or harmonized standards, the edition of that standard quoted in annex ZB (normative) is applicable

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**

**Foreword to amendment A1**

The text of amendment 1 : 1994 to the International Standard IEC 730-2-10 : 1991, prepared by IEC TC 72, Automatic controls for household use, was submitted to the formal vote and was approved by CENELEC as amendment A1 to EN 60730-2-10 ; 1995 on 1995-11-28 without any modification.

The following dates were fixed:

- latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1996-12-01
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 1996-12-01

For products which have complied with EN 60730-2-10 : 1995 before 1996-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2001-12-01.

NOTE. EN 60730-2-10 originally referred to EN 60730-1 : 1991 and its amendments A1 : 1991, A11 : 1991 and A12 : 1993. This amendment enables EN 60730-2-10 to be used with EN 60730-1 : 1995.

## CONTENTS

	<b>Page</b>
FOREWORD .....	2
<b>Clause</b>	
1 Scope and normative references.....	4
2 Definitions .....	5
3 General requirements .....	5
4 General notes on tests .....	5
5 Rating .....	6
6 Classification .....	6
7 Information .....	7
8 Protection against electric shock .....	7
9 Provision for protective earthing .....	7
10 Terminals and terminations .....	7
11 Constructional requirements .....	7
12 Moisture and dust resistance .....	7
13 Electric strength and insulation resistance .....	7
14 Heating .....	8
15 Manufacturing deviation and drift .....	8
16 Environmental stress .....	8
17 Endurance .....	8
18 Mechanical strength .....	8
19 Threaded parts and connections .....	8
20 Creepage distances, clearances and distances through insulation .....	8
21 Resistance to heat, fire and tracking .....	8
22 Resistance to corrosion .....	9
23 Radio interference suppression .....	9
24 Components .....	9
25 Normal operation .....	9
26 Operation with mains-borne perturbations, magnetic and electromagnetic disturbances .....	9
27 Abnormal operation .....	9
28 Guidance on the use of electronic disconnection.....	9
FIGURES .....	9
ANNEXES.....	9
Annex ZB (normative) Other international publications quoted in this standard with the references of the relevant European publications.....	10

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## AUTOMATIC ELECTRICAL CONTROLS FOR HOUSEHOLD AND SIMILAR USE

### Part 2: Particular requirements for motor starting relays

#### 1 Scope and normative references

This clause of Part 1 is replaced as follows:

1.1 This part of European Standard EN 60730 applies to controls for automatically controlling the starting windings of single phase motors associated with equipment for household and similar use.

This standard applies to motor-starting relays using NTC or PTC thermistors, additional requirements for which are contained in Appendix J.

**1.1.1 This Part 2 applies to the inherent safety, to the operating values, operating times and operating sequences where such are associated with equipment safety, and to the testing of motor starting relays used in, or in association with, household or similar equipment.**

Motor-starting relays 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 standard.

This standard does not apply to motor-starting relays designed exclusively for industrial applications.

Throughout this Part 2, the word "equipment" means "appliance and equipment". The words "starting relay" mean "motor starting relay".

EN 60730-2-1 does not apply to electrically operated motor starting relays.

**1.1.2 This Part 2 applies to starting relays incorporating electronic devices, starting relays using thermistor elements, thermal elements and magnetic elements.**

1.1.3 This Part 2 does not apply to general purpose relays or to contactors and motor starters of the type covered by HD 419 and IEC 947-4-1. This standard does not apply to mechanical timers or mechanically operated motor starting devices.

**1.1.4 This Part 2 applies to manual controls when such are electrically and/or mechanically integral with starting relays.**

Requirements for manual switches not forming part of a starting relay are contained in IEC 1058-1.

**1.2 This Part 2 applies to starting relays with a rated voltage not exceeding 660 V and with a rated current not exceeding 63 A.**



**1.3 This Part 2 does not take into account the response value of an automatic action of a starting relay, if such a response value is dependent upon the method of mounting the starting relay 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.**

|| 1.4 This standard applies also to motor-starting relays incorporating electronic devices, requirements for which are contained in annex H.

|| 1.5 *Normative references*

|| This subclause of Part 1 is applicable.



**22 Resistance to corrosion**

This clause of Part 1 is applicable.

**23 Radio interference suppression**

This clause of Part 1 is applicable.

**24 Components**

| This clause of Part 1 is applicable.

**25 Normal operation**

See Appendix H.

**26 Operation with mains-borne perturbations, magnetic and electromagnetic disturbances**

See Appendix H.

**27 Abnormal operation**

|| This clause of Part 1 is applicable.

See also annex H.

**28 Guidance on the use of electronic disconnection**

|| See annex H.

**FIGURES**

The figures of Part 1 are applicable.



## **Annexes**

The annexes of Part 1 are applicable, except as follows:

### **Annex C** (normative)

#### **Cotton used for mercury switch test**

Not applicable.

### **Annex E** (normative)

#### **Circuit for measuring leakage current**

Not applicable.

### **Annex H** (normative)

#### **Requirements for electronic controls**

The annex of Part 1 is applicable except as follows.

#### **H17 Endurance**

|| This clause of Annex H is applicable except as follows:

##### **H17.1.4.2 *Thermal cycling test***

##### **a) *Replacement:***

**The duration of the test is 18 days.**

**H26 Operation with mains-borne perturbations, magnetic and electromagnetic disturbances****H26.2.1 Replacement:**

*For motor-starting relays, compliance is checked by the tests of H26.8 and H26.9.*

For motor-starting relays, the remaining disturbances of H26.4 to H26.12 will not result in an inherent hazard. Inherent hazards and changes in output are assessed by the remaining tests of this standard.

**H26.9 Fast transient bursts test**

*Add the following subclause:*

**H26.9.101 Test procedure**

The control is subjected to five tests.

**H26.13 Evaluation of compliance****H26.13.2 Replace first explanatory paragraph by:**

Failure to operate is permitted. In case of compliance with the second alternative, the acceptability of the declared output must be assessed in the final application to determine if such an output does not result in an unsafe operation.

**H27 Abnormal operation****H27.2 Burn-out test**

*Modify the explanatory paragraph:*

For motor-starting relays, compliance with this requirement is established by successful completion of the test of clause 17.

**H27.3 Over-voltage and under-voltage test**

Not applicable.

**Annex ZB (normative)**

**Other international publications quoted in this standard with the references of the relevant European publications**

**Additions/modifications to EN 60730-1 : 1991 annex ZB**

**Replace** the reference to prEN 61058-1 : 1992 by EN 61058-1 : 1992.

**Add** under IEC Publication:

158(mod) 292	Series	<i>Low-voltage controlgear</i>	HD 419	Series
superseded by: 947-4-1	1990	<i>Low-voltage switchgear and controlgear Part 4: Contactor and motor-starters Section One — Electromechanical contactors and motor-starters</i>	EN 60947-4-1	1992