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Automatic electrical controls for household and similar use - Part 2-7: Particular requirements for timers and time switches

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COMMITTEE DRAFT FOR VOTE (CDV)
PROJET DE COMITÉ POUR VOTE (CDV)

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Titre : CEI 60730-2-7 Ed. 2: Dispositifs de commande électrique automatiques à usage domestique et analogue – Deuxième partie: Règles particulières pour les minuteries et les minuteries cycliques

Title : IEC 60730-2-7 Ed 2: Automatic electrical controls for household and similar use - Part 2-7: Particular requirements for timers and time switches

Note d'introduction

Ce CDV fait suite au rejet du 72/631/FDIS n'ayant pas tenu compte de commentaires du 72/586/RVC.

Introductory note

This CDV is a result of the failure of the 72/631/FDIS due to comments from 72/586/RVC not being incorporated.

ATTENTION	ATTENTION
CDV soumis en parallèle au vote (CEI) et à l'enquête (CENELEC)	Parallel IEC CDV/CENELEC Enquiry

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

AUTOMATIC ELECTRICAL CONTROLS FOR HOUSEHOLD AND SIMILAR USE –

Part 2-7: Particular requirements for timers and time switches

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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International Standard IEC 60730-2-7 has been prepared by IEC technical committee 72: Automatic controls for household use.

This second edition cancels and replaces the first edition published in 1990 and Amendment 1 (1994). This second edition constitutes a technical revision. This new edition incorporates requirements for tungsten filament lamp loadings as well as updates the standard to IEC 60730-1 A1 Ed 3 (2003), specifically the requirements in Annex H.

The text of this standard is based on the following documents:

FDIS	Report on voting
72/XXX/FDIS	72/XXX/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 2-7 is to be used in conjunction with IEC 60730-1. It was established on the basis of the third edition (1999) and its Amendment 1 (2003) of that standard. Consideration may be given to future editions of, or amendments to, IEC 60730-1.

This Part 2-7 supplements or modifies the corresponding clauses in IEC 60730-1 so as to convert that publication into the IEC standard: Particular requirements for timers and time switches.

Where this Part 2-7 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, this Part 2-7 indicates that the relevant clause or 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 "in some countries" notes regarding differing national practice are contained in the following clauses and subclauses:

- 4.1.4
- 4.3.2
- 6.3.6.1
- Table 7.2, Notes 101 and 103
- 7.2.9
- 11.4.103
- 11.4.104
- 14.101
- 17.16.102
- 17.16.103
- 21.101
- Annex D
- H.26.11

In this publication:

1) The following print types are used:
   - Requirements proper: in roman type.
   - *Test specifications: in italic type.*
   - Explanatory matter: in smaller roman type

2) Subclauses, notes, tables or figures 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 publication will remain unchanged until 2008. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

AUTOMATIC ELECTRICAL CONTROLS FOR HOUSEHOLD AND SIMILAR USE –

Part 2-7: Particular requirements for timers and time switches

1 Scope

This clause of Part 1 is applicable except as follows:

1.1 *Replacement:*

In general, this part of IEC 60730 applies to timers and time switches for household and similar use that may use electricity, gas, oil, solid fuel, solar thermal energy, etc. or a combination thereof, including heating, air conditioning and similar applications.

This standard is also applicable to individual timers utilized as part of a control system or timers which are mechanically integral with multifunctional controls having non-electrical outlets. This standard does not apply to time-delay switches (TDS) within the scope of IEC 60669-2-3[1)].

Throughout this standard, the word "timers" means timers and time switches, unless the type is specifically mentioned.

Devices which only indicate time or passage of time are not included.

This standard does not apply to multi-functional controls having an integrated timing function which is not capable of being tested as a separate timing device.

1.1.1 This standard applies to the inherent safety, to the operating characteristics where such are associated with equipment protection and to the testing of automatic electrical control devices used in appliances and other apparatus, electrical and non-electrical, for household and similar purposes, but also extended to industrial purposes when no dedicated product standards exist, such as that for central heating, air conditioning, process heating, etc.

Timers 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 is also applicable to timers for appliances within the scope of IEC 60335-1.

This standard does not apply to timers designed exclusively for industrial applications.

Throughout this standard, the word "equipment" means "appliance and equipment".

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1) IEC 60669-2-3:1997, *Switches for household and similar fixed electrical installations – Part 2-3: Particular requirements – Time-delay switches (TDS)*

1.1.2 This standard applies to automatic electrical control devices, mechanically, electromechanically, electrically or electronically operated, responsive to or controlling parameters such as temperature, pressure, passage or time, humidity, light, electrostatic effect, flow or liquid level.

1.1.3 This standard applies to automatic electrical control devices serving the starting of small motors that are used principally in appliances and apparatus for household and similar purposes. Such control devices may be built into or be separate from the motor.

1.1.4 This standard applies to non-automatic control devices when such are associated with automatic control devices.

1.2 *Replacement:*

This standard applies to controls with a rated voltage not exceeding 690 V and a rated current not exceeding 63 A.

1.3 *Replacement:*

This standard 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. If a response value is of significant purpose for the safety of the user or surroundings, the value defined in the appropriate household equipment standard or as determined by the manufacturer shall apply.

1.4 *Replacement:*

This standard applies also to timers incorporating electronic devices, requirements for which are contained in Annex H.

1.5 Normative references

This subclause of Part 1 applies except as follows:

Addition:

IEC 60669-1:1998, *Switches for household and similar fixed-electrical installations – Part 1: General requirements*

IEC 61010-1:2001, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*

2 Definitions

This clause of Part 1 is applicable except as follows:

2.3 Definitions relating to the function of controls

Additional definition:

2.3.101
timing cycle
program including all the switching activities involved in a start-to-finish operation of a controlled appliance

2.5 Definitions of types of control according to construction

Additional definitions:

2.5.101
plug-in timer
a timer or time switch designed for direct plug-in to a socket-outlet. The plug-in timer is equipped with conductor blades, pins or other means, protruding from the enclosure of the control or the control body itself, to match the dimensional parameters of the socket-outlet to which the control will be connected

2.5.102
TV timer
a control for television equipment that can be set by the user, switching very high inrush currents of a very short duration generated by electrical power supply components and associated electronic component parts with various electrical characteristics

NOTE Examples are power transformers, electronic tube filaments, large electric capacitors and others in television receivers, radio and video products.

2.5.103
synchronous timer
a timer or a time switch in which the transmission is effected by a device that is time-based on the frequency of the power supply for the prime mover or the load

2.5.104
hand-wound timer
a timer or time switch in which the transmission is provided by actuation

3 General requirements

This clause of Part 1 is applicable.

4 General notes on tests

This clause of Part 1 is applicable except as follows:

4.1.4 *Addition:*

In the USA, the test in 14.101 is conducted first and the remaining tests are carried out in the order of the clauses of this standard.

4.3.2 *Addition:*

In Canada and the USA, to reduce testing, a timer that is classified for use with motor loads at more than one rated voltage is to be tested at the current and voltage in Table 17.2.2 corresponding to the highest rated voltage. If the current in Table 17.2.2 corresponding to a lower rated voltage is greater than 135 % of the current corresponding to the highest rated voltage, then the timer is also to be tested at the lower rated voltage. The greater current involved at a lower rated voltage may necessitate a separate heating test under Clause 14. If more than one test is conducted, one sample is to be used for each test.

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

6.3.6 *Additional subclause:*

6.3.6.101 – TV timer;

In Canada and the USA, timers for use on televisions have to be declared and tested as indicated in this standard.

6.4 According to features of automatic action

6.4.3 *Additional subclauses:*

6.4.3.101 – a timing action which automatically resets upon loss of the electrical supply (Type 1.Q or 2.Q);

6.4.3.102 – a timing action which is interrupted upon loss of the electrical supply and resumes at the point of interruption upon restoration of the electrical supply (Type 1.R or 2.R);

6.4.3.103 – a timing action of a time switch which, after interruption of the electrical supply for any interval up to the declared period of power reserve, resumes its intended operating sequence as if no interruption of the supply has occurred (Type 1.S or 2.S);

6.4.3.104 – a timing action with a declared running accuracy in an ambient temperature of 20 °C to 25 °C (Type 1.T or 2.T);

6.4.3.105 – a timing action in which the difference between set time and actual switching time does not exceed the declared amount (Type 1.U or 2.U).

6.5 According to the degree of protection and control pollution degree

Additional subclause:

6.5.101 According to declared industrial environmental conditions (see IEC 61010-1):

6.10 According to number of cycles of actuation (M) for each manual actuation

Additional subclauses:

6.10.101 - 500 cycles;

6.10.102 - 2 500 cycles;

6.10.103 - 5 000 cycles.

6.15 According to construction

Additional subclause:

6.15.101 – plug-in timer.