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Edition 5.0 2024-08
COMMENTED VERSION

INTERNATIONAL STANDARD

colour inside

Household and similar electrical appliances – Safety – Part 2-26: Particular requirements for clocks

IEC 60335-2-26:2024-08 CMV(en)

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

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

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CONTENTS

FOREWORD 4
INTRODUCTION 7
1 Scope 8
2 Normative references 9
3 Terms and definitions 9
4 General requirement 9
5 General conditions for the tests 9
6 Classification 9
7 Marking and instructions 9
8 Protection against access to live parts 9
9 Starting of motor-operated appliances 10
10 Power input and current 10
11 Heating 10
12 ~~Void~~ Charging of metal-ion batteries 11
13 Leakage current and electric strength at operating temperature 11
14 Transient overvoltages 11
15 Moisture resistance 11
16 Leakage current and electric strength 11
17 Overload protection of transformers and associated circuits 11
18 Endurance 11
19 Abnormal operation 11
20 Stability and mechanical hazards 11
21 Mechanical strength 12
22 Construction 12
23 Internal wiring 12
24 Components 12
25 Supply connection and external flexible cords 12
26 Terminals for external conductors 13
27 Provision for earthing 13
28 Screws and connections 13
29 Clearances, creepage distances and solid insulation 13
30 Resistance to heat and fire 13
31 Resistance to rusting 13
32 Radiation, toxicity and similar hazards 13
Annexes 17
Annex B (normative) Battery-operated appliances, separable batteries and detachable batteries for battery-operated appliances 18
Bibliography 19
List of comments 20

Figure 101 – Examples of clocks within the scope of this standard 14
Figure 102 – Examples of clocks out of the scope of this standard 14

Documents
Document Sharing Hub
Full document details: IEC 60335-2-26 2024 CMV

Figure 103 – Probe for measuring surface temperatures 16

Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions 10

Documents
Document Sharing Hub

Full document details: IEC 60335-2-26 2024 CMV

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-26: Particular requirements for clocks

FOREWORD

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This commented version (CMV) of the official standard IEC 60335-2-26:2024 edition 5.0 allows the user to identify the changes made to the previous IEC 60335-2-26:2002+AMD1:2008 CSV edition 4.1. Furthermore, comments from IEC TC 61 experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

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IEC 60335-2-26 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2002 and Amendment 1: 2008. This edition constitutes a technical revision.

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

a) alignment with IEC 60335-1:2020;

b) conversion of some notes to normative text (Clause 1);

c) application of test probe 19 (8.1.1, 20.2, B.22.3, B.22.4);

d) introduction of limits on the temperature rise of external accessible surfaces (Clause 11).

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

Draft	Report on voting
61/7266/FDIS	61/7284/RVD

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

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

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

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was established on the basis of the sixth edition (2020) of that standard.

NOTE 1 When “Part 1” is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Particular requirements for clocks.

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

NOTE 2 The following numbering system is used:

– subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;

– unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;

– additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

– requirements: in roman type;

– *test specifications: in italic type;*

– notes: in small roman type.

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Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

The following differences exist in the countries indicated below.

– 6.1: Class 0 appliances are allowed (Japan).

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

- reconfirmed,
- withdrawn, or
- revised.

NOTE 2 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations can need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

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INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website

https://www.iec.ch/tc61/supportingdocuments

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules ~~may~~ can differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 ~~Horizontal and generic standards~~ Horizontal publications, basic safety publications and group safety publications covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. ~~For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.~~ 1

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

– IEC standards published by TC 59 concerning methods of measuring performance;
– CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
– CISPR 14-2 concerning electromagnetic immunity;
– IEC standards published by TC 111 concerning environmental matters. 2

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-26: Particular requirements for clocks

1 Scope

This clause of Part 1 is replaced by the following.

This Part of IEC 60335 deals with the safety of electric clocks having a **rated voltage** not more than 250 V including direct current (DC) supplied appliances and **battery-operated appliances**. 3

~~NOTE 101~~ Examples of appliances that are within the scope of this standard are

– alarm clocks;
– spring-driven clocks with an electrically operated winding mechanism;
– clocks incorporating driving means other than motors.

NOTE See Figure 101 and Figure 102 for examples of clocks that are and are not covered by this standard.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

– persons (including children) whose
  - physical, sensory or mental capabilities; or
  - lack of experience and knowledge

  prevents them from using the appliance safely without supervision or instruction;
– children playing with the appliance.

~~NOTE 102~~ Attention is drawn to the fact that

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements ~~may~~ can be necessary;
– in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

~~NOTE 103~~ This standard does not apply to

~~– battery-operated clocks;~~
– appliances intended exclusively for industrial purposes;
– appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
– clocks having other functions, whether or not in combination with time indication, such as master control clocks and timers for cooking ranges, washing machines and similar appliances;
– clocks for "clocking-in" purposes;
– clocks incorporating electronic circuits only (IEC 60065, IEC 62368-1);
– watches.

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2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1.9 *~~Replacement~~ Modification:*
normal operation

Replace the first paragraph with the following:

operation of the clock under the following conditions:

Spring-driven clocks having an electrically operated winding mechanism are operated as in normal use.

Other clocks are operated with the rotor locked.

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable.

6 Classification

This clause of Part 1 is applicable.

7 Marking and instructions

This clause of Part 1 is applicable.

8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

8.1.1 *Addition:*

For parts of appliances, other than wall or ceiling mounted appliances with installation instructions that specify that installation must be above 850 mm above the floor, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18. **4**

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9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.3 *Addition:*

Where the external ***accessible surfaces*** *are suitably flat and access permits, then the test probe of Figure 103 is used to measure the temperature rises of external* ***accessible surfaces*** *specified in Table 101. The probe is applied with a force of 4 N ± 1 N to the surface in such a way that the best possible contact between the probe and the surface is ensured. The measurement is performed after a contact period of 30 s.*

The probe may be held in place using a laboratory stand clamp or similar device. Any measuring instrument giving the same results as the probe may be used. **5**

11.8 *Modification*:

Replace the first paragraph with the following:

During the test, the temperature rises are monitored continuously and shall not exceed the values shown in Table 3 and Table 101. **6**

Table 101 – Maximum temperature rises for specified external accessible surfaces under normal operating conditions

Surface	*Temperature rise of external accessible surfaces* [a] *K*	
	Surfaces of wall/ceiling-mounted appliances situated more than 850 mm above the floor according to the installation instructions after installation	*Surfaces of other appliances*
Bare metal	*42*	*38*
Coated metal [b]	*49*	*42*
Glass and ceramic	*56*	*51*
Plastic and plastic coating > 0,4 mm [c], [d]	*62*	*58*
NOTE The temperature rise limits of handles, knobs, grips, keyboards, keypads and similar parts are specified in Table 3.		

[a] *Temperature rises are not measured on the rear surface of wall-mounted appliances.*
[b] *Metal is considered coated when a coating having a minimum thickness of 90 µm made of enamel, powder or non-substantially plastic coating is used.*
[c] *The temperature rise limit of plastic also applies for plastic material having a metal finish of thickness less than 0,1 mm.*
[d] *When the thickness of the plastic coating does not exceed 0,4 mm, the temperature rise limits of coated metal for underlying metal apply or the temperature rise limits for glass or ceramic material for underlying glass or ceramic material apply.*

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12 ~~Void~~ Charging of metal-ion batteries

This clause of Part 1 is applicable. 7

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable.

16 Leakage current and electric strength

This clause of Part 1 is applicable.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.7 *Addition:*

Spring-driven clocks, having an electrically operated winding mechanism incorporating capacitors or resistors to reduce the motor voltage, are operated with the rotor locked, capacitors or resistors being short-circuited one at a time.

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.2 *Addition:*

For parts of appliances, other than wall or ceiling mounted appliances with installation instructions that specify that installation must be above 850 mm above the floor, in addition to the use of test probe 18, test probe 19 of IEC 61032 is also applied wherever test probe 18 is used and with the same test conditions used for test probe 18. 8

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21 Mechanical strength

This clause of Part 1 is applicable except as follows.

21.1 *Modification:*

The impact energy is reduced to 0,20 J.

The blows are not applied to spindles for hands.

The blows are only applied to dial glasses if the clock fails to comply with the requirements of 8.1 with the dial glass removed.

22 Construction

This clause of Part 1 is applicable except as follows.

22.35 *Addition:*

NOTE 101 Hands are not considered as being actuated in normal use, unless they ~~have to be~~ are touched to alter the time setting.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.3 *Modification:*

The connection to fixed wiring may be made before the clock has been fixed to its support unless the clock is classified at least IPX1.

25.5 *Addition:*

Type Z attachment is allowed.

25.7 *Addition:*

The **supply cords** may be flat non-sheathed cords (code designation 60227 IEC 42).

25.19 *Modification:*

Polyvinyl chloride insulated cord is allowed to be tied into a simple overhand knot around a smooth pin.

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26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.2.2 Not applicable.

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

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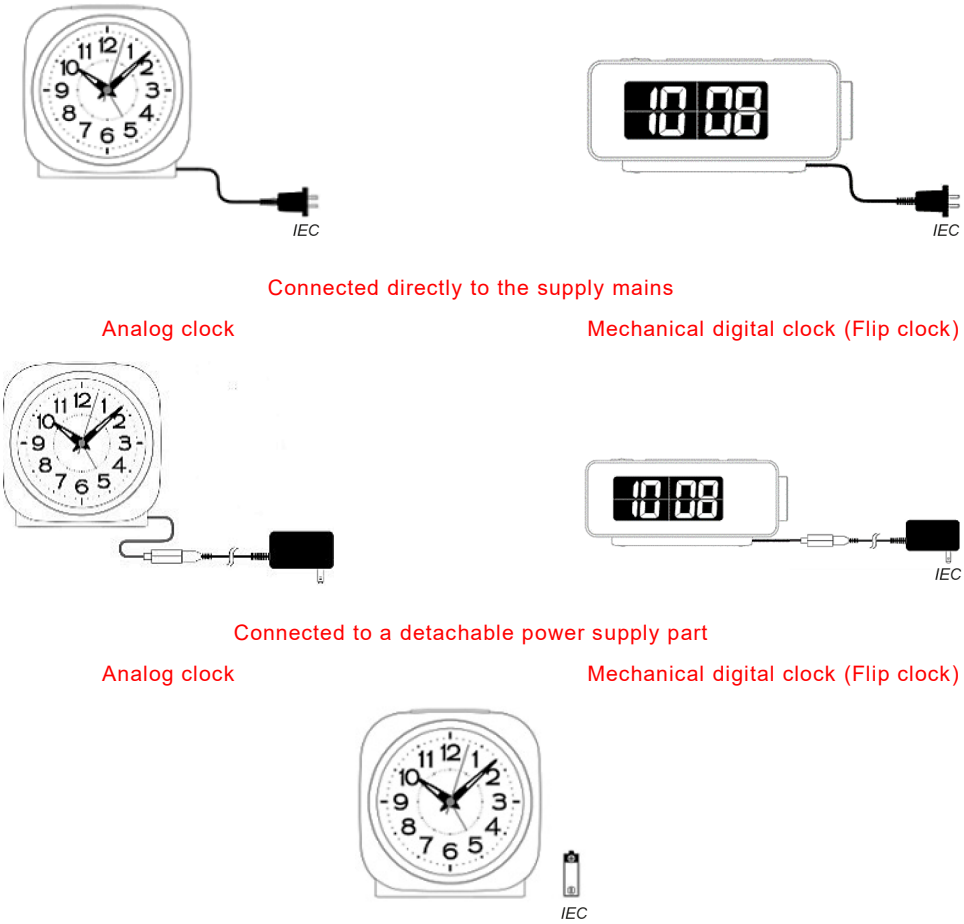

Figure 101 – Examples of clocks within the scope of this standard

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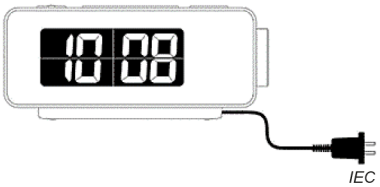
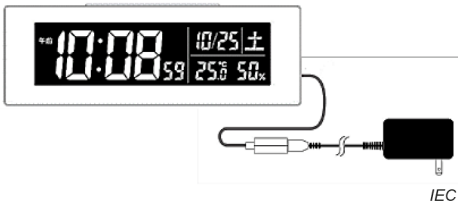


Connected directly to the supply mains

Digital clock with LCD



Connected to a detachable power supply part

Digital clock with LCD

Operated by batteries

Digital clock with LCD

Electronic analogue clock with clock-hands displayed on LCD

Figure 102 – Examples of clocks out of the scope of this standard 9

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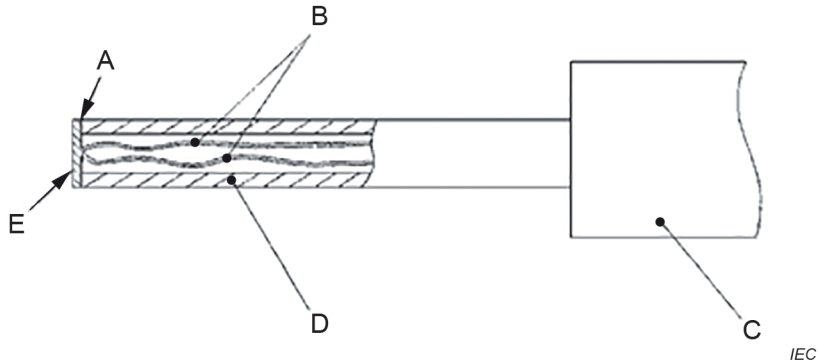

Key

A adhesive

B thermocouple wires 0,3 mm diameter to IEC 60584-1 Type K

C handle arrangement permitting a contact force of 4 N ± 1 N

D polycarbonate tube: inside diameter 3 mm, outside diameter 5 mm

E tinned copper disc: 5 mm diameter, 0,5 mm thick with a flat contact face

Figure 103 – Probe for measuring surface temperatures

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Annexes

The annexes of Part 1 are applicable except as follows.

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