Electromechanical switches for use in electrical and electronic equipment

Part 1: Generic specification
National foreword

This British Standard is the UK implementation of EN IEC 61020‑1:2019. It is identical to IEC 61020‑1:2019. It supersedes BS EN 61020‑1:2009, which will be withdrawn on 20 February 2022.

The UK participation in its preparation was entrusted to Technical Committee PEL/23, Electrical accessories.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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(IEC 61020-1:2019)

Interrupteurs électromécaniques pour équipements électriques et électroniques - Partie 1: Spécification générique
(IEC 61020-1:2019)

Elektromechanische Schalter zur Verwendung in Geräten der Elektrotechnik und Elektronik - Teil 1: Fachgrundspezifikation
(IEC 61020-1:2019)

This European Standard was approved by CENELEC on 2019-02-20. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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European foreword


The following dates are fixed:

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This document supersedes EN 61020-1:2009.

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Endorsement notice

The text of the International Standard IEC 61020-1:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

- IEC 60062:2016 NOTE Harmonized as EN 60062:2016 (not modified)
- IEC 60065 NOTE Harmonized as EN 60065
- IEC 60068-3-13 NOTE Harmonized as EN 60068-3-13
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- ISO 286-1 NOTE Harmonized as EN ISO 286-1
- ISO 1101 NOTE Harmonized as EN ISO 1101
- ISO 9001 NOTE Harmonized as EN ISO 9001

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

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EN 60068-2-38 2009

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IEC 60068-2-58 2015  Environmental testing - Part 2-58: Tests - Test
Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)

EN 60068-2-58 2015

+ A1 2017  + A1 2018

IEC 60068-2-61 1991  Environmental testing - Part 2-61: Test methods
- Test Z/ABDM: Climatic sequence

EN 60068-2-61 1993

IEC 60068-2-68 1994  Environmental testing - Part 2-68: Tests - Test
L: Dust and sand

EN 60068-2-68 1996

IEC 60068-2-77  -  Environmental testing - Part 2-77: Tests - Test
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IEC 60068-2-78  -  Environmental testing - Part 2-78: Tests - Test
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IEC 60529  -  Degrees of protection provided by enclosures
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IEC 60617  -  Graphical symbols for diagrams (available at:
http://std.iec.ch/iec60617)

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IEC 60721-3-3  -  Classification of environmental conditions - Part
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EN 60721-3-3 -

IEC 61058-1 2016  Switches for appliances - Part 1: General
requirements

EN IEC 61058-1 2018

IEC 61058-1-1 2016  Switches for appliances - Part 1-1: Requirements for mechanical switches

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMECHANICAL SWITCHES
FOR USE IN ELECTRICAL AND ELECTRONIC EQUIPMENT –

Part 1: Generic specification

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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9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61020-1 has been prepared by subcommittee 23J: Switches for appliances, of IEC technical committee 23: Electrical accessories.

This third edition cancels and replaces the second edition published in 2009.

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

a) In accordance with the ISO/IEC Directives, Part 2:2016, Clause 2 General has been replaced by two new clauses: Clause 2 Normative references and Clause 3 Terms, definitions, units and symbols.

2.4 Preferred values and 2.5 Marking have been moved to Clauses 5 and 6. In addition, 6.2 Markings on packaging has been added.

b) Clause 3 Quality assurance procedures and Annex A have been deleted.

c) 4.3.6.3 Returning force has been added.

d) 4.3.6.4 Travel (movement of the actuator) has been added.

e) 4.12 Environmental testing:
4.12.1.3 and 4.12.1.5 have been renumbered 4.12.2 and 4.12.3, respectively. 4.12.1.4 and 4.12.1.7 have been integrated in 4.12.5. 4.12.10 Salt mist has been added.

f) Following publication of IEC 61058-1-1:2016, some cross-references to IEC 61058-1 have been updated.

g) The following items have been updated with respect to the second edition.
   – Tables and figures:
     Tables 1 and 3 have been deleted, Table 4 has been renumbered to Table 10. New Tables 2, 3, 4, 5, 6, 7, 8 and 9 have been added.
     Figure 1 has been renumbered to Figure 3, Figure 2 renumbered to Figure 4, Figure 3 renumbered to Figure 9 and Figure 4 renumbered to Figure 12. Added new Figures 1, 2, 5, 6, 7, 8, 10 and 11 have been added.
   – Specific words and common names have been unified.

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

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

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

A list of all parts in the IEC 61020 series, published under the general title Electromechanical switches for use in electrical and electronic equipment, can be found on the IEC website.

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

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

This document covers the general requirements and test methods for electromechanical switches with optional quality assurance procedures. It provides the general requirements and test methods for use in any detail specifications for pushbutton switches, rotary switches, sensitive switches, toggle switches, and other electromechanical switches.

Where it is intended that an electromechanical switch comply with requirements related to safety, the specific safety requirements will be specified in IEC 61058-1.
1 Scope

This part of IEC 61020 specifies the terminology, symbols, test methods and other necessary information to provide consistency in detail specifications for electromechanical switches.

This document relates to electromechanical switches intended for use in electrical and electronic appliances. Switches covered by this document:

a) are devices which open, close, or change the connection of a circuit by the mechanical motion of conducting parts (contacts);

b) have a maximum rated voltage of 480 V;

c) have a maximum rated current of 63 A.

This document does not include keyboards and keypads which are intended for use in information-handling systems. Electromechanical key switches can be included under the scope of this document.

Switch families will be described in any detail specifications that reference this document.

This document is a performance standard intended to describe evaluation methods to better clarify the capabilities of a switch.

NOTE 1 Safety requirements for switches for household and similar fixed electrical installations are given in IEC 60669 (all parts).

NOTE 2 Safety requirements for appliance switches are given in IEC 61058 (all parts).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60027 (all parts), Letter symbols to be used in electrical technology


IEC 60068-1:2013, Environmental testing – Part 1: General and guidance

IEC 60068-2-1, Environmental testing – Part 2-1: Tests – Test A: Cold

IEC 60068-2-2, Environmental testing – Part 2-2: Tests – Test B: Dry Heat

IEC 60068-2-6, Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)