

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Electromechanical switches for use in electrical and electronic equipment –  
Part 1: Generic specification**

**Interrupteurs électromécaniques pour équipements électriques et  
électroniques –  
Partie 1: Spécification générique**



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**Interrupteurs électromécaniques pour équipements électriques et  
électroniques –  
Partie 1: Spécification générique**

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**ELECTROMECHANICAL SWITCHES  
FOR USE IN ELECTRICAL AND ELECTRONIC EQUIPMENT –****Part 1: Generic specification****FOREWORD**

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

This second edition cancels and replaces the first edition published in 1991. This second edition constitutes a technical revision.

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

- a) The requirements of the IEC 60512 series of standards have been integrated in this second edition of IEC 61020-1. In particular the test methods, terminology, symbols and other necessary information concerning switches as specified in IEC 60512 have been implemented in this standard.
- b) Additionally, the following items have been updated with respect to the first edition:
  - test methods were reviewed for detailed description;

- the explanation for the test method of the operating force was rewritten in more detail;
- the test voltage for measurement for contact bounce was reviewed;
- the electrical endurance “ON” duration in the duty cycle was harmonized with IEC 61058;
- the requirements for fire hazards have been deleted;
- testing methods of surface mounting switches based on the Japanese industrial standard were added.

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

|              |                  |
|--------------|------------------|
| FDIS         | Report on voting |
| 23J/325/FDIS | 23J/328/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.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,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

## INTRODUCTION

This generic specification 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. It also provides guidelines for appropriate quality assurance procedures in Annex A (informative).

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

# **ELECTROMECHANICAL SWITCHES FOR USE IN ELECTRICAL AND ELECTRONIC EQUIPMENT –**

## **Part 1: Generic specification**

### **1 Scope and object**

#### **1.1 Scope**

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

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

Switch families shall be described in any detail specifications that will reference this generic specification.

#### **1.2 Object**

The object of this generic specification is to provide consistency in detail specifications for electromechanical switches by specifying the terminology, symbols, test methods and other necessary information.

### **2 General**

#### **2.1 Normative references**

The following referenced documents are indispensable for the application 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 60050-581:2008, *International Electrotechnical Vocabulary – Part 581: Electromechanical components for electronic equipment*

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*  
Amendment 1 (1992)

IEC 60068-2-6:2007, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-1:2007, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2:2007, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-10:2005, *Environmental testing – Part 2-10: Tests – Test J and guidance: Mould growth*

IEC 60068-2-13:1983, *Environmental testing – Part 2-13: Tests – Test M: Low air pressure*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-17:1994, *Environmental testing – Part 2-17: Tests – Test Q: Sealing*

IEC 60068-2-20:2008, *Environmental testing – Part 2-20: Tests – Test T: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-21:2006, *Environmental testing – Part 2-21: Tests – Test U: Robustness of terminations and integral mounting devices*

IEC 60068-2-30:2005, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12+12-hour cycle)*

IEC 60068-2-42:2003, *Environmental testing – Part 2-42: Tests – Test Kc: Sulphur dioxide test for contacts and connections*

IEC 60068-2-43:2003, *Environmental testing – Part 2-43: Tests – Test Kd: Hydrogen sulphide test for contacts and connections*

IEC 60068-2-45:1980, *Environmental testing – Part 2-45: Tests – Test XA and guidance: Immersion in cleaning solvents*  
Amendment 1 (1993)

IEC 60068-2-49:1983, *Environmental testing – Part 2-49: Tests – Guidance to Test Kc: Sulphur dioxide test for contacts and connections*

IEC 60068-2-58:1999, *Environmental testing Part 2-58: Tests – Tests Td: Test methods for solderability, resistance to dissolution of metallization and to soldering heat of surface mounting devices (SMD)*

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

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

IEC 60068-2-78:2001, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*  
Amendment 1 (2001)

IEC 60617, *Graphical symbols for diagrams*

IEC 61058-1:2000, *Switches for appliances – Part 1: General requirements*  
Amendment 1 (2001)  
Amendment 2 (2007)

ISO 1000:1992, *SI units and recommendation for the use of their multiples and of certain other units*