

Harmonized system of quality
assessment for electronic components

Electromechanical switches for use in electronic equipment — Sectional specification for pushbutton switches

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Electronic Components Standards Policy Committee (ECL/-) to Technical Committee ECL/21, upon which the following bodies were represented:

- British Telecommunications plc
- Electronic Components Industry Federation
- EEA (the Association of Electronics, Telecommunications and Business Equipment Industries)
- Ministry of Defence
- National Supervising Inspectorate
- Society of British Aerospace Companies Ltd.

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

- Association of Control Manufacturers [TACMA (BEAMA Ltd.)]
- Membrane Switch Manufacturers' Association (MSMA)

This British Standard, having been prepared under the direction of the Electronic Components Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 November 1992

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The following BSI references relate to the work on this standard:
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National foreword

This British Standard has been prepared under the direction of the Electronic Components Standards Policy Committee. It is identical with IEC 1020-5:1991 *Electromechanical switches for use in electronic equipment — Part 5: Sectional specification for pushbutton switches*, published by the International Electrotechnical Commission (IEC). IEC 1020-5 is also designated QC 960400 and is a harmonized specification in the IECQ system for electronic components of assessed quality.

IEC 1020-5 was prepared by IEC Subcommittee 48C, Switches, of IEC Technical Committee No. 48, Electromechanical components for electronic equipment, and the United Kingdom participation in the drafting was provided by Subcommittee ECL/21/3, Switches for electronic equipment, of Technical Committee ECL/21, Electromechanical components for electronic equipment.

Cross-references

International Standard	Corresponding British Standard
	BS 2011 <i>Environmental testing</i>
IEC 68-1:1988	Part 1.1:1989 <i>General and guidance</i> (Identical)
IEC 68-2-6:1982	Part 2.1Fc:1983 <i>Test Fc. Vibration (sinusoidal)</i> (Identical)
IEC 68-2-13:1983	Part 2.1M:1984 <i>Test M. Low air pressure</i> (Identical)
IEC 68-2-27:1987	Part 2.1Ea:1988 <i>Test Ea. Shock</i> (Identical)
IEC 512-6:1984	BS 5772 <i>Basic testing procedures and measuring methods for electromechanical components for electronic equipment</i> Part 6:1984 <i>Climatic tests and soldering tests</i> (Identical)
IEC 1020-1:1991	BS QC 960000:1992 <i>Electromechanical switches for use in electronic equipment. Generic specification</i> (Identical)

The British Standard which implements the IECQ Rules of Procedure is BS 9000 *General requirements for a system for electronic components of assessed quality — Part 3:1991 Specification for the national implementation of the IECQ System*.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 11 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 General

1.1 Scope

This part of IEC 1020 applies to the sub-family of pushbutton switches within the family of electromechanical switches of assessed quality. Pushbutton switches covered by this part of IEC 1020 have rated voltages less than 300 V and rated currents less than 5 A (d.c. or r.m.s. values).

Pushbutton switches in which sensitive switches are incorporated for the direct control of the load current are included. Single station and multi-station pushbutton switches are included.

Keyboards and keypads are excluded.

The object of this part of IEC 1020 is to:

- a) prescribe preferred ratings and characteristics;
- b) select the appropriate quality assessment procedures and test methods from IEC 1020-1;
- c) prescribe the general performance requirements for pushbutton switches.

1.2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of IEC 1020. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of IEC 1020 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 68-1:1988, *Environmental testing — Part 1: General and guidance*.

IEC 68-2-6:1982, *Environmental testing — Part 2: Tests. Test Fc and guidance: Vibration (sinusoidal)*.

IEC 68-2-13:1983, *Environmental testing — Part 2: Tests. Test M: Low air pressure*.

IEC 68-2-27:1987, *Environmental testing — Part 2: Tests. Test Ea and guidance: Shock*.

IEC 512-6:1984, *Electromechanical components for electronic equipment, basic testing procedure and measuring methods — Part 6: Climatic tests and soldering tests*.

IEC 1020-1:1991, *Electromechanical switches for use in electronic equipment — Part 1: Generic specification*.

1.3 Terminology

In addition to the terminology specified in IEC 1020-1, the following definitions shall apply to all pushbutton switches.

1.3.1

alternate action (one level)

a mechanical system in which the button returns to the free position when the operating force is removed for any contact mode. The contact state changes on successive actuations. The contact mode cannot be determined by the button position

1.3.2

alternate action (two-level)

a mechanical system in which the button alternately assumes two distinct levels when the operating force is removed on successive actuations. The contact mode changes on successive actuations. The contact state can be visually determined by the button position

1.3.3

colour filter

a part of an illuminated pushbutton switch used to filter colour to the display surface of the pushbutton

1.3.4

diffuser

a device used in an illuminated pushbutton switch to redirect or scatter the light from the lamp — primarily by the process of diffuse transmission

1.3.5

divider

a non-translucent part between two or more lamps to prevent the leakage of light between the sections of an illuminated pushbutton display

1.3.6

enclosed pushbutton switch

a pushbutton switch which has all parts of the switching mechanism enclosed, but not sealed, by a housing

1.3.7

illuminated pushbutton switch

a pushbutton switch which provides a visual indication by illumination of its display surface by an associated light source(s). The light source(s) may be related to, or independent of, the action of the pushbutton switch

1.3.8

lamp

a generic term for a man-made source of light. By extension, the term is also used to denote sources that radiate in regions of the spectrum adjacent to the visible

1.3.9

latched position

the mechanical position of the actuator after operation to maintain the circuit transfer