

Electrical relays —

Part 4: Specification for contact loads of preferred values used in endurance tests for electrical relay contacts

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Committees responsible for this British Standard

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- BEAMA Transmission and Distribution Association
- British Telecommunications
- Electricity Supply Industry in England and Wales
- Electronic Components Industry Federation
- Institution of Electrical Engineers
- Ministry of Defence
- Telecommunication Engineering and Manufacturing Association (TEMA)

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

- Association of Consulting Engineers
- Association of Control Manufacturers TACMA (BEAMA)
- Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA)
- Cinematograph Exhibitors' Association of Great Britain and Ireland
- Control and Automation Manufacturers' Association (BEAMA)
- Electronic Engineering Association
- ERA Technology Ltd
- Greater London Council
- National Supervising Inspectorate
- Society of British Aerospace Companies Limited
- South of Scotland Electricity Board

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Publications referred to	Inside back cover

National foreword

This Part of this British Standard, which has been prepared under the direction of the General Electrotechnical Engineering Standards Committee, is identical with IEC Publication 255-14 “*Electrical relays, Part 14 Endurance test for electrical relay contacts — Preferred values for contact loads*”, published in 1981 by the International Electrotechnical Commission (IEC).

Those Parts of IEC Publication 255 “*Electrical relays*” which are concerned primarily with protection relays are incorporated where required into BS 142 “*Electrical protection relays*”. All other Parts of IEC Publication 255 which are implemented as British Standards form, or will form, Parts of this British Standard¹⁾.

Classification of relay standards. Some Parts of IEC Publication 255 are designated first level documents, i.e. they cover the requirements of all relays within the scope of IEC Technical Committee No. 41, Electrical relays. Other Parts of IEC Publication 255 are designated lower level documents, i.e. they are concerned with the requirements of a family of relays (second level) and of smaller and more specialized groups of relays within such a family (third and fourth level).

According to this system of classification, this is a first level document.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards.

Cross-references

International Standard	Corresponding British Standard
IEC 255-0-20:1974 (first level document)	BS 5992 <i>Electrical relays</i> Part 1:1980 <i>Specification for contact performance of electrical relays</i> (Identical)
IEC 255-15:1981 (first level document)	BS 5992 <i>Electrical relays</i> Part 5:1983 <i>Specification for test equipment used in endurance tests for electrical relay contacts</i> (Identical)

At present there is no corresponding British Standard for IEC 96-2:1961. The technical committee has reviewed the provisions of this IEC Publication and has decided that they are acceptable for use in conjunction with this standard.

The relevant related British Standard for the International Vocabulary Chapter 446 is BS 4727 “*Glossary of electrotechnical, power, telecommunication, electronics, lighting and colour terms, Part 1: Group 0.3 Relay terminology*”.

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.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover 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⁾ Parts of IEC 255 that form part of the IEC Q Quality Assurance System will also carry a QC series number. The method of numbering British Standards identical to IEC Q Standards is under consideration.

Section 1. General and definitions

1 General

1.1 Scope and object

This standard applies to contact assemblies of all types of relays covered by the Publication 255 series: Electrical Relays.

This standard specifies preferred characteristics of the contact loads to be used in endurance tests of electrical relay contacts over the ranges of voltages and currents defined by application categories. Preferred values are given for various types of load including relay and cables.

As a result of further consideration the title and values of various tables differ slightly from those published in IEC Publication 225-0-20: Contact Performance of Electrical Relays.

The detail specifications²⁾ shall refer to these preferred values of contact loads but for a particular application, additional characteristics may be defined (e.g. inrush current in a contact load circuit, lamp load or motor load).

1.2 General requirements

1.2.1 General interconnection requirements

The endurance test equipment is defined by IEC Publication 255-15: Specification for the Characteristics of Test Equipment.

The contact load, as defined in the detail specification, shall be connected to the contact under test by wiring which shall be as short as possible.

The wiring and the measuring equipment shall have a negligible influence on the current through, and the voltage across the contact during switching. To achieve this, the test point may be switchable.

Protective devices or spark-quenching circuits, which are specified in the detail specification, shall be in position during tests. Earthing requirements shall be given in the detail specification.

1.2.2 Sources for output quantities

If the contact load comprises a voltage source, this source shall be connected with one terminal to earth. The tolerance on the voltage value shall be $\pm 10\%$ on 30 mV and $\pm 2\%$ for the other values.

The internal resistance R_s of the source shall be less than 2 % of the d.c. load resistance, and the source impedance Z_s shall be less than 2 % of the a.c. load impedance at all frequencies up to 1 MHz.

When several loads are connected in parallel via the respective contacts under test to the same voltage source, the combined load needs shall be taken into account in assessing the ability of the source to meet the source requirements.

In the case of d.c., a sufficiently low value of Z_s and an adequate limitation of the fluctuations of the output voltage may be achieved by connecting a large capacitor across the voltage source close to the contact under test.

2 Terms and definitions

In addition to the general terms defined in IEC Publication 50: International Electrotechnical Vocabulary (I.E.V.), Chapter 446: Electrical Relays, or in other parts of IEC Publication 255, the following definition applies:

2.1

application category of contacts

a category defined by the ranges of voltage and current within which, under specified conditions, the contacts are able to perform their intended functions according to the specified requirements

²⁾ In accordance with the definition in Sub-clause 4.5 of IEC Guide 102: Specification Structures for the Quality Assessment of Electronic Components, a detail specification is a document giving particular requirements or specifications relating to a specific type (or pattern) of relay and could be, for example, one of the parts of IEC Publication 255 or a specification written by the manufacturer or user as part of a contractual agreement.