

Emergency lighting —

Part 3: Specification for small power relays (electromagnetic) for emergency lighting applications up to and including 32 A

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Foreword

This Part of this British Standard has been prepared under the direction of the General Electrotechnical Engineering Standards Committee.

BS 764 (confirmed 1974) is an established specification for automatic changeover contactors, which are generally used for the centralized control of emergency lighting systems. The practice has developed over the years of employing small power relays which may be used to control small systems and individual luminaires.

These small power relays are sufficiently different from the contactors specified in BS 764 to make it necessary for them to be specified in a separate standard.

The purpose of this standard is to provide a specification for small power relays which, as well as transferring small systems to an emergency supply, are also used to control a small number of lamps, including a single unit, and which may be compact enough to be housed within a luminaire.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, 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 Scope

1.1 This standard specifies the performance characteristics of relays capable of transferring an emergency lighting load from a normal source of supply to an emergency supply when the normal source of supply fails; or connecting an emergency lighting load when de-energized, and disconnecting an emergency lighting load when energized.

NOTE The use of relays satisfying the performance requirements of this specification does not necessarily ensure the maintenance of adequate lighting under emergency conditions and it may be necessary to fit ancillary equipment.

1.2 The object of this standard is:

- a) to draw attention to the need for the relay to be able to make a reliable and positive transfer of the emergency lighting load to the emergency supply after being in the normally energized position for an extended period of time, e.g. 12 months;
- b) to specify tests to confirm that these conditions have been fulfilled and to describe the methods to be adopted for these tests.

2 References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Standard conditions for construction

3.1 Mechanical design

3.1.1 General. The relay shall always “fail safe” by automatically taking up the emergency supply position.

3.1.1.1 The following shall *not* be used.

- a) Any latch arrangement to retain the transfer switch in any position.
- b) Any electrical energy to cause the transfer switch to change to the emergency position.

3.1.1.2 Insulating materials shall be classified in accordance with BS 2757.

3.1.1.3 All plastics materials used shall be tested for the rate of burning in accordance with method 508A of BS 2782:1970. Three specimens of each material shall not burn to the first mark and any flame or after-glow, after removal of the burner, shall not endure for more than five seconds.

3.1.2 Terminals. Where screw terminals are used, they shall be such that they cannot turn or be displaced when the connecting screws are tightened, and such that the connectors cannot become displaced and the necessary pressure on the conductor is maintained permanently.

No contact pressure shall be transmitted through insulating materials, and the gripping of the conductor shall take place between metal surfaces. Where snap-on connectors are used, they shall be suitably protected against corrosion.

Terminal screw sizes shall be in accordance with Tables 15, 16 and 17 of BS 3456-101:1978.

Appropriate extracts from these tables are shown in Table 4, Table 5 and Table 6 respectively.

The maximum torques to be applied to screw fixings shall be as shown in Table 1.

Table 1 — Maximum screw fixing torques

Nominal thread diameter	Screws without heads not protruding from the hole when tightened	Others
mm	N m	N m
3.0	0.25	0.5
3.5	0.4	0.8
4.0	0.7	1.2

3.1.3 Contact contamination. The construction shall be such that deterioration greater than that specified in 7.6 does not occur.

3.1.4 Mounting. Provision for secure mounting shall be made as well as means to prevent movement in any plane when fixed. Plug-in relays shall be equipped with a retaining device.

3.1.5 Ambient temperature. The ambient temperature range shall be from $-10\text{ }^{\circ}\text{C}$ to $+55\text{ }^{\circ}\text{C}$.

3.2 Electrical design

3.2.1 Clearance and creepage distances. Clearance and creepage distances shall be not less than the values given in Table 2.

3.2.2 Coils

3.2.2.1 All coils shall be capable of withstanding the continuous application of 110 % of rated voltage over the ambient temperature range.