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Responsible committee: EPL/94 General purpose relays and reed contact units

Interested committees:

Title: Draft BS EN 61810-7-41 Ed.1.0 All-or-nothing electrical relays - Tests and Measurements. Part 7-41: Insulation coordination.

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

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- ii) affects other national standard(s)
- iii) requires additional national guidance or information

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/ Figure/Table/Note	Type of comment	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



94/642/CD

COMMITTEE DRAFT (CD)

PROJECT NUMBER:
IEC 61810-7-41 ED1

DATE OF CIRCULATION:
2022-01-28

CLOSING DATE FOR COMMENTS:
2022-03-25

SUPERSEDES DOCUMENTS:
94/533/NP, 94/610/RVN

IEC TC 94 : ALL-OR-NOTHING ELECTRICAL RELAYS	
SECRETARIAT: Austria	SECRETARY: Mr Bernhard Spalt
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

All-or-nothing electrical relays – Tests and Measurements – Part 7-41: Insulation coordination

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Documents

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**All-or-nothing electrical relays –
Tests and Measurements****Part 7-41: Insulation coordination**

FOREWORD

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- 2) 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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The International Standards of the IEC 61810 have been prepared by IEC technical committee 94: All-or-nothing electrical relays.

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

NP	Report on voting
94/533/NP	94/610/RVN

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 of IEC 61810 series, published under the general title *Electromechanical elementary relays*, can be found on the IEC website.

62 This International Standard is to be used in conjunction with IEC 61810-1:2015.

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

- 66 • reconfirmed,
- 67 • withdrawn,
- 68 • replaced by a revised edition, or
- 69 • amended.

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All-or-nothing electrical relays – Tests and Measurements

Part 7-41: Insulation coordination

1 Scope

This part of IEC 61810 part7 is used for design and testing isolation coordination for electromechanical elementary relays and similar components within the scope of IEC technical committee 94. This part may also be used for similar devices when specified in a detail specification.

The object of this test is to define standard test methods for measuring creepages, clearances, solid insulation and insulation systems.

The basis is given in IEC 60664 series.

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 60028, *International standard of resistance for copper*

IEC 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

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

IEC 60068-2-17, *Basic environmental testing procedures – Part 2-17: Tests – Test Q: Sealing*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-64:2008, *Environmental testing – Part 2-64: Tests – Test Fh: Vibration, broadband random and guidance*

IEC 60270, *High-voltage test techniques – Partial discharge measurements*

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60664-3:2016, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60947-1:2007, *Low-voltage switchgear and controlgear – Part 1: General rules*

IEC 60999-1, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm² (included)*

109 IEC 60999-2, *Connecting devices – Electrical copper conductors – Safety requirements for*
110 *screw-type and screwless-type clamping units – Part 2: Particular requirements for clamping*
111 *units for conductors above 35 mm² up to 300 mm² (included)*

112 IEC 61810-1:2015, *Electromechanical elementary relays – Part 1: General and safety*
113 *requirements*

114 ISO 16750-1:2018, *Road vehicles – Environmental conditions and testing for electrical and*
115 *electronic equipment – Part 1: General*

116 ISO 16750-2:2012, *Road vehicles – Environmental conditions and testing for electrical and*
117 *electronic equipment – Part 2: Electrical loads*

118 **3 Terms and definitions**

119 Clause 3 of IEC 61810-7-0 is applicable.

120 **3.1 Terms and definitions related to insulation**

121 **3.1.1**

122 **functional insulation**

123 insulation between conductive parts which is necessary only for the proper functioning of the
124 relay

125 [SOURCE: IEC 60664-1:1992, 1.3.17.1, modified – modification of the definition]

126 **3.1.2**

127 **basic insulation**

128 insulation of hazardous-live-parts which provides basic protection against electric shock

129 Note 1 to entry: Basic insulation does not necessarily include insulation used exclusively for functional purposes.

130 [SOURCE: IEC 60664-1:2002, 3.17.2, modified – modification of the definition]

131 **3.1.3**

132 **supplementary insulation**

133 independent insulation applied in addition to basic insulation, in order to provide protection
134 against electric shock in the event of a failure of basic insulation

135 [SOURCE: IEC 61140:2001, 3.10.2, modified – modification of the definition]

136 **3.1.4**

137 **double insulation**

138 insulation comprising both basic insulation and supplementary insulation

139 [SOURCE: IEC 61140:2001, 3.10.3]

140 **3.1.5**

141 **reinforced insulation**

142 insulation of hazardous-live-parts which provides a degree of protection against electric shock
143 equivalent to double insulation

144 [SOURCE: IEC 61140:2001, 3.10.4, modified – modification of the definition]

3.1.6**conductive part**

part which is capable of conducting electric current, although it may not necessarily be used for this purpose

3.1.7**live part**

conductor or conductive part intended to be energized in normal operation, including a neutral conductor, but by convention not a PEN conductor

Note 1 to entry: A PEN conductor combines the functions of both a protective earthing conductor and a neutral conductor.

[SOURCE: IEC 60050-195:1998, 195-02-19, modified – modification of the definition]

3.1.8**clearance**

shortest distance in air between two conductive parts, or between a conductive part and the accessible surface of a relay

Note 1 to entry: An example for an accessible surface is the actuating member of a relay used for manual operation.

[SOURCE: IEC 60664-1:2007, 3.2, modified – modification of the definition]

3.1.9**solid insulation**

solid insulating material interposed between two conductive parts

[SOURCE: IEC 60664-1:2007, 3.4]

3.1.10**creepage distance**

shortest distance along the surface of the insulating material between two conductive parts

[SOURCE: IEC 60664-1:2007, 3.3, modified – modification of the definition]

3.1.11**tracking**

progressive degradation of a solid insulating material by local discharges to form conducting or partially conducting paths

Note 1 to entry: Tracking usually occurs due to surface contamination.

[SOURCE: IEC 60050-212:2010, 212-11-56, modified – modification of the definition]

3.1.12**proof tracking index****PTI**

numerical value of the proof voltage expressed in volts which a material can withstand without tracking under specified test conditions

[SOURCE: IEC 60050-212:2010, 212-11-60, modified – modification of the definition]