



SLOVENSKI STANDARD
oSIST prEN IEC 61810-7-1:2023
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Električni releji - Preskusi in meritve - 7-1. del: Vizualni pregled in preverjanje mer

Electrical relays - Tests and Measurements - Part 7-1: Visual inspection and check of dimensions

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Ta slovenski standard je istoveten z: **prEN IEC 61810-7-1:2023**
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COMMITTEE DRAFT FOR VOTE (CDV)

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IEC TC 94 : ELECTRICAL RELAYS	
SECRETARIAT: Austria	SECRETARY: Mr Bernhard Spalt
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 121, SC 121A	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING
<p>Attention IEC-CENELEC parallel voting</p> <p>The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.</p> <p>The CENELEC members are invited to vote through the CENELEC online voting system.</p>	

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TITLE:

Electrical relays – Tests and Measurements - Part 7-1: Visual inspection and check of dimensions

PROPOSED STABILITY DATE: 2026

NOTE FROM TC/SC OFFICERS:

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Electrical Relays –
Tests and measurements**
Part 7-1: Visual inspection and check of dimensions

FOREWORD

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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:

CD	CC
94/837/CC	94/865/CC

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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Electrical Relays – Tests and measurements

Part 7-1: Visual inspection and check of dimensions

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79 **1 Scope**

80 This part of IEC 61810-7 is used for testing along with the appropriate severities and conditions
81 for measurements and tests designed to assess the ability of specimens to perform under
82 expected conditions of transportation, storage, and all aspects of operational use.

83 The object of this test is to define a standard test method for the visual examination and check
84 of dimensions.

85 **2 Normative references**

86 The following documents are referred to in the text in such a way that some or all of their content
87 constitutes requirements of this document. For dated references, only the edition cited applies.
88 For undated references, the latest edition of the referenced document (including any
89 amendments) applies.

90 IEC 61810-7-0, *All-or-nothing electrical relays – Tests and Measurements – Part 7-0: Testing –*
91 *General and Guidance*

92 **3 Terms and definitions**

93 **3.1.1**

94 **marking**

95 identification of a relay which, when completely given to the manufacturer of this relay, allows
96 the unambiguous indication of its electrical, mechanical, dimensional and functional parameters

97 EXAMPLE Through the indication of the trade mark and the type designation on the relay, all relay-specific data
98 can be derived from the type code.

99

100 **4 Test procedure**

101 **4.1 Purpose**

102 To ensure that the relay marking, and the key dimensions are in line with the specification for
103 the relay, and no visible mechanical defects or observations could be detected.

104 If not otherwise specified, the inspections and check of key dimensions shall be carried out as
105 non-destructive tests.

106 **4.2 Inspection procedure**

107 All inspections afterwards shall be performed under normal factory lighting and visual conditions
108 accordingly to EN 13018, unless otherwise specified.

109 NOTE Any optical inspection is until a certain point a subjective procedure and there for ambient light conditions,
110 distance to the object, and so on shall follow best practice.

111 The inspection shall be carried out by one of the following:

112 a) direct by eye (usual visual acuity and color perception, suitable inspection distance and
113 lightning) or

114 b) if not possible or requested (for documentation reasons) with optical auxiliary equipment.

115 **4.2.1 Initial inspection**

116 Initial inspection shall include:

117 a) marking;

118 b) terminal identification;

119 c) correct housing and outside parts (e.g. colour...);

120 d) mechanical defects

121 **4.2.2 Visual inspection**

122 The visual inspection shall identify all test sample (outside without the use of access equipment
123 or tools) observations and/or defects (like deformed enclosures) which appears to the eye.

124 NOTE In case of group mounting test setups it may be necessary to disassemble the setup.

125 **4.2.3 Detailed inspection**

126 In addition to all the observations coming from the visual inspection, a detailed inspection,
127 including the inside of the test sample, may be performed, if required by the product standard

128 For that reason, the sample may be carefully opened by using, where necessary, tools and/or
129 other equipment.

130 **4.3 Check of dimensions**

131 The dimensional examination are measurements made on the actual parts with the aid of
132 suitable measuring tools and measuring equipment in compliance with the relevant specification.

133 Example for appropriate equipment are:

134 a) a vernier gauge, a micrometer and a dial gauge;

135 b) calliper gauges;

136 c) a measuring projector with a suitable linear magnification;

137 d) a measuring microscope;

138 e) measurement via cutting images

139 f) x-ray;

140 g) CT (computerized tomography) scanner.

141 The geometry of the insulation coordination could be very complex and the measurement
142 a real challenge. The evaluation via CAD in combination with real data from a CT scan is
143 considered as suitable method to evaluate clearances as well creepages.

144 **4.3.1 Kind of dimensions**

145 **4.3.1.1 Outline dimensions**

146 Dimensions shall be checked and shall comply with the outline drawings or the detail
147 specification.

148 **4.3.1.2 Clearance and creepage**

149 Clearance and creepage distances shall be checked and verified according the relay
150 specification and minimum requirements given in IEC 61810-7-41.

151 This includes in case of:

- 152 • full disconnection → the contact gap and
- 153 • barrier requirements → the thickness of these.

154 **4.3.1.3 Detailed dimensions**

155 When required by the detail specification, detailed dimensions of the components supplied shall
156 be checked and shall comply with the relevant drawings.

157 **4.3.1.4 Gauging procedure**

158 Where gauging procedures are specified by the detail specification, the relevant specimens
159 shall be accepted or rejected by the gauges, as appropriate.

160 **4.3.1.5 Special measurements**

161 Special measurements such as:

- 162 – measurements of the thickness of protection,
- 163 – measurements of surface roughness or irregularities,
- 164 are not covered by this standard.

165 **4.4 Conditions to be specified**

166 **4.4.1 Inspection**

167 The conditions to be specified are the following:

- 168 a) Used optical method
- 169 b) Special ambient conditions, if needed for interpretation or repeating of this test e.g. usage
170 of polarized light under a specific angle or similar.
- 171 c) particular optical devices, if required and / or needed;

172 Initial inspection shall include:

- 173 a) correctness of marking (complete and legible);

174 b) correctness of terminal identification;

175 c) correct housing (e.g. colour...);

176 Visual inspection shall include:

177 a) absence of mechanical defects (e.g. no holes or dots on the cover, no abrasion on resin...)

178 Outside only for visual inspection

179 In- and outside for detailed inspection

180 **4.4.2 Check of dimensions**

181 The conditions to be specified are the following features to be checked

182 a) used method or if more methods are combined also which and the sequence. E.g., preparing
183 cutting images for the creepage evaluation.

184 b) Gauging details, if applicable

185 c) type and magnification of measuring equipment, if applicable;

186 d) deficiency criteria, if applicable;

187 e) any deviation from the standard test method.

188 **5 Evaluation**

189 The correctness of the marking and dimensions shall be documented and in line with the
190 requirements.

191 The evaluated dimensions shall in line with the product specification.

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