



SLOVENSKI STANDARD
oSIST prEN IEC 61810-7-21:2023
01-oktober-2023

Električni releji - Preskusi in meritve - 7-21. del: Toplotna vzdržljivost

Electrical relays - Tests and Measurements - Part 7-21: Thermal Endurance

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Relais électriques - Essais et mesurages - Partie 7-21: Endurance thermique

Ta slovenski standard je istoveten z: prEN IEC 61810-7-21:2023

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IEC TC 94 : ELECTRICAL RELAYS	
SECRETARIAT: Austria	SECRETARY: Mr Bernhard Spalt
OF INTEREST TO THE FOLLOWING COMMITTEES:	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	
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TITLE:

Electrical relays – Tests and Measurements – Part 7-21: Thermal Endurance

PROPOSED STABILITY DATE: 2025

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

Electrical Relays- Testing and Measurements

Part 7-21: Thermal Endurance

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
94/858/CD	94/940/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.

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

76

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

- 80 • reconfirmed,
- 81 • withdrawn,
- 82 • replaced by a revised edition, or
- 83 • amended.

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Electrical Relays- Testing and Measurements

Part 7-21: Thermal Endurance

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94 **1 Scope**

95 This part of IEC 61810-7 is used for testing along with the appropriate severities and conditions
96 for measurements and tests designed to assess the ability of specimens to perform under
97 expected conditions of transportation, storage and all aspects of operational use. The object of
98 this test is to define a standard test method for evaluation of resistance against high
99 temperature for long periods.

100 **2 Normative references**

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

105

106 *IEC61810-0*

107

108 *IEC61810-7-6* Contact-circuit resistance (or voltage drop)

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110 *IEC61810-7-7* Functional tests

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112 *IEC61810-7-8* Timing Test

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114 *IEC 61810-7-22* Limiting continuous current

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120 **3 Terms and definitions**

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

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124 **4 Test Procedure**

125 **4.1 Purpose**

126 The thermal endurance assesses the influence to a proper relay function in accordance to IEC
127 61810-7-7, Functional test under high temperature conditions on the relay when energized for
128 long periods.

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130 **4.2 Procedure**

131 The test shall be carried out at the upper value of the operating temperature range with the relay
132 energized as specified and with all contacts carrying their limiting continuous currents according to
133 IEC 61810-7-22 (maximum loading of the contact set) or any other maximum load as specified. The
134 preferred test duration is 1000h. if the steady state condition¹ is reached, the test is passed. If there is
135 no steady state condition¹ reached after this period in accordance with the evaluation requirements the
136 test shall be expanded for further 1000h.

137 If the steady state condition¹ is reached after 2000h the test record shows the duration level B.

138 The duration could be increased a second time up to 5000h.

139 In this case the test record shows the duration level C.

140 In order to fulfil the complete test sequence it is necessary to pass the requirements of the final
141 measurements. The requirement for the intermediate measurement is to pass the tests according to
142 IEC 61810-7-7. The requirement for the final measurement is additionally to pass the tests according
143 to IEC61810-7-6 and IEC 61810-7-8. The conditions shall be set up referring to table 1. The test
144 sequence must follow Figure 1.

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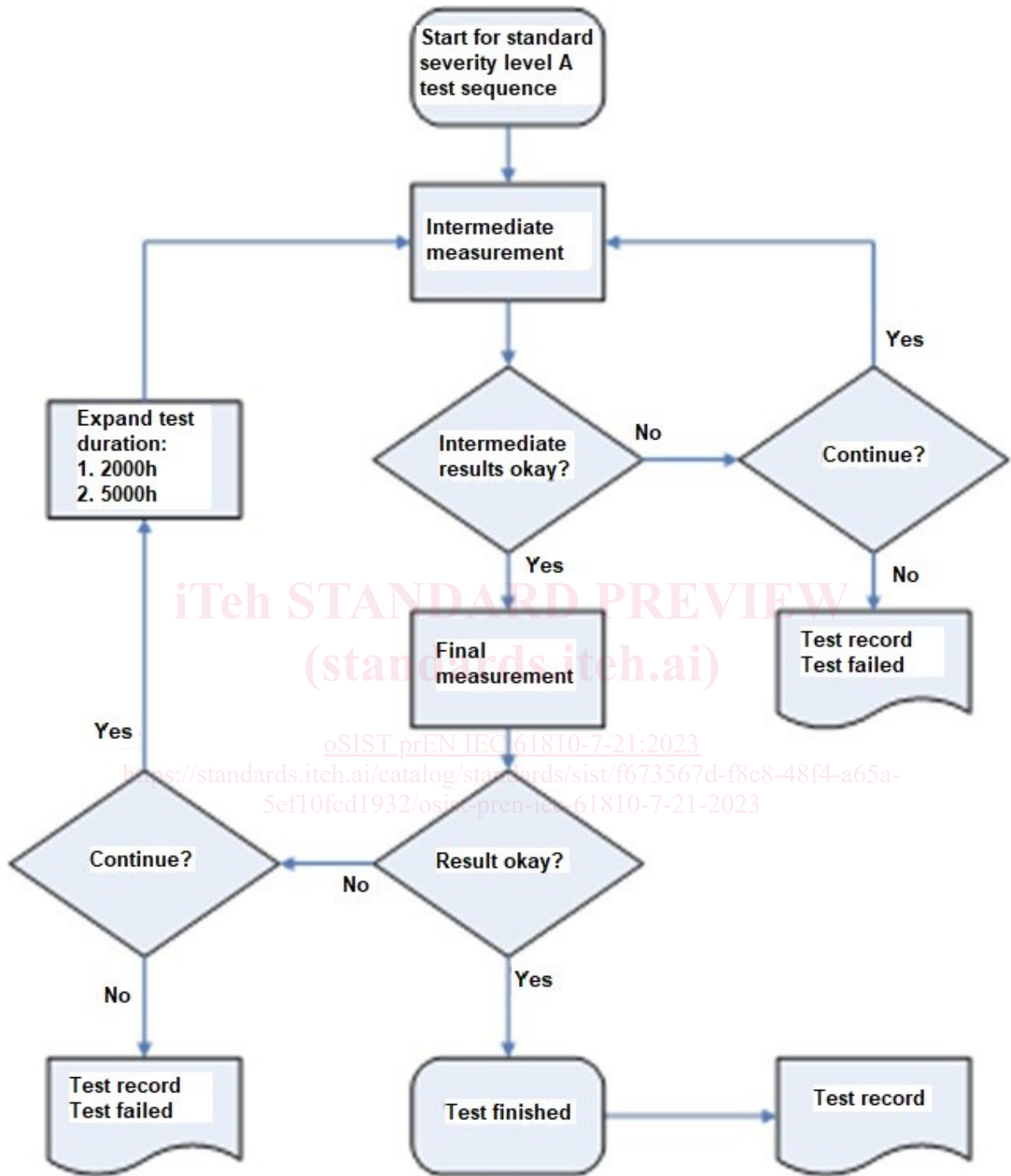
147 ¹ condition: Steady state conditions is reached, if operate voltage and release voltage meet the operating range specified by the
148 manufacturer.

149 During the test, the contact state monitoring might be useful.

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Figure 1 - Test sequence

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159 **4.3 Conditions to be specified**

160 The conditions to be specified are the following:

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Table 1 Conditions

Parameter	
Mounting	Standard PCB, PWB (Printed wiring board), flat-quick connectors, sockets and/or others ¹ in accordance to manufacturer specification.
Mounting distance	In accordance to product specification
Ambient temperature	Maximum ambient temperature (chamber with recirculation air)
Energetization value	Nominal coil voltage
Load	Maximum limiting continuous current
Sample lot	minimum 5 pcs
	¹ The standard test setup follows the relay separation in accordance to the catalogue (PCB, PWB (Printed wiring board), for power-, forcibility guided contact-, industrial relays). If the relay design allows different kinds of connection methods (e.g. solder and flat- quick connection), each mounting situation shall be evaluated separately.

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