SLOVENSKI STANDARD
SIST EN 61810-2-1:2011

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Osnovni elektromehanski releji - 2. del: Zanesljivost - Postopki za overjanje vrednosti B10

Electromechanical elementary relays - Part 2: Reliability - Procedure for the verification of B10 values

Elektromechanische Elementarrelais - Teil 2-1: Funktionsfähigkeit (Zuverlässigkeit) - Verfahren zum Nachweis der B10-Werte

Relais électromécaniques élémentaires - Partie 2-1: Fiabilité - Procédure de vérification des valeurs de B10

Ta slovenski standard je istoveten z: **EN 61810-2-1:2011**

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NORME EUROPÉENNE

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English version

Electromechanical elementary relays - Part 2-1: Reliability - Procedure for the verification of B10 values

(IEC 61810-2-1:2011)

Relais électromécaniques élémentaires - Partie 2-1: Fiabilité - Procédure de vérification des valeurs de B10 (CEI 61810-2-1:2011)

Elektromechanische Elementarrelais - Teil 2-1: Funktionsfähigkeit (Zuverlässigkeit) - Verfahren zum Nachweis der B10-Werte (IEC 61810-2-1:2011)

This European Standard was approved by CENELEC on 2011-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 94/317/FDIS, future edition 1 of IEC 61810-2-1, prepared by IEC TC 94, All-or-nothing electrical relays, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61810-2-1 on 2011-04-01.

This standard is to be used in conjunction with EN 61810-2:2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2012-01-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-04-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61810-2-1:2011 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 61810-1	2008	Electromechanical elementary relays - Part 1: General requirements	EN 61810-1	2008
IEC 61810-2	2011	Electromechanical elementary relays - Part 2: Reliability	EN 61810-2	2011
IEC 62061	2005	Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems	EN 62061 + corr. February	2005 2010
ISO 13849-1	2006	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design	EN ISO 13849-1	2008

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Electromechanical elementary relays –
Part 2-1: Reliability – Procedure for the verification of B_{10} values**

**Relais électromécaniques élémentaires –
Partie 2-1: Fiabilité – Procédure de vérification des valeurs de B_{10}**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMECHANICAL ELEMENTARY RELAYS –

Part 2-1: Reliability – Procedure for the verification of B_{10} values

FOREWORD

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International Standard IEC 61810-2-1 has been prepared by IEC technical committee 94: All-or-nothing electrical relays.

This standard cancels and replaces IEC/PAS 61810-2-1 published in 2008. This edition constitutes a technical revision.

This standard includes the following significant technical changes with respect to IEC/PAS 61810-2-1:

- addition of inductive loads in Clause 4;
- specification of dielectric tests under Clause 4 and Clause 5;
- addition of informative Annex A illustrating the assessment of malfunctions for B_{10d}.

The text of this standard is based on the following documents:

FDIS	Report on voting
94/317/FDIS	94/326/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61810 series can be found, under the general title *Electromechanical elementary relays*, on the IEC website.

This International Standard is to be used in conjunction with IEC 61810-2:2011.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

Based on the general provisions of IEC 61810-2, this standard specifies reliability test procedures for electromechanical elementary relays where enhanced requirements for the verification of reliability apply. An initial conformity test is passed and then confirmed by periodic tests with specified periodicity. This standard describes how figures for B_{10} (the mean number of cycles until 10 % of the relays have failed) are derived from these life tests performed with representative relay samples.

In particular when electromechanical elementary relays are intended to be incorporated in safety-related control systems of machinery in accordance with IEC 62061 and ISO 13849-1, the mean time to dangerous failure ($MTTF_d$) is a measure that can be taken into account when assessing the probability of dangerous failure of the safety function concerned. Although a component failure cannot be defined as “dangerous” unless the detailed application is known, it is common to consider a failure mode that is likely to result in danger in a typical application of the component, and to refer to this failure mode as a “dangerous failure”. The $MTTF_d$ then becomes the expectation of the mean time to failure in this “dangerous“ mode. For the calculation of $MTTF_d$ for electromechanical relays the data provided by the manufacturer for B_{10d} can be used (see C.4 of ISO 13849-1:2006).

Electromechanical elementary relays with forcibly guided (mechanically linked) contacts offer the possibility of a high diagnostic coverage according to 4.5.3 of ISO 13849-1:2006.

NOTE Requirements for such relays are given in EN 50205.