

Electromechanical all-or-nothing relays —

Part 50: Sectional specification — Electromechanical all-or-nothing telecom relays of assessed quality

The European Standard EN 61811-50:2002 has the status of a
British Standard

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee EPL/94, General purpose relays and reed contact units, which has the responsibility to:

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Part 50: Sectional specification -
Electromechanical all-or-nothing telecom relays
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Relais électromécaniques de tout-ou-rien
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Relais électromécaniques de tout-ou-rien
télécom soumis au régime d'assurance
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Elektromechanische Schaltrelais
Teil 50: Rahmenspezifikation -
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mit bewerteter Qualität
(IEC 61811-50:2002)

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CENELEC

European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 94/144/FDIS, future edition 2 of IEC 61811-50, 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 61811-50 on 2002-05-01.

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The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
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- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2005-05-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annex A is informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61811-50:2002 was approved by CENELEC as a European Standard without any modification.

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ELECTROMECHANICAL ALL-OR-NOTHING RELAYS –

Part 50: Sectional specification – Electromechanical all-or-nothing telecom relays of assessed quality

1 General

1.1 Scope

This part of IEC 61811 is a sectional specification and applies to electromechanical all-or-nothing telecom relays of assessed quality. Relays according to this standard are provided for operation in telecommunication applications. However, as electromechanical all-or-nothing relays, they are also suitable for particular industrial and other applications.

This standard selects from IEC 61810-7 and other sources the appropriate methods of test to be used in detail specifications derived from this specification, and contains basic test schedules to be used in the preparation of such specifications. Detailed test schedules are contained in the blank detail specifications supplementary to this specification.

1.2 Normative references

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.

IEC 60062:1992, *Marking codes for resistors and capacitors*

IEC 60255-23:1994, *Electrical relays – Part 23: Contact performance*

IEC 60410:1973, *Sampling plans and procedures for inspection by attributes*

IEC 60695-2-2:1991, *Fire hazard testing – Part 2: Test methods – Section 2: Needle-flame test*

IEC 61709:1996, *Electronic components – Reliability – Reference conditions for failure rates and stress models for conversion*

IEC 61810-1:1998, *Electromechanical non-specified time all-or-nothing relays – Part 1: General requirements*

IEC 61810-5:1998, *Electromechanical non-specified time all-or-nothing relays – Part 5: Insulation co-ordination*

IEC 61810-7:1997, *Electromechanical all-or-nothing relays – Part 7: Test and measurement procedures*

IEC 61811-1:1999, *Electromechanical non-specified time all-or-nothing relays of assessed quality – Part 1: Generic specification*

QC 001002-3:1998, *Rules of Procedure of the IEC Quality Assessment System for Electronic Components (IECQ) – Part 3: Approval Procedures*

ISO 8601:2000, *Data elements and interchange formats – Information interchange – Representation of dates and times*

ISO 9001:2000, *Quality systems – Model for quality assurance in design, development, production, installation and servicing*

CECC 00016:1990, *Basic requirements for the use of statistical process control (SPC) in the CECC system*

CECC 00800:1986, *Code of practice on the use of the ppm approach in association with the CECC system*

1.3 Terms and definitions

For the purpose of this part of IEC 61811, the terms and definitions given in IEC 61810-7, as well as the following apply:

1.3.1

types of relays

types of relays as defined in IEC 61810-7

NOTE The most frequent types of electromechanical all-or-nothing telecom relays are the following ones:

- monostable: non-polarized;
- monostable: polarized;
- bistable: polarized.

1.3.2

types of contacts

a) change-over break-before-make contact

change-over contact, one contact circuit of which breaks before the other makes

b) change-over make-before-break contact

change-over contact, one contact circuit of which makes before the other breaks

1.3.3

contact fault and contact failure

a) contact fault due to contact-circuit resistance

the occurrence is assumed when the contact-circuit resistance of a closed contact exceeds the maximum value stated in the detail specification

b) contact fault due to non-opening of the contact circuit (e.g. contact sticking)

the occurrence due to the fact that the contact does not open is assumed when the resistance of an open contact assembly falls below the specified minimum value stated in the detail specification

c) contact failure

the occurrence is assumed when the number of faults due to contact-circuit resistance or/and of faults due to non-opening of the contact circuit exceeds the number of faults stated in the detail specification, with reference to a single tested contact

1.3.4**relay fault, relay failure and relay defect****a) relay fault**

the state of a relay characterized by the inability to perform a required function. A fault persists for a limited time after which the relay recovers the ability to perform a required function without being subjected to any corrective maintenance

b) relay failure

failure occurs when the relay is unable to carry out its required function

c) relay defect

any deviation of a characteristic of a relay from the requirements

NOTE 1 The requirements may or may not be expressed in the form of a specification.

NOTE 2 A defect may or may not affect the ability of a relay to perform a required function.

d) defective relay

relay containing one or more defects

1.4 Preferred values

The following Subclauses contain preferred values applicable to electromechanical all-or-nothing telecom relays.

1.4.1 Rated coil voltages

Preferred values d.c.: 1,5; 3; 4,5; 5; 6; 9; 12; 24; 48 or 60 V.

1.4.2 Contact-circuit resistance

a) Preferred values in initial condition: maximum 50; 100 or 200 m Ω .

b) Preferred values during/after tests: maximum 0,5; 1; 5; 10; 20 or 100 Ω .

c) Preferred value for detecting faults due to non-opening of the contact circuit during tests: minimum 100 k Ω .

d) Voltage for detecting faults due to non-opening of the contact circuit during tests; preferred maximum values: 0,03; 5; 6; 12; 24; 48 or 60 V d.c.

e) Difference of contact-circuit resistance between different contact circuits in the same relay, preferred value: maximum 100 m Ω (initial condition).

1.4.3 Dielectric test

Preferred values in initial condition between opened contact circuits, between separate contact circuits, between contact circuits and coil(s), between all conductive parts and mass (if applicable) in accordance with IEC 61810-5.

a) Preferred voltages: 0,5; 0,8; 1,5; 2,5 kV a.c.

b) Preferred duration: 1 s or 60 s

1.4.4 Impulse voltage test

a) Preferred voltages: 0,5; 1,0; 1,5; 2 or 2,5 kV.

b) Preferred waveform: 0,5 μ s/700 μ s, 1,2 μ s/50 μ s or 10 μ s/700 μ s.

c) Preferred number of pulses (alternate positive and negative pulses): 10.

d) Preferred frequency of pulses: 2 or 4 pulses/min.