

Electromechanical elementary relays of assessed quality —

Part 10: Sectional specification — Relays for industrial application

The European Standard EN 61811-10:2003 has the status of a
British Standard

ICS 29.120.70

National foreword

This British Standard is the official English language version of EN 61811-10:2003. It is identical with IEC 61811-10:2002. It supersedes BS QC 160100:1987 which will be withdrawn on 2006-02-01.

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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- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 21 and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 12 August 2003

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ISBN 0 580 42392 1

Electromechanical elementary relays of assessed quality
Part 10: Sectional specification –
Relays for industrial application
(IEC 61811-10:2002)

Relais élémentaires électromécaniques
soumis au régime d'assurance
de la qualité
Partie 10: Spécification intermédiaire -
Relais pour applications industrielles
(CEI 61811-10:2002)

Elektromechanische Elementarrelais
mit bewerteter Qualität
Teil 10: Rahmenspezifikation –
Relais für industrielle Anwendungen
(IEC 61811-10:2002)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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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 94/168/FDIS, future edition 1 of IEC 61811-10, 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 61811-10 on 2003-02-01.

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) 2003-11-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2006-02-01

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 annexes A and B are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61811-10:2002 was approved by CENELEC as a European Standard without any modification.

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ELECTROMECHANICAL ELEMENTARY RELAYS OF ASSESSED QUALITY –

Part 10: Sectional specification – Relays for industrial application

1 General

1.1 Scope

This part of IEC 61811 is a sectional specification applicable to electromechanical elementary (non-specified time all-or-nothing) relays of assessed quality for industrial application.

NOTE Electromechanical all-or-nothing telecom relays of assessed quality are covered by IEC 61811-50.

It is based on the basic relay standard IEC 61810-1 as well as on the generic specification IEC 61811-1 and selects from IEC 61810-7 the appropriate test and measurement procedures to be used in detail specifications derived from this specification. Moreover it contains a basic test schedule to be used in the preparation of such specifications. Detailed test schedules are given in the blank detail specifications supplementary to this sectional specification.

For the purpose of this standard, only fundamental tests have been compiled. Depending on the field of application, further tests should be selected as appropriate, preferably in accordance with the test and measurement procedures of IEC 61810-7.

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 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 coordination*

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*

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

1.3 Marking

Relays and their package supplied in accordance with detail specifications covered by this sectional specification, shall as a minimum be marked as follows:

1.3.1 Relay

- Trade mark or manufacturer's name
- Relay type and variant code
- Date of manufacture, year/week, coded in accordance with IEC 60062
- IECQ mark

Where space permits, a circuit diagram or terminal identification should be given.

1.3.2 Package

- Trade mark or manufacturer's name
- Detail specification reference if not marked on the relay
- Quantity
- Relay type and variant code
- Manufacturer's batch identification code

1.4 Ordering information

The ordering information shall be coded and shall contain the following details:

- IECQ detail specification number
- Coded coil voltage
- Terminal code
- Coded mounting arrangement
- Specials code

2 Quality assessment procedures

2.1 Primary stage of manufacture

The primary stage of manufacture is the first process subsequent to the manufacture of finished parts and subassemblies of the relay.

NOTE 1 A subassembly is understood to mean here the permanent assembly of two or more piece parts.

NOTE 2 Important manufacturing steps are as follows:

- a) fabrication, heat treatment and plating of the component parts of the relay;
- b) coil winding;
- c) assembling of the electrical and electromechanical parts;
- d) adjustment of the relay contacts, if applicable;
- e) high-temperature drying, gas backfilling and sealing of the relay, if applicable;
- f) final measurements and periodic inspection of test groups A to D.

2.2 Structurally similar relays

Relays are considered structurally similar if having no differences in design other than in:

- a) coil wire diameter, number of windings and the coil transient suppression device;
- b) types, numbers and material of contacts;
- c) rated coil and/or contact voltage(s);
- d) mounting and terminal variants within the limits prescribed in the detail specification.

2.3 Subcontracting

Subcontracting the primary stage of manufacture (see 2.1) and/or subsequent stages to an unapproved manufacturer is forbidden. Subcontracting is permitted for any stages preceding the primary stage of manufacture and shall be in accordance with the requirements of (normative) Annex B to Clause 2 of IEC QC 001002-3.

2.4 Qualification approval procedures

The manufacturer shall comply with the general requirements of the basic rules governing qualification approval defined in Clause 3 of IEC QC 001002-3 and the provisions given in 2.2 of IEC 61811-1.

The requirements contained in 4.2 of IEC 61810-1 shall be met.

Qualification approval tests shall include all the tests prescribed in the detail specification, and shall be performed by a schedule specifically prescribed in the detail specification.

Sampling shall be carried out in accordance with the sampling plans and procedures specified in IEC 60410. The number of specimens for each subgroup is specified in the blank detail specification. As a general rule, a minimum of five specimens are required for each group of tests. The qualification tests schedule may specify destructive and cumulative non-destructive tests.

2.5 Quality conformance inspection requirements

2.5.1 General requirements

Quality conformance inspection shall be carried out in accordance with the requirements of Clause 3 of IEC QC 001002-3 and 2.3 of IEC 61811-1.

2.5.2 Formation of inspection lots

Inspection lots to be submitted to group A and B acceptance tests shall be formed in accordance with 3.2.3 and 3.3.1 of IEC QC 001002-3 and with the sampling plans and procedures given in IEC 60410, except where production is too infrequent or too small for sampling plans to apply; in these cases inspection shall be 100 %.

When sampling is carried out in accordance with IEC 60410, the percent defective concept only shall be used. Stratified or representative sampling shall always be used to include all production lines and structurally similar relays in proportion to their respective quantities in the lot. Exceptions from proportionality may become necessary and shall be stated in the detail specification or agreed between the manufacturer and the National Supervising Inspectorate (NSI). Specimens shall be as representative as possible of the production.

2.5.3 Periodic inspection

Fixed samples for group C and D inspection shall be taken from a lot (or lots) which has passed group A and B inspection during, or at the end, of the specified reference period. In both cases the inspection lot (or lots) shall not be less than the average of production lots during the reference period for each group.

2.6 Test schedule

2.6.1 Test sequence

A test sequence shall consist of all tests listed in the (blank) detail specification.

The reference numbers of the tests are those of IEC 61810-7, with the exception of additional test(s) described in the sectional, the blank detail or the detail specification.

