

Electromechanical all-or-nothing relays —

**Part 54: Blank detail specification —
Electromechanical all-or-nothing
telecom relays of assessed quality —
Two change-over contacts,
15 mm x 7,5 mm base**

The European Standard EN 61811-54:2002 has the status of a
British Standard

ICS 29.120.70

National foreword

This British Standard is the official English language version of EN 61811-54:2002. It is identical with IEC 61811-54:2002. It supersedes BS EN 116504:1996 which is withdrawn.

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:

- aid enquirers to understand the text;
- 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.

A list of organizations represented on this committee can be obtained on request to its secretary.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

Cross-references

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This British Standard, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 25 July 2002

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Electromechanical all-or-nothing relays
Part 54: Blank detail specification -
Electromechanical all-or-nothing telecom relays of assessed quality -
Two change-over contacts, 15 mm x 7,5 mm base
(IEC 61811-54:2002)

Relais électromécaniques de tout-ou-rien
Partie 54: Spécification particulière cadre -
Relais électromécaniques de tout-ou-rien
télécom soumis au régime
d'assurance de la qualité -
Deux contacts à deux directions,
surface d'encombrement de 15 mm x 7,5 mm
(CEI 61811-54:2002)

Elektromechanische Schaltrelais
Teil 54: Vordruck für Bauartspezifikation -
Elektromechanische Telekom-Relais
mit bewerteter Qualität -
2 Wechsler, 15 mm x 7,5 mm Grundfläche
(IEC 61811-54:2002)

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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
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 94/148/FDIS, future edition 2 of IEC 61811-54, 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 61811-54 on 2002-05-01.

This European Standard supersedes EN 116504:1995.

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) 2003-02-01
- 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.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61811-54:2002 was approved by CENELEC as a European Standard without any modification.

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ELECTROMECHANICAL ALL-OR-NOTHING RELAYS –

Part 54: Blank detail specification – Electromechanical all-or-nothing telecom relays of assessed quality – Two change-over contacts, 15 mm × 7,5 mm base

1 General

1.1 Scope

This part of IEC 61811 is a blank detail specification applicable 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 tests to be used in detail specifications derived from this specification, and contains basic test schedules to be used in the preparation of such specifications in accordance with IEC 61811-1.

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 60068-1:1988, *Environmental testing – Part 1: General and guidance*
Amendment 1 (1992)

IEC 60068-2-17:1994, *Environmental testing – Part 2: Tests – Test Q: Sealing*

IEC 60068-2-20:1979, *Environmental testing – Part 2: Tests – Test T: Soldering*
Amendment 2 (1987)

IEC 60068-2-47:1999, *Environmental testing – Part 2-47: Test methods – Mounting of components, equipment and other articles for vibration, impact and similar dynamic tests*

IEC 60255-14:1981, *Electrical relays – Part 14: Endurance test for electrical relay contacts – Preferred values for contact loads*

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 61810-7:1997, *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 61811-50:2002, *Electromechanical all-or-nothing relays – Part 50: Sectional specification – Electromechanical all-or-nothing telecom relays of assessed quality*

QC 001002-2:1998, *Rules of Procedure of the IEC Quality Assessment System for Electronic Components (IECQ) – Part 2: Documentation*

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

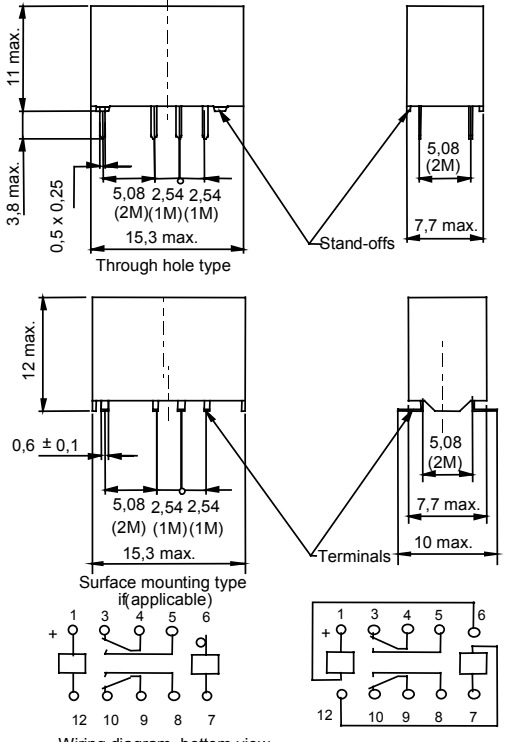
QC 001005:2000, *Register of Firms, Products and Services approved under the IECQ System, including ISO 9000*

CECC 00802:1990, *Guidance document: CECC Standard Method for the Specification of Surface Mounting Components (SMDs) of Assessed Quality*

(National authorized institutions will complete this clause by making reference to any documents or specifications directly referred to in their national equivalent of this standard.)

1.3 Front page of the detail specification

The layout of the front page of the detail specification is as follows.

(1)	(2) QC xxxxxx Edition:200X Page 1 of x
(3) Electronic components of assessed quality in accordance with: IEC 61810-7:1997 IEC 61811-50:2002	(4)
Detail specification for electromechanical all-or-nothing telecom relays of assessed quality, dual-in-line, with 15 mm × 7,5 mm base, two change-over contacts Type: two change-over contacts (5) Construction: dual-in-line, with 15 mm × 7,5 mm base (6) plastic sealed case, overall height through-hole type of 11 mm max. surface mounting type of 12 mm max. relay properties RT III for conventional assembling techniques of printed circuit boards using mounting holes and soldering or for surface mounting technology (if applicable)	
Outline drawing and wiring diagram (7) Dimensions in millimetres  NOTE Drawings are examples; the maximum outer dimensions, the wiring diagram of one coil relay, the terminal arrangement and the same orientation of all rectangular terminals are mandatory.	
Application: (8) Relays according to this standard are provided for the operation in telecommunication applications. However, as printed circuit board relays, they are suitable also for control or switching functions in particular industrial and other applications.	
Coil data (9) Rated voltages: V d.c. Rated power: mW Contact data (10) Change-over break-before-make contacts Rated contact voltage: 110 V d.c. / 125 V a.c.* Rated contact current: 1,25 A max. Rated contact power: 30 W/50 VA* Limiting continuous current: 2 A max. * AC values mandatory only if stated in detail specification.	
Component climatic category according to IEC 60068-1: 25/70/21 (11) Temperature range – operating ambient temperature: –25 °C to 70 °C – storage temperature: –40 °C to 85 °C	
Information about manufacturers who have components qualified according to this detail specification is available in the current QC 001005.	

Key to front page:

The numbers between brackets on the front page correspond to the following indications which should be given.

Identification of the detail specification

- (1) The name of the national standards organization under whose authority the detail specification is published and, if applicable, the organization from whom the detail specification is available.
- (2) The IECQ symbol and the number allotted to the completed detail specification by the IECQ secretariat.
- (3) The number and the year of availability of the IEC standard concerning test and measurement procedures for electromechanical all-or-nothing relays and/or sectional specification; also national reference, if different.
- (4) If different from the IECQ number, the national number of the detail specification, date of issue and any further information required by the national system, together with any amendment numbers.

Identification of the relay

- (5) Type: monostable or bistable, non-polarized or polarized, number and types of contacts.
- (6) Construction: sizes, for example dual-in-line, base and overall height, type of relay, based upon environmental protection (RT I to RT IV), mounting variants and other typical construction details.
- (7) An outline drawing with main dimensions which are of importance for interchangeability, and/or reference to the appropriate national or international document for outlines. Alternatively, this drawing may be given in an annex to the detail specification, but (7) should always contain an illustration of the general outer appearance of the component.
- (8) Typical field of applications.
- (9) Available rated coil voltages and rated power.
- (10) Available contact arrangements, defined special contact materials and contact voltage, current and power. The respective code digit for contact materials shall be listed in an annex, if applicable.
- (11) Component climatic category according to clause 8 and annex A of IEC 60068-1, and temperature range.

2 Characteristic values of the relay

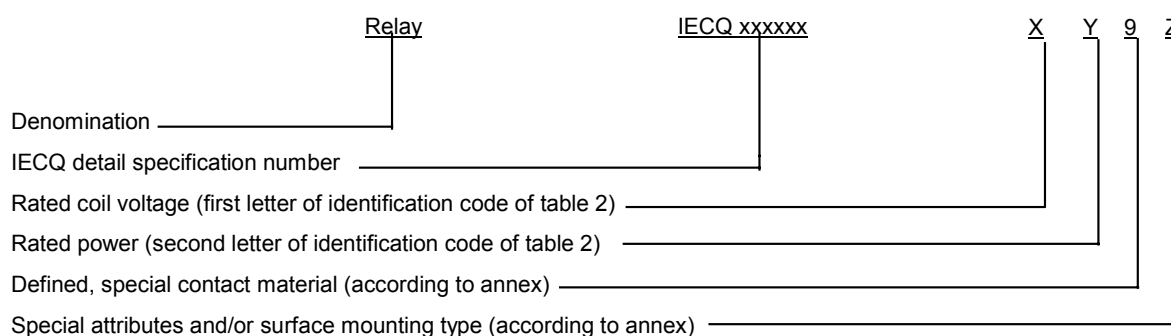
2.1 General data

- Thermal resistance: max. ... K/W
- Contact application: CA 0, CA 1, CA 2 and/or CA 3
- Relay mass: max. ... g
- Finish of the terminals: presoldering; admissible non-presoldered part: max. 1 mm to the stand-off plane, if applicable
- Insulation resistance: 1 000 MΩ min. at 500 V d.c. initial value
- Dielectric strength: see table 1

Table 1 – Dielectric test voltages

	Dielectric test V a.c. min.	Impulse voltage test 10 µs/700 µs and/or 1,2/50 µs V min.
Opened contact circuits	500	
Between separate contact circuits	500	
Coil to contact circuits	500	
Between separated windings (if applicable)		

2.2 Construction of IECQ type designation (ordering information)



The coding of the monostable or bistable relay type shall be combined with the rated power of the coil, if applicable. The reference to the number and types of contacts shall be given on the front page of the specification.

Use code 0 as the last digit if no special attributes apply. If one of the attributes in the example for a detail specification shall not be considered, the corresponding code number or letter shall be deleted; there shall be no special marks or open space for non-applicable attributes.

The manufacturer may use his own numbering system, provided that a conversion list with the IECQ type designations and the manufacturer's part numbers is given in an annex to the detail specification.

2.3 Coil data

Table 2 – Coil data

Identifi- cation code	Rated voltage V	Coil resistance at (23 ± 2) °C Ω ± 10 %	Must operate voltage V at coil temperature of			Maximum coil voltage V at	Must not release voltage V	Must release voltage V at coil temperature of			Rated power mW
			–25 °C	23 °C	70 °C			–25 °C	23 °C	70 °C	

2.4 Contact data

2.4.1 Electrical endurance and switching frequency

Contact failure: contact-circuit resistance of a closed contact higher than the value stated in 2.4.2, or resistance of an open contact circuit lower than 100 k Ω , both more than once per 10⁵ cycles or for the minimum number of switching cycles stated, calculated for each single contact; or a contact fault due to non-opening with a short circuit between break and make contact (resistance value lower than 100 Ω), i.e. one contact fault is permissible for 100 000 switching cycles and seven contact faults are permissible for 700 000 switching cycles.

Example: at a given endurance of 10⁶ operations the total number of faults, as described above, shall not exceed 10.

Table 3 – Loads, contact-circuit resistance limits, switching cycles and frequencies for electrical endurance and overload tests

Loads	Contact-circuit resistance Ω max.	Number of switching cycles min.	Switching frequencies cycles per s max.
Contact application 0	1	700 000	12,5
Resistive – max. contact voltage/max. power	1	100 000	3
Resistive – max. contact current/max. power	1	100 000	3
DC open-ended cable	1	1 000 000	12,5
Particular application-related, if required			
Overload	1*	100	0,3

* Unless otherwise stated in the detail specification.

2.4.2 Static contact-circuit resistance

- 100 m Ω max. initial condition at rated voltage
- 10 m Ω max. difference of contact-circuit resistance at other coil voltages (e.g. at must operate voltage for make contacts), initial value
- 1 Ω max. during/after electrical endurance, mechanical endurance and environmental tests at rated voltage.

2.4.3 Mechanical endurance

10⁷ min. switching cycles.

2.4.4 Timing (without suppression device)

- Operate time: max. 5 ms
- Release time: max. 5 ms
- Bounce time when the contacts are closing: max. 5 ms
- Bounce time when the contacts are opening: max. 3 ms
- Transfer time on operation and release (last break contact opens before first make contact closes respectively last make contact opens before first break contact closes – each contact monitored): min. 0,1 ms