

Electromechanical all-or-nothing relays –

Part 55:

Blank detail specification –

**Electromechanical all-or-nothing telecom relays
of assessed quality – Two change-over contacts,
11 mm × 7,5 mm (max.) base**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROMECHANICAL ALL-OR-NOTHING RELAYS –**Part 55: Blank detail specification –
Electromechanical all-or-nothing telecom relays of assessed quality –
Two change-over contacts, 11 mm × 7,5 mm (max.) base**

FOREWORD

A PAS is a technical specification not fulfilling the requirements for a standard, but made available to the public.

IEC-PAS 61811-55 has been processed by IEC technical committee 94: All-or-nothing electrical relays.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document:

Draft PAS	Report on voting
94/108/PAS	94/109/RVD

Following publication of this PAS, the technical committee or subcommittee concerned will investigate the possibility of transforming the PAS into an International Standard.

The QC number that appears on the front cover of this publication is the specification number in the IEC Quality Assessment System for Electronic Components (IECQ).

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
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- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this PAS may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

ELECTROMECHANICAL ALL-OR-NOTHING RELAYS –

Part 55: Blank detail specification – Electromechanical all-or-nothing telecom relays of assessed quality – Two change-over contacts, 11 mm × 7,5 mm (max.) 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 the 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 in accordance with IEC 61811-1.

Detailed test schedules are contained in the detail specifications supplementary to this specification.

1.2 References

IEC 60068-1:1988, *Environmental testing – Part 1: General and guidance*
Amendment No. 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 No. 2 (1987)

IEC 60068-2-47:1982, *Environmental testing – Part 2: Tests: Test: Mounting of components, equipment and other articles for dynamic tests including shock (Ea), bump (Eb), vibration (Fc and Fd) and steady-state acceleration (Ga) and guidance*

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

QC 001002-1:1998, *IEC Quality Assessment System for Electronic Components (IECQ) – Rules of Procedure – Part 1: Administration*

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

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

QC 001005:1996, *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.)

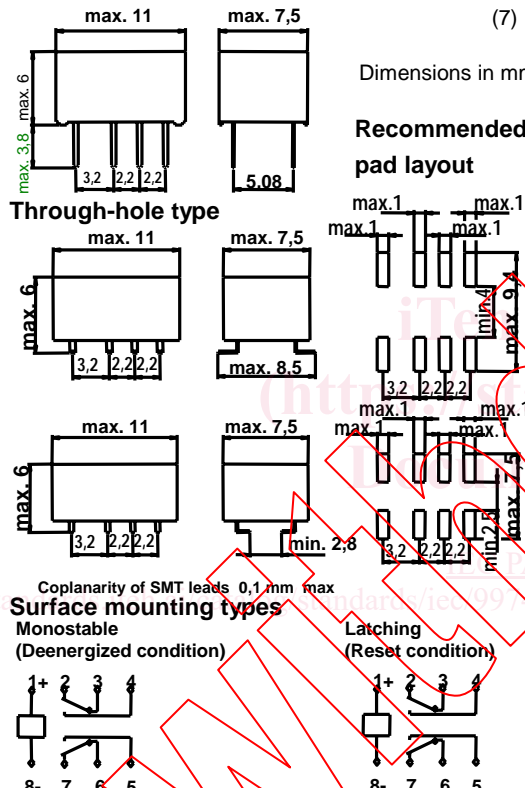
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1.3 Front page of detail specification

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

(1)	<p>QC xxxxxx (2) Issue: Page 1 of</p>
(3)	(4)
<p>Electronic components of assessed quality in accordance with: IEC 61810-7: 1997 IEC 61811-1: 1999 IEC 61811-50: 200X</p>	<p>Detail specification for electromechanical all-or-nothing telecom relays of assessed quality, two change-over contacts, with 11 mm x 7,5 mm (max.) base</p> <p>Type: two change-over contacts (5) Construction: dual-in-line, with 11 mm x 7,5 mm (max.) base (6) plastic sealed case, overall height of 6 mm max. for assembling techniques of printed circuit boards using mounting holes and soldering or for surface mounting technology (as applicable)</p>
 <p>Dimensions in mm</p> <p>Recommended pad layout</p> <p>Through-hole type</p> <p>Surface mounting types Monostable (Deenergized condition) Latching (Reset condition)</p> <p>Wiring diagram - Bottom view</p> <p>Note – Drawings are examples ; the maximum outer dimensions, the wiring diagram of coil relay, the terminal arrangement and the same orientation of all rectangular terminals are mandatory.</p>	<p>Application: (8)</p> <p>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.</p>
<p>Coil data</p> <p>Rated voltages: 1,5 ... 12 V d.c. Rated power: 140 / 100 mW</p>	(9)
<p>Contact data</p> <p>Change-over break-before-make contacts</p> <p>Rated contact voltage: 120 V d.c. / 125 V a.c. Rated contact current: 1 A max Rated contact power: 30 W / 30 VA Limiting continuous current: 1 A max</p>	(10)
<p>Component climatic category according to IEC 60068-1:</p> <p>Temperature range – operating ambient temperature: – storage temperature:</p>	<p>25/70/21 (11) –25 °C to +70 °C –40 °C to +85 °C</p>
<p>Information about manufacturers who have components qualified according to this detail specification is available in the current QC 001005.</p>	

Key to front page

The numbers between brackets of 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 which 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, two change-over contacts.
- (6) Construction: sizes, e.g. dual-in-line, base and overall height, type of relay, based upon environmental protection (RT III), 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.

Location and dimensions of stand-offs (maximum relay height shall include stand-offs), position of terminal no. 1 relative to the outside shape, acceptable offset of the tip of a terminal relative to the nominal grid position, indication of the area on the top of the relay housing to enable automatic mounting using aspirators, suitable hole diameter for assembling on printed circuit board.

- (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

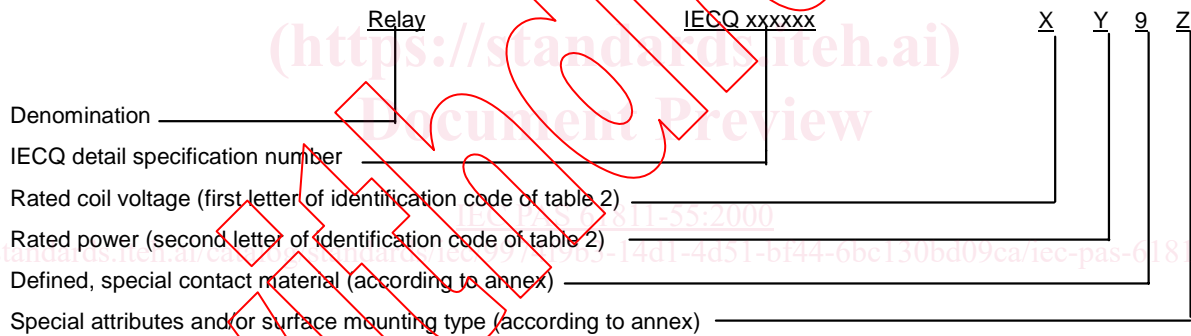
2.1 General data

- Thermal resistance: max. ... K/W
- Contact application: CA 0, CA 1, and CA 2
- 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: 1000 MΩ min. at 500 V d.c. initial value
2 MΩ min. at 500 V d.c. after tests
- Dielectric strength: see table 1

Table 1 – Dielectric test voltages

	Dielectric test V a.c. min.	Impulse voltage test V min. – pulse shape
Opened contact circuits	750	1 500 – 10/700 μs
Between adjacent contact circuits	1 000	1 500 – 10/700 μs
Coil to contact circuits	1 500	2 500 – 1,2/50 μs

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 two change-over 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.

2.3 Coil data

Table 2 – Coil data

Identification code	Rated voltage V	Coil resistance ohm $\pm 10\%$ at coil temperature of $(23 \pm 2)^\circ\text{C}$	Must not operate voltage V at coil temperature of 23°C	Must operate voltage V at coil temperature of			Maximum coil voltage V at 70°C	Must not release voltage V at coil temperature of 23°C	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 $100\text{ k}\Omega$, both more than once per 10^5 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 $100\ \Omega$), 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 10^6 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 ohm max.	Number of switching cycles min.	Switching frequencies cycles per s max.
Contact application 0	1	1 000 000	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 value at rated voltage

1 Ω max. during/after electrical endurance, mechanical endurance and environmental tests at rated voltage.