SLOVENSKI STANDARD
SIST EN 116503:2002

01-september-2002

Blank Detail Specification: Electromechanical all-or-nothing TELECOM relays of assessed quality, dual-in-line, with 14 x 9 mm base

Blank Detail Specification: Electromechanical all-or-nothing TELECOM relays of assessed quality, dual-in-line, with 14 x 9 mm base

Vordruck für Bauartspezifikation: Gütebestätigte elektromechanische Dual-in-line TELEKOM-Relais mit 14 x 9 mm Grundfläche

Spécification particulière cadre: Relais électromécaniques de tout-ou-rien TELECOM dual-in-line avec une surface d'encombrement de 14 x 9 mm, soumis au régime d'assurance de la qualité

Ta slovenski standard je istoveten z: **EN 116503:1992**

ICS:

29.120.70 Releji Relays

SIST EN 116503:2002 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 116503

December 1992

UDC

Descriptors: Quality, electronic components, TELECOM relays

English version

Blank detail specification: Electromechanical all-or-nothing TELECOM relays of assessed quality, dual-in-line, with 14 × 9 mm base

Spécification particulière cadre:
Relais électromécaniques de tout-ou-rien TELECOM dual-in-line avec une surface d'encombrement de 14 × 9 mm, soumis au régime d'assurance de la qualité

Vordruck für Bauartspezifikation:
Gütebestätigte elektromechanische Dual-in-line TELEKOM-Relais mit 14 × 9 mm Grundfläche

This European Standard was approved by the CENELEC Electronic Components Committee (CECC) on 10 August 1992. CENELEC members are bound to comply with CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CECC General Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and United Kingdom. The membership of the CECC is identical, with the exception of the national electrotechnical committees of Greece, Iceland and Luxembourg.

CECC

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

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

Ref. No. EN 116503:1992 E

Preface

The CENELEC Electronic Components Committee (CECC) is composed of those member countries of the European Committee for Electrotechnical Standardization (CENELEC) who wish to take part in a harmonized System for electronic components of assessed quality.

The object of the System is to facilitate international trade by the harmonization of the specifications and quality assessment procedures for electronic components, and by the grant of an internationally recognized Mark, or Certificate, of Conformity. The components produced under the System are thereby acceptable in all member countries without further testing.

This specification has been formally approved by the CECC, and has been prepared for those countries taking part in the System who wish to issue national harmonized specifications for ELECTROMECHANICAL ALL-OR-NOTHING RELAYS. It should be read in conjunction with the current regulations for the CECC System.

Foreword

This specification was prepared by CECC WG 16 "*Relays*".

It is based, wherever possible, on the Publications of the International Electrotechnical Commission (IEC).

The CECC voting procedure has been concluded on draft prEN 116503:1992 circulated as document CECC(Secretariat)3004/12.91 and has resulted in a positive vote.

The voting report [document CECC(Secretariat)3145/6.92] has been submitted for formal approval and has been accepted. The reference document was approved by CECC as EN 116503:1992 on 10 August 1992.

The following dates were fixed:

— latest date of announcement of the EN at national level	(doa)	1993-08-17
— latest date of publication of an identical national standard	(dop)	1994-02-17
— latest date of declaration of national standards obsolescence		1994-02-17
— latest date of withdrawal of conflicting national standards	(dow)	2003-08-17

Foreword to amendment A1:1995

This amendment to the European Standard EN 116503 was prepared by CLC/TC CECC/WG 16.

The text of the draft based on document CECC (Secretariat) 3493 was submitted to the formal vote; together with the voting report, circulated as document CECC (Secretariat) 3594, it was approved as amendment A1 to EN 116503:1992 on 1994-08-22.

The following dates were fixed:

— latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	1995-06-11
— latest date by which national standards conflicting with the amendment have to be withdrawn	(dow)	1996-06-11

Contents

		Page
Foreword		2
1	Related documents	7
2	Characteristic values of the relay	7
3	Qualification approval procedures	10
4	Quality conformance inspection	10
5	Marking and documentation	11
6	Annexes	11
7	Tests	11
8	Ordering information	11
Table 1 — Dielectric test voltages		8
Table 2		8
Table 3 — Loads, contact-circuit resistance limits, switching cycles and frequencies for electrical endurance and overload tests		9
Table 4 — Quality conformance inspection		12
Table 5 — Qualification approval		27
Table 6 — Industrial qualification		29

blank

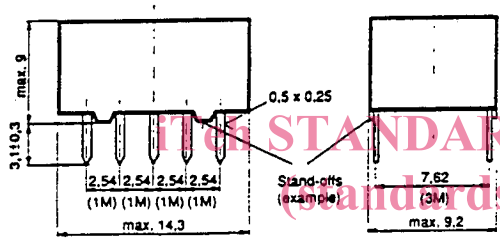
(1)	CECC 16503 – xxx (2) Issue: Page 1 of
Electronic components of assessed quality in accordance with: (3) EN 116000-1:1992 (CECC 16000-I:1990) EN 116500:1992	(4)

Detail specification for electromechanical all-or-nothing TELECOM relays of assessed quality, dual-in-line, with 14 × 9 mm base, 2 change-over contacts

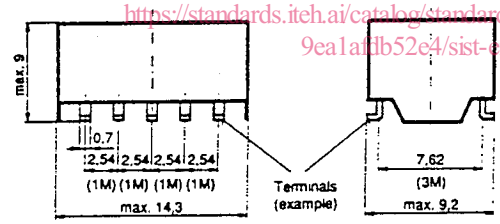
Type: ..... 2 change-over contacts (5)

Construction: Dual-in-line, with 14 × 9 mm base
Plastic sealed case, overall height of 9 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) (6)

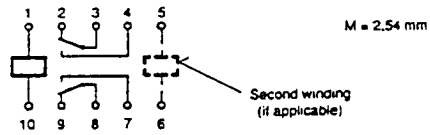
Outline drawing resp. wiring diagram (7)
Dimensions in mm



Through hole type



Surface mounting type (if applicable)



Wiring diagram, bottom view

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: 125 V d.c./110 V a.c.[a]
Rated contact current: 1,25 A
Rated contact power: 30 W/50 VA[a]
Limiting continuous current: 2 A
[a] mandatory only if stated in detail specification

Component climatic category: 25/70/21 (11)

Temperature range — operating ambient temperature: – 25 to + 70 °C
— storage temperature: – 40 to + 85 °C

Information about manufacturers who have components qualified to this detail specification is available in the current CECC 00200.

Key for page 5:

The numbers between brackets on page 2 correspond to the following indications which should be given:

Identification of the detail specification

(1) The name of the National Standards Organisation under whose authority the detail specification is published and, if applicable, the organisation from whom the detail specification is available

(2) The CECC symbol and the number allotted to the completed detail specification by the CECC General Secretariat

(3) The number and the year of availability of the EN generic specification and/or sectional specification; also national reference if different

(4) If different from the CECC 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, 2 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.

(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 and temperature range.

1 Related documents

EN 116000-1:1992 (CECC 16000-I:1990), *Generic specification for electromechanical all-or-nothing relays, Part I: General.*

EN 116500:1992, *Sectional specification for electromechanical all-or-nothing telecom relays of assessed quality.*

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

2 Characteristic values of the relay

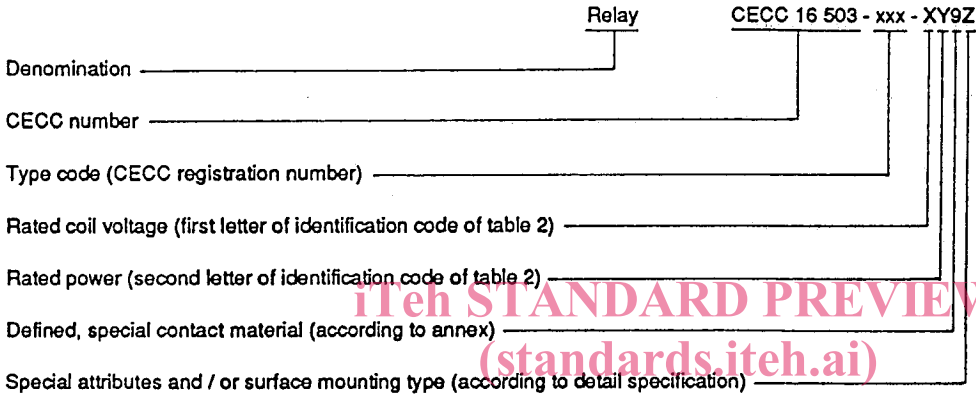
2.1 General data

—	Thermal resistance:	max. K/W
—	Contact application:	0, 1 and 2
—	Relay mass:	max. g
—	Finish of the terminals:	presoldering; admissible non-presoldered part: max. 1 mm to the stand offs' plane, if applicable
—	Insulation resistance:	1 000 Mohm min. at 500 V d.c. initial value 100 Mohm 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 10 µs/700 µs V min.
Opened contact circuits	500	
Between adjacent contact circuits	500	
Coil to contact circuits	500	
Between separated windings (if applicable)		

2.2 Construction of CECC type designation (ordering information):



NOTE The coding of the monostable or bistable relay type shall be combined with the rated power of the coil, if applicable. The reference to 2 change-over contacts shall be given on page 5 of the specification.
Use code 0 as 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

Identification code	Rated voltage V	Coil resistance at (23 ± 2) °C ohm ± 10 %	Must operate voltage V at coil temperature		Maximum coil voltage V at	Must not release voltage V	Must release voltage V	Rated power mW
			23 °C	70 °C	70 °C			

2.4 Contact data

2.4.1 *Electrical endurance and switching frequency*

Contact failure: Contact-circuit resistance of a dosed contact higher than the value stated in 2.4.2, or resistance of an open contact circuit lower than 100 kohm, both more than once per 10^5 cycles or for the minimum 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 ohm), e.g. 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	700 000	12,5
resistive — max. contact voltage/max. power	1	100 000	3
resistive — max. contact current/max. power	1	100 000	3
d.c. open-ended cable	1	1 600 000	12,5
particular application-related, if required			
overload	1[a]	100	0,3

[a] unless otherwise stated in the detail specification

2.4.2 *Static contact-circuit resistance*

100 mohm max. initial value at rated voltage

10 mohm max. difference of contact-circuit resistance at other coil voltages, initial value

1 ohm max. during/after electrical endurance and environmental tests at rated voltage

2.4.3 *Mechanical endurance*

10^7 min. switching cycles

2.4.4 *Timing*

— 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. 0,3 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): min. 0,1 ms

2.5 Mounting

The relay terminals are designed to be directly soldered onto the printed circuit board using conventional assembling techniques or for surface mounting technology (if applicable).

2.6 Environmental data

The relays shall withstand at least the following environmental stresses:

- shock, functional: 98,1 m/s² (10 g) half sine acceleration, 11 ms duration
- shock, survival: 294 m/s² (30 g) half sine acceleration, 11 ms duration
- vibration (sinusoidal): amplitude 0,75 mm or acceleration 98,1 m/s² (10 g), 10 to 500 Hz
- mechanical robustness of terminals:

  thrust 1 N
  bending 2 bends

- soldering

  through hole type:

  - solderability at 235 °C: 2 s
  - resistance to soldering heat, terminal immersion time for 260 °C: 10 s

  surface mounting type:

  - class A1, CECC 00802, cl. **6,2** (i.e. 260 °C/5 s and 215 °C/40 s)
  - category 3, CECC 00802, cl. **6,2** (i.e. vapor phase soldering or infrared soldering, if the temperature stress is adequate)

- enclosure

  - leakage rate max. 100 Pa · cm³/s

- resistance to cleaning solvents when rubbing with wrapping tissue paper

  - mixture of 1, 1,2-trichlorotrifluoroethene and 2-propanol 70 : 30 by weight, at boiling temperature 5 min
  - demineralized or distilled water at 55 °C 5 min

- fire hazard, needle flame min. 10 s

2.7 Package of relays for automatic handling (if applicable)

If stick magazines for automatic handling (to facilitate automatic relay insertion) are used, their outline drawing (profile and length), storage capacity and possible marking shall be given in an annex.

3 Qualification approval procedures

- as stated in CECC 00114 Part II, § 1.4, (1) fixed sample
- sampling and test schedule are specified in Table 5
- the tests specified and their order are mandatory
- tests stated in Table 6 are mandatory only if stated in detail specification

4 Quality conformance inspection

Quality conformance inspection contains the tests stated in Table 4

- group A and B: lot-by-lot tests
- group C: periodic tests

Unless otherwise stated in this blank detail specification, all tests of Table 4 are mandatory. Where a sub-group contains cumulative tests, the order of the tests is mandatory. Specimens subjected to tests denoted as destructive (D) shall not be released for delivery.

4.1 Formation of inspection lots

According to CECC 00114-II, § 3.1; the basis for determination of sample size for the quality conformance inspection is the relay quantity produced during 1 week.