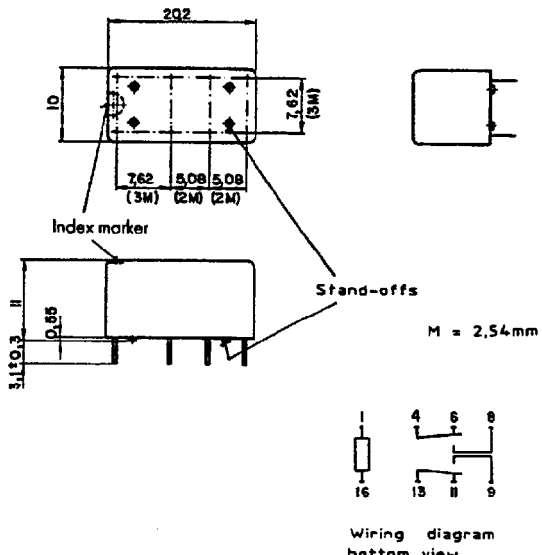


Schweizerischer Elektrotechnischer Verein (SEV) Postfach, CH-8034 Zürich	CECC 16 502 - 001 Issue 1, October 1992 Page 1 to 22 
Specification available from: as shown in CECC 00 200, and Alcatel STR AG, Product Division Relays, Brandschenkestr. 178, CH-8027 Zürich, Tel.: + 41 1 465 2111	Manufacturer's type: MT2 For ordering information see page 2, section 2.2 and annex A
Electronic components of assessed quality in accordance with: CECC 16 000 / I (1990) CECC 16 500 (1992)	Detail specification for electromechanical all-or-nothing telecom relays with 20 x 10 mm base, 2 change-over contacts Type: Monostable, non-polarized, 2 change-over contacts Construction: Dual-in-line, with 20 x 10 mm base Plastic sealed case, overall height of 11 mm Relay properties RT III For conventional assembling techniques of printed circuit boards using mounting holes and soldering
Outline drawing resp. wiring diagram Dimensions in mm without consideration of pre-tinning; maximum diagonal dimension of pre-tinned terminals: 0.75 mm 	Application: Relays according to this standard are provided for the operation in telecommunication applications. However, as printed circuit board relays they are suitable also for particular industrial and other applications.
Coil data Rated voltages: 4,5 to 48 V d. c. Rated power: 150 to 550 mW	
Contact data Change-over break-before-make contacts Rated contact voltage: 150 V d.c. / 110 V a.c. current: 1,25 A power: 30 W / 50 VA	
Component climatic category: 55 / 70 / 56 Temperature range - operating ambient temperature: - 55 to + 70 °C - storage temperature: - 55 to + 85 °C	
See Qualified Products List (QPL) CECC 00 200 for availability of relays qualified under this detail specification.	

1 Related documents

CECC 16 000 / 1 (1990) Generic specification for electromechanical all-or-nothing relays, Part I: General

CECC 16 500 (1992) Sectional specification for electromechanical all-or-nothing telecom relays of assessed quality

2 Characteristic values of the relay

2.1 General data

- Thermal resistance: max. 125 K / W
- Contact application: 0, 1 and 2
- Relay mass: max. 5 g
- Finish of the terminals: presoldering; admissible non-presoldered part: max. 1 mm to the stand-offs' plane
- Insulation resistance: 1000 Mohm min. at 500 V d. c.
- Dielectric strength: see Table 1

Table 1 Dielectric test voltages

	Dielectric test V a. c. / d. c. min.	Impulse voltage test 10 μ s/700 μ s V min.
Opened contact circuits	700 / 1000	1500
Between adjacent contact circuits	700 / 1000	1500
Coil to contact circuits	1050 / 1500	1500

2.2 CECC type designation (ordering information):

When ordering relays to this specification the following information shall be given:

	<u>Relay</u>	<u>CECC 16 502 - 001 - XY</u>
Denomination: _____		
CECC number _____		
Type code (CECC registration number) _____		
Rated coil voltage (first letter of identification code of table 2) _____		
Rated power (second letter of identification code of table 2) _____		

For conversion of the CECC type designation into manufacturer's part number marked on the relay see annex A.

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 70 °C	Must not release voltage V	Must release voltage V	Rated power mW
			23 °C	70 °C				
A A	4,5	136	3,2	3,8	6,2	1,8	0,45	150
B A	5	168	3,6	4,3	6,9	2,1	0,5	150
C A	6	240	4,3	5,1	8,2	2,5	0,6	150
D A	9	544	6,4	7,7	12,4	3,7	0,9	150
E A	12	968	8,6	10,3	16,5	4,9	1,2	150
F A	24	3 872	17,1	20,5	33,0	7,4	2,4	150
G A	48	15 468	34,1	40,8	66,1	1,7	4,8	150
A B	4,5	101	2,9	3,5	5,3	1,8	0,45	200
B B	5	125	3,3	4,0	5,9	2,1	0,5	200
C B	6	180	3,9	4,7	7,1	2,5	0,6	200
D B	9	405	5,9	7,1	10,7	3,7	0,9	200
E B	12	720	7,8	9,3	14,2	4,9	1,2	200
F B	24	2 880	15,6	18,7	28,5	7,8	2,4	200
G B	48	11 520	31,2	37,3	57,0	19,8	4,8	200
A C	4,5	73	3,1	3,7	4,5	1,6	0,45	300
B C	5	90	3,4	4,1	5,0	1,8	0,5	300
E C	12	515	8,25	9,9	12,0	4,3	1,2	300
F C	24	2 060	16,5	19,7	24,1	8,4	2,4	300
G C	48	8 240	32,5	38,9	48,2	16,8	4,8	300
A D	4,5	50	2,9	3,5	3,7	1,8	0,45	400
B D	5	63	3,3	4,0	4,2	2,1	0,5	400
C D	6	90	3,9	4,7	5,0	2,5	0,6	400
D D	9	203	5,9	7,1	7,6	3,7	0,9	400
E D	12	360	7,8	9,3	10,1	4,9	1,2	400
F D	24	1 440	15,6	18,7	20,1	9,8	2,4	400
G D	48	5 760	31,2	37,3	40,3	1,7	4,8	400

Table 2 (continued)

Identification code	Rated voltage V	Coil resistance at 23 ± 2 °C Ohm $\pm 10\%$ * + 5 / - 10 %	Must operate voltage V at coil temperature		Maximum coil voltage V at 70 °C	Must not release voltage V	Must release voltage V	Rated power mW
			23 °C	70 °C				
A E	4,5	36	2,9	3,5	4,3	1,9	0,45	550
C E	6	66	3,9	4,7	5,8	2,4	0,6	550
E E	12	280*	7,8	9,3	11,9	4,9	1,2	550
F E	24	1 050	15,6	18,7	23,0	9,8	2,4	550
G E	48	4 100	31,2	37,3	45,5	19,7	4,8	550

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 section 2.4.2 or resistance of an open contact circuit lower than 100 kohm, both more than once per 10^6 cycles or for the minimum switching cycles stated (if lower than 10^6), calculated for each single contact.

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	5 000 000	12,5
resistive - max. contact voltage / max. power	0,5	200 000	2
resistive - max. contact current / max. power	0,5	200 000	2
d.c. open-ended cable	1	2 500 000	12,5
overload	1	100	2

2.4.2 Static contact-circuit resistance

70 mohms max. initial value at rated voltage

1 ohm max. or 0,5 ohm max. respectively during / after electrical endurance tests at rated voltage (see table 3) or

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

2.4.3 Mechanical endurance

$2,5 \cdot 10^7$ min. switching cycles

2.4.4 Timing

- Operate time: max. 5 ms
- Release time: max. 3 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. 0,2 ms

2.5 Mounting

The relay terminals are designed to be directly soldered onto the printed circuit board using conventional assembling techniques.

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
294,3 m/s² (30 g) half sine acceleration, 11 ms duration for rated power identification code EC only
- shock, survival: 294,3 m/s² (30 g) half sine acceleration, 11 ms duration
- vibration (sinusoidal): amplitude 0,75 mm or 98,1 m/s², 10 to 500 Hz
- mechanical robustness of terminals:

thrust	5 N
bending	2 bends
- soldering
 - solderability at 235° C after ageing at 155° C for 16 h: 2 s
 - resistance to soldering heat, terminal immersion time for 260 °C: 10 s
- 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

3 Qualification approval procedures

- as stated in CECC 00 107 / I - § 7.3 "fixed sampling"
- sampling and test schedule are specified in table 5
- the tests specified and their order are mandatory

4 Quality conformance inspection

Quality conformance inspection contains the tests stated in table 4

- group A and B: tests for inspection lots acceptance
- group C: periodic tests

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 00 107 / I § 10; the basis for determination of sample size for the quality conformance inspection is the relay quantity produced during 1 week.

4.2 Intervals between tests

- sub-group A4, B1 and B2: minimum once a week
- sub-group C1 and C2: once in 6 months
- sub-group C4 to C6: once in 2 years

5 Marking and documentation

Relays and their packaging shall be marked as follows:

5.1 Marking of the relay

The marking shall be durable and easily legible, the following items shall be present:

- Manufacturer's name: ALCATEL SWISS
- CECC type designation or manufacturer's part number according to annex A respectively and CECC mark of conformity
- Date of manufacture, year / week coded according to IEC 62
- Identification of terminal no. 1

5.2 Marking of the package

- a) Manufacturer's name: ALCATEL SWISS
- b) Detail specification reference
- c) CECC type designation or / and manufacturer's part number according to section 2.2; CECC in letters or CECC mark of conformity
- d) Date of manufacture, year / week coded according to IEC 62
- e) Number of relays

5.3 Documentation

For each delivery a certificate of conformance according to CECC 00 107 shall be added.

6 Appendices

Annex A: Conversion list CECC type designation and manufacturer's part number

Annex B: Particulars for test and measurement procedures

7 Tests

7.1 Standard conditions for testing

If not otherwise stated, all tests shall be performed under standard conditions for testing according to CECC 16 000 / 1, section 5.5.

7.2 Mounting of test specimens during the test

The following indications shall apply for mechanic-dynamical tests (shock and vibration):
the relay shall be mounted by its normal mounting method to the test fixture where inherent resonances have been minimized so as not to invalidate the test (see also IEC 68-2-47).

7.3 General conditions for testing

Unless otherwise stated, the rated coil voltage specified in table 2 shall be used for all tests and its application to the relay.

8. Ordering Information

See section 2.2 and annex A.