

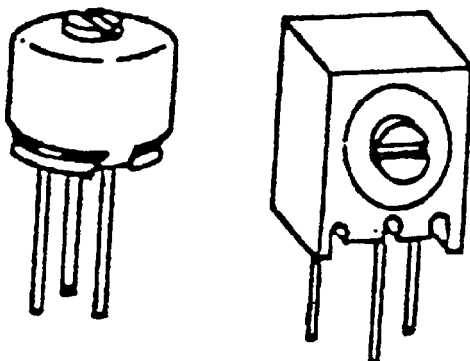
BRITISH STANDARDS INSTITUTION 2 PARK STREET, LONDON W1A 2BS	BS CECC 41101 - 006
Specification available from : BRITISH STANDARDS INSTITUTION, 101, PENTONVILLE ROAD, LONDON N1 9ND TELEPHONE: 01 837 8801 TELEX: 23218	1983
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH CECC 41 000 AND CECC 41 100.	Issue 1
Form series Dimensional Patterns see Appendix 'A'.  For individual details see Tables 1 and 2 and Appendix 'A'	SINGLE TURN PRESET POTENTIOMETERS. CONSTRUCTION: CONTAINER SEALED RESISTIVE ELEMENT: NON-WIREWOUND ACTUATING DEVICE: INSULATED FROM RESISTIVE ELEMENT END STOPS: AT EACH END OF TRAVEL RIGID TERMINATIONS: SUITABLE FOR MOUNTING ON PRINTED WIRING BOARDS ASSESSMENT LEVEL "S"

TABLE 1

Detail Specification Number CECC 41 101- 006	
Style (See Note)	Dimensional Pattern (See Appendix A)
A*	M01A
B*	M01B
C*	M01C
D*	M02A
E*	M02B
F*	M02C

Note : Asterisk to be replaced by the letter appropriate to the temperature characteristic (See 'Ratings and Characteristics'). The style reference code here is arbitrarily chosen and relates to this detail specification only.

See the current Qualified Products List for the availability of components qualified to this detail specification.

TABLE 2

Detail Specific- ation Number CECC 41101-	Climatic category	Limits of resistance change (ΔR)		Rotational noise		Temperature characteristic of resistance			
		Climatic sequence Damp heat, steady state Mechanical endurance Electrical endurance at 70°C (a - c) Electrical endurance at upper category temperature (a - c)	Electrical endurance at 70°C (a - b) Electrical endurance at upper category temperature (a - b)	$R \leq 100\Omega$	$R > 100\Omega$	Code	-55/ 20	20/ 70	70/ 125
						$\Delta R: \leq \pm \dots 2R$			
006	55/125/21	$\Delta R: \leq \pm (32R + 0,1 \Omega)$	$\Delta R: \leq \pm (52R + 0,1 \Omega)$	$\leq 3 \Omega$	$\leq 32 R$	K	0,75	0,50	1,05
						L	1,15	0,75	1,60
						V	1,90	1,25	2,65

Detail Specific- ation Number CECC 41101-	Rated dissipation (W at 70°C)	Limiting element voltage (V d.c. or a.c. r.m.s.)	Isolation voltage (V d.c. or a.c. peak)		Limiting slider current (mA max)
			Normal	Low air pressure	
006	0,5	200	300	200	50

TABLE 3

Rated resistance	Tolerances on rated resistance	Rated voltage or limiting element voltage	Dissipation at 70°C	Limiting slider current
Ω	$\%$	V	W	mA
22	$\pm 5, \pm 0, \pm 20$	3,3	0,5	50
47		4,8	0,5	50
100		7,0	0,5	50
220		10,5	0,5	47
470		15,3	0,5	32
1000		22,4	0,5	22
2200		33,2	0,5	15
4700		48,5	0,5	10
10000		70,7	0,5	7
22000		10,5	0,5	4,7
47000		153	0,5	3,2
100000		200	0,4	2,0
220000		200	0,18	0,91
470000		200	0,09	0,42
1000000		200	0,04	0,20

1. RATINGS AND CHARACTERISTICS

*Resistance range

The range of values in each style is given in the Qualified Products List.

Standard selection tolerances

$\pm 20\%$ or $\pm 10\%$

Temperature characteristic of resistance (20° to 70°C)

Code letter	$\Delta R/R$ (20/70)	Temp. coeff. (10 ⁻⁶ /K)
K	$\pm 0,5\%$	± 100
L	$\pm 0,75\%$	± 150
V	$\pm 1,25\%$	± 250

Climatic category

See Table 2

Vibration severity

10 Hz to 500 Hz; 0,75 mm or 98 m/s² (whichever is the less severe)

Bump severity

390 m/s²; 4 000 bumps

or

Shock severity

490 m/s²; 11 ms

Low air pressure

8,5 kPa (85 mbar)

Limits of resistance change (a-c) (after 1 000 h electrical endurance test)

See Table 2

Starting torque

≤ 21 mN.m

Total mechanical travel

See Appendix A

Limiting slider current

See Table 2

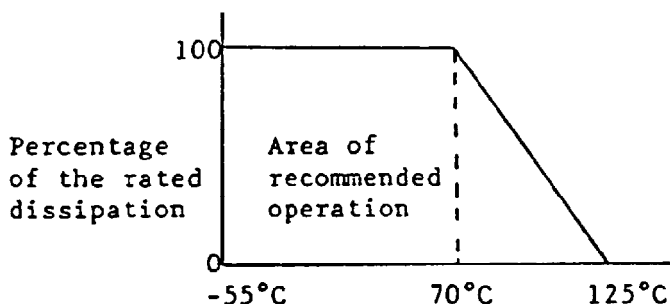
Rotational noise

See Table 2

*The preferred values are those of the E3 series of IEC 63. Where the use of intermediate values is essential, they should, wherever possible, be chosen from a series in that document.

1.1 Derating

Potentiometers covered by this specification are derated according to the curve :



When mounted in conditions which severely limit circulation of air around the potentiometer (i.e. when stacked) further derating may be necessary.

2. MARKING

2.1 The following marking information, in the order of importance given below, is required :

- 1) Rated resistance
- 2) Tolerance on rated resistance
- 3) Detail specification and style
- 4) Date of acceptance. A nationally approved code may be used.
- 5) Manufacturer's name and trade mark

2.2 The potentiometer shall be clearly marked with (1) and (2) above using, where practicable, one of the coding methods specified in IEC 62, and with as many of the remaining items as is practicable.

2.3 The package containing the potentiometer shall be clearly marked with (1) to (5)

2.4 Any additional marking shall be so applied that no confusion can arise.

3. RELATED DOCUMENTS

- IEC 62 - Marking Codes for resistors and capacitors
- IEC 63 - Preferred number series for resistors and capacitors
- IEC 68 - Basic environmental testing procedures for electronic components and electronic equipment. (See CECC 00006, 1973)
- IEC 410 - Sampling procedures and tables for inspection by attributes for electronic components of assessed quality. (See CECC 00007, 1978)
- CECC 00 006 - Basic specification : Environmental test procedures (1973).
- CECC 00 007 - Basic specification : Sampling plans and procedures for inspection by attributes (1978)
- CECC 00 200 - Qualified Products List
- CECC 41 000 - (1976) Generic specification for potentiometers
- CECC 41 100 - (1978) Sectional specification for lead-screw actuated and rotary preset potentiometers.

4. ORDERING INFORMATION

Orders for potentiometers covered by this specification shall contain the following information :

- Resistance value and tolerance
- Number of the detail specification and style reference
- Dimension 'F', if different to that prescribed (See Notes in A.3 of Appendix A)

5. CERTIFIED TEST RECORDS

Certified Test Records shall be prepared in accordance with 3.5 of CECC 41 000.

6. DELAYED DELIVERY

The provisions of 3.6 of CECC 41 000 shall apply except that the Inspection Level shall be reduced to S-2 and the period shall be extended to two years.

7. ADDITIONAL INFORMATION (Not for inspection purposes)

7.1 Resistance law

The resistance law of potentiometers covered by this detail specification approximates to that for a linear law as given in Figure 3 of CECC 41 000.

7.2 Limiting conditions

The limiting conditions for voltage and current as a function of resistance for linear law potentiometers at a temperature of 70°C are given in Table 3.

8. INSPECTION REQUIREMENTS

8.1 When drying is called for, Procedure I of 4.2 of CECC 41 000 shall be used.

8.2 When it is desired to obtain qualification approval by adopting the fixed sample size procedure, use shall be made of the test schedule given for that purpose in CECC 41 100.

The conditions of test and the performance requirements shall be identical to those prescribed for quality conformance inspection in this specification.

8.3 In the quality conformance inspection the values representative of the whole approved range shall be tested within one year (Groups A, B and C only).

See Notes 1 and 2

TABLE 4

Clause Number and Test	Conditions of Test	IL	AQL	Performance Requirements						
GROUP A INSPECTION										
To be conducted on a sampling basis, lot-by-lot										
Sub-Group A1 Non-destructive		II	4,0%	As in 4.3.1						
4.3.1	Visual inspection									
Sub-Group A2 Non-destructive		II	1,0%	As in 4.3.2 As in 4.5.1						
4.3.2	Marking									
4.5	Element resistance									
Sub-Group A3 Non-destructive		S-2	4,0%	As specified in Appendix 'A'						
4.3.3	Dimensions (gauging)									
Sub-Group A4 Non-destructive		S-3	1,0%	<table><tr><th>R</th><th>Terminal resistance</th></tr><tr><td>$\leq 100\Omega$</td><td>$\leq 5\Omega$</td></tr><tr><td>$> 100\Omega$</td><td>$\leq 5\%R$</td></tr></table> As in 4.4 See Table 2 As in 4.12.5 > 70% of total measured mechanical travel.	R	Terminal resistance	$\leq 100\Omega$	$\leq 5\Omega$	$> 100\Omega$	$\leq 5\%R$
R	Terminal resistance									
$\leq 100\Omega$	$\leq 5\Omega$									
$> 100\Omega$	$\leq 5\%R$									
4.6	Terminal resistance				Resistance <u>a</u> to <u>b</u> and Resistance <u>b</u> to <u>c</u>					
4.4	Continuity									
4.15	Rotational noise				Method B					
4.12	Voltage proof				Normal air pressure See D1.1					
4.8	Mechanical and electrical travel	See Cl.1, Cl.2 and Note 7 Effective electrical travel								
GROUP B INSPECTION										
To be conducted on a sampling basis, lot-by-lot										
Sub-Group B1 Destructive		S-2	1,5%	$\leq 21 \text{ mN.m}$						
4.16	Starting torque				See Cl.3					