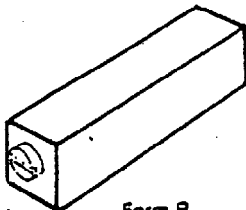


British Standards Institution 2 Park Street, London, W1A 2BS	
Specification available from: Bourns Electronics Limited Hillend Industrial Park Dunfermline, Fife, KY11 5JD	
ELECTRONIC COMPONENTS OF ASSESSED QUALITY DETAIL SPECIFICATION IN ACCORDANCE WITH CECC 41 000, CECC 41 100 AND CECC 41 101	BS CECC 41101-011
	ISSUE 1 JANUARY 1989
 Form R series outlines	LEAD SCREW ACTUATED PRESET POTENTIOMETERS RECTILINEAR FORMS
	CONSTRUCTION : Container sealed RESISTIVE ELEMENT : Wirewound ACTUATING DEVICE : Insulated from resistive element SLIPPING CLUTCH : At each end of travel TERMINATIONS SUITABLE FOR MOUNTING ON PRINTED WIRING BOARDS
For individual details see Tables 1 and 2 and Appendix A	ASSESSMENT LEVEL "S"

T A B L E 1

Detail Specifications	Style (See Note)	Dimensional pattern (see Appendix A)	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)	Termination
					Normal	Low air pressure		
	AK	R01	1.0	315	450	300	150	FLYING LEADS
CECC 41101-011	BK	R02	1.0	315	450	300	150	WIRE
	CK	R03	1.0	315	450	300	150	
	DK	R05	1.0	315	450	300	150	

Note: The style reference code shown here is arbitrarily chosen and relates to this detail specification only.

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

TABLE 2

Detail specification number	Climatic category	Limits of resistance change (ZAR)		Rotational noise	Temperature characteristic of resistance (θ)				
		Climatic sequence	Electrical endurance at 70°C ($\underline{a}-\underline{b}$)		Electrical endurance at upper category temperature ($\underline{a}-\underline{b}$)	Code	-55/20	20/70	20/155
		Damp heat, steady state Mechanical endurance Electrical endurance at 70°C ($\underline{a}-\underline{c}$) Electrical endurance at upper category temperature ($\underline{a}-\underline{c}$)	Electrical endurance at 70°C ($\underline{a}-\underline{b}$) Electrical endurance at upper category temperature ($\underline{a}-\underline{b}$)						
CECC 41101-011	55/155/56	$\Delta R_1 \leq + (2.0\% \pm 0.1\%)$		$\Delta R_1 \leq + (3.0\% \pm 0.1\%)$	K	0.375	0.25	0.675	

Note: For a, b and c see Appendix A Outline R01, R02, R03 or R05.

RATINGS AND CHARACTERISTICS***Resistance range**

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

Standard selection tolerances

$\pm 5\%$

Temperature characteristic of resistance (20 to 70°C)

Code Letter	$\Delta R/R$ (20/70)	Temp. coeff. ($10^{-6}/K$)
K	0.25%	50

Climatic category

(See Table 2)

Vibration severity

10 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

≤ 35 mNm

Total mechanical travel

(See Appendix A)

Limiting slider current

(See Table 1)

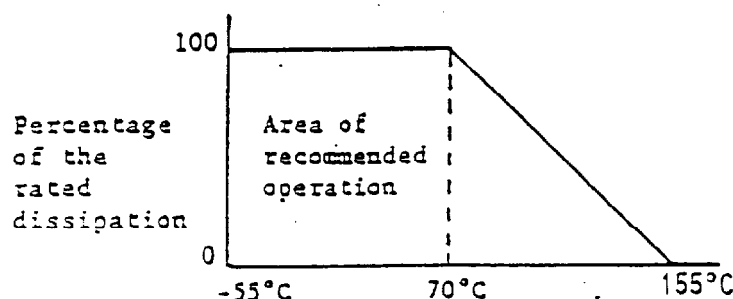
Rotational noise

(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 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.
- IEC 410 - Sampling procedures and tables for inspection by attributes for electronic components of assessed quality. (See CECC 00 007 (1978))
- CECC 00 007 (1978) - Basic specification: Sampling plans and procedures for inspection by attributes
- 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
- CECC 41 101 (1978) - Blank detail specification for 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 3 of Appendix A)

5 CERTIFIED TEST RECORDS

Certified Test Records not required.

6 DELAYED DELIVERY

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

7.2 Resolution

Rated resistance	Ω						$k\Omega$						
	10	22	47	100	220	470	1	2,2	4,7	10	22	47	100
Resolution (%)	2,0	1,5	1,2	1,0	0,8	0,7	0,6	0,5	0,4	0,3	0,3	0,2	0,2

8 INSPECTION REQUIREMENTS

8.1 When drying is prescribed 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 3

(See Notes 1 and 2)

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%							
4.3.1 Visual inspection				As in 4.3.1						
Sub-Group A2 (Non-destructive)		II	1,0%							
4.3.2 Marking				As in 4.3.2						
4.5 Element resistance				As in 4.5.1						
Sub-Group A3 (Non-destructive)		S-2	4,0%							
4.3.3 Dimensions (gauging)				As specified in Appendix A						
Sub-Group A4 (Non-destructive)		S-3	1,0%							
4.6 Terminal resistance	Resistance <u>a</u> to <u>b</u> and Resistance <u>b</u> to <u>c</u>			<table><tr><th>R</th><th>Terminal resistance</th></tr><tr><td>≤ 40Ω</td><td>≤ 2Ω</td></tr><tr><td>> 40Ω</td><td>≤ 5%R</td></tr></table>	R	Terminal resistance	≤ 40Ω	≤ 2Ω	> 40Ω	≤ 5%R
R	Terminal resistance									
≤ 40Ω	≤ 2Ω									
> 40Ω	≤ 5%R									
4.4 Continuity	(See Note 4)			As in 4.4						
4.15 Rotational noise	Method B			(See Table 2)						
4.12 Voltage proof	Normal air pressure (See D1.1)			As in 4.12.5						
4.8 Mechanical and electrical travel	(See C1.1, C1.2 and Note 8) Effective operating turns			> 70% of total mechanical travel						
GROUP B INSPECTION										
To be conducted on a sampling basis, lot-by-lot										
Sub-Group B1 (Destructive)		S-2	1,5%							
4.16 Starting torque	(See C1.3)			≤ 35 mNm						
4.22.3 Container sealing	Temperature : 85 to 90°C			As in 4.22.3						

Notes on page (14)