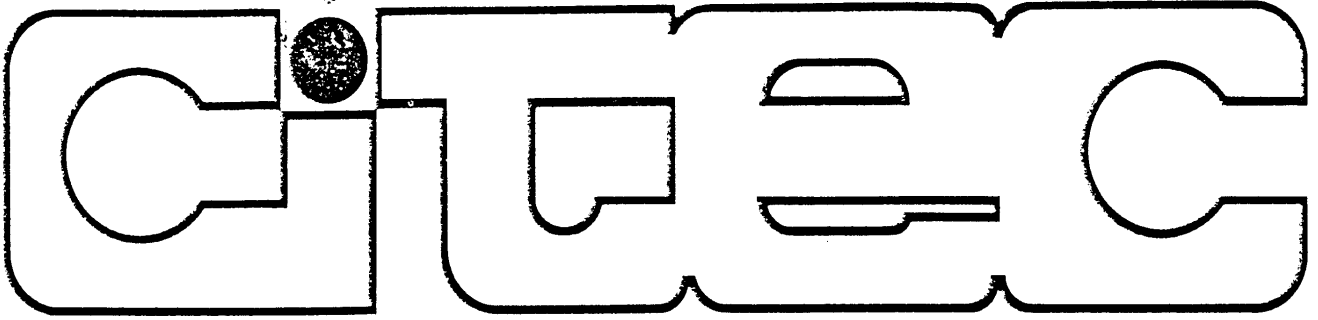
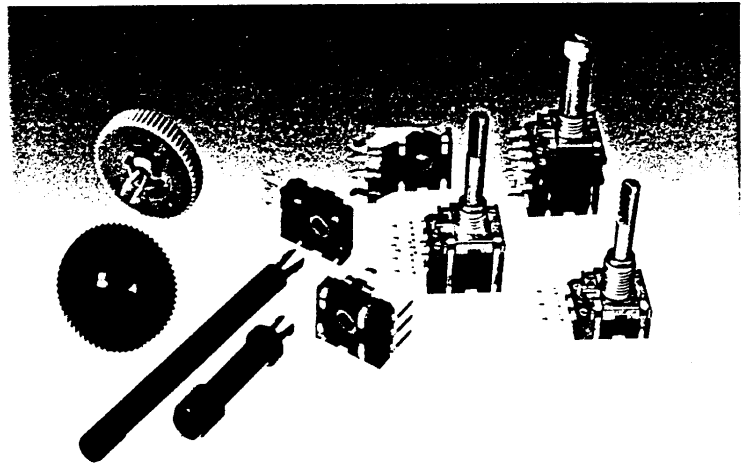


350-242 to 350-345



Spindle Operated Potentiometers TYPE 51 'FLEXIPOT'



The type 51 series from BICC-Citec offers one of the most flexible potentiometer systems for ease of assembly and for virtually all electrical and mechanical configurations.

You can choose a standalone module with a carbon or cermet element, with snap in shafts, knobs or edgewheels for your plug in circuit board applications. Alternatively if you want a conventional bushed potentiometer with shaft, the type 51 series offers a large number of options. Carbon and cermet element technology, tapped, single and multi detents with or without switches are all available to meet your requirements.

Choice of mounting heights 10 mm or 12.5 mm to centre line of shaft from board.

CITEC KEY FEATURES

FULLY AUTOMATED ASSEMBLY AND TEST

CHOICE OF BUSHES, SHAFTS, EDGEWHEELS

DUAL GANG AND SPST SWITCH STYLES

SINGLE AND MULTI-DETENT ACTION

QUALITY CARBON OR CERMET ELEMENT

AUTOMATIC MACHINE INSERTABLE MODULES

LINEAR AND NON LINEAR LAWS

ATTRACTIVELY PRICED

TYPICAL APPLICATIONS

Series 51 typical applications include consumer equipment, kitchen applications, timers and test instruments. The "Flexipot" modularity, versatility and low cost make it the perfect solution for a wide variety of applications.



SPECIFICATION

ELECTRICAL

Resistance Range:

Linear

Non-linear

Tolerance

CARBON VERSION

470 Ohm to 2.2 Megohm

2.2K Ohm to 470K Ohm

$\pm 20\%$ (tighter by selection)

CERMET VERSION

470 Ohm to 4.7 Meg ohm

Not available

$\pm 10\%$

Power Rating:

Linear

Non-Linear

Power Derating

0.2 Watt @ 40°C

0.1 Watt @ 40°C

0 Watt @ 70°C

1 Watt @ 40°C

Not available

0 Watt @ 100°C

Operating Voltage:

Linear

Non-Linear

Load Life % ΔR

Rotational Life % ΔR

CRV

Dielectric Strength

Insulation Resistance

Non-Linear Matching

350 VAC or 500 VDC Max.

P Max. $\times R$ Nom.

$\leq 10\%$ after 1000 Hrs. @ 70°C

$\leq 10\%$ @ 15,000 Cycles

$\leq 2\%$

5;; VAC/50 HZ

> 100 Megohm

0-40 db < 3 db

350 VAC or 500 VDC Max

Not available

$\leq 2\%$ after 1000 Hrs @ 70°C

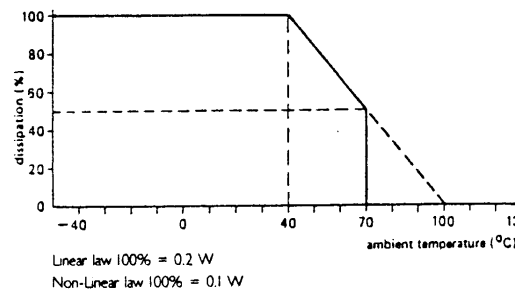
$\leq 2\%$ @ 15000 Cycles

$\leq 2.5\%$

≥ 100 Megohms (50 days)

not applicable

DERATING CURVE



Dissipation as a function of temperature.

Potentiometers covered by this specification are derated from 100% rated dissipation at 40°C to zero dissipation at 100°C

The maximum dissipation of cermet types with plastic spindle is 1 Watt.

ENVIRONMENTAL

Storage Temperature

Operating Temperature

Humidity

Temperature Coefficient

-40°C to 85°C

-25°C to 70°C

$\leq 10\% \Delta R$ RH 75% @ 35°C

± 500 PPM/°C @ - 25 to 70°C

-55°C to + 100°C

-25°C to + 70°C *

$\leq 2\% \Delta R$ RH 75% at 35°C

± 100 PPM/°C @ - 25 to 70°C

MECHANICAL

Angle of Rotation

Rotational Torque

Stop Strength

Rotational Life

300° $\pm 2^\circ$

2.3 in. Oz Max.

3.5 In. Lbs.

25,000 Cycles

300° $\pm 2^\circ$

2.3 in Oz Max

3.5 in Lbs

25,000 Cycles

SWITCH

Contact Resistance

Rating

Contact Configuration

On/Off Torque

Operational Angle

Electrical Rotation

≤ 20 Milliohm Initial

3.5 Amp @ 14.4 VDC

SPST Off @ CCW E

3 In. Oz Nominal

50° Max.

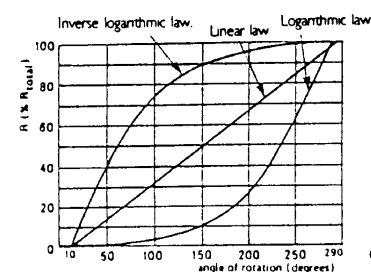
50° to 295°

The same switch is available with the cermet element.

Rotational angle is Mechanical 280° with switch.

The switch has a solid click action.

POTENTIOMETER LAWS (without switches)

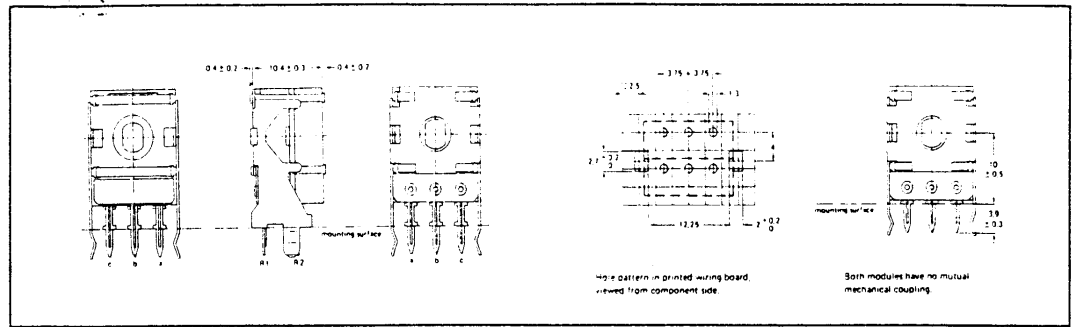


Characteristics of potentiometer laws without switch

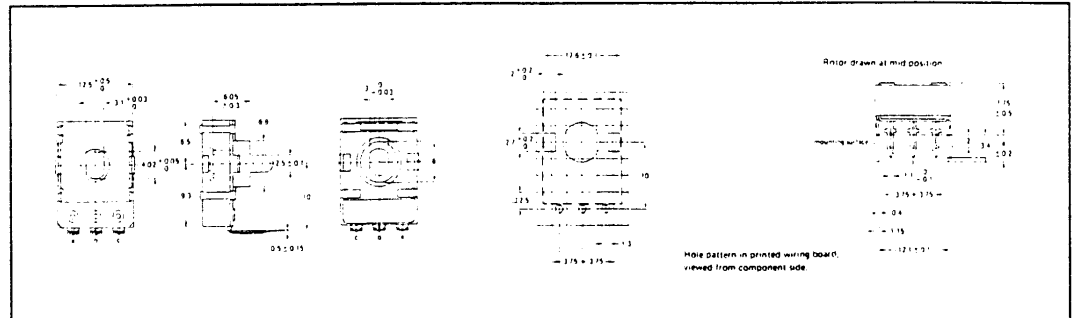
The spring activated switch is specifically designed for the S1 series potentiometer system but can be used as an independent low power SPST switch.

The terminals must be soldered with the switch in the off position. It can be activated on the same spindle configuration. Detailed data sheet is available on request.

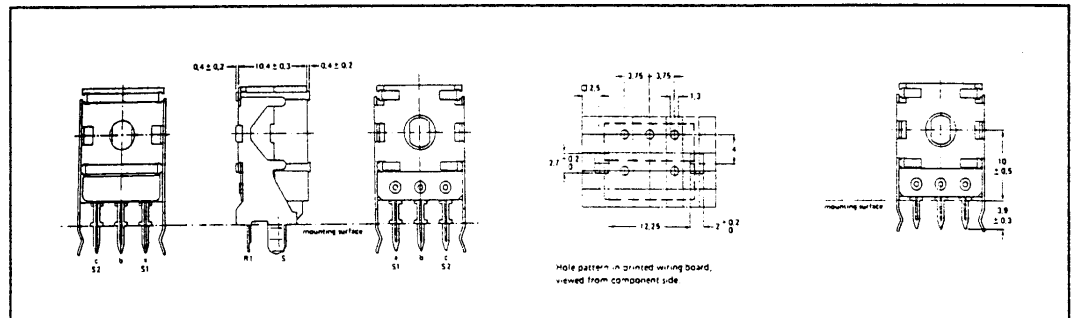
TYPE 50 VERSION WITHOUT SPINDLE - DUAL GANG VERTICAL MODULE



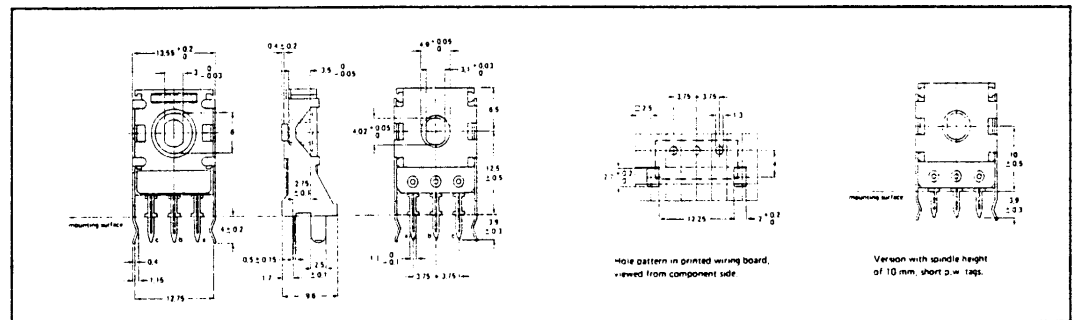
TYPE 51 VERSION WITHOUT SPINDLE - SINGLE HORIZONTAL MODULE



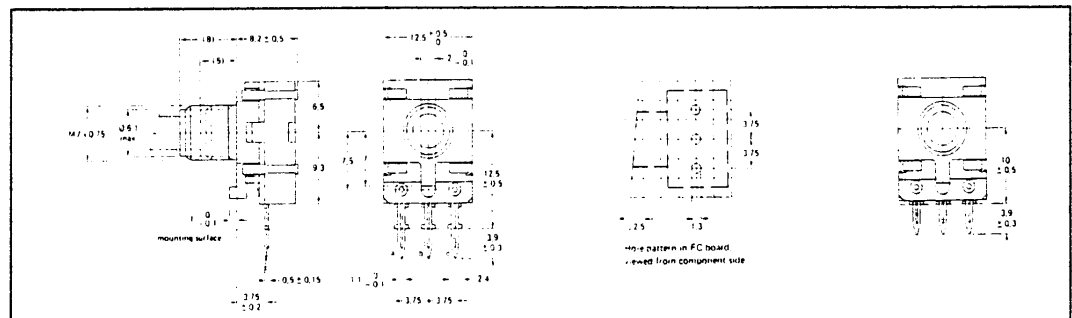
TYPE 52 VERSION WITHOUT SPINDLE - SINGLE VERTICAL MODULE WITH SPST SWITCH



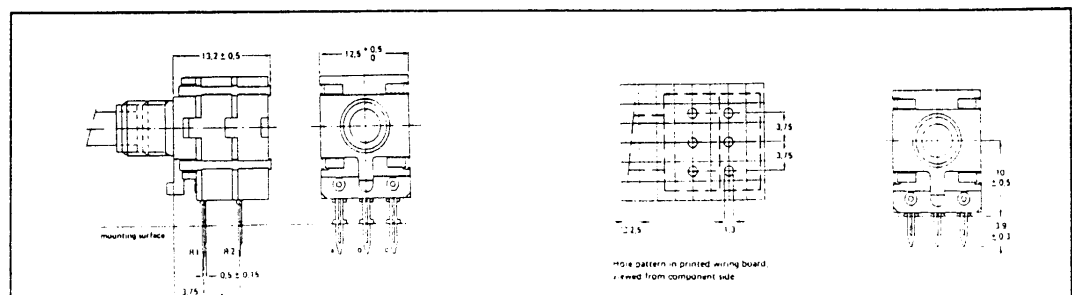
TYPE 53 VERSION WITHOUT SPINDLE - SINGLE VERTICAL MODULE



TYPE 54 VERSION WITH SPINDLE - SINGLE VERTICAL POTENTIOMETER

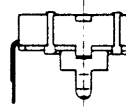


TYPE 55 VERSION WITH SPINDLE - DUAL GANG VERTICAL POTENTIOMETER



STYLES AVAILABLE

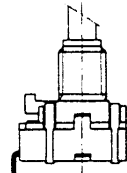
STANDALONE MODULE



with bracket

51

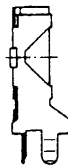
POTENTIOMETER



with or without bracket

57

STANDALONE MODULE



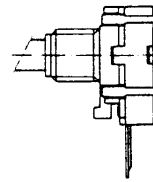
with bracket

53



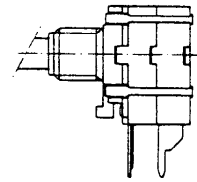
with bracket
with S.P.S.T
switch

52



with or without
bracket

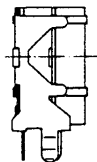
54



with S.P.S.T
switch

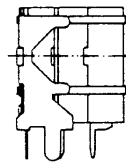
56

STANDALONE MODULES



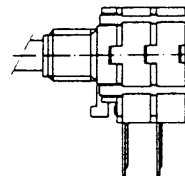
dual gang
with bracket

50



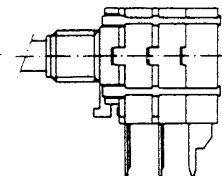
dual gang
with bracket and
S.P.S.T switch

61



dual gang

55



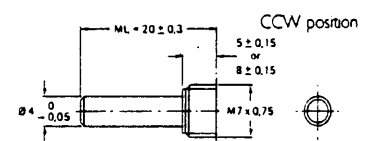
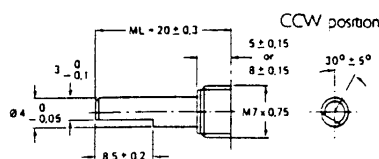
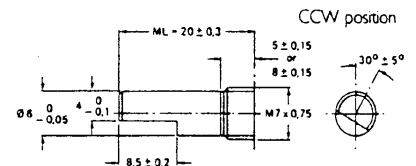
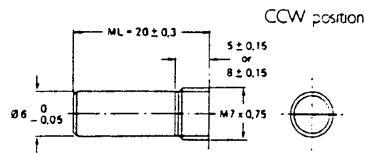
dual gang
with S.P.S.T switch

58

SPINDLE OPTIONS

Potentiometers with Bushes.

Spindle, metal or plastic, M7 bushing
4 mm or 6 mm diameter



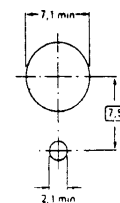
PANEL HOLE DATA

Potentiometers with Bushes

for single and dual gang
potentiometers

with mounting bush
M7 x 0.75 mm

required mounting holes
in chassis



fixing of
potentiometer

with supplied
mounting nut;
max. torque for
tightening = 1 Nm;
minimum thickness
of mounting plate
= 1 mm

ENVIRONMENTAL TEST DATA

		carbon	cermet
Climate sequence	Δ Rac/Rac	$\leq 10\%$	$\leq 2\%$
Damp heat, steady state	Δ Rac/Rac	$\leq 15\%$	$\leq 2\%$
Mechanical endurance			
10,000 cycles	Δ Rac/Rac	$\leq 10\%$	$\leq 2\%$
Electrical endurance			
1000 h at 70°C, cyclic	Δ Rac/Rac	$\leq 10\%$	$\leq 2\%$
Resistance to soldering heat			
(IEC 68-2, test T)	Δ Rac/Rac	$\leq 2\%$	$\leq 2\%$
Change of temperature	Δ Rac/Rac	$\leq 3\%$	$\leq 2\%$
	Δ Vab/Vac	$\leq 1\%$	$\leq 0.5\%$
Bump and vibration	Δ Rac/Rac	$\leq 2\%$	$\leq 0.5\%$
	Δ Vab/Vac	$\leq 1\%$	$\leq 0.5\%$

GANGING TOLERANCE - Dual Gang Potentiometers

Linear Laws

At values between 10 and 90% of R Total

better than 2dB

Logarithmic laws

at attenuations between 0 and 20 dB

better than 2dB

at attenuations between 20 and 40 dB

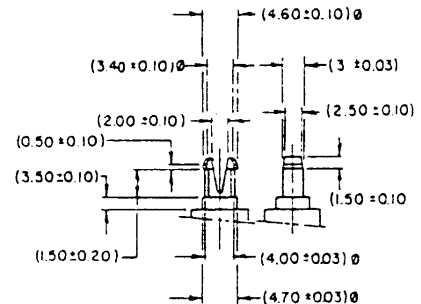
better than 3dB

at attenuations between 40 and 60 dB

better than 6dB

SNAP-IN SHAFTS AND EDGEWHEELS - For Standalone Modules

The diagram illustrates the snap-in part of a plastic actuator which can be used to rotate the Series 51 Standalone module. Consult Citec Sales Action Desk for details on our full custom knob and shaft capabilities. We will for example be pleased to quote for moulding your shaft and knob as a single snap-in component.



ACCESSORY OPTIONS - For Standalone Modules

At the date of publication the following mould tools exist for standard plug-in accessories shaft.

60 mm long x 6 mm diameter	with knurl end and philips slot	colour black
30 mm long x 6 mm diameter	with knurl end and philips slot	colour black
20 mm long x 6 mm diameter	with knurl end and philips slot	colour black
10 mm long x 6 mm diameter	with knurl end and philips slot	colour black

Edgewheels for 15 mm diameter	colours black
horizontal modules 30 mm diameter	grey
	beige

HOW TO ORDER

Please Specify	Type No. e.g. 51 Series	Bush length e.g. 8 mm
	Element e.g. Cermet	Spindle detail e.g. 6 mm dia x 30 mm long
	Resistance Value e.g. 220k ohms	Law e.g. Linear
	Termination Style e.g. P.C.	Switch detail e.g. SPST
	Mounting height e.g. 12.5 mm	Accessories e.g. plug-in edgewheel & size

NOTE

The 51 Series is ordered by description due to the very wide multiples and configurations available. We will sample to your description and if approved, our Technical Sales Group will define a discrete part number to meet your requirements and for future ordering. Accessories should be ordered as a separate item in a similar way.

Product Liability Legislation

Whilst Citec Potentiometers are of the very highest quality and reliability, all electronic components can occasionally be subject to failure. Where failure of a Citec product could result in life threatening consequences, then the circuit and application must be discussed with the company. Such areas might include ECG, respiratory, other medical and nuclear applications and any non fail safe applications circuit.