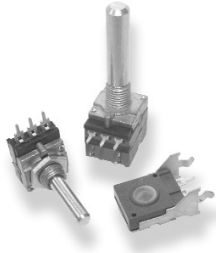


Spindle Operated Potentiometers

Type 51 Series

Type 51 Series



The Type 51 Series from Tyco Electronics offers a small, high quality potentiometer system. You can choose a standalone module or a conventional bush potentiometer with shaft. Advanced carbon polymer element technology potentiometers with or without switches are available to meet your every requirements.

Key Features

- Choice of Shafts and Edgewheels
- SPST Switch Style
- Available in Distribution
- Automatic Machine Insertable Modules
- Eyelet or PC Terminations
- Linear and Non-Linear Laws
- Multi Gang Versions Available

Characteristics - Electrical

| | | |
|-------------------------------|--------------------|----------------------------------|
| Resistance Range | Linear Law: | 470 Ohm to 4.7 Megohm |
| | Log Law: | 2.2K Ohm to 470K Ohm |
| Resistance Values: | | 1.0, 2.2, 4.7 per decade |
| Tolerance: | | ± 20% (tighter by selection) |
| Power Rating | Linear Law: | 0.2 Watt @ 40°C |
| | Log Law: | 0.1 Watt @ 40°C |
| Operating Voltage | Linear Law: | 350 VAC or 500 VDC maximum |
| | Log Law: | P maximum x R nominal |
| Load Life: | | ΔR < 10% after 1000 hours @ 70°C |
| Rotational Life: | | √ΔR < 10% @ 15,000 cycles |
| CRV (Linear Law): | | ΔR < 1% |
| Isolation Voltage: | | 500 V dc |
| Insulation Resistance: | | > 100 Megohm |

Characteristics - Mechanical

| | |
|---------------------------|-----------------|
| Angle of Rotation: | 300° ± 2° |
| Rotational Torque: | 10 mNm maximum |
| Stop Strength: | 400 mNm maximum |
| Rotational Life: | 25,000 cycles |

Characteristics - Environmental

| | |
|---------------------------------|----------------------------|
| Storage Temperature: | - 40°C to 85°C |
| Operating Temperature: | - 25°C to 70°C |
| Humidity: | < 15% ΔR RH 75% @ 35°C |
| Temperature Coefficient: | ± 500 PPM/°C @ -25 to 70°C |
| Climatic Category: | 25/070/10 |

Characteristics - Switch

| | |
|-------------------------------|-----------------------|
| Load Life: | 1000 Hours at 0.5 W |
| Contact Resistance: | < 20 milliohm initial |
| Rating: | 3.5 Amp @ 14.4 VDC |
| Contact Configuration: | SPST Off @ CCW E |
| On/Off Torque: | 30 mNm maximum |
| Operational Angle: | 30° maximum |
| Electrical Rotation: | 50° to 295° |

Soldering Condition

This product has been designed for flow solder only.

SOLDER BATH: 235°C +0°C/-5°C

IMMERSION TIME: 2 ±0.5 seconds

TEST CONDITIONS: IEC 391-1 clause 6.22.3

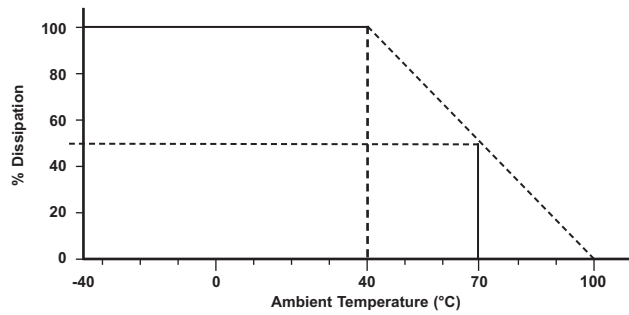
TEST METHOD: IEC 68-2

The Type 51 Series is designed for flow soldering only. If Hand Soldering is essential please take extreme care when applying solder.

Do not overheat the terminal by prolonged exposure to heat otherwise intermittent operation could result.

Type 51 Series

Derating Curve

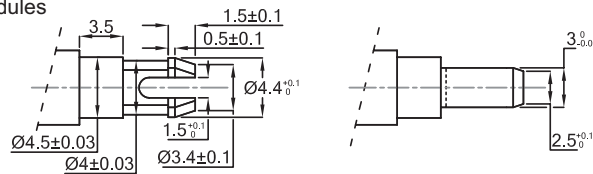


Dissipation as a function of temperature.
 Potentiometers covered by this specification are derated from 100% rated dissipation at 40°C to zero dissipation at 100°C.

Linear Law 100% - 0.2W
 Non-Linear Law 100% - 0.1W

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.

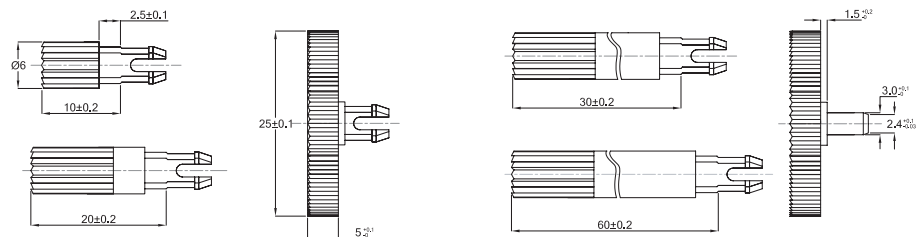
Accessory Options -

For Standalone Modules

At the date of publication the following mould tools exist for plug in accessories:

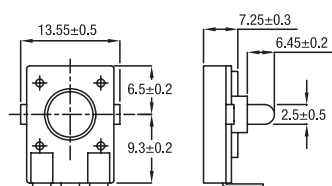
| | |
|---|--|
| Shafts 60 mm long x 6 mm diameter | with knurl end and screwdriver slot colour black |
| Shafts 30 mm long x 6 mm diameter | with knurl end and screwdriver slot colour black |
| Shafts 20 mm long x 6 mm diameter | with knurl end and screwdriver slot colour black |
| Shafts 10 mm long x 6 mm diameter | with knurl end and screwdriver slot colour black |
| Edgewheel for horizontal modules 25mm diameter | colour black. |

Thumbwheel Actuating Devices

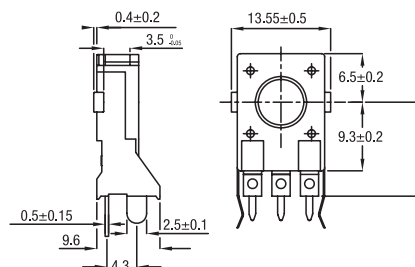


Dimensions Single Module

Type 51 Horizontal

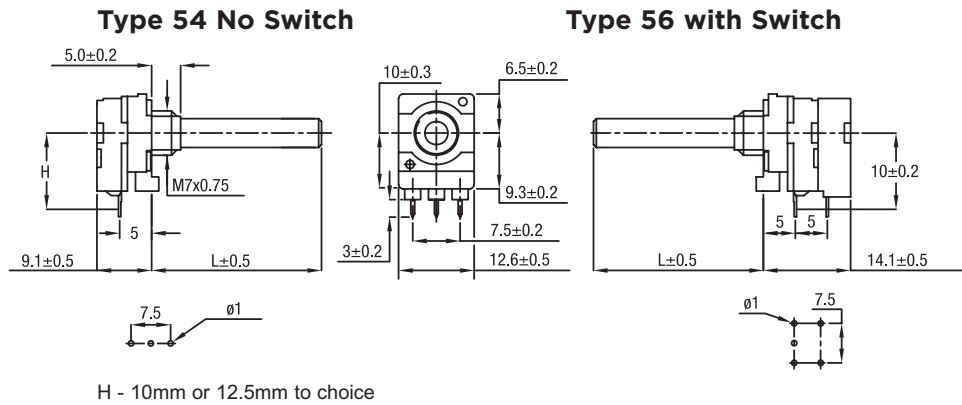


Type 53 Vertical



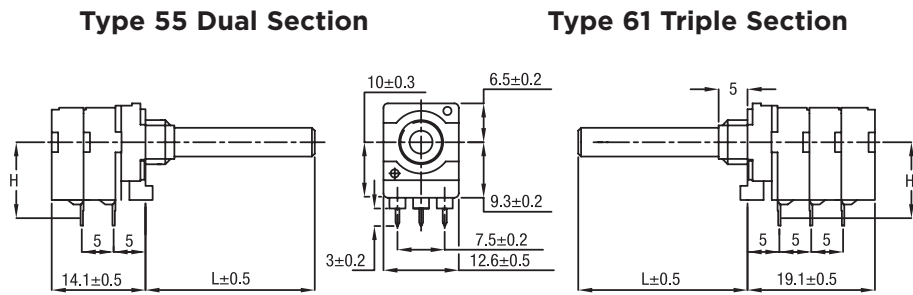
Type 51 Series

Dimensions Potentiometer



H - 10mm or 12.5mm to choice

Dimensions Potentiometer



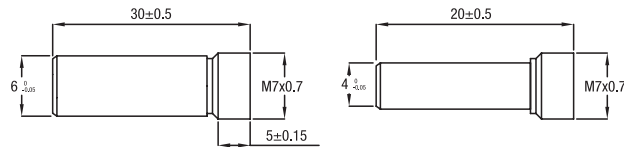
H - 10mm or 12.5mm to choice

L - 5mm or 8mm to choice

Type 61 has the same general dimensions as Type 55

Spindle Options

Potentiometers with Bush

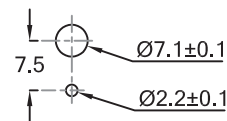


Panel Hole Data - Potentiometers with Bushes

Required Mounting Holes in Chassis

For Single and Dual Gang Potentiometers with Mounting Bush M7 x 0.75mm.

Fix Potentiometer with Mounting Nut Supplied.
Max. Torque for tightening - 1 Nm
Thickness of Mounting Plate - 1mm



How to Order

| 51 | 102 | A | 4 | 20 | PL |
|----------------------------------|---|--|---------------------|-----------------------|----------------------------|
| Common Part | Value | Resistance Law | Shaft Diameter | Shaft Length | Spindle Style |
| 51 53 54 55 56 61 | The first two digits are significant figures of the resistance value and the third one denotes the number of zeros following. e.g. 4K7: 472 47K: 473 470K: 474 | A - Linear B - Log C - Inverse Log | 4 - 4mm 6 - 6 mm | 20 - 20mm 30 -30mm | PL - Plain FL - Flatted |