



## SoftPot



### Features

- Linear Position Sensor
- Half the width of the SoftPot
- IP64 Dust Proof, Splash Proof
- Polyester Substrate
- 3M Pressure Sensitive Adhesive (PSA)
- Upon Request
  - Male or Female Nicomatic or Berg Connectors
- Wiper of 0.7-2.2 Newton Force to Actuate Part

### Mechanical Specifications

- Life Cycle: >1 million
- Height:  $\leq 0.51\text{mm}$  (0.020")
- Actuation Force (with a 6mm wide active cavity):
  - 40°C 0.9 to 2.2 N
  - 25°C 0.9 to 2.2 N
  - +23°C 0.7 to 1.8 N
  - +50°C 0.7 to 1.8 N

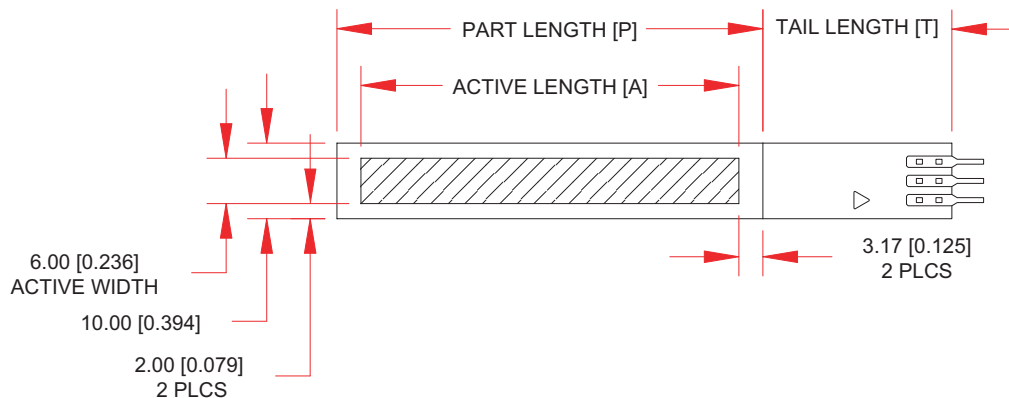
### Environmental Specifications

- Operating Temperature: -40°C to +50°C
- Humidity: No affect @ 95% RH, 4hrs 50°C
- IP Rating of Active Area: IP64

### Electrical Specifications

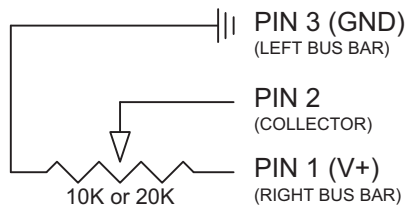
- Resistance - Standard: 10k Ohms (lengths >300mm = 20k Ohms)
- Resistance - Custom: 1k to 100k Ohms
- Resistance Tolerance:  $\pm 20\%$
- Effective Electrical Travel: 8 to 2000mm
- Linearity (Independent): Linear  $\pm 1\%$  or  $\pm 3\%$  Rotary  $\pm 3\%$  or  $\pm 5\%$
- Repeatability: No hysteresis, but with any wiper looseness some hysteresis will occur
- Power Rating (depending on size, varies with length and temperature): 1 Watt max. @ 25°C,  $\leq 0.5$  Watt recommended
- Resolution: Analog output theoretically infinite; affected by variation of contact wiper surface area.
- Dielectric Value: No affect @ 500VAC for 1 minute

### Dimensional Diagram - Stock Linear ThinPot

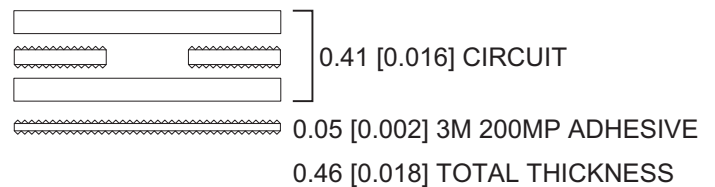


|   |                   |                   |                   |                    |                    |                    |                    |                     |                     |                     |                     |                      |
|---|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|---------------------|---------------------|---------------------|---------------------|----------------------|
| A | 12.50mm<br>0.492" | 25.00mm<br>0.984" | 50.00mm<br>1.969" | 100.00mm<br>3.937" | 150.00mm<br>5.906" | 170.00mm<br>6.693" | 200.00mm<br>7.874" | 300.00mm<br>11.811" | 400.00mm<br>15.748" | 500.00mm<br>19.685" | 750.00mm<br>29.528" | 1000.00mm<br>39.370" |
| P | 18.85mm<br>0.742" | 31.35mm<br>1.234" | 56.35mm<br>2.219" | 106.35mm<br>4.187" | 156.35mm<br>6.156" | 176.35mm<br>6.943" | 206.35mm<br>8.124" | 306.35mm<br>12.061" | 406.35mm<br>15.998" | 506.35mm<br>19.935" | 756.35mm<br>29.778" | 1006.35mm<br>39.620" |
| T | 12.70mm<br>0.500" |                   | 25.00mm<br>0.984" |                    |                    |                    |                    |                     |                     |                     |                     |                      |

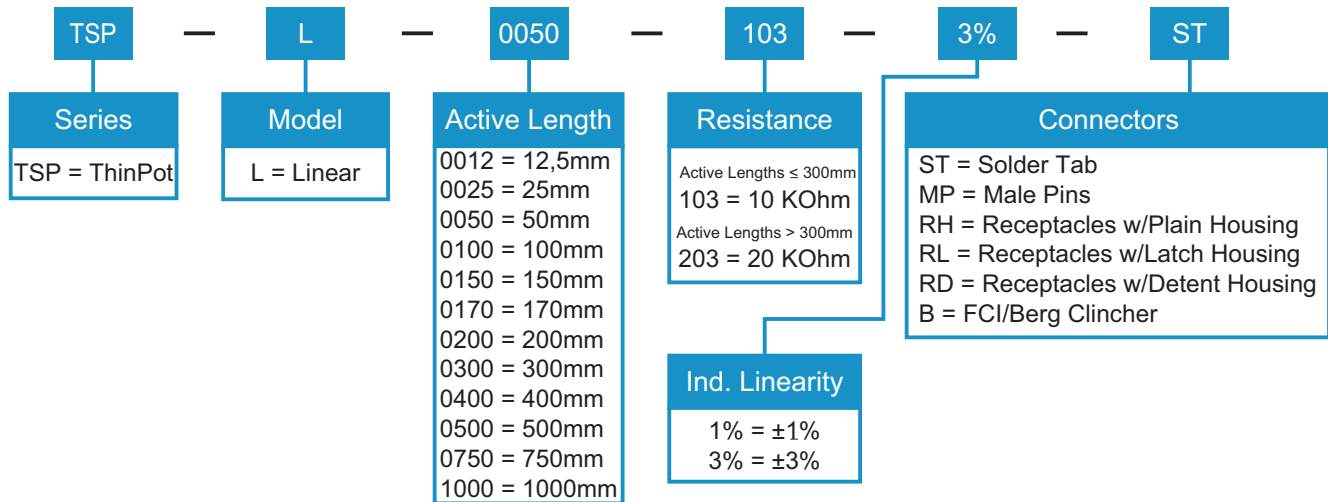
## Electrical Schematic



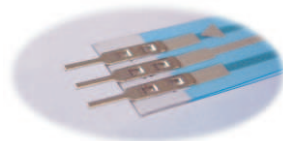
## Material Cross-Section



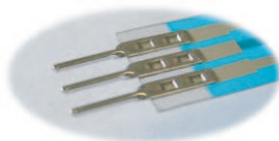
## How to Order - Linear ThinPots



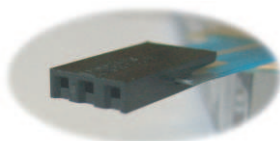
## Standard Connector Options



Crimpflex Solder Tab (ST)



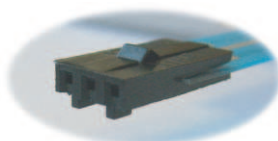
Crimpflex Short Male Pins (MP)



Crimpflex Female Receptacles with a Plain Housing (RH)



Crimpflex Female Receptacles with a Latch Housing (RL)



Crimpflex Female Receptacles with a Detent Housing (RD)



FCI/Berg Clincher (B)

## Customization

Customize the size, shape, and even the number of tracks. Such custom requests, for example, can be: multiple ganged sensors (up to 40 tracks); serpentine active area track; custom lengths 10mm-2000mm; custom rotary diameters, etc. Feel free to contact Spectra Symbol with your custom request at [sales@spectrasymbol.com](mailto:sales@spectrasymbol.com) or (888)795-2283.

## How It Works

In simple terms, the ThinPot membrane potentiometer is a resistive element, which comprises a conductive resistor, a sealed encasement and a simple wiper assembly. A membrane potentiometer can also function as a voltage divider.

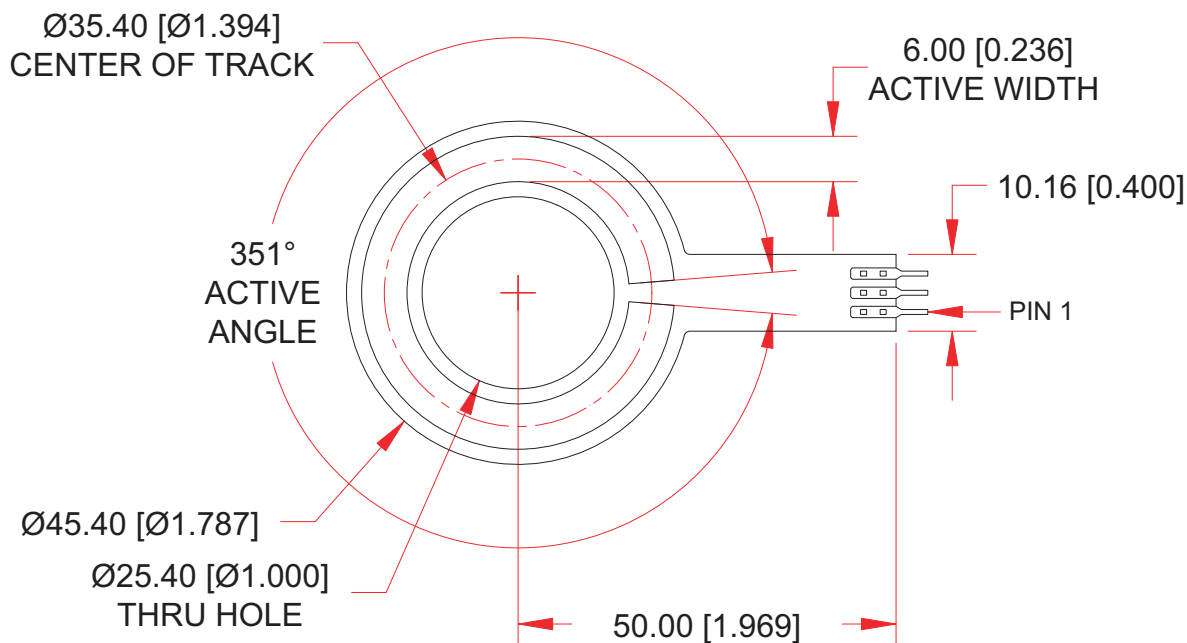
The ThinPot is a three-wire system with two resistive output channels and an electrical collector channel.



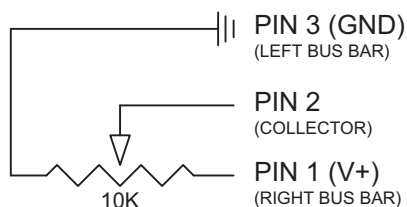
By pressing a wiper down onto the top circuit the SoftPot produces the desired electrical output. The "wiper" is a non-conductive mechanism that depresses the top circuit actuating the potentiometer from the outside of the element. The top and bottom circuits are separated by 0.15mm (0.006") of spacer adhesive build-up and contact between the circuit occurs by pressure (usually 0.7-1.8 Newtons) from the wiper on the top circuit, pushing down until the top circuit connects with the bottom circuit to create a potentiometric output.



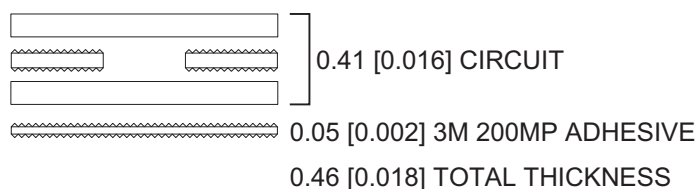
The construction of the wiper design can adapt to any application because most materials can serve as the wiper: plastics, metals, sliders, rollers, wheels, etc. Also, the ThinPot can also be manually (hand) actuated.



### Electrical Schematic



### Material Cross-Section



### How to Order - Rotary ThinPot

|               |   |            |   |                        |   |              |   |                |   |                                                                                                                                                                         |   |    |
|---------------|---|------------|---|------------------------|---|--------------|---|----------------|---|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----|
| TSP           | — | R          | — | 0036                   | / | 0351         | — | 103            | — | 5%                                                                                                                                                                      | — | ST |
| Series        |   | Model      |   | Center of Active Track |   | Active Angle |   | Resistance     |   | Connectors                                                                                                                                                              |   |    |
| TSP = ThinPot |   | R = Rotary |   | 0036 = 35.40mm         |   | 0351 = 351°  |   | 103 = 10 KOhm  |   | ST = Solder tab<br>MP = Male Pins<br>RH = Receptacles w/Plain Housing<br>RL = Receptacles w/Latch Housing<br>RD = Receptacles w/Detent Housing<br>B = FCI/Berg Clincher |   |    |
|               |   |            |   |                        |   |              |   | Ind. Linearity |   |                                                                                                                                                                         |   |    |
|               |   |            |   |                        |   |              |   | 3% = ±3%       |   |                                                                                                                                                                         |   |    |
|               |   |            |   |                        |   |              |   | 5% = ±5%       |   |                                                                                                                                                                         |   |    |