**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: ≤0.51mm (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: ±20%
- Effective Electrical Travel: 8 to 2000mm
- Linearity (Independent): Linear ±1% or ±3%
  - Rotary ±3% or ±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, ≤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**
How to Order - Linear ThinPots

TSP — L — 0050 — 103 — 3% — ST

Series
TSP = ThinPot

Model
L = Linear

Active Length
0012 = 12.5mm
0025 = 25mm
0050 = 50mm
0100 = 100mm
0150 = 150mm
0170 = 170mm
0200 = 200mm
0300 = 300mm
0400 = 400mm
0500 = 500mm
0750 = 750mm
1000 = 1000mm

Resistance
Active Lengths ≤ 300mm
103 = 10 KOhm
Active Lengths > 300mm
203 = 20 KOhm

Ind. Linearity
1% = ±1%
3% = ±3%

Connectors
ST = Solder Tab
MP = Male Pins
RH = Receptacles w/Plain Housing
RL = Receptacles w/Latch Housing
RD = Receptacles w/Detent Housing
B = FCI/Berg Clincher

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 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.

Top Circuit (Collector)

Circuit Spacer

Bottom Circuit (Resistor)

Bottom Adhesive

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.
**Diagram - Stock Rotary ThinPot**

**How to Order - Rotary ThinPot**

- **TSP**  
  Series: TSP = ThinPot

- **R**  
  Model: R = Rotary

- **0036**  
  Center of Active Track: 0036 = 35.40mm

- **0351**  
  Active Angle: 0351 = 351°

- **103**
  Resistance: 103 = 10 KOhm

- **5%**
  Ind. Linearity: 3% = ±3%  
  5% = ±5%

- **ST**
  Connectors:
  - ST = Soldertab
  - MP = Male Pins
  - RH = Receptacles w/Plain Housing
  - RL = Receptacles w/Latch Housing
  - RD = Receptacles w/Detent Housing
  - B = FCI/Berg Clincher

**Material Cross-Section**

- 0.41 [0.016] CIRCUIT
- 0.05 [0.002] 3M 200MP ADHESIVE
- 0.46 [0.018] TOTAL THICKNESS

**Electrical Schematic**

- PIN 3 (GND) (LEFT BUS BAR)
- PIN 2 (COLLECTOR)
- PIN 1 (V+) (RIGHT BUS BAR)
- 10K
- 10K
- 10K

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