

# Single-Turn Precision Potentiometer

Model 6143/6163



## Features:

- Low Profile 7/8" diameter
- Conductive Plastic Technology



## Models Available

6143	1/8" Shaft, Bronze Sleeve Bearing
6163	1/8" Shaft, Ball Bearing

## Electrical Specifications

Absolute Maximum Ratings (TA = 25° C unless otherwise noted)

Resistance Range	1K to 100K Ohms
Standard Resistance Tolerance	±10%
Minimum Practical Resistance Tolerance	±5%
Independent Linearity <sup>2</sup>	±1%
Minimum Practical Independent Linearity	Model 6163: ±0.25%, Model 6143: ±0.5%
Input Voltage	400 VDC maximum, not to exceed power rating
Power Rating	1.0 Watt at 70°C, derating to 0 at 125°C
Dielectric Strength	750 V rms
Insulation Resistance	1,000 Megohms minimum
Output Smoothness	0.1% maximum
Actual Electrical Travel	340° nominal
Electrical Continuity Travel	350° nominal
End Voltage	Maximum 0.5% of input voltage
Resolution	Essentially infinite
Temperature Coefficient of Resistance <sup>3</sup>	-400 ppm/°C typical
Temperature Coefficient of Output Voltage <sup>4</sup>	±10 ppm/°C typical

### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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## Mechanical Specifications

Total Mechanical Travel	360° C continuous
Number of Gangs	1 maximum
Weight	0.46 oz. nominal
Shaft Runout	maximum T.I.R. 0.003"
Pilot Diameter Runout	maximum T.I.R. for 6143: 0.005", for 6163: 0.003"
Lateral Runout	maximum T.I.R. for 6143: 0.005", for 6163: 0.003"
Shaft Radial Play	maximum 0.005"
Start/Run Torque	maximum 0.6 oz.in. for 6143, 0.5 oz. in. for 6163
Bearing Type	6143: bronze sleeve bearing, 6163: ball bearing

Notes:

<sup>1</sup> Specifications subject to change without notice

<sup>2</sup> Linearity is measured between 1% and 99% of input voltage

<sup>3</sup> Special TCR available to  $\pm 100$  ppm/°C

<sup>4</sup> Measured with 10 VDC CW to CCW and slider at 50% of Electrical Travel

## Environmental Specifications

Operating Temperature Range	-40°C to +125°C dynamic, -65°C to +125°C static
Temperature Cycling	5 cycles, -65°C to +125°C, maximum 10% $\Delta R$
Shock	6 ms Saw-tooth, 100 G's, 0.1 ms maximum discontinuity
Vibration	10 G's, 10 to 500 Hz, maximum 2% $\Delta R$ , 0.1 ms maximum discontinuity
Moisture Resistance	Five 24 hour cycles, maximum 10% $\Delta R$
High Temperature Exposure	1,000 hours at 125°C, maximum 0.5% $\Delta R$
Rotational Life	6143: 5 million shaft revolutions, 6163: 25 million shaft revolutions
Rotational Load Life	5 million shaft revolutions at 1.0 Watt & 70°C, maximum 10% $\Delta R$
Ingress Protection Rating (IP Code)	IP50

### General Note

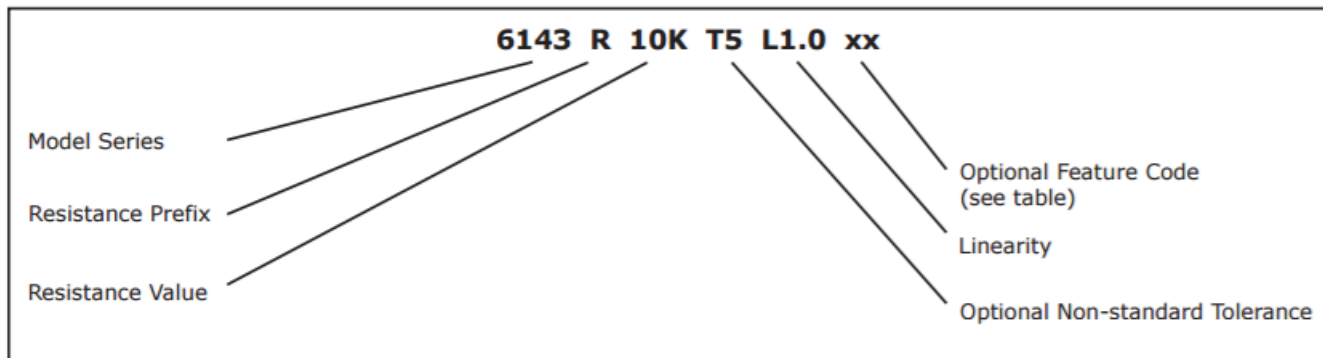
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## Ordering Information

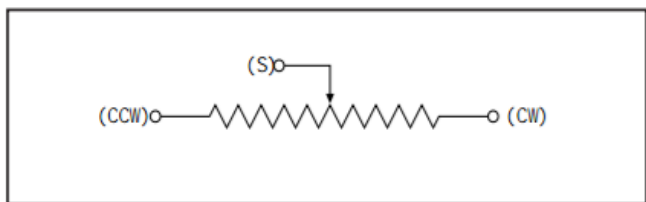


### FEATURE CODES

Linearity Tape	LT
Flatted Shaft	FS
Slotted Shaft	SS

When multiple Optional Feature codes are used the P/N shall be in the same sequence as listed in this table (top to bottom).

### CIRCUIT DIAGRAM



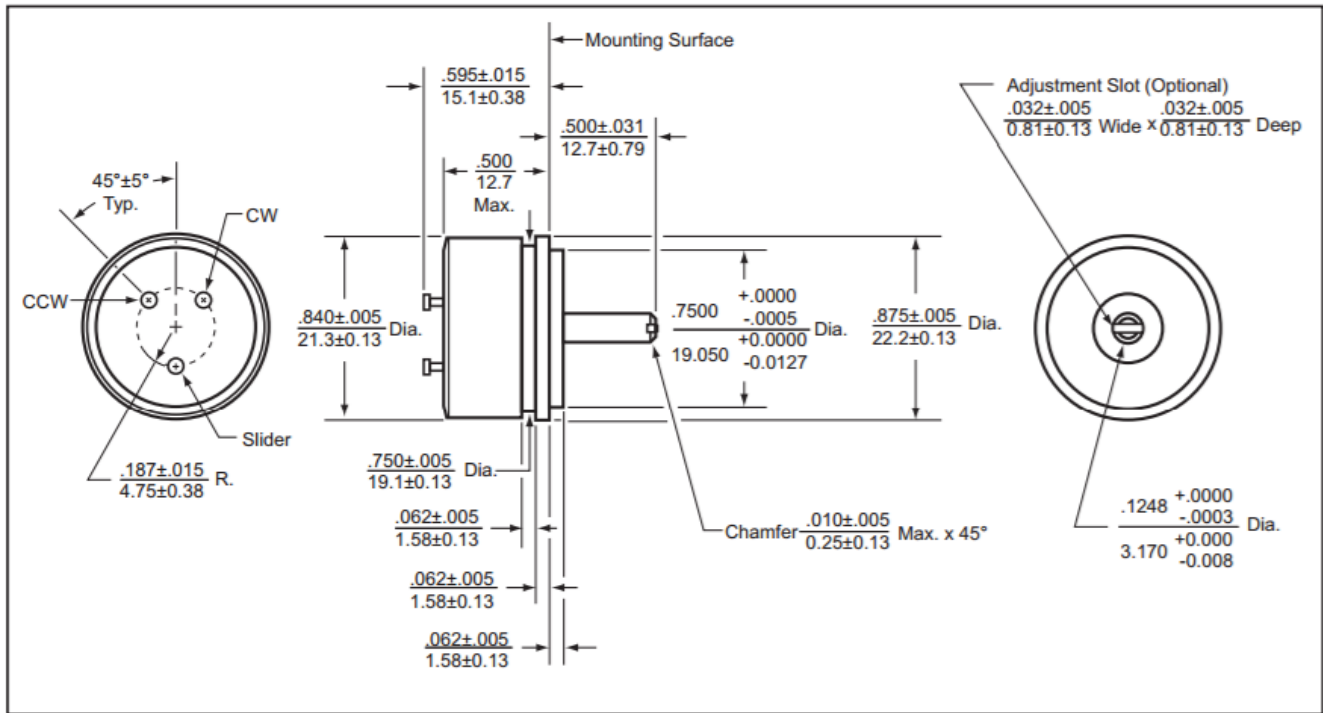
### STANDARD RESISTANCE VALUES

1K	2K	5K	10K	20K	50K
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