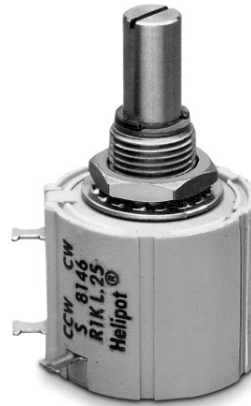


Series 8140
Model 8141, 8143, 8146, 8148
7/8" Diameter
10-Turn*, Hybrid
Precision Potentiometer /
Position Sensor



For more information about this product, visit our website at:
www.potentiometers.com

Features

8141	1/8" Shaft, 1/4" Bushing
8143	1/8" Shaft, Servo
8146	1/4" Shaft, 3/8" Bushing
8148 (for heavy side load applications)	1/4" Shaft, 3/8" Bushing

Electrical Specifications¹

Resistance	Range 1K to 100K ohms
Standard Resistance Tolerance	±10%
Minimum Practical Resistance Tolerance	±5%
Independent Linearity ²	±0.25%
Power Rating	2.0 Watts at 70°C, derating to 0 at 125°C
Dielectric Strength	1,000 V rms
Insulation Resistance	1,000 Megohms minimum
Output Smoothness	0.05% maximum ≤ 5 Kohms, 0.03% maximum above 5 Kohms
Actual Electrical Travel	3600° nominal
End Voltage	maximum 0.2% of input voltage
Tap Tolerance (voltage tap only)	± 0.05% of input voltage
Resolution	essentially infinite
Temperature Coefficient of Resistance	± 50 ppm/°C typical
Temperature Coefficient of Output Voltage ³	±10 ppm/°C typical

1 Specifications subject to change without notice.
2 Linearity is measured between 1% and 99% of input voltage.
3 Measured with 10 VDC CW to CCW and slider at 50% of electrical travel.
* Model available in 3 & 5 turn versions.

Environmental (MIL-PRF-39023)

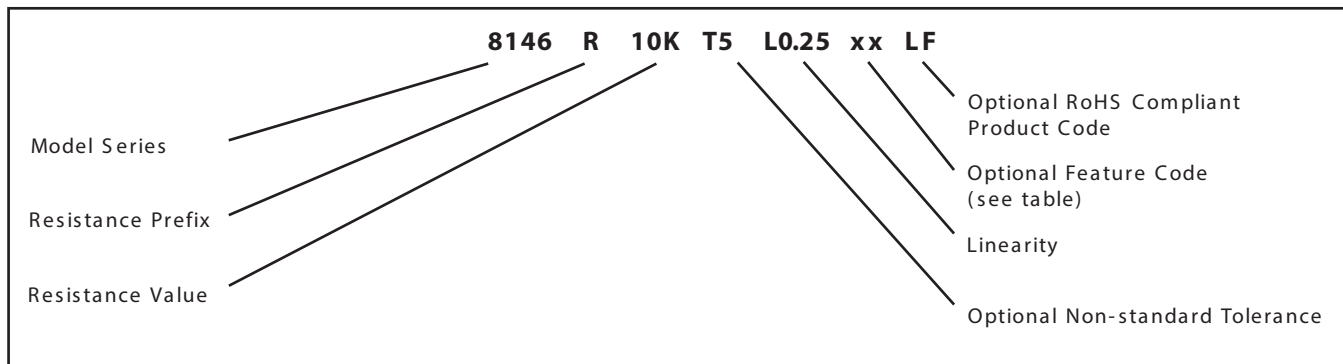
Operating Temperature Range	-40°C to +125°C dynamic, -55°C to +125°C static
Temperature Cycling	5 cycles, -40°C to +125°C, maximum 5% ΔR
Shock	6 ms Saw-tooth, 100 G's, 0.1 ms maximum discontinuity
Vibration	15 G's, 10 to 2,000 Hz, maximum 5% ΔR, 0.1 ms maximum discontinuity
Moisture Resistance	Five 24 hour cycles, maximum 5% ΔR
High Temperature Exposure	1,000 hours at 125°C, maximum 5% ΔR
Rotational Load Life (1 lb side load for 8148)	5 million shaft revolutions + 900 hours at 2.0 Watts & 70°C, maximum 5% ΔR

Series 8140 - Model 8141, 8143, 8146, 8148

Mechanical Specifications

Total Mechanical Travel		3600° +15° -0°
Number of Gangs		2 maximum
Weight (single gang)		0.75 oz. nominal
Backlash		1° maximum
	8141, 8146	8143
Static Stop Strength	maximum 60 oz.-in.	36 oz.-in.
Panel Nut Tightening Torque	maximum 25 lb.-in.	n/a
Shaft End Play	maximum 0.010"	0.005"
Shaft Runout	maximum T.I.R. 0.003"	0.002"
Pilot Diameter Runout	maximum T.I.R. 0.004"	0.002"
Lateral Runout	maximum T.I.R. 0.005"	0.004"
Shaft Radial Play	maximum 0.003"	0.002"
Start/Run Torque (per gang)	maximum 0.8 oz.-in.	0.6 oz.-in.

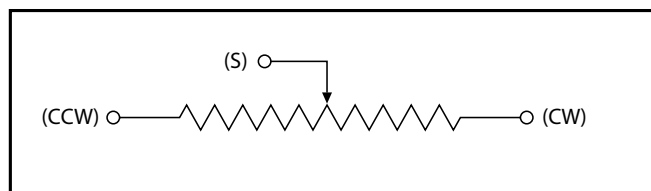
Ordering Information



Special Features

Center Tap	CT
Linearity Tape	LT
Flatted Shaft	FS
Slotted Shaft (standard on single gang 8146 without RS feature)	SS
Rear Shaft Extension (8143, 8146 single cup only)	RS
Shaft Lock (8141, 8146 only)	SL
High Torque 2-6 oz.-in. (8146 only)	HT
Additional Gang	2G
Gold Plated Solder Lug Terminals (see optional terminal configuration)	FT

Circuit Diagram



Standard Resistance Values, Ohms

1K 2K 5K 10K 20K 50K 100K

Series 8140 - Model 8141, 8143, 8146, 8148

Matching Turns Counting Dials

8141: RBJ, 2601, 2641

8146: 2606, 2607, 2626, 2627, 2646, 2126, 2606S, 2607S, 2646S, 2647S, RB

Outline Drawings

Models 8141 & 8146
Bushing Mount with Sleeve Bearing

Dim.	8141	8146
A	$\frac{.688 \pm .031}{17.475 \pm 0.787}$	$\frac{.812 \pm .031}{20.625 \pm 0.787}$
B	$\frac{.1248 \pm .0000}{3.1699 \pm 0.0000}$ Dia. $\frac{-.0003}{-0.0076}$	$\frac{.2500 \pm .0000}{6.3500 \pm 0.0000}$ Dia. $\frac{-.0005}{-0.0127}$
C	$\frac{.281 \pm .000}{7.137 \pm 0.000}$ Dia. $\frac{-.002}{-0.051}$	$\frac{.406 \pm .000}{10.312 \pm 0.000}$ Dia. $\frac{-.002}{-0.051}$
D	1/4-32 UNEF Thread	3/8-32 UNEF Thread

Slot: $.032 \pm .005 / 0.813 \pm 0.127$ Wide X $.032 \pm .010 - .000 / 0.813 \pm 0.254 - 0.000$ Deep
 (Not on Rear Shaft Models)

Chamfer $.016 / 0.41$ Max. x 45°

75° Max. $\frac{.625}{15.9}$ R Max.

$\frac{.875 \pm .016}{22.2 \pm 0.41}$ Dia.

Optional Terminal Configuration

40°

SLIDER

VIEW B

.625 R MAX

15.9 R MAX

.020 Thickness

.110 / 2.794

.060 ± .003 / 1.524 ± .076 Dia.

.062 ± .003 / 1.524 ± .076

Use Special Feature Code "FT" to order.

Enlarged View B

Series 8140 - Model 8141, 8143, 8146, 8148

Outline Drawings

