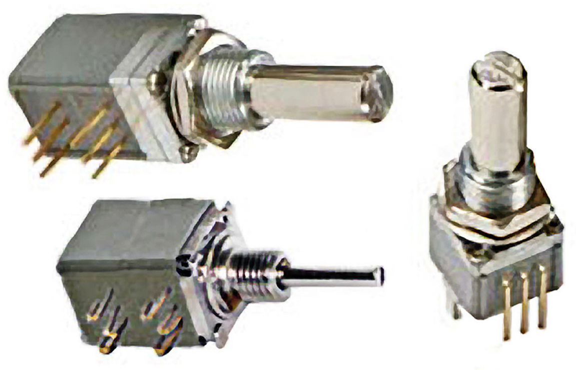
Series S127 Potentiometer

1/2" (12.7mm) Square
.5 Watt Power Rating



Description:

The Series S127 modules are 1/2" square (12.7mm) stackable conductive plastic potentiometers with metal shaft and bushing.

Combine up to 4 modules. SPDT Switch module is available, as well as 3 standard detent options.

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

Features:

- ***Small size*** - *1/2" square modules*
- ***Stackable*** - *up to 4 modules*
- ***Horizontal or Vertical Mounting***
- ***Conductive Plastic Resistance Element***
- ***Linear, CW or CCW audio Taper***
- ***Metal Shaft and Bushing***
- ***PCB or Solder Hook Terminals***
- ***Rotary Switch module*** - *SPDT, 0.5A @ 30Vdc*
- ***Detents*** - *Center Detent, 11 Detents, or 21 Detents*
- ***Sealed (IP67) or Dust Proof (IP50)***
- ***1 million Cycle life***
- ***RoHS Compliant***

Electrical Specifications

Resistance Range	500 ohms -1Megohm
Standard Resistance Tolerance	±15%
Residual Resistance	Maximum 2 ohms
Taper	A = Audio B = Linear C = Reverse Audio
Maximum Number of Modules	Horizontal = 4 Vertical = 2
Input Voltage, Maximum	350 Vac
Power rating, Watts	0.5W - B taper, 0.25W - others
Dielectric Strength	1,500Vac, sea level
Insulation Resistance, Minimum	1,000 Megohms
Gang Error (Multi-ganged), Maximum	+/-3 dB (-40 dB to 0dB)
Actual Electrical Travel,	Nominal 265°
Switch Contact Resistance, Maximum.	150 milliohms max.
Switch Power Rated	0.5A at 30Vdc

Mechanical Specifications

Total Mechanical Travel	295°± 10°
Static Stop Strength	40 oz-in
Rotational Torque, Maximum	1.5 oz-in (0.5 oz-in each additional gang)
Switch Detent, Minimum	2.0 oz-in

Environmental Specifications

Operating Temperature Range	-55°C to +125°C
Rotational Life	1,000,000 cycles
IP Rating	Sealed = IP67

Disclaimer

Due to the unlimited design combinations, certain designs may not perform in accordance with all of the specifications

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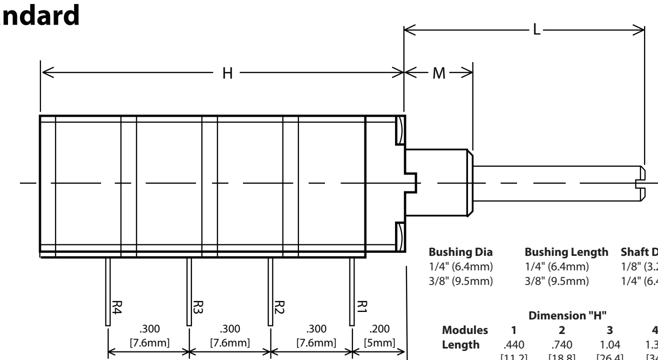
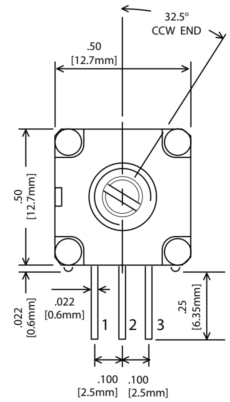
S127 Outline Drawings - Horizontal

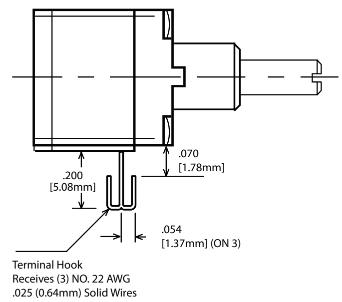
Standard

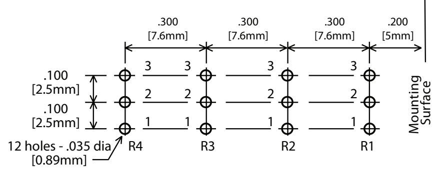


Bushing Dia	Bushing Length	Shaft Dia
1/4" (6.4mm)	1/4" (6.4mm)	1/8" (3.2mm)
3/8" (9.5mm)	3/8" (9.5mm)	1/4" (6.4mm)

	Dimension "H"			
Modules	1	2	3	4
Length	.440 [11.2]	.740 [18.8]	1.04 [26.4]	1.34 [34]

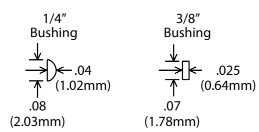


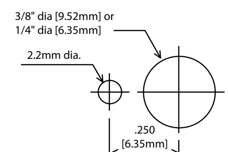




PCB Diagram (top view)

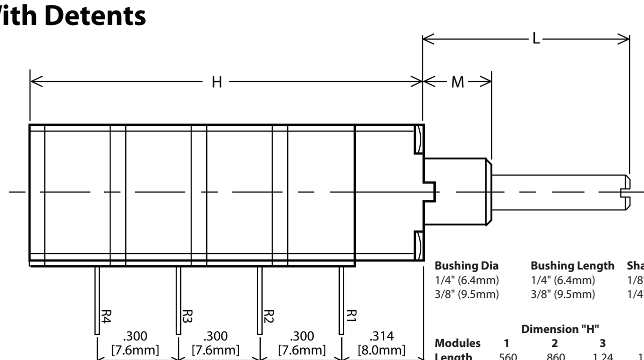
Position Lug Dimensions





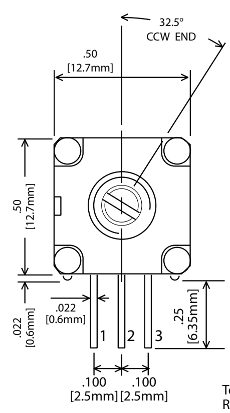
Panel Layout

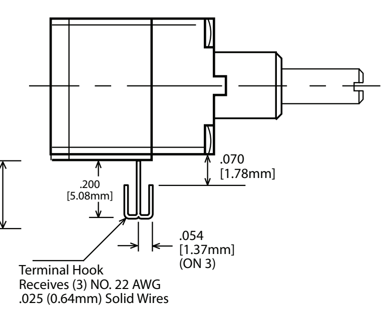
With Detents

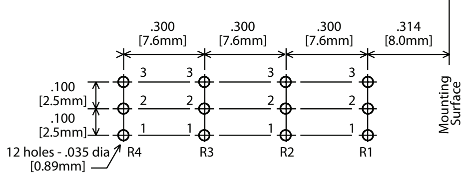


Bushing Dia	Bushing Length	Shaft Dia
1/4" (6.4mm)	1/4" (6.4mm)	1/8" (3.2mm)
3/8" (9.5mm)	3/8" (9.5mm)	1/4" (6.4mm)

	Dimension "H"			
Modules	1	2	3	4
Length	.560 [14.2]	.860 [21.8]	1.24 [29.4]	1.46 [37]

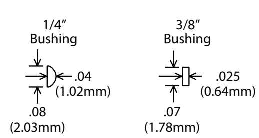


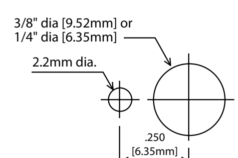




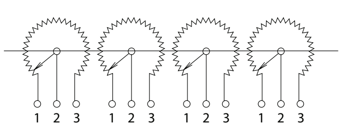
PCB Diagram (top view)

Position Lug Dimensions

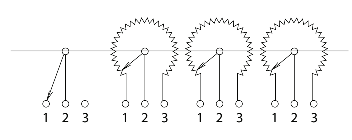




Panel Layout



Circuit Diagram
4 Potentiometer Modules



Circuit Diagram
1 Switch and 3 Potentiometer Modules

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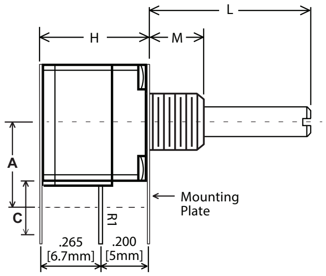
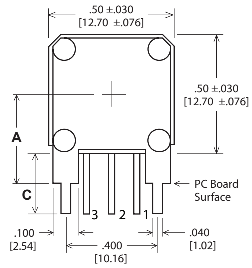
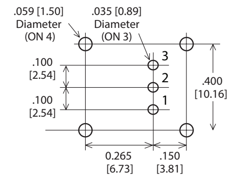
S127 Outline Drawings - Horizontal with Mounting Plate

B-24 Single Potentiometer or Rotary Switch, Mounting Plates



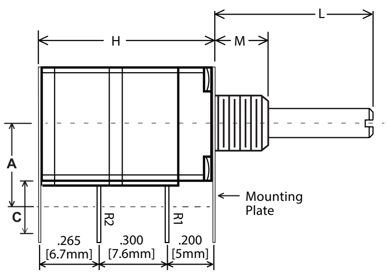


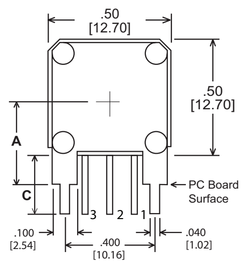
Rear View



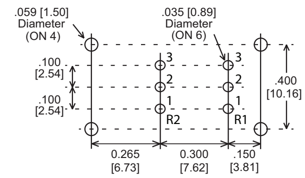
PC Board Layout (top view)

B-24 Dual Potentiometer or Rotary Switch, Mounting Plates



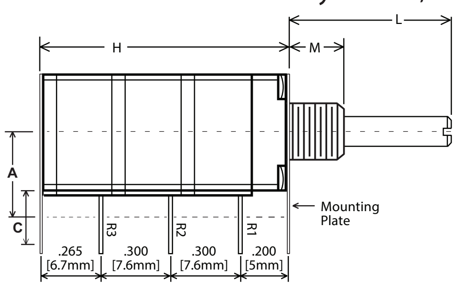


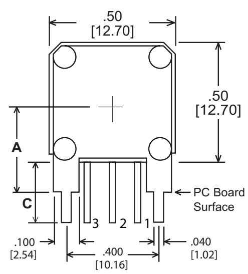
Rear View



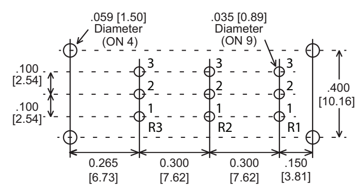
PC Board Layout (top view)

B-24 Triple Potentiometer or Rotary Switch, Mounting Plates



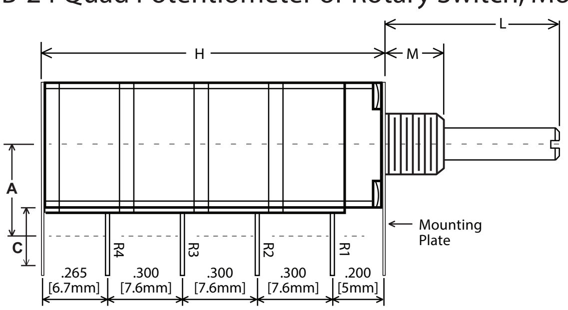


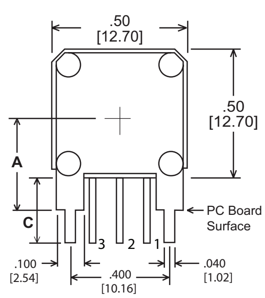
Rear View



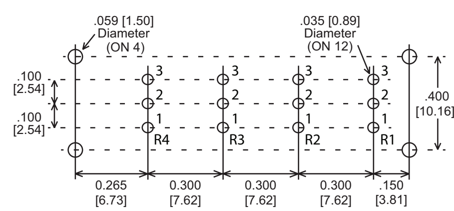
PC Board Layout (top view)

B-24 Quad Potentiometer or Rotary Switch, Mounting Plates





Rear View



PC Board Layout (top view)

Notes:

1. Basic dimensions are in inches.
   Dimensions in brackets are in millimeters.
   Dimensional Tolerance ±.016 [0,40], except as specified.
2. B-24 PC pins length standard is 0.250". Maximum 0.875"
3. **Drawings are not to scale.**

Support Plate Dimensions:

Type	"A" Support Plate	"C" Terminal Length
B–24–1	.375 [9.53]	.250 [6.35] (Standard)
B–24–2	.500 [12.70]	.375 [9.53]
B–24–3	.625 [15.88]	.500 [12.70]
B–24–4	.750 [19.05]	.625 [15.88]
B–24–5	.275 [6.98]	.125 [3.18]

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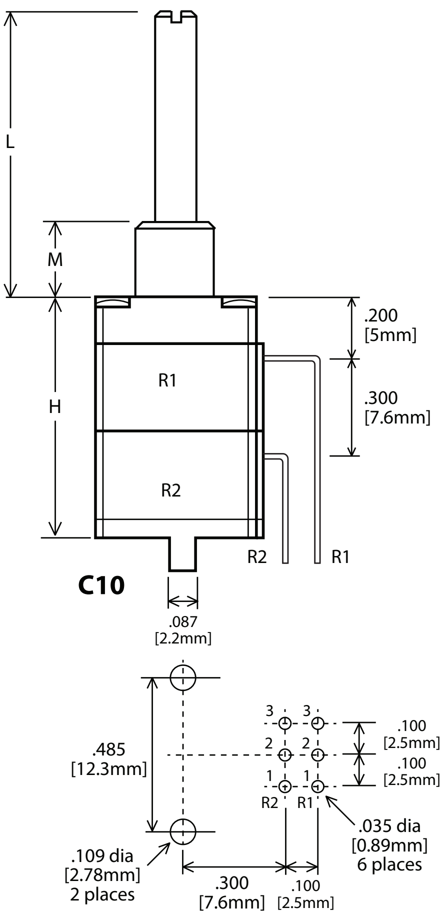
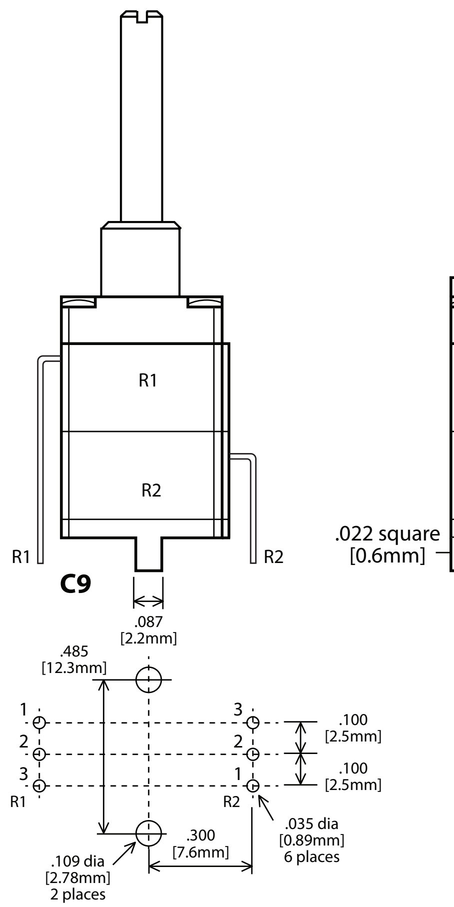
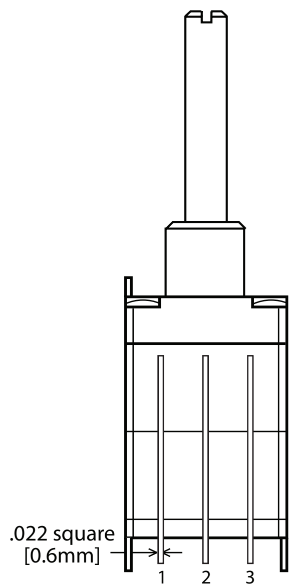
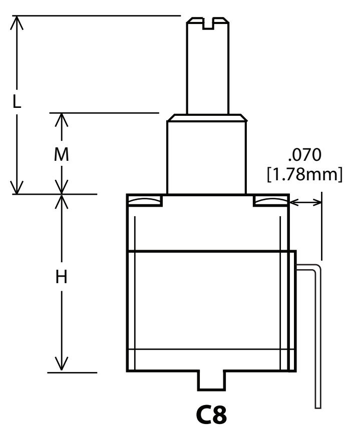
S127 Outline Drawings - Vertical

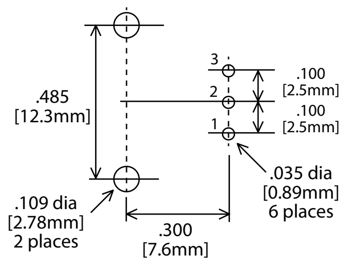
Standard (without detents)

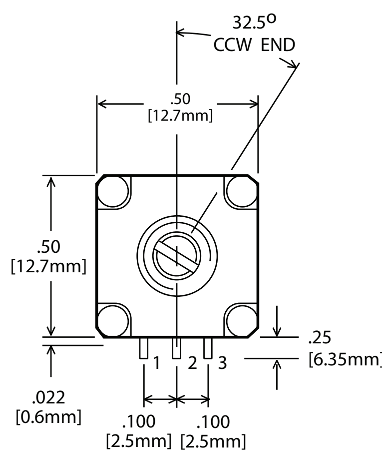


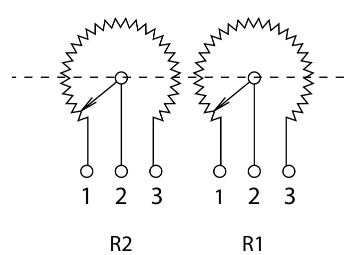












Circuit Diagram

For 1/8" (3.2mm) Diameter Shaft:

Bushing Diameter	**1/4" (6.4mm)**
Bushing Dimension M	**1/4" (6.4mm)**

For 1/4" (6.4mm) Diameter Shaft:

Bushing Diameter	**3/8" (9.5mm)**
Bushing Dimension M	**3/8" (9.5mm)**

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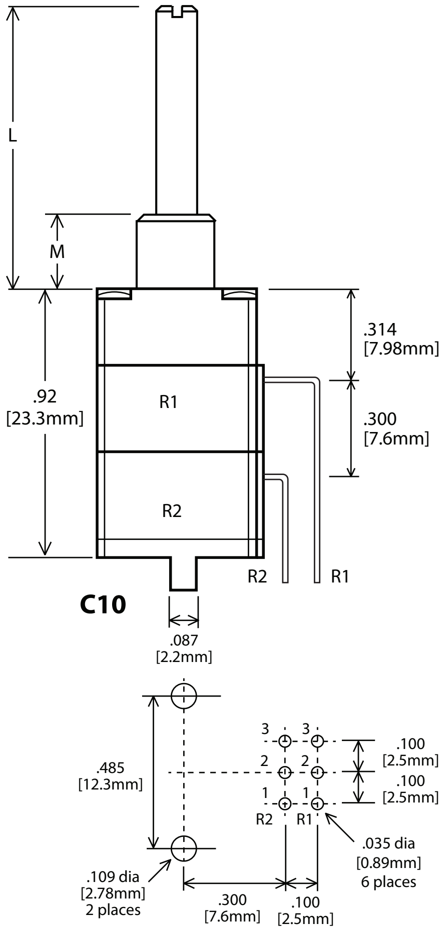
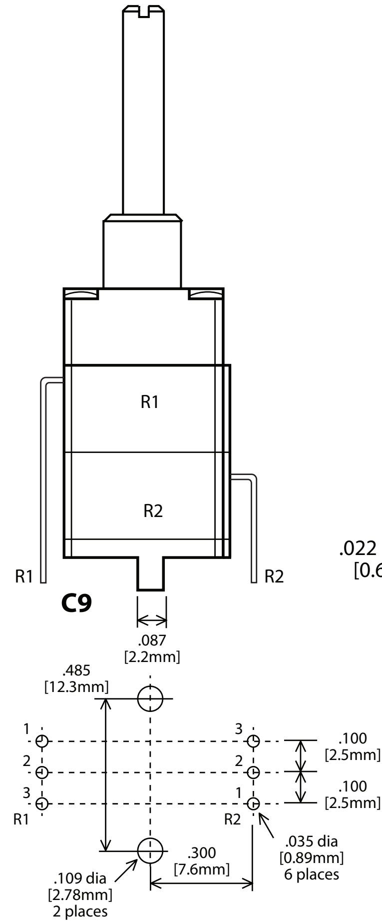
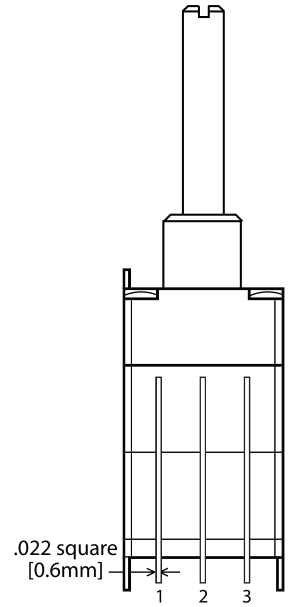
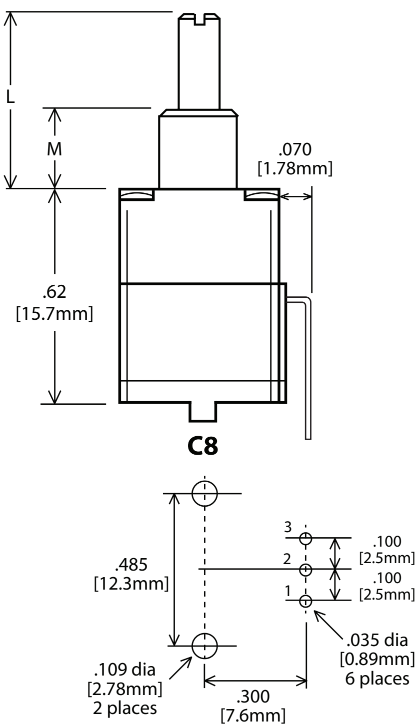
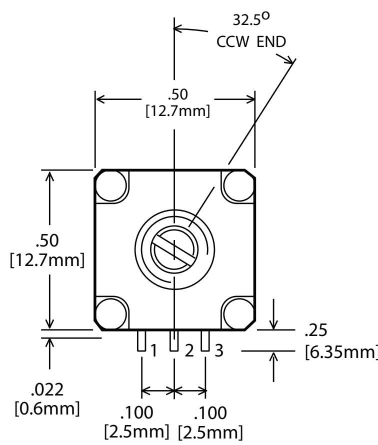
With Detents

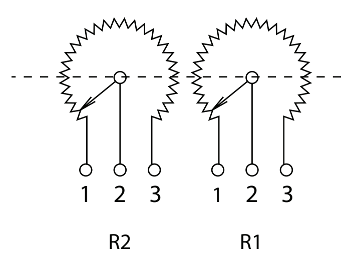












Circuit Diagram

For 1/8" (3.2mm) Diameter Shaft:

Bushing Diameter	1/4" (6.4mm)
Bushing Dimension M	1/4" (6.4mm)

For 1/4" (6.4mm) Diameter Shaft:

Bushing Diameter	3/8" (9.5mm)
Bushing Dimension M	3/8" (9.5mm)

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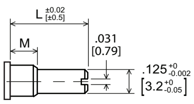
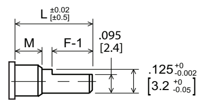
Shaft Style

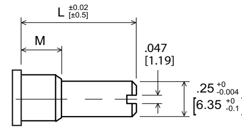
Slotted Shaft 1/8" [3.2mm]



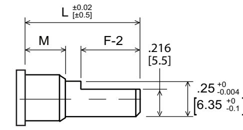
Flatted Shaft 1/8" [3.2mm]



Slotted Shaft 1/4" [6.35mm]



Flatted Shaft 1/4" [6.35mm]



L (Shaft Length)	T (Flat Length)
5/16" [7.9] (1/8" shaft only)	N/A
3/8" [9.5] (1/8" shaft only)	N/A
7/16" [11.1] (1/8" shaft only)	N/A
1/2" [12.7]	.250 [6,35mm]
5/8" [15.8]	.250 [6,35mm]
3/4" [19.1]	.315 [8,0mm]
7/8" [22.2]	.315 [8,0mm]
1.0" [25.4]	.315 [8,0mm]
2.0" [50.8]	.315 [8,0mm]
Other __________	

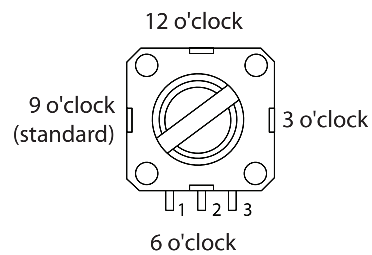
Bushing

Shaft Diameter	Bushing Diameter	Bushing Length
1/8" (3.2mm)	1/4" (6.4mm)	1/4" (6.4mm)
1/4" (6.4mm)	3/8" (9.5mm)	3/8" (9.5mm)

Locating Lug Position

Front view

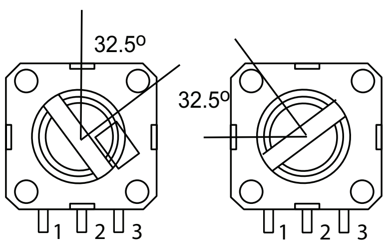
Full CCW Position shown



Shaft Position (Slotted Shaft)

Front view

Full CCW Position shown



Style

C

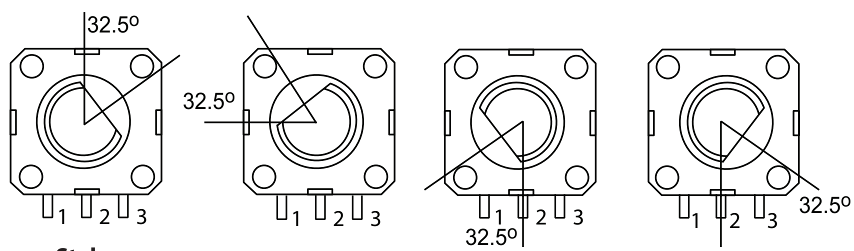
A

(standard)

Shaft Position (Flatted Shaft)

Front view

Full CCW Position shown



Style

C

(standard)

A

D

B

Tapers

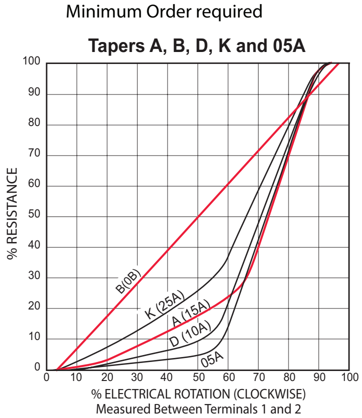
Audio / Log Tapers

A = **Audio Taper** (15A) - Standard

B = **Linear Taper** (0B)

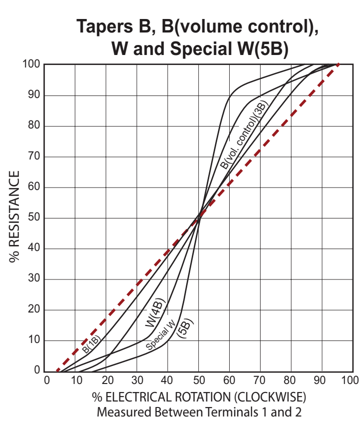
Other tapers shown are Semi-Custom

Minimum Order required



More Semi-Custom Tapers

Minimum Order required

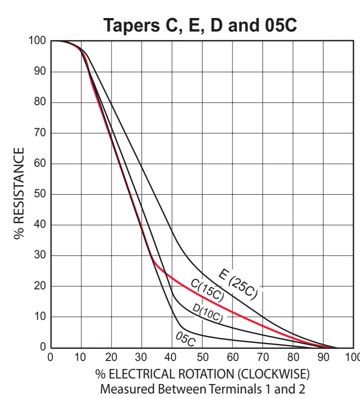


Reverse Audio / Log Tapers

C = Reverse **Audio Taper** (15C) - Standard

Other tapers shown are Semi-Custom

Minimum Order required



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Ordering Information - Horizontal Configuration

Specify Number of Modules.

Include the Resistance and Taper needed for each potentiometer module.

If a Switch module is required, the Switch must be the last module.

S127H — **4** — **103A** — **103A** — **103A** — **103A** (continue below...)

Model
S127H
Horizontal Configuration

Modules:
1 = Single
2 = Double
3 = Triple
4 = Quad

Module 1:
Resistance:
101 = 100 ohms
102 = 1.0K ohms
252 = 2.5 K ohms
502 = 5.0K ohms
103 = 10K ohms
203 = 20K ohms
223 = 22K ohms
253 = 25K ohms
473 = 47K ohms
503 = 50K ohms
104 = 100K ohms
224 = 220K ohms
254 = 250K ohms
504= 500K ohms
Taper:
A = CW Log
B = Linear
C = CCW Log
Switch:
SW = SPDT Rotary Switch, CCW Detent

Module 2:
Resistance:
101 = 100 ohms
102 = 1.0K ohms
252 = 2.5 K ohms
502 = 5.0K ohms
103 = 10K ohms
203 = 20K ohms
223 = 22K ohms
253 = 25K ohms
473 = 47K ohms
503 = 50K ohms
104 = 100K ohms
224 = 220K ohms
254 = 250K ohms
504= 500K ohms
Taper:
A = CW Log
B = Linear
C = CCW Log
Switch:
SW = SPDT Rotary Switch, CCW Detent

Leave blank if not used

Module 3:
Resistance:
101 = 100 ohms
102 = 1.0K ohms
252 = 2.5 K ohms
502 = 5.0K ohms
103 = 10K ohms
203 = 20K ohms
223 = 22K ohms
253 = 25K ohms
473 = 47K ohms
503 = 50K ohms
104 = 100K ohms
224 = 220K ohms
254 = 250K ohms
504= 500K ohms
Taper:
A = CW Log
B = Linear
C = CCW Log
Switch:
SW = SPDT Rotary Switch, CCW Detent

Leave blank if not used

Module 4:
Resistance:
101 = 100 ohms
102 = 1.0K ohms
252 = 2.5 K ohms
502 = 5.0K ohms
103 = 10K ohms
203 = 20K ohms
223 = 22K ohms
253 = 25K ohms
473 = 47K ohms
503 = 50K ohms
104 = 100K ohms
224 = 220K ohms
254 = 250K ohms
504= 500K ohms
Taper:
A = CW Log
B = Linear
C = CCW Log
Switch:
SW = SPDT Rotary Switch, CCW Detent

Leave blank if not used

Specify Hardware Requirements:

A — **048** — **S** — **PC** — **1** — **1** — **A** — **Std** — **Std**

Shaft / Bushing:
A = 1/8" Dia Shaft 1/4" Dia Bushing
B = 1/4" Dia Shaft 3/8" Dia Bushing

Shaft Length:
020 = 5/16"
024 = 3/8"
028 = 7/16"
032 = 1/2"
040 = 5/8"
048 = 3/4" (std.)
056 = 7/8"
100 = 1"
200 = 2"
Custom

Shaft Style:
P = Plain
S = Slotted
F = Flatted
N/A = Plain or Slotted
Custom

Terminal Style:
SH = Solder Hooks
PC = PC Pins
B241 = PC Pins/Mounting Plates
B242 = PC Pins/Mounting Plates
B243 = PC Pins/Mounting Plates
B244 = PC Pins/Mounting Plates
B245 = PC Pins/Mounting Plates

Locating Tab:
1 = 9 o'clock (std)
2 = 3 o'clock
3 = 12 o'clock
4 = 6 o'clock
5 = None

Detents:
1 = Center
11 = 11 Detents
21 = 21 Detents
Leave blank if not used

Shaft Position:
SA = Slotted A
SC = Slotted C
FA = Flatted A
FB = Flatted B
FC = Flatted C (std.)
FD = Flatted D
Leave blank if not used

Hardware:
Std = Std (Mounting Nut & Lockwasher)
Custom

Markings:
Std = Std
Custom

Refer to pages 2, 3, and 4 for Dimensional Drawings and Shaft Position Drawings

Due to the unlimited design combinations, certain designs may not perform in accordance with all of the specifications

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Ordering Information - Vertical Configuration

Specify Number of Modules required (maximum of two modules).
Include the Resistance and Taper needed for each potentiometer module.

S127V — **4** — **103A** — **103A** (continue below...)

Model
S127V
Vertical Configuration

Modules:
1 = Single
2 = Double

Module 1:
Resistance:
101 = 100 ohms
102 = 1.0K ohms
252 = 2.5 K ohms
502 = 5.0K ohms
103 = 10K ohms
203 = 20K ohms
223 = 22K ohms
253 = 25K ohms
473 = 47K ohms
503 = 50K ohms
104 = 100K ohms
224 = 220K ohms
254 = 250K ohms
504= 500K ohms
Taper:
A = CW Log
B = Linear
C = CCW Log
Switch:
SW = SPDT Rotary Switch, CCW Detent

Module 2:
Resistance:
101 = 100 ohms
102 = 1.0K ohms
252 = 2.5 K ohms
502 = 5.0K ohms
103 = 10K ohms
203 = 20K ohms
223 = 22K ohms
253 = 25K ohms
473 = 47K ohms
503 = 50K ohms
104 = 100K ohms
224 = 220K ohms
254 = 250K ohms
504= 500K ohms
Taper:
A = CW Log
B = Linear
C = CCW Log
Switch:
SW = SPDT Rotary Switch, CCW Detent

Leave blank if not used

Specify Hardware parameter requirements:

A — **048** — **S** — **C8** — **1** — **1** — **A** — **Std** — **Std**

Shaft / Bushing:
A = 1/8" Dia Shaft 1/4" Dia Bushing
B = 1/4" Dia Shaft 3/8" Dia Bushing

Shaft Length:
020 = 5/16"
024 = 3/8"
028 = 7/16"
032 = 1/2"
040 = 5/8"
048 = 3/4" (std.)
056 = 7/8"
100 = 1"
200 = 2"
Custom

Shaft Style:
P = Plain
S = Slotted
F = Flatted
N/A = Plain or Slotted
Custom

Terminal Style:
PC Pins
C8 = Single Module
C9 = Dual Modules, Opposite Sides
C10 = Dual Modules, Same Side

Locating Tab:
1 = 9 o'clock (std)
2 = 3 o'clock
3 = 12 o'clock
4 = 6 o'clock
5 = None

Detents:
1 = Center
11 = 11 Detents
21 = 21 Detents
Leave blank if not used

Shaft Position:
SA = Slotted A
SC = Slotted C
FA = Flatted A
FB = Flatted B
FC = Flatted C (std.)
FD = Flatted D
Leave blank if not used

Hardware:
Standard
(Mounting Nut & Lockwasher)
Custom

Markings:
Standard
Custom

Refer to pages 2, 3, and 4 for Dimensional Drawings and Shaft Position Drawings

Due to the unlimited design combinations,
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Mod-Pot™ SERIES OPTIONS

	5/8" Square / Modular Design						1/2" Square / Modular Design		
	70		72 - Plastic Bushing / Shaft Non-Magnetic Construction		S159		388	389	S127
Technology	Conductive Plastic	Cermet	Conductive Plastic	Cermet	Conductive Plastic	Cermet	Conductive Plastic	Cermet	Conductive Plastic
Max Wattage Rating	1-Watt	2-Watt	1/2-Watt	1-Watt	1-Watt	2-Watt	1/2-Watt	1	1/2-Watt
Operating Temperature (°C)	-55 ° to 120 °	-55 ° to 150 °	-55 ° to 120 °	-55 ° to 150 °	-40 ° to 125 °	-40 ° to 125 °	-55° to 120°	-55° to 150°	-55° to 125°
Temperature Coefficient (TC)	+/-5% (Typical)	150 PPM °C	+/-5% (Typical)	150 PPM °C	+/-10%	150 PPM °C	+/-5% (Typical)	150 PPM °C	+/-5% (Typical)
Rotational Life	100,000				100,000		50,000	25,000	1,000,000
Sections	6				4		8		4
Center Detent	Not Available				Not Available		Center or 11 Detents Only		Optional
11 - Detents									
21 - Detents							21 Detents Not Available		
Rotary Switch - Counter Clockwise Detent Maximum of 1-Switch per Shaft	2A @125VAC 1 SPST, N.O. + 1 SPST N.C. OR				2A @125VAC, 2A @28VDC, 1A @ 250VAC 1 SPST, N.O. + 1 SPST N.C. OR		125 MA @ 28VDC SPDT		0.5A @ 30VDC SPDT
Rotary Switch - Clockwise Detent Maximum of 1-Switch per Shaft	2A @125VAC 1 SPST, N.O. + 1 SPST N.O				2A @125VAC, 2A @28VDC, 1A @ 250VAC 1 SPST, N.O. + 1 SPST N.O				No CW Detent
Push-Pull Switch (1/8" or 1/4" Dia. Shaft)	Optional				Not Available		250 MA @ 30 VDC		Not Available
Push-Momentary - 1/8" Dia. Shaft	2A @125VAC						1/8" Only 1 SPST N.O. + 1 SPST N.C.		
Push-Momentary - 1/4" Dia. Shaft	2 SPST N.O. + 2 SPST N.C						1/4" Shaft - Not Available		
Push-On / Push-Off - 1/8" Dia. Shaft	Not Available						Optional 500 MA @ 30VDC DPDT		
Max Shaft Single Length - 1/8 Dia.	Metal Shaft 2.5" Plastic Shaft - 3/4"				Metal Shaft 2.5"		2"		2"
Max Shaft Single Length - 1/4 Dia.	Metal Shaft 2.5" Plastic Shaft - 7/8"				Metal Shaft 2.5"				
Concentric Shafts .078 / .125	6-Sections				4-Sections		Maximum 3-Sections,		
							Outer shaft - Panel Pot Only		Not Available
Concentric Shafts .125 / .250	Any Metal Shaft Combination for Inner & Outer Shaft				Any Metal Shaft Combination for Inner & Outer Shaft		.125 / .250 Combination Not Available		
Vernier Drive	Optional				No		No		No
Internal Shaft Seal	Optional				No		Optional		Standard
IP Rated	No				IP40		No		IP67
Stop Torque	4 lb.-in.				4 lb.-in.		3 lb.-in.		2.5 lb.-in.
High Stop Torque	Not Available				Not Available		8 in / pd		Not Available
Rotational Torque Standard (Min / Max) Single section	0.3 / 3.0 oz.-in.				0.2 to 1.5 oz.-in.		0.2 / 3.0 oz.-in.		1.5 Max oz.-in.
Rotational Torque, Meduim Torque Option (Min / Max)	Available - Varies with each configuration				Not Available		1 - 6 oz.-in.		Not Available
Non-Magnetic	N/A		Yes - with Plastic shaft and Bushing & Solder Lug Terminals		Not Available		N/A		N/A
Rotary Switch Actuating Torque	20 oz.-in.				2 to 7 oz.-in.		3.3 - 10.5 oz.-in.		2 oz.-in.

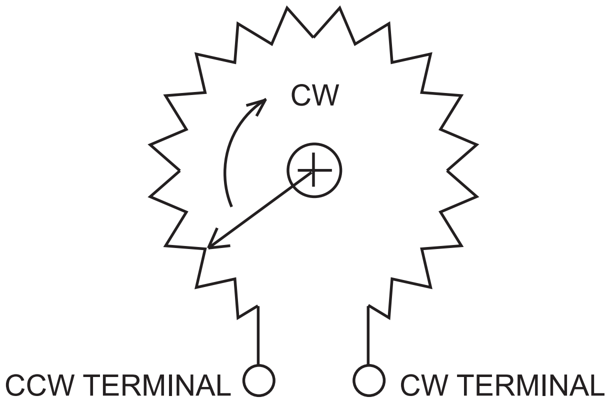
Note: Most parameters (wattage rating, rotational torque, etc.) are affected by the total number of sections. Download full specifications for further details.

GLOSSARY OF TERMS

Input and Output Terms

Output Voltage
(e) The voltage between the wiper terminal and the designated reference point. Unless otherwise specified, the designated reference point is the CCW terminal (See 3.1).

Figure 1
Circuit and Travel Diagram



Output Ratio
(e/E) The ratio of the output voltage to the designated input reference voltage. Unless otherwise specified, the reference voltage is the total applied voltage.

Rotation and Translation

Total Mechanical Travel
The total travel of the shaft between integral stops, under the specified stop load. In potentiometers without stops, the mechanical travel is continuous.

Mechanical Overtravel - Wirewound
The shaft travel between each End Point (or Theoretical End Point for Absolute Conformity or Linearity units) and its adjacent corresponding limit of Total Mechanical Travel.

Mechanical Overtravel
The shaft travel between each Theoretical End Point and its adjacent corresponding limit of Total Mechanical Travel.

Backlash
The maximum difference in shaft position that occurs when the shaft is moved to the same actual Output Ratio point from opposite directions.

Theoretical Electrical Travel
The specified shaft travel over which the theoretical function characteristic extends between defined Output Ratio limits, as determined from the Index Point.

Electrical Overtravel - Nonwirewound
The shaft travel over which there is continuity between the wiper terminal and the resistance element beyond each end of the Theoretical Electrical Travel.

Electrical Continuity Travel
The total travel of the shaft over which electrical continuity is maintained between the wiper and the resistance element.

Tap Location
The position of a tap relative to some reference. This is commonly expressed in terms of an Output Ration and/or a shaft position. When a shaft position is specified, the Tap Location is the center of the Effective Tap Width.

Resistance

End Resistance
The resistance measured between the wiper terminal and an end terminal with the shaft positioned at the corresponding End Point.

Temperature Coefficient Of Resistance
The unit change in resistance per degree celsius change from a reference temperature, expressed in parts per million per degree celsius as follows:

$$\text{T.C.} = \frac{R_2 - R_1}{R_1(T_2 - T_1)} \times 106$$

Where:
R1 = Resistance at reference temperature in ohms.
R2 = Resistance at test temperature in ohms
T1 = Reference temperature in degrees celsius.
T2 = Test temperature in degrees celsius.

Conformity and Linearity

Linearity
A specific type of conformity where the theoretical function characteristic is a straight line.

Mathematically:

$$\frac{e}{E} = f(W) \pm C = A(W) + B \pm C$$

Where:
A is the given slope; B is given intercept at W=0.
W = Angle or slope

Absolute Linearity
The maximum deviation of the actual function characteristic from a fully defined straight reference line. It is expressed as a percentage of the Total Applied Voltage and measured over the Theoretical Electrical Travel. An Index Point on the actual output is required.

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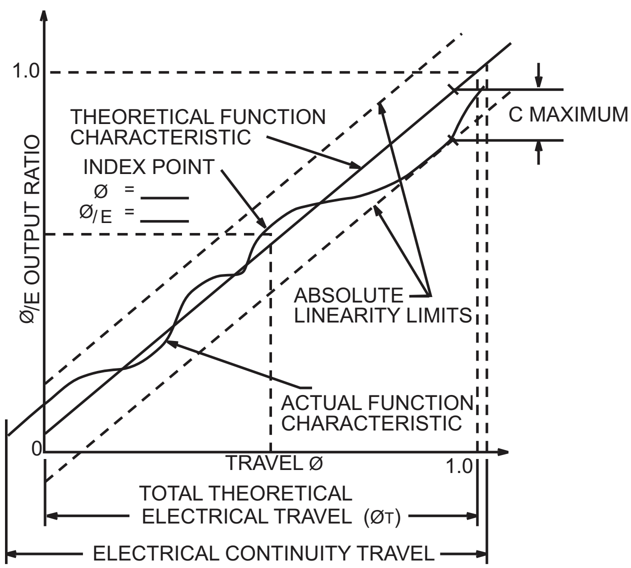
The straight reference line may be fully defined by specifying the low and high theoretical end Output Rations separated by the Theoretical Electrical Travel. Unless otherwise specified, these end Output Rations are 0.0 and 1.0 respectively.

Mathematically:

$$\frac{e}{E} = A(W/W_T) + B \pm C$$

Where:
A is the given slope; B is given intercept at W=0.
Unless otherwise specified: A-1; B=0

Figure 2



Independent Linearity

The maximum deviation, expressed as a percent of the Total Applied Voltage, of the actual function characteristic from a straight reference line with its slope and position chosen to minimize deviations over the Actual Electrical Travel, or any specified portion thereof.

Note: End Voltage requirements, when specified, will limit the slope and position of the reference line.

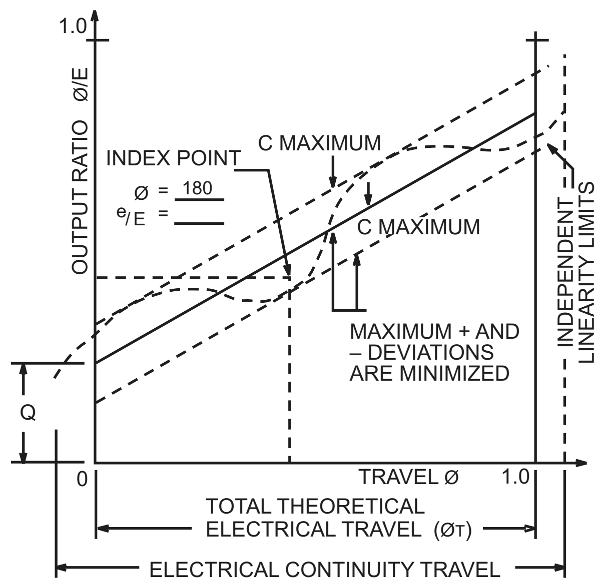
Mathematically:

$$\frac{e}{E} = P(W/W_A) + Q \pm C$$

Where:

P is unspecified slope; Q is unspecified intercept at W=0. And both are chosen to minimize C but are limited by the End Voltage requirements.

Figure 3
Independent Linearity



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General Electrical Characteristics

Noise
Any spurious variation in the electrical output not present in the input, defined quantitatively in terms of an equivalent parasitic, transient resistance in ohms, appearing between the contact and the resistance element when the shaft is rotated or translated. The Equivalent Noise Resistance is defined independently of the resolution, the functional characteristics, and the total travel. The magnitude of the Equivalent Noise Resistance is the maximum departure from a specified reference line. The wiper of the potentiometer is required to be excited by a specified current and moved at a specified speed.

Output Smoothness
(Non-wirewound Potentiometers Only)
Output Smoothness is a measurement of any spurious variation in the electrical output not present in the input. It is expressed as a percentage of the Total Applied Voltage and measured for specified travel increments over the Theoretical Electrical Travel. Output Smoothness includes effects of contact resistance variations, resolution, and other micrononlinearities in the output.

Resolution
A measure of the sensitivity to which the Output Ratio of the potentiometer may be set.

Dielectric Strength
Ability to withstand under prescribed conditions, a specified potential of a given characteristic between the terminals of each cup and the exposed conducting surfaces of the potentiometer, or between the terminals of each cup and the terminals of every other cup in the gang without exceeding a specified leakage current value.

Insulation Resistance
The resistance to a specified impressed DC voltage between the terminals of each cup and the exposed conducting surfaces of the potentiometer, or between the terminals of each cup and the terminals of every other cup in the gang, under prescribed conditions.

Power Rating
The maximum power that a potentiometer can dissipate under specified conditions while meeting specified performance requirements.

Power Derating
The modification of the nominal power rating for various considerations such as Load Resistance, Output Slopes, Ganging, nonstandard environmental conditions and other factors.

Life
The number of shaft revolutions or translations obtainable under specific operating conditions and within specified allowable degradations of specific characteristics.

Mechanical Characteristics

Shaft Runout
The eccentricity of the shaft diameter with respect to the rotational axis of the shaft, measured at a specified distance from the end of the shaft. The body of the potentiometer is held fixed and the shaft is rotated with a specified load applied radially to the shaft. The eccentricity is expressed in inches, TIR.

Lateral Runout
The perpendicularity of the mounting surface with respect to the rotational axis of the shaft, measured on the mounting surface at a specified distance from the outside edge of the mounting surface. The shaft is held fixed and the body of the potentiometer is rotated with specified loads applied radially and axially to the body of the pot. The Lateral Runout is expressed in inches.

Shaft Radial Play
The total radial excursion of the shaft, measured at a specified distance from the front surface of the unit. A specified radial load is applied alternately in opposite directions at a specified point. Shaft Radial Play is expressed in inches.

Shaft End Play
The total axial excursion of the shaft, measured at the end of the shaft with a specified axial load supplied alternately in opposite directions. Shaft End Play is expressed in inches.

Starting Torque
The maximum moment in the clockwise and counterclockwise directions required to initiate shaft rotation anywhere in the Total Mechanical Travel.

Running Torque
The maximum moment in the clockwise and counterclockwise directions required to sustain uniform shaft rotation at a specified speed throughout the Total Mechanical Travel.

Moment of Inertia
The mass moment of inertia of the rotating elements of the potentiometer about their rotational axis.

Static Stop Strength
The maximum static load that can be applied to the shaft at each mechanical stop for a specified period of time without permanent change of the stop positions greater than specified.

Dynamic Stop Strength
The inertia load, at a specified shaft velocity and a specified number of impacts, that can be applied to the shaft at each stop without a permanent change of the stop position greater than specified.

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