

**Military Series RA20
1 1/8 in. Diameter, 2 Watt
Wirewound Potentiometers**



Description

Series RA20

- 2 Watt Wirewound element.
- Nickel-plated brass shaft and bushings
- Locking style bushing optional
- Panel and bushing seal optional
- Flatted shaft optional
- Meets MIL-R-19. Note that Mil-Spec does not include all of the possible combinations and options.

Commercial equivalents available

Series 48

- 1 1/8 in. diameter potentiometer.
2 watt wirewound element
Many optional features.

Series A48

- Pick-A-Shaft version of the 48 series

Series 50

- 4 watt power rating version of the 48 series

Series RA20 Electrical Specifications

Resistance Range

1 ohms to 50Kohm. Linear taper standard - log, reverse log available

Resistance Tolerance

+/-10% standard; +/-5% and +/-1% available

Power Rating

Single section: 2Watts @ 40°C; 0 @ 105°C

Additional sections: 1.5Watts @40°C; 0 @ 105°C

Watts/Degree

.0071 watt per degree of effective rotation maximum

Effective Rotation

280° +/-5° without switch; less than 280°, special;

260° +/- with switch

Electrical Rotation

300° +/-5° with or without switch

Tapers

90 ohms per degree maximum

Independent Linearity

+/-5% standard; +/-1 available

End Resistance

1 to 50 ohms - 0.3 ohms; 51 to 100 ohms - 0.5 ohms.
Over 100 ohms - 0.2% of total or 1 ohm, whichever is greater.

Dielectric Withstanding Voltage

1000 Vac for 60 seconds @ ATM.

450 Vac for 60 seconds @ 3.4 in. Hg.

Working Voltage (Max.)

310 Volts maximum

Switch

S.P.S.T. rotary

Insulation Resistance

100 Megohms minimum

Operating Temperature Range

-55 °C to 105 °C



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Series RA20 Mechanical Specifications

Mechanical Rotation

300° +/-5° with or without switch; 360° available

Stop Torque

8 lbs. in. maximum

Torque Range

0.5 to 6 oz in.; 15 oz. in. increase for switch actuation.
Locking type bushing: 25 oz. in. minimum with jam nut tightened to 10 lb. in.

Maximum Number of Sections

Two recommended, three available.

Weight

Single .077 lb. without switch.

Additional section 0.041 lb.; 0.87 lb with switch.

Hardware

- Hex mounting nut, 3/8 in. (9.53mm) x 32 thread
1/2 in.(12.7mm) across flats, 3/32 in (2.38mm) thick.
- Internal tooth lockwasher 11/16 in. (17.46mm) O.D.
x 0.22 in (0.56mm) thick.
- Jam hex nut 1/2 in. (12.7mm) across flats, 7/32 in.
(5.56mm) thick, supplied on locking type bushing.

Marking

Will appear on rear surface without switch. On periphery when switch is used. Unless otherwise specified, marking will consist of

- Customer part number or State Electronics part number
- EIA source and date code

Switch Option

S.P.S.T. rotary switch

1A, 250V; 3A125V (ac or dc)

Torque 12 oz. in.

Figure 1. Power Derating Graph

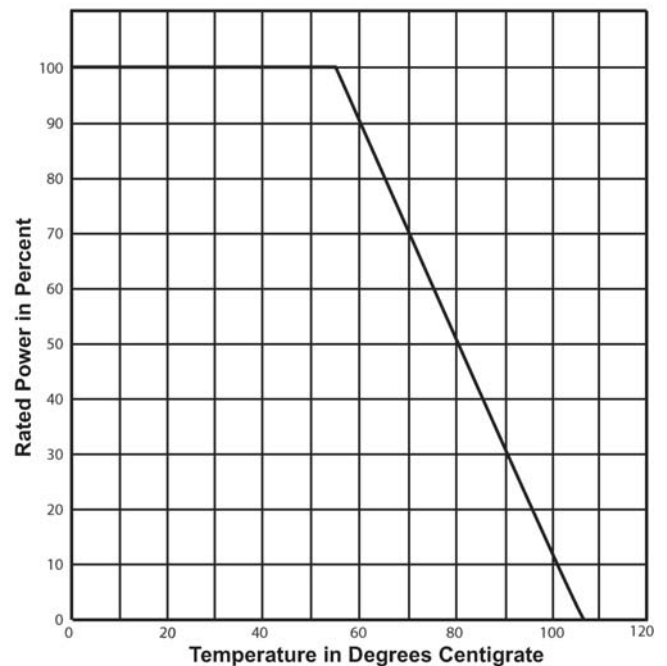
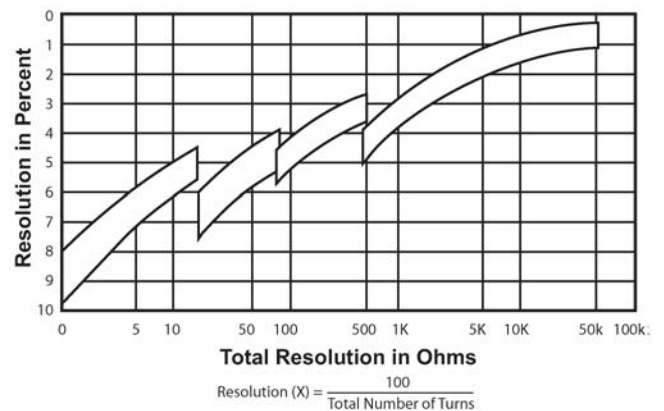


Figure 2. Resolution Graph



Series RA20 Operational Specifications

Potentiometers per MIL-R-19 specifications.

Operating Temperature

-55°C to +105°C.

Humidity

85% RH @ 40°C, 240 hours

Power Rating

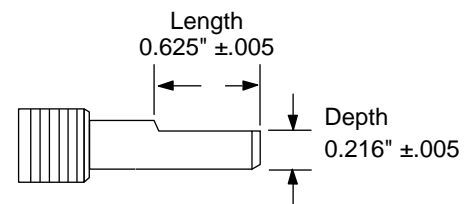
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Watts/Degree

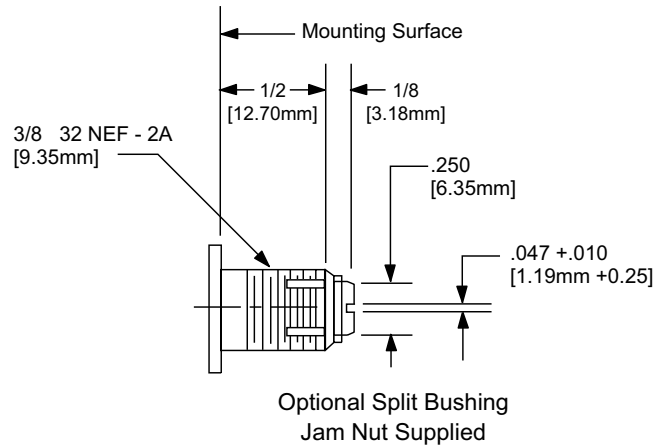
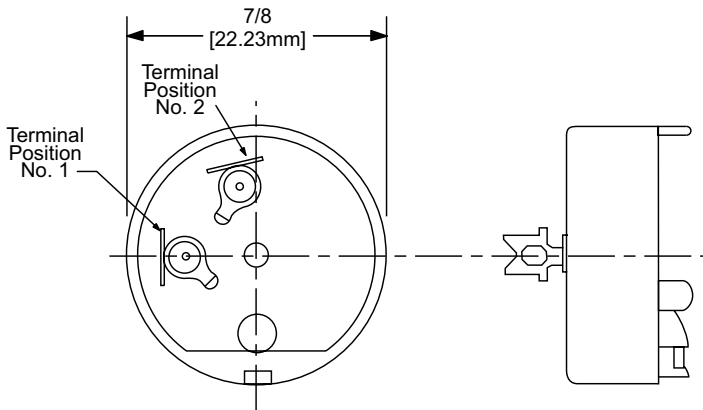
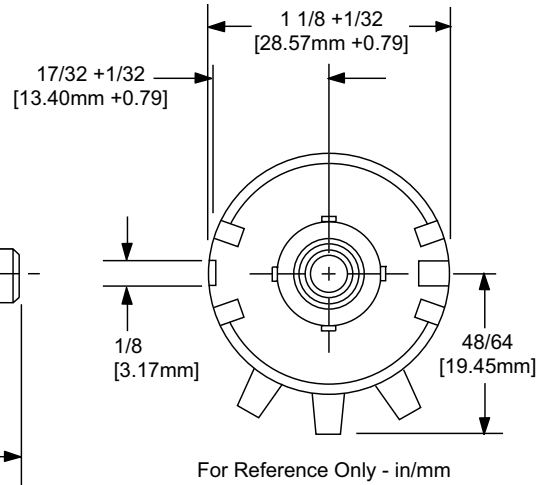
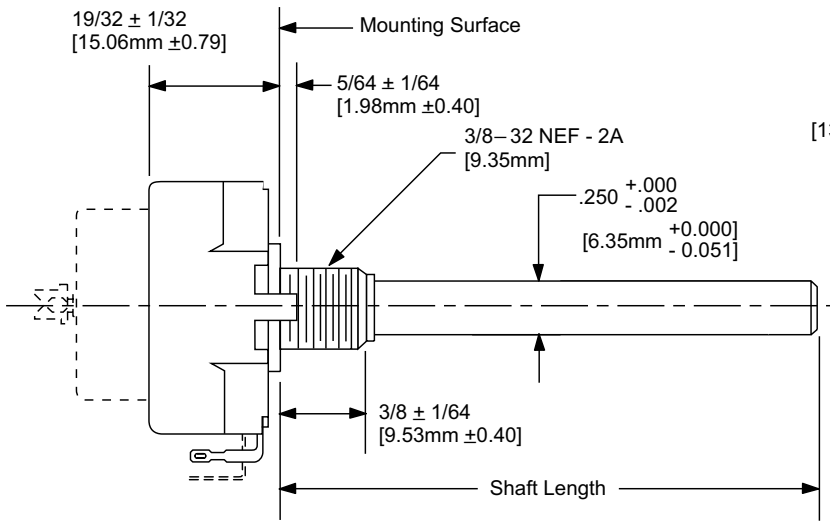
.0071 watt per degree of effective rotation max.

Figure 3. Flatted Shaft Option



Notes:

- Flatted Shaft is not available with Locking or Shaft Seal Options
- Flat will extend to within 0.031 (0.79) of mounting bushing where shaft length will not permit standard flat.



Series RA20 - How to Order

Part Number Example: **RA20-NBSA-503A**

RA20	N	A	S	A	50	3	A
Series	Shaft & Bushing	Switch	Shaft Style	Shaft Length	Resistance	Number of zeros	Linearity
	N = Standard L = Locking S = Panel and shaft seal (Standard) T = Panel and shaft seal (Locking)	A = None B = SPST 1A, 250V	S = Slotted F = Flatted X = Custom	A = 1/2"* B = 5/8" D = 7/8" G = 1 1/4" K = 2 1/2"* *Not Available for Locking Bushing	First two digits		A = Linear C = Log E = Rev. Log



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