

Model 830, 860



Vishay Spectrol

1 - 13/16" (46mm) Three and Ten Turn Wirewound Precision Potentiometer



FEATURES

- 830: 15Ω to 50KΩ, Three-Turn
- 860: 20Ω to 200KΩ, Ten-Turn

ELECTRICAL SPECIFICATIONS

| PARAMETER | MODEL 830 | MODEL 860 |
|--|---|---|
| Total Resistance Standard Range | 15Ω to 50KΩ Special to 150KΩ | 20Ω to 200KΩ Special to 500KΩ |
| Tolerance: 200Ω and above Below 200Ω | STANDARD ± 3% ± 5% | SPECIAL ± 1% ± 3% |
| Linearity (Independent) | ± 0.25% standard | |
| 15Ω to 1KΩ | ± 0.15% | — |
| 1KΩ to 5KΩ | ± 0.10% | — |
| 5KΩ to 25KΩ | ± 0.075% | — |
| 25KΩ and above | ± 0.05% | — |
| 20Ω to 50Ω | — | ± 0.15% |
| 50Ω to 200Ω | — | ± 0.10% |
| 200Ω to 5KΩ | — | ± 0.05% |
| 5KΩ and above | — | ± 0.025% |
| Noise | 100Ω ENR for both models | |
| Rotation | 1080° + 4° - 0° | 3600° + 4° - 0° |
| Power Rating | 3.0 watts at 40°C derated to zero at 125°C | 8.0 watts at 40°C derated to zero at 125°C |
| Insulation Resistance | 1000MΩ minimum 500VDC | |
| Dielectric Strength | 1000V _{RMS} , 60Hz | |
| Absolute Minimum Resistance | Not to exceed linearity x total resistance or 1Ω, whichever is greater | |
| End Voltage | 0.5% of total applied voltage maximum | |
| Phasing | CCW End Points sect. 2 phased to sect 1 within 1° | |
| Taps (Extra) | 42 available as special standard tolerance ± 1° | 108 available as special standard tolerance ± 1° |

ORDERING INFORMATION

Models 830 and 860 can be ordered from this data sheet with a variety of alternate characteristics, as shown. For most rapid service on your order, please state:

| | | | |
|-----------------|---------------|--------------------|---|
| 830, 860 | 1 | 1 | XXX |
| MODEL | BUSHING MOUNT | NUMBER OF SECTIONS | RESISTANCE OF EACH SECTION |
| | | | Beginning with the section nearest the mounting end |

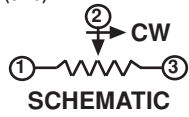
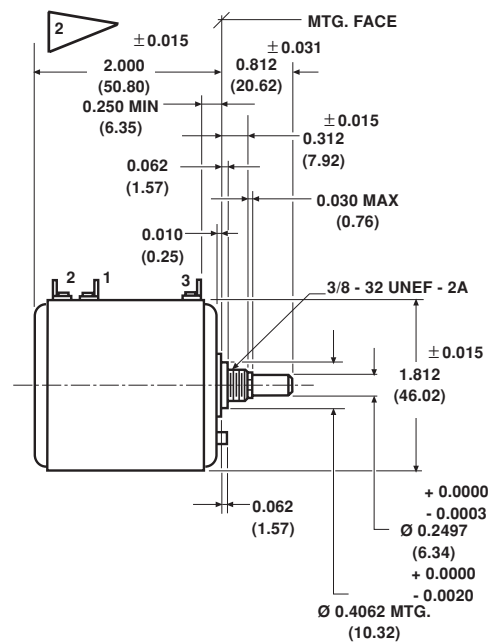
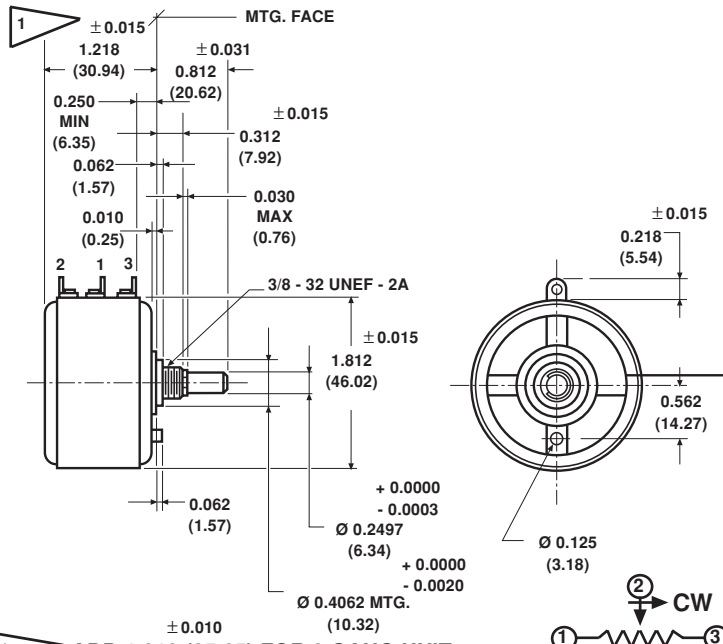
Other characteristics will be standard as described on this data sheet. If special characteristics are required, such as: special linearity tolerance, special resistance tolerance, extra taps, non-linear functions, etc., please state these on your order and allow additional lead time for delivery.



DIMENSIONS in inches (millimeters)

MODEL 830

MODEL 860



1 ADD 1.010 (25.65) FOR 2 GANG UNIT
 2 ADD 1.787 (45.39) FOR 2 GANG UNIT

TOLERANCES: OTHERWISE NOTED
 DECIMALS ±0.005 ANGLES ±2°

| MECHANICAL SPECIFICATIONS | | |
|----------------------------------|--|----------------------------------|
| PARAMETER | 830 | 860 |
| Rotation | 1080° + 4° - 0° | 3600° + 4° - 0° |
| Bearing Type | Sleeve Bearing | |
| Torque (maximums): Starting | STARTING | RUNNING |
| Section 1 | 1.75 oz - in (126,02gm - cm) | 1.26 oz - in (90.01gm - cm) |
| Section 2 | 2.55 oz - in (183,62gm - cm) | 1.85 oz - in (133,21gm - cm) |
| Runouts (Maximums) | | |
| Shaft (TIR) | 0.002 in (0.05cm) | |
| Pilot Dia (TIR) | 0.002 in (0.05cm) | |
| Lateral (TIR) | 0.005 in (0.13cm) | |
| Shaft End Play | 0.002 in min 0.010 in Maximum (0.05 - 0.25cm) | |
| Shaft Radial Play | 0.003 in Maximum (0.08cm) | |
| Weight (maximums) | | |
| Single Section | 3.0 oz (85.05gm) | 4.5 oz (127.58gm) |
| Additional Section | 2.5 oz (70.80gm) | 4.0 oz (113.40gm) |
| Stop Strength | 750 oz - in (static) (54.01Kg - cm) | |
| Gangng | 2 sections maximum ears of clamp band between sections positioned 45°, ± 10° CCW from terminal center line | |
| Moment Inertia | 5.5gm - cm ² Maximum | 15.0gm - cm ² Maximum |

Model 830, 860



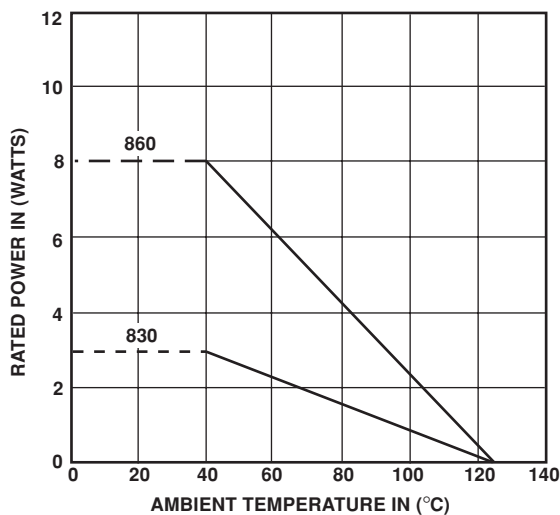
Vishay Spectrol 1 - 13/16" (46mm) Three and Ten Turn Wirewound Precision Potentiometer

| MATERIAL SPECIFICATIONS | |
|-------------------------|---|
| Bushing | Aluminum, nickel plated |
| Housing and Front Lid | Molded glass filled thermoset plastic |
| Rear Lid | Molded glass filled nylon |
| Shaft | Stainless steel, non magnetic, non-passivated |
| Terminals | Brass, plated for solderability |
| Mounting Hardware | Internal tooth Steel, nickel plated |
| Lock washer: | |
| Panel nut: | |

| MARKING | |
|---------------------|--|
| Unit Identification | Units will be marked with Spectrol name and model no, resistance and resistance tolerance, linearity, terminal identification, and date code |

| ENVIRONMENTAL SPECIFICATIONS | |
|------------------------------|--------------------------|
| Vibration | 10g thru 500 CPS |
| Shock | 50g |
| Rotational Life | 500,000 shaft revolution |
| Load Life | 900 Hours |
| Temperature Range | - 55°C to + 125°C |
| Moisture Resistant | - |
| Salt Spray | 48 hours |

POWER RATING CHART



| RESISTANCE ELEMENT DATA | | | | | |
|--------------------------------|----------------|---------------|--------------------------------------|---------------------------------|---------------------------|
| STANDARD RESISTANCE VALUES (Ω) | RESOLUTION (%) | OHMS PER TURN | MAXIMUM CURRENT AT 70°C AMBIENT (mA) | MAXIMUM VOLTAGE ACROSS COIL (V) | WIRE TEMP. COEF. (ppm/°C) |
| MODEL 860 | | | | | |
| 20 | 0.044 | 0.009 | 632 | 13 | 800 |
| 50 | 0.027 | 0.014 | 400 | 20 | 800 |
| 100 | 0.024 | 0.024 | 283 | 28 | 800 |
| 200 | 0.028 | 0.056 | 200 | 40 | 180 |
| 500 | 0.023 | 0.115 | 126 | 63 | 20 |
| 1K | 0.018 | 0.182 | 89 | 89 | 20 |
| 2K | 0.020 | 0.402 | 63 | 126 | 110 |
| 5K | 0.015 | 0.754 | 40 | 200 | 20 |
| 10K | 0.013 | 1.23 | 28 | 283 | 20 |
| 20K | 0.010 | 1.97 | 20 | 400 | 20 |
| 50K | 0.007 | 3.69 | 13 | 632 | 20 |
| 100K | 0.007 | 6.51 | 8.9 | 894 | 20 |
| 200K | 0.005 | 9.63 | 5.0 | 1,000 | 20 |
| 500K | 0.004 | 20.0 | 2.0 | 1,000 | 20 |
| MODEL 830 | | | | | |
| 20 | 0.094 | 0.019 | 387 | 8 | 800 |
| 50 | 0.074 | 0.037 | 245 | 12 | 800 |
| 100 | 0.071 | 0.071 | 173 | 17 | 180 |
| 200 | 0.072 | 0.145 | 122 | 25 | 20 |
| 500 | 0.064 | 0.320 | 77 | 39 | 110 |
| 1K | 0.050 | 0.500 | 55 | 55 | 110 |
| 2K | 0.047 | 0.948 | 39 | 77 | 20 |
| 5K | 0.035 | 1.73 | 24 | 125 | 20 |
| 10K | 0.029 | 2.92 | 17 | 176 | 20 |
| 20K | 0.024 | 4.80 | 12 | 250 | 20 |
| 50K | 0.017 | 8.31 | 8 | 375 | 20 |
| 100K | 0.015 | 14.5 | 5 | 600 | 20 |
| 150K | 0.013 | 20.0 | 4 | 750 | 20 |



Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.