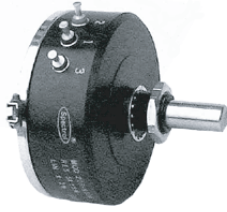


# 1 3/4" (44.5 mm) Single Turn Conductive Plastic Precision Potentiometer



## FEATURES

- Rotational life exceeds 20 million shaft revolutions
- Virtually infinite resolution
- Designed for high reliability applications
- Co-molded track and multi-finger wiper provide low noise signal
- Bushing or servo types available up to 6 sections
- Ohmic value range: 1 k $\Omega$  to 50 k $\Omega$
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

| QUICK REFERENCE DATA |                                |
|----------------------|--------------------------------|
| Sensor type          | ROTATIONAL, conductive plastic |
| Output type          | Output by turrets              |
| Market appliance     | Professional                   |
| Dimensions           | 1 3/4" (44.5 mm)               |

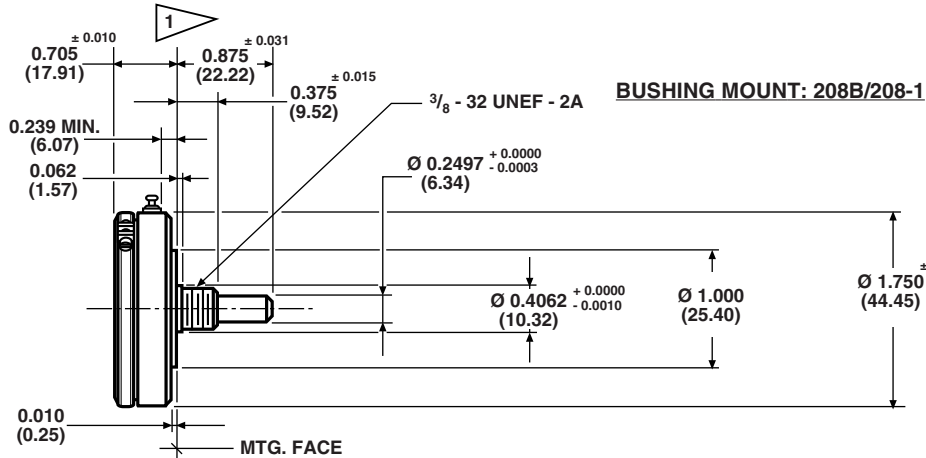
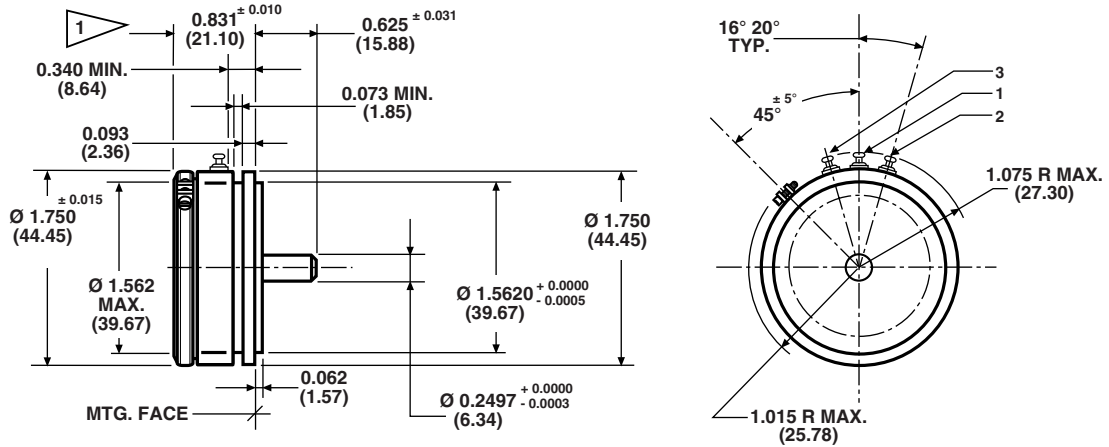
| ELECTRICAL SPECIFICATIONS                          |  |                        |
|--|--|------------------------|
| PARAMETER  | STANDARD   | SPECIAL                |
| Total resistance tolerance                         | 1 k $\Omega$ to 50 k $\Omega$<br>$\pm 10\%$  | -<br>$\pm 5\%$         |
| Linearity (independent)                            | STANDARD<br>$\pm 0.3\%$  | SPECIAL<br>$\pm 0.1\%$ |
| Electrical angle                                   | 350° $\pm 3^\circ$   |                        |
| Power rating:<br>Section 1:<br>Additional sections | 1.75 W at 70 °C ambient derated to zero at 125 °C<br>75 % of the rating of section 1 |                        |
| Output smoothness                                  | 0.1 % maximum  |                        |
| Insulation resistance                              | 1000 M $\Omega$ minimum, 500 V <sub>DC</sub>   |                        |
| Dielectric strength                                | 1000 V <sub>RMS</sub> , 60 Hz  |                        |
| Taps (extra)                                       | Extra taps available as special  |                        |
| Phasing  | Points at which output ratio is 0.5 aligned $\pm 1^\circ$ (ref. to section 1)        |                        |
| Temperature coefficient of resistance              | $\pm 600$ ppm/°C maximum   |                        |

| ORDERING INFORMATION |   |   |                        |   |        |   |  |   |  |   |                 |   |   |   |
|----------------------|---|---|------------------------|---|--------|---|--|---|--|---|-----------------|---|---|---|
| 2                    | 0 | 8 | B                      | 1 | 2      | 0 | 3  | 2 | 0  | 3 | X               | X | X | X |
| MODEL                |   |   | STYLE                  |   | GANGS  |   | OHMIC VALUE GANGS N° 1   |   | OHMIC VALUE GANGS N° 2   |   | SPECIAL REQUEST |   |   |   |
| 208                  |   |   | B: bushing<br>S: servo |   | 1<br>2 |   | 470 = 47 $\Omega$<br>222 = 2,200 $\Omega$<br>103 = 10 k $\Omega$<br>For ohmic value range see electrical specification |   | 470 = 47 $\Omega$<br>222 = 2,200 $\Omega$<br>103 = 10 k $\Omega$<br>For ohmic value range see electrical specification |   | xxxx            |   |   |   |

| PART NUMBER DESCRIPTION (for information only) |              |       |                        |                        |         |
|--|--------------|-------|------------------------|------------------------|---------|
| 208-   | 2            | 1     | 502                    | 203                    | xxxx    |
| MODEL  | STYLE        | GANGS | OHMIC VALUE GANGS N° 1 | OHMIC VALUE GANGS N° 2 | SPECIAL |
|  | B: 1<br>S: 2 |       |                        |                        |         |

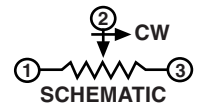
### DIMENSIONS in inches (millimeters)

#### SERVO MOUNT: 208S/208-2



1 ADD  $0.500 \pm 0.002$  (12.70) FOR EACH ADDITIONAL SECTION

TOLERANCES: UNLESS OTHERWISE NOTED.  
DECIMALS  $\pm 0.005$  ANGLES  $\pm 2^\circ$



| MECHANICAL SPECIFICATIONS      |  |  |
|--------------------------------|--|--|
| PARAMETER                      |  |  |
| Rotation                       | 360° continuous  |  |
| Bearing type                   | <b>SERVO MOUNT</b><br>Ball bearing   | <b>BUSHING MOUNT</b><br>Sleeve bearing |
| Ganging                        | 6 sections maximum terminal alignment, added sections within $\pm 10^\circ$ of section 1 terminals |  |
| Torque (maximums)              | <b>STARTING</b>  | <b>RUNNING</b>                         |
| Servo section 1                | 0.7 oz. - in (50.40 g - cm)  | 0.4 oz. - in (28.80 g - cm)            |
| Bushing section 1              | 1.0 oz. - in (72.0 g - cm)   | 0.7 oz. - in (50.40 g - cm)            |
| Each additional section        | 0.4 oz. - in (28.80 g - cm)  | 0.3 oz. - in (21.60 g - cm)            |
| Mechanical runouts (maximums): | <b>SERVO</b>   | <b>BUSHING</b>                         |
| Shaft (TIR/in)                 | 0.002" (0.05 cm)   | 0.002" (0.05 cm)                       |
| Pilot dia. (TIR)               | 0.002" (0.05 cm)   | 0.002" (0.05 cm)                       |
| Lateral (TIR)                  | 0.003" (0.08 cm)   | 0.005" (0.13 cm)                       |
| Shaft end play                 | 0.005" (0.13 cm)   | 0.005" (0.13 cm)                       |
| Shaft radial play              | 0.002" (0.05 cm)   | 0.003" (0.08 cm)                       |
| Moment of inertia              | 1.0 g - cm <sup>2</sup> per section maximum  |  |
| Weight:                        |  |  |
| Single section                 | 3.0 oz. (85.05 g)  |  |
| Each additional section        | 1.0 oz. (28.35 g)  |  |

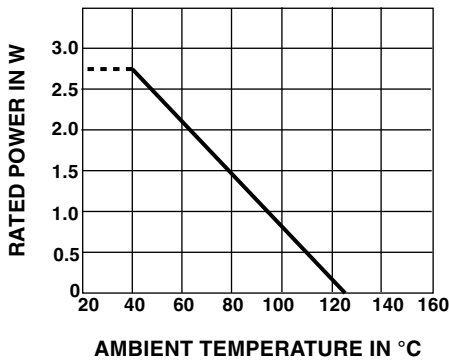


| MATERIAL SPECIFICATIONS  |  |
|--|--|
| Housing and lids   | Aluminum, anodized                           |
| Shaft and clamp rings  | Stainless steel, non-magnetic non-passivated |
| Terminals  | Brass, plated for solderability              |
| Bushing mount hardware<br>Lockwasher internal tooth:<br>Panel nut: | Steel, nickel plated<br>Brass, nickel plated |

| MARKING             |  |
|---------------------|--|
| Unit identification | Units shall be marked with Spectrol name, model number and data code on each section, resistance, resistance tolerance, linearity and terminal identification. Example of a marking for a standard part: 208-12502 103 |

**POWER RATING CHART**

(Ratings for cup No. 1.  
Additional cups 75 % of values shown)



| ENVIRONMENTAL SPECIFICATIONS |   |
|------------------------------|---|
| Vibration                    | 15 g thru 2000 Hz   |
| Shock                        | 50 g  |
| Salt Spray                   | 96 h  |
| Rotational life              | Servo: 20 million shaft revolutions<br>Bushing: 5 million shaft revolutions |
| Load life                    | 900 h   |
| Operating temperature range  | -55 °C to +125 °C   |

**Note**

- Nothing stated herein shall be construed as a guarantee of quality or durability.

| RESISTANCE ELEMENT DATA |                                |
|-------------------------|--------------------------------|
| RESISTANCE VALUES (Ω)   | MAXIMUM VOLTAGE APPLICABLE (V) |
| 1K                      | 42                             |
| 2K                      | 59                             |
| 5K                      | 94                             |
| 10K                     | 132                            |
| 20K                     | 187                            |
| 50K                     | 299                            |



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