

## Industrial Potentiometer



### FEATURES

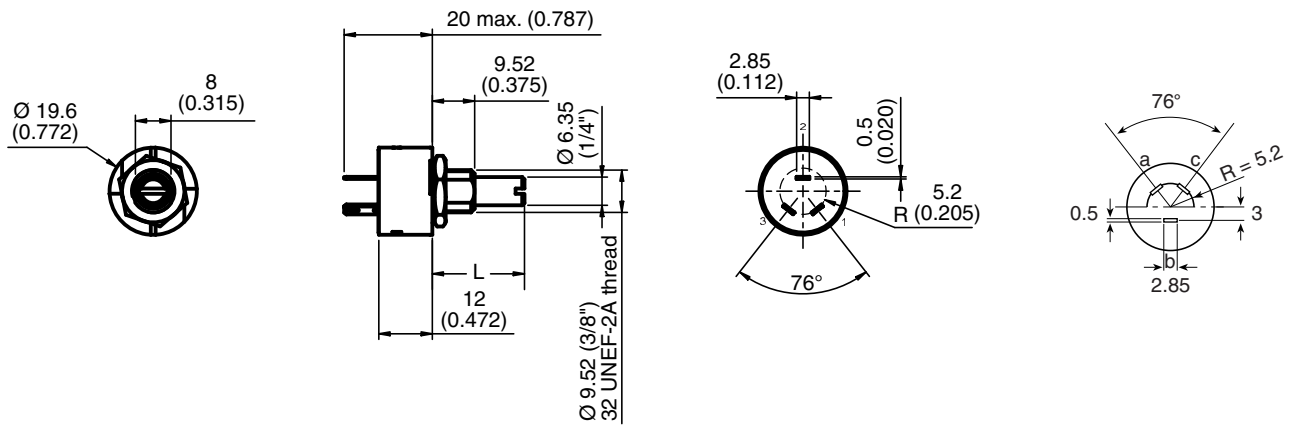
- High power rating 2 W at 70 °C
- Full sealing
- Low contact resistance variation (1 % typical)
- Robust nickel plated brass shaft
- Use of faston 2.86 connections
- Cermet element
- Center detent option
- Test according to CECC 41000 or IEC 60393-1
- Electrical performance in accordance with MIL-PRF-94 standards
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT

### DIMENSIONS in millimeters (inches) ± 0.5 mm (± 0.02")

PRV4F



|            |      |      |     |
|------------|------|------|-----|
| Length L   | 1/2" | 7/8" | 2"  |
| Shaft code | gbs  | gjs  | grs |

| ELECTRICAL SPECIFICATIONS                    |                       |                              |
|--|-----------------------|------------------------------|
| Resistive element                            |                       | Cermet                       |
| Electrical travel                            |                       | 270° ± 10°                   |
| Resistance range                             | Linear taper          | 20 Ω to 10 MΩ                |
|  | Logarithmic taper     | 100 Ω to 2.5 MΩ              |
| Standard series                              |                       | 1 - 2 - 2.5 - 5              |
| Tolerance                                    | Standard              | ± 20 %                       |
|  | On request            | ± 10 %                       |
| Taper  |                       |                              |
| Circuit diagram                              |                       |                              |
| Power rating                                 | Linear<br>logarithmic | 2 W at 70 °C<br>1 W at 70 °C |
|  |                       |                              |
| Temperature coefficient (typical)            |                       | 300 ppm/°C                   |
| Limiting element voltage (linear law)        |                       | 500 V                        |
| Contact resistance variation (typical)       |                       | 1 % R <sub>n</sub> or 3 Ω    |
| End resistance                               |                       | 4 Ω                          |
| Dielectric strength (RMS)                    |                       | 1500 V                       |
| Insulation resistance (500 V <sub>DC</sub> ) |                       | 10 <sup>4</sup> MΩ           |
| Independent linearity (typical)              |                       | 5 %                          |

| STANDARD RESISTANCE ELEMENT DATA |                     |                      |                                 |                     |                      |                                 |
|----------------------------------|---------------------|----------------------|---------------------------------|---------------------|----------------------|---------------------------------|
| STANDARD RESISTANCE VALUES       | LINEAR TAPER        |                      |                                 | LOG. TAPER          |                      |                                 |
|                                  | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. CUR. THROUGH ELEMENT WIPER | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. CUR. THROUGH ELEMENT WIPER |
| Ω                                | W                   | V                    | mA                              | W                   | V                    | mA                              |
| 20                               | 2                   | 6.32                 | 316                             |                     |                      |                                 |
| 25                               | 2                   | 7.07                 | 283                             |                     |                      |                                 |
| 50                               | 2                   | 10.0                 | 200                             |                     |                      |                                 |
| 100                              | 2                   | 14.1                 | 141                             | 1                   | 10.0                 | 100                             |
| 200                              | 2                   | 20.0                 | 100.0                           | 1                   | 14.1                 | 70.7                            |
| 250                              | 2                   | 22.4                 | 89.4                            | 1                   | 15.8                 | 53.2                            |
| 500                              | 2                   | 31.6                 | 53.2                            | 1                   | 22.4                 | 44.7                            |
| 1K                               | 2                   | 44.7                 | 44.7                            | 1                   | 31.5                 | 31.6                            |
| 2K                               | 2                   | 53.2                 | 31.6                            | 1                   | 44.7                 | 22.4                            |
| 2.5K                             | 2                   | 70.7                 | 28.3                            | 1                   | 50.0                 | 20.0                            |
| 5K                               | 2                   | 100                  | 20.00                           | 1                   | 70.7                 | 14.1                            |
| 10K                              | 2                   | 141                  | 14.14                           | 1                   | 100                  | 10.0                            |
| 20K                              | 2                   | 200                  | 10.00                           | 1                   | 141                  | 7.07                            |
| 25K                              | 2                   | 224                  | 6.04                            | 1                   | 158                  | 6.32                            |
| 50K                              | 2                   | 315                  | 6.32                            | 1                   | 224                  | 4.47                            |
| 100K                             | 2                   | 447                  | 4.47                            | 1                   | 315                  | 3.16                            |
| 200K                             | 1                   | 500                  | 2.50                            | 1                   | 447                  | 2.24                            |
| 250K                             | 1                   | 500                  | 2.00                            | 1                   | 499                  | 2.00                            |
| 500K                             | 0.50                | 500                  | 1.00                            | 0.50                | 500                  | 1.00                            |
| 1M                               | 0.25                | 500                  | 0.50                            | 0.25                | 500                  | 0.50                            |
| 2M                               | 0.13                | 500                  | 0.25                            | 0.13                | 500                  | 0.25                            |
| 2.5M                             | 0.10                | 500                  | 0.20                            | 0.10                | 500                  | 0.20                            |
| 5M                               | 0.05                | 500                  |                                 |                     |                      |                                 |
| 10M                              | 0.03                | 500                  |                                 |                     |                      |                                 |

| MECHANICAL SPECIFICATIONS         |  |
|-----------------------------------|--|
| Mechanical travel                 | 300° ± 5°                                |
| Operating torque / typical value  | 3 Ncm (4.3 oz.-inch)                     |
| End stop torque                   | 70 Ncm max. (6 lb-inch max.)             |
| Tightening torque of mounting nut | 200 Ncm max. (17.3 lb-inch max.)         |
| Unit weight                       | 23 g to 32 g max. (0.82 oz. to 1.14 oz.) |

| ENVIRONMENTAL SPECIFICATIONS |                               |
|------------------------------|-------------------------------|
| Temperature range            | -55 °C to +125 °C             |
| Climatic category            | 55/125/10                     |
| Sealing                      | Fully sealed - Container IP67 |

| OPTIONS                       |  |
|-------------------------------|--|
| Special feature command shaft | Length is measured from the mounting surface to the free end of the shaft. The screwdriver slot is aligned with the wiper within ± 10°. Special shafts are available, in accordance to drawings supplied by customers. We recommend that customers should not machine tool shafts, in order to avoid damage. Bending or torsion of terminals should also be avoided. |
| PRV4 LPRP - with locating peg |  |



| MARKING   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Vishay trademark</li> <li>• Part number (including ohmic value code, tolerance code, and taper)</li> <li>• Manufacturing date</li> <li>• Marking of terminals 1, 2, 3</li> </ul> |  |

| PERFORMANCE             |   |                           |                              |  |
|-------------------------|---|---------------------------|------------------------------|--|
| TESTS                   | CONDITIONS  | TYPICAL VALUES AND DRIFTS |                              |  |
|                         |   | $\Delta R_T/R_T$ (%)      | $\Delta R_{1-2}/R_{1-2}$ (%) | OTHER  |
| Electrical endurance    | 1000 h at rated power<br>90°/30° - ambient temp. 70 °C  | ± 3 %                     | ± 5 %                        | Contact res. variation: < 5 %  |
| Moisture resistance     | MIL-STD-202 method 105<br>10 cycles of 24 h constituted<br>with damp heat - cold - vibrations | ± 2 %                     | ± 3 %                        | Dielectric strength: 100 V <sub>RMS</sub><br>Insulation resistance: > 10 <sup>4</sup> MΩ |
| Damp heat, steady state | 10 days<br>40 °C, 93 % HR   | ± 2 %                     | ± 3 %                        | Dielectric strength: 100 V <sub>RMS</sub><br>Insulation resistance: > 10 <sup>4</sup> MΩ |
| Change of temperature   | 5 cycles<br>-55 °C at +125 °C   | ± 1 %                     | -                            | $\Delta V_{1-2}/V_{1-3} < \pm 2 \%$  |
| Mechanical endurance    | 25 000 cycles   | ± 5 %                     | -                            | -  |
| Shock                   | MIL-STD-202 method 213/1<br>100 g's at 6 ms<br>3 successive shocks<br>in 3 directions         | ± 1 %                     | -                            | $\Delta V_{1-2}/V_{1-3} < \pm 1 \%$  |
| Vibration               | MIL-STD-202 method 204/D<br>20 g's at 12 h  | ± 1 %                     | -                            | $\Delta V_{1-2}/V_{1-3} < \pm 1 \%$  |

**Note**

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

| ORDERING INFORMATION (part number) |            |                           |   |                      |   |   |   |   |   |   |   |   |   |  |  |  |  |
|------------------------------------|------------|---------------------------|---|----------------------|---|---|---|---|---|---|---|---|---|--|--|--|--|
| P                                  | R          | V                         | 4 | F                    | L | G   | J | S   | 1                                       | 0 | 2   | M | L   |  |  |  |  |
| MODEL                              | BUSHING    | OPTION                    |   | SHAFT                |   | SHAFT END   |   | OHMIC VALUE   | TOLERANCE                               |   | TAPER   |   | SPECIAL   |  |  |  |  |
| PRV4                               | F = Ø 3/8" | L = LPRP<br>0 = no option |   | GB<br>GJ<br>GR<br>AP |   | S = slotted<br>R = round<br>F = flatted<br>D = custom |   | Linear from<br>20 Ω to<br>10 MΩ<br><br>Logarithmic<br>from<br>100 Ω to<br>2.5. MΩ<br><br>102 = 1 kΩ | M = 20 %<br><br>On request:<br>K = 10 % |   | A = linear<br>L = clockwise<br>logarithmic<br>F = inverse<br>clockwise<br>logarithmic |   | CV1M =<br>detent<br>option or<br>special code<br>given by<br>Vishay |  |  |  |  |

| PART NUMBER DESCRIPTION (for information only) |         |        |       |           |       |           |       |               |           |       |         |                |
|--|---------|--------|-------|-----------|-------|-----------|-------|---------------|-----------|-------|---------|----------------|
| PRV4   | F       | L      | GJ    | S         | 1K    | 20 %      | L     |               | BO50      |       |         | e3             |
| MODEL  | BUSHING | OPTION | SHAFT | SHAFT END | VALUE | TOLERANCE | TAPER | DETENT OPTION | PACKAGING | AP N° | SPECIAL | LEAD (Pb)-FREE |

| RELATED DOCUMENTS   |  |
|---|--|
| <b>APPLICATION NOTES</b>  |  |
| Potentiometers and Trimmers                                       | <a href="http://www.vishay.com/doc?51001">www.vishay.com/doc?51001</a> |
| Guidelines for Vishay Sfernice Resistive and Inductive Components | <a href="http://www.vishay.com/doc?52029">www.vishay.com/doc?52029</a> |



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