



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 (haptic technology)
- 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



RoHS
COMPLIANT

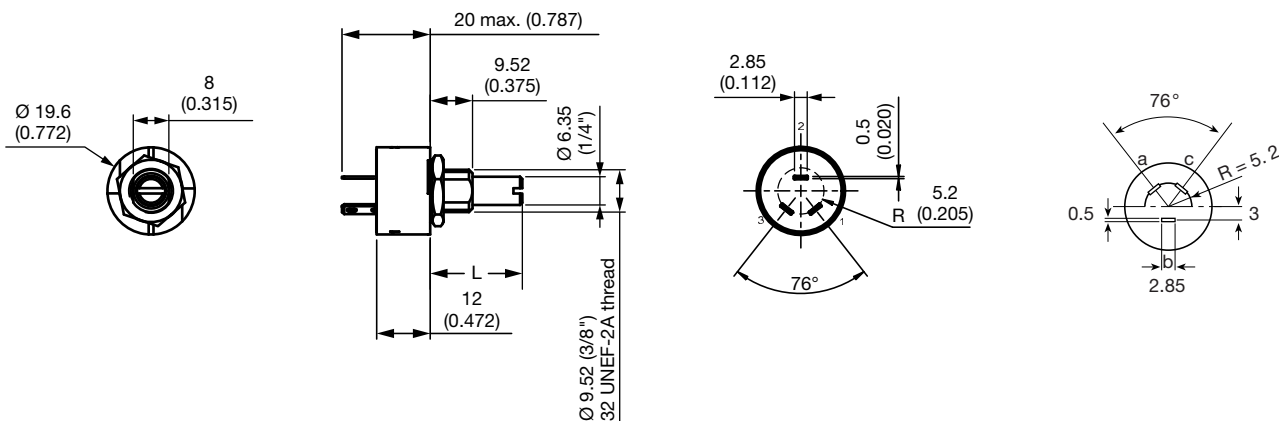
LINKS TO ADDITIONAL RESOURCES



| QUICK REFERENCE DATA | |
|-------------------------|---------------------------------------------------|
| Multiple module | No |
| Switch module | n/a |
| Detent module | Yes |
| Special electrical laws | A: linear, L: logarithmic, F: reverse logarithmic |
| Sealing level | IP 67 |
| Lifespan | 25K cycle |

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 | | $270^\circ \pm 10^\circ$ |
| Resistance range | Linear taper | 20 Ω to 10 M Ω |
| | Logarithmic taper | 100 Ω to 2.5 M Ω |
| Standard series | | 1 - 2 - 2.5 - 5 |
| Tolerance | Standard | $\pm 20\%$ |
| | On request | $\pm 10\%$ |
| Taper | | |
| Circuit diagram | | |
| Power rating | Linear | 2 W at 70 °C 1 W at 70 °C |
| | Logarithmic | |
| | | |
| Temperature coefficient (typical) | | 300 ppm/°C |
| Limiting element voltage (linear law) | | 500 V |
| Contact resistance variation (typical) | | 1 % R _n or 3 Ω |
| End resistance | | 4 Ω |
| Dielectric strength (RMS) | | 1500 V |
| Insulation resistance (500 V _{DC}) | | 10 ⁴ M Ω |
| Independent linearity (typical) | | 5 % |



STANDARD RESISTANCE ELEMENT DATA

| STANDARD RESISTANCE VALUES | LINEAR TAPER | | | LOGARITHMIC 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 | 2 | 500 | 2.50 | 1 | 447 | 2.24 |
| 250K | 1 | 500 | 2.00 | 1 | 499 | 2.00 |
| 500K | 1 | 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 | | | | |

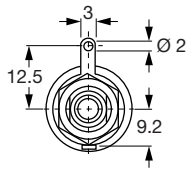
MECHANICAL SPECIFICATIONS


| | |
|-----------------------------------|------------------------------------------|
| Mechanical travel | 300° ± 5° |
| Operating torque / typical value | 2 Ncm (2.83 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 IP 67 |



| 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 $\pm 10^\circ$. 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 |  |

| CENTER DETENT (haptic technology) | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Positive tactile feedback with stable position in mid mechanical travel Output ratio 50 % \pm 10 % Rotational life: 10 000 actuations |  |
| ORDERING INFORMATION (first order only) | |
| CV1M | |

| MARKING |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Vishay trademark Full ordering information (see Ordering Information table) Manufacturing date Marking of terminals 1, 2, 3 |

| 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 90°/30° - ambient temp. 70 °C | ± 3 % | ± 5 % | Contact res. variation: < 5 % |
| Moisture resistance | MIL-STD-202 method 105 10 cycles of 24 h constituted with damp heat - cold - vibrations | ± 2 % | ± 3 % | Dielectric strength: 100 V _{RMS} Insulation resistance: > 10 ⁴ MΩ |
| Damp heat, steady state | 10 days 40 °C, 93 % HR | ± 2 % | ± 3 % | Dielectric strength: 100 V _{RMS} Insulation resistance: > 10 ⁴ MΩ |
| Change of temperature | 5 cycles -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 213/1 100 g's at 6 ms 3 successive shocks in 3 directions | ± 1 % | - | $\Delta V_{1-2}/V_{1-3} < \pm 1$ % |
| Vibration | MIL-STD-202 method 204/D 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 0 = no option | GB GJ GR AP = custom shaft | S = slotted On request: R = round F = flattened D = knurled or C = custom | Linear from 20 Ω to 10 MΩ Logarithmic from 100 Ω to 2.5. MΩ 102 = 1 kΩ | M = 20 % On request: K = 10 % | A = linear L = clockwise logarithmic F = inverse clockwise logarithmic | CV1M = detent option or special code given by 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 |

ACCESSORIES

| | |
|----------------------------------------------|------------------------------------------------------------------------|
| Additional Accessories (to order separately) | www.vishay.com/doc?51051 |
| Control knobs | www.vishay.com/doc?51101 |

RELATED DOCUMENTS**APPLICATION NOTES**

| | |
|-------------------------------------------------------------------|------------------------------------------------------------------------|
| Potentiometers and Trimmers | www.vishay.com/doc?51001 |
| Guidelines for Vishay Sfernice Resistive and Inductive Components | www.vishay.com/doc?52029 |
| Capabilities and Custom Options | www.vishay.com/doc?48485 |



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