Vishay Spectrol



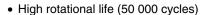
1/2" (12.7 mm) Conductive Plastic and Cermet Potentiometer







COMPLIANT



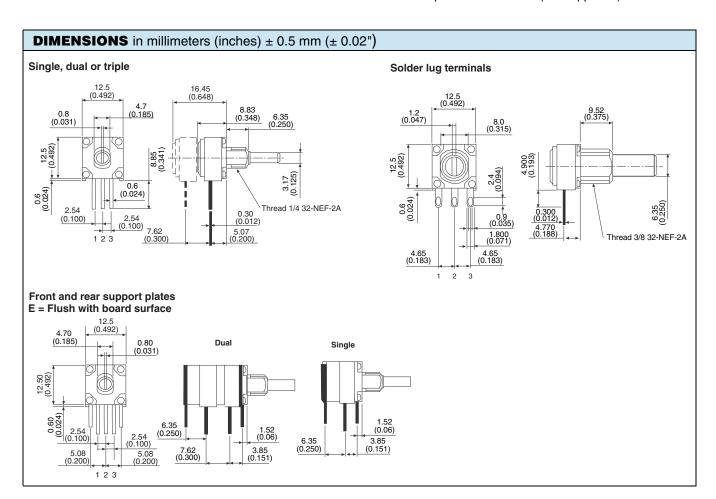
- Up to three sections PC support plates
- Rotary switches and solder lugs terminals available
- Tests according to CECC 41000 or IEC 60393-1
- Compliant to RoHS Directive 2002/95/EC

148 FEATURES

- Conductive plastic element
- · Quiet electrical output

149 FEATURES

- · Cermet element
- Low temperature coefficient (± 150 ppm/°C)





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| ELECTRICAL SPEC | ELECTRICAL SPECIFICATIONS | | | | | | | | |
|------------------------------|---------------------------|-------------------------------------------------------------------|-------------------------------|--|--|--|--|--|--|
| PARAMETER | | 148 | 149 | | | | | | |
| Decistance Donne | Linear | 1 kΩ to 1 MΩ | 100 Ω to 2 M Ω | | | | | | |
| Resistance Range | Non-Linear | 500 Ω to 500 k Ω | 250 Ω to 1 M Ω | | | | | | |
| Tolerance | Linear | 10 % | 10 % | | | | | | |
| Tolerance | Non-Linear | 20 % on request 10 % | 10 % | | | | | | |
| Linearity (Typical) | | ± 5 % ind | ± 5 % independent | | | | | | |
| End Resistance | | 4 Ω maximum each end | | | | | | | |
| Power Rating | | 0.5 W at 70 °C 0 W at 120 °C | 1 W at 70 °C 0 W at 150 °C | | | | | | |
| | | Non-Linear or PC mount, derate 50 % | | | | | | | |
| Circuit Diagram | | a (1) b d (2) | √√√√ ° (3) ► cw | | | | | | |
| Effective Rotation | | 270° ± 10 ° with 240° ± 10 ° wit | • | | | | | | |
| Contact Resistance Variation | on | 1.5 % of total resistance | 3 % of total resistance | | | | | | |
| Maximum Continuous Worl | king Voltage | 350 V _{AC} across end terminals, but within power rating | | | | | | | |
| Dielectric Withstanding Vol | tage | Sea level - 750 V _{AC} | | | | | | | |

| MECHANICAL S | SPECIFICATIONS | |
|----------------------------|---------------------|-------------------------------------------------------------------------------------|
| Mechanical Travel | | $300^{\circ} \pm 5^{\circ}$ |
| Operating Torque (Typical) | | Single section 0.2 oz. to 3.0 oz in dual or triple section 0.3 ozinch to 4.5 ozinch |
| End Ston Town | Bushing A and B | 2.1 lb-inch max. |
| End Stop Torque | Bushing F | 6.8 lb-inch max. |
| | Single | 0.19 oz. |
| Weight (approx.) | Dual | 0.27 oz. |
| | Triple | 0.35 oz. |
| Terminals | Electrical Elements | e3: Pure Sn |
| Terrifficais | Switch Elements | e4: Gold plated |

| ENVIRONMENTAL SPECIFICATIONS | | | | | | | | |
|----------------------------------------|----------------------------------------------------|----------------------------------------------------|--|--|--|--|--|--|
| | 148 | 149 | | | | | | |
| Operating Temperature | - 40 °C to + 125 °C | - 40 °C to + 125 °C | | | | | | |
| Storage Temperature | - 55 °C to + 125 °C | - 55 °C to + 125 °C | | | | | | |
| Temperature Cycling (5 Cycles) | - 40 °C to + 125 °C (4 % Δ <i>R</i> _T) | - 40 °C to + 125 °C (3 % Δ <i>R</i> _T) | | | | | | |
| Load Life (1000 h Rated Load at 70 °C) | 10 % ΔR_{T} 5 % ΔR_{T} | | | | | | | |
| Mechanical Endurance | 50 000 | cycles | | | | | | |
| TCR (Typical) | ± 500 ppm/°C | ± 150 ppm/°C | | | | | | |
| Sealing | IP64 | | | | | | | |

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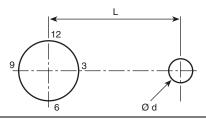
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LOCATING PEGS (Anti-Rotation Lug)

The locating peg is provided by a plate mounted on the bushing and positioned by the module sides. Four set positions are available, clock face orientation: 12, 3, 6, 9.

All 148, 149 bushings have a double flat. When panel mounting holes have been punched accordingly, an anti-rotation lug is not necessary.



| CODE | VERSION BUSHING A, B | | BUSHING F | EFFECTIVE HIGH PEG | |
|------|----------------------|------|--------------|-----------------------|--|
| Α | Ø d mm | 2 | 2 | 0.7 | |
| _ ^ | L mm | 6.2 | 6.2 | - | |
| В | Ø d mm | 2 | 2 | 0.7 | |
| | L mm | 7.75 | 7.75 | - | |
| С | Ø d mm | = | 3.5 | 1.1 | |
| C | L mm | - | 13.5 | - | |

Locating pegs are supplied in separate bags with nuts and

RSID OPTION: ROTARY SWITCH MODULES



- · Rotary switches
- Current up to 2 A
- SPDT: Single pole, changeover switch in CCW position 3 pins
- Sealing IP60

MODULES: RS ON/OFF SWITCH RSI CHANGEOVER SWITCH

The position of each module is free.

RS and RSI rotary switches are housed in a standard 148, 149 module size 12.7 mm x 12.7 mm x 5.08 mm (0.5" x 0.5" x 0.2"). They have the same terminal styles as the assembled electrical modules.

An assembly can comprise 1 or more switch modules.

Switch actuation is described as seen from the shaft end. D:means actuation in maximum CCW position

The switch actuation travel is 25° with a total mechanical travel of $300^{\circ} \pm 5^{\circ}$ and electrical travel of electrical modules is $238^{\circ} \pm 10^{\circ}$.

RSID SINGLE POLE CHANGEOVER

In full CCW position, the contact is made between 3 and 2 and open between 3 and 1. Switch actuation (CW direction) reverses these positions.

| SWITCH SPE | SWITCH SPECIFICATIONS | | | | | | | | |
|---------------------------|---------------------------------|--------------------------------|--|--|--|--|--|--|--|
| Switching Pov | ver Maximum | 62.5 VA v 15 VA = | | | | | | | |
| Switching Current Maximum | | 0.25 A 250 V v 0.5 A 30 V = | | | | | | | |
| Maximum Cu | Maximum Current Through Element | | | | | | | | |
| Contact Resis | 100 mΩ | | | | | | | | |
| Dielectric | Terminal to Terminal | 1000 V _{RMS} | | | | | | | |
| Strength | Terminal to Bushing | 2000 V _{RMS} | | | | | | | |
| Maximum Vol | tage Operation | 250 V v 30 V = | | | | | | | |
| Insulation Res | sistance Between Contacts | $10^6\mathrm{M}\Omega$ | | | | | | | |
| Life at P _{max.} | | 10 000 actuations | | | | | | | |
| Minimal Trave | l . | 25° | | | | | | | |
| Operating Ter | mperature | - 40 °C to + 85 °C | | | | | | | |

ELECTRICAL DIAGRAM

RSID CCW POSITION

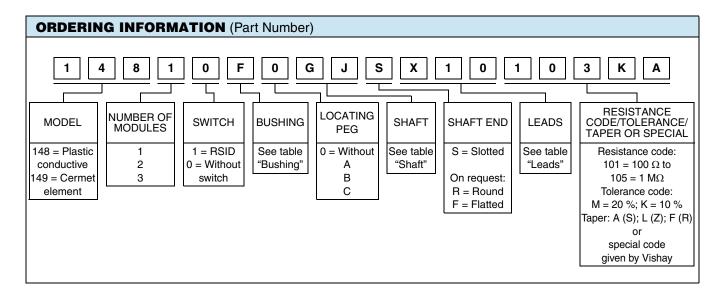


Note (1) Common



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| BUSHING | | | | | | | | | |
|---------|------|------|-----------|--|--|--|--|--|--|
| | Ø | L | OLD CODES | | | | | | |
| Α | 1/4" | 1/4" | N | | | | | | |
| В | 1/4" | 3/8" | J | | | | | | |
| F | 3/8" | 3/8" | G | | | | | | |

| LEAD | LEADS | | | | | | | | | | |
|------|----------------|----------------|-----------------------------|--------------|--|--|--|--|--|--|--|
| | TYPE | PIN SPACING | SPACE BETWEEN MODULES | OLD CODES | | | | | | | |
| X10 | PCB pins | 2.54 mm | n/a | Р | | | | | | | |
| X13 | FOB pills | (0.100") | 7.62 mm (0.300") | | | | | | | | |
| A10 | PCB pins and | 2.54 mm | n/a | F | | | | | | | |
| A13 | support plates | (0.100") | 7.62 mm (0.300") |] [| | | | | | | |
| Y00 | Cold lugo | 4.65 mm | n/a | S | | | | | | | |
| Y03 | Sold, lugs | (0.183") | 7.62 mm (0.300") | 3 | | | | | | | |

| SHAFT | SHAFT | | | | | | | | | |
|-------|-------|--------|-----------|--|--|--|--|--|--|--|
| | Ø | L | OLD CODES | | | | | | | |
| ВВ | 1/8" | 1/2" | 32 | | | | | | | |
| BG | 1/8" | 5/8" | 40 | | | | | | | |
| ВН | 1/8" | 3/4" | 48 | | | | | | | |
| BJ | 1/8" | 7/8" | 56 | | | | | | | |
| GB | 1/4" | 1/2" | 32 | | | | | | | |
| GG | 1/4" | 5/8" | 40 | | | | | | | |
| GH | 1/4" | 3/4" | 48 | | | | | | | |
| GJ | 1/4" | 7/8" | 56 | | | | | | | |
| GL | 1/4" | 1" | 64 | | | | | | | |
| GN | 1/4" | 1 1/4" | 80 | | | | | | | |

| PART | PART NUMBER DESCRIPTION (for information only) | | | | | | | | | | | | | |
|-------|------------------------------------------------|--------|---------|-----------------|-------|-------|-------|-------|-------|------|-------|---------|---------|----------------|
| 148 | 1 | 0 | F | 0 | GJ | S | X10 | BO50 | 10K | 10 % | Α | | | e3 |
| MODEL | MODULES | SWITCH | BUSHING | LOCATING PEG | SHAFT | SHAFT | LEADS | PACK. | VALUE | TOL. | TAPER | SPECIAL | SPECIAL | LEAD FINISH |



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Vishay

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