

12.5 mm Modular Panel Potentiometer High Dielectric Strength


FEATURES

- High dielectric strength potentiometer up to 5000 V_{RMS}
- 12.5 mm square single turn panel control
- Plastic shaft and bushing
- Two shaft lengths and 29 terminal styles
- P11P: Cermet element
- P11D: Conductive plastic element
- Multiple assemblies - up to seven modules
- Test according to CECC 41000 or IEC 60393-1
- Shaft and panel sealed version
- Up to twenty-one indent positions
- Rotary switch options
- Custom designs on request
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


**RoHS
COMPLIANT**

| QUICK REFERENCE DATA | |
|-------------------------|--|
| Multiple module | Up to 7 modules |
| Switch module | Yes |
| Detent module | Yes |
| Special electrical laws | A: linear, L: logarithmic, F: reverse logarithmic and others see specification |
| Sealing level | IP 64 |
| Lifespan | 50K cycles |

| | | | |
|-----------|---------|---------|--------|
| VERSATILE | MODULAR | COMPACT | ROBUST |
|-----------|---------|---------|--------|

CONFIGURATION EXAMPLE - Dimensions in millimeters (inches) ± 0.5 mm (± 0.02")

Single module, single shaft, solder lugs, metric bushing and shaft

DETAIL A

Single module, single shaft, vertical mounting, PC pins with support plate, metric bushing and shaft

Dual modules, single shaft, PC pins with front support plates, imperial bushing and shaft

GENERAL SPECIFICATIONS

| ELECTRICAL (initial) | | |
|---|---|--|
| | P11D | P11P |
| Resistive element | Conductive plastic | Cermet |
| Electrical travel | 270° ± 10° | 270° ± 10° |
| Resistance range ⁽¹⁾ | linear taper 1 kΩ to 1 MΩ | 20 Ω to 10 MΩ |
| | non-linear taper 470 Ω to 500 kΩ | 100 Ω to 2.2 MΩ |
| Tolerance | standard ± 20 % | ± 20 % |
| | on request ± 10 % | ± 5 % or ± 10 % |
| Taper | | |
| Circuit diagram | | |
| Power rating at 70 °C | linear taper 0.5 W at +70 °C non-linear taper 0.25 W at +70 °C multiple assemblies 0.25 W at +70 °C per module | 1 W at +70 °C 0.5 W at +70 °C 0.5 W at +70 °C per module |
| | | |
| Temperature coefficient, -40 °C to +100 °C (typical) | ± 500 ppm | ± 150 ppm |
| Limiting element voltage | 350 V | 350 V |
| End resistance (typical) | 2 Ω | 2 Ω |
| Contact resistance variation (typical) | linear taper 1 % | 2 % or 3 Ω |
| Independent linearity (typical) | linear taper ± 5 % | ± 5 % |
| Insulation resistance | 10 ⁶ MΩ min. | 10 ⁶ MΩ min. |
| Dielectric strength | leads to support plate 3000 V _{RMS} min. | 3000 V _{RMS} min. |
| | leads to shaft and bushing 5000 V _{RMS} min. | 5000 V _{RMS} min. |
| Mechanical endurance | 50 000 cycles | 50 000 cycles |

Notes

- Nothing stated herein shall be construed as a guarantee of quality or durability
- ⁽¹⁾ Consult Vishay Sfernice for other ohmic values



| MECHANICAL (initial) | |
|---|---|
| Mechanical travel | 300° ± 5° |
| Operating torque (typical) single and dual assemblies three to seven modules (per module) | 0.2 Ncm to 1 Ncm max. (0.3 oz.-inch to 1.4 oz.-inch max.) 0.2 Ncm to 0.3 Ncm max. (0.3 oz.-inch to 0.45 oz.-inch max.) |
| End stop torque | 80 Ncm max. (6.8 lb-inch max.) |
| Tightening torque | 150 Ncm max. (13 lb-inch max.) |
| Weight single assemblies two to seven modules (per module) | 3.5 g 1.5 g to 2 g (0.25 oz. to 0.32 oz.) |

| ENVIRONMENTAL SPECIFICATIONS | | |
|-------------------------------------|-------------------|-------------------|
| | P11D | P11P |
| Operating temperature range | -40 °C to +100 °C | -40 °C to +100 °C |
| Climatic category | 40/100/21 | 40/100/56 |
| Sealing | IP64 | IP64 |
| Storage temperature | -40 °C to +100 °C | -40 °C to +100 °C |

| MARKING |
|--|
| <ul style="list-style-type: none"> • Potentiometer module Vishay logo, SAP code of ohmic value, tolerance in %, variation law, manufacturing date (four digits), "3" for the lead 3, product series (P11D, P11P) • Switch module Version, manufacturing date (four digits), "c" for common lead • Indent module Version, manufacturing date (four digits) |

| PACKAGING |
|---|
| <ul style="list-style-type: none"> • Box |

| PERFORMANCES | | | | |
|-------------------------|--|---------------------------------|-------------|-------------|
| TESTS | CONDITIONS | TYPICAL VALUE AND DRIFTS | | |
| | | | P11D | P11P |
| Electrical endurance | 1000 h at rated power 90°/30' - ambient temp. 70 °C | $\Delta R_T/R_T$ | ± 10 % | ± 2 % |
| | | Contact resistance variation | ± 5 % | ± 4 % |
| Change of temperature | -40 °C to +100 °C, 5 cycles | $\Delta R_T/R_T$ | ± 0.5 % | ± 0.2 % |
| Damp heat, steady state | +40 °C, 93 % relative humidity P11P: 56 days, P11D: 21 days | $\Delta R_T/R_T$ | ± 5 % | ± 2 % |
| | | Insulation resistance | > 10 MΩ | > 1000 MΩ |
| Mechanical endurance | 50 000 cycles | $\Delta R_T/R_T$ | ± 6 % | ± 5 % |
| | | Contact resistance variation | ± 4 % | ± 5 % |
| Climatic sequence | Dry heat at +125 °C/damp heat cold -55 °C/damp heat, 5 cycles | $\Delta R_T/R_T$ | - | ± 1 % |
| Shock | 50 g's, 11 ms 3 shocks - 3 directions | $\Delta R_T/R_T$ | ± 0.2 % | ± 0.2 % |
| | | $\Delta R_{1-2}/R_{1-2}$ | ± 0.5 % | ± 0.5 % |
| Vibration | 10 Hz to 55 Hz 0.75 mm or 10 g's, 6 h | $\Delta R_T/R_T$ | ± 0.2 % | ± 0.2 % |
| | | $\Delta V_{1-2}/V_{1-3}$ | ± 0.5 % | ± 0.5 % |



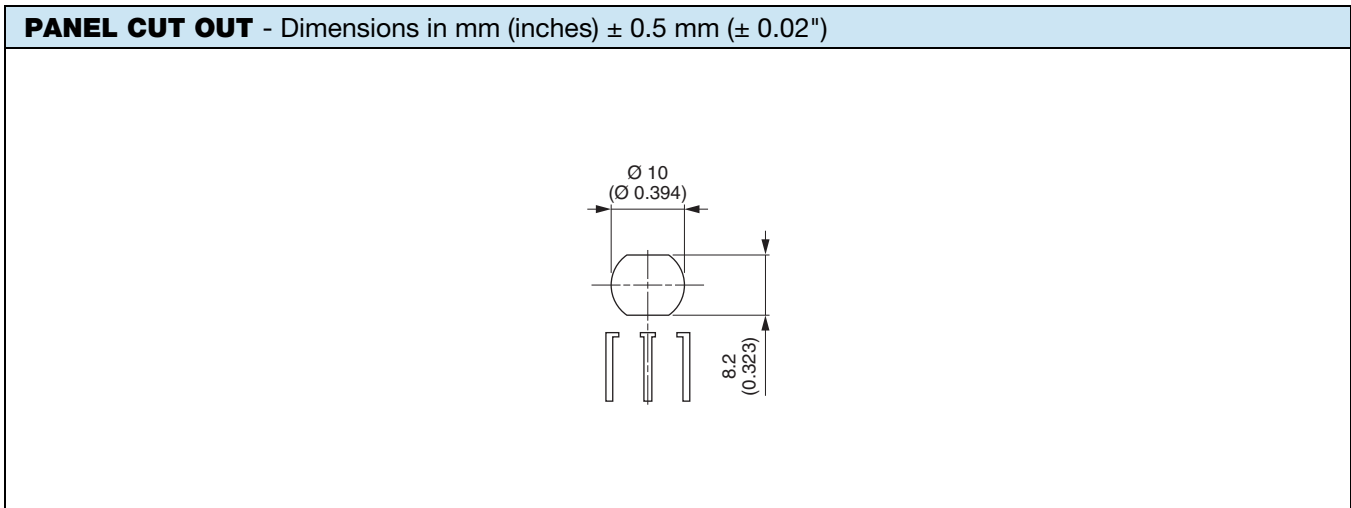
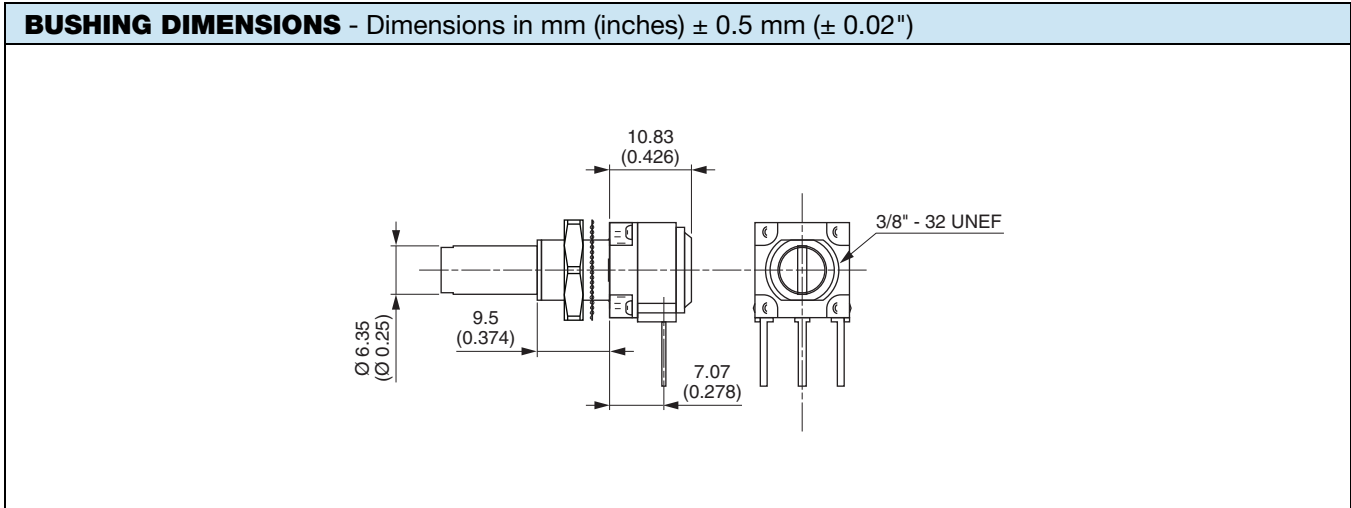
| ORDERING INFORMATION (part number) | | | | | | | | | | | | | | | | | |
|------------------------------------|--|---|---|---|---------------------------------|----------------|---------------|--------------|--------------------|--------------|---|---|---|---|---|---|---|
| P | 1 | 1 | P | 2 | F | 0 | G | G | S | Y | 0 | 0 | 1 | 0 | 3 | M | A |
| MODEL | STYLE | | | | NUMBER OF MODULES | BUSHING | OPTION | SHAFT | SHAFT STYLE | LEADS | RESISTANCE CODE/TOLERANCE/TAPER OR SPECIAL | | | | | | |
| P11 | P = cermet element D = conductive plastic (audio) | | | | 1 2 3 4 5 6 7 | | | | | | | | | | | | |

| STANDARD RESISTANCE ELEMENT DATA | | | | | | | | | | | | |
|----------------------------------|---------------------|----------------------|-------------------------|---------------------|----------------------|-------------------------|-------------------------|----------------------|-------------------------|---------------------|----------------------|-------------------------|
| STANDARD RESISTANCE VALUES | P11P CERMET | | | | | | P11D CONDUCTIVE PLASTIC | | | | | |
| | LINEAR TAPER | | | NON LINEAR TAPER | | | LINEAR TAPER | | | NON LINEAR TAPER | | |
| | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. CUR. THROUGH WIPER | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. CUR. THROUGH WIPER | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. CUR. THROUGH WIPER | MAX. POWER AT 70 °C | MAX. WORKING VOLTAGE | MAX. CUR. THROUGH WIPER |
| Ω | W | V | mA | W | V | mA | W | V | mA | W | V | mA |
| 22 | 1 | 4.69 | 213 | | | | | | | | | |
| 47 | 1 | 6.86 | 146 | | | | | | | | | |
| 50 | 1 | 7.07 | 141 | | | | | | | | | |
| 100 | 1 | 10.0 | 100 | 0.5 | 7.07 | 70.7 | | | | | | |
| 220 | 1 | 14.8 | 67.4 | 0.5 | 10.0 | 47.7 | | | | | | |
| 470 | 1 | 21.7 | 46.1 | 0.5 | 15.3 | 32.6 | | | | | | |
| 500 | 1 | 22.4 | 44.7 | 0.5 | 15.8 | 31.6 | | | | 0.25 | 11.2 | 22.4 |
| 1K | 1 | 31.6 | 31.6 | 0.5 | 22.4 | 22.4 | 0.5 | 22.4 | 22.4 | 0.25 | 15.8 | 15.8 |
| 2.2K | 1 | 46.9 | 21.3 | 0.5 | 33.2 | 15.1 | 0.5 | 33.2 | 15.1 | 0.25 | 23.5 | 10.7 |
| 4.7K | 1 | 63.6 | 14.5 | 0.5 | 48.5 | 10.3 | 0.5 | 48.5 | 10.3 | 0.25 | 34.3 | 7.29 |
| 5K | 1 | 70.7 | 14.1 | 0.5 | 50.0 | 10.0 | 0.5 | 50.0 | 10.0 | 0.25 | 35.4 | 7.07 |
| 10K | 1 | 100 | 10.0 | 0.5 | 70.7 | 7.07 | 0.5 | 70.7 | 7.07 | 0.25 | 50.0 | 5.00 |
| 22K | 1 | 148 | 6.74 | 0.5 | 105 | 4.77 | 0.5 | 105 | 4.77 | 0.25 | 74.2 | 3.37 |
| 47K | 1 | 217 | 4.61 | 0.5 | 153 | 3.26 | 0.5 | 153 | 3.26 | 0.25 | 108 | 2.31 |
| 50K | 1 | 224 | 4.47 | 0.5 | 158 | 3.16 | 0.5 | 158 | 3.16 | 0.25 | 112 | 2.24 |
| 100K | 1 | 316 | 3.16 | 0.5 | 224 | 2.24 | 0.5 | 224 | 2.24 | 0.25 | 158 | 1.58 |
| 220K | 0.56 | 350 | 1.59 | 0.5 | 332 | 1.51 | 0.5 | 332 | 1.51 | 0.25 | 235 | 1.07 |
| 470K | 0.26 | 350 | 0.75 | 0.26 | 349 | 0.74 | 0.26 | 350 | 0.74 | 0.25 | 343 | 0.73 |
| 500K | 0.25 | 350 | 0.70 | 0.25 | 350 | 0.70 | 0.25 | 350 | 0.70 | 0.25 | 350 | 0.70 |
| 1M | 0.12 | 350 | 0.35 | 0.12 | 350 | 0.35 | 0.12 | 350 | 0.35 | | | |
| 2.2M | 0.56 | 350 | 0.16 | 0.056 | 350 | 0.16 | | | | | | |
| 4.7M | 0.26 | 350 | 0.074 | | | | | | | | | |
| 5M | 0.25 | 350 | 0.070 | | | | | | | | | |
| 10M | 0.12 | 350 | 0.035 | | | | | | | | | |



ORDERING INFORMATION (part number)

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-------|-------------------|--|---|---|--------|-------|-------------|-------|--|------|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|
| P | 1 | 1 | P | 2 | F | 0 | G | G | S | Y | 0 | 0 | 1 | 0 | 3 | M | A | | | | | | | | | |
| MODEL | STYLE | NUMBER OF MODULES | BUSHING | | | OPTION | SHAFT | SHAFT STYLE | LEADS | RESISTANCE CODE/ TOLERANCE/ TAPER OR SPECIAL | | | | | | | | | | | | | | | | |
| P11 | | | <table border="1"> <tr> <td></td><td>Ø</td><td>L</td> </tr> <tr> <td>F</td><td>3/8"</td><td>3/8"</td> </tr> </table> | | | | Ø | L | F | 3/8" | 3/8" | | | | | | | | | | | | | | | |
| | Ø | L | | | | | | | | | | | | | | | | | | | | | | | | |
| F | 3/8" | 3/8" | | | | | | | | | | | | | | | | | | | | | | | | |



Note

- Hardware supplied in separate bags

ORDERING INFORMATION (part number)

| | | | | | | | | | | | | | | | | | |
|-------|-------|-------------------|---------|--------|---|---|---|-------|-------------|-------|--|---|---|---|---|---|---|
| P | 1 | 1 | P | 2 | F | 0 | G | G | S | Y | 0 | 0 | 1 | 0 | 3 | M | A |
| MODEL | STYLE | NUMBER OF MODULES | BUSHING | OPTION | | | | SHAFT | SHAFT STYLE | LEADS | RESISTANCE CODE/TOLERANCE/TAPER OR SPECIAL | | | | | | |

Location pegs:

| mm | Ø | L |
|----|-------------|------|
| A | 2 | 6.2 |
| B | 2 | 7.75 |
| C | 3.5 | 13.5 |
| 0 | Without peg | |

Sealed version:

| | |
|---|------------------------|
| P | Panel and shaft sealed |
|---|------------------------|

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.

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

| CODE | Ø d (mm) | L (mm) | EFFECTIVE HIGH PEG |
|------|----------|--------|--------------------|
| A | 2 | 6.2 | 0.7 |
| B | 2 | 7.75 | 0.7 |
| C | 3.5 | 13.5 | 1.1 |

PANEL AND SHAFT SEALED

O ring plate can not be used with locating pegs.

Note

- Locating pegs and panel o ring are supplied in separate bags with nuts and washers



ORDERING INFORMATION (part number)

| P | 1 | 1 | P | 2 | F | 0 | G | G | S | Y | 0 | 0 | 1 | 0 | 3 | M | A | | | | | | | | | | | | |
|-------|----------|-------------------|---------|--------|--|---|---|-------------|----------|--|----|-----|------|----|-----|------|-------------|--|--|--|--|--|--|--|--|--|--|--|--|
| MODEL | STYLE | NUMBER OF MODULES | BUSHING | OPTION | SHAFT | | | SHAFT STYLE | LEADS | RESISTANCE CODE/TOLERANCE/TAPER OR SPECIAL | | | | | | | | | | | | | | | | | | | |
| | | | | | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>CODE</th> <th>L (inch)</th> <th>L (mm)</th> </tr> </thead> <tbody> <tr> <td>GG</td> <td>5/8</td> <td>15.8</td> </tr> <tr> <td>GJ</td> <td>7/8</td> <td>22.2</td> </tr> </tbody> </table> | | | CODE | L (inch) | L (mm) | GG | 5/8 | 15.8 | GJ | 7/8 | 22.2 | S = Slotted | | | | | | | | | | | | |
| CODE | L (inch) | L (mm) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GG | 5/8 | 15.8 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GJ | 7/8 | 22.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

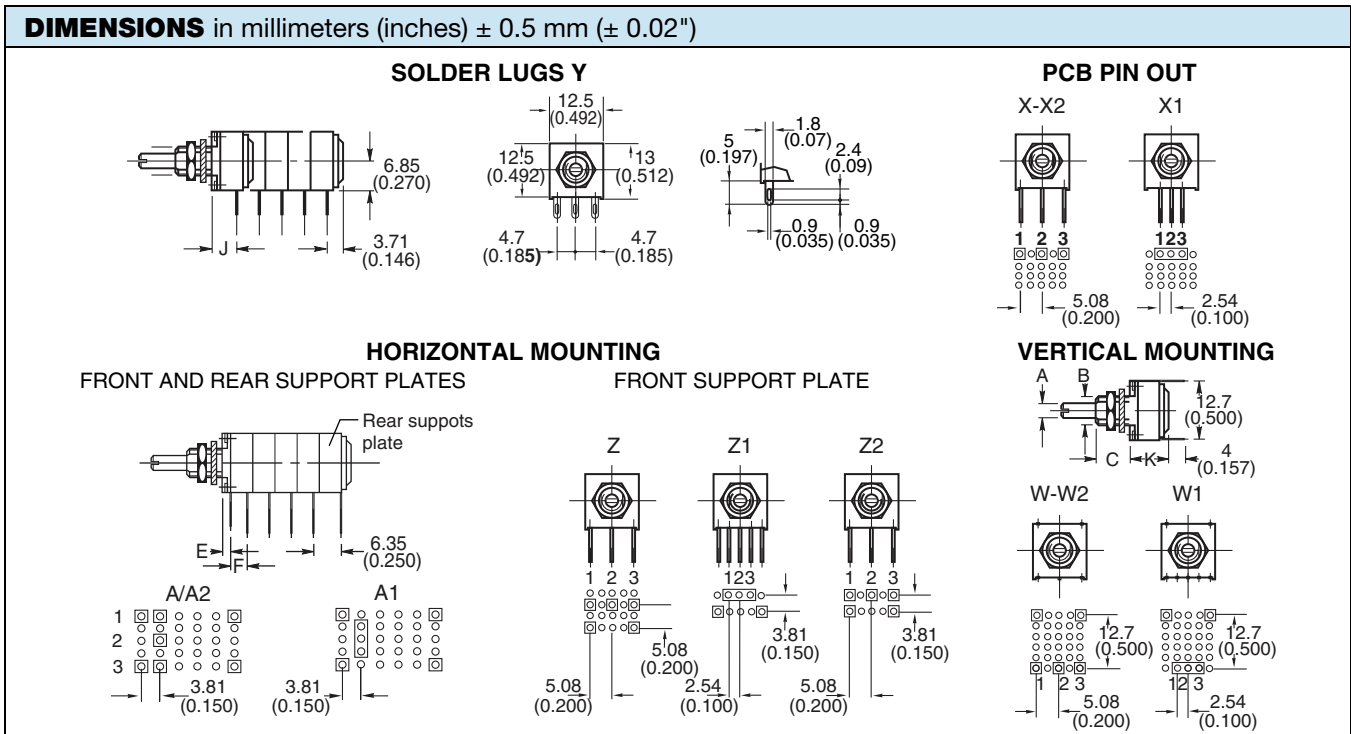
SHAFTS - Dimensions in mm (inches) ± 0.5 mm (± 0.02 ")

The shaft length are always measured from the mounting face.
 Shafts are designed by a 3 letter code (3 digits). Shafts are slotted and aligned to $\pm 10^\circ$ of the wiper position.

The image contains two technical drawings of shafts. The left drawing shows a shaft with a diameter of 1.6 (0.063) inches and a length of 1.2 (0.047) inches. The right drawing shows a shaft with a diameter of Ø 6.35 (Ø 0.25) inches, a length of L, and a mounting face dimension of 7.07 (0.278) inches.

| ORDERING INFORMATION (part number) | | | | | | | | | | | | | | | | | |
|------------------------------------|-------|-------------------|---------|--------|-------|-------------|-----------------|-----|-----|-----|-----|--|---|---|---|---|---|
| P | 1 | 1 | P | 2 | F | 0 | G | G | S | Y | 0 | 0 | 1 | 0 | 3 | M | A |
| MODEL | STYLE | NUMBER OF MODULES | BUSHING | OPTION | SHAFT | SHAFT STYLE | LEADS | | | | | RESISTANCE CODE/TOLERANCE/TAPER OR SPECIAL | | | | | |
| | | | | | | | Available leads | | | | | | | | | | |
| | | | | | | | A00 | W00 | X00 | Y00 | Z00 | | | | | | |
| | | | | | | | A10 | W10 | X03 | Y03 | Z03 | | | | | | |
| | | | | | | | A13 | W20 | X04 | Y04 | Z04 | | | | | | |
| | | | | | | | A14 | | X10 | | Z10 | | | | | | |
| | | | | | | | A20 | | X13 | | Z13 | | | | | | |
| | | | | | | | A23 | | X14 | | Z14 | | | | | | |
| | | | | | | | A24 | | X20 | | Z20 | | | | | | |
| | | | | | | | | | X23 | | Z23 | | | | | | |
| | | | | | | | | | X24 | | Z24 | | | | | | |

| FIRST DIGIT | | SECOND DIGIT | | THIRD DIGIT | |
|-------------|--|--------------|---|-------------|--------------------------------------|
| Y | Soldering lugs | 0 | Y = 4.65 (0.183") A, X, Z, W = 5.08 (0.200") pin spacing pins section 0.9 x 0.3 (0.035" x 0.012") | 0 | 5.08 (0.200") space between modules |
| X | PCB pins | 1 | 2.54 (0.100") pin spacing pin section 0.6 x 0.3 (0.024" x 0.012") | 3 | 7.62 (0.300") space between modules |
| Z | PCB pins with front support plate | 2 | 5.08 (0.200") pin spacing pins section 0.6 x 0.3 (0.024" x 0.012") | 4 | 10.16 (0.400") space between modules |
| A | PCB pins with front and back support plates | | | | |
| W | PCB pins - vertical mounting with 2 extra pins - 1 module only | | | | |



| THE POSITION OF EACH MODULE IS FREE | | | | |
|-------------------------------------|--------------|-------------|---------------------------------|--------------------------|
| | LEADS | | | |
| | X../Y.. | A../Z1./Z2. | Z0. (except with rotary switch) | Z0. (with rotary switch) |
| E | - | 3.63 (0.14) | 3.81 (0.15) | 2.15 (0.085) |
| F | - | 3.81 (0.15) | 5.08 (0.20) | 5.08 (0.20) |
| J | 7.06 (0.278) | - | - | - |



| ORDERING INFORMATION (part number) | | | | | | | | | | | | | | | | | |
|------------------------------------|-------|-------------------|---------|--------------|-------|-------------|-------|---|---|---|---|---|---|---|---|---|---|
| P | 1 | 1 | P | 2 | F | 0 | G | G | S | Y | 0 | 0 | 1 | 0 | 3 | M | A |
| MODEL | STYLE | NUMBER OF MODULES | BUSHING | LOCATING PEG | SHAFT | SHAFT STYLE | LEADS | RESISTANCE CODE/ TOLERANCE/ TAPER OR SPECIAL | | | | | | | | | |
| | | | | | | | | From 20 Ω to 10 MΩ see instructions on electrical specifications Resistance code: 200 = 20 Ω to 106 = 10 MΩ Tolerance code: standard: M = ± 20 % on request: K = ± 10 %, J = ± 5 % (cermet only) Taper: A, L, W, F, S, R or special code given by Vishay | | | | | | | | | |

| SPECIAL CODES GIVEN BY VISHAY |
|---|
| Option available: <ul style="list-style-type: none"> • Custom design on request • Specific linearity • Specific interlinearity • Specific taper • Multiple assemblies with various modules |

P11 OPTION: ROTARY SWITCH MODULES



- Rotary switch
- Current up to 2 A
- Actuation CW or CCW position
- 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 P11 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

F: Means actuation in maximum CW position

The switch actuation travel is 25° with a total mechanical travel of 300° ± 5° and electrical travel of electrical modules is 238° ± 10°.

Leads finish: gold plated

RDS SINGLE POLE SWITCH, NORMALLY OPEN

In full CCW position, the contact between 1 and 3 is open. It is made at the beginning of the travel in CW direction.

RSF SINGLE POLE SWITCH, NORMALLY OPEN

In full CW position, the contact between 1 and 3 is open. It is made at the beginning of the travel in CCW direction.

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.

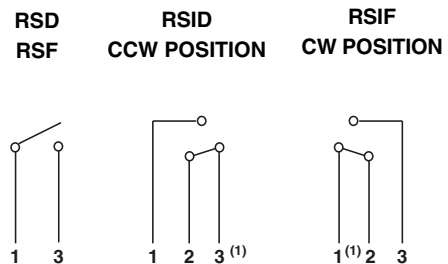
RSIF SINGLE POLE CHANGEOVER

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

SWITCH SPECIFICATIONS

| | | |
|--|--------------------------------|-----------------------|
| Switching power maximum | 62.5 VA v 15 VA = | |
| Switching current maximum | 0.25 A 250 V v 0.5 A 30 V = | |
| Maximum current through element | 2 A | |
| Contact Resistance | 100 mΩ | |
| Dielectric strength | Terminal to terminal | 1000 V _{RMS} |
| | Terminal to bushing | 5000 V _{RMS} |
| Maximum voltage operation | 250 V v 30 V = | |
| Insulation resistance between contacts | 10 ⁶ MΩ | |
| Life at P _{max.} | 10 000 actuations | |
| Minimal travel | 25° | |
| Operating temperature | -40 °C to +85 °C | |

ELECTRICAL DIAGRAM



Note
(1) Common

ORDERING INFORMATION (First order only)

RSID

| | |
|-------------|---|
| RSD | SPST: Single pole, open switch in CCW position - 2 pins |
| RSF | SPST: Single pole, open switch in CW position - 2 pins |
| RSID | SPDT: Single pole, changeover switch in CCW position - 3 pins |
| RSIF | SPDT: Single pole, changeover switch in CW position - 3 pins |

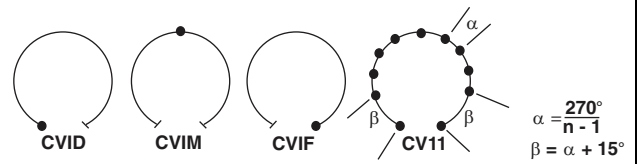
P11 OPTION: DETENT MODULES

The detents mechanism is housed in a standard P11 module. Up to 21 detent positions available.

Count detents as follows: 1 for CCW position, 1 for full CW position, plus the other positions forming equal resistance increments (linear taper) - not equal angles.

Available: CVID - CVIF - CVIM
CV3 - CV11 - CV21

Mechanical endurance: 10 000 cycles



ORDERING INFORMATION (First order only for special code creation)

CV1M

- CV1M** 1 detent at half travel
- CV1M J84** CV1M with accuracy of center point $\pm 2\%$ (all tapers except S)
- CV1D** 1 detent at CCW position
- CV1F** 1 detent at CW position
- CV3** 3 detents
- CV11** 11 detents
- CV21** 21 detents

P11 OPTION: NEUTRAL MODULES "EN"

Neutral or screen module is housed in a standard P11 module. It is used as a screen between two electrical modules.

The leads can be connected to ground.

ORDERING INFORMATION (first order only for special code creation)

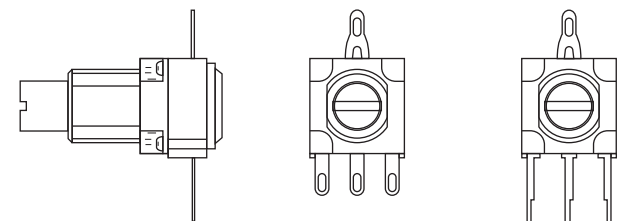
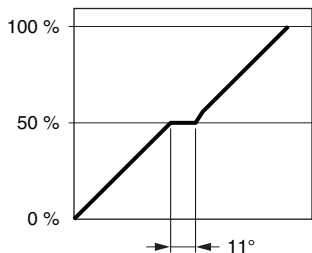
EN

EN Neutral module

P11 OPTION: CENTER CURRENT TAP "J"

The extra terminal is a solder lug connected at 50 % of electrical travel and situated in the potentiometer module opposite the terminals.

Center tap presents a short circuit of 11° of travel.

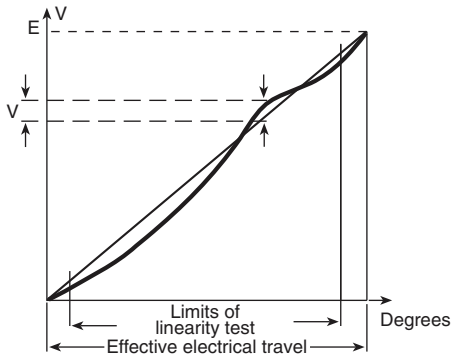


- Sealing IP60

ORDERING INFORMATION (First order only)

J

J Center tap

P11 OPTION: SPECIAL LINEARITY - CONFORMITY


The independent linearity (conformity for the non linear laws) is the maximum gap ΔV between the actual variation curve and the theoretical variation curve the nearest to it. The linearity and the conformity are expressed in percentage of the total applied voltage E

$$\text{linearity conformity} = \frac{\pm \Delta V_{\max.}}{E}$$

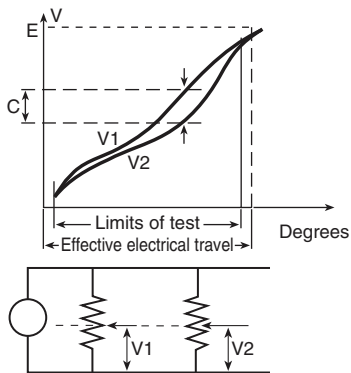
They are measured over 90 % of actual electrical travel (centered).

On request linearity can be guaranteed in linear law.

ORDERING INFORMATION (First order only)
J123

J123 Independent linearity $\pm 3\%$ (linear taper)
J145 Independent linearity $\pm 2\%$ (linear taper)

For other request, contact us.

P11 OPTION: SPECIAL INTERLINEARITY - INTERCONFORMITY


It is the maximum deviation between the actual voltage outputs of 2 or more pot modules in the same assembly. It is expressed as a percentage of the total applied voltage, or in dB attenuation.

Interlinearity is measured between 2 pot modules, over 20 to 90 % of the attenuation.

The interlinearity or interconformity is expressed as a percentage of the total applied voltage:

$$1\% = \frac{|C|}{E}$$

Or in decibels by comparison between outputs V1 and V2

$$1 \text{ dB} = 20 \log \frac{V_1}{V_2}$$

ORDERING INFORMATION (First order only)
J44

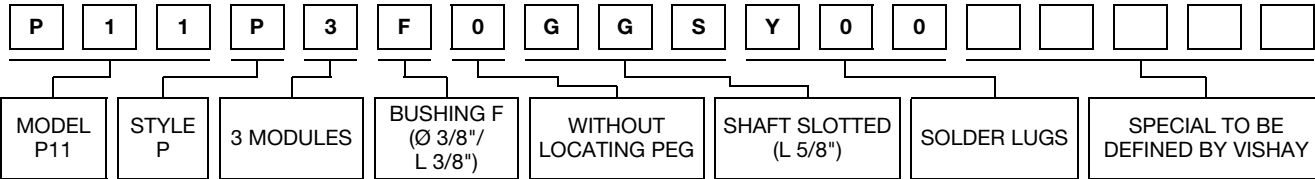
J44 Interlinearity $\pm 2\%$ (linear taper)

For other request, contact us.



EXAMPLES OF FIRST ORDER INFORMATION

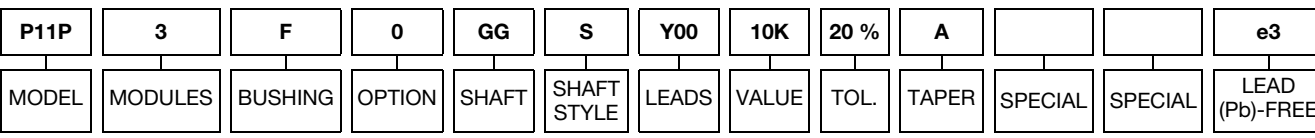
FIRST EXAMPLE: Triple module (switch is counted as a module)



ORDERING INFORMATION:

| | | |
|-------------------|---------------------------------------|------|
| PART NUMBER | P11P3F0GGSY00..... | |
| SHAFT AND BUSHING | See drawing of special shaft attached | |
| MODULE NO. 1 | RSID | |
| MODULE NO. 2 | 103 M A | J123 |
| MODULE NO. 3 | 503 M A | J |

PART NUMBER DESCRIPTION (used on some Vishay document or label, for information only)



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 |



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Potentiometers](#) category:

Click to view products by [Vishay](#) manufacturer:

Other Similar products are found below :

[58C2-2](#) [590SX1N32F103SS](#) [591SXJ48S252SC](#) [591SXP56S252SC](#) [591SXP56S503SC](#) [D31409](#) [70B1G048K502X-A](#) [70B1M032S502W](#)
[70B1N056S202W](#) [70B8N056F502W](#) [70J8N048S104U](#) [70L1N040P103W](#) [70L1N048P103X](#) [70L1N048S103W](#) [GA2L040S102UC](#)
[GA2L040S103UC](#) [GS1G044P103UA](#) [GS1N048P103UA](#) [GS1T032S103UA](#) [A43-1500](#) [A43-20K](#) [A47-200K](#) [A4720K](#) [RA20LASD251A](#)
[132-2-0-202](#) [132-0-0-202](#) [RK14K1220-F25-C0-A103](#) [RK14K1220F25C0C104](#) [RK14K1220-F25-C1-B103](#) [14910FAGJSX10102KA](#)
[14910FBGLFY00103KA](#) [14910AABHSX10103KA](#) [14910FAGJSX10104KA](#) [152-01031](#) [C0342008 5K](#) [P270-109A](#) [J97589](#) [23M728](#)
[248BBHS0XB25104MA](#) [RV170F-10-15R1-B500K-0021](#) [RV8NAYSB104A](#) [917523A](#) [A43-40](#) [A43-750](#) [A43S-5](#) [A47-15K](#) [A4750K](#)
[SPPG048S103U](#) [SPPG056P103U](#) [SWE-10](#)