

### 3/8" Square Panel Potentiometer Miniature - Cermet - Fully Sealed



## LINKS TO ADDITIONAL RESOURCES



P10 panel potentiometer combines the very good setting stability offered by Vishay Sfernice trimmers (due to their proprietary multifinger wiper), with a mechanical life of 10 000 cycles.

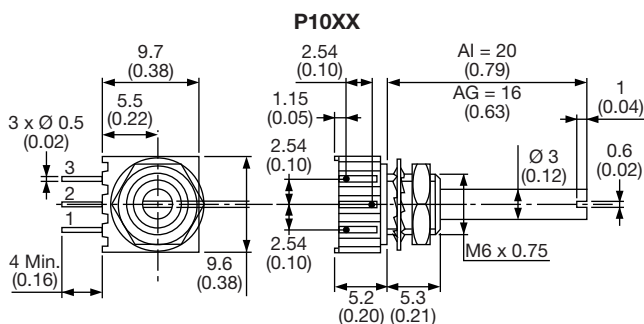
It is an ideal choice to set and control parameters such as temperature, time, volume levels, etc.

## QUICK REFERENCE DATA

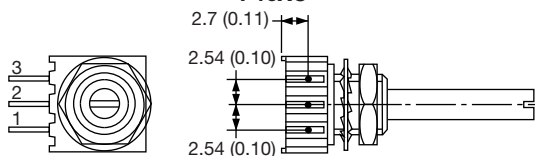
|                         |                    |
|-------------------------|--------------------|
| Multiple module         | No                 |
| Switch module           | n/a                |
| Detent module           | n/a                |
| Special electrical laws | No, only A: linear |
| Sealing level           | IP 67              |
| Lifespan                | 10K cycles         |

**DIMENSIONS** in millimeters (inches)  $\pm 0.5$  mm ( $\pm 0.02$ " )

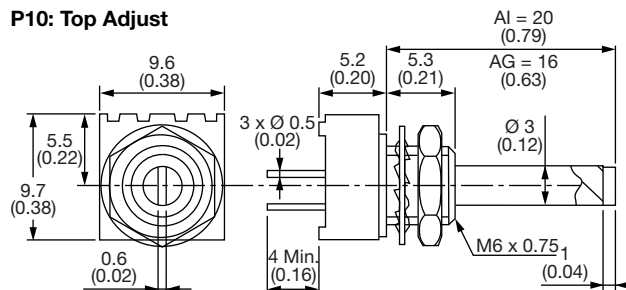
### P10: Side Adjust



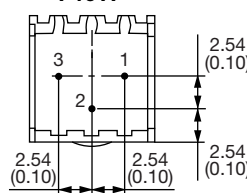
## P10XC



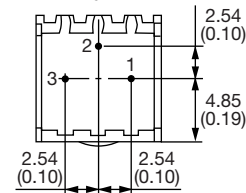
### P10: Top Adjust



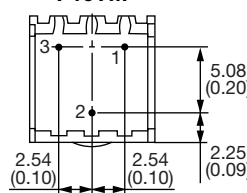
**P10YP**



**P10YE**



**P10YM**





| ELECTRICAL SPECIFICATIONS  |                       |
|----------------------------|-----------------------|
| Resistive element          | Cermet                |
| Electrical travel          | 250° ± 15°            |
| Standard resistance values | 100 Ω to 2 MΩ         |
| Tolerance                  | 10 % - 5 % on request |
| Taper                      | Linear                |
|                            | A                     |
| Power rating               |                       |
|                            | 0.5 W at 70 °C        |
| Circuit diagram            |                       |
|                            |                       |

**ELECTRICAL SPECIFICATIONS**

|                                              | STANDARD<br>RESISTANCE<br>VALUES       | MAX.<br>POWER<br>AT 70 °C | MAX.<br>WORKING<br>VOLTAGE | MAX.<br>WIPER<br>CURRENT |
|----------------------------------------------|----------------------------------------|---------------------------|----------------------------|--------------------------|
|                                              | $\Omega$                               | W                         | V                          | mA                       |
| Standard resistance element data             | 100                                    | 0.5                       | 7.1                        | 70.7                     |
|                                              | 200                                    | 0.5                       | 10.0                       | 50.0                     |
|                                              | 500                                    | 0.5                       | 15.8                       | 31.6                     |
|                                              | 1K                                     | 0.5                       | 22.4                       | 22.4                     |
|                                              | 2K                                     | 0.5                       | 31.6                       | 15.8                     |
|                                              | 5K                                     | 0.5                       | 50.0                       | 10.0                     |
|                                              | 10K                                    | 0.5                       | 70.7                       | 7.1                      |
|                                              | 20K                                    | 0.5                       | 100.0                      | 5.0                      |
|                                              | 50K                                    | 0.5                       | 158.1                      | 3.2                      |
|                                              | 100K                                   | 0.5                       | 223.6                      | 2.2                      |
|                                              | 200K                                   | 0.31                      | 250                        | 1.3                      |
|                                              | 500K                                   | 0.13                      | 250                        | 0.5                      |
|                                              | 1M                                     | 0.06                      | 250                        | 0.25                     |
|                                              | 2M                                     | 0.031                     | 250                        | 0.13                     |
| Temperature coefficient (typical)            | $\pm 150 \text{ ppm}/^{\circ}\text{C}$ |                           |                            |                          |
| Contact resistance variation (typical)       | 1 % Rn or 2 $\Omega$                   |                           |                            |                          |
| End resistance (typical)                     | 1 $\Omega$                             |                           |                            |                          |
| Dielectric strength (RMS)                    | 1000 V                                 |                           |                            |                          |
| Insulation resistance (300 V <sub>DC</sub> ) | 10 <sup>6</sup> M $\Omega$             |                           |                            |                          |

**MECHANICAL SPECIFICATIONS**

|                                   |                                                                                                                                                                                                                     |                          |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Mechanical travel                 | 290° $\pm$ 5                                                                                                                                                                                                        |                          |
| Operating torque (typical)        | 2 Ncm max.                                                                                                                                                                                                          | 2.83 oz.-inch max.       |
| End stop torque                   | 7 Ncm max.                                                                                                                                                                                                          | 9.9 oz.-inch max.        |
| Tightening torque of mounting nut | 25 Ncm max.                                                                                                                                                                                                         | 2.2 lb.-inch max.        |
| Unit weight                       | 1 g                                                                                                                                                                                                                 | 3.5 10 <sup>-2</sup> oz. |
| Terminals                         | 3: pure Sn                                                                                                                                                                                                          |                          |
| Shafts                            | Standard shaft 20 mm length (R or AI code) and 16 mm length (D or AG code) is measured from the mounting face to the free end of the shaft.<br>Vishay guarantee is lost if the customer modifies the shaft himself. |                          |
| Hardware                          | Nuts and washer are supplied separately (not mounted on the potentiometer) in a small bag placed in the packaging.                                                                                                  |                          |

**ENVIRONMENTAL SPECIFICATIONS**

|                   |                               |
|-------------------|-------------------------------|
| Temperature range | -55 °C to +125 °C             |
| Climatic category | 55/100/56                     |
| Sealing           | Fully sealed - Container IP67 |

**MARKING**

|                         |                                                                                                                                                                                                                   |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vishay trademark        | The ohmic value is indicated by a 3 figures code: The first two digits are significant figures, the third digit is the multiplier.<br>Example: 101 = 100 $\Omega$<br>102 = 1000 $\Omega$<br>503 = 50 000 $\Omega$ |
| Model                   |                                                                                                                                                                                                                   |
| Ohmic value code        |                                                                                                                                                                                                                   |
| Tolerance code          | The manufacturing date is indicated by a figures code. The first two digits are the year, the last two digits are the week.                                                                                       |
| Manufacturing date code |                                                                                                                                                                                                                   |
| Marking of terminals 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<br>90°/30° - ambient temp. 70 °C                                            | ± 1 %                     | ± 2 %                        | Contact resistance variation: 1 %                                                               |
| Climatic sequence       | Phase A dry heat 100 °C<br>Phase B damp heat<br>Phase C cold -55 °C<br>Phase D damp heat 5 cycles | ± 1 %                     | ± 2 %                        | -                                                                                               |
| Damp heat, steady state | 56 days<br>40 °C 93 % HR                                                                          | ± 1 %                     | ± 2 %                        | Dielectric strength:<br>1000 V <sub>RMS</sub><br>Insulation resistance:<br>> 10 <sup>4</sup> MΩ |
| Change of temperature   | 5 cycles<br>-55 °C at 100 °C                                                                      | ± 1 %                     | -                            | $\Delta V_{1-2}/V_{1-3} \leq \pm 2 \%$                                                          |
| Mechanical endurance    | 10 000 cycles                                                                                     | ± 3 %                     | -                            | Contact resistance variation: ≤ 2 % R <sub>n</sub>                                              |
| Shock                   | 50 g's at 11 ms<br>3 successive shocks<br>in 3 directions                                         | ± 0.5 %                   | ± 1 %                        | -                                                                                               |
| Vibration               | 10 Hz to 55 Hz<br>0.75 mm or 10 g's<br>during 6 h                                                 | ± 0.5 %                   | -                            | $\Delta V_{1-2}/V_{1-3} \leq \pm 1 \%$                                                          |

**Note**

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

| ORDERING INFORMATION (part number) |   |                            |   |                                                                        |   |                                   |   |                                        |   |                         |   |                                                          |   |  |  |
|------------------------------------|---|----------------------------|---|------------------------------------------------------------------------|---|-----------------------------------|---|----------------------------------------|---|-------------------------|---|----------------------------------------------------------|---|--|--|
| P                                  | 1 | 0                          | X | X                                                                      | A | G                                 | 1 | 0                                      | 3 | K                       | B | 3                                                        | 0 |  |  |
| MODEL                              |   | STYLE                      |   | SHAFT                                                                  |   | RESISTANCE CODE                   |   | TOLERANCE CODE                         |   | PACKAGING CODE          |   | SPECIAL NUMBER                                           |   |  |  |
| P10                                |   | XC<br>XX<br>YE<br>YM<br>YP |   | AG = Ø 3 mm to 16 mm (old code D)<br>AI = Ø 3 mm to 20 mm (old code R) |   | From 100 Ω to 2 MΩ<br>103 = 10 kΩ |   | K = 10 %<br><br>On request:<br>J = 5 % |   | B30 = box<br>100 pieces |   | (If applicable)<br><br>Given by Vishay for custom design |   |  |  |

| PART NUMBER DESCRIPTION (for information only) |       |       |       |           |         |           |                |
|------------------------------------------------|-------|-------|-------|-----------|---------|-----------|----------------|
| P10                                            | XX    | AG    | 10K   | 10 %      |         | BO100     | e3             |
| MODEL                                          | STYLE | SHAFT | VALUE | TOLERANCE | SPECIAL | PACKAGING | LEAD (Pb)-FREE |

| RELATED DOCUMENTS                                                 |                                                                        |
|-------------------------------------------------------------------|------------------------------------------------------------------------|
| APPLICATION NOTES                                                 |                                                                        |
| 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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