

# PT-6

## 6-mm carbon through-hole trimmer potentiometer

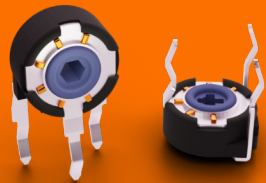


### KEY FEATURES

- ▶ Excellent performance
- ▶ Carbon resistive element
- ▶ Up to 10 mechanical detents
- ▶ Up to 10.000 life cycles
- ▶ IP54 protection
- ▶ Magazines packaging for automatic insertion
- ▶ Polyester substrate
- ▶ Wiper positioned at initial, 50% or fully clockwise
- ▶ Loose and assembled shaft and knobs
- ▶ Linear, logarithmic and antilogarithmic tapers
- ▶ SPDT switch function

### On request

- ▶ Embossed tape packaging



The **only 6 mm miniature trimmer**  
potentiometer with optional  
**stop positions** for haptic feedback.

### ELECTRICAL SPECIFICATIONS

|                             |  |
|-----------------------------|--|
| Taper*                      | Lin, Log, Alog                             |
| Range of values*            | [Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0] |
| Lin                         | 220Ω ≤ Rn ≤ 5MΩ                            |
| Log, Alog                   | 1KΩ ≤ Rn ≤ 5MΩ                             |
| Tolerance*                  |  |
| 220Ω ≤ Rn ≤ 1MΩ             | ± 20%                                      |
| 1MΩ < Rn ≤ 5MΩ              | ± 30%                                      |
| Max. Voltage                |  |
| Lin                         | 100 VDC                                    |
| Log, Alog                   | 50 VDC                                     |
| Nominal power 50°C (122°F)  |  |
| Lin                         | 0.1 W                                      |
| Log, Alog                   | 0.05 W                                     |
| Residual resistance         | ≤ 0.5% Rn (5Ω min.)                        |
| Equivalent noise resistance | ≤ 3% Rn (3Ω min.)                          |
| Operating temperature **    | -25°C to +70°C<br>(-13°F to + 158°F)       |

\* Others available on request \*\* Up to 85°C depending on application.

### APPLICATIONS

- ▶ Appliance program selection
- ▶ Thermostat adjustment
- ▶ Timer and control relays
- ▶ Consumer electronics
- ▶ Power tool controls
- ▶ Test and measurement equipment

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### MECHANICAL SPECIFICATIONS

|                              |   |
|------------------------------|---|
| Mechanical rotation angle    | 235° ± 5°   |
| Electrical rotation angle*   | 200° ± 20°  |
| Torque<br>Rotational<br>Stop | 0.2 to 2 Ncm (0.3 to 2.7 in-oz)<br>> 4 Ncm (>7 in-oz) |
| Life**                       | up to 10.000 cycles                                   |

\*Increased rotational angle of 215°± 20° available upon request \*\* Others available on request

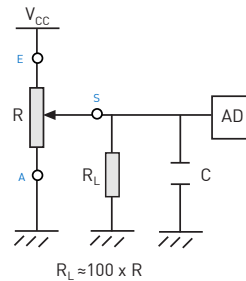
### ENVIRONMENTAL TESTING

|                         | Test conditions (CEI 393-1)                 | ΔR(%) - Typical test results |
|-------------------------|---|------------------------------|
| Electrical life         | 1.000h at 50°C; 0.1 W                       | ±5%                          |
| Mechanical life         | 1000 cycles at 10 to 15 cpm                 | ±3% (Rn < 1M )               |
| Temperature coefficient | -25° C; +70° C                              | ±300 ppm/°C C (Rn < 100K)    |
| Thermal cycling         | 16h at 85°C and 2h at -25°C                 | ±2.5%                        |
| Damp heat               | 500h at 40°C and 95% relative humidity (RH) | ±5%                          |
| Vibration               | 2h each plane at 10Hz - 55Hz                | ±2%                          |
| Storage                 | 6 month at 23°C ±2°C and 50% RH             | ±2.5%                        |

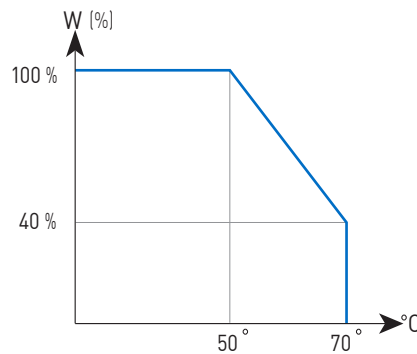
Out of range values may not comply with these results. Standard test conditions: temperature: 23°C ±2°C and 45% to 70% RH. Mechanical life of detented versions is 100 cycles

### RECOMMENDED CONNECTIONS

Recommended connection circuit for a position sensor or control application (voltage divider circuit electronic design).



### POWER RATING CURVE

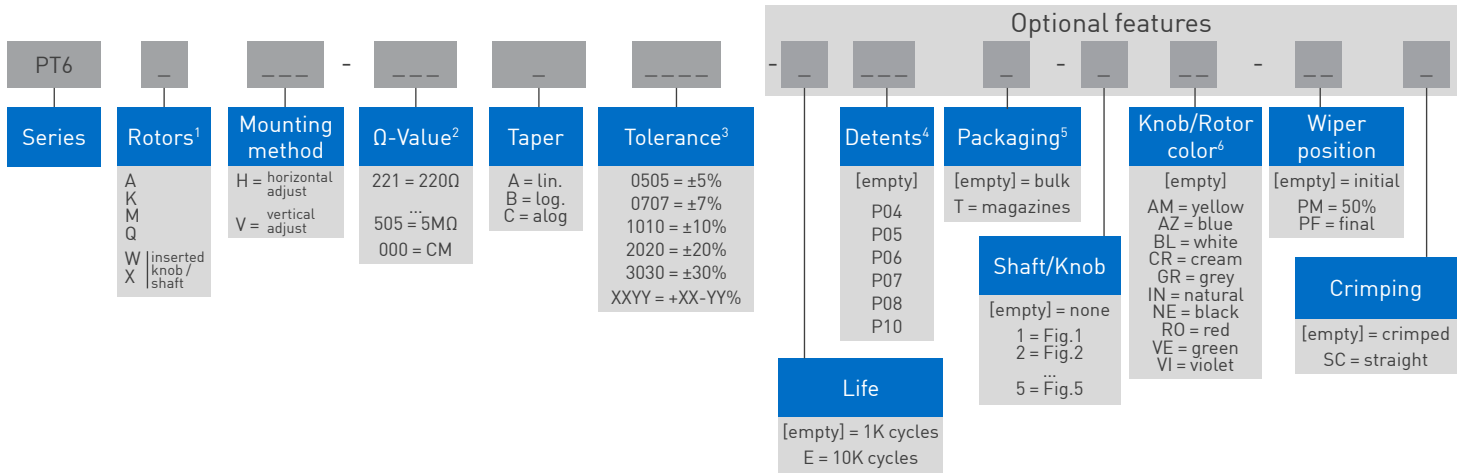


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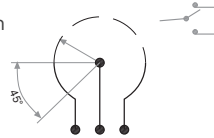
### HOW TO ORDER

Example: PT6KV-221A2020



1. Rotors: "X" rotor only available on "H"-mounting versions.

2. Ω- Value: XXX - First two digits of Ω-value      000 = CM = switch SPDT version  
XXX - Number of zeros



3. Tolerance: for custom tolerance please check availability: info@piher.net

4. Detents: Detented versions use purple rotor color (rotor color code "VI"). Ordering code example: PT6KH-254A2020-P04-VI

5. Packaging: Only for "V" mounting method. "W" rotor with shaft Fig. 2 is not available in magazines. Embossed tape packaging on request.

6. Without knob or shaft: only the rotor. With knob or shaft: only the knob/shaft. Default colour for knob/shaft is cream

### STANDARD CONFIGURATION

| PT-6           |   |
|----------------|---|
| Life           | 1.000 cycles (forth and back the mechanical angle travel) |
| Detents        | none  |
| Housing color  | black   |
| Rotor color    | white   |
| Wiper Position | initial   |
| Packaging      | bulk  |

### ORDER CODE EXAMPLES

PT6WV-104A1010-5NE-SC

6mm potentiometer with factory pre-inserted knob, V mounting method (vertical adjustment), 100K resistive value, linear taper, 10% resistive tolerance, black knob ref. 6148 and straight terminals (not crimped).

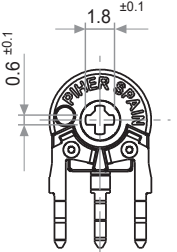
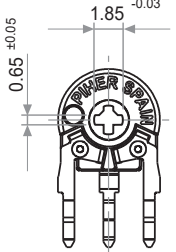
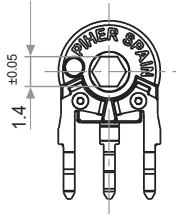
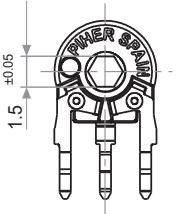
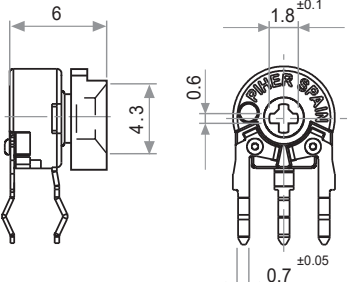
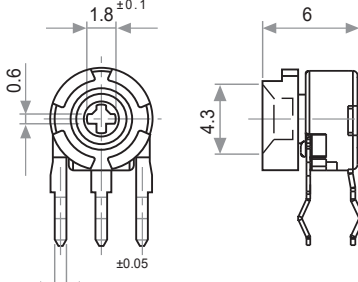
PT6KH-103A2020

6mm potentiometer with rotor "K" (cross shape), H mounting method (horizontal adjustment), 10K resistive value, linear taper, 20% resistive tolerance and crimped terminals.

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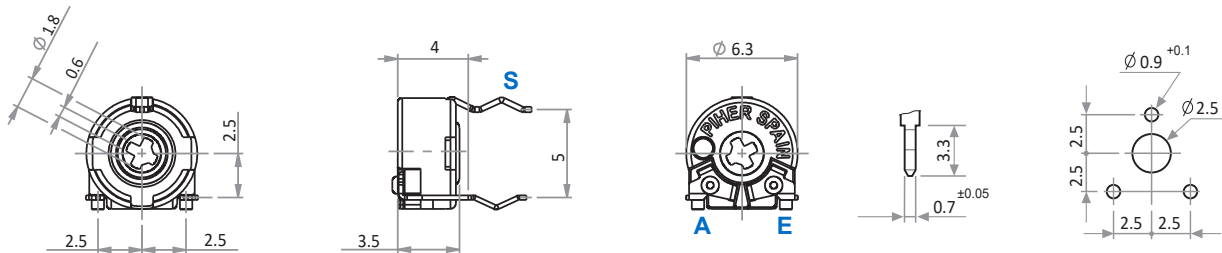
### ROTORS

| K<br>Cross slot through hole  | Q<br>Cross slot through hole<br>colour: pink                                      | M<br>Hexagonal through hole  | A<br>Hexagonal through hole<br>colour: pink   |
|---|---|--|---|
|    |  |    |  |
| X<br>Adjustable from collector side   |   | W<br>Adjustable from terminal side   |   |
|  <p>With inserted knob / shaft. Example with knob ref. 5155</p> |   |  <p>With inserted knob / shaft. Example with knob ref. 5155</p> |   |

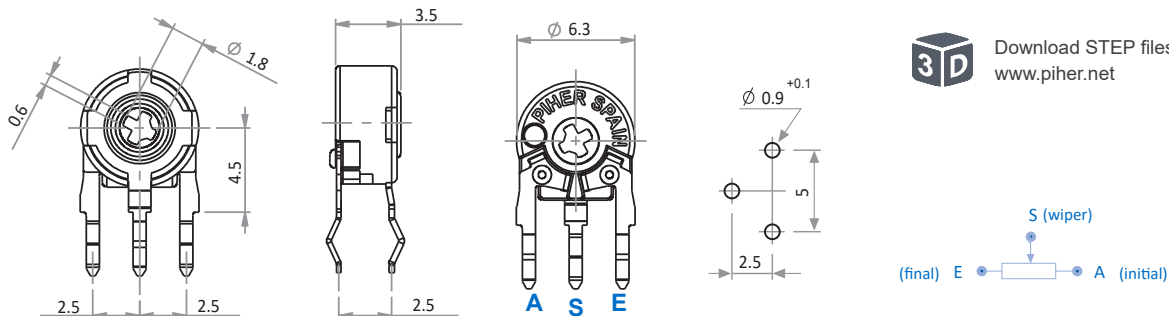
Default delivery is at initial position. Wipers are shown positioned at 50% for the picture.

### MOUNTING METHOD

V = Vertical Adjustment - Horizontal Mounting



H = Horizontal Adjustment - Vertical Mounting



Download STEP files here:  
[www.pihernet.net](http://www.pihernet.net)

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### CRIMPING

| Crimped   | Non-crimped |   |           |      |               |      |  |
|---|-------------|---|-----------|------|---------------|------|--|
| <table border="1"> <tr> <td></td> <td>X</td> </tr> <tr> <td>Terminals</td> <td>0.25</td> </tr> <tr> <td>Collector (S)</td> <td>0.30</td> </tr> </table> |             | X | Terminals | 0.25 | Collector (S) | 0.30 |  |
|   | X           |   |           |      |               |      |  |
| Terminals   | 0.25        |   |           |      |               |      |  |
| Collector (S)   | 0.30        |   |           |      |               |      |  |

### SMD MOUNTING AVAILABLE

| PS-6 | N-6 |
|------|-----|
|      |     |

For more information visit: [www.piher.net](http://www.piher.net)

### STANDARD RESISTANCE-VALUES AND TOLERANCES

|                     |     |     |     |     |     |     |     |     |      |      |      |     |     |     |     |     |     |     |      |      |      |      |      |      |     |     |      |      |     |
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|-----|-----|------|------|-----|
| Resistance $\Omega$ | 100 | 200 | 220 | 250 | 470 | 500 | 1K  | 2K  | 2.2K | 2.5K | 4.7K | 5K  | 10K | 20K | 22K | 25K | 47K | 50K | 100K | 200K | 220K | 250K | 470K | 500K | 1M  | 2M  | 2.5M | 4.7M | 5M  |
| Order Code          | 101 | 201 | 221 | 251 | 471 | 501 | 102 | 202 | 222  | 252  | 472  | 502 | 103 | 203 | 223 | 253 | 473 | 503 | 104  | 204  | 224  | 254  | 474  | 504  | 105 | 205 | 255  | 475  | 505 |
| Tolerance           | 30% |     |     |     |     |     |     |     |      |      |      |     |     |     | 20% |     |     |     |      |      |      |      |      |      | 30% |     |      |      |     |

### TAPERS

| Standard                                     | Example: special custom taper |
|--|-------------------------------|
| <p>A = Linear<br/>B = Log.<br/>C = Alog.</p> |                               |

For more information on custom tapers contact Piher Sensing Systems.

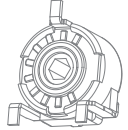
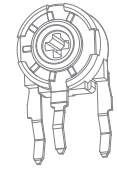
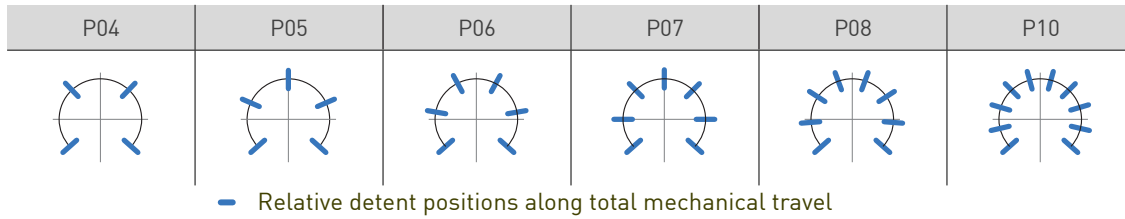
### SWITCH VERSION

|  |  |
|--|--|
|  |  |
|--|--|

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### DETENTS / STOP POSITIONS



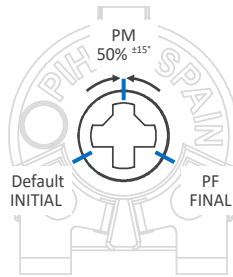
All detented versions will be studied case by case, more than 10 detents available on request.  
 Unless otherwise specified the detents are evenly spaced (using the end points as reference).  
 Standard mechanical life of detented versions: 100 cycles. Long life versions are available on request.  
 Detent torque can vary from 1.2 to 2.5 times the standard potentiometer torque.  
 Rotor color of detented versions is purple-violet.

### PACKAGING

| Bulk (1000 units per box)         | Magazine / Automatic Insertion (80 units per magazine) |                |
|-----------------------------------|--|----------------|
| All models                        | PT-6 V models  | PT-6 WW models |
| <p>Dimensions (mm): 185x85x40</p> |  |                |

Embossed tape/reel packaging on request.

### WIPER POSITION



Wiper positioning on initial position is standard. Special delivery positions available on request.

### DUAL GANG METAL SHAFT ON REQUEST - REF.: 6060

