



Bushless version

### FEATURES

- Carbon resistive element.
- IP54 protection according to IEC 60529.
- Polyester substrate.
- Modular gang type (up to 4).
- Self extinguishable material UL 94-V0.
- Upon request:
  - Metallic support.
  - Stereo matching.
  - Switch.
  - Nut & washer.
  - Bushless & shaftless models.
  - Assemblies with wires and connectors.

### MECHANICAL SPECIFICATIONS

- Mechanical rotation angle:  $300^\circ \pm 5^\circ$
- Electrical rotation angle:  $280^\circ \pm 20^\circ$
- Torque: 0.5 to 1.5 Ncm. (0.7 to 2.1 in-oz)
- Stop torque: > 40 Ncm. (>56 in-oz)
- Max. torque nut (binding out): < 80 Ncm. (112 in-oz)
- Thrust and pull in the shaft: > 25 N

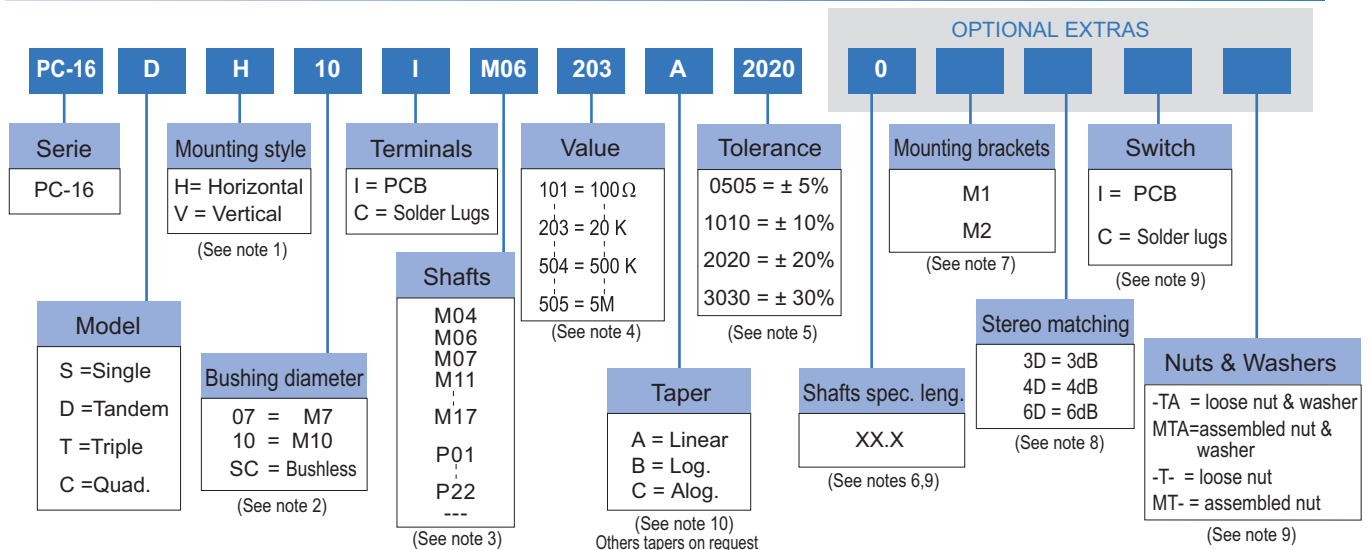
\* Others check availability.

\*\* Up to 85°C depending on application.

### ELECTRICAL SPECIFICATIONS

- Range of values\*  
 $100\Omega \leq R_n \leq 5\text{ M}$  (Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)
- Standard tolerance\*:  $100\Omega \leq R_n \leq 1\text{M}\Omega$  .....  $\pm 20\%$   
 $1\text{M}\Omega < R_n \leq 5\text{M}\Omega$  .....  $\pm 30\%$
- Max. Voltage: 250 VDC (lin) 125 VDC (no lin)
- Nominal Power 50°C (122°F) (see power rating curve)  
 0.2 W (lin) 0.1 W (no lin)
- Taper\* Lin ; Log; Alog (Log. & Alog. only  $R_n \geq 1\text{K}$ ).
- Residual resistance\*:  $\leq 0.5\% R_n$  (5  $\Omega$  min.)
- Equivalent Noise Resistance:  $\leq 3\% R_n$  (3  $\Omega$  min.)
- Operating temperature\*\*:  $-25^\circ\text{C} + 70^\circ\text{C}$  ( $-13^\circ\text{F} + 158^\circ\text{F}$ )

### HOW TO ORDER



### NOTES:

- (1) Mounting style: Type "V" is only available in model "S" potentiometer and with printed circuit terminals.
- (2) Bushings: Type "10" has two parallel flat surfaces for avoiding rotation. Bushless option only available for single model.
- (3) M07 shaft is only available with M10 bushing. --- = no shaft
- (4) Value:
  - Code: 10 1 100  $\Omega$  → Number of zeros
  - In models "D", "T", "C", with different values, they will be asked by drawings.
- (5) Tolerance (non standard), upon request. Example: +7% Code: 07 05 → negative tolerance  
 -5% → positive tolerance
- (6) Shaft special length:
  - Only for special length and plain shafts (not knurled). Example: Shaft  $\varnothing 6.35$  L = 24.5 M07 ..... 24.5 → special length shafts
  - NOTE: Maximum length recommended: L = 45
- (7) Mounting brackets: Only applicable for model "S", mounting "H" and without switch.
- (8) Stereo matching: not available for single models. Maximum will be: • 3dB for model "D" • 4dB for model "T" • 6dB for model "C"
- (9) Not available for Bushless version.
- (10) Switch option not available with antilog taper.

## HOW TO ORDER CUSTOM DRAWING

## STANDARD OPTIONS

PC-16 S V + DRAWING NUMBER (Max. 16 digits)

This way of ordering should be used for options which are not included in the "How to order" standard and optional extras.

Shaft length ..... 0 Standard Length

Mounting brackets ..... Without mounting brackets

Stereo matching ..... Only on request (see note 8)

Switch ..... No switch

Nut & washer ..... Without nut and washer

## MODELS



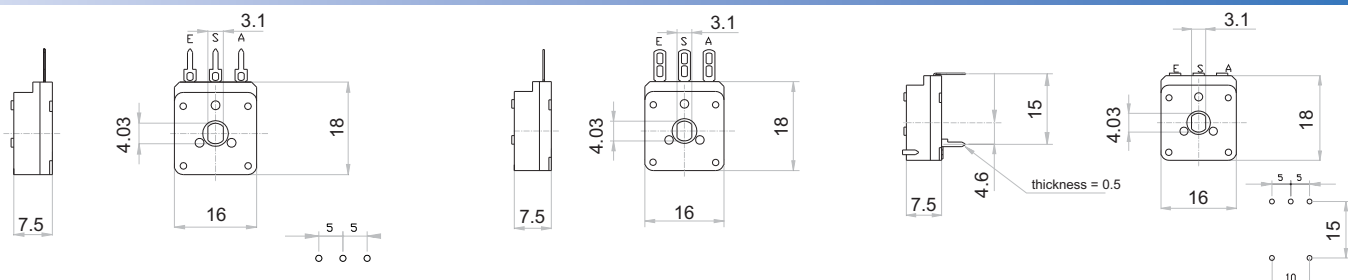
## METALLIC SUPPORT



## BUSHINGS

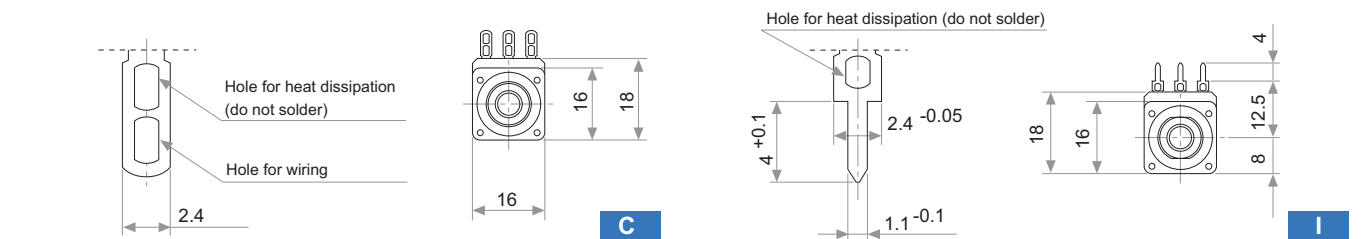


## EXAMPLES OF BUSHLESS VERSION



Download STEP files here:  
<https://piher.net/piher/?p=938>

## TERMINALS



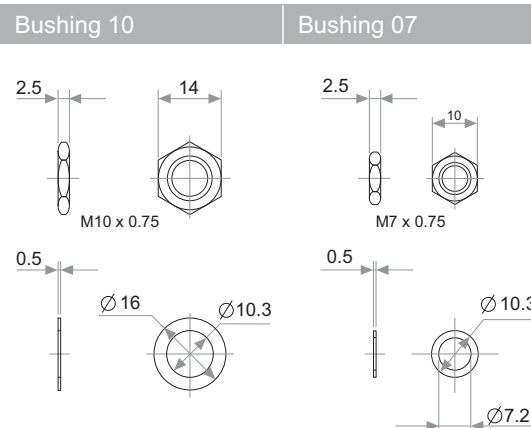
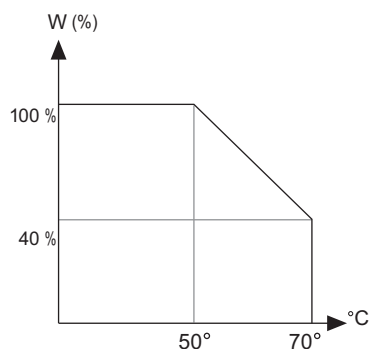
## TAPERS

## POWER RATING CURVE

## NUTS & WASHERS

Standard

A = Linear  
B = Log.  
C = Alog.



NOTE = Please note relative terminal positions when ordering non linear tapers.

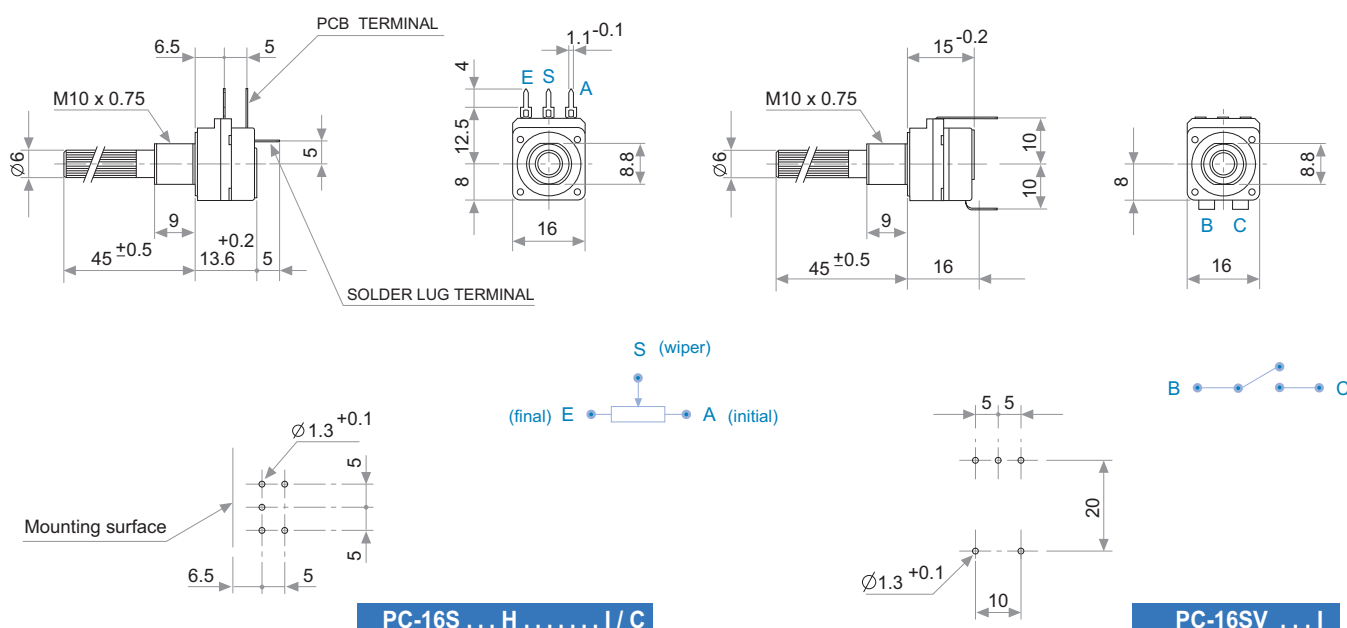
| TESTS | TYPICAL VARIATIONS |
|-------|--------------------|
|-------|--------------------|

## TYPICAL VARIATIONS

|                                   |                                            |                             |
|-----------------------------------|--------------------------------------------|-----------------------------|
| ELECTRICAL LIFE                   | 1.000 h. @ 50°C; 0.2 W                     | ±5 %                        |
| MECHANICAL LIFE : POT.*<br>SWITCH | 25.000 (10-15 CPM)<br>10.000 (1 A, 50 VAC) | ±3 % (Rn < 1 M Ω )          |
| TEMPERATURE COEFFICIENT           | −25°C; +70°C                               | ±300 ppm/°C (Rn < 100 K Ω ) |
| THERMAL CYCLING                   | 16 h. @ 85°C; 2h. @ −25°C                  | ±2.5 %                      |
| DAMP HEAT                         | 500 h. @ 40°C @ 95% HR                     | ±5 %                        |
| VIBRATION (for each plane X,Y,Z)  | 2 h. @ 10 Hz. ... 55 Hz.                   | ±2 %                        |

(\*) only applicable to values  $\geq 1K$ . For lower values please consult.

## SWITCH



## SWITCH SPECIFICATIONS

|                              |                               |
|------------------------------|-------------------------------|
| NOMINAL CURRENT              | 1A, 250 VAC                   |
| CONTACT RESISTANCE (initial) | 10 m $\Omega$                 |
| OPERATING TORQUE             | 1 to 3 Ncm (1.4 to 4.2 in oz) |
| OPERATING ANGLE              | 30° $\pm$ 5°                  |
| TEST VOLTAGE                 | 500 V                         |

## PACKAGING

Boxes of 100 pieces (single body model): Inner dimensions 250 x 160 x 95 mm

## METALIC SHAFTS

### STANDARD

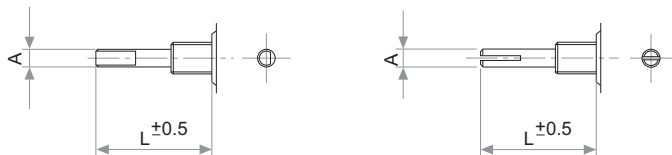


| A    | L  | CODE |
|------|----|------|
| 4    | 45 | M04  |
| 6    | 45 | M06  |
| 6.35 | 45 | M07  |



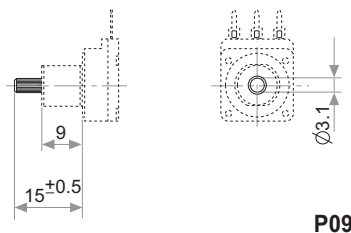
| A | B  | C  | L  | CODE |
|---|----|----|----|------|
| 2 | 5  | 7  | 15 | M11  |
| 2 | 10 | 11 | 20 | M12  |
| 4 | 12 | 14 | 25 | M13  |
| 4 | 12 | 14 | 30 | M14  |
| 4 | 12 | 14 | 35 | M15  |
| 4 | 12 | 14 | 40 | M16  |
| 4 | 12 | 14 | 45 | M17  |

### SPECIAL



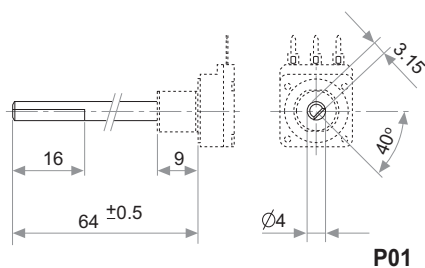
| A      |
|--------|
| Ø 4    |
| Ø 6    |
| Ø 6.35 |

## PLASTIC SHAFTS Ø3.1

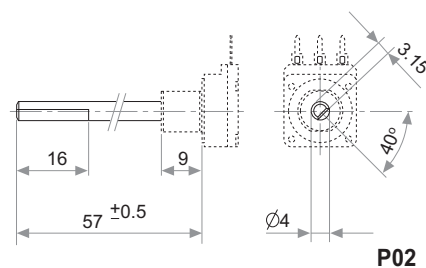


P09

## PLASTIC SHAFTS Ø4



P01



P02

## PLASTIC SHAFTS Ø4



## PLASTIC SHAFTS Ø6

Shaft position shown full CCW. Any other position for plastic shafts has to be shifted n times 24°. Other positions upon request.



Special shaft example (18 teeth knurl & arrow. Check availability.).



## OPEN CIRCUIT FEATURE (CUT TRACK)

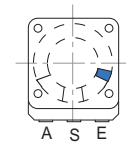
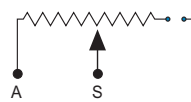


CCW on-off (A)

**PCI**  
Cut track at the beginning  
of the travel.



**PCF**  
Cut track at the end  
of the travel



CW on-off (E)

A = Initial S = Wiper E = Final.

PCI, PCF and other configurations available upon request. Check the ordering code with Piher.

## RECOMMENDED CONNECTIONS

Piher potentiometer's recommended  
connection circuit for a position sensor or  
control application.  
(voltage divider circuit electronic design).



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