



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

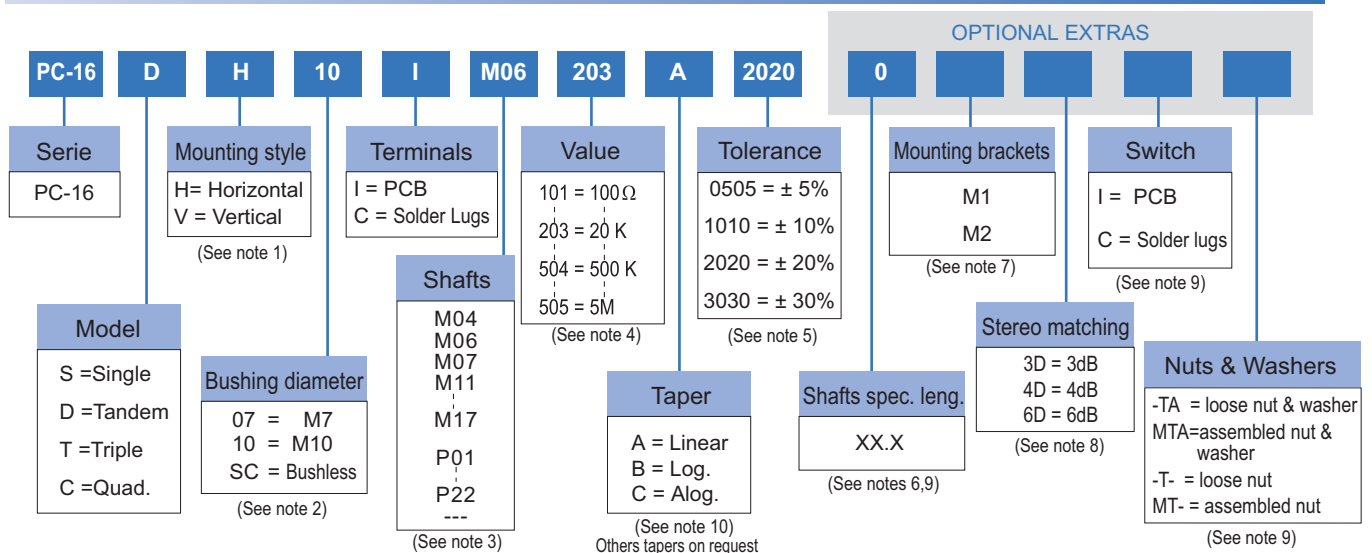
\* Others check availability.

\*\* 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:  $\begin{matrix} 10 & 1 & 100\Omega \\ \downarrow & \downarrow & \downarrow \\ \text{Number of zeros} & \text{2 first digits of the value.} & \end{matrix}$
  - In models "D", "T", "C", with different values, they will be asked by drawings.
- (5) Tolerance (non standard), upon request. Example:  $+7\%$  Code:  $\begin{matrix} 07 & 05 \\ \downarrow & \downarrow \\ \text{negative tolerance} & \text{positive tolerance} \end{matrix}$
- (6) Shaft special length:
  - Only for special length and plain shafts (not knurled). Example: Shaft  $\varnothing 6.35$  L = 24.5  $\begin{matrix} \text{M07} \dots 24.5 \\ \downarrow \\ \text{special length shafts} \end{matrix}$
  - 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

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.

## STANDARD OPTIONS

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



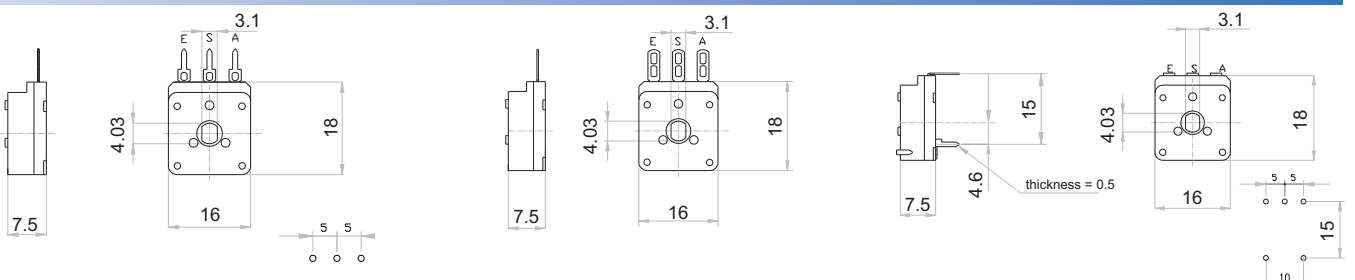
## METALLIC SUPPORT



## BUSHINGS

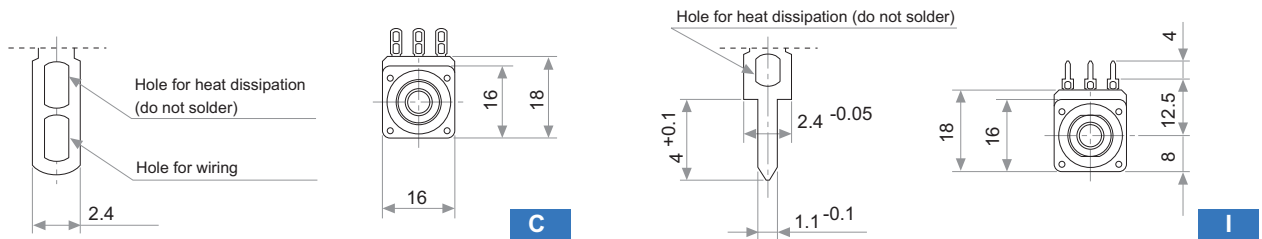


## EXAMPLES OF BUSHLESS VERSION



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

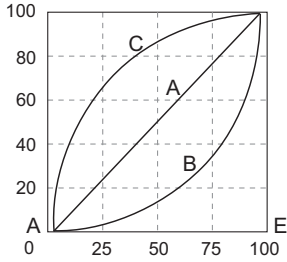
# TERMINALS



# TAPERS

Standard

A = Linear  
B = Log.  
C = Alog.



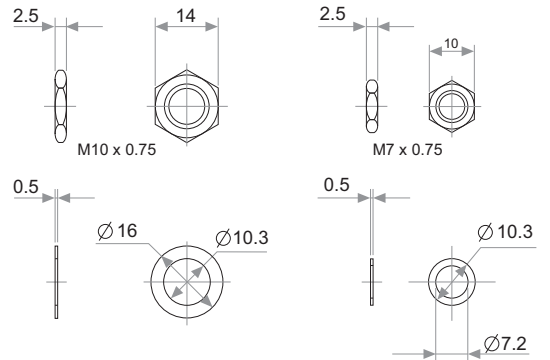
# POWER RATING CURVE



# NUTS & WASHERS

Bushing 10

Bushing 07



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

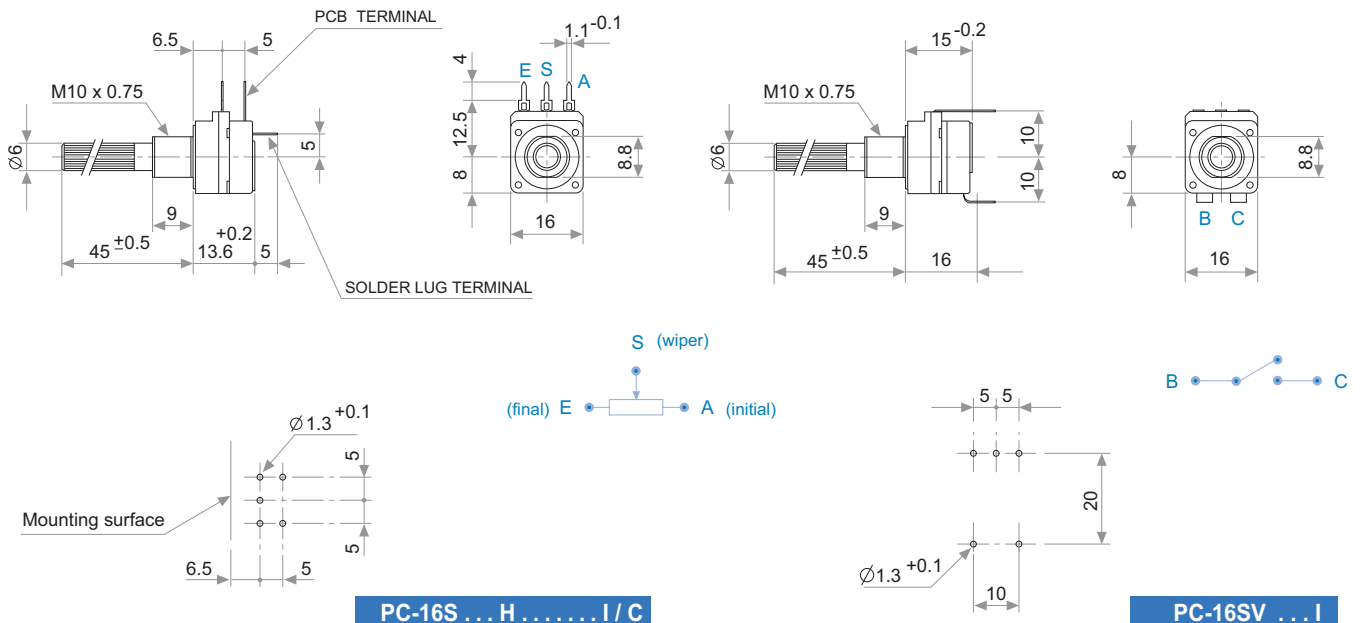
# TESTS

# TYPICAL VARIATIONS

ELECTRICAL LIFE	1.000 h. @ 50°C; 0.2 W	±5 %
MECHANICAL LIFE : POT.* SWITCH	25.000 (10-15 CPM) 10.000 (1 A, 50 VAC)	±3 % (Rn < 1 MΩ)
TEMPERATURE COEFFICIENT	-25°C; +70°C	±300 ppm/°C (Rn < 100 KΩ)
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 ≥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

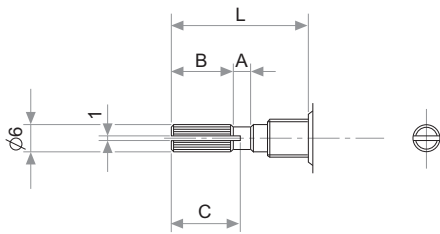
Boxes of 100 pieces (single body model): Inner dimensions 250 x 160 x 95 mm

## 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



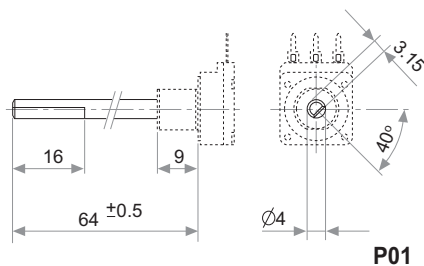
A
Ø 4
Ø 6
Ø 6.35

## PLASTIC SHAFTS Ø3.1

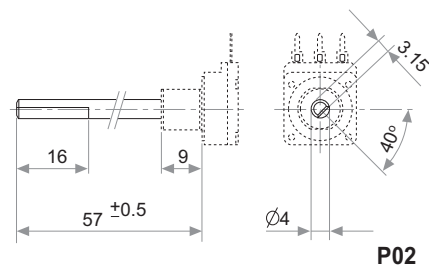


P09

## PLASTIC SHAFTS Ø4



P01



P02

## PLASTIC SHAFTS Ø4



## PLASTIC SHAFTS Ø6

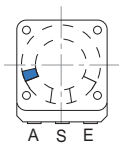
Shaft position shown full CCW. Any other position for plastic shafts has to be shifted n times  $24^\circ$ . Other positions upon request.



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

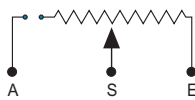


## OPEN CIRCUIT FEATURE (CUT TRACK)

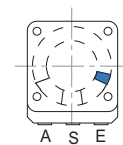


CCW on-off (A)

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



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



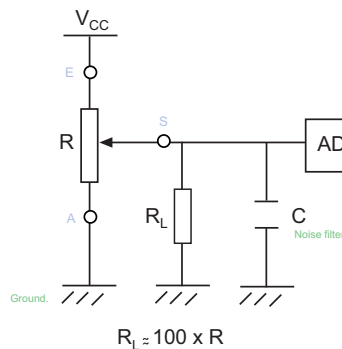
CW on-off (E)

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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