

Automotive / Appliance control

6 mm carbon potentiometer PS-6



Mechanical specifications

Mechanical rotation angle	$235^{\circ} \pm 5^{\circ}$
Electrical rotation angle	$200^{\circ} \pm 20^{\circ}$
Torque	0.2 to 2 Ncm. (0.3 to 2.7 in - oz)
Stop torque	> 4 Ncm. (>7 in-oz)
Life*	1K cycles

Electrical specifications

Range of values *	$1K\Omega \leq R_n \leq 1.5M\Omega$ (Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)
Tolerance *	$1K\Omega \leq R_n \leq 500K\Omega$ ----- $\pm 30\%$ $500K\Omega < R_n \leq 1.5M\Omega$ ----- $+50\% / -30\%$
Nominal power @ 50°C (122°F)	0.1 W
Taper *	Linear
Residual resistance	$\leq 5 \cdot 10^{-3} R_n$
Operating temperature	- 40°C to +85°C

* Others: upon request

Main features

- Specifically designed for leadfree reflow soldering processes (excellent performance).
- Carbon resistive element.
- IP54 protection according to IEC 60529.
- Moisture sensitivity level 1.
- Embossed tape according to IEC 60286-3:2007.
- Wiped positioned at initial, 50% or fully clockwise.
- Full traceability.
- Also upon request:
 - Long life model for low cost control potentiometer applications.
 - Shaft - knob.
 - Self extinguishable plastic UL 94V-0

Description

The PS-6 potentiometer offers control where frequent adjustment is required. The shaftless design allows for employment of different engagement mechanisms, such as a customized shaft, a motor control or a human interface adjustment.

This potentiometer can also control variable outputs including frequency, change in motor speed or volume.

Typical applications include topolar in hundreds of white goods, motor control, timer relays, power supply, appliance panel control, and automotive sensing applications, now offer product designers the full features of PIHER larger products in a miniature control / trimmer package.

This datasheet shows you the basics of the PS-6 potentiometer that is quite versatile and easy to tailor. Do not hesitate to contact Piher for advice.

Automotive / Appliance control

6 mm carbon potentiometer

PS-6

How to order

PS6

Series

PS6

K

Rotors

A
K
M
Q
W

V50

Mounting

V40
V45
V50
V55

102

Value

102= 1K Ω
155 = 1.5M Ω
000 = CM
(See note 1)

A

Taper

A = Linear

3030

Tolerance

2525 = $\pm 25\%$
3030 = $\pm 30\%$
5030 = $+50\% / -30\%$
Others: check availability

Optional extras

Detents

P04
P05
P06
P07
P08
P10
(See note 2)

Shaft/Knob

05 = Fig.5
06 = Fig.6

Plastic material

- = Standard
I = Self extinguishable
(Plastic of housing and rotor)

Knob/shaft colour

NE = Black
CR = Cream

Wiper position

- = Initial
PM = 50%
PF = Final

Packaging

- = Reel
B = Bulk

NOTES:

(1) Value: - Code:

22 3 = 22K Ω

Number of zeros
First two digits.

- 000 = CM = switch SPDT version (contact us por further information)

Resistance Ω	1K	2K	2.2K	2.5K	4.7K	5K	10K	20K	22K	25K	47K	50K	100K	200K	220K	250K	470K	500K	1M	1.5M
How to order code	102	202	222	252	472	502	103	203	223	253	473	503	104	204	224	254	474	504	105	155
Standard tolerance	$\pm 30\%$																		$+50\% / -30\%$	

(2) Detented versions are available for K and M rotor types. Rotor color: brown. others: check availability.

SPDT. function

How to order examples

PS6KV50-103A3030
PS6 model with K rotor, V50 mounting type, 10K ohm resistive value, linear taper and 30% tolerance.

PS6WV40-502A2525-06NE-PF
PS6 model with inserted knob fig. 6, 5K ohm resistive value, linear taper, 25% tolerance, color of the knob: black; wiper positioned at the end of the travel.

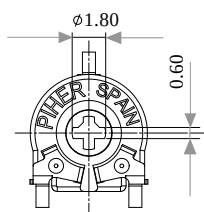
Standard - default options

- Rotor colour ----- Grey
- Housing colour ----- Grey
- Wiper position ----- Initial
- Packaging ----- Reel
- Life ----- 1K cycles
- Detents ----- None
- Plastic material ----- Self extinguishable UL 94V-0 (housing and rotor)

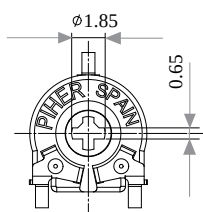
6 mm carbon potentiometer PS-6

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

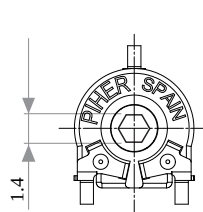
K= Cross slot through hole



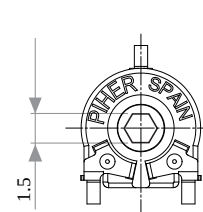
Q= Cross slot through hole
Available in white color only



M= Hexagonal through hole

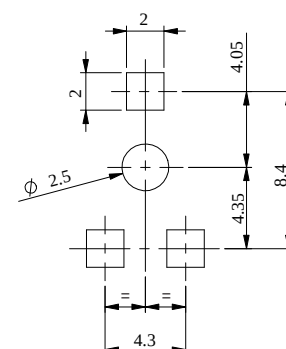
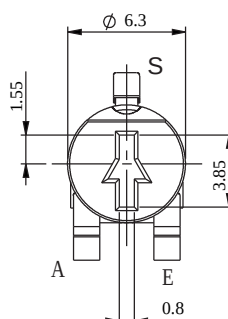
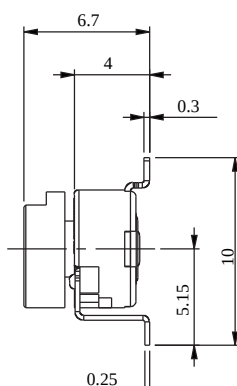
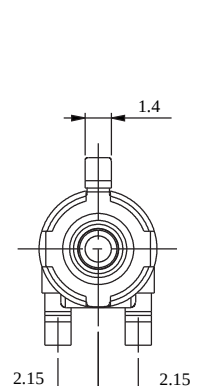
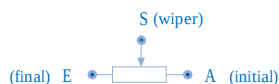


A= Hexagonal through hole
Available in white color only



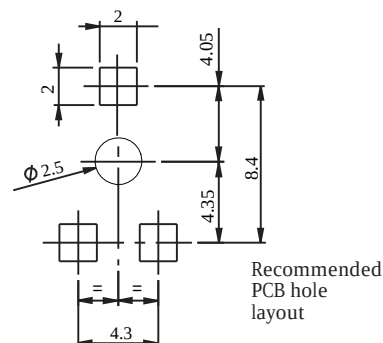
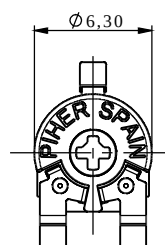
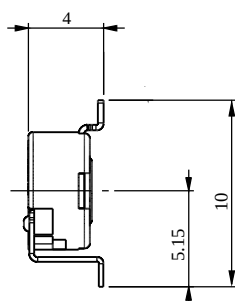
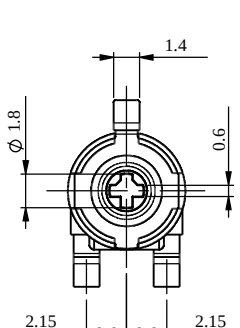
W = with inserted knob. Default color of the knob: cream.

Drawing example, W V40 with knob ref 6:



Mounting methods

Dimensions - V40

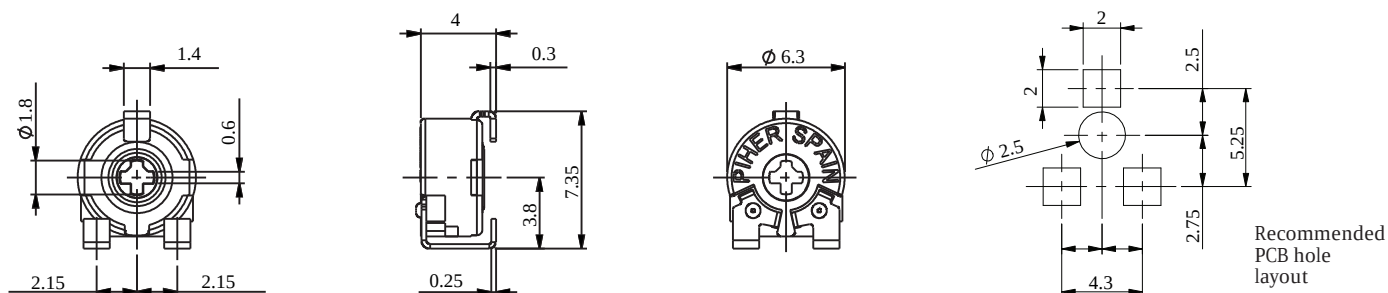


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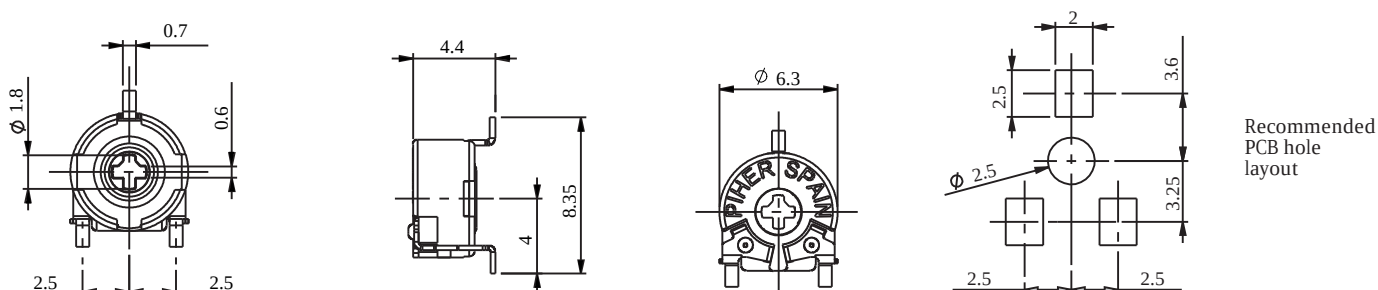
6 mm carbon potentiometer PS-6

Mounting methods

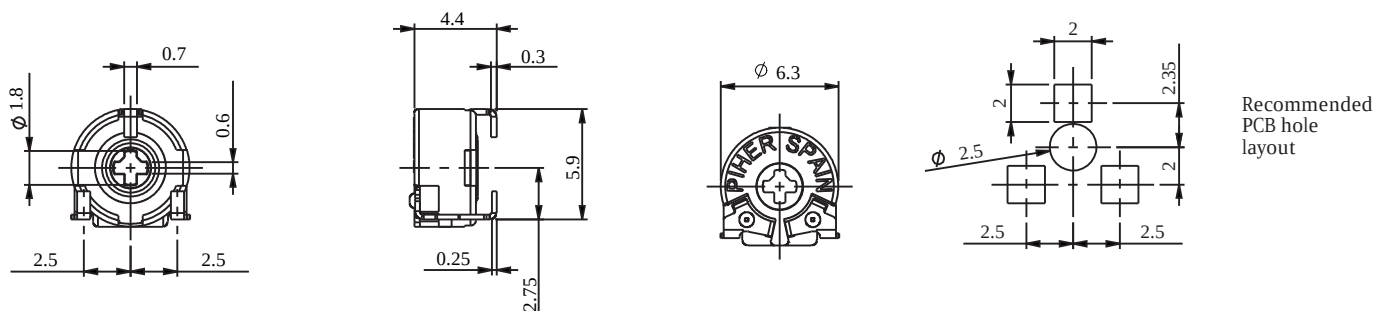
Dimensions - V45



Dimensions - V50



Dimensions - V55

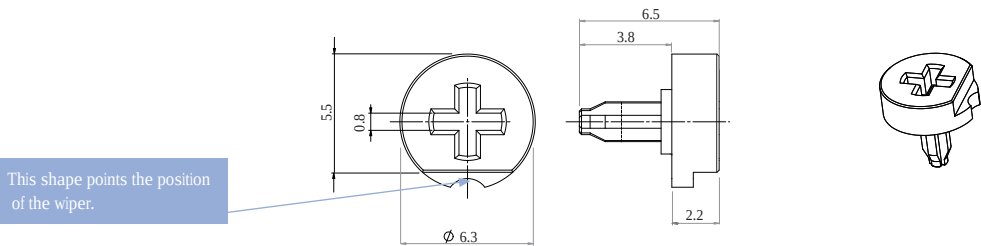


Download STEP files here:
<https://piher.net/piher/?p=897>

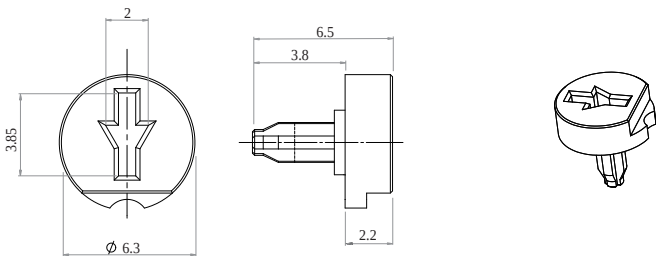
6 mm carbon potentiometer PS-6

Shaft / Knob

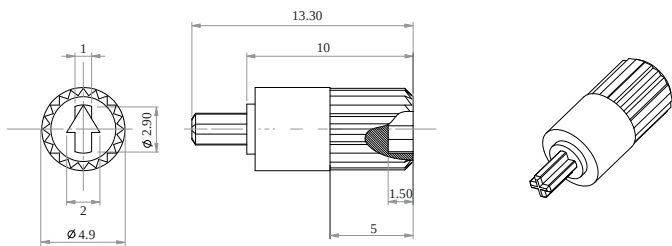
If you wish to use your own plastic shaft/knob/actuator please contact Piher for advice about compatible materials.



Ref.: 6148 / Fig. 5



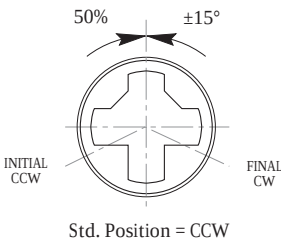
Ref.: 6160 / Fig. 6



Color: black, others check availability. Please order this shaft separately as it is not provided-factory assembled to the potentiometer

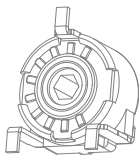
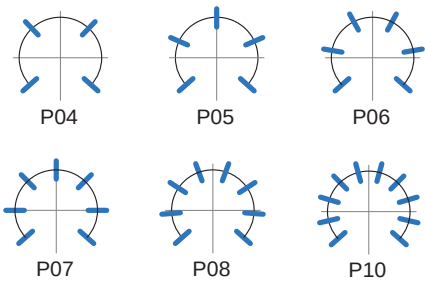
Ref.: 6144

Positioning



Detents - stop positions

Note: the standard mechanical life for PS6 with detents is 100 cycles.



— Relative detent positions along the total mechanical travel.

6 mm carbon potentiometer PS-6

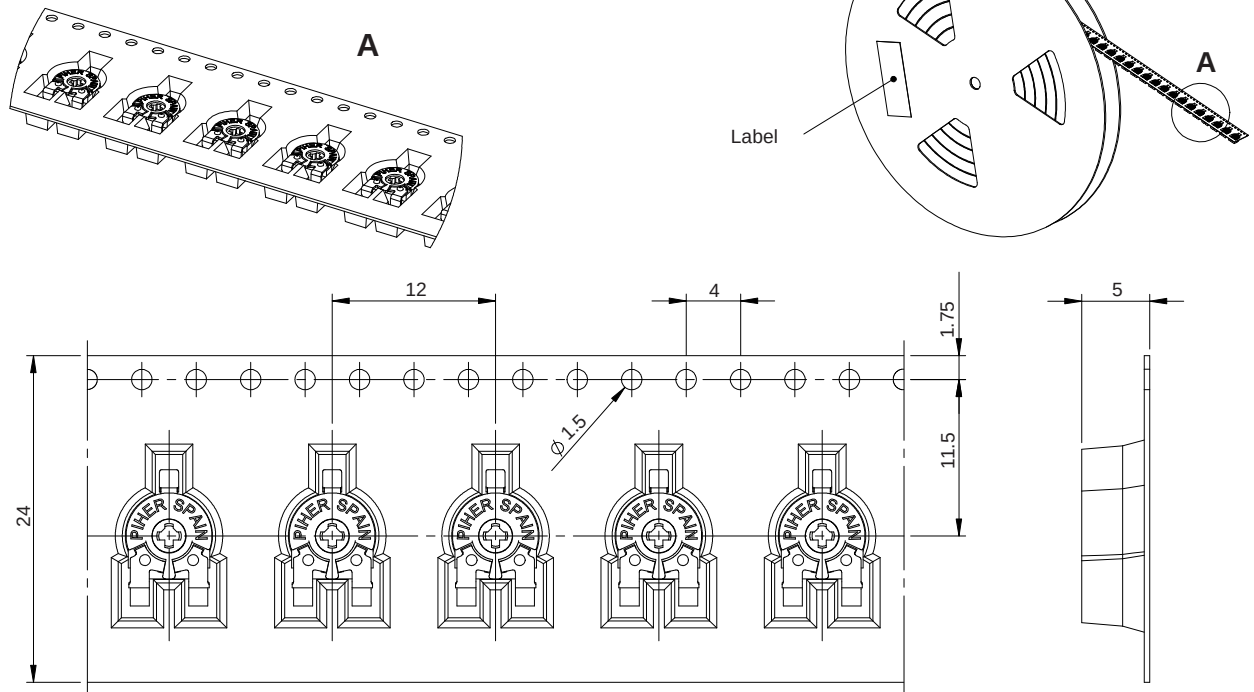
Packaging

V40 and V45 models

BULK (1000pcs / Box)

EMBOSED TAPE (1000pcs / Reel)

Models with factory-assembled knob will use a reel of 380mm diameter.

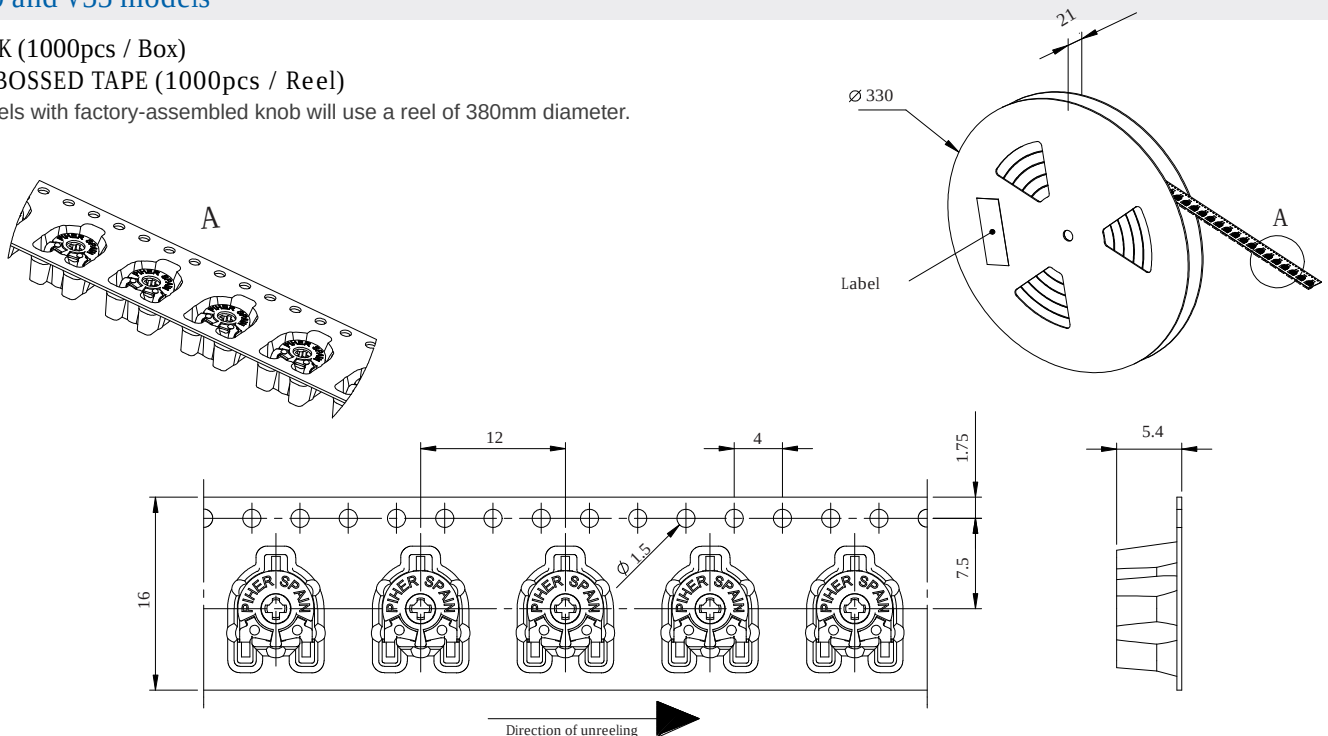


V50 and V55 models

BULK (1000pcs / Box)

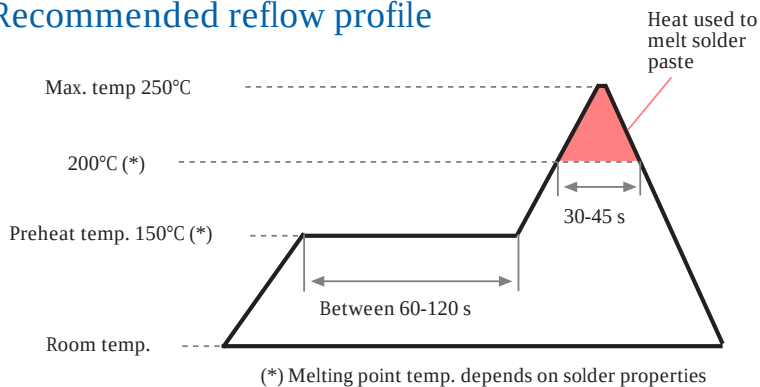
EMBOSED TAPE (1000pcs / Reel)

Models with factory-assembled knob will use a reel of 380mm diameter.



6mm carbon potentiometer PS-6

Recommended reflow profile



The recommended reflow profile is provided as a guideline. Optimal profile may differ due to oven type, assembly layout or other design or process variables. Customers should verify actual device performance in their specific application and reflow process. Please contact Piher if you require additional support.

Tests

		Typical variations
Electrical life	1.000 h. @ 50°C; 0.10 W	±10%
Mechanical life (cycles)*	1000 @ 10 CPM ... 15 CPM	±10 %
Temperature coefficient	−40°C; +85°C	±1500 ppm
Thermal cycling	16 h. @ 90°C; 2h. @ −40°C	±5 %
Damp heat	500 h. @ 40°C @ 95% HR	±15 %
Vibration (for each plane X,Y,Z)	2 h. @ 10 Hz. ... 55 Hz.	±3 %

* Tests at room temperature. Other life cycles upon request. The mechanical life for detented versions is 100 cycles.
Out of range values may not comply these results. Please confirm with the factory all the information before designing in.

Disclaimer

The product information in this catalogue is for reference purposes. Please consult for the most up to date and accurate design information.

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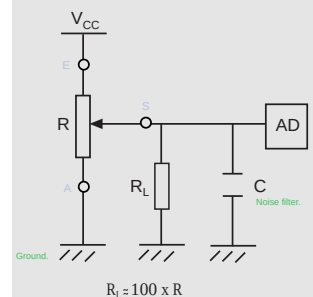
Due to continuous process improvement, specifications are subject to change without notice.

Please always use the latest updated datasheets and 3D models published at our website www.piher.net.



Recommended connections

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



Contact

Piher Sensing Systems
Polígono Industrial Municipal
Vial T2 N°22
31500 Tudela - Spain
Tel: +34-948-820450

sales@piher.net

www.piher.net

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