Enabling the Electronics Revolution

PIHER sensing systems
an Amphenol® company

PS-6

6-mm carbon SMD potentiometer

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.

KEY FEATURES

- Designed for lead-free reflow soldering processes
- Excellent performance
- Carbon resistive element
- Up to 10 mechanical detents
- 1.000 life cycles
- IP54 protection
- Moisture sensitivity level 1
- Embossed tape packaging
- Wiper positioned at initial, 50% or fully clockwise
- Loose and assembled knobs, shafts available separately
- Self extinguishable plastic UL 94V-0

ELECTRICAL SPECIFICATIONS

Taper*	Linear
Range of values*	1KΩ ≤ Rn ≤ 1,5MΩ Decad. 1.0-2.0-2.2-2.5-4.7-5.0
Tolerance* 1KΩ ≤ Rn ≤ 500KΩ 500KΩ ≤ Rn ≤ 1.5MΩ	 ± 30% + 50% / - 30%
Max voltage	100 VDC
Nominal power @ 50°C	0.1 W
Residual resistance	≤ 0.5% Rn
Equivalent noise resistance	≤ 4.5% Rn
Operating temperature	-40°C to +85°C

* Others available on request

APPLICATIONS

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

MECHANICAL SPECIFICATIONS

Mechanical rotation angle	235° ± 5°
Electrical rotation angle	200° ± 20°
Torque Rotational Stop	 0.2 to 2 Ncm (0.3 to 2.7 in-oz) › 4 Ncm (›7 in-oz)
Push-pull force over the rotor	› 5 N
Life*	1k cycles

* Others available on request

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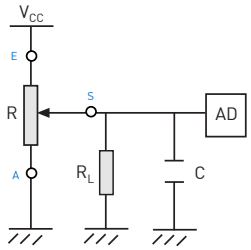
ENVIRONMENTAL TESTING

	Test conditions (CEI 393-1)	ΔR(%) - Typical test results
Electrical life	1.000h at 50°C; 0.25 W	±10%
Mechanical life	1000 cycles at 10 to15 cpm	±10%
Temperature coefficient	–25° C; +85° C	±1.500 ppm/°C
Thermal cycling	16h at 85°C and 2h at -25°C	±5%
Damp heat	500h at 40°C and 95% relative humidity (RH)	±15%
Vibration	2h each plane at 10Hz - 55Hz	±3%
Storage	6 month at 23°C ±2°C and 50% RH	±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

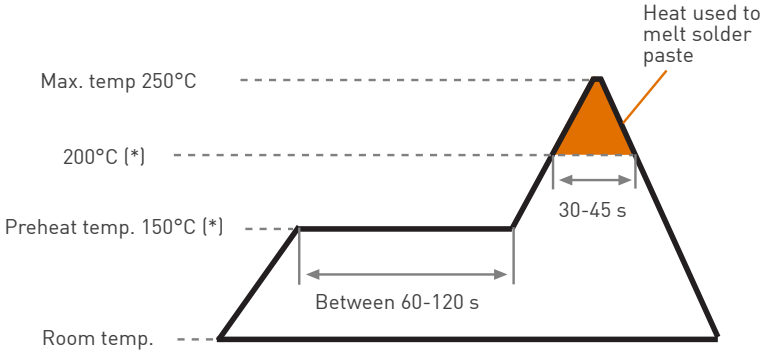
RECOMMENDED CONNECTIONS

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



$R_L \approx 100 \times R$

RECOMMENDED REFLOW PROFILE



(*) Melting point temp. depends on solder properties

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.

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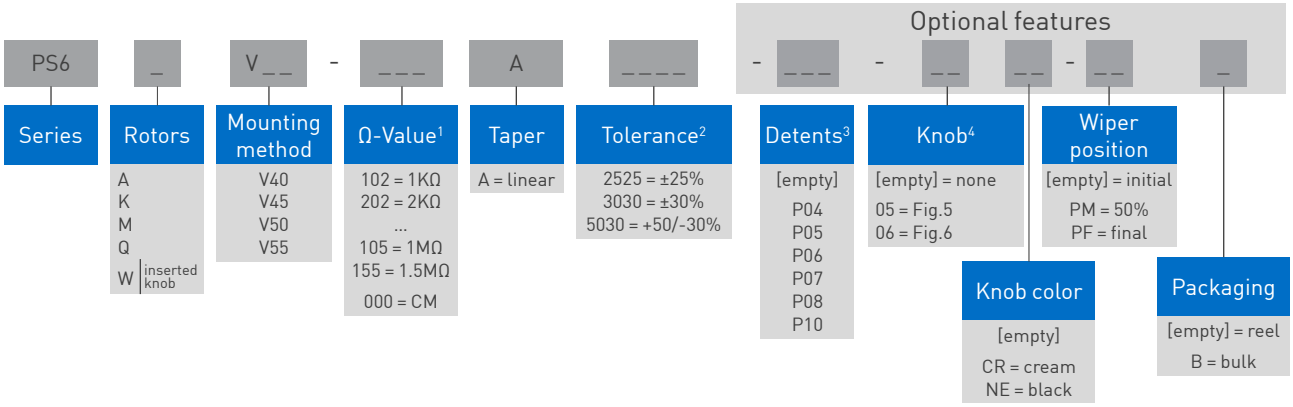
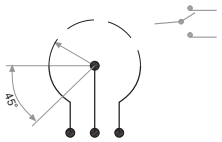
HOW TO ORDER

Vertical Adjustment - Horizontal mount: PS6KV50-102A3030



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



2. Tolerance: for custom tolerance please check availability
3. Detents: Available for K and M rotor type. Rotor color: brown. Others available on request.
4. Knob not made of self-extinguishable plastic. Shaft available to order separately.

STANDARD CONFIGURATION

	PS-6
Life	1.000 cycles / detented versions: 100 cycles
Detents	none
Non-flammable material	yes
Housing color	grey
Wiper Position	initial
Packaging	reel

ORDER CODE EXAMPLES

PS6KV50-103A3030
PS6 model with K rotor; V50 mounting type; 10K ohm resistive value; linear taper and 30% resistive tolerance
PS6WV40-502A2525-06NE-PF
PS6 model with inserted knob fig. 6; 5K ohm resistive value; linear taper; 25% resistive tolerance; color of the knob: black; wiper positioned at the end of the travel

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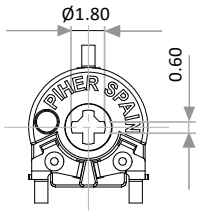
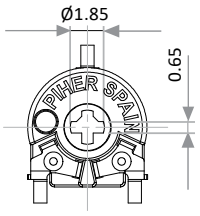
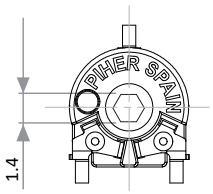
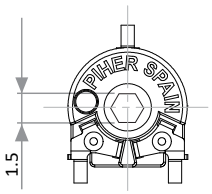
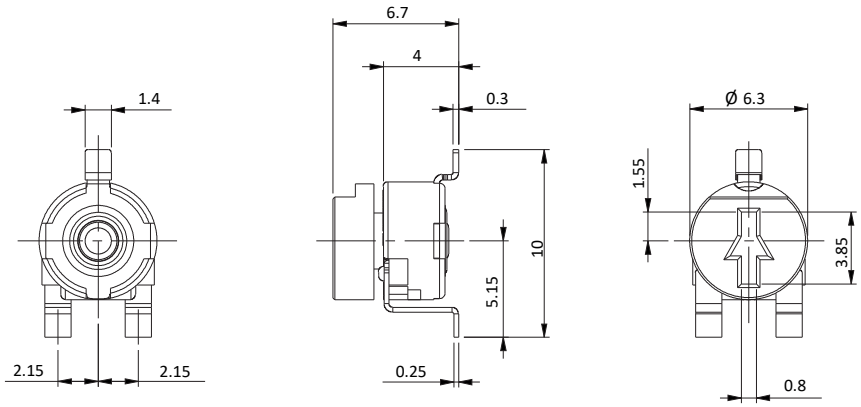
ROTORS

K Cross slot through hole	Q Cross slot through hole Available in white only	M Hexagonal through hole	A Hexagonal through hole Available in white only
			

W
With inserted knob (Standard knob: Ref. 6, cream color)



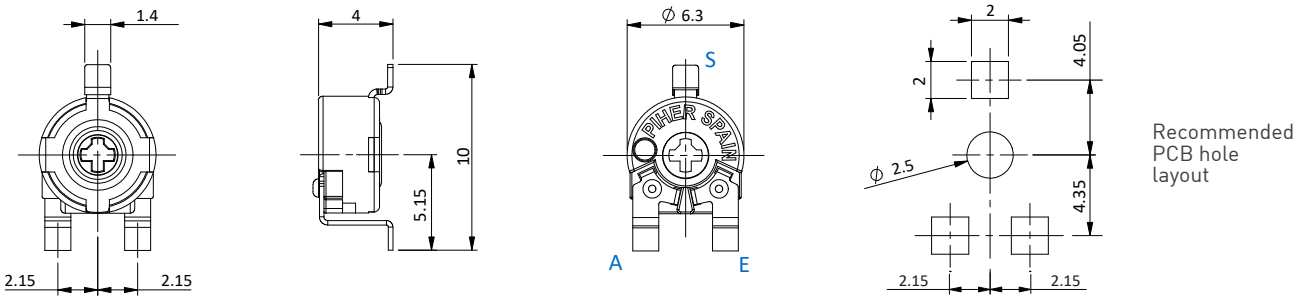
Drawing example W V40 with knob Ref. 6

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

MOUNTING METHOD - DIMENSIONS

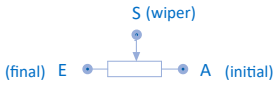
Vertical Adjustment / Horizontal Mounting

V40

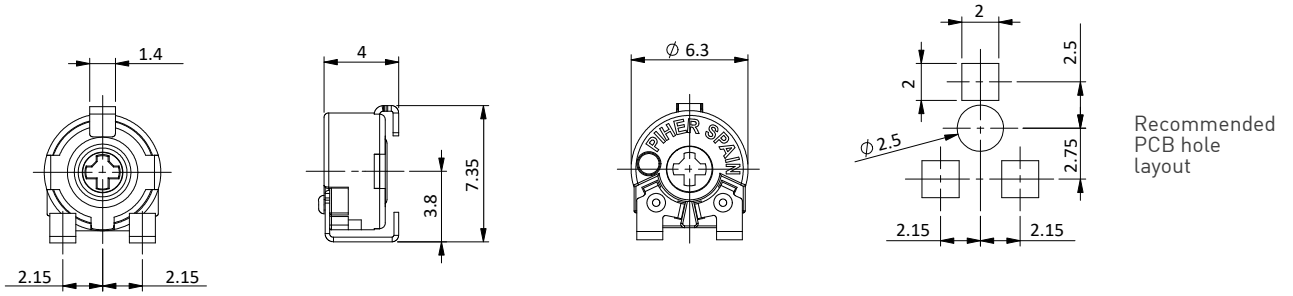


Recommended PCB hole layout

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



V45



Recommended PCB hole layout

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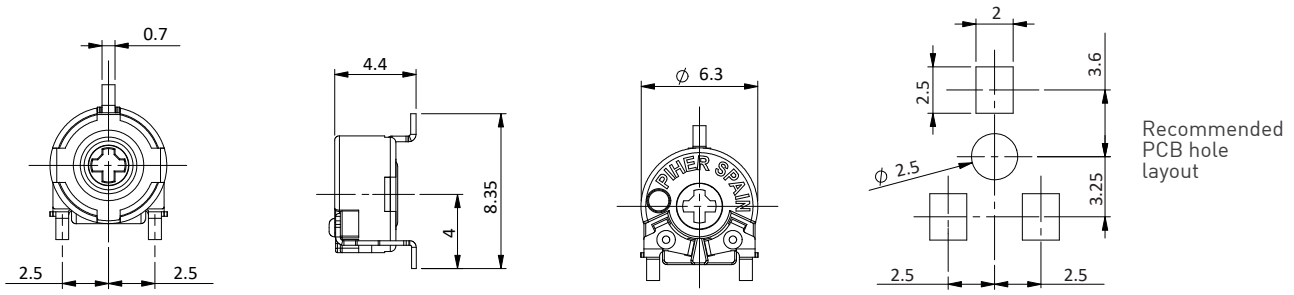
MOUNTING METHOD - DIMENSIONS

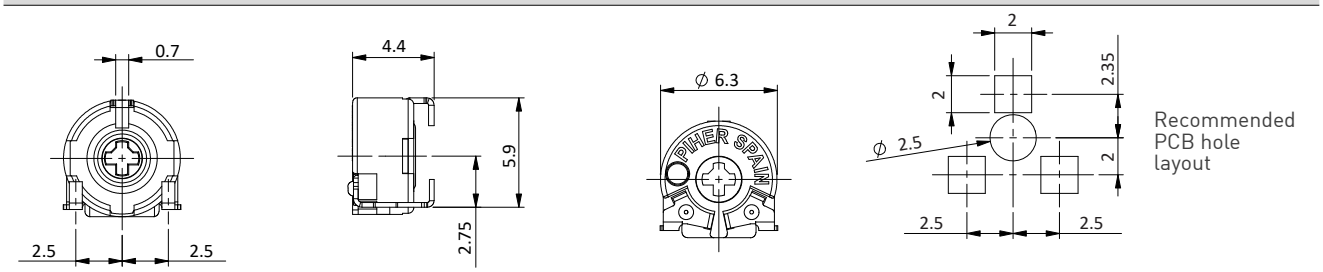
Vertical Adjustment / Horizontal Mounting

V50



Recommended PCB hole layout

V55

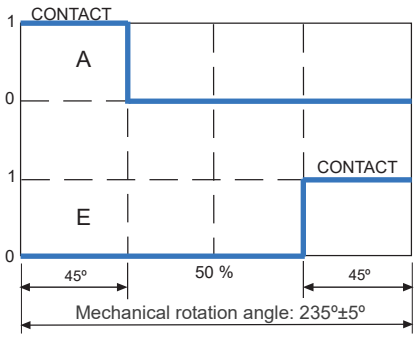


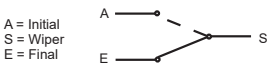
Recommended PCB hole layout

STANDARD RESISTANCE-VALUES AND TOLERANCES

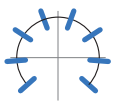
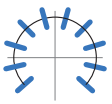
Resistance Ω	1K	2K	2.2K	2.5K	4.7K	5K	10K	20K	22K	25K	47K	50K	100K	200K	220K	250K	470K	500K	1M	1.5M
Order Code	102	202	222	252	472	502	103	203	223	253	473	503	104	204	224	254	474	504	105	155
Tolerance	± 30%																		+50%/-30%	

SWITCH VERSION

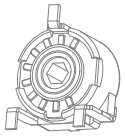




DETENTS / STOP POSITIONS

P04	P05	P06
		
P07	**P08**	**P10**
		

Relative detent positions along total mechanical travel



Unless otherwise specified the detents are evenly spaced (using the end points as reference). Rotor color of detented versions is brown.
Standard mechanical life for PS-6 with detents: 100 cycles. Long life versions are available on request.

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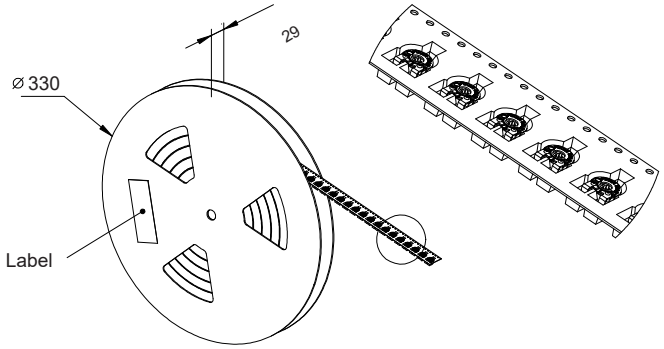
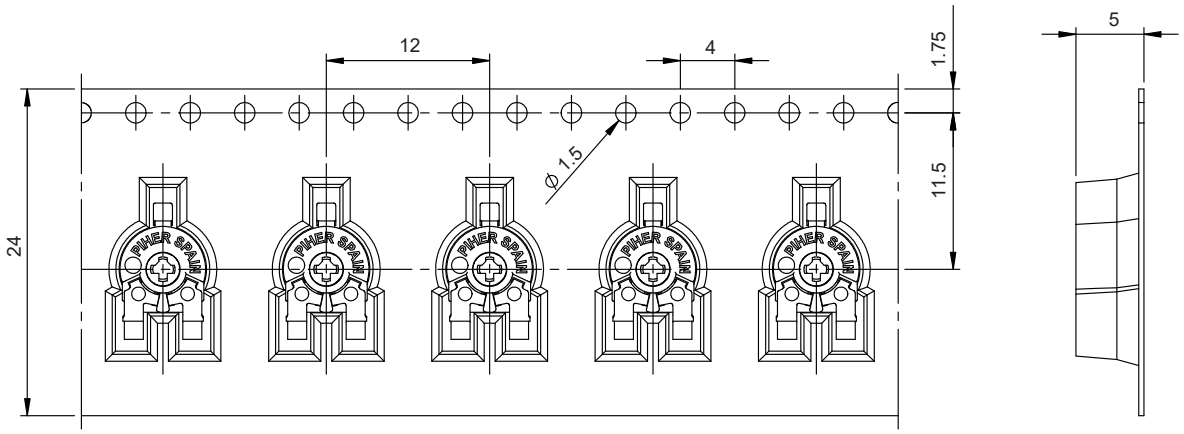
PACKAGING

V40 and V45 models

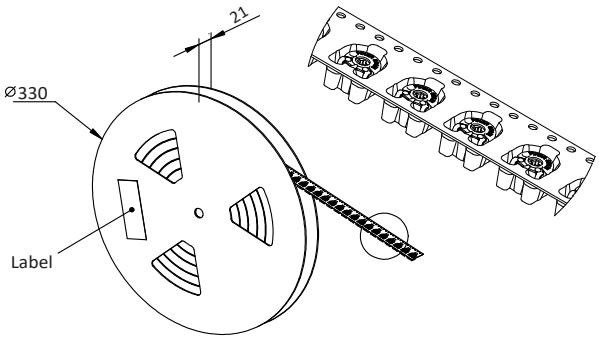
Bulk (1.000 pcs/box)	Reel - embossed tape (1.000 pcs/reel)

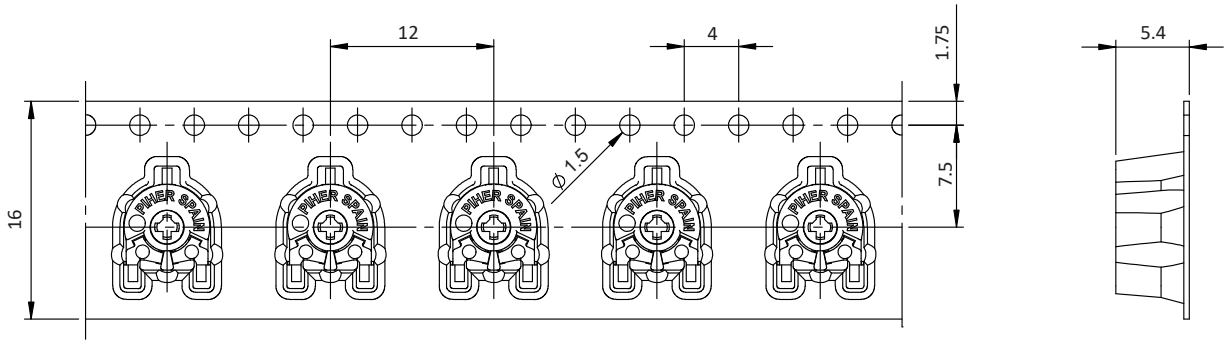




V50 and V55 models

Bulk (1.000 pcs/box)	Embossed tape (1.000 pcs/reel)





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

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KNOBS / SHAFTS

Fig. 5 - Ref.: 6148
For W rotors only.

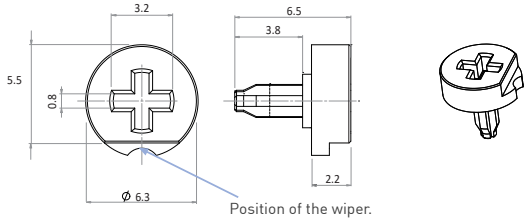
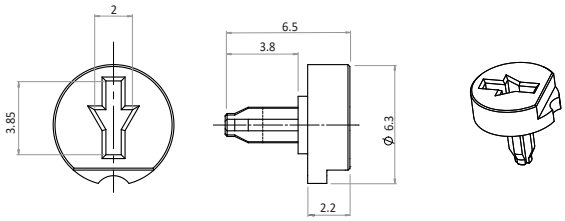
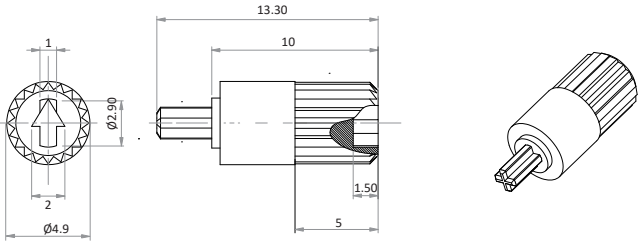


Fig. 6 - Ref.: 6160
For W rotors only.



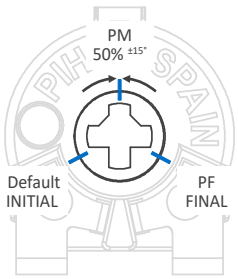
Ref.: 6144
For K or Q rotor.

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



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

POSITIONING



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

OUR ADVANTAGE

- ▶ Leading-edge innovative position sensing solutions
  - ▷ Contactless (Hall-effect and Inductive Technology)
  - ▷ Contacting (Potentiometers, Printed Electronics)
- ▶ Engineering design-in support
- ▶ All our products can be customized to fit target application and customer requirement
- ▶ Capability to move seamlessly from development to true high-volume production
- ▶ A global footprint with global engineering and commercial support
- ▶ One-stop shop not limited to position sensors (temperature, pressure, gas,...) through group collaboration
- ▶ Flexibility and entrepreneurship of a medium-sized company with the backing of Amphenol Corporation

IATF 16949 Automotive Quality Management CERTIFIED
ISO 9001 Quality Management Systems CERTIFIED
ISO 14001 BUREAU VERITAS Certification
RoHS REACH compliant

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