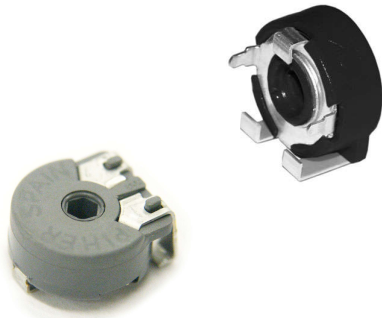


# 10mm potentiometer SMD

## PS-10 & PSX-10

### MAIN FEATURES

- Specifically designed for leadfree reflow soldering processes (excellent performance).
- Carbon resistive element.
- IP54 protection according to IEC 60529.
- Full traceability.
- Moisture sensitivity level 1 (PS-10).
- Embossed tape according to IEC 60286-3:2007.
- Wiper positioned at initial, 50% or fully clockwise.
- Also upon request:
  - Self extinguishable plastic UL 94V-0 (PS-10).
  - Long life model for low cost control potentiometer applications.
  - Mechanical detents.
  - Low torque versions.
  - Locating pins for accurate PCB positioning.
  - Shafts and knobs.



### MECHANICAL SPECIFICATIONS

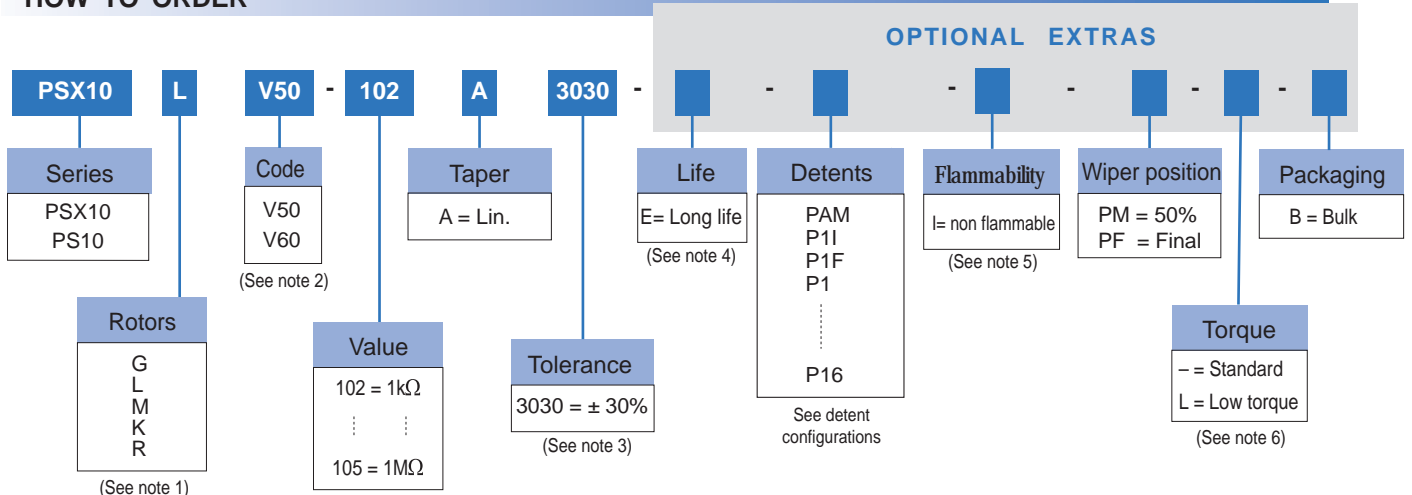
- Mechanical rotation angle:  $235^\circ \pm 5^\circ$
- Electrical rotation angle:  $220^\circ \pm 20^\circ$
- Torque: 0.4 to 2 Ncm. (0.6 to 2.7 in-oz)
- Stop torque: > 5 Ncm. (>7 in-oz)
- Life\*: Up to 10K cycles

\* Others upon request

### ELECTRICAL SPECIFICATIONS

- Value\*: 1k $\Omega$  to 1M $\Omega$
- Tolerance\*:  $\pm 30\%$
- Taper\*: Linear
- Nominal Power: 0.15W @ 50°C (122°F)
- Operating temperature: PSX-10: -25°C + 70°C  
PS-10: -40°C + 85°C
- Residual resistance:  $\leq 5 \cdot 10^{-3} R_n$
- Equivalent Noise Resistance:  $\leq 3\% R_n$

### HOW TO ORDER



### NOTES

- (1) Rotor "R" not available for PSX-10
- (2) V50: without locating pins. V60: with locating pins
- (3) Others upon request.
- (4) Standard = 1000 cycles. Long life = 10K cycles. Others upon request.
- (5) Non flammable plastic material for housing and rotor.
- (6) Low Torque:  $\leq 1.5$ Ncm. No detent option available for low torque models

## HOW TO ORDER CUSTOM DRAWING

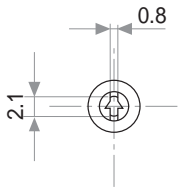
PS(X)-10LV50 + DRAWING NUMBER (Max. 16 characters)

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

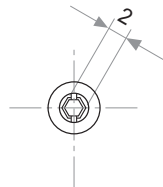
## STANDARD OPTIONS

	PSX-10	PS-10
Detents .....	None	None
Rotor colour .....	Black	Dark grey
Housing colour.....	Black	Dark grey
Wiper position .....	Initial	Initial
Torque .....	Standard	Standard
Packing .....	Reel	Reel
Life .....	1000 cycles	1000 cycles

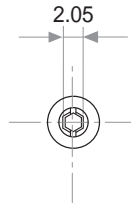
## ROTORS



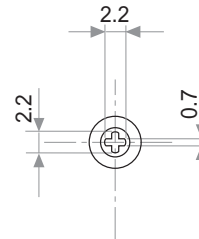
**L** = Screwdriver thru hole



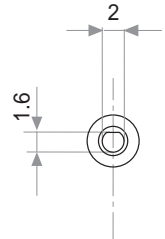
**M** = Hexagonal thru hole



**G** = Hexagonal thru hole



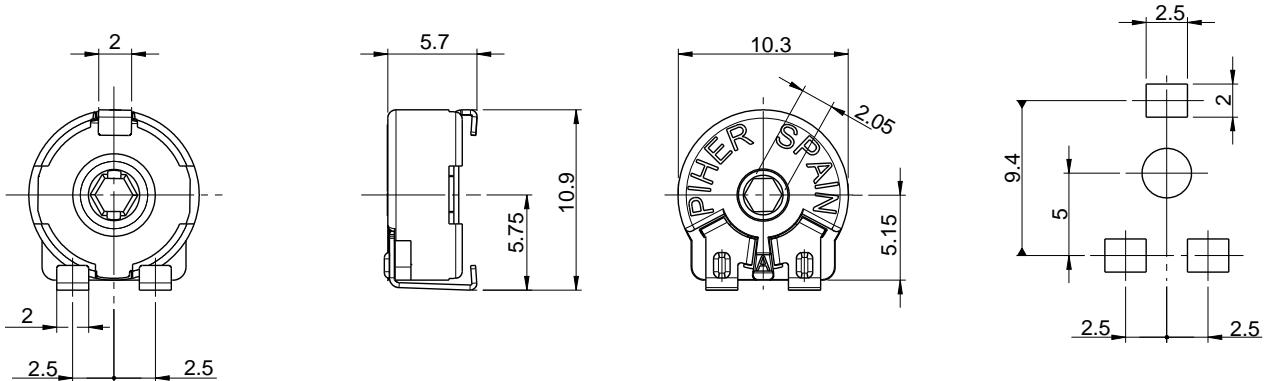
**K** = Cross slot thru hole



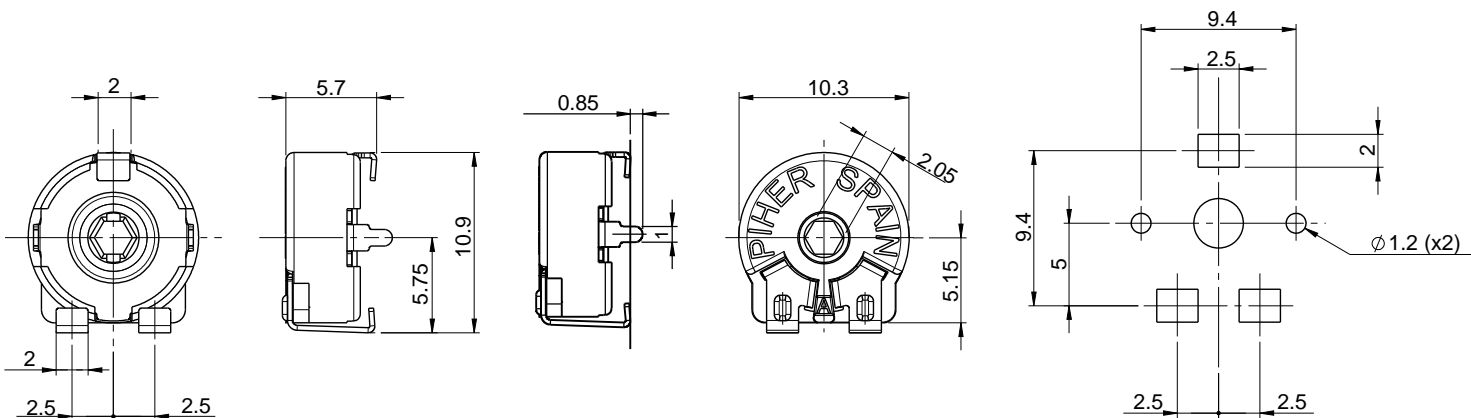
**R** = thru hole

Note: wipers are shown positioned at 50%

## DIMENSIONS (V50 version)

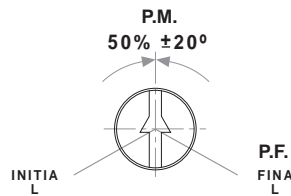


## DIMENSIONS (V60 version - with centering pins)

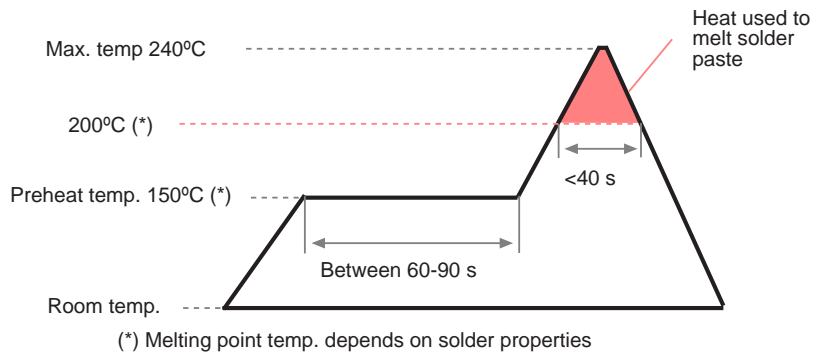


## POSITIONING

### Positioning (Std. Position = CCW)



## PSX-10 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.

### PSX-10 TESTS

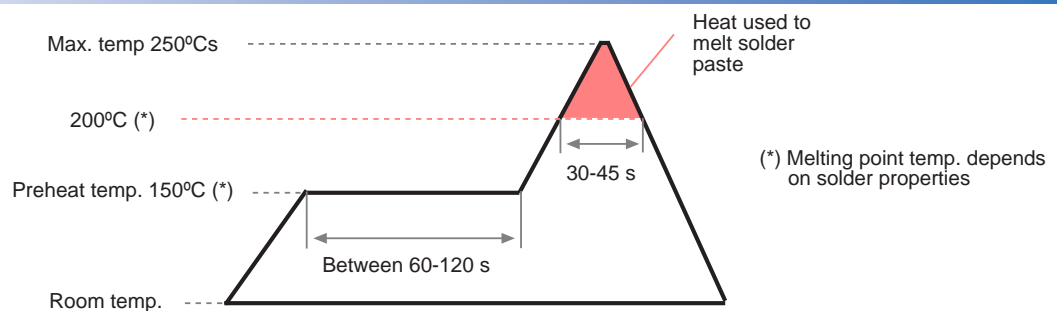
### VARIATIONS

ELECTRICAL LIFE	1.000 h. @ 50°C; 0.15 W	±10%
MECHANICAL LIFE (CYCLES)*	1000 @ 10 CPM ...15 CPM	±10 %
TEMPERATURE COEFFICIENT	-25°C; +70°C	±1000 ppm
THERMAL CYCLING	16 h. @ 85°C; 2h. @ -25°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.

NOTE: Out of range values may not comply these results. Please confirm with the factory all the information before designing in.

## PS-10 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.

### PS-10 TESTS

### VARIATIONS

ELECTRICAL LIFE	1.000 h. @ 50°C; 0.15 W	±10%
MECHANICAL LIFE (CYCLES)*	500 @ 10 CPM ...15 CPM	±10 %
TEMPERATURE COEFFICIENT	-40°C; +85°C	±1500 ppm
	-25°C; +70°C	±1000 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 %

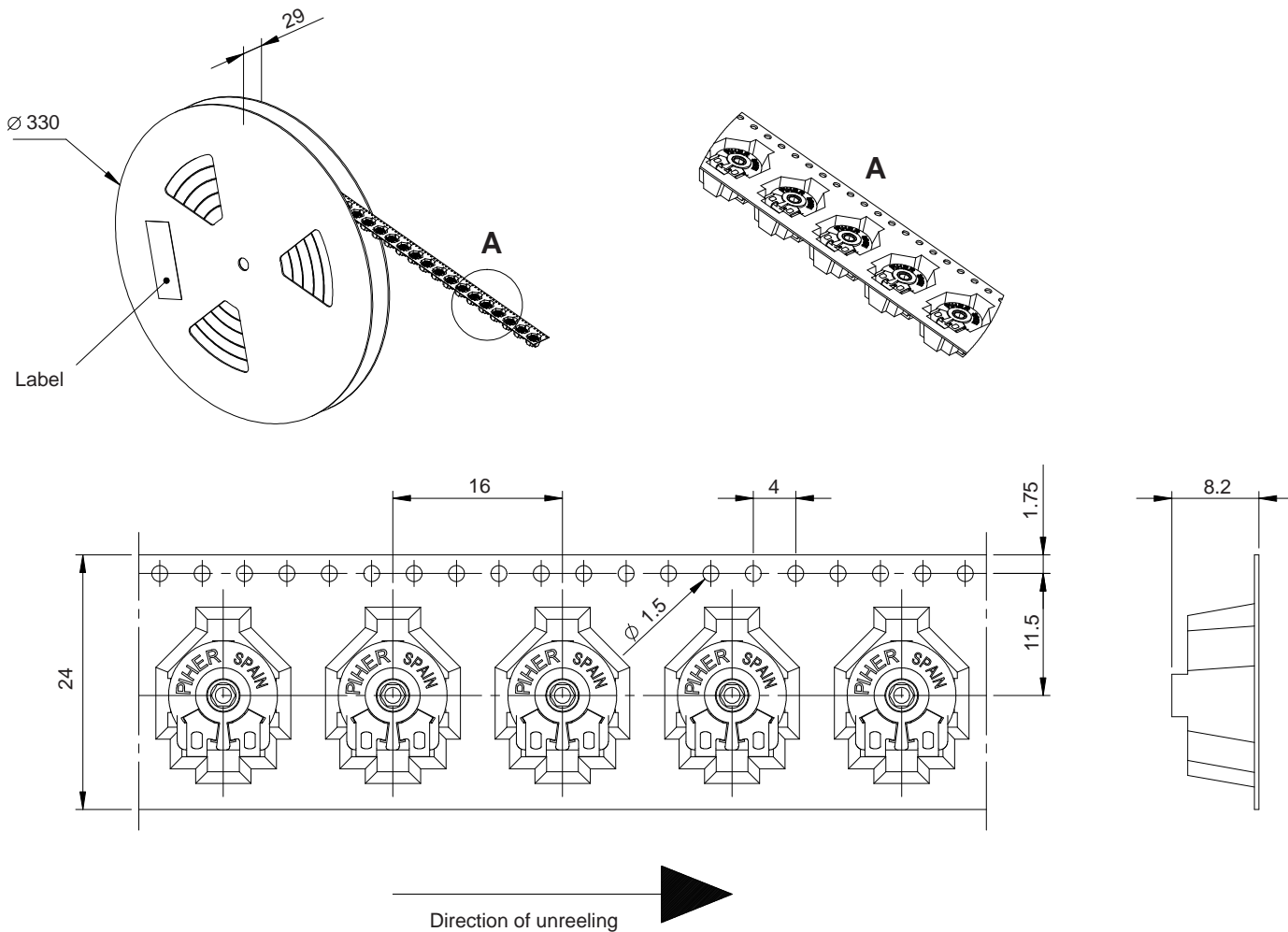
\* Tests at room temperature. Other life cycles upon request.

NOTE: Out of range values may not comply these results. Please confirm with the factory all the information before designing in.

**PACKAGING**

**BULK:** 500pcs / per Box (80 x 85 x 185 mm.)

**EMBOSSED TAPE:** 500pcs / Reel

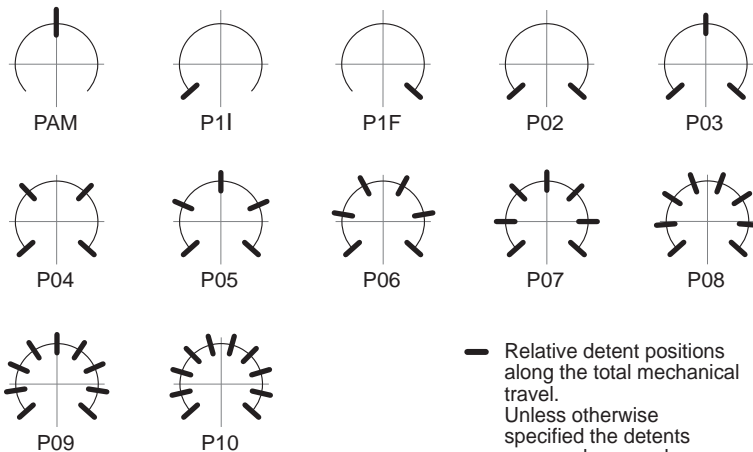


**DETENT CONFIGURATIONS EXAMPLES**

This innovative PT's with detents family has been specifically developed to allow the integration of otherwise large and expensive external mechanisms into the body of the majority of the 6, 10 & 15 mm. potentiometer series thus allowing a high range of configurations: special tapers, tolerances, linearity, cut track, etc.

This detent design not only adds a "click" sensation of position, but also offers enormous savings in both cost and space for any given application.

Detent number and positions can be made or fitted to the customer needs or preferences.



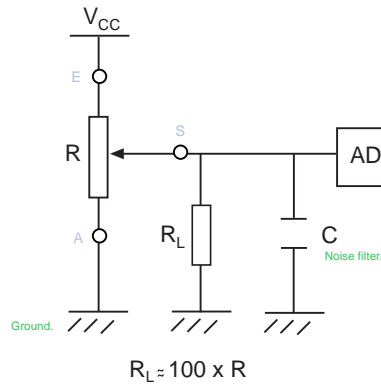
— Relative detent positions along the total mechanical travel. Unless otherwise specified the detents are evenly spaced (using the end points as reference)

**NOTES FOR DETENTED VERSIONS:**

- (1) Some configurations may have a longer leadtime.
- (2) Standard mechanical life is 500 cycles.
- (3) Long life versions are available under request and have the following characteristics at T<sup>a</sup>:
  - Potentiometers with 1 to 3 detents: up to 10K cycles
  - Potentiometers with 4 and more detents: up to 5K cycles
- (4) Detent torque can vary from 1.2 to 2.5 times the standard potentiometer torque.
- (5) Different output voltage values can be matched at each detent position (under request).

## RECOMMENDED CONNECTIONS

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



### Disclaimer

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