

15 mm panel mount potentiometer SM/SMC-15



Main features

- Excellent low price control potentiometer.
- Available in Carbon (SM-15) and Cermet (SMC-15).
- Based on the PT-15 / PTC-15 series.
- Enclosed in plastic housing.
- IP54 protection according to IEC 60529.

Description

The SMC-15 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 test and measurement equipment, consumer electronics, appliances, small engines, robotics, motion controllers, and medical equipment control panels.

This datasheet shows you the basics of the SMC-15 potentiometer that is quite versatile and easy to tailor. Do not hesitate to contact Piher for advice.

Mechanical specifications

Mechanical rotation angle	265° ± 5°
Electrical rotation angle	240° ± 20°
Torque rotational	0.5 to 2.5 Ncm. (0.70 to 3.4 in - oz)
Stop torque	> 10Ncm.(14 in-oz)
Life***	> 10K cycles

Electrical specifications

Range of values *	100Ω ≤ Rn ≤ 5M (Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)
Tolerance *	100Ω ≤ Rn ≤ 1MΩ ± 20% 1MΩ ≤ Rn ≤ 5MΩ ± 30%
Max. voltage	250 VDC (lin) 125 VDC (no lin)
Nominal power	Carbon SM (50°C-122°F):0.25W(lin),0.12W (no lin) Cermet SMC-15 (70°C-158°F): 0.5W (lin),0.25W (no lin)
Taper **	Lin;Log;Alog.
Residual resistance*	≤ 0.5% Rn (5Ω min.)
Equivalent noise resistance	≤ 3% Rn (3Ω min.)
Operating temperature	Carbon SM-15 -25°C to +70°C ***(-13°F to + 158°F) carbon Cermet SMC-15 -40°C to +90°C (-40°F to + 194°F) cermet

* Check availability

** Others tapers: check availability

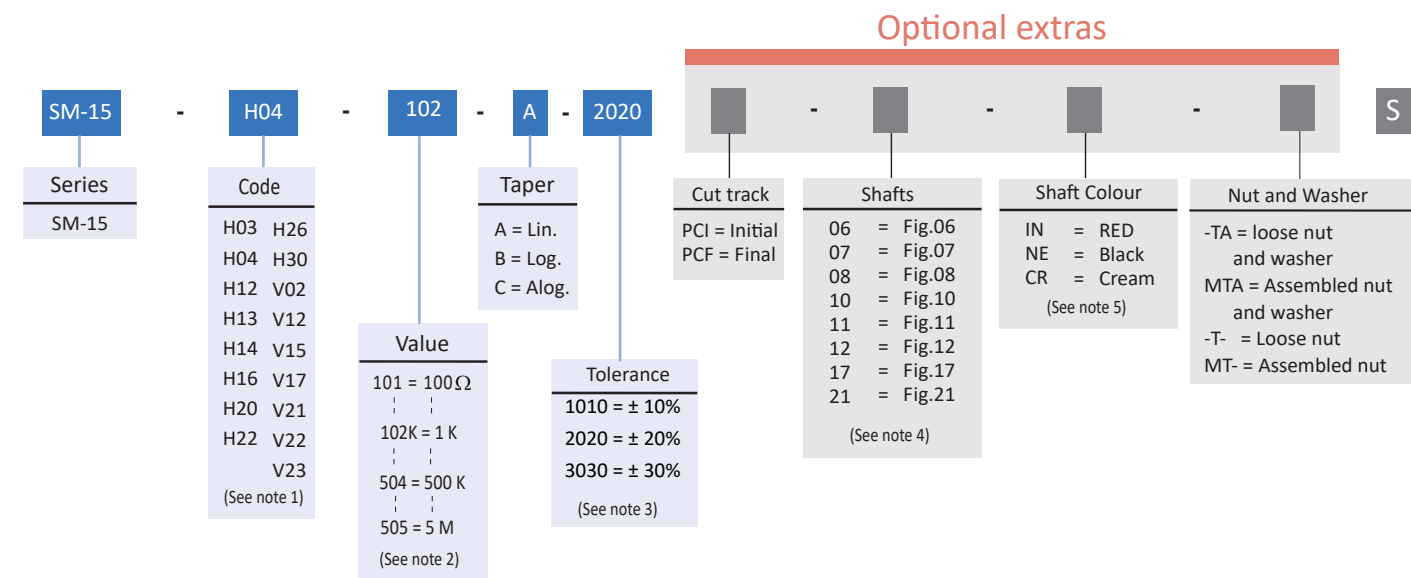
*** Up to 85°C depending on application.

**** For ohmic values > 1K Ω - lower values check availability.

15 mm panel mount potentiometer

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How to order



NOTES:

- (1)

Mount.Method

• Position with “P” will be with crimped terminals
- (2)

Value

Example: Code: 10 1 100 Ω

10

1

→ Numb of zeros

→ First two digits of the value

• Standars values:Decades of 10,20,22,25,47,50. Other values check
- (3)

Tolerance (non standard).

Example: +7%

-5%

Code: 07 05

→ negative tolerance

→ positive
- (4)

Shafts: These figures coincide with the PT15 references (Standard material)
- (5)

Colour: Only applicable to the shaft.

How to order example

SM-15H04-102A2020
 SM-15 model, H04 mounting method, 102 resistive value, taper linear and 20% resistive tolerance

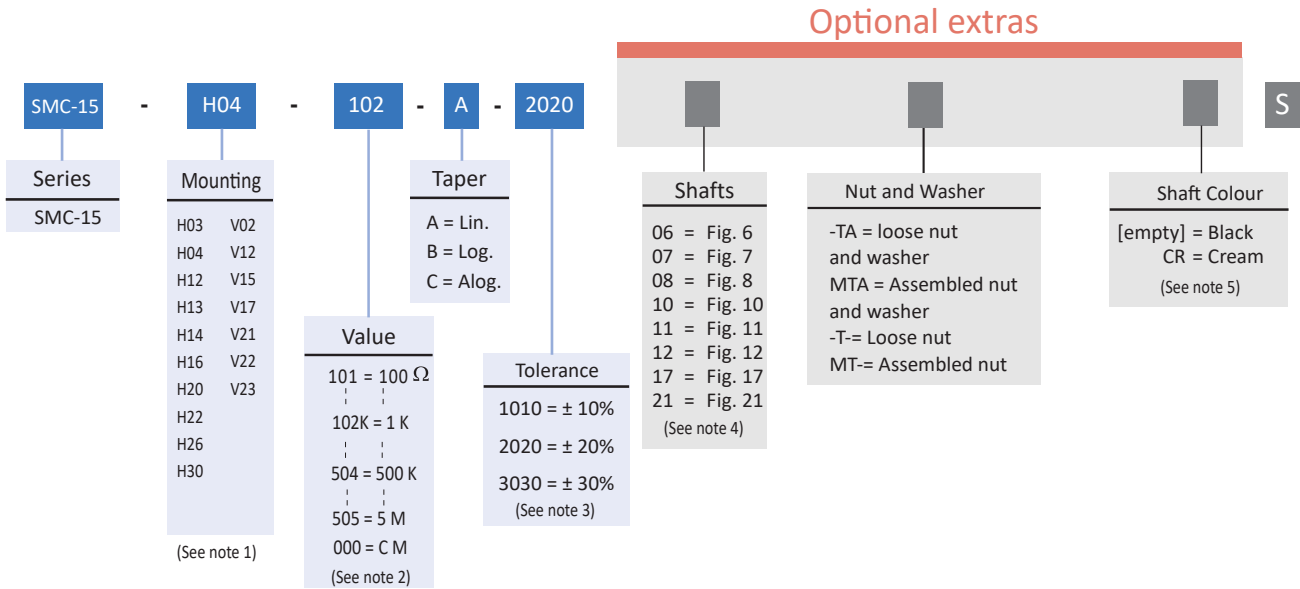
Standard default options

Cut track = Non cut track
 Shaft = Fig.9
 Shaft colour = Black
 Nut and washer = Without nut & washer

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How to order



NOTES:

- (1) Mount.Method

- Position with “P” will be with crimped terminals
- (2) Value

Example: Code: 10 1

100 Ω

Numb of zeros

First two digits of the value

 - Standars values:Decades of 10,20,22,25,47,50. Other values check
 - 000 = CM = Switch 45° (see PTC-15)
- (3) Tolerance (non standard). check

Example: +7%

-5%

Code: 07 05

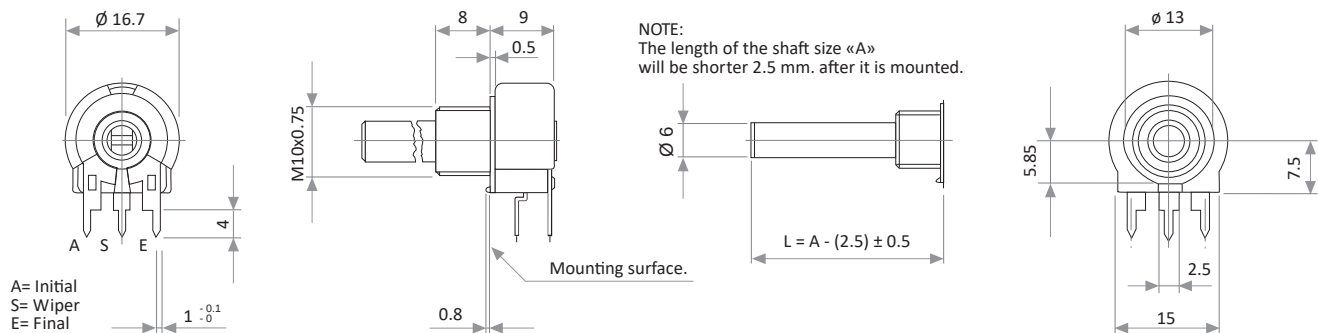
negative tolerance

positive
- (4) Shafts: These figures coincide with the PT15 references (Standard material)
- (5) Colour: Only applicable to the shaft.

How to order examples	Standard default options
SM15H20 -102A3030 15mm potentiometer ", H50 mounting method, 1K resistive value, 30% resistive tolerance and crimped terminals.	Shaft = Fig.9 Shaft colour = Black Nut and washer = Without nut & washer Life= 10 K cycles
SM15V23 -102A2020 15mm potentiometer ", V23 mounting method, 1K resistive value, 20% resistive tolerance and crimped terminals.	

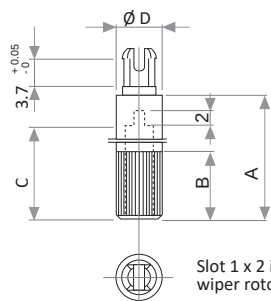
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Common dimensions

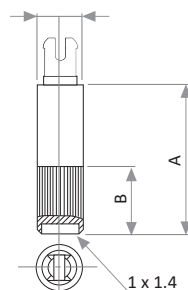


Shafts

Shafts are delivered at random position. Custom positioning available.



Hollow model shafts					
FIG.	A	B	C	D	Ref.
9	35	9	31	6	5216
10	37.8	9	33.8	6	5218
11	35	25	15	6	5209



Solid model shafts				
FIG.	A	B	C	Ref.
6	15	9	6	5219
7	16.8	9	6	5220
8	25.3	9	6	5207
12	46	5	6	5227

Slot (1 x 1.4) perpen to wiper position
Fig.12 slot is on line with wiper pos.

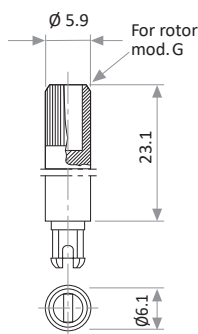


Fig. 17 - 5210

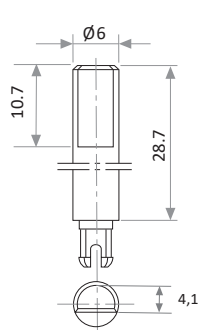


Fig. 19 * - 6032

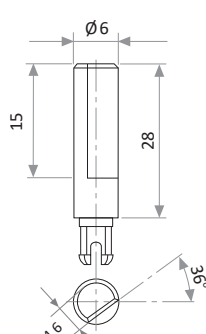


Fig. 20 * - 5369 (E)

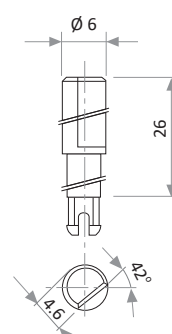


Fig. 25 * - 6059

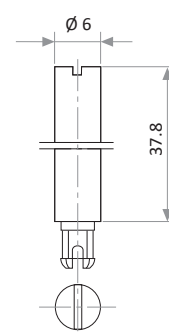
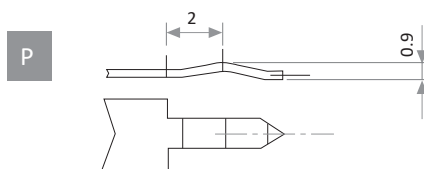


Fig. 21- 6031
(*) Only available under drawing.

Snap in terminal

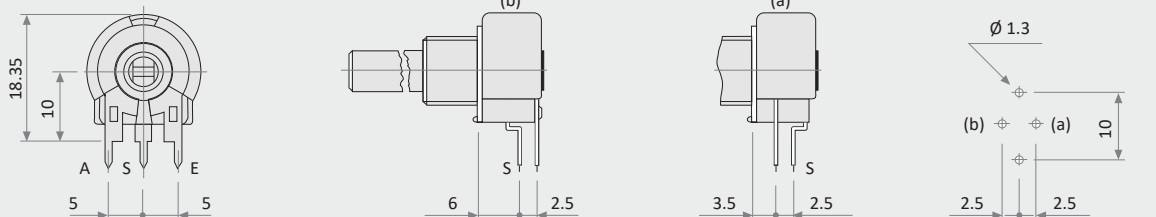


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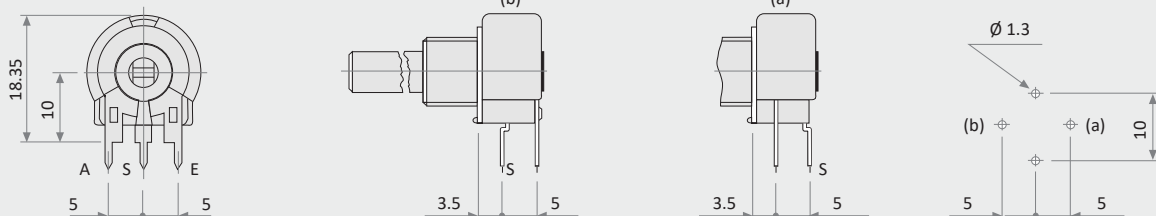
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Terminal styles

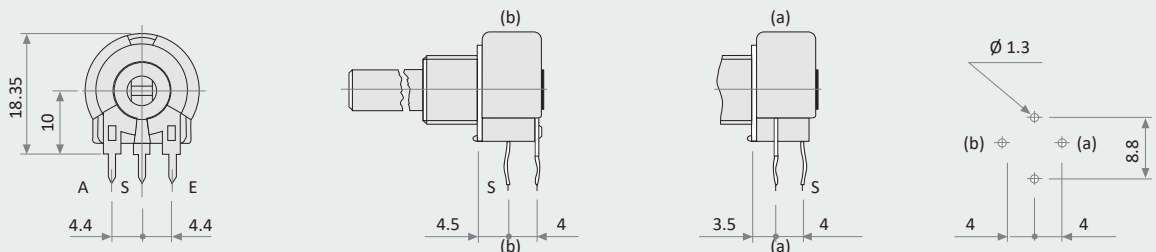
h 2.5



h 5



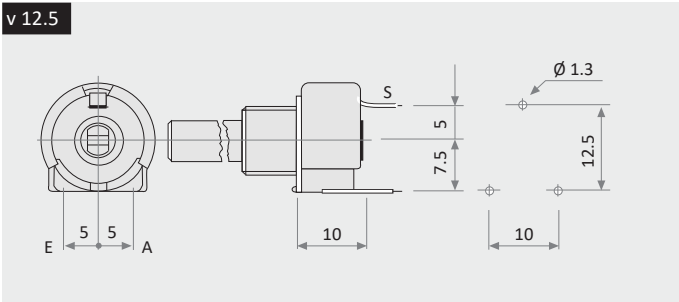
B



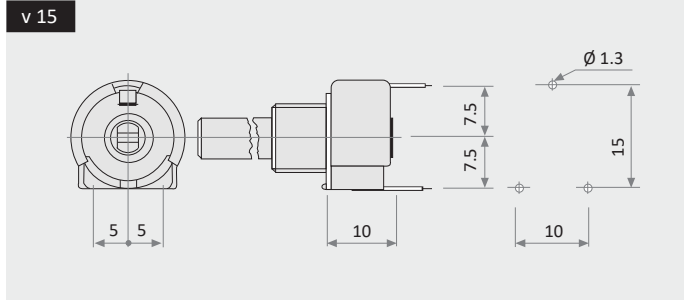
Automotive / Appliance control

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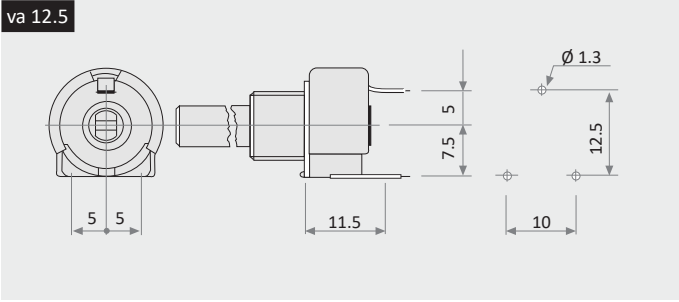
v 12.5



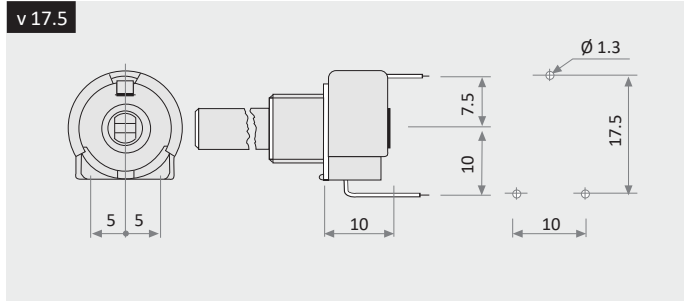
v 15



va 12.5



v 17.5



Standard - values 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	2M	2.5M	4.7M	5M
How to order code	102	202	222	252	472	502	103	203	223	253	473	503	104	204	224	254	474	504	105	205	255	475	505
Standard tolerance	30%																						

Packaging

QUANTITY : 100 units

Default packaging is bulk (boxes).



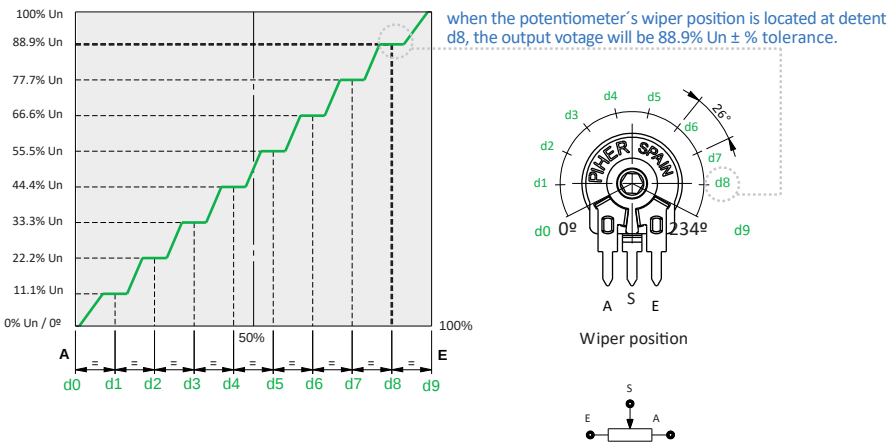
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Stepped outputs

Constant value zones can be combined with strategically located stops matching the flat areas of the output. If you require this feature, please, send us your requirements to sales@piher.net

10 stepped outputs version example:



Improved repeatability

By combining the constant value zones with the detents, engineers can align the same voltage values with each of the detent stops when rotating the control both forward and backward.

This provides clear mechanical positions that are not only repeatable, but perfectly aligned electrical outputs at each of the (detent) angles.

Piher's detents also prevent output values from changing due to vibration or accidental rotor movements, furthering reliable control consistency.

Stepped outputs

PIHER's potentiometers may feature special stepped outputs or 'constant voltage zones' for the 6, 10 and 15mm product families.

These constant voltage zones can be combined with PIHER's mechanical detents to provide exact alignment between the electrical output (flat areas) and the mechanical detent's positions. The result is a higher level of precision in controlling lighting, temperature, motor or other electronic control systems.

In addition to established catalogue detent configurations, we will design and manufacture any other configuration on our tried-and-tested carbon/cermet & THM/SMD potentiometer technology and processes.

With its exacting control capabilities, our potentiometers series are well suited for many consumer, industrial and automotive applications such as ovens, ranges, dishwashers, lighting (dimmers), power hand tools, washing machines and HVAC systems.

Design tip. Cost-effectiveness

Absolute encoders can easily be replaced connecting the potentiometer to the microprocessor's analogue input.



Main advantages

- ✓ Unique, non-overlapping values at each stop (detent position)
- ✓ Prevents output value change due to light vibration or accidental rotor micro-movements
- ✓ Fully customisable according to customer's needs
- ✓ Cost effective replacement for absolute encoders

Automotive / Appliance control

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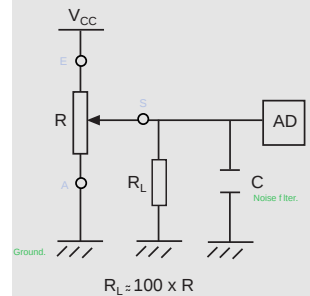
Piher is an Amphenol™ company.



Please always use the latest updated datasheets published on our website.

Recommended connections

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



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