

## FEATURES

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

## MECHANICAL SPECIFICATIONS

- Mechanical rotation angle:  $265^\circ \pm 5^\circ$
- Electrical rotation angle:  $240^\circ \pm 20^\circ$
- Torque: 0.5 to 2.5 Ncm. (0.7 to 3.4 in-oz)
- Stop torque: > 10 Ncm. (14 in-oz)
- Mechanical life\*\*\*:  $\geq 10K$  cycles

## ELECTRICAL SPECIFICATIONS

- Range of values\*  
 $100\Omega \leq R_n \leq 5 M$  (Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)
- Tolerance\*:  $100\Omega \leq R_n \leq 1M \Omega$  .....  $\pm 20\%$   
 $1M\Omega < R_n \leq 5M$  .....  $\pm 30\%$
- Max. Voltage: 250 VDC (lin) 125 VDC (no lin)
- Nominal Power:  $\bullet 50^\circ C (122^\circ F) 0.25W$  (lin),  $0.12W$  (no lin) carbon  
 $\bullet 70^\circ C (158^\circ F) 0.5W$  (lin)  $0.25W$  (no lin).cermet
- Power derating: 0 Watt a  $100^\circ C$
- Taper\*\* : Lin., Log., Alog.
- Residual resistance\*:  $\leq 0.5 \% R_n$  (5  $\Omega$  min.)
- Operating temperature:  $-25^\circ C + 70^\circ C$ (\*\*\*) ( $-13^\circ F + 158^\circ F$ ) carbon  
 $-40^\circ C + 90^\circ C$  ( $-40 + 194^\circ F$ ) cermet

\* Check availability.

\*\*\* Up to  $85^\circ C$  depending on application.

\*\* Other tapers: check availability. .

\*\*\*\* For Ohmic values  $\geq 1 K \Omega$ . Lower values: check availability.

## HOW TO ORDER SM-15

SM-15	H04	102	A	2020	OPTIONAL EXTRAS				S
Series	Code	Mounting Method	Value	Taper	Cut track	Shafts	Shaft Colour	Nut and Washer	
SM-15	H04 H14 H12 H20 H24 V02 V21 V12 V22 V15 V17 H16 H26 H03 H13 H22 H30 H23 V23	H 2.5A H 5A H 2.5PA H 5 PA HC 5A V 12.5 V 12.5P VA VA P V 15 V17.5 BA BB H 2.5B H 5B H 2.5PB H 5PB HC 5B V 15P	101 = 100 $\Omega$ 102 = 1 K 504 = 500 K 505 = 5 M  (See note 2)	A = Linear B = Log. C = Alog.  (Others on request)	PCI = Initial PCF= Final	02 = Fig.2 06 = Fig.6 07 = Fig.7 08 = Fig.8 10 = Fig.10 11 = Fig.11 12 = Fig.12 17 = Fig.17 21 = Fig.21  (See note 4)	RO = Red VE = Green AM = Yellow AZ = Blue IN = Natural MA = Brown GR = Grey NA = Orange CR = Cream  (See note 5)	-TA = Loose nut and washer MTA = Assembled nut and washer -T- = Loose nut MT- = Assembled nut	
				<b>Tolerance</b> 2020 = + 20% 3030 = + 30%  (See note 3)					

## HOW TO ORDER CUSTOM DRAWING

SM-15 H04 + 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

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

## NOTES:

- (1) Mounting Method: Positions with "P" will be with crimped terminals.
- (2) Value: Code:  $\begin{matrix} 10 & 1 & 100 \Omega \\ & \swarrow & \searrow \\ & \text{Number of zeros} & \\ & & \text{2 first digits of the value.} \end{matrix}$   
• Standard values: Decades of 10, 20, 22, 25, 47, 50. Other values check
- (3) Tolerance (non standard). check Code eg.:  $\begin{matrix} +7 & 07 & 05 \\ -5 & & \end{matrix}$  negative tolerance  
positive tolerance
- (4) Shafts: These figures coincide with the PT15 references (Standard material).
- (5) Colour: Only applicable to the shaft.

NOTE: The information contained here should be used for reference purposes only.

# HOW TO ORDER SMC-15

<b>SMC-15</b>	<b>H04</b>	<b>102</b>	<b>A</b>	<b>2020</b>	<b>OPTIONAL EXTRAS</b>		
Series	Code	Mounting Method	Value	Taper	Shafts	Shaft Colour	Nut and Washer
SMC-15	H04 H14 H12 H20 H34 V02 V21 V12 V22 V15 V17 H16 H26 H03 H13 H22 H30 H33 V23	H 2.5A H 5A H 2.5PA H 5PA HA 5A V 12.5 V 12.5P VA VA P V 15 V 17.5 BA BB H 2.5B H 5B H 2.5PB H 5PB HA 5B V 15P	101 = 100Ω 102 = 1 K 504 = 500 K 505 = 5 M 000 = C M  (See note 2)	A = Linear B = Log. C = Alog.  (Other tapers on request)  <b>Tolerance</b> 1010 = ± 10% 2020 = ± 20% 3030 = ± 30%  (See note 3)	02 = Fig.2 06 = Fig.6 07 = Fig.7 08 = Fig.8 10 = Fig.10 11 = Fig.11 12 = Fig.12 17 = Fig.17 21 = Fig.21  (See note 4)	RO = Red VE = Green AM = Yellow AZ = Blue IN = Natural MA = Brown GR = Grey NA = Orange CR = Cream  (See note 5)	-TA = Loose nut and washer MTA= Assembled nut and washer -T= Loose nut MT-= Assembled nut

## STANDARD OPTIONS

Shaft .....	Fig. 9
Shaft colour .....	Black
Nut and washer .....	Without nut and washer
Life .....	10K cycles

## HOW TO ORDER CUSTOM DRAWING

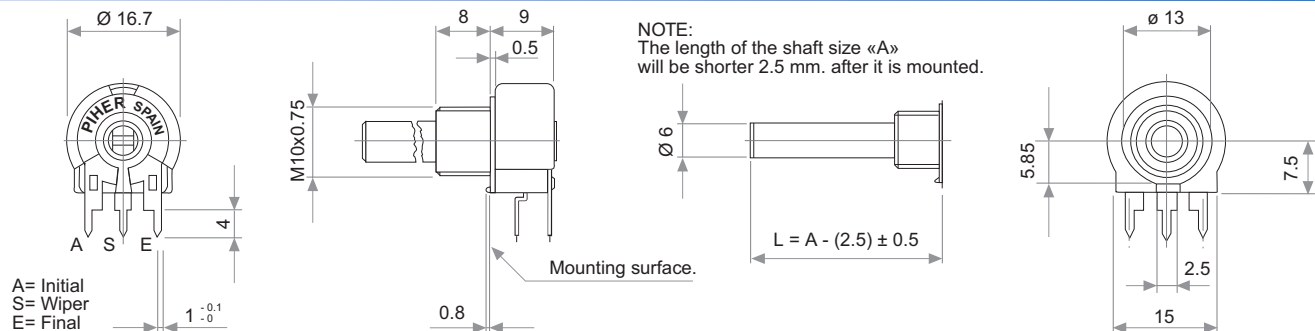
SMC-15 H04 + DRAWING NUMBER (Max. 16 digits)

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

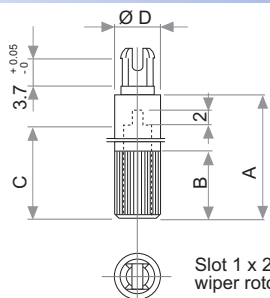
### NOTES:

- Mounting Method: Positions with "P" are with crimped terminals.
- Value: Code: 10 1 100 Ω  
 → Number of zeros  
 → 2 first digits of the value.  
 • Standard values: Decades of 10, 20, 22, 25, 47, 50. Other values: check for availability.  
 • 000 = CM = Switch 45° (see PTC-15).
- Tolerance (non standard). check Code eg.: +7 = 07 05  
 -5 → negative tolerance  
 → positive tolerance
- Shafts: The figures coincide with the numbers for PT15. (Standard material).
- Colour: Only applicable to the shaft.

## COMMON DIMENSIONS

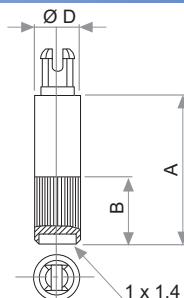


## SHAFTS



Hollow model shafts					
FIG.	A	B	C	D	Ref.
2	19	9	15	6	5214M*
9	35	9	31	6	5216
10	37.8	9	33.8	6	5218
11	35	25	15	6	5209

\* Black colour only. Check for availability.



Solid model shafts				
FIG.	A	B	D	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.

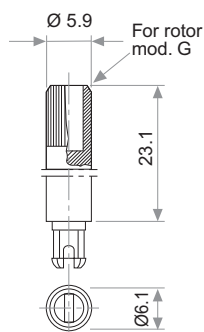


Fig. 17 - 5210

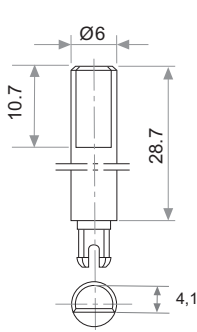


Fig. 19 - 6032

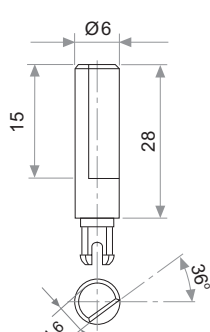


Fig. 20 - 5369 (E)

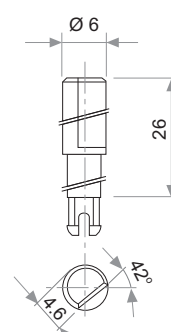


Fig. 25 - 6059

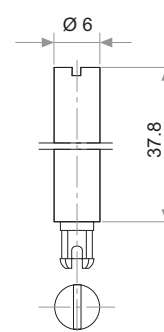
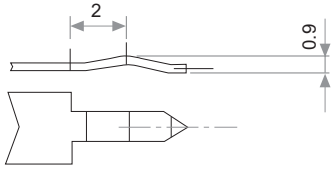


Fig. 21 - 6031  
(\*) Only available under drawing.

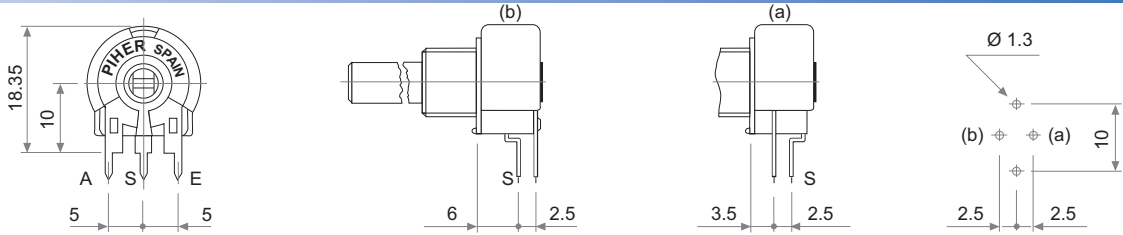
P



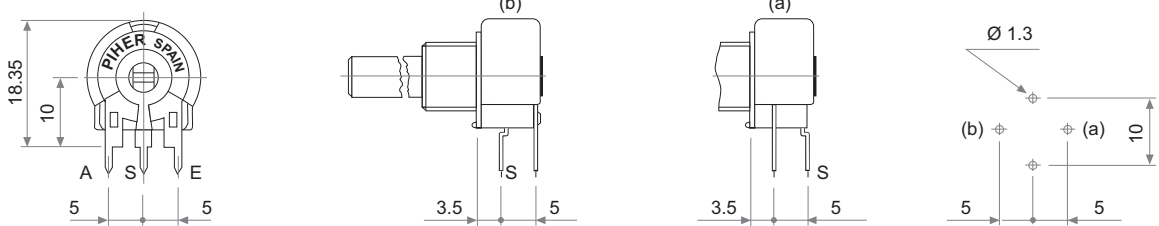
QUANTITY: 100 units

**TERMINAL STYLES**

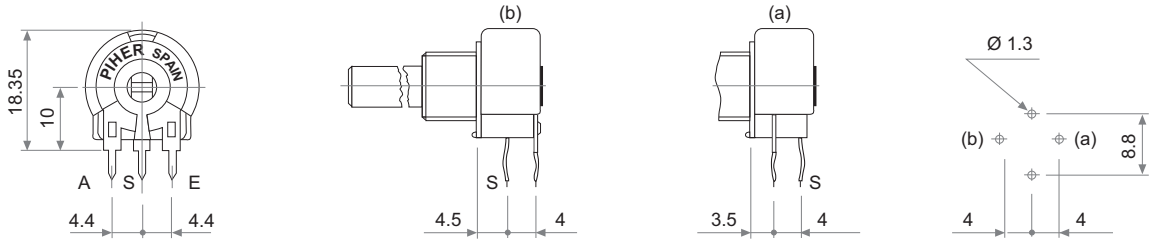
**h 2.5**



**h 5**

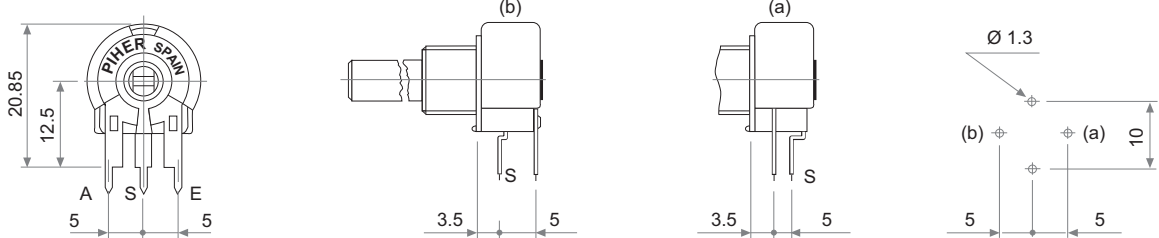


**B**



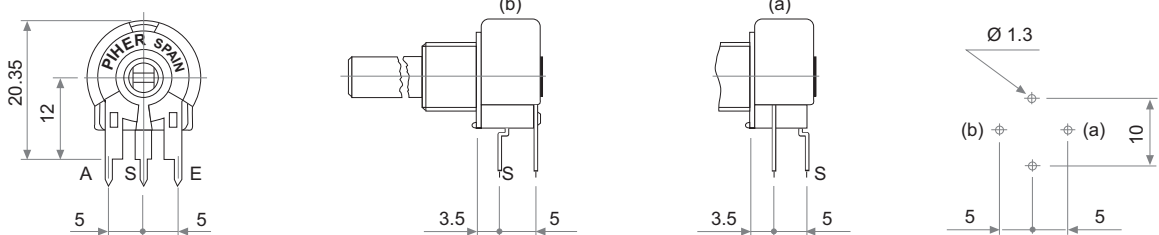
**h C 5**

Only SM-15

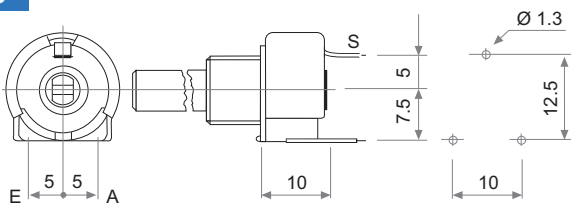


**h A 5**

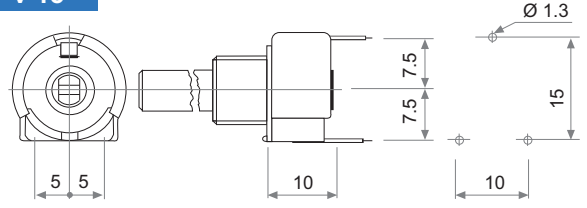
Only SMC-15



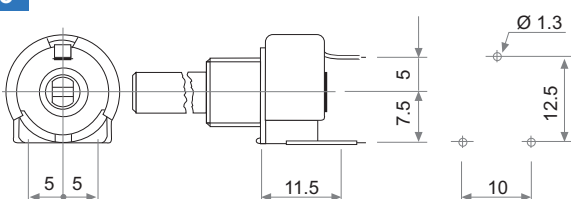
**v 12.5**



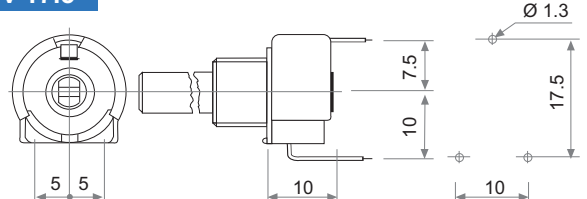
**v 15**



**va 12.5**

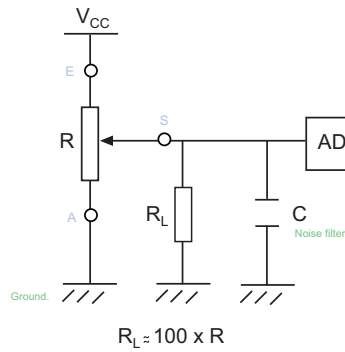


**v 17.5**



## RECOMMENDED CONNECTIONS

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



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