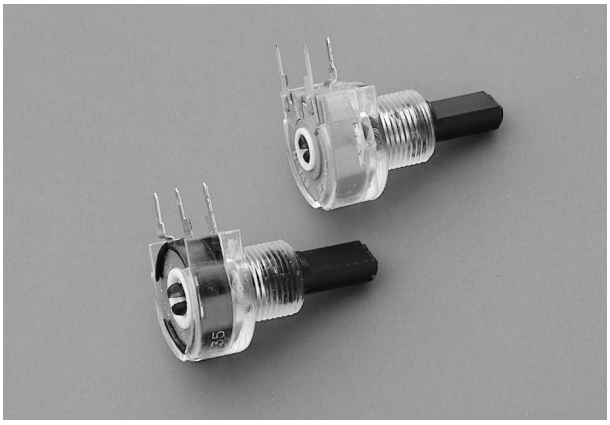
PIHER

SM/SMC-15 15 mm Carbon/ Cermet Potentiometer



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° ± 5°
- Electrical rotation angle: 240° ± 20°
- Torque: 0.5 to 2.5 Ncm. (0.7 to 3.4 in-oz)
- Stop torque: > 10 Ncm. (14 in-oz)
- Mechanical life***: ≥ 10K cycles

ELECTRICAL SPECIFICATIONS

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

* Check availability.
** Other tapers: check availability. .
*** Up to 85°C depending on application.
**** For Ohmic values ≥ 1 K Ω. Lower values: check availability.

HOW TO ORDER SM-15

OPTIONAL EXTRAS

SM-15	H04	102	A	2020				S
Series	Code / Mounting Method	Value	Taper	Tolerance	Cut track	Shafts	Shaft Colour	Nut and Washer
SM-15	H04 H 2.5A H14 H 5A H12 H 2.5PA H20 H 5 PA H24 HC 5A V02 V 12.5 V21 V 12.5P V12 VA V22 VA P V15 V 15 V17 V17.5 H16 BA H26 BB H03 H 2.5B H13 H 5B H22 H 2.5PB H30 H 5PB H23 HC 5B V23 V 15P (See note 1)	101 = 100Ω 102 = 1 K 504 = 500 K 505 = 5 M (See note 2)	A = Linear B = Log. C = Alog. (Others on request)	2020 = ± 20% 3030 = ± 30% (See note 3)	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

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: 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
(3) Tolerance (non standard). check Code eg.: +7 / -5 = 07 05 → 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

OPTIONAL EXTRAS

SMC-15	H04	102	A	2020			
Series	Code / Mounting Method	Value	Taper	Tolerance	Shafts	Shaft Colour	Nut and Washer

Series

SMC-15

Code / Mounting Method (See note 1)

Code	Mounting Method
H04	H 2.5A
H14	H 5A
H12	H 2.5PA
H20	H 5PA
H34	HA 5A
V02	V 12.5
V21	V 12.5P
V12	VA
V22	VA P
V15	V 15
V17	V 17.5
H16	BA
H26	BB
H03	H 2.5B
H13	H 5B
H22	H 2.5PB
H30	H 5PB
H33	HA 5B
V23	V 15P

Value (See note 2)

101 = 100Ω
102 = 1 K
504 = 500 K
505 = 5 M
000 = C M

Taper

A = Linear
B = Log.
C = Alog.

(Other tapers on request)

Tolerance (See note 3)

1010 = ± 10%
2020 = ± 20%
3030 = ± 30%

Shafts (See note 4)

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

Shaft Colour (See note 5)

RO = Red
VE = Green
AM = Yellow
AZ = Blue
IN = Natural
MA = Brown
GR = Grey
NA = Orange
CR = Cream

Nut and Washer

–TA = Loose nut and washer
MTA = Assembled nut and washer
–T– = Loose nut
MT– = Assembled nut

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.

STANDARD OPTIONS

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

NOTES:

(1) Mounting Method: Positions with "P" are with crimped terminals.

(2) Value: Code: 10 1 100 Ω
- 10 → Number of zeros
- 1 → 2 first digits of the value.

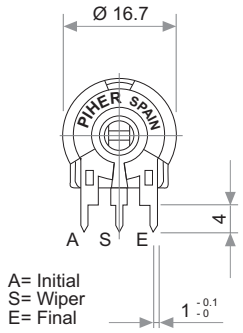
• Standard values: Decades of 10, 20, 22, 25, 47, 50. Other values: check for availability.
• 000 = CM = Switch 45° (see PTC-15).

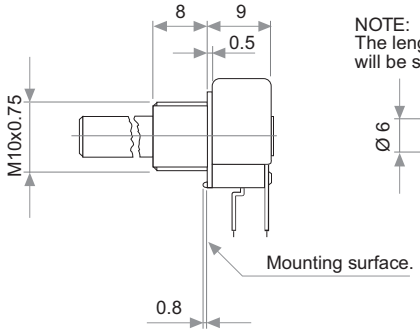
(3) Tolerance (non standard). check
Code eg.: $^{+7}_{-5}$ = 07 05 → negative tolerance / positive tolerance

(4) Shafts: The figures coincide with the numbers for PT15. (Standard material).

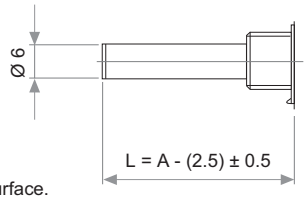
(5) Colour: Only applicable to the shaft.

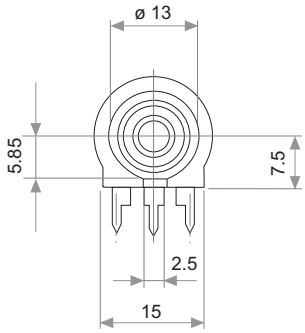
COMMON DIMENSIONS



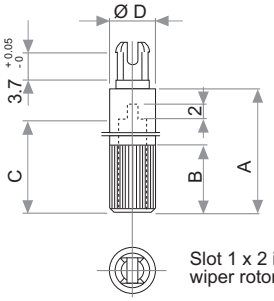


NOTE:
The length of the shaft size «A» will be shorter 2.5 mm. after it is mounted.





SHAFTS

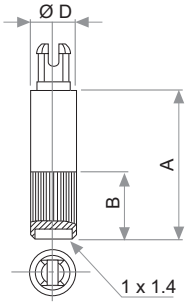


Slot 1 x 2 is on line with wiper rotor mod. "N".

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.

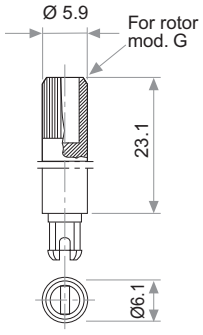


Fig. 17 - 5210

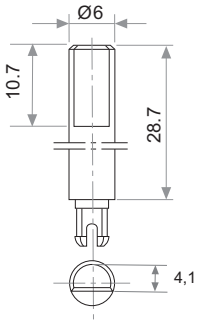


Fig. 19 * - 6032

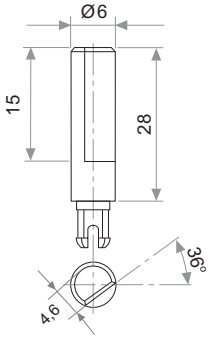


Fig. 20 * - 5369 (E)

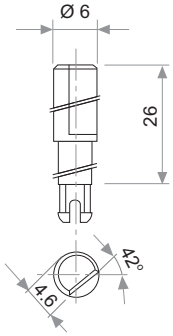


Fig. 25 * - 6059

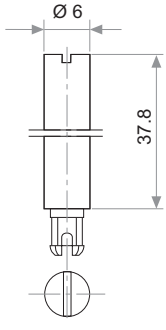
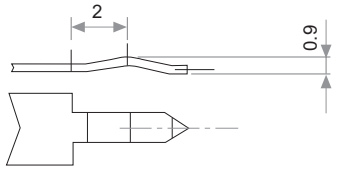


Fig. 21- 6031
(*) Only available under drawing.

SNAP IN TERMINAL

P

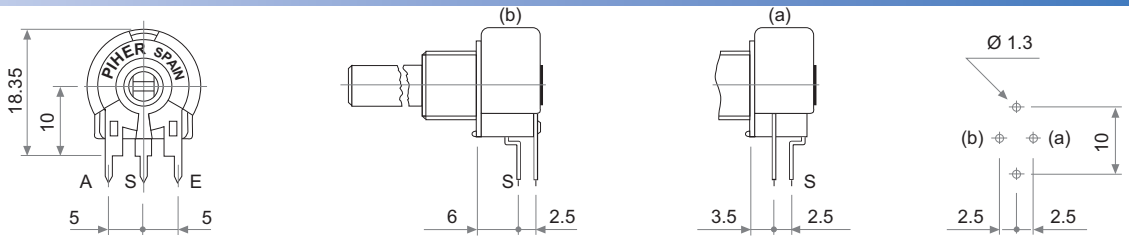


PACKAGING

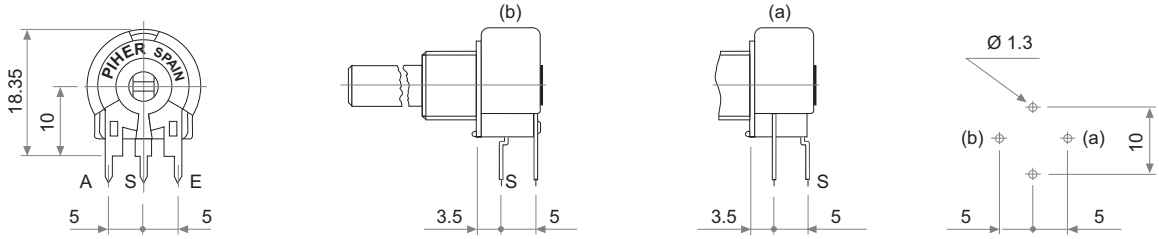
QUANTITY: 100 units

TERMINAL STYLES

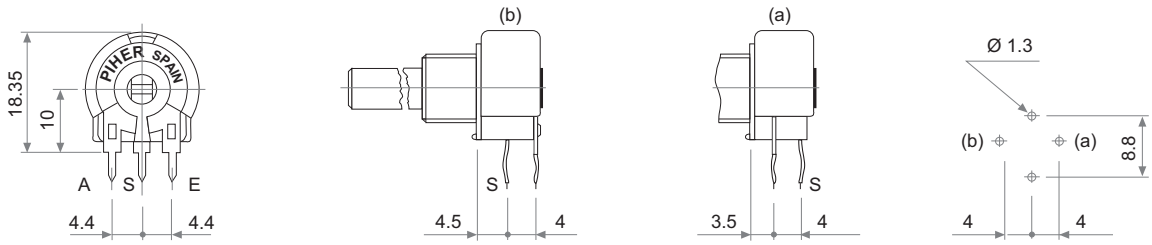
h 2.5



h 5

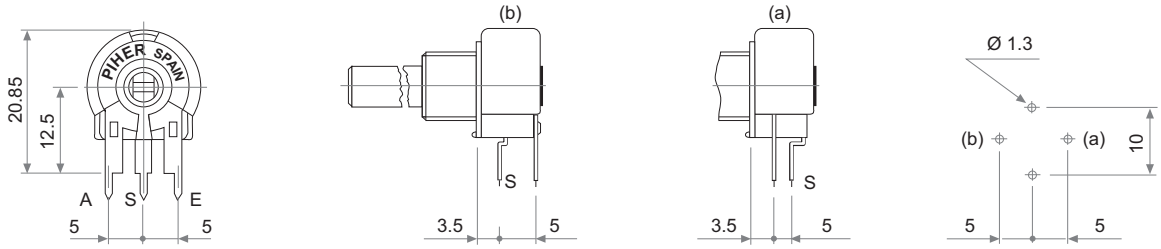


B



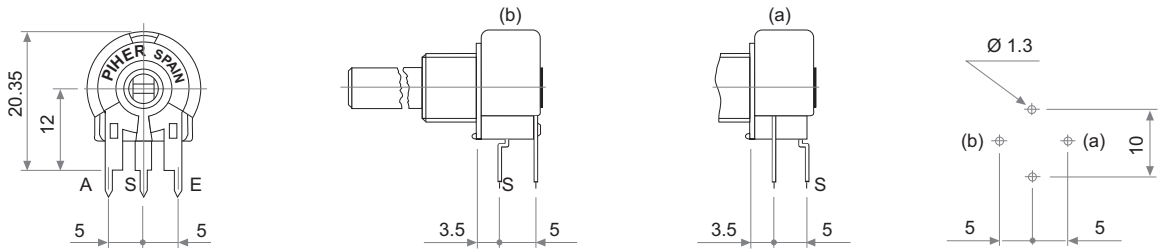
h C 5

Only SM-15

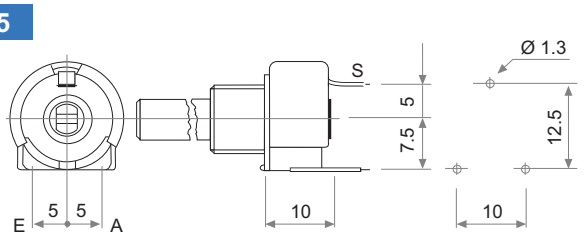


h A 5

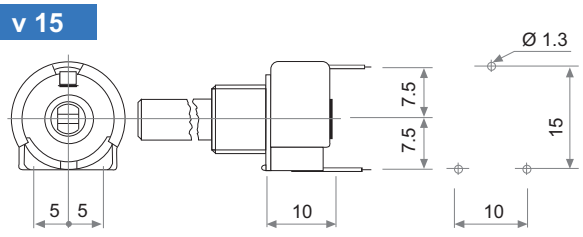
Only SMC-15



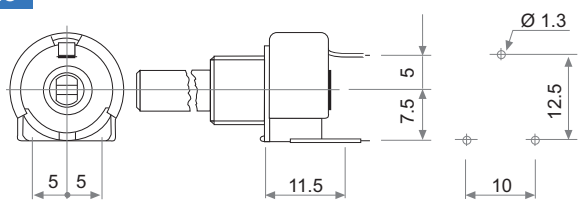
v 12.5



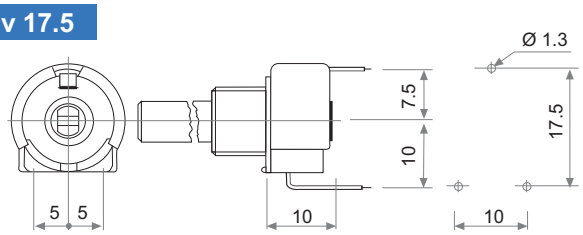
v 15



va 12.5

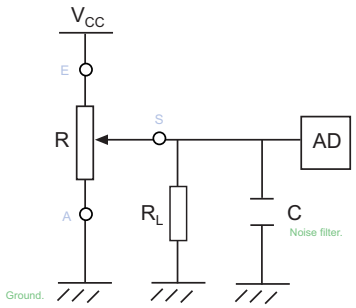


v 17.5



RECOMMENDED CONNECTIONS

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



$R_L \simeq 100 \times R$

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