



FEATURES

Conceived and designed for customisation
 SMD or Through-hole Mount
 Endless Rotation (360°)
 Wide Electrical Angle (340° ± 10°)
 Extended Mechanical Life (100k cycles)
 Working Temperature Range (-40°C to +120°C)
 Low Profile (4.4 mm)
 Linearity ± 3% (standard)
 Embossed Tape or Bulk packaging
 Reflow Soldering capability
 Shaft insertable from both sides
 Polarised "T" rotor (European Home Appliance standard)
 All PT/ PTC 15 shafts compatible
 IP54 protection according to IEC 60529

STANDARD SPECIFICATIONS

| | |
|-----------------------|-----------------|
| Resistance values*: | 5k to 100k |
| Tolerance: | ± 30% |
| Nominal Power: | 0.15 W @ 50°C |
| Linearity (absolute): | ± 3% |
| Taper: | Linear |
| Mechanical Life**: | 100K cycles |
| Temperature Range: | -40°C to +120°C |
| Mechanical Angle: | 360° |
| Electrical Angle: | 340° ± 10° |
| Rotational Torque: | ≤ 20 mN.m |
| Max. Voltage: | 250 VDC |

(*) Others upon request

(**) 200K cycles version available upon request. For higher mechanical life see the Z15 product.

TYPICAL APPLICATIONS

The N15 series offers an SMD and Through Hole mount solution for the majority of **Position/Rotary Sensor** and **multi-purpose Control** applications such as:

- Automotive HVAC, Seat, Rear-view mirror actuator feedback sensors and HVAC Controls
- Temperature Control for Boilers, Wall Heaters, Showers, Radiators, Conventional and Microwave Ovens, Freezers...
- Timer & Function/Programme Select for Washing Machines, Dishwashers and all White Goods in general.
- Size and Position detectors

HOW TO ORDER

| N-15 | T | S | 502 | A | 3030 |
|----------------------|--------|--|---|--------------------------|------------------------------|
| Series | Rotors | Mounting Method | Value | Taper | Tolerance |
| N-15 (See note 1) | T | V = Through Hole S = SMD H = Horizontal Adjust (See note 4) | 502 = 5 K . 104 = 100 K (See note 5) | A = Lin. (See note 2) | 3030 = ± 30% (See note 3) |

NOTES:

- (1) A wide variety of custom substrates available
- (2) Availability of a wide range of customised tapers and step curves
- (3) Optional precision laser-trimmed voltage divider calibration
- (4) Horizontal adjust versions will be studied case by case
- (5) Value Example: Code: 50 2 5K Ω
 ↳ Numb of zeros
 ↳ First two digits of the value.

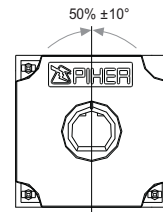
Shafts are not available mounted to the potentiometer and should be ordered separately

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

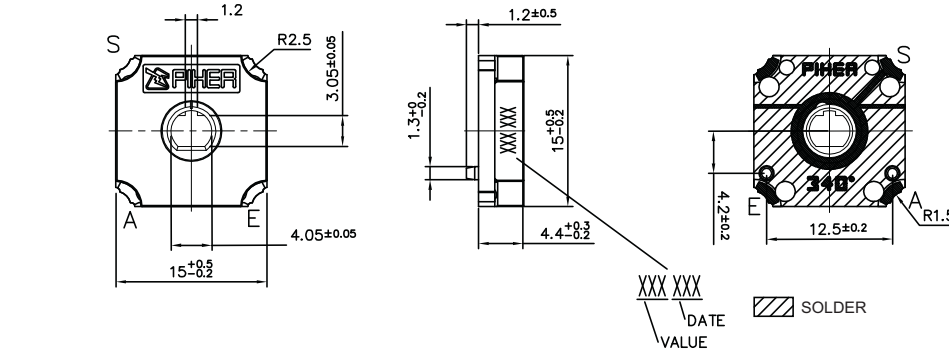
Wiper positioned at 50 % of the electrical angle.

N-15 T S + DRAWING NUMBER (Max. 16 digits)

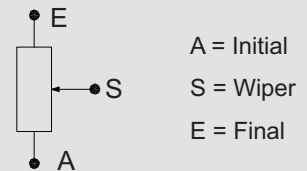
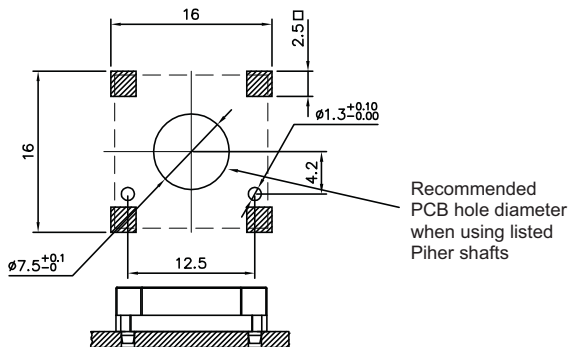
This way of ordering should be used for options which are not included in the "How to order" standard and optional extras.



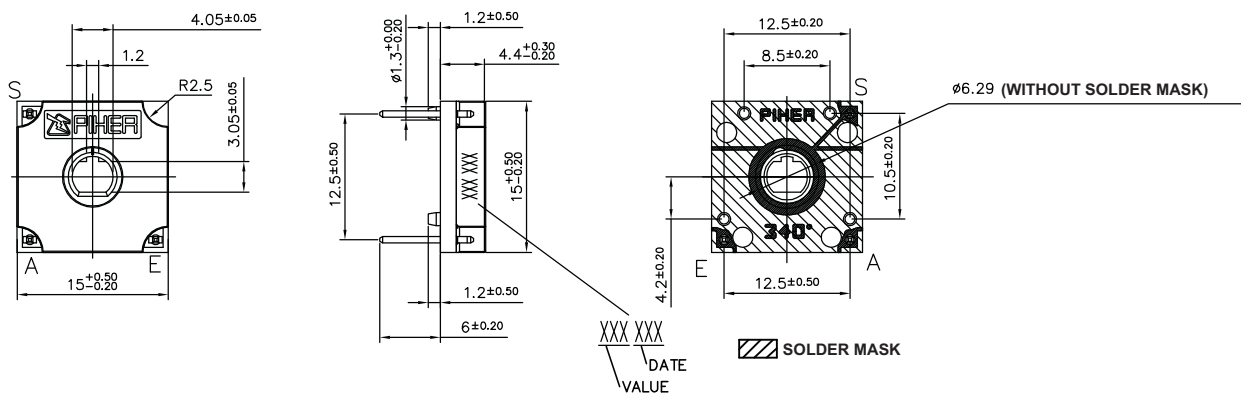
SMD MOUNT



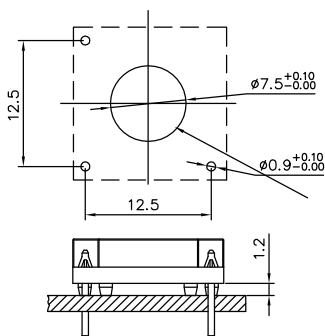
FOOT - PRINT



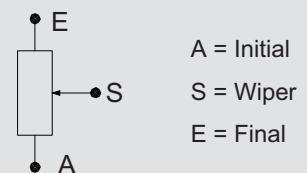
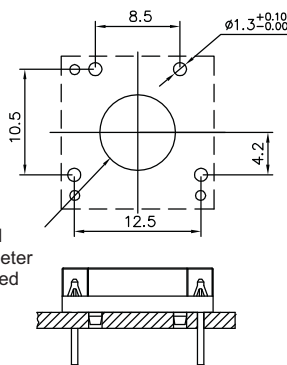
THROUGH HOLE MOUNT

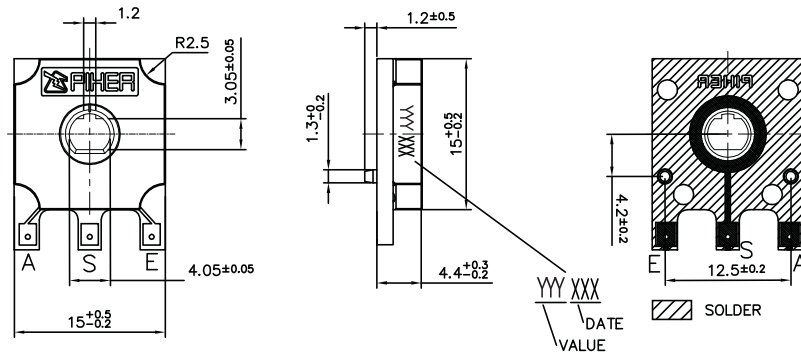


PCB HOLE LAYOUT 1



PCB HOLE LAYOUT 2





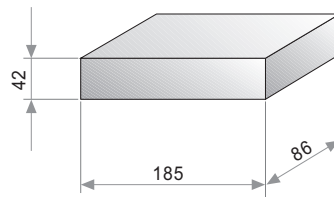
TESTS

TYPICAL VARIATIONS

| | | |
|--------------------------|----------------------------|-----------------------|
| ELECTRICAL LIFE | 1.000 h. @ 50°C; 0.15 W | ±40 % |
| MECHANICAL LIFE (CYCLES) | 100,000 @ 20 CPM | ±40 % (Rn < 100 K) |
| TEMPERATURE COEFFICIENT | -40°C to +120°C | ±300 ppm (Rn < 100 K) |
| THERMAL CYCLING | 10h. @ 120°C; 10h. @ -40°C | ±40 % |
| DAMP HEAT | 500 h. @ 40°C @ 95% HR | ±40 % |

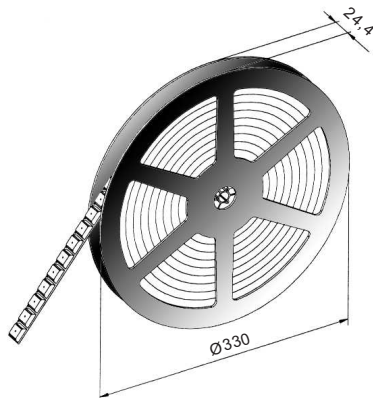
NOTE : Out of range values may not comply these results.

PACKAGING



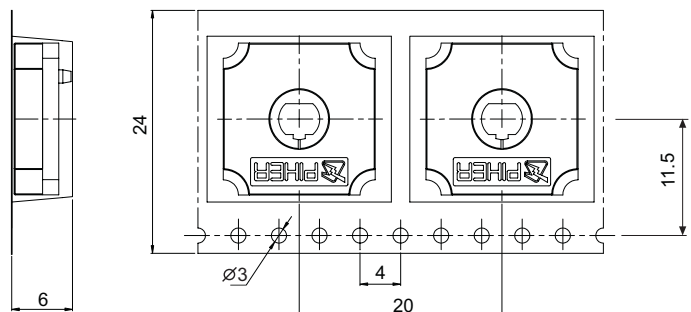
BULK

150 Units per box.
Through hole version only

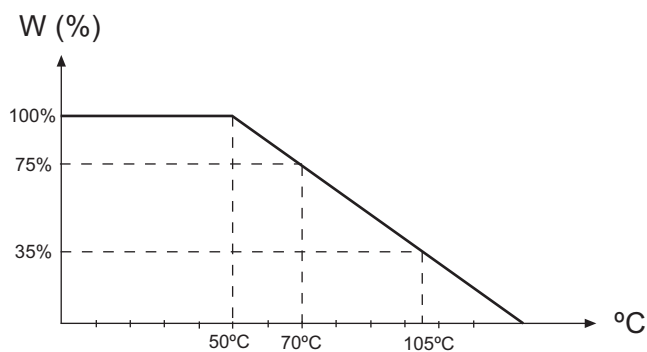


EMBOSSSED TAPE

500 Units per Reel
SMD version only

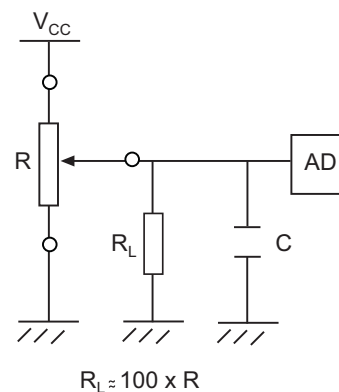


POWER RATING CURVE



RECOMMENDED CONNECTIONS

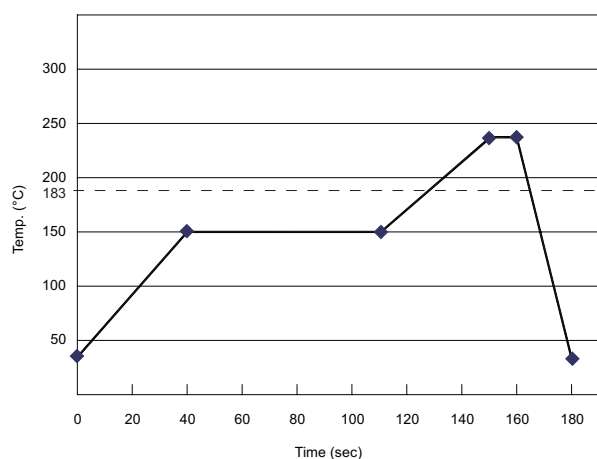
Recommended connection scheme for Piher's position sensors (voltage divider)



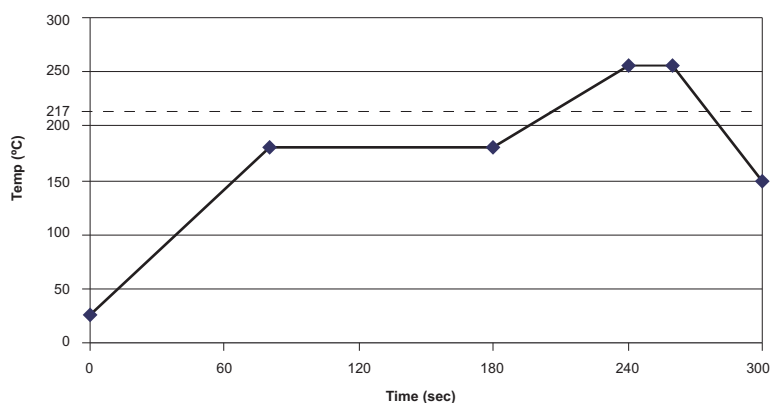
RECOMMENDED REFLOW PROFILE

SMD Types

SnPb Reflow Profile

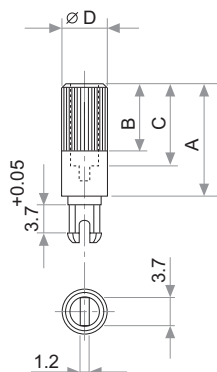


Lead Free Reflow Profile



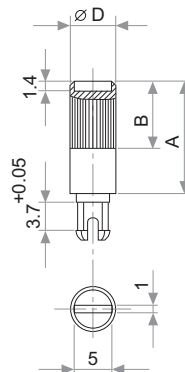
SHAFTS

Hollow model shafts



| FIG. | A | B | C | D | Ref. |
|------|------|-----|------|---|------|
| 1 | 12 | 9 | 8 | 6 | 5272 |
| 2 | 19 | 9 | 15 | 6 | 5214 |
| 5 | 9.5 | 6.5 | 5.5 | 6 | 5208 |
| 9 | 35 | 9 | 15 | 6 | 5216 |
| 10 | 37.8 | 9 | 33.8 | 6 | 5218 |
| 11 | 35 | 25 | 15 | 6 | 5209 |
| 13 | 7.8 | 4.8 | 3.8 | 6 | 5265 |

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) perpendicular to wiper position. Fig. 12 slot is on line with wiper position.

A = Length (FRS); B=Knurling length; C=Hollow depth; D=Shaft diameter; FRS=From rotor surface

Other shafts

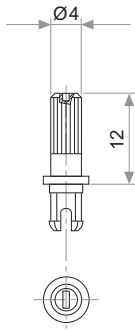


Fig. 3 / Ref. 5372

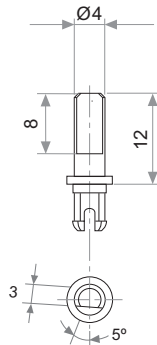


Fig. 15 / Ref. 5217

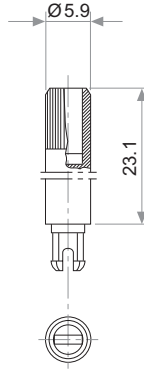


Fig. 17 / Ref. 5210

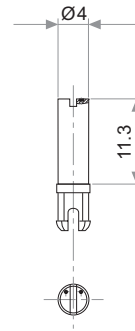


Fig. 18 / Ref. 5271

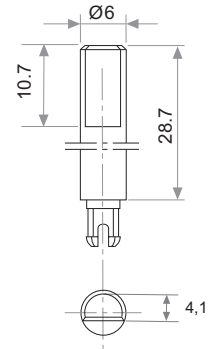


Fig. 19 / Ref. 6032*

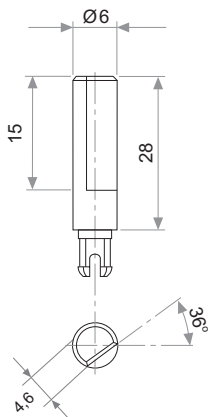


Fig. 20 / Ref. 5369*

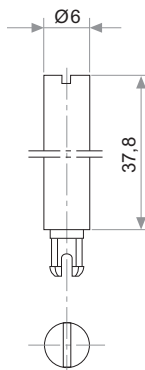


Fig. 21 / Ref. 6031*

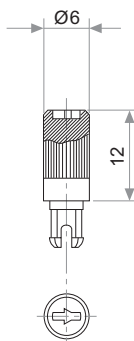


Fig. 22 / Ref. 6029

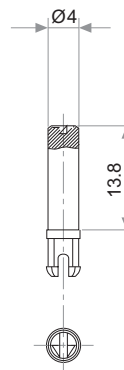


Fig. 23 / Ref. 6022

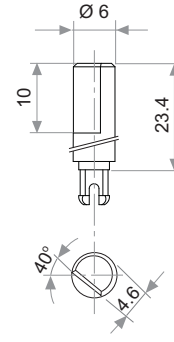


Fig. 29 / Ref. 6162

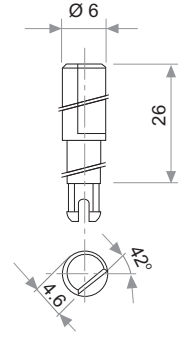


Fig. 25 / Ref. 6059

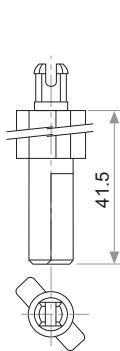


Fig. 27 / Ref. 5268*

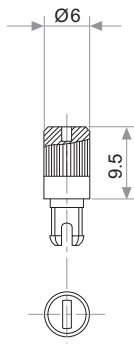


Fig. 28 / Ref. 6055

* Not available in self extinguishable plastic

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