Automotive / Appliance control

Endless rotation **15mm potentiometer** ST-15.

Key features

- 360º mechanical rotation angle
- Up to 340º electrical rotation angle
- Life: up to 200K cycles
- Suitable for home appliances and automotive control applications.

The Model ST-15 offers engineers an endless rotation version of the popular PT-15 rotary control. This new 360º version adds endless clockwise (CW or CCW) rotation as a part of the current features of the PT-15s already highly configurable mechanical and electrical specifications. That means a wide variety of off-the-shelf mounting methods, custom ohmic (resistance) values, tight linearity performance, along with the 7 different rotor designs.

This potentiometer offers product designers the flexibility of allowing users full rotational access across the normal stops that have, up to now, limited mechanical rotation. With this design feature, engineers can now design product command features over a 340º range (active electrical travel). For maximum design versatility, the endless rotation feature can be combined upon request with detents to provide users tactile feedback on each setting and selection – with up to 51 unique detent positions. Virtually any appliance rotary control requirement can be configured using the PT-15s wide range of standard features. Other interesting optional features include flame-retardant plastics (meets UL Standard 94 V0), detents, rotors, long cycle life, SMT mounting and custom electrical angles.

Engineered to serve as a highly cost-effective control potentiometer for most consumer applications such as ovens, ranges, dishwashers, power hand tools, washing machines and HVAC systems, it also can fit many automotive convenience electronic applications.

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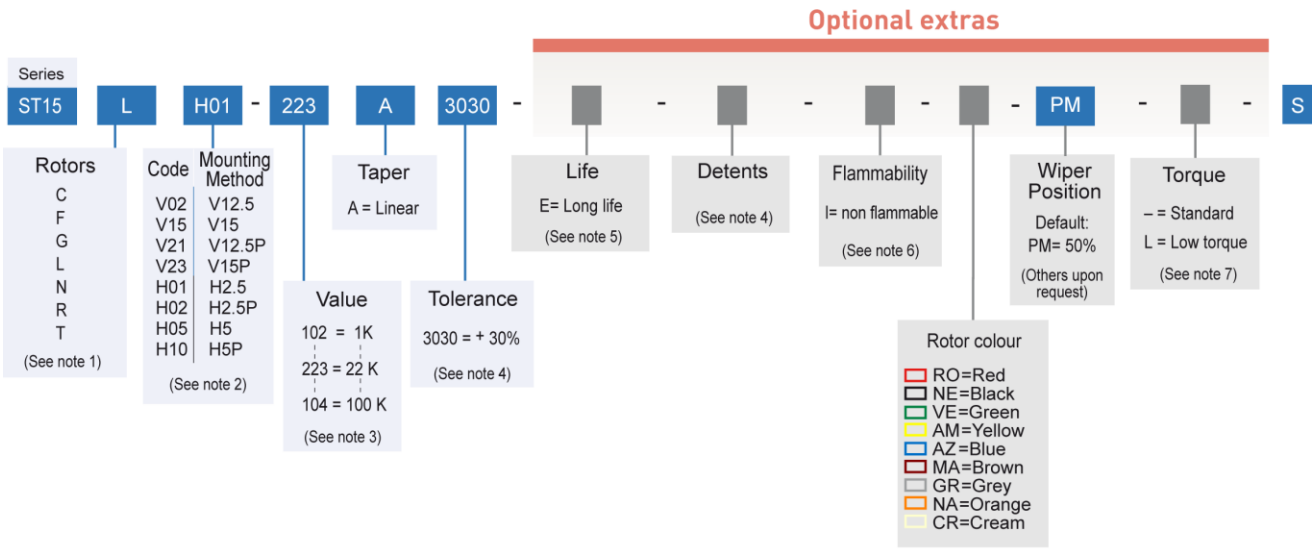
ST-15.

How to order.



PART NUMBER EXAMPLE: ST15RV15-103A3030-P05-PM-S

NOTES:

(1) Standard colour for the "T" rotor: Orange

(2) SMD versions upon request, check availability. Terminal styles with "P" feature crimped terminals →

Crimped terminals available for improved component stability in the PCB during the soldering process.

(3) Value Example: 10 2 1000 Ω
Others check availability.
→ Numb of zeros
→ First two digits of the value.

(4) Send us your requirements to check availability.

(5) Life • Standard 1000 cycles
• Long life "E" 10000 cycles

(6) Non flammable: housing and rotor. According to UL 94V-0

(7) Low Torque: ≤1.5Ncm. *No detent option available for low torque models*

STANDARD / DEFAULT OPTIONS:

Detents: no.

Rotor color: white.

Wiper sending position: 50%

Torque:0.5 to 2.5 Ncm.

Life: 1000 cycles

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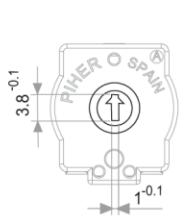
Specifications

Range of values* (Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)		1KΩ≤Rn≤100KΩ
Tolerance*		±30%
Taper		Linear
Nominal power	**50°C (122°F)**	0.25W
Max. voltage*		50 VDC
Linearity	**upon request**	±3%...±5%
Torque	**standard** **low**	0.5 to 2.5 Ncm. ≤ 1.5 Ncm.
Mechanical life*	**standard** **long**	1.000 cycles 10.000 cycles
Mechanical rotation angle		360º (endless)
Electrical rotation angle (standard effective variable range) *		333º
Operating temperature**		-25°C to +70°C

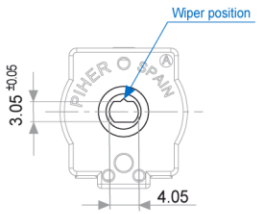
* others available upon request.
** Up to 85°C depending on application

Rotors

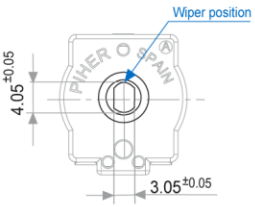
Wipers shown positioned at 50% (default positioning).



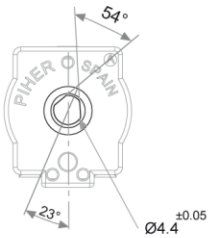
Rotor L =
Screw driver thru hole



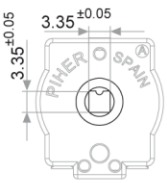
Rotor N =
Removable shaft or thumbwheel



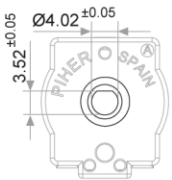
Rotor G =
Removable shaft or thumbwheel



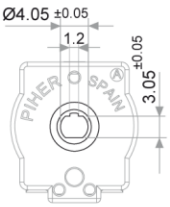
Rotor C



Rotor F



Rotor R



Rotor T

Automotive / Appliance control

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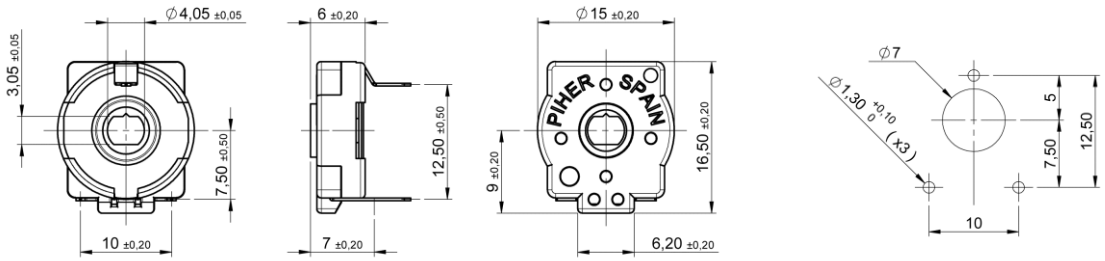
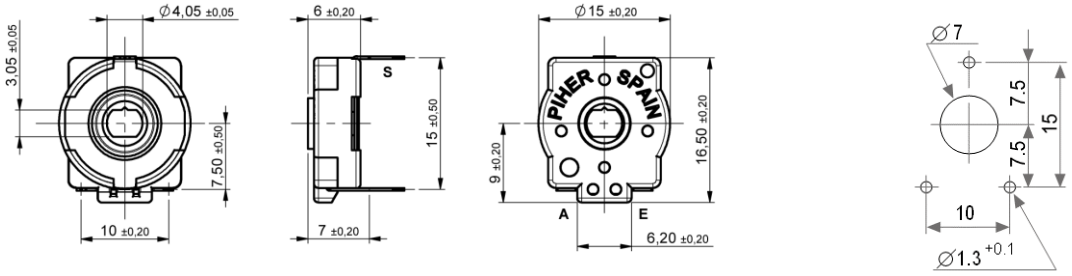
ST-15.

Dimensions

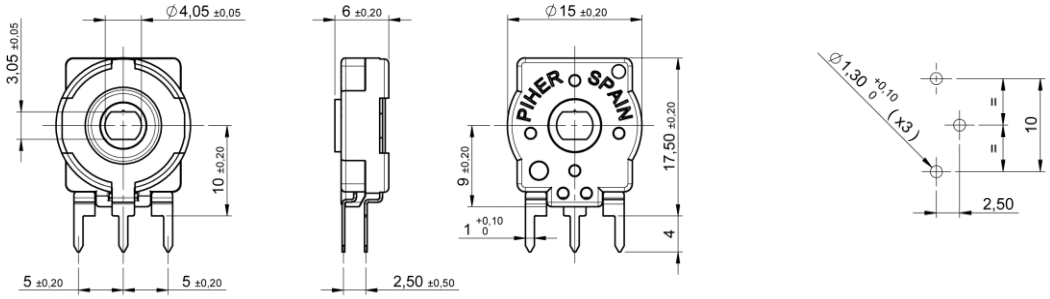
V02



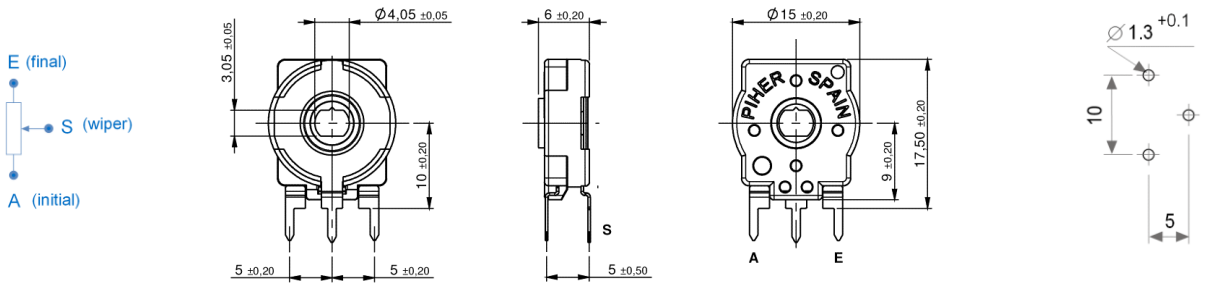
V15



H01



H05



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Shafts and thumbwheels

All PT15 shafts and thumbwheels are compatible for N, G and T rotors. See the PT15 datasheet pages 4, 5.

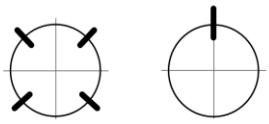
Detents

This feature has been specifically developed to allow the integration of otherwise large and expensive external mechanisms into the body of the potentiometer thus allowing a high range of configurations: special tapers, torque, tolerances, linearity, 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.

Strong and weak detents can be mixed as per customer's request (up to 51).

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



Detent positions examples.

Automotive / Appliance control

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Detents + constant value zones

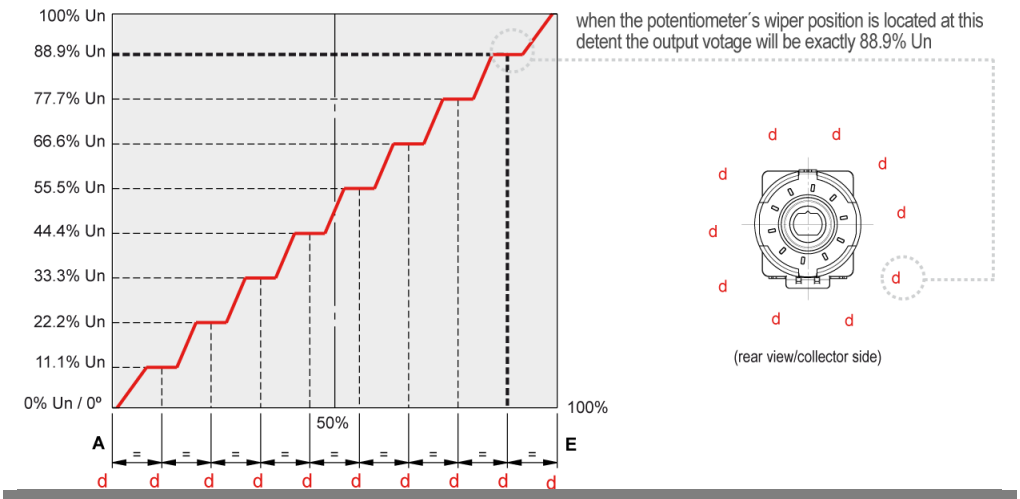
By combining the constant value zones with the detents, engineers can align the same voltage values with each of the detent stops when rotating the control both forward and backward.

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.

Constant value zones can be combined with strategically located stops matching the flat areas of the output.

10 stepped outputs version example:



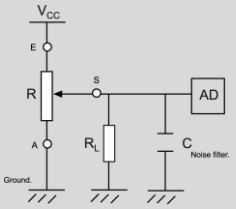
Absolute encoders can easily be replaced connecting the potentiometer to the microprocessor´s analogue input.

Key features

- 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

Recommended connections

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



$R_L = 100 \times R$

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