

Automotive / Appliance control

Endless rotation 15mm potentiometer ST-15.



The Model ST-15 offers engineers an endless rotation version of the popular PT-15 rotary control. This new 360° 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 340° 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.

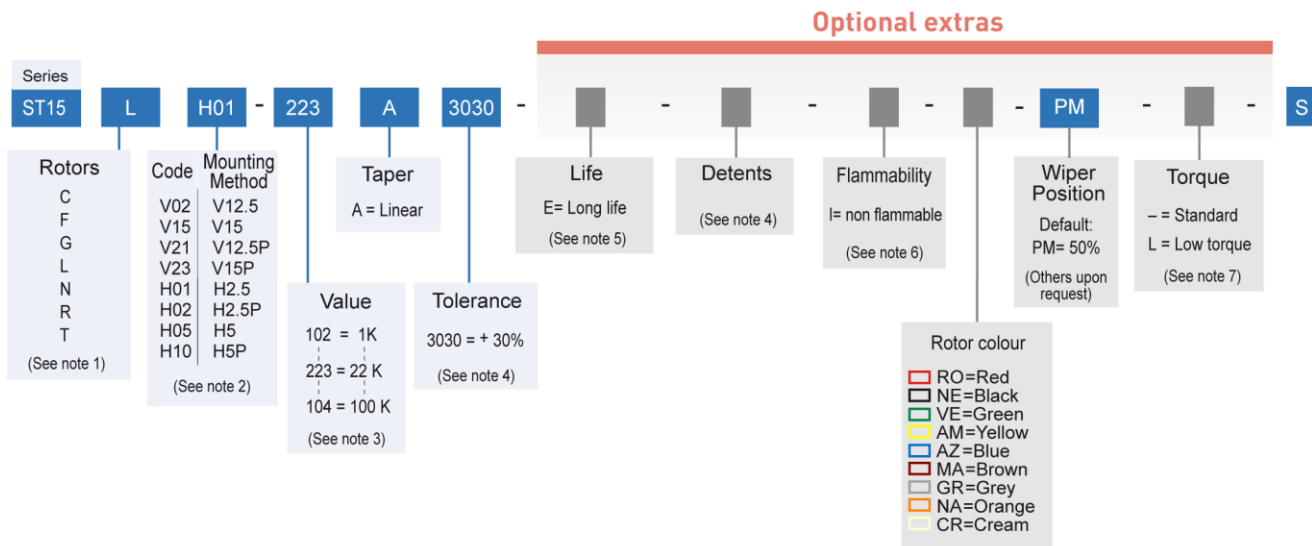
Key features

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

Automotive / Appliance control

Endless rotation 15mm potentiometer ST-15.

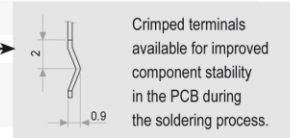
How to order.



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 →
- (3) Value Example: $10 \quad 2 \quad 1000 \Omega$
 Others check availability. \rightarrow Num of zeros
 \rightarrow 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: $\leq 1.5\text{Ncm}$. 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

Automotive / Appliance control

Endless rotation 15mm potentiometer ST-15.

Specifications

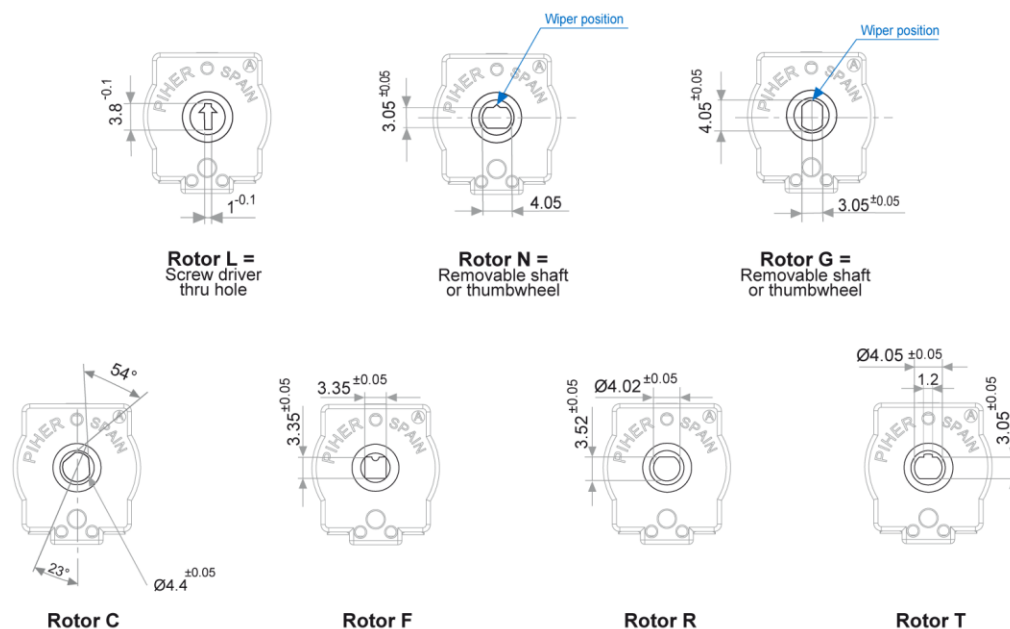
Range of values* (Decad. 1.0 - 2.0 - 2.2 - 2.5 - 4.7 - 5.0)		1KΩ≤Rn≤100KΩ
Tolerance*		±30%
Taper		Linear
Nominal power	50°C (122°F)	0.25W
Max. voltage*		50 VDC
Linearity	upon request	±3%...±5%
Torque	standard low	0.5 to 2.5 Ncm. ≤ 1.5 Ncm.
Mechanical life*	standard long	1.000 cycles 10.000 cycles
Mechanical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

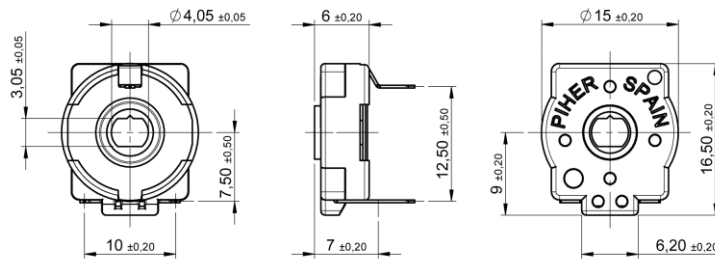


Automotive / Appliance control

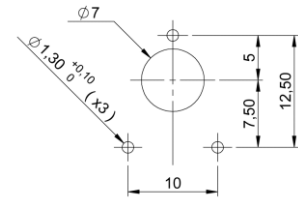
Endless rotation 15mm potentiometer ST-15.

Dimensions

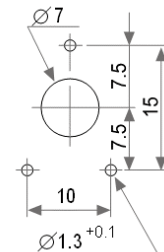
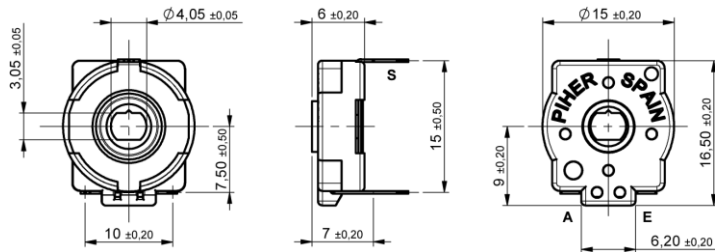
V02



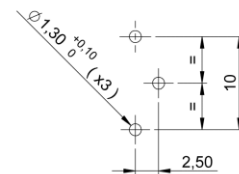
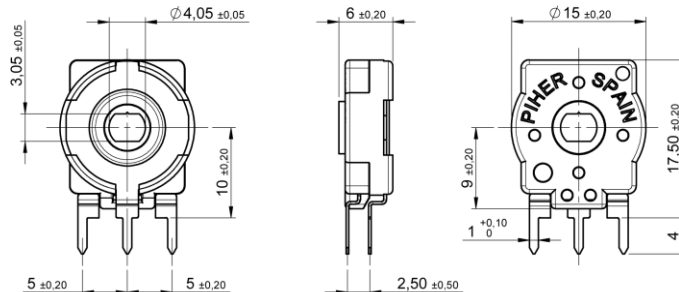
Recommended PCB holes.



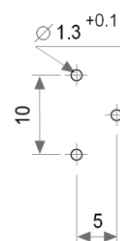
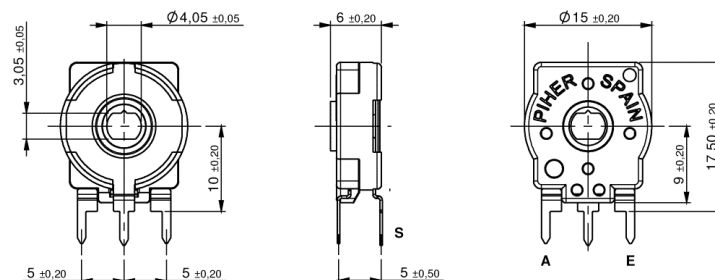
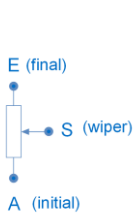
V15



H01



H05



Piher Sensing Systems

Automotive / Appliance control

Endless rotation 15mm potentiometer ST-15.

Shafts and thumbwheels

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



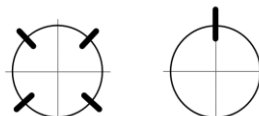
Detents

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

Endless rotation 15mm potentiometer ST-15.

Detents + constant value zones

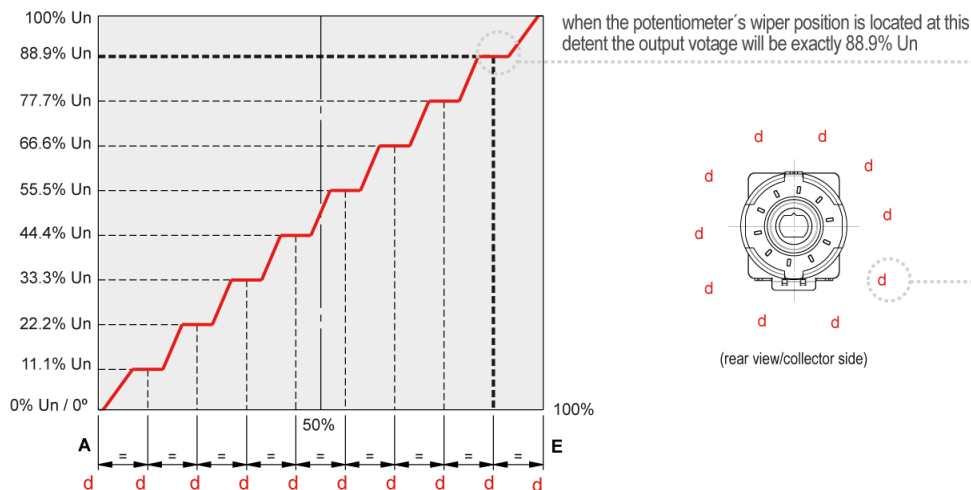
By combining the constant value zones with the detents, engineers can align the same voltage values with each of the detent stops when rotating the control both forward and backward.

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:



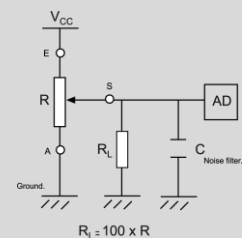
💡 Absolute encoders can easily be replaced connecting the potentiometer to the microprocessor's analogue input.

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)



Disclaimer

The product information in this catalogue is for reference purposes. Please consult for the most up to date and accurate design information.

Piher Sensors & Controls S.A., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Piher"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product described herein.

Piher disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Piher's terms and conditions of sale, including but not limited to the warranty expressed therein, which apply to these products.

No licence, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Piher.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Piher products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Piher for any damages arising or resulting from such use or sale. Please contact authorised Piher personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.

Information contained in and/or attached to this catalogue may be subject to export control regulations of the European Community, USA, or other countries. Each recipient of this document is responsible to ensure that usage and/or transfer of any information contained in this document complies with all relevant export control regulations. If you are in any doubt about the export control restrictions that apply to this information, please contact the sender immediately. For any Piher exports, Note: All products / technologies are EAR99 Classified commodities. Exports from the United States are in accordance with the Export Administration Regulations. Diversion contrary to US law is prohibited.

Piher Sensing Systems an Amphenol[®] company is a registered trademark owned by PIHER SENSORS & CONTROLS, S.A.

Note: All Piher products can be adapted to meet customer's requirements.

Due to continuous process improvement, specifications are subject to change without notice.

Please always use the datasheets published at our website www.piher.net for the most up-to-date information.

V080218



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Piher:

[ST15NH05-103A2020-E-PM-S](#) [ST15NV15-103A2020-E-PM-S](#) [ST15GH01-102A3030-E-PM-S](#) [ST15LV15-502A3030-E-PM-S](#) [ST15LV02-253A3030-S](#) [ST15LV02-104A3030-PM-S](#)