

Single-Turn Continuous Rotation Analog Displacement Sensor



FEATURES

- Conductive plastic potentiometer technology, infinite resolution
- Servo mount anodized light alloy housing
- Precious metal contacts
- Stainless steel shaft and bearings
- Applicable standards: NFC 93255, MIL R39023
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



LINKS TO ADDITIONAL RESOURCES



3D Models

QUICK REFERENCE DATA

Sensor type	ROTATIONAL, conductive plastic
Output type	Output by turrets
Market appliance	Industrial, avionics
Dimensions	1/2" (12.7 mm)

ELECTRICAL SPECIFICATIONS

PARAMETER	
Theoretical electrical travel	340° ± 5°
Independent linearity standard	± 1.0 %
Independent linearity optional	± 0.5 %
Total resistance range (R _n)	1 kΩ to 4.7 kΩ (E3) or 10 kΩ
Tolerance on R _n	± 20 %
Output smoothness	≤ 0.1 %
Power rating at 70 °C	0.5 W (see "Power Rating Chart")
Temperature coefficient	-300 ± 300 ppm/°C
Wiper current	≤ 1 mA
Recommended load impedance	≥ 100 R _n for a linearity = 1 % ≥ 1000 R _n for a linearity ≤ 0.5 %
Insulation resistance	≥ 10 GΩ at 500 V _{DC}
Dielectric strength	500 V _{RMS} , 50 Hz, 1 min

MECHANICAL SPECIFICATIONS

PARAMETER	
Mechanical rotation	360° continuous
Running and starting torque	≤ 10 cN cm
Moment of inertia	≤ 0.2 g cm ²
Protection class	IP 50
Weight	< 5 g
Mounting	Synchro

PERFORMANCE

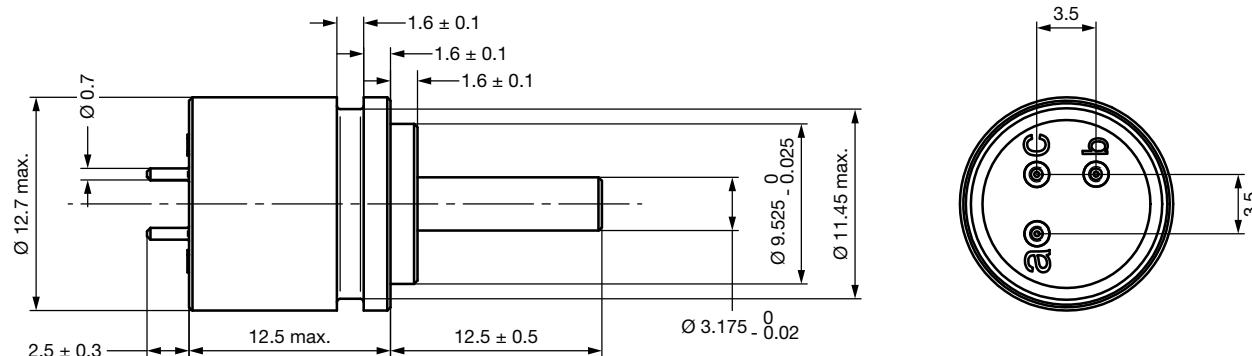
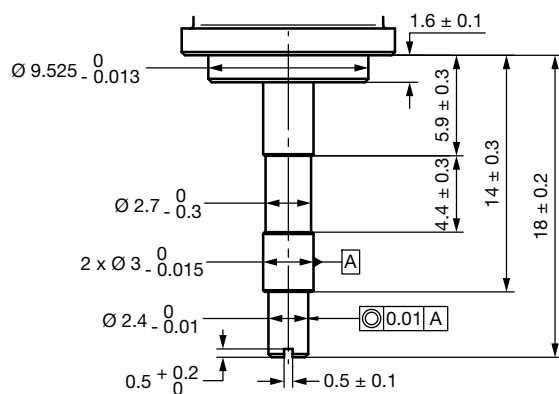
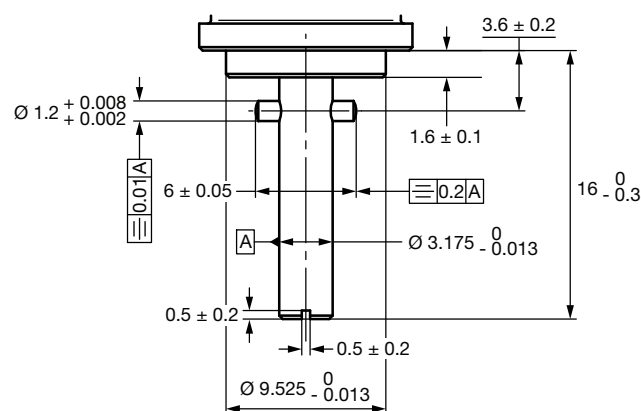
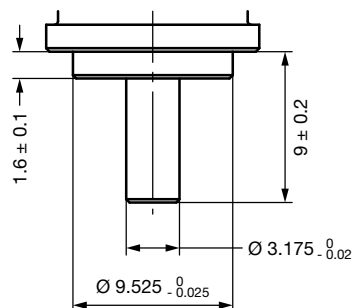
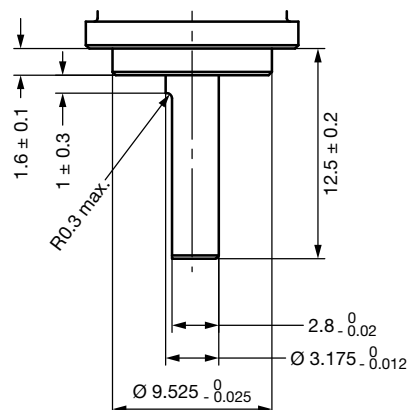
PARAMETER	
Operating temperature range	-55 °C to +125 °C
Life	10M cycles
Rotation speed (max.)	600 rpm (1000 rpm on request)

Note

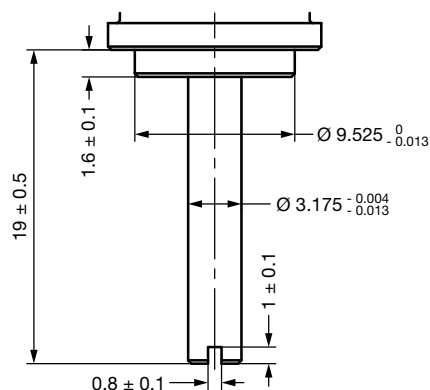
- Nothing stated herein shall be construed as a guarantee of quality or durability

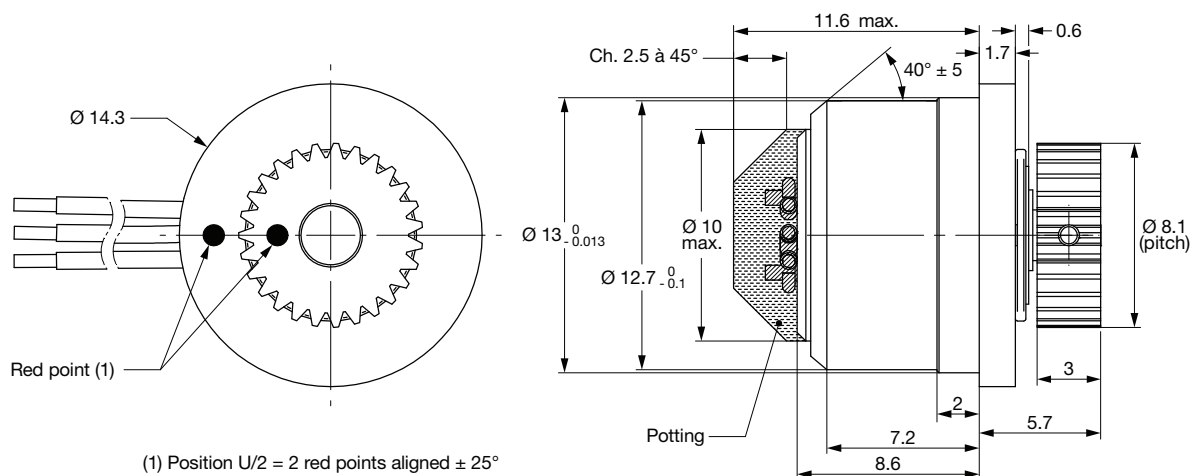
SAP PART NUMBERING GUIDELINES

MODEL	MOUNTING	TYPE	VALUE	LINEARITY	ANGLE	PACKAGING
PP12	S = servo	R = ball bearing	102 = 01K 472 = 4.7K	A	340	B = box

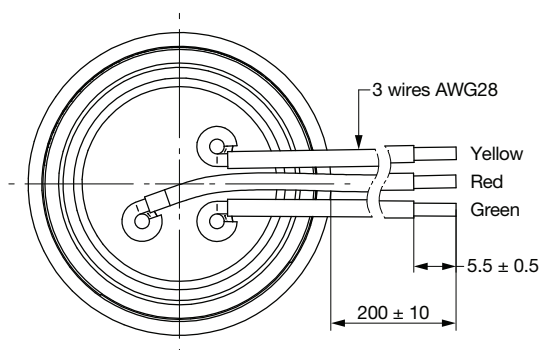
DIMENSIONS in millimeters

SHAFT DESIGNS ON REQUEST
OPTION 1

OPTION 2

OPTION 3

OPTION 4


DIMENSIONS in millimeters

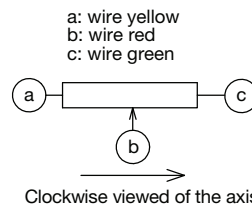
OPTION 5

DESIGN ON REQUEST
DIMENSIONS in millimeters

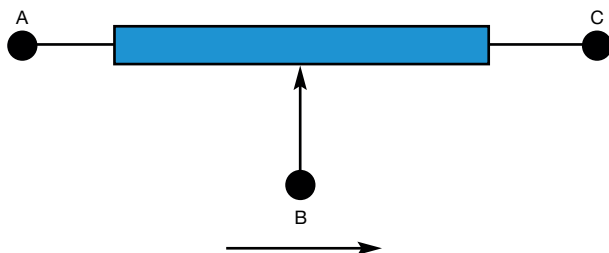
OPTION: BODY SMALL HEIGHT WITH GEAR WHEEL AND WIRES OUTPUT


(1) Position U/2 = 2 red points aligned ± 25°

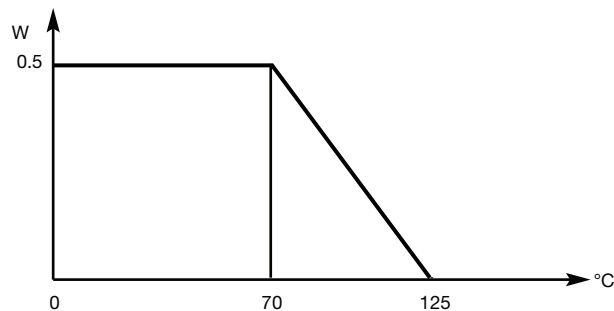


Spur gear:
Module: 0.3
Number of teeth: 27
Rack pinion ref.: NFE23011
Pitch Ø: 8.1
Radial tolerance: 0 / - 0.07
Surface finish: Ra0.8



ELECTRICAL DIAGRAM


Clockwise direction viewed from control shaft side

POWER RATING CHART

OPTIONS (on request)

- Other ohmic values (R_n): 2 k Ω
- Other tolerances on R_n : $\pm 10\%$; $\pm 5\%$
- Other linearities: $\pm 0.3\%$ (on 340°)
- Other theoretical electrical travels and useful electrical travels ($\leq 340^\circ$): consult us
- Center tap
- Other shaft designs (see “Dimensions”)
- Gear wheel (details of design to be discussed with customer)
- Antirotation hole



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.