

# Single-Turn Continuous Rotation Analog Displacement Sensors



## FEATURES

- Conductive plastic potentiometer technology, infinite resolution
- Metal housing
- Stainless steel shaft
- Precious metal contacts
- Soldering terminal outputs
- Dust proof
- Applicable standards: NFC 93255, MIL R39023
- Variant to be specify:
  - PP22 B: bush mounting, plain bearing self lubricating
  - PP22 S: servo mounting, plain bearing self lubricating
  - PP22 SR: servo mounting, precision ball bearing
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## QUICK REFERENCE DATA

Sensor type	ROTATIONAL, conductive plastic
Output type	Output by turrets
Market appliance	Industrial, avionics
Dimensions	7/8" (22.2 mm)

## ELECTRICAL SPECIFICATIONS

PARAMETER	
Total and useful electrical travel	340° ± 3°
Total and useful electrical travel (on request)	90° ± 2° (SR), 120° ± 0° - 2° (SR)
Independent linearity standard	± 1.0 %
Independent linearity optional	B or S: ± 0.5 %, SR: ± 0.25 % and ± 0.2 %
Rated resistance range (R <sub>n</sub> )	4.7 kΩ, 10 kΩ
Tolerance on R <sub>n</sub>	± 20 %, ± 10 %, ± 5 % (on request)
Output smoothness	≤ 0.1 %
Power rating at 70 °C	1 W
Temperature coefficient	-200 ± 200 ppm/°C
Wiper current	≤ 1 mA
Insulation resistance	≥ 1 GΩ at 500 V <sub>CC</sub>
Test voltage	750 V, 50 Hz, 1 min

## MECHANICAL SPECIFICATIONS

PARAMETER	
Mechanical rotation	360° continuous
Starting and running torque	B or S: ≤ 0.5 N cm SR: ≤ 0.1 N cm
Starting torque (on request)	≥ 5 cN cm and ≤ 10 cN cm
Running torque (on request)	≥ 3.5 cN cm and ≤ 10 cN cm
Bush tightening torque (for bushing mount)	≤ 250 N cm
Moment of inertia	≤ 1 g cm <sup>2</sup>
Weight	S or SR: < 13 g B: < 15 g

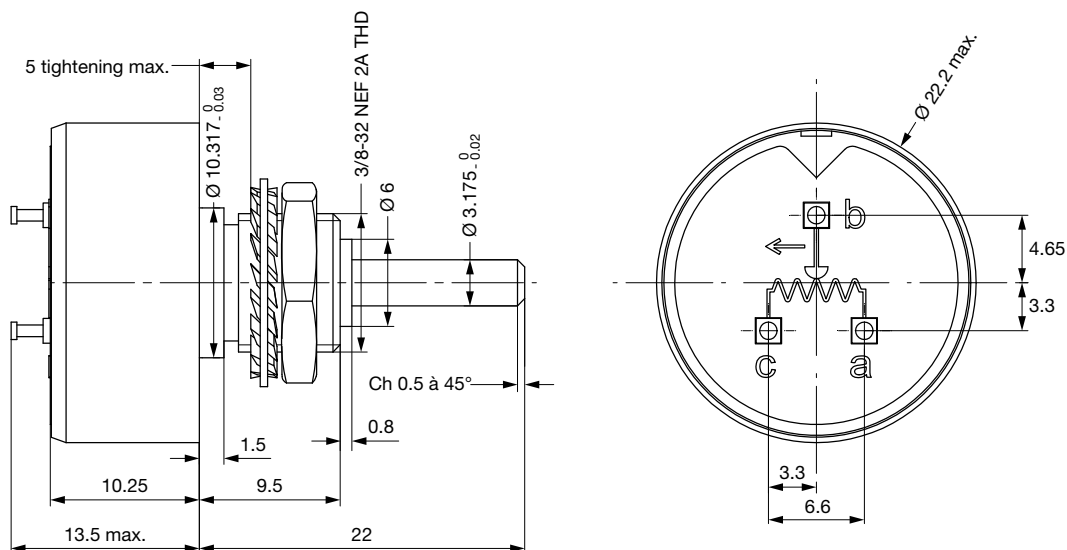
## PERFORMANCE

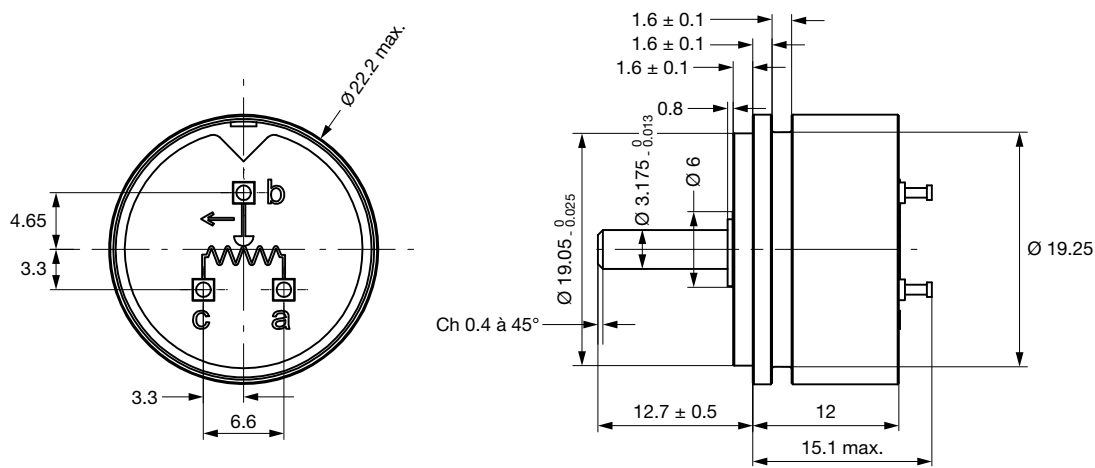
PARAMETER	
Operating temperature range	-55 °C to +125 °C
Life	10M cycles; on request (to test in function of specific cycles) 20M cycles
Rotation speed (max.)	SR: 600 rpm S and B: 120 rpm

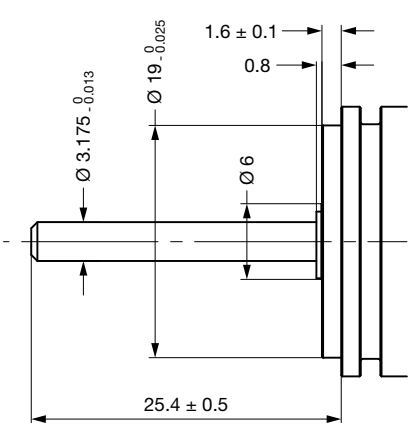
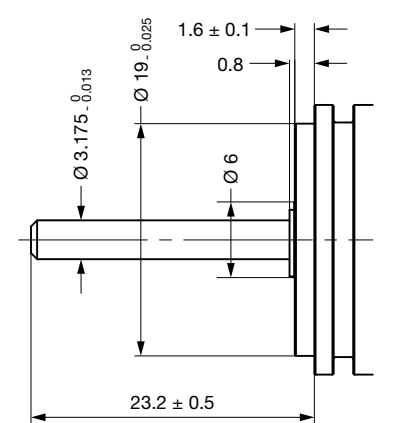
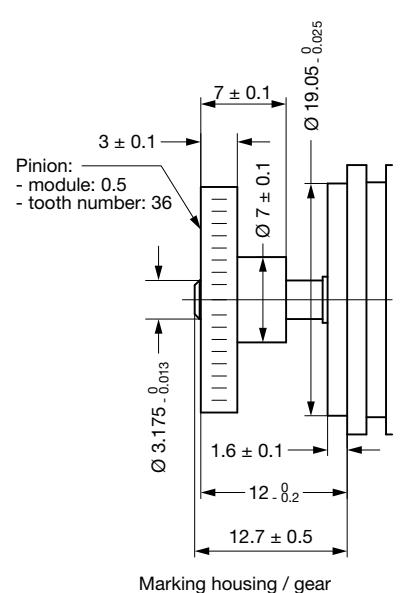
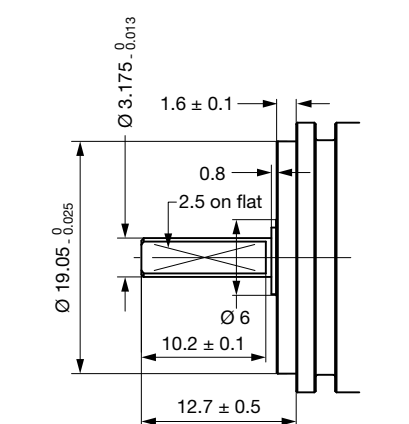
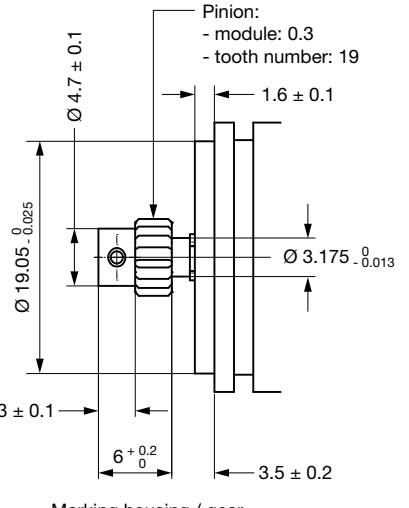
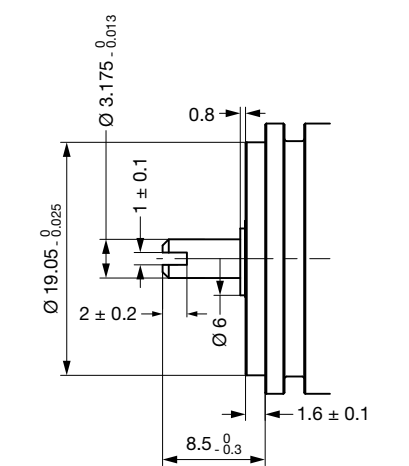
**SAP PART NUMBERING GUIDELINES**

MODEL	MOUNTING	TYPE	VALUE	LINEARITY	ANGLE	PACKAGING
PP22	B = bushing	S = sleeve bearing	472 = 4.7K 103 = 10K	A = 1 % B = 0.5 %	340	B = box
	S = servo	R = ball bearing S = sleeve bearing				

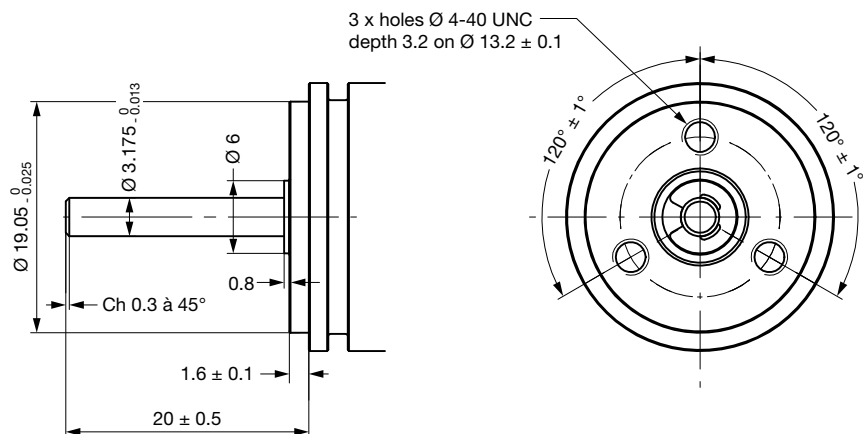
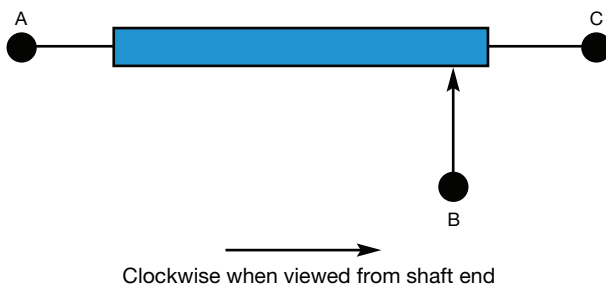
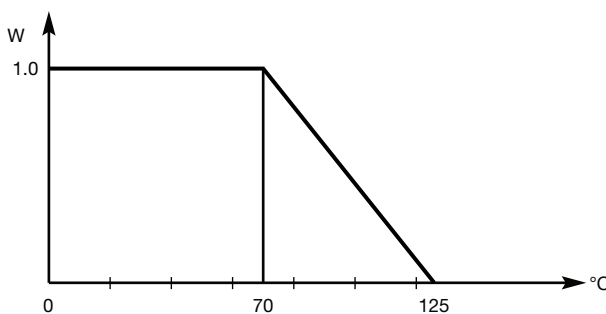
**DIMENSIONS** in millimeters

**PP22 B**

**DIMENSIONS** in millimeters

**PP22 S, PP22 SR**


DIMENSIONS in millimeters		
PP22 S, PP22 SR ON REQUEST		
OPTION 1	OPTION 2	OPTION 3
		 <p>Pinion: - module: 0.5 - tooth number: 36</p> <p>Marking housing / gear</p>
OPTION 4	OPTION 5	OPTION 6
	 <p>Pinion: - module: 0.3 - tooth number: 19</p> <p>Marking housing / gear</p>	

**DIMENSIONS** in millimeters

**PP22 S, PP22 SR ON REQUEST**
**OPTION 7**

**ELECTRICAL DIAGRAM**

**POWER RATING CHART**

**OPTIONS** (on request)

- Other electrical travels:  
345° (0°; + 2°); 345°  $\pm$  3° (SR), 72°  $\pm$  2°
- Other ohmic value: 1 k $\Omega$ , 2 k $\Omega$ , 5 k $\Omega$ , and 47 k $\Omega$
- Other tolerances on  $R_n$
- Other linearities (example: 0.9 %)
- Middle tap: 8°  $\pm$  1°
- Reinforced mechanical fixation on turrets and track to support big efforts (by gluing)
- Insulation resistance 10 G $\Omega$  - 500 V<sub>CC</sub>



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