

# **Single-Turn Continuous Rotation Analog Displacement Sensors**



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

### **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 <u>www.vishay.com/doc?99912</u>

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	$\geq$ 1 G $\Omega$ 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)	$\geq$ 5 cN cm and $\leq$ 10 cN cm				
Running torque (on request)	$\geq$ 3.5 cN cm and $\leq$ 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



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





Revision: 14-Oct-16

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#### **ELECTRICAL DIAGRAM**



Clockwise when viewed from shaft end

**POWER RATING CHART** 



### **OPTIONS** (on request)

- Other electrical travels: 345° (0°; + 2°); 345° ± 3° (SR), 72° ± 2°
- Other ohmic value: 1 kΩ, 2 kΩ, 5 kΩ, and 47 kΩ
- Other tolerances on R<sub>n</sub>
- Other linearities (example: 0.9 %)
- Middle tap: 8° ± 1°

- · Reinforced mechanical fixation on turrets and track to support big efforts (by gluing)
- Insulation resistance 10 G $\Omega$  500 V $_{CC}$

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