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**Vishay Spectrol** 

# **Ten Turns Servo or Bushing Mount Hall Effect** Sensor in Size 09 (22.2 mm)



#### **QUICK REFERENCE DATA** Multi Turn ROTATIONAL, hall effect Sensor type Output type Wires or rear turrets Market appliance Industrial 7/8" (22.2 mm) Dimensions

### **FEATURES**

 All electrical angles available up to: 3600° Accurate linearity down to: ± 0.5 %



- RoHS • Very long life: 50M cycles for servo, 10M cycles COMPLIANT for bushing
- Non contacting technology: Hall effect; true power on sensor
- · Model dedicated to applications requiring long life
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

ELECTRICAL SPECIFICATIONS				
PARAMETER	STANDARD SPECIAL			
Electrical angle	10 turns 3600°	Any other angle upon request		
Linearity	± 1 %	± 0.5 %		
Supply voltage	5 V <sub>DC</sub> ± 10 %	Other upon request		
Supply current	< 16 mA for single	< 32 mA for redundant		
Output signal	Analog ratiometric 1 % to 99 % of V <sub>supply</sub> (other on request) or PWM 1 kHz, 10 % to 90 % duty cycle or SPI binary on 5 V or binary on 3.3 V			
Over voltage protection	+ 20 V <sub>DC</sub>			
Reverse voltage protection	- 10 V <sub>DC</sub>			
Load resistance recommended	Min. 1 k $\Omega$ for analog output and PWM output			
Hysteresis static	10° on drive shaft			

MECHANICAL SPECIFICATIONS		
PARAMETER		
Mechanical travel	3600° continuous	
Bearing type	A sleeve bearing for bushing model/2 ball bearings for servo model	
Standard	IP 50; other on request	
Resolution	12 bits for analog and PWM, 14 bits for SPI	

ORDERING INFORMATION/DESCRIPTION									
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MODEL	MOUNTING TYPE	NUMBER OF SIGNALS	LINEARITY	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST	PACKAGING	LEAD FINISH
	B: Bushing S: Servo	1: Single 2: Redundant	A: ± 1 % B: ± 0.5 %	T: Turrets Z: Custom W: Wires	A: Analog CW B: Analog CCW C: PWM CW D: PWM CCW E: SPI CW <sup>(1)</sup> G: Analog inverted slope H: PWM inverted slope K: SPI inverted slope <sup>(1)</sup> Z: Other output	2: 3.175 mm 9: Special P: Plain S: Slotted Z: Other type	ting face sta	Box of 1 piece	

Note

<sup>(1)</sup> SPI output  $\rightarrow$  output type: Wires

SAP PART NUMBERING GUIDELINES							
34 THE	S	2	В	Т	С	2P12	XXXX
MODEL	SERVO TYPE	2 OUTPUT SIGNALS	LINEARITY	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST
			B: ± 0.5 %				
evision: 25-Jul-1	12		4			Docum	ent Number: 571

Revision: 25-Jul-12

For technical questions, contact: sferprecisionpot@vishay.com

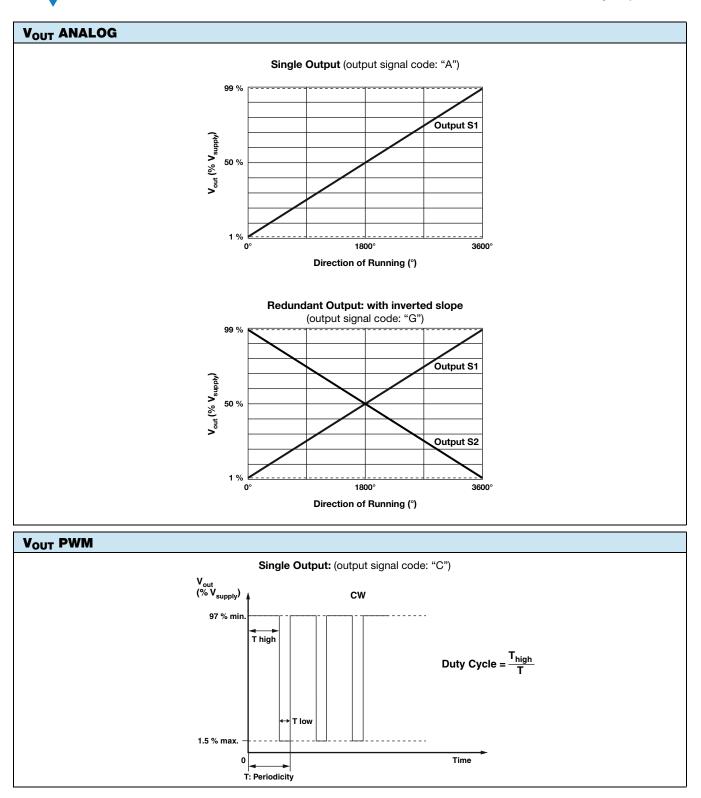
Document Number: 5/114

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## **34 THE**

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### VOUT SPI

#### Notice on demand

Output signal code: "E" if CW (single or redundant identical) Output signal code: "F" if CCW (single or redundant identical) Output signal code: "K" if CW (if redundant but inverted slope)

2

Document Number: 57114



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MECHANICAL SPECIFICATIONS			
PARAMETER	STANDARD SPECIAL		
Mounting type	Servo mounting type or bushing mount (delivered with nut and washer)		
Housing	Anodized aluminum		
Shaft guiding	2 ball bearings for servo and sleeve bearing for bushing		
Shaft	Stainless steel Ø 3.175 Other on request		
Outputs	Turrets Other on request		
Mechanical travel	3600° and no stop		

ENVIRONMENTAL SPECIFICATIONS				
Operating temperature range	- 40 °C; + 85 °C			
Life	<ul><li>&gt; 10M of cycles for bushing</li><li>&gt; 50M of cycles for servo</li></ul>			
Rotational speed (max.)	1200 rpm			
Immunity to radiated electromagnetic disturbances	200 V/m 150 kHz/1 GHz, IEC 62132-2 part 2 (level A)			
Immunity to power frequency magnetic field	200 A/m 50 Hz/60 Hz, EN 61000-4-8 (level A)			
Radiated electromagnetic emissions	30 MHz/1 GHz < 30 dBµV/m, EN 61000-6-4 (level A)			
Electrostatic discharges	Contact discharges: ± 4 kV Air discharges: ± 8 kV, EN 61000-4-2			
Sine vibration on 3 axes	1.5 mm or 20 <i>g</i> from 10 Hz to 2000 Hz			
Mechanical shocks on 3 axes	50 <i>g</i> , 11 ms, half sine			

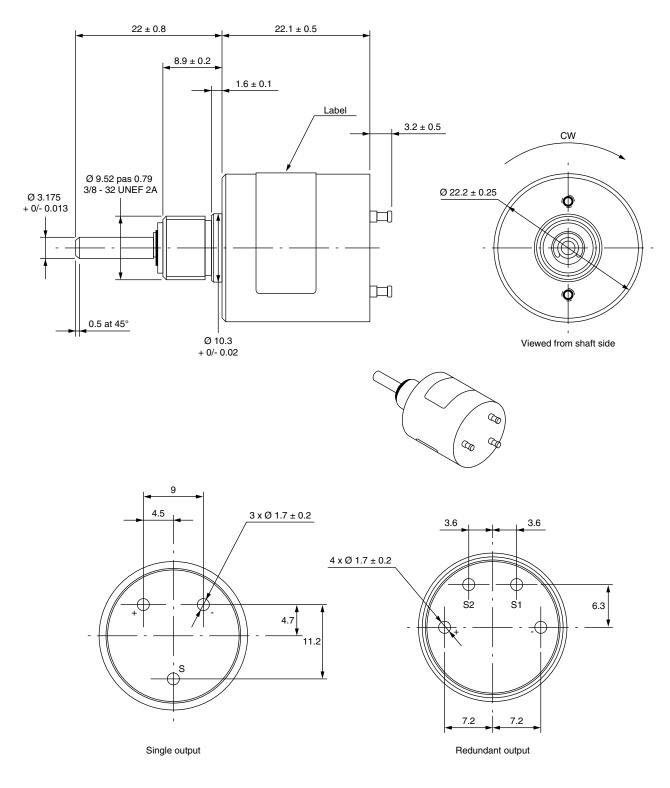
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### **DIMENSIONS** in millimeters

Drawing for bushing mount type: 34THEB...



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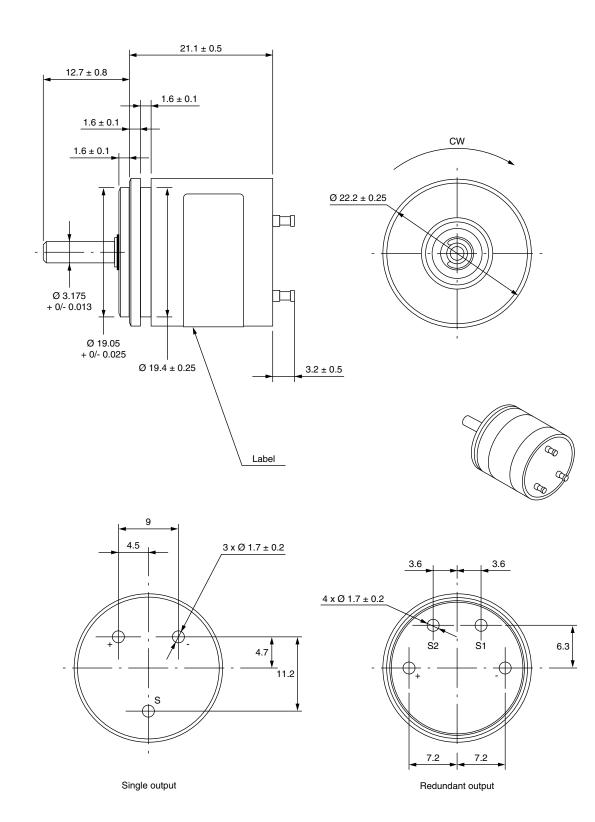
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#### **DIMENSIONS** in millimeters

Drawing for servo mount type: 34THES...

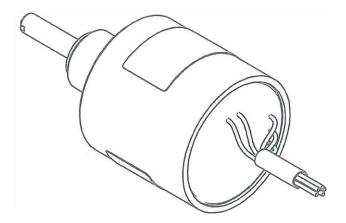


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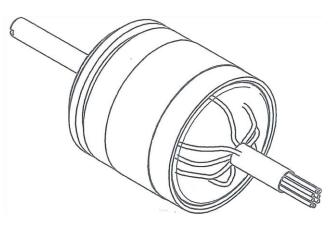
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### **BUSHING AND SERVO TYPES**

Output by wires for output signal "SPI" single and redundant



SINGLE SPI OUTPUT (servo and bushing)			
WIRE COLOR	OUTPUT		
Yellow	GND (-)		
Red	MOSI		
Green	V <sub>CC</sub> (+)		
White	SS		
Blue	SCLK		



REDUNDANT SPI OUTPUT (servo and bushing)			
WIRE COLOR	OUTPUT		
Black	V-		
Red	V+		
Yellow	O/I 1		
Blue	CLK 1		
White	/SS 1		
Green	O/I 2		
Violet	CLK 2		
Grey	/SS 2		

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