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



FEATURES

- All electrical angles available up to: 3600°
- Accurate linearity down to: ± 0.5 %
- Very long life: 50M cycles for servo, 10M cycles 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

RoHS COMPLIANT

QUICK REFERENCE DATA

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

ELECTRICAL SPECIFICATIONS

PARAMETER	STANDARD	SPECIAL
Electrical angle	10 turns 3600°	Any other angle upon request
Linearity	± 1 %	± 0.5 %
Supply voltage	5 V_{DC} ± 10 %	Other upon request
Supply current	< 16 mA for single	< 32 mA for redundant
Output signal	Analog ratiometric 1 % to 99 % of V_{supply} (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_{DC}	
Reverse voltage protection	- 10 V_{DC}	
Load resistance recommended	Min. 1 kΩ 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

34 THE	B	1	A	T	A	2S22	XXXX	BO 1	e1
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 (1) **F**: SPI CCW (1) **G**: Analog inverted slope **H**: PWM inverted slope **K**: SPI inverted slope (1) **Z**: Other output	**2**: 3.175 mm **9**: Special **P**: Plain **S**: Slotted **Z**: Other type		Box of 1 piece	
					Shaft length from mounting face standard: 22 mm				

Note

(1) SPI output → output type: Wires

SAP PART NUMBERING GUIDELINES

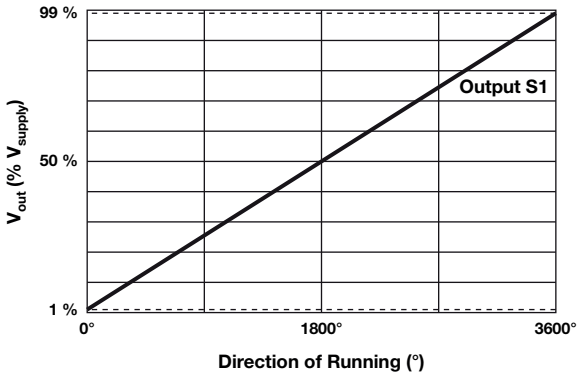
34 THE	S	2	B	T	C	2P12	XXXX
MODEL	SERVO TYPE	2 OUTPUT SIGNALS	LINEARITY	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST
			B: ± 0.5 %				

For technical questions, contact: sferprecisionpot@vishay.com

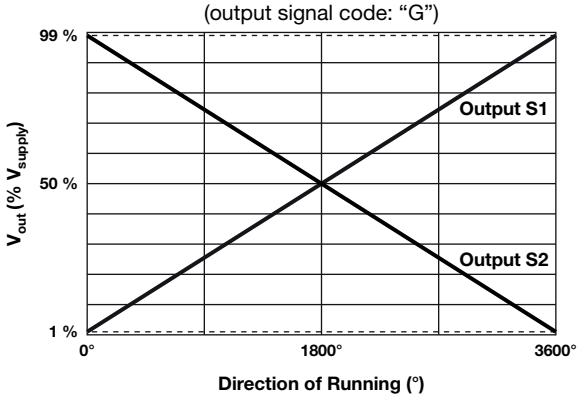
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V_{OUT} ANALOG

Single Output (output signal code: “A”)

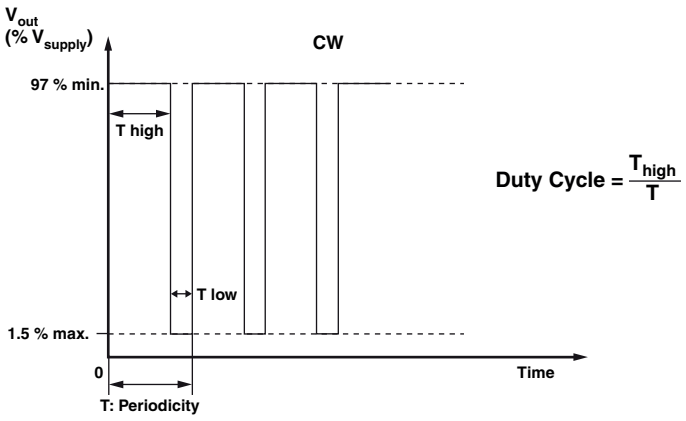


Redundant Output: with inverted slope
(output signal code: “G”)



V_{OUT} PWM

Single Output: (output signal code: “C”)



V_{OUT} 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)

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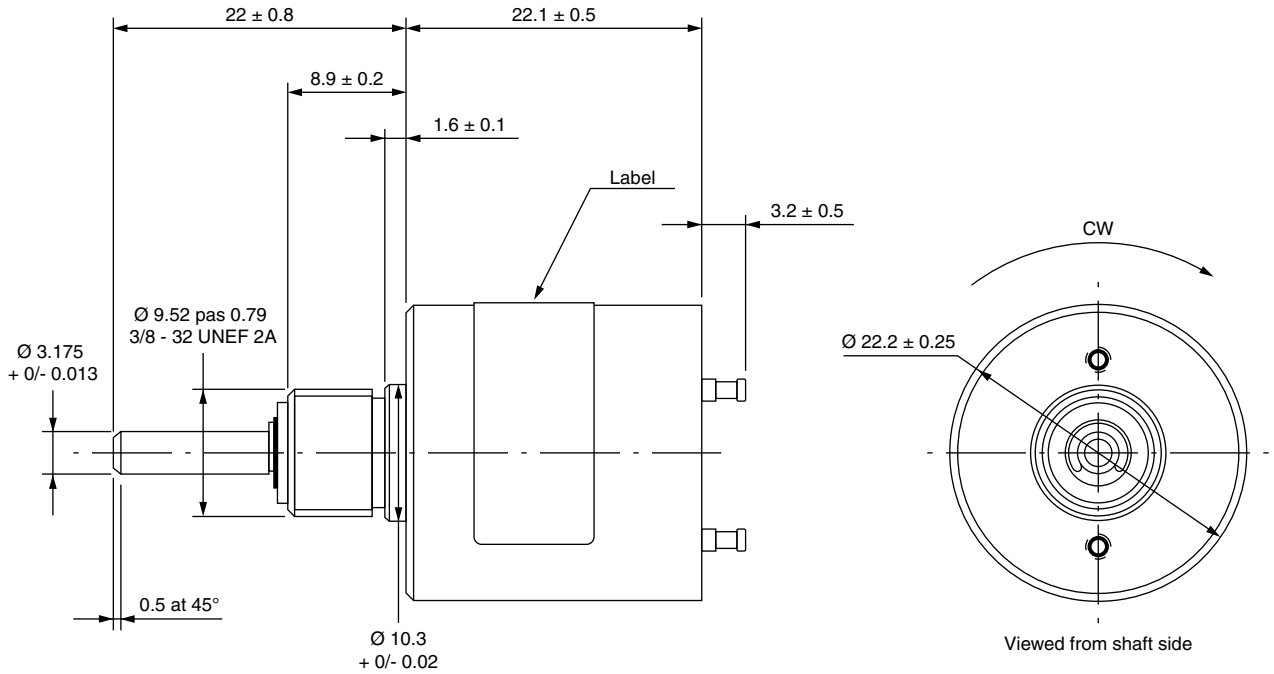
MECHANICAL SPECIFICATIONS		
PARAMETER	**STANDARD**	**SPECIAL**
Mounting type	Servo mounting type or bushing mount (delivered with nut and washer)	
Housing	Anodized aluminum	
Shaft guiding	2 ball bearings for servo and sleeve bearing for bushing	
Shaft	Stainless steel Ø 3.175	Other on request
Outputs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

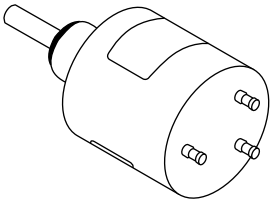
ENVIRONMENTAL SPECIFICATIONS	
Operating temperature range	- 40 °C; + 85 °C
Life	> 10M of cycles for bushing > 50M of cycles for servo
Rotational speed (max.)	1200 rpm
Immunity to radiated electromagnetic disturbances	200 V/m 150 kHz/1 GHz, IEC 62132-2 part 2 (level A)
Immunity to power frequency magnetic 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 *g* from 10 Hz to 2000 Hz
Mechanical shocks on 3 axes	50 *g*, 11 ms, half sine

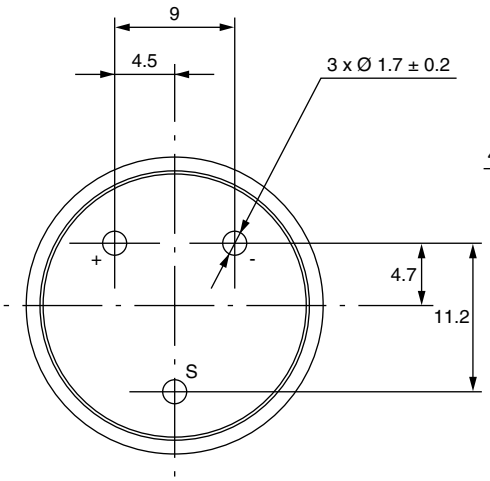
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DIMENSIONS in millimeters

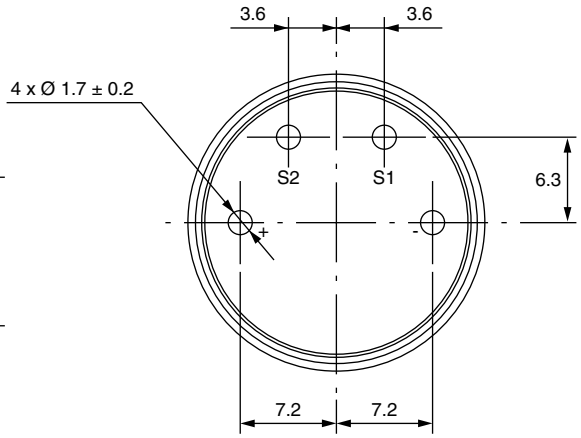
Drawing for bushing mount type: 34THEB...







Single output



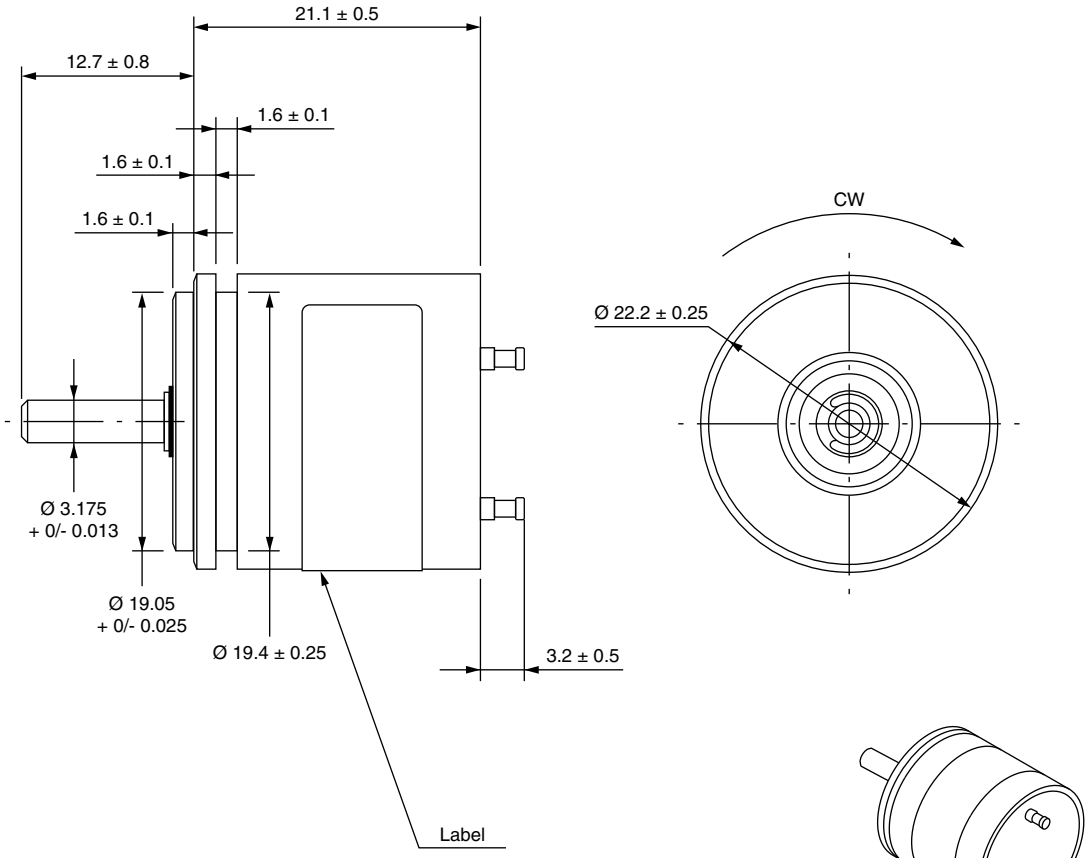
Redundant output

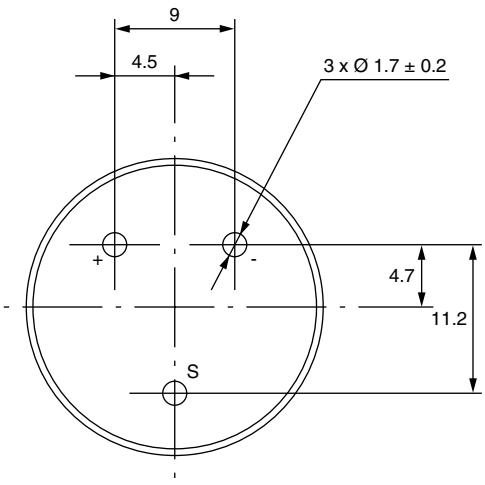
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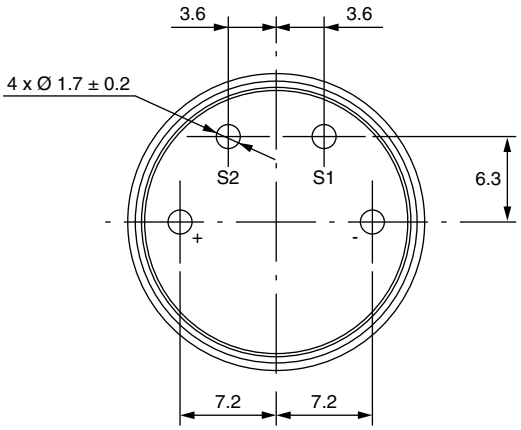
DIMENSIONS in millimeters

Drawing for servo mount type: 34THES...





Single output



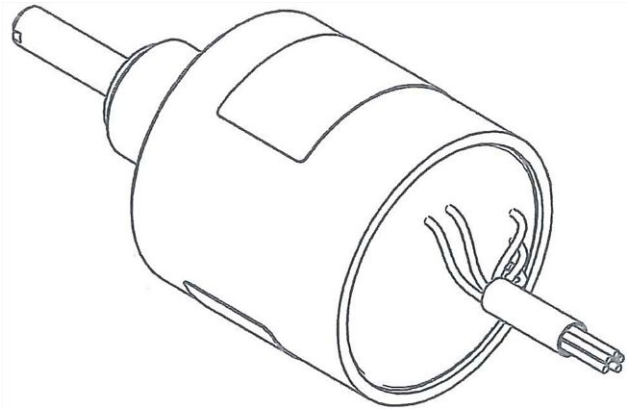
Redundant output

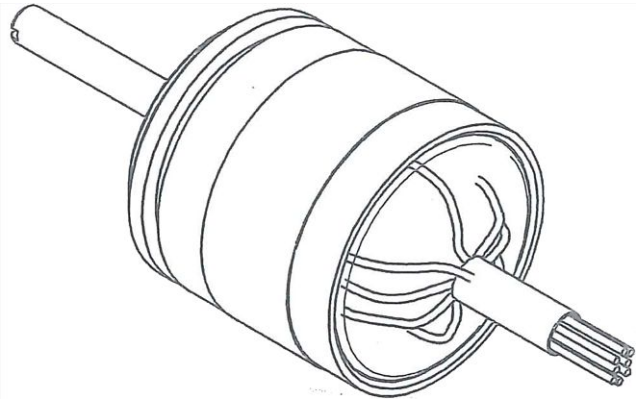
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BUSHING AND SERVO TYPES

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_{CC} (+)
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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