Ten Turns Bushing Mount Hall Effect Sensor in Size 09 (7/8" - 22.2 mm)

FEATURES

- All electrical angles available up to: 3600°
- Accurate linearity down to: ± 1 %
- CW / CCW analog or digital outputs (PWM)
- Dual output signal available
- Long life: 10M cycles
- Non contacting technology: Hall effect, true power on sensor
- Temperature range: -40 °C to +85 °C
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

LINKS TO ADDITIONAL RESOURCES

3D Models

QUICK REFERENCE DATA	
Sensor type	ROTATIONAL, multi turn Hall effect
Output type	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 %	Other upon request
Resolution	1° (0,024% of V_{supply}) (full angle 3600°)	
Supply voltage	5 V_{DC} ± 10 %	Other upon request
Supply current (analog / PWM)	Single output: 8.5 mA (typ.) / 10 mA max.; dual redundant output: 17 mA (typ.) / 20 mA max.	Other upon request
Output signal	Analog ratiometric 5 % to 95 % of V_{supply} or PWM 1 kHz, 10 % to 90 % duty cycle	Other upon request
Over voltage protection (input)	+28 V_{DC}	
Reverse voltage protection (input)	-14 V_{DC}	
Over voltage protection (output)	+28 V_{DC} (+34 V_{DC} peak - 1 h at +25 °C)	
Recommended load resistance	Min. 1 kΩ for analog (pull-up / pull-down) and PWM outputs (pull-up)	
Hysteresis dynamic	20° max. on drive shaft (CW / CCW travels)	

MECHANICAL SPECIFICATIONS	
PARAMETER	
Mechanical travel	3600° continuous
Mounting type	Bushing mount (delivered with nut and washer)
Bearing type	Sleeve bearing
Starting torque (25 °C)	0.2 N.cm (0.283 oz.in)
Running torque (25 °C)	0.1 N.cm (0.142 oz.in)
Marking	Ink marking (PN / date code / pin identification / Vishay logo)

ORDERING INFORMATION/DESCRIPTION

34PHE	B	1	A	T	A	2S22xx	xx
MODEL	STYLE	NUMBER OF SIGNALS	LINEARITY	OUTPUT TYPE	OUTPUT SIGNALS	SHAFT TYPE	SPECIAL REQUEST
	B: bushing	**1**: single **2**: dual / redundant	**A**: ± 1 %	**T**: turrets **W**: wires (on request) **Z**: custom	**A**: analog increasing (1) **B**: analog decreasing (1) **C**: PWM increasing (1) **D**: PWM decreasing (1) **G**: analog inverted slope (2) **H**: PWM inverted slope (2) **Z**: other / custom	**Standard** **2**: 3.175 mm (1/8") **S**: slotted **22**: 22 mm distance from mounting surface **On request** **0**: 6 mm **1**: 6.35 mm (1/4") **9**: custom **P**: plain **Z**: other type	

Notes

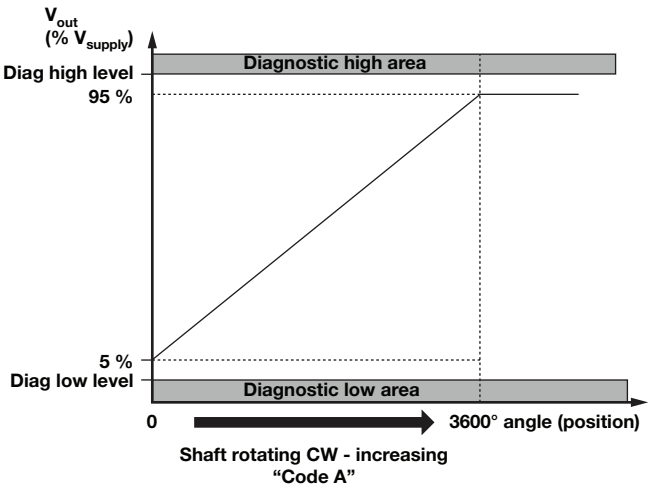
(1) Shaft rotating CW

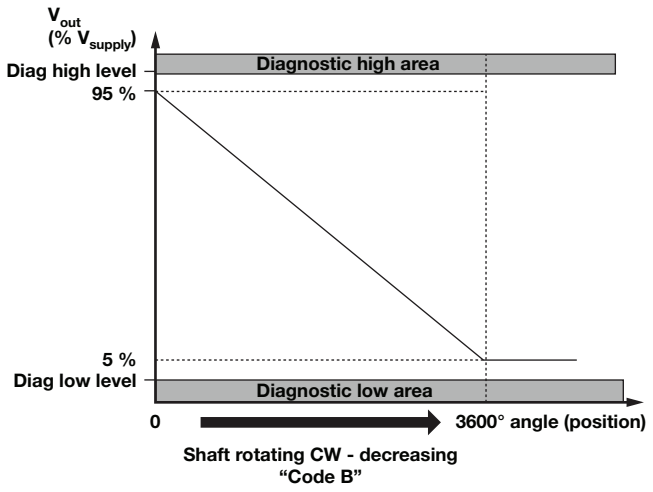
(2) Shaft rotating CW - S1 output increasing / S2 output decreasing

ORDERING INFORMATION (part number)

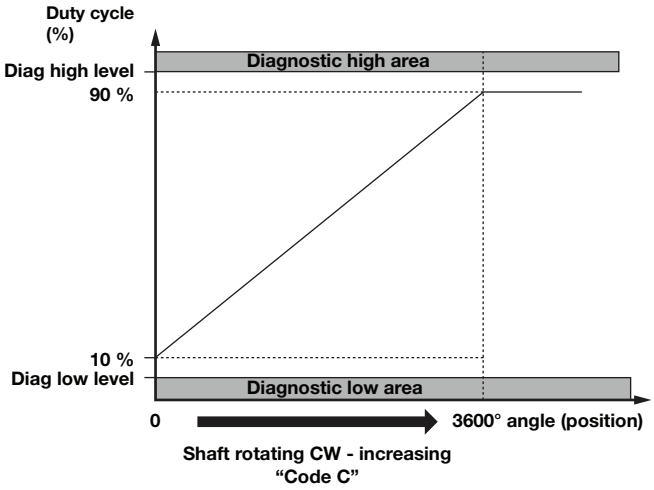
34PHE	B	1	A	T	A	2S22	xxxx	e1
MODEL	STYLE	NUMBER OF SIGNALS	LINEARITY	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST	LEAD (Pb)-FREE

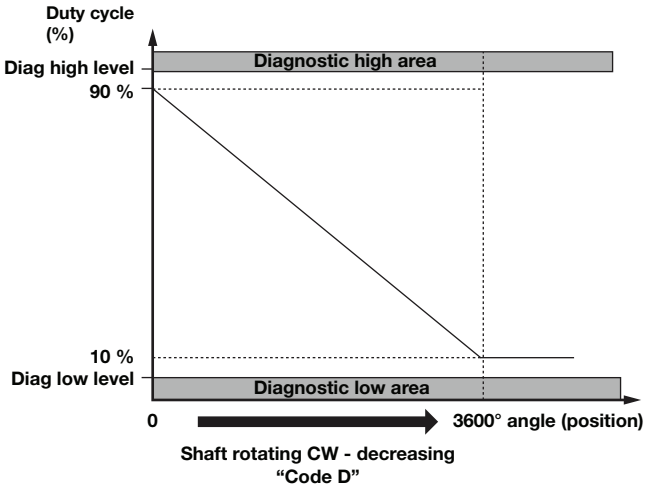
V_{OUT} ANALOG (single output)

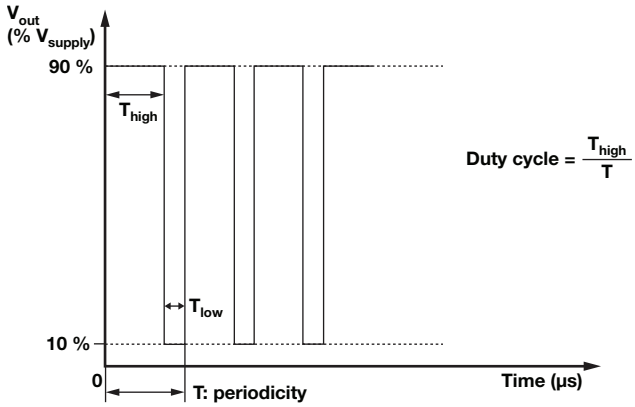




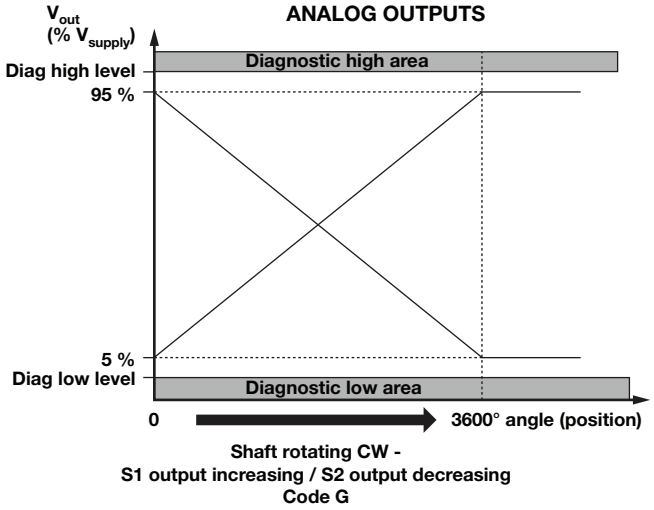
PWM OUTPUT (duty cycle / V_{OUT} - active high)

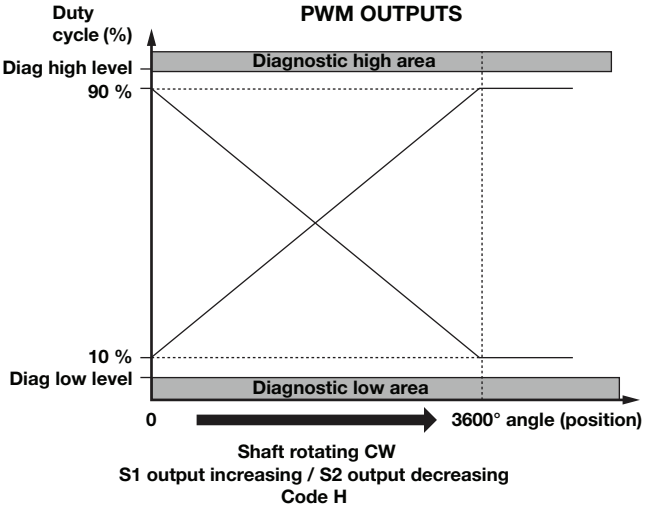




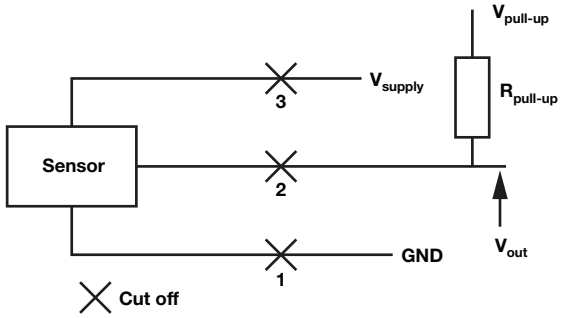


DUAL ANALOG AND PWM OUTPUTS (inverted slopes)





DIAGNOSTIC MODES			
FAILURE	**V_{out} ANALOG $R_{pull-up}$**	**V_{out} ANALOG $R_{pull-down}$**	**V_{out} PWM $R_{pull-up}$ = 1 kΩ $V_{pull-up}$ = V_{supply} = 5 V**
1: Broken GND	Diagnostic high area	Diagnostic low area	> 97 % V_{supply} without modulation
2: Broken V_{out}	Diagnostic high area	Diagnostic low area	> 97 % V_{supply} without modulation
3: Broken V_{supply}	Diagnostic high area	Diagnostic low area	> 97 % V_{supply} without modulation
Over voltage V_{supply} > 7 V	Diagnostic high area	Diagnostic low area	> 97 % V_{supply} without modulation
Under voltage V_{supply} < 2.7 V	Diagnostic high area	Diagnostic low area	> 97 % V_{supply} without modulation

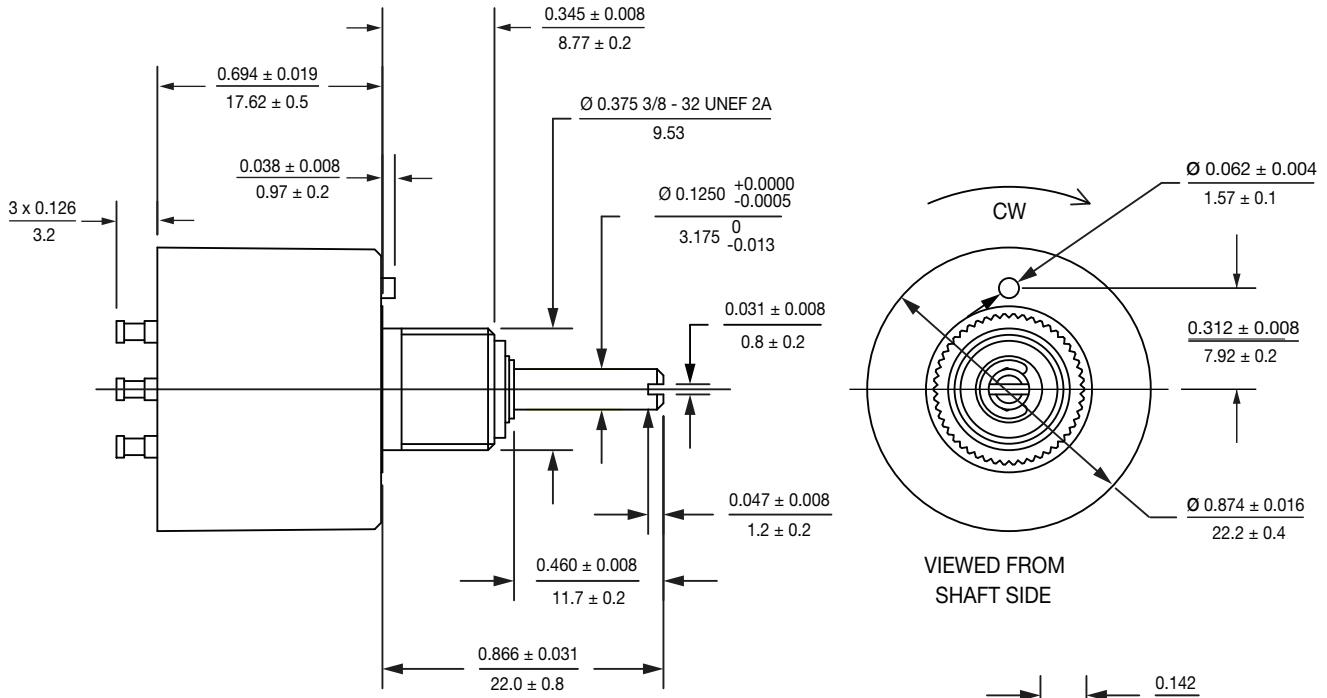


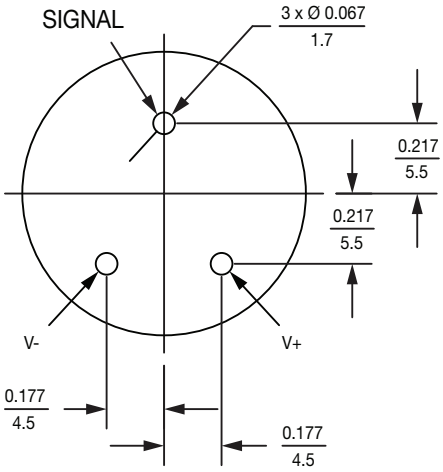
$V_{pull-up}$ can be independent to V_{supply}

ENVIRONMENTAL SPECIFICATIONS	
Life	> 10M of cycles
Rotational speed (max.)	240 rpm
Ingress protection level (Sealing)	IP 50 (shaft side) IP 65 rear side (after soldering and protection of turrets)
Vibrations	Sine vibration on 3 axes, 20 *g* from 10 Hz to 2000 Hz (EN60068-2-6)
Shocks	18 shocks/axis - 50 *g* half a sine - 11 ms (EN60068-2-27)
Operating temperature range	-40 °C to +85 °C
Electrostatic discharges	Contact discharges: ± 4 kV air discharges: ± 8 kV, (EN 61000-4-2)
Immunity to radiated electromagnetic disturbances	200 V/m, 150 kHz to 1 GHz, (IEC 62132-2 part 2 (level A))
Immunity to power frequency magnetic field	200 A/m - magnetic field frequencies 50 Hz / 60 Hz, (EN 61000-4-8 (level A))
Radiated electromagnetic emissions	At 3 m 30 MHz to 230 MHz < 50 dBµV/m 230 MHz to 1 GHz < 57 dBµV/m

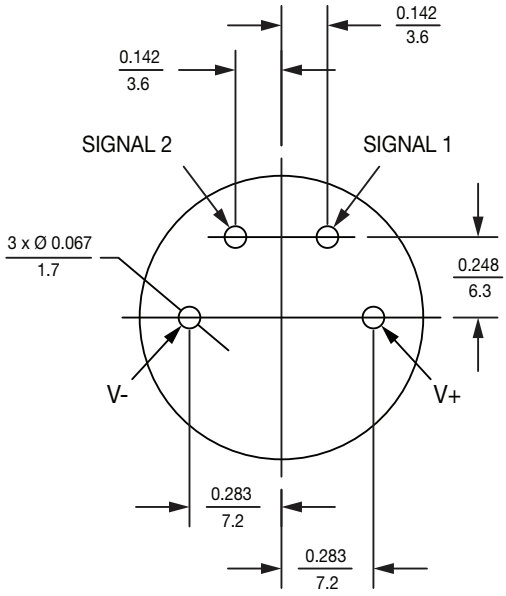
MATERIALS	
Housing	Black thermoplastic
Shaft	Stainless steel
Bushing	Nickel plated brass alloy
Shaft guiding	Sleeve bearing (bronze)
Outputs	Gold plated brass alloy turrets

DIMENSIONS in millimeters

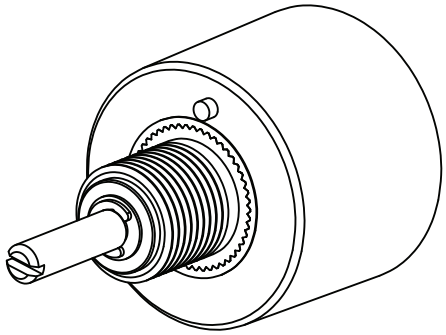




SINGLE OUTPUT



DUAL OUTPUT



Note

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