

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: $\pm 1\%$
- CW / CCW analog or digital outputs (PWM)
- Dual output signal available
- Long life: 10M cycles
- Non contacting technology: Hall effect, true power on sensor
- IP 65 fully sealed
- 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	$\pm 1\%$	Other upon request
Resolution	1° (0,024% of V_{supply}) (full angle 3600°)	
Supply voltage	5 $V_{DC} \pm 10\%$	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 k Ω 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)

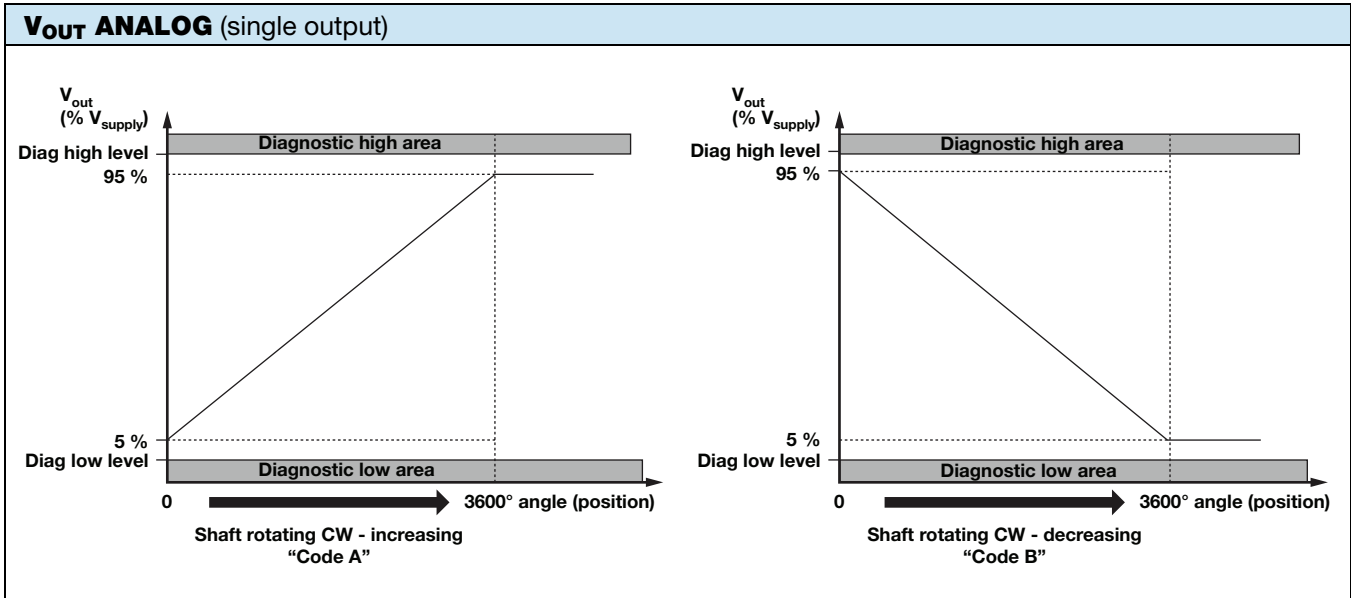


ORDERING INFORMATION/DESCRIPTION							
34PHE	B	1	A	T	A	2S22xx	xx
MODEL	STYLE	NUMBER OF SIGNALS	LINEARITY	OUTPUT TYPE	OUTPUT SIGNALS	SHAFT TYPE	SPECIAL REQUEST
	B: bushing	1: single 2: dual / redundant	A: ± 1 %	T: turrets W: wires (on request) Z: custom	A: analog increasing ⁽¹⁾ B: analog decreasing ⁽¹⁾ 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	

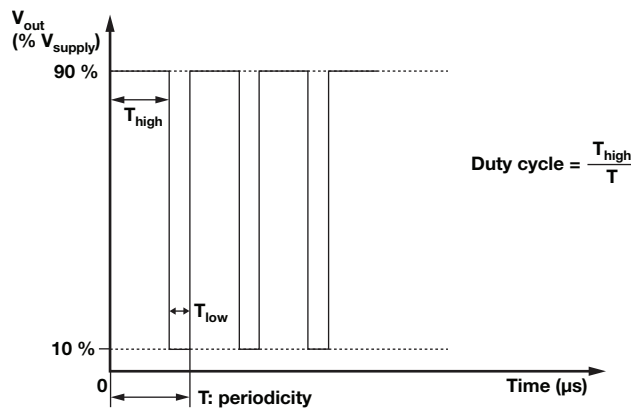
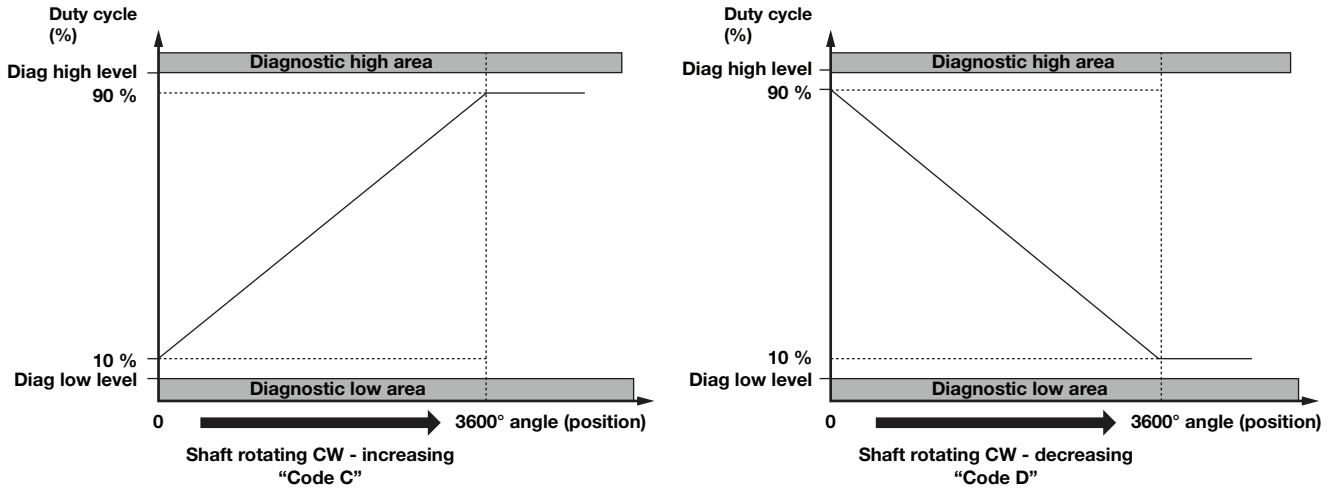
Notes

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

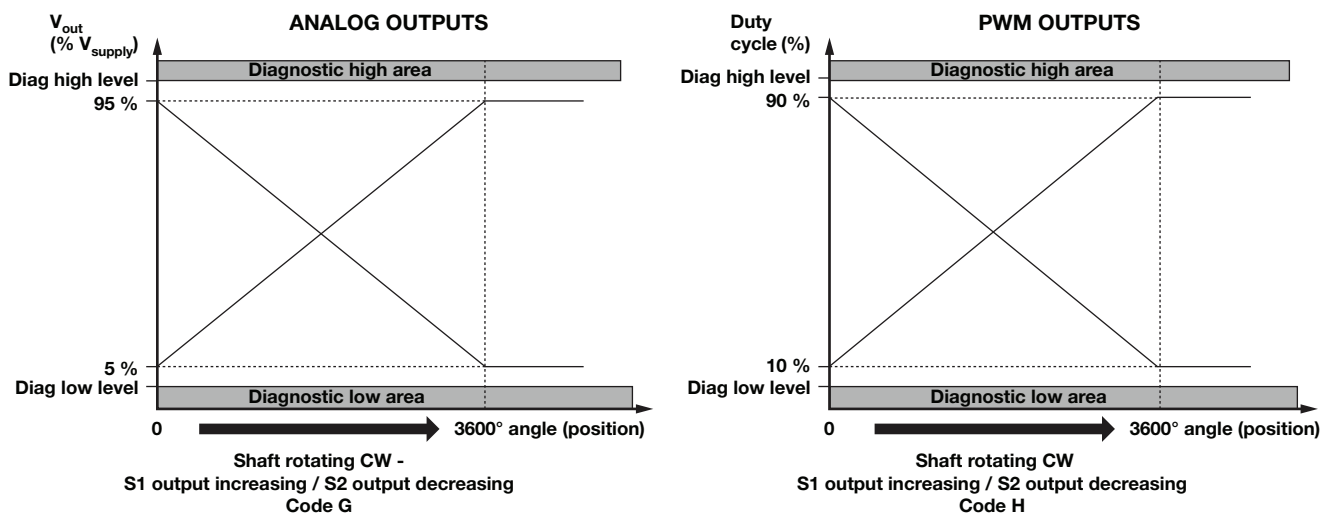
ORDERING INFORMATION (part number)									
34PHE	B	1	A	T	A	2S22	xxxx	e1	
MODEL	STYLE	NUMBER OF SIGNALS	LINEARITY	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST	LEAD (Pb)-FREE	



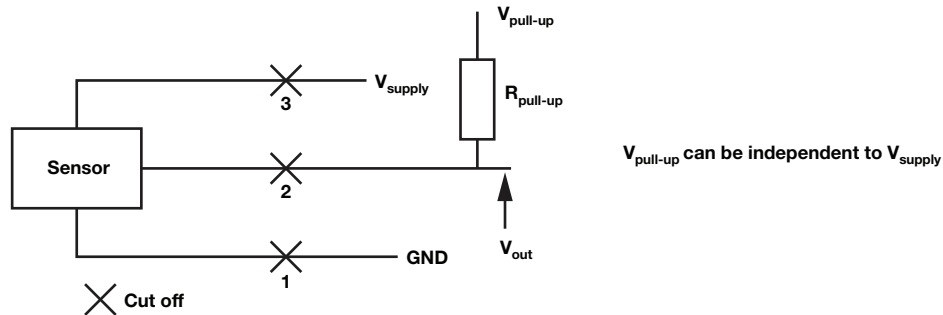
PWM OUTPUT (duty cycle / V_{OUT} - active high)



DUAL ANALOG AND PWM OUTPUTS (inverted slopes)



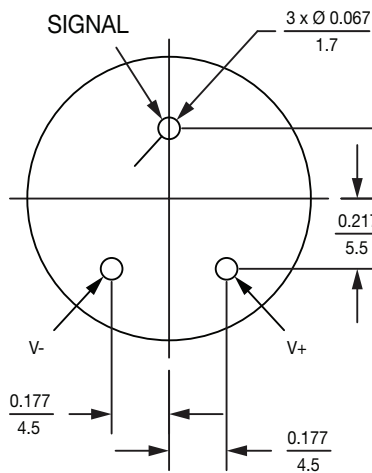
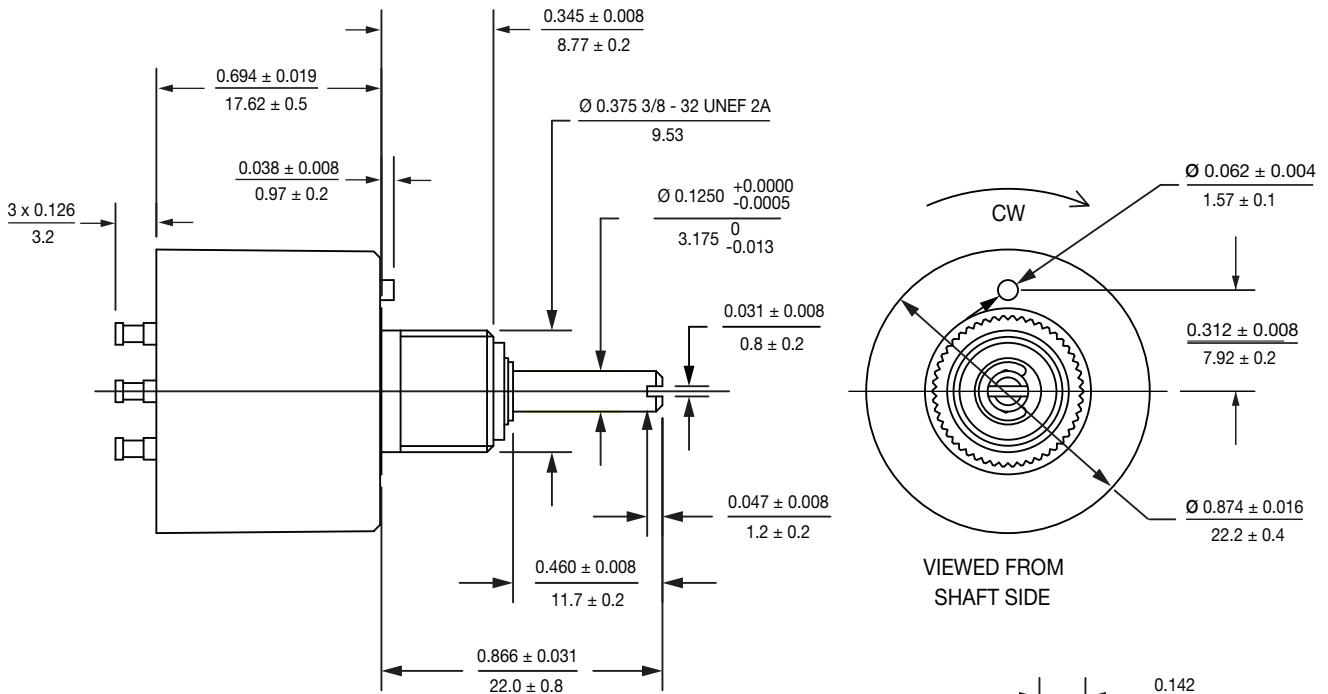
DIAGNOSTIC MODES			
FAILURE	V_{out} ANALOG $R_{pull-up}$	V_{out} ANALOG $R_{pull-down}$	V_{out} PWM $R_{pull-up} = 1\text{ k}\Omega$ $V_{pull-up} = V_{supply} = 5\text{ V}$
1: Broken GND	Diagnostic high area	Diagnostic low area	> 97 % V_{supply} without modulation
2: Broken V_{out}	Diagnostic high area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



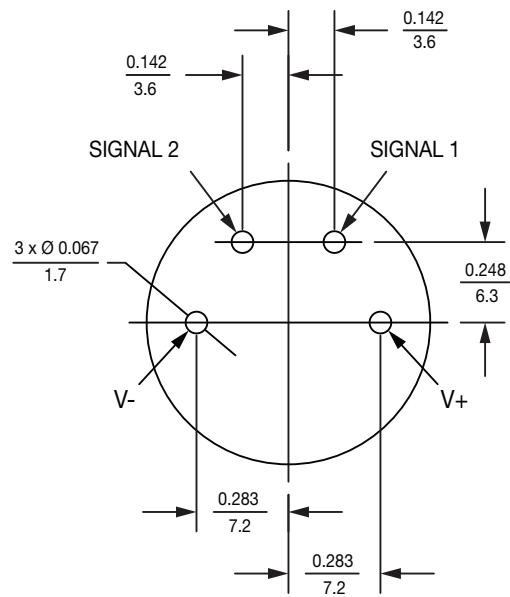
ENVIRONMENTAL SPECIFICATIONS	
Life	> 10M of cycles
Rotational speed (max.)	240 rpm
Ingress protection level (Sealing)	IP 65 (after soldering and protection of turrets)
Vibrations	Sine vibration on 3 axes, 20 g from 10 Hz to 2000 Hz (EN 60068-2-6)
Shocks	18 shocks/axis - 50 g half a sine - 11 ms (EN 60068-2-27)
Operating temperature range	-40 °C to +85 °C
Electrostatic discharges	Contact discharges: $\pm 4\text{ kV}$ air discharges: $\pm 8\text{ kV}$, (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 dB μ V/m 230 MHz to 1 GHz < 57 dB μ V/m

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

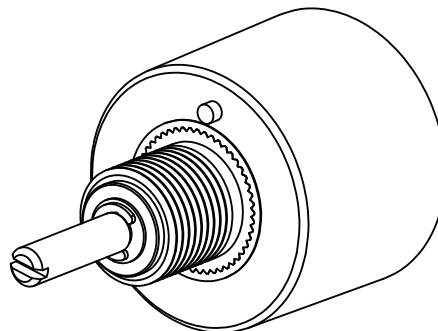
DIMENSIONS in millimeters



SINGLE OUTPUT



DUAL OUTPUT



Note

- Nothing stated herein shall be construed as a guarantee of quality or durability



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.