

## Single Turn Bushing Mount Hall Effect Sensor in Size 09 (22.2 mm)



### FEATURES

- Accurate linearity down to:  $\pm 0.5\%$
- All electrical angles available up to:  $360^\circ$  (no dead band)
- Long life: greater than 10M cycles
- Non contacting technology: Hall effect
- Model dedicated to all applications in harsh environments



### ELECTRICAL SPECIFICATIONS

PARAMETER	STANDARD	SPECIAL
Electrical angle	$90^\circ, 180^\circ, 270^\circ, 360^\circ$	Any other angle upon request
Linearity	$\pm 1\%$	$\pm 0.5\%$
Supply voltage	5 V (DC) $\pm 10\%$	Other upon request
Supply current	10 mA typical	16 mA for PWM output
Output signal	Analog ratiometric 10 % to 90 % of $V_{\text{supply}}$ or PWM 10 % to 90 % duty cycle	Other upon request
Over voltage protection	+ 20 V (DC)	
Reverse voltage protection	- 10 V (DC)	
Load resistance recommended	Min. 1 k $\Omega$ for analog output and PWM output	
Hysteresis	< 0.2 %	

### MECHANICAL SPECIFICATIONS

PARAMETER	
Mechanical travel	$360^\circ$ continuous, stops upon request: $340^\circ \pm 3^\circ$
Bearing type	Sleeve bearing
Standard	IP 50; other on request
Weight	20 g $\pm 2$ g

### ORDERING INFORMATION/DESCRIPTION

351HE	0	A	1	W	A	1S22	XXXX	BO 10	e1
MODEL	FEATURES	LINEARITY	ELECTRICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST	PACKAGING	LEAD FINISH
0:	continuous rotation and antirotation pin	A: $\pm 1\%$ B: $\pm 0.5\%$	1: $90^\circ$ 2: $180^\circ$ 3: $270^\circ$ 4: $360^\circ$ 9: other angles	W: wires Z: custom	A: analog CW B: analog CCW C: PWM CW D: PWM CCW Z: other output	0: 6 mm 1: 6.35 mm 2: 3.175 mm 9: special P: plain S: slotted Z: other type		Box of 10 pieces	
1:	continuous rotation and no antirotation pin								
2:	stops at $340^\circ$ and antirotation pin								
3:	stops at $340^\circ$ and no antirotation pin								
Shaft length from mounting face 22 mm to 72 mm max. per step of 5 mm									

### SAP PART NUMBERING GUIDELINES

351HE	1	B	9	Z	C	0P27	XXXX
MODEL	MECHANICAL FEATURES	LINEARITY	ELECTRICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST



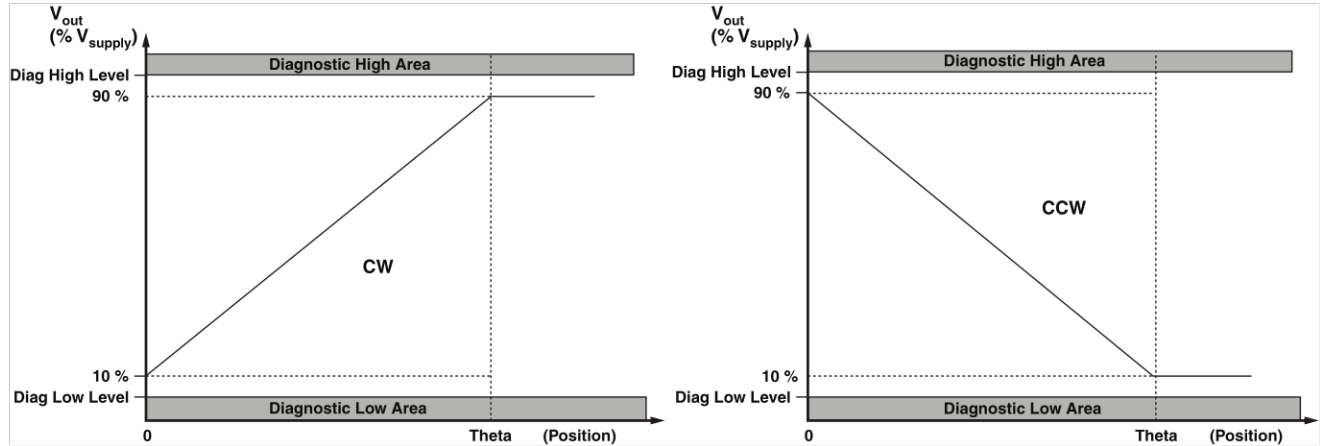
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**Model 351 HE**

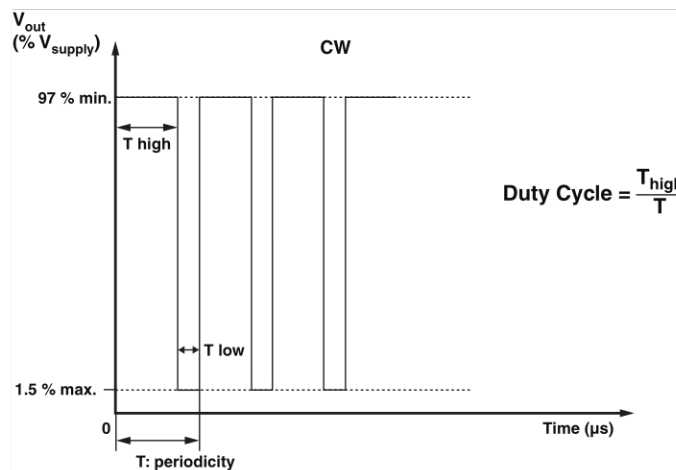
Vishay Spectrol

## V<sub>OUT</sub> ANALOG

Operating temperature	85 °C	125 °C
Diagnostic High Level	96 % min.	96 % min.
Diagnostic Low Level	2 % max.	4 % max.

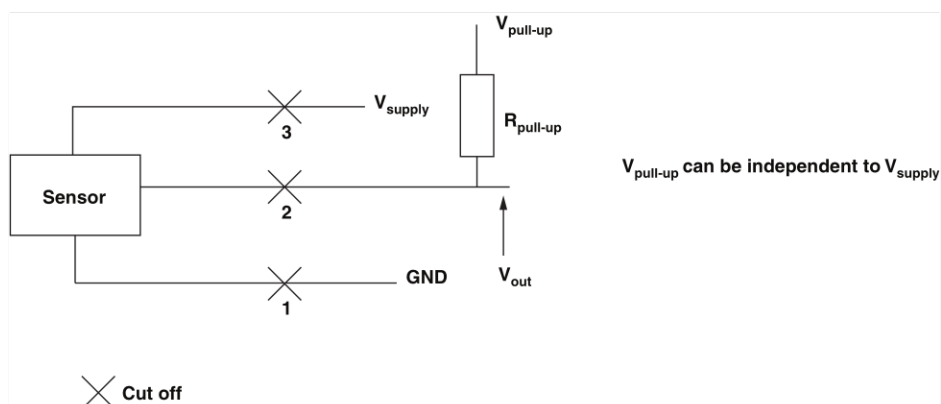


## V<sub>OUT</sub> PWM



## 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

Vibrations	20 G from 10 Hz to 2000 Hz
Shocks	3 shocks/axis; 50 G half a sine 11 ms
Operating temperature range	- 45 °C; + 125 °C
Life	> 10M of cycles
Rotational speed (max)	120 rpm
Immunity to radiated electromagnetic disturbances	200 V/m 150 kHz/1 GHz
Immunity to power frequency magnetic field	200 A/m 50 Hz/60 Hz
Radiated electromagnetic emissions	30 MHz/1 GHz < 30 dBμV/m
Electrostatic discharges	Contact discharges: $\pm 4\text{ kV}$ Air discharges: $\pm 8\text{ kV}$
<b>Materials</b>	
Housing	Thermoplastic housing
Bushing	Brass nickel plated
Shaft	Stainless steel
Output	3 lead wires
<b>Bushing mount hardware</b>	
Lockwasher internal tooth	Steel nickel plated
Panel nut	Brass nickel plated

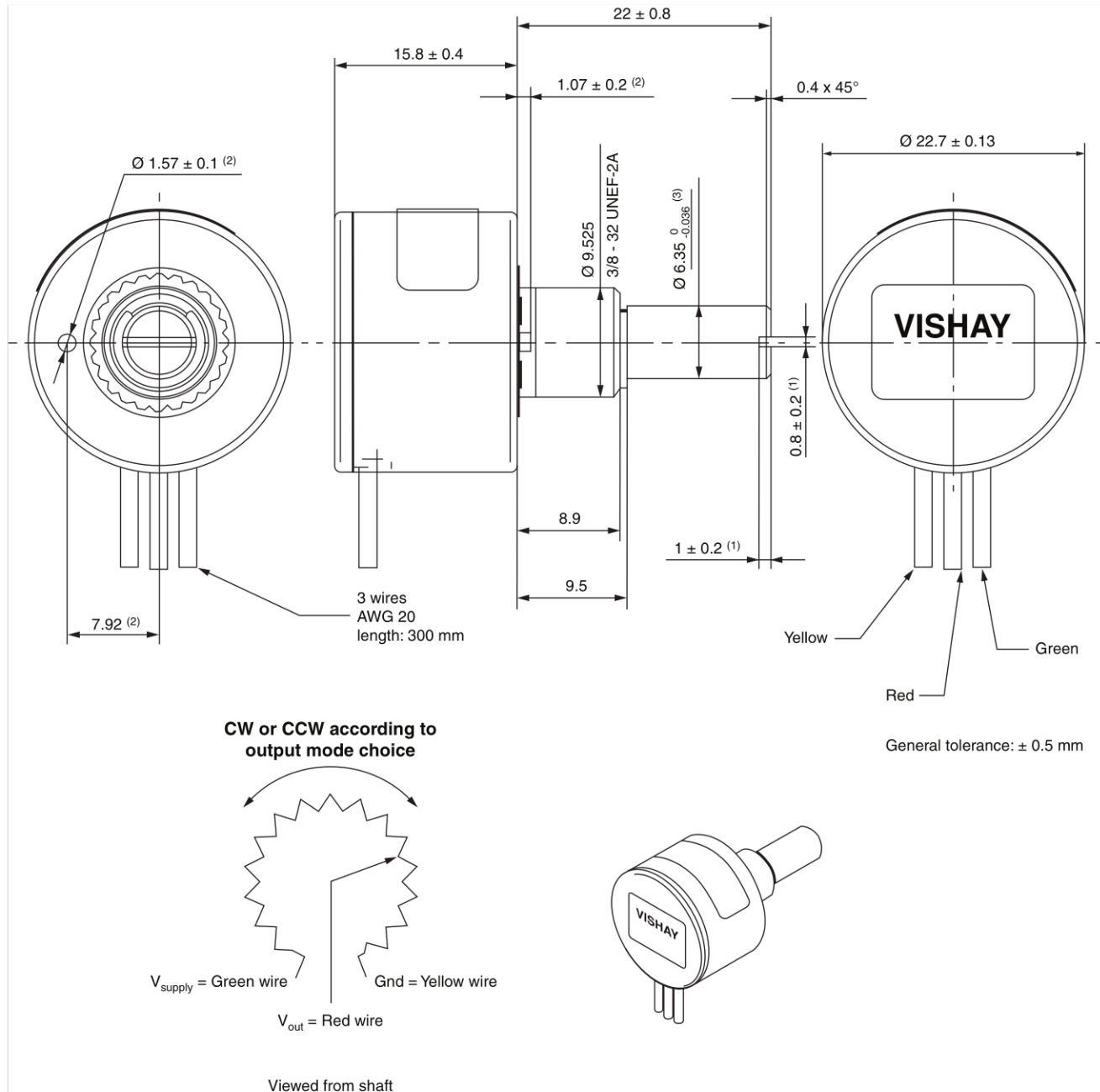


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Model 351 HE

Vishay Spectrol

## DIMENSIONS in millimeters



### Notes:

- (1) For version slotted shaft
- (2) For version non turn pin
- (3) For shaft type "1"

## MARKING

Unit  
identification

Manufacturer's name and complete sap part reference, date code, and wiring correspondance: colors  
versus connections.



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