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Vishay Spectrol

Throttle Position Sensor in Hall Effect Technology Hollow and D-Shaft Versions



FEATURES

• Accurate linearity down to: ± 0.5 %



• Easy mounting principle

- Non contacting technology: Hall effect
- Model dedicated to all applications in harsh environments
- Spring loaded types available
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

3D	
Models Available	

QUICK REFERENCE DATA				
Sensor type ROTATIONAL, single turn hall effect				
Output type	Wires			
Market appliance	Industrial			
Dimensions	47 mm x 22 mm			

ELECTRICAL SPECIFICATIONS					
PARAMETER	STANDARD	SPECIAL			
Electrical angle	90°, 120°, 180°, 270°, 360°	Any other angle upon request			
Linearity	± 1 %	± 0.5 %			
Supply voltage	5 V _{DC} ± 10 %	Other upon request			
Supply current	10 mA typical / 16 mA max.	16 mA for PWM output			
Output signal	Analog ratiometric 10 % to 90 % of V _{supply} or PWM 1 kHz, 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 kΩ for analog output and PWM output				
Hysteresis static (D-shaft version)	< 0.	< 0.3°			

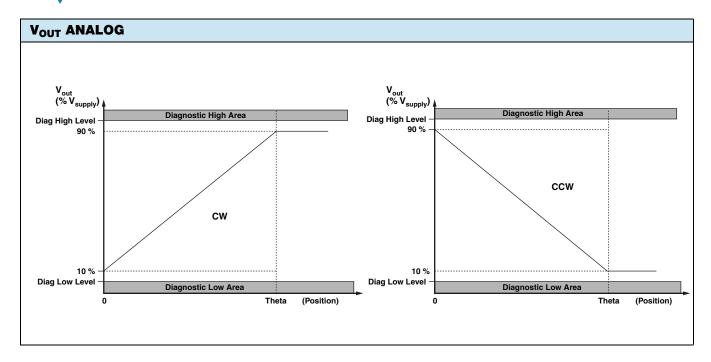
MECHANICAL SPECIFICATIONS				
PARAMETER				
Mechanical travel	360° continuous, stops upon request: 124° ± 3°			
Bearing type Sleeve bearing				
Standard	IP 50; other on request			
Weight	19 g ± 2 g hollow shaft model/22 g ± 2 g D-shaft model			

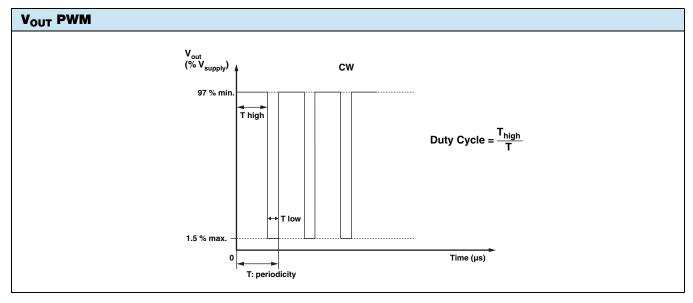
ORDE	RING INFO	RMATIO	N/DESCRIP	TION					
981HE	0	Α	1	W	Α	1F16	XXXX	BO 10	e1
MODEL	FEATURES	LINEARITY	ELECTRICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST	PACKAGING	LEAD FINISH
1: mecha 2: spring 3: spring For 1, 2	nous rotation anical stops return CW return CCW 2, 3: max.	A: ± 1 % B: ± 0.5 %	1: 90° 2: 180° 3: 270° 4: 360° 5: 120° 9: other angles	W: wires Z: custom	A: analog CW B: analog CCW C: PWM CW D: PWM CCW Z: other output	1: 6.35 mm 9: special P: plain F: flatted S: slotted Z: other type		Box of 10 pieces	
electrical angle is: 120° Shaft length from mounting face (standard: 16 mm) 8H00 hollow shaft 8H01 hollow D-shaft									

SAP PART	T NUMBERING	GUIDELINE	S				
981HE	1	В	9	Z	С	8H01	XXXX
MODEL	MECHANICAL FEATURES	LINEARITY	ELECTICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST

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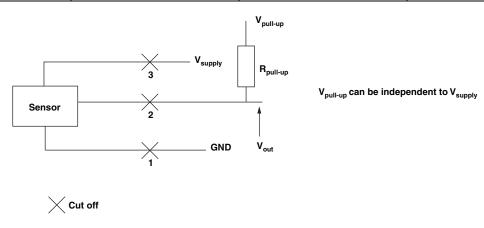




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DIAGNOSTIC MODES					
FAILURE	V _{out} ANALOG R _{pull-up}	V _{out} ANALOG R _{pull-down}	$egin{aligned} oldsymbol{V_{out}} & oldsymbol{PWM} \\ oldsymbol{R_{pull-up}} & = 1 \ oldsymbol{k} \Omega \\ oldsymbol{V_{pull-up}} & = oldsymbol{V_{supply}} & = 5 \ oldsymbol{V} \end{aligned}$		
1: Broken GND	Diagnostic high area	Diagnostic low area	> 97 % V _{supply} without modulation		
2: Broken V _{out}	Diagnostic high area	Diagnostic low area	$> 97 \% V_{\text{supply}}$ without modulation		
3: Broken V _{supply}	Diagnostic high area	Diagnostic low area	$> 97 \% V_{\text{supply}}$ 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	$> 97 \% V_{\text{supply}}$ without modulation		



ENVIRONMENTAL SPECIFICATIONS	
Vibrations	20 g from 10 Hz to 2000 Hz, EN 60068-2-6
Shocks	3 shocks/axis; 50 g half a sine 11 ms, EN 60068-2-7
Operating temperature range	-45 °C to +125 °C
Life (in cycles)	> 5M for hollow shaft model / > 10M for D-shaft model
Rotational speed (max.)	120 rpm
Immunity to radiated electromagnetic disturbances 200 V/m 150 kHz/1 GHz, IEC 62132-2 part 2 (lev	
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 (lev	
Electrostatic discharges Contact discharges: ± 8 kV Air discharges: ± 15 kV, EN 61000-4-2	
MATERIALS	
Housing	Thermoplastic housing
Shaft	Stainless steel
Output	3 lead wires

Note

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

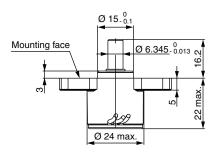


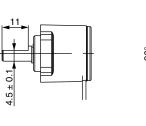
DIMENSIONS in millimeters

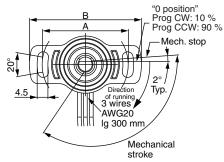
VARIOUS POSSIBLE TYPES OF MODEL 981 HE IN D-SHAFT VERSION

(1) 981 HE D-Shaft Spring return CCW Shaft: Ø 6.35 flatted length 16 mm FMF Model: 981HE-3-x-x-W-x-1F16



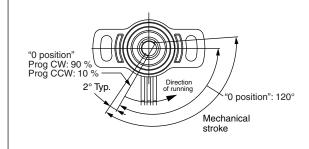




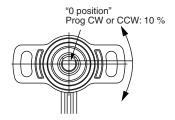


Dimension	Standard	Option	W	ires
Α	36	38		GND (-) Signal
В	47	48	Red Green	V _{CC} (+)

(2) 981 HE D-Shaft Spring return CW Shaft: Ø 6.35 flatted 16 mm FMF Model: 981HE-2-x-x-W-x-1F16



(3) 981 HE D-Shaft Continuous rotation Shaft: Ø 6.35 flatted 16 mm FMF Model: 981HE-0-x-x-W-x-1F16

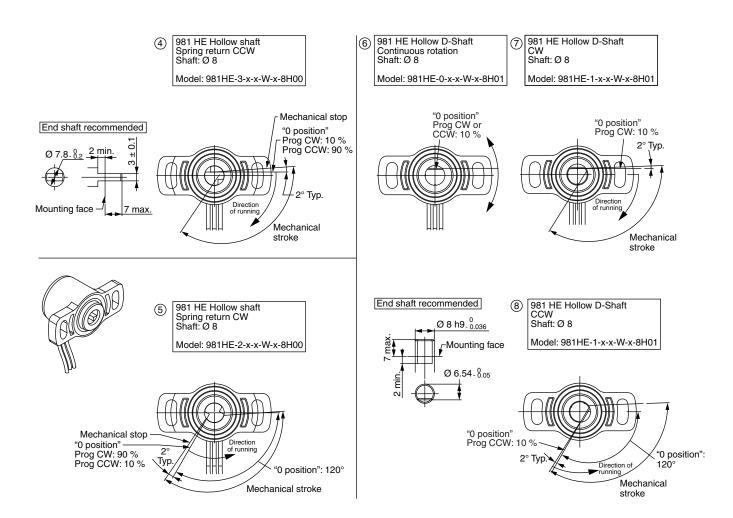






DIMENSIONS in millimeters

VARIOUS POSSIBLE TYPES OF MODEL 981 HE IN HOLLOW SHAFT VERSION





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