



## Single Turn Servo Mount Hall Effect Sensor in Size 05 (12.7 mm)



## FEATURES

- 线性精度:  $\pm 0.5\%$
- 测量角度:  $360^\circ$   
(无死区 no dead band)
- 长使用寿命: 大于 5 千万次往复周期
- 非接触式: 霍尔效应技术原理 Hall effect
- 小尺寸, 外径  $\phi$ : 12.7mm Smallest size available
- 材料分类认证: 认证规格定义和体系 (compliance), 产品标签说明, 详见 [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)

RoHS  
COMPLIANT

## QUICK REFERENCE DATA

Sensor type	ROTATIONAL, single turn hall effect
Output type	Wires
Market appliance	Professional
Dimensions	1/2" (12.7 mm) dia.

## 电气参数 ELECTRICAL SPECIFICATIONS

PARAMETER	STANDARD	SPECIAL
测量角度 Electrical angle	$90^\circ, 180^\circ, 270^\circ, 360^\circ$	Any other angle upon request
线性精度 Linearity	$\pm 1\%$	$\pm 0.5\%$
供电压 Supply voltage	$5 V_{DC} \pm 10\%$	Other upon request
供电流 Supply current	10 mA typical/16 mA max.	16 mA for PWM output
输出信号 Output signal	Analog ratiometric 10 % to 90 % of $V_{supply}$ or PWM 1 kHz, 10 % to 90 % duty cycle	Other upon request
过载保护正电压 Over voltage protection	$+20 V_{DC}$	
过载保护负电压 Reverse voltage protection	$-10 V_{DC}$	
推荐负载电阻 Load resistance recom.	Min. 1 k $\Omega$ for analog output and PWM output	
静态磁滞 Hysteresis static	$< 0.2^\circ$ max.	

## 机械参数 MECHANICAL SPECIFICATIONS

PARAMETER	
机械行程 Mechanical travel	$360^\circ$ 连续 continuous
旋杆轴承类型 Bearing type	有2个滚珠轴承 2 ball bearings
防护等级 Standard	IP 51; 可客户定制 other on request

## 订购型号说明 ORDERING INFORMATION/DESCRIPTION

50 SHE	1	A	1	W	A	2S13	XXXX	BO 10	e1
MODEL	NUMBER OF CUP	LINEARITY	ELECTRICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST	PACKAGING	LEAD FINISH
	1:1 Cup	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	2: 3.175 mm 9: Special P: Plain S: Slotted Z: Other type		Box of 10 pieces	

Shaft length from mounting face, standard: 13 mm

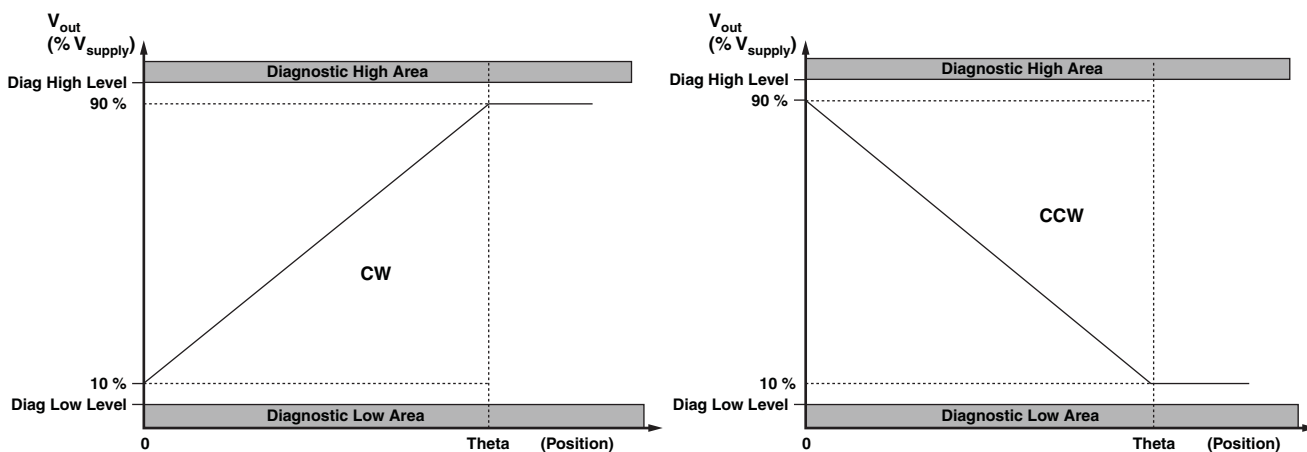
## SAP 订购型号说明 SAP PART NUMBERING GUIDELINES

50 SHE	1	B	9	Z	C	2P22	XXXX
MODEL	1: 1 cup OUTPUT SIGNAL	LINEARITY	ELECTRICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST

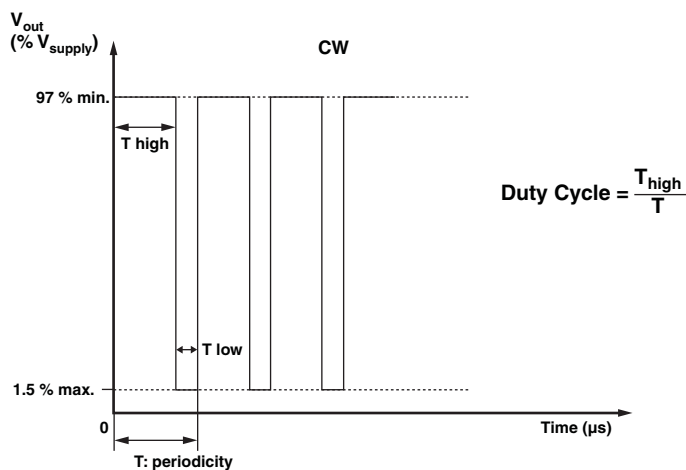


## V<sub>OUT</sub> ANALOG

Operating temperature	85 °C	125 °C
Diagnostic high level	96 % min.	96 % min.
Diagnostic low level	2 % max.	4 % max.

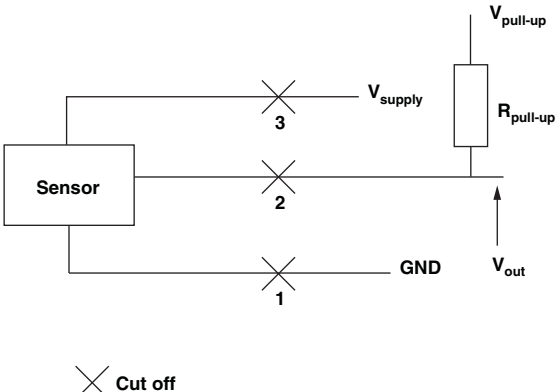


## V<sub>OUT</sub> PWM



## 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

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

✕ Cut off

## ENVIRONMENTAL SPECIFICATIONS

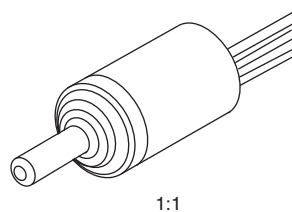
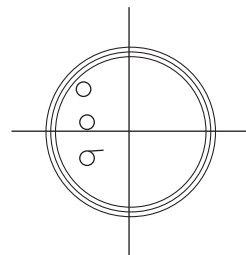
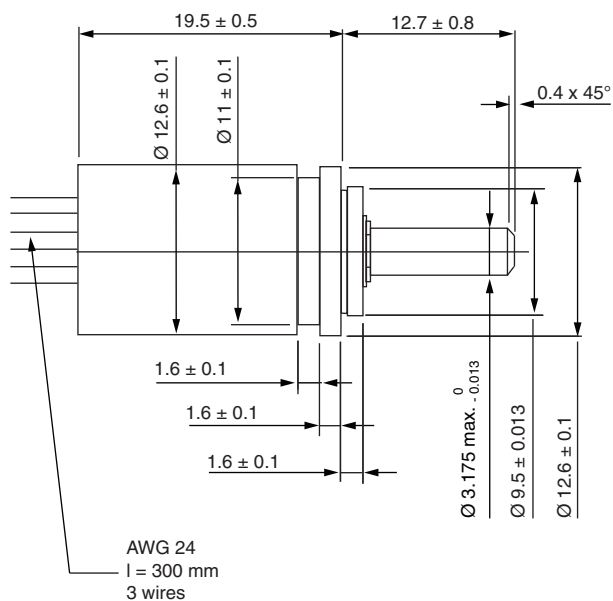
Vibrations	20 g from 10 Hz to 2000 Hz, EN 60068-2-6
Shocks	3 shocks/axis; 50 g half a sine 11 ms, EN 60068-2-7
Operating temperature range	-40 °C; +125 °C
Life	> 50M of cycles
Rotational speed (max.)	120 rpm
Immunity to radiated electromagnetic disturbances	200 V/m 150 kHz/1 GHz, IEC 62132-2 part 2 (level 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: $\pm 4\text{ kV}$ Air discharges: $\pm 8\text{ kV}$ , EN 61000-4-2
<b>MATERIALS</b>	
Housing	Aluminum
Shaft	Stainless steel
Output	3 lead wires (AWG 24)

### Note

- Nothing stated herein shall be construed as a guarantee of quality or durability. 本文所述内容不得解释为质量或耐久性的保证。

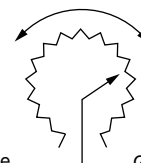


## DIMENSIONS in millimeters



1:1

CW or CCW according  
to output mode choice



V<sub>supply</sub> = Green wire

GND = Yellow wire

V<sub>out</sub> = Red wire

General tolerance: ± 0.5 mm

View from shaft side



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