

## Linear Position Sensor in Hall Effect Technology (0 mm to 10 mm max.)



### FEATURES

- Accurate linearity down to:  $\pm 1\%$
- Electrical strokes from 0 mm to 10 mm
- Long life: Greater than 10M cycles
- Non contacting technology: Hall effect
- Model dedicated to all applications in harsh environments
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

### QUICK REFERENCE DATA

Sensor type	LINEAR, non contacting hall effect
Output type	Wires
Market appliance	Industrial
Dimensions	46 mm x 20.8 mm x 37 mm

### ELECTRICAL SPECIFICATIONS

PARAMETER	STANDARD
Electrical stroke	Up to 10 mm
Linearity	$\pm 2\%$ or $\pm 1\%$
Supply voltage	$5 V_{DC} \pm 10\%$
Supply current	< 16 mA typical
Output signal	Analog ratiometric 10 % to 90 % of $V_{supply}$ or PWM 10 % to 90 % duty cycle
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	Static: 0.1 % of $V_{supply}$ /Dynamic: 0.25 % of $V_{supply}$
Resolution	12 bits

### MECHANICAL SPECIFICATIONS

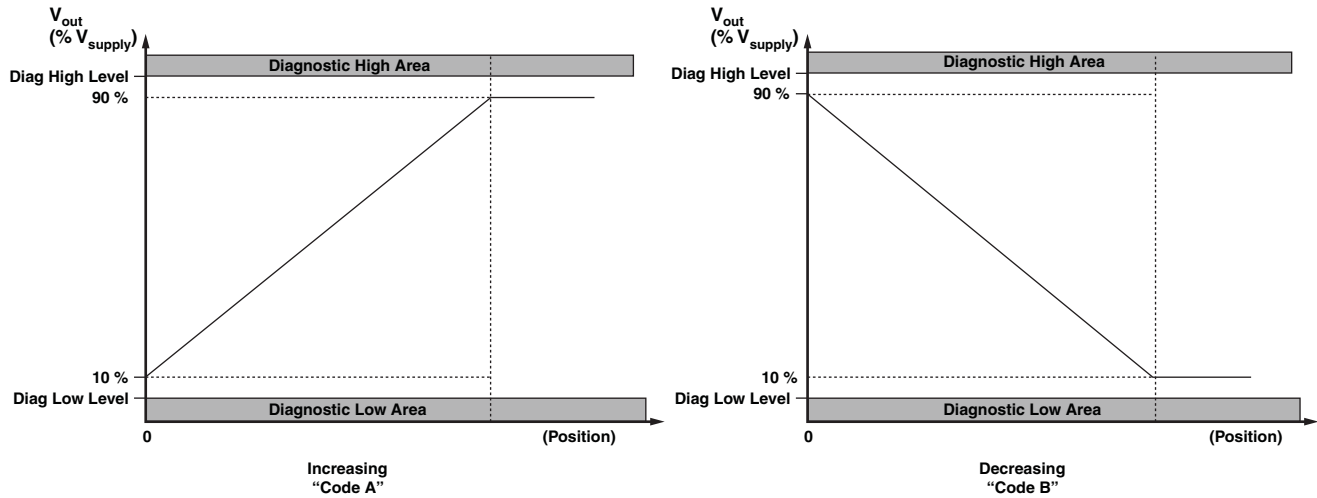
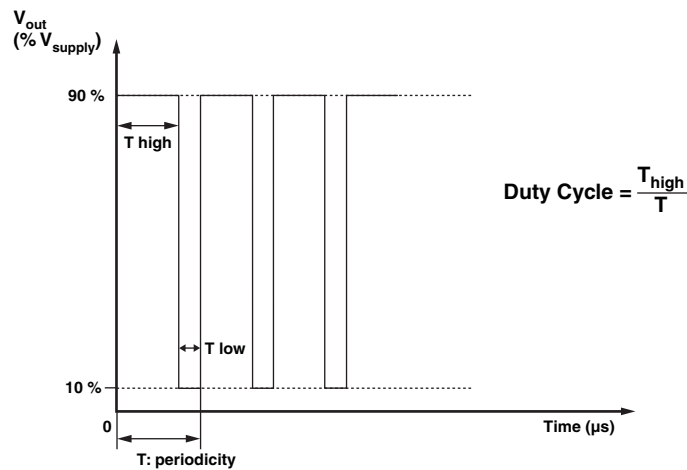
PARAMETER	
Mechanical travel	12 mm max.
Bearing type	Sleeve bearing
Standard	For spring loaded model: IP 51/without spring: Other on request
Weight	26 g $\pm$ 4 g

### ORDERING INFORMATION/DESCRIPTION

20 LHE	1	A	W	A	1P30	xxxx	e1
MODEL	FEATURES	LINEARITY	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST	LEAD FINISH
	1: Spring return 2: Without spring	X: $\pm 2\%$ A: $\pm 1\%$	W: Wires Z: Custom	A: Analog increasing B: Analog decreasing C: PWM increasing D: PWM decreasing	1: 3.175 mm 9: Special P: Plain T: Threaded M3 x 6 Z: Other type		
Shaft length from mounting face 30 mm when full extended							

### SAP PART NUMBERING GUIDELINES

20 LHE	2	X	Z	C	1T35	xxxx
MODEL	FEATURES	LINEARITY	OUTPUT TYPE	OUTPUT SIGNAL	SHAFT TYPE	SPECIAL REQUEST
	Without spring return system	$\pm 2\%$	"Custom"	PWM increasing		

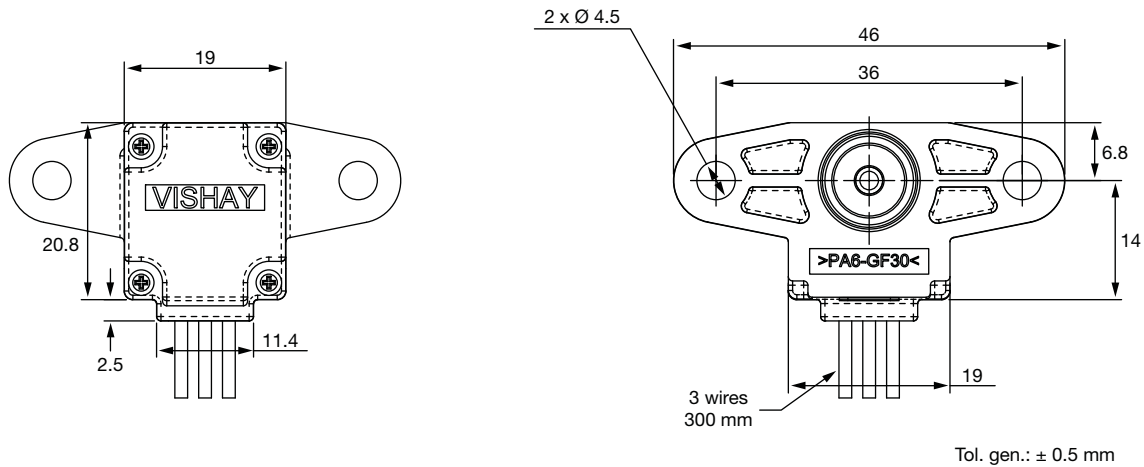
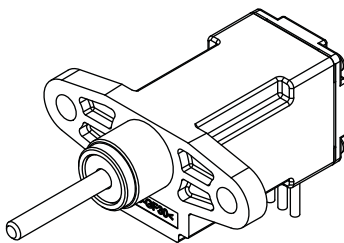
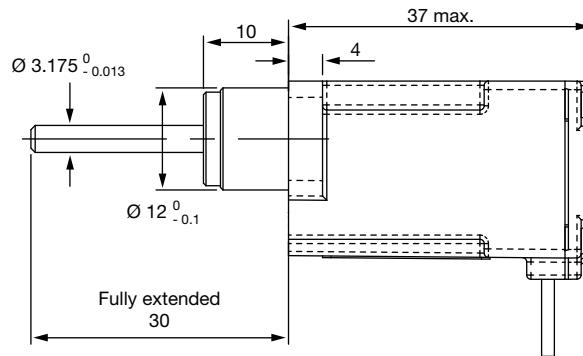
**V<sub>OUT</sub> ANALOG**

**V<sub>OUT</sub> PWM**

**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	-40 °C; +85 °C
Life	> 10M of cycles
Speed (max.)	60 mm/s
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
Radiated electromagnetic emissions	30 MHz/1 GHz < 30 dB $\mu$ V/m EN 61000-6-4
Electrostatic discharges	Contact discharges: $\pm$ 4 kV Air discharges: $\pm$ 8 kV EN 61000-4-2
Immunity to radiated RF field	10 V/m 80 MHz to 1 GHz EN6100-4-3

ENVIRONMENTAL SPECIFICATIONS	
<b>Materials</b>	
Housing	Thermoplastic housing
Mounting type	Flange with 2 holes $\varnothing$ 4.5 mm
Shaft	$\varnothing$ 3.175 mm (stainless steel)
Output	3 lead wires (AWG 20) Length: 300 mm
Centering diameter	$\varnothing$ 12 mm
Spring force	From 1.5 N to 7 N along stroke (typical)

**Note**

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

**DIMENSIONS** in millimeters

 Tol. gen.:  $\pm$  0.5 mm


Wire	
YELLOW	GND (-)
RED	SIGNAL
GREEN	V <sub>cc</sub> (+)



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