

# Rotative Transducer Elements in Hall Effect Technology



## FEATURES

- Accurate linearity down to:  $\pm 0.5\%$
- All electrical angles available up to:  $360^\circ$  (no dead band)
- Extremely long life: Greater than 100M cycles
- Non contacting technology: Hall effect
- Model dedicated to all applications in harsh environments
- Very reduced dimensions, fitting in small volumes
- Delivered as a kit; 2 elements: Track and wiper
- 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	Kit ROTATIONAL, hall effect
Output type	Wires
Market appliance	Industrial
Dimensions	Various sizes

## 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 typ./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 k $\Omega$ for analog output and PWM output
Hysteresis static		$0.2^\circ$ max.

## MECHANICAL SPECIFICATIONS

PARAMETER	
Mechanical travel	$360^\circ$ continuous
2 elements	Track with electronic PCs/wiper with magnet
Standard	IP 66; fully sealed product

## ORDERING INFORMATION/DESCRIPTION

RMHE	1	A	1	W	A	XXXX	BO 10	e1
MODEL	NUMBER OF TRACKS	LINEARITY	ELECTRICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SPECIAL REQUEST	PACKAGING	LEAD FINISH
	1: 1 cup (1 signal) 2: 2 cups (redundant)	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		Box of 10 pieces	

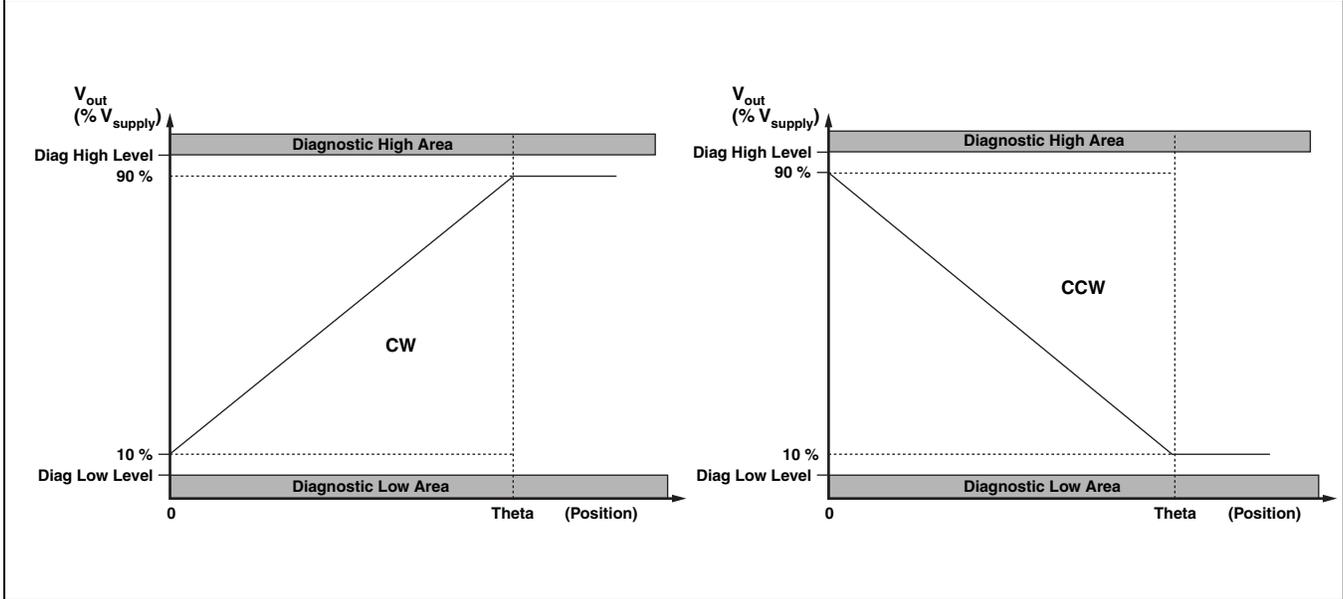
## SAP PART NUMBERING GUIDELINES

RMHE	2	B	9	Z	C	XXXX
MODEL	NUMBER OF TRACKS	LINEARITY	ELECTRICAL ANGLE	OUTPUT TYPE	OUTPUT SIGNAL	SPECIAL REQUEST
	Redundant signals					

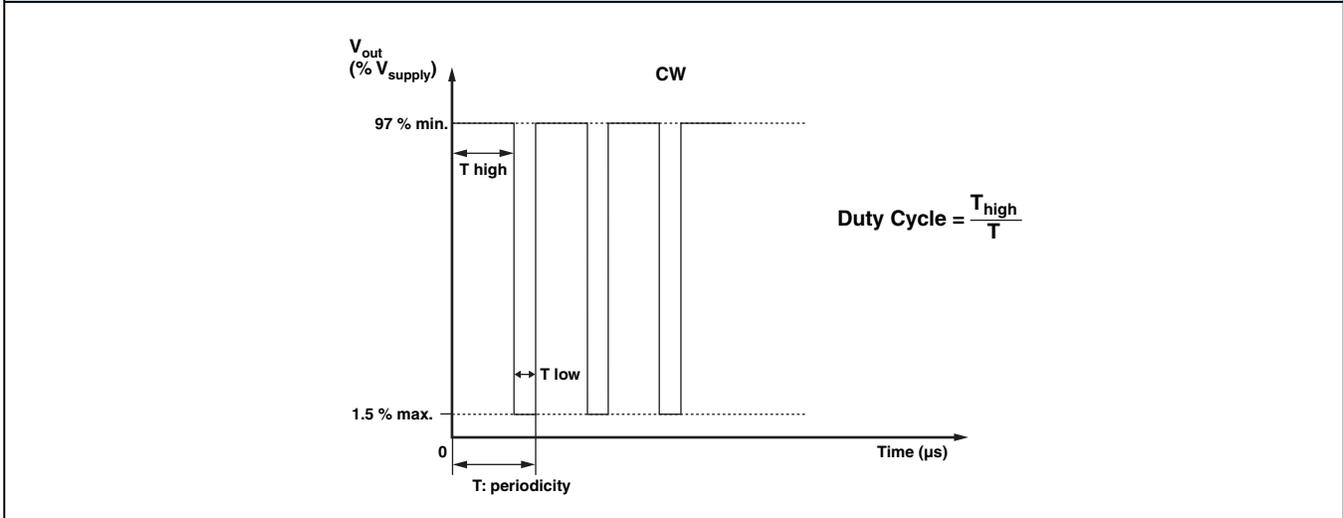


**V<sub>OUT</sub> ANALOG**

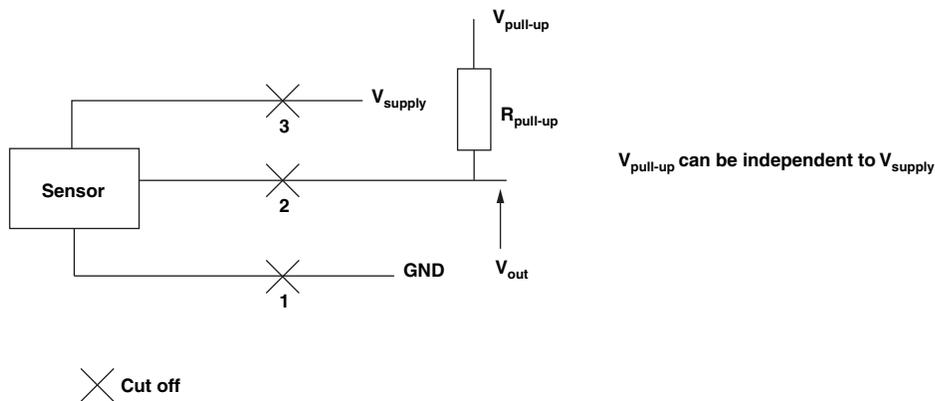
Operating temperature	85 °C	125 °C
Diagnostic high level	96 % min.	96 % min.
Diagnostic low level	2 % max.	4 % max.



**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, EN 60068-2-6
Shocks	3 shocks/axis; 50 g half a sine 11 ms, EN 60068-2-7
Operating temperature range	-40 °C to +150 °C
Life	$> 100\text{M}$ 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 $< 30\text{ dB}\mu\text{V/m}$ , EN 61000-6-4 (level A)
Electrostatic discharges	Contact discharges: $\pm 4\text{ kV}$ air discharges: $\pm 8\text{ kV}$ , EN 61000-4-2
MATERIALS	
Housing	Aluminum
Mounting type	Servo
Shaft (standard: ACAPT W02564)	Separated element including a magnet
Output	3 lead wires (AWG22) length 250 mm $\pm$ 10 mm

**Note**

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





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