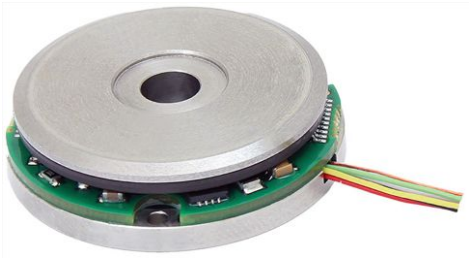
Rotational Absolute Magnetic Kit Encoder Version 27 mm HP Position Sensor



FEATURES

- Hall effect principle
- High precision (HP), high resolution
- Especially dedicated to harsh conditions (vibrations, shocks, CEM, ...)
- Not sensitive to external magnetic fields and temperature
- Not sensitive to moisture and pollution
- Plug and play
- Protected design, patent EP 2711663
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

LINKS TO ADDITIONAL RESOURCES

3D Models

QUICK REFERENCE DATA	
Sensor type	ROTATIONAL, magnetic technology
Output type	Wires
Market appliance	Industrial
Dimensions	Diameter 27.3 mm

ELECTRICAL SPECIFICATIONS	
PARAMETER	
Voltage supply	5 V ± 0.25 V
Current supply	≤ 130 mA at 5 V
Output	SSI
Connection	Ultra-flex AWG32 wires (shielded cable and connector on request)
Useful electrical angle	360°
Absolute accuracy at 25 °C	± 0.03° > 13 bits
Absolute accuracy at -40 °C to +105 °C	± 0.05° ~ 13 bits
Resolution	≈ 0.0028° (17 bits, 131 072 points) over 360°
Startup time	≤ 20 ms
Refresh time	≤ 110 µs
Latency time	100 µs ≤ latency time ≤ 200 µs
Sampling rate	10 kHz ± 5 %

MECHANICAL SPECIFICATIONS	
PARAMETER	
Mechanical angle	360°
Maximum speed rotation	50 rpm (up to 1000 rpm with decreasing of accuracy, see “Maximum Speed vs. Accuracy” chart)
Weight	Rotor: 6.7 g ± 0.5 g; stator: 7 g ± 1 g
Coating	On the two sides of PCB

For technical questions, contact: mcbprecisionpot@vishay.com

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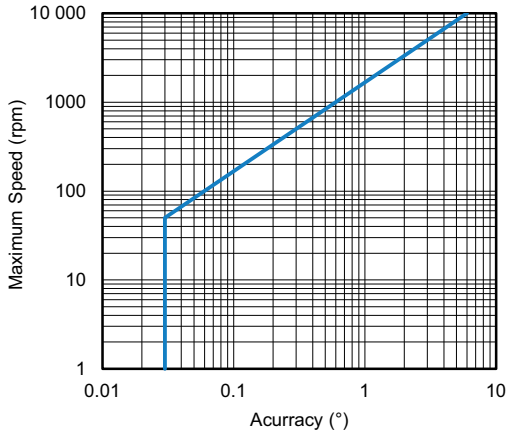
SAP PART NUMBERING GUIDELINES										
TYPE	MODEL	DESIGN	SIZE (mm)	TYPE	FUNCTION	ACCURACY (BITS)	RESOLUTION (BITS)	OUTPUT	PACKAGING	3 DIGITS
R = rotational	AM	K = kit	027	M	1	13	16	J	B = box	To consult Vishay for dedicated 3 digits

PERFORMANCE	
PARAMETER	
Operating temperature range	-40 °C to +105 °C
Storage temperature range	-45 °C to +105 °C
Acceleration	100 *g* for 1 s
Vibration	0.05 g^2/Hz, 20 Hz to 2000 Hz for 1 h along the three major axis
Shock	180 *g*, 14 ms, 1/2 sine
EMC	According to MIL-STD-461F: - RE101: radiated emissions, magnetic field, 30 Hz to 100 kHz - limit for all navy applications to figure RE101-2 - RE102: radiated emissions, electric field, (10 kHz to 18 GHz) - curve for fixed wing external and helicopters at 2 MHz to 18 GHz, according to figure RE102-3 (1) - RS101: radiated susceptibility, magnetic field, 30 Hz to 100 kHz - limit for all navy applications according to figure RS101-1 - RS103: radiated susceptibility, electric field, (2 MHz to 40 GHz) - 200 V/m, according to Table XI, aircraft external
Humidity	HR ≤ 88 % (non-condensing) operating 48 hours

Note

(1) For the test setup, the RAMK027 metallic support for the stator is directly bonded with a braid to the ground plane and additional connection of the cable shielding to the ground plane

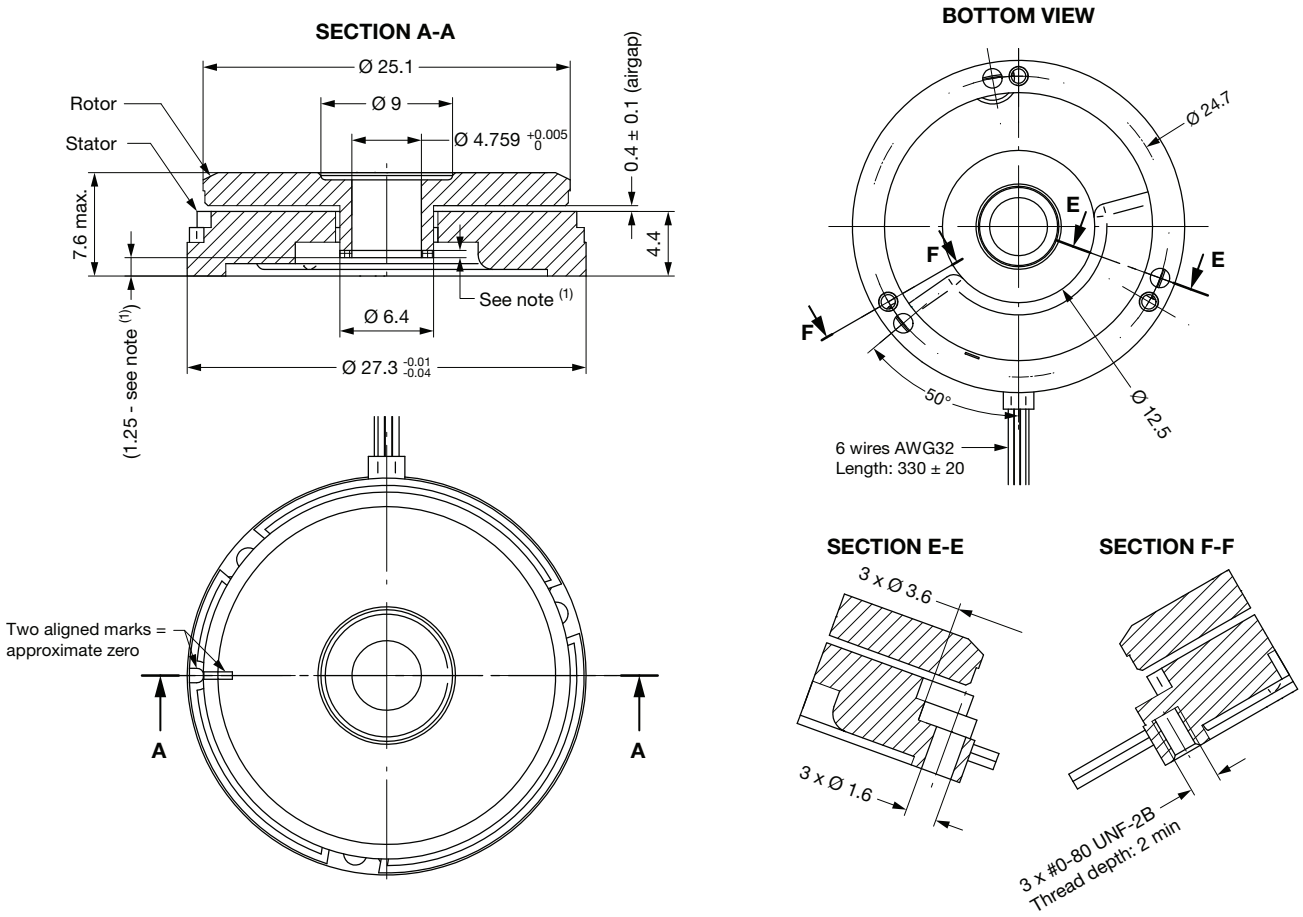
MAXIMUM SPEED VS. ACCURACY CHART (latency time excluded)



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DIMENSIONS in millimeters



Note

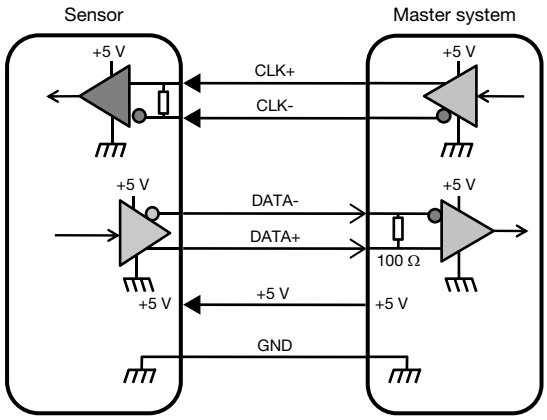
(1) The washer to set the airgap with respect to distance between stator and rotor reference of 1.25 is not the supplied. Only its thickness is supplied with the encoder

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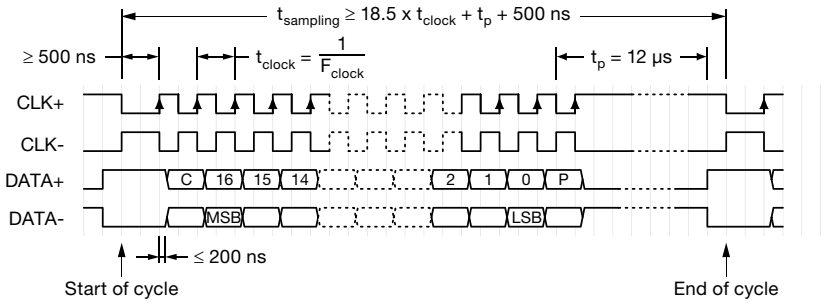
ELECTRICAL INTERFACE DESCRIPTION - SSI INTERFACE

6 WIRES CONNECTIONS	
NAME	WIRE COLOR
GND	Black
+5 V	Red
CLK+	White
CLK-	Clear
DATA+	Yellow
DATA-	Green



SSI PARAMETERS	
Output code	Binary
Data differential interface	RS422 according to EIA-RS422
CLK differential interface	RS422 according to EIA-RS422
Minimum clock frequency	300 kHz
Maximum clock frequency	4 MHz
Data bit (n)	19 bits
C: consistency of all internal magnetic cells outputs	Bit “C”: 0 → compliant / 1 → not compliant
16-0: angle	Bit “16-0”: angle value
P: parity of this bits “C” to “16”	Bit “P”: 0 → pair sum / 1 → impair sum

Timing Diagram



OPTIONS

- Other design on request (mechanical interfaces, electrical interfaces, ...)

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