

Rotational Absolute Magnetic Encoder, 33 mm and 37 mm Displacement Sensor



FEATURES

- Hall effect principle
- 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
- Very high precision (VHP)
- Protected design, patent EP 2711663

QUICK REFERENCE DATA

Sensor type	ROTATIONAL, magnetic technology
Output type	Cables
Market appliance	Industrial
Dimensions	Diameter 33 mm and 37 mm

ELECTRICAL SPECIFICATIONS

PARAMETER	
Voltage supply	5 V ± 0.25 V
Current supply	≅ 200 mA max. at 5 V
Output	SSI
Connection	Shielded cable
Useful electrical angle	360° (single turn)
Absolute accuracy at -40 °C to +85 °C	Standard: ± 0.011° = 15 bits
Resolution	21 bits
Startup time	≤ 200 μs
Refresh time	= 50 μs at sampling rate 20 kHz
Latency time	= 50 μs at sampling rate 20 kHz
Sampling rate	20 kHz ± 5 %

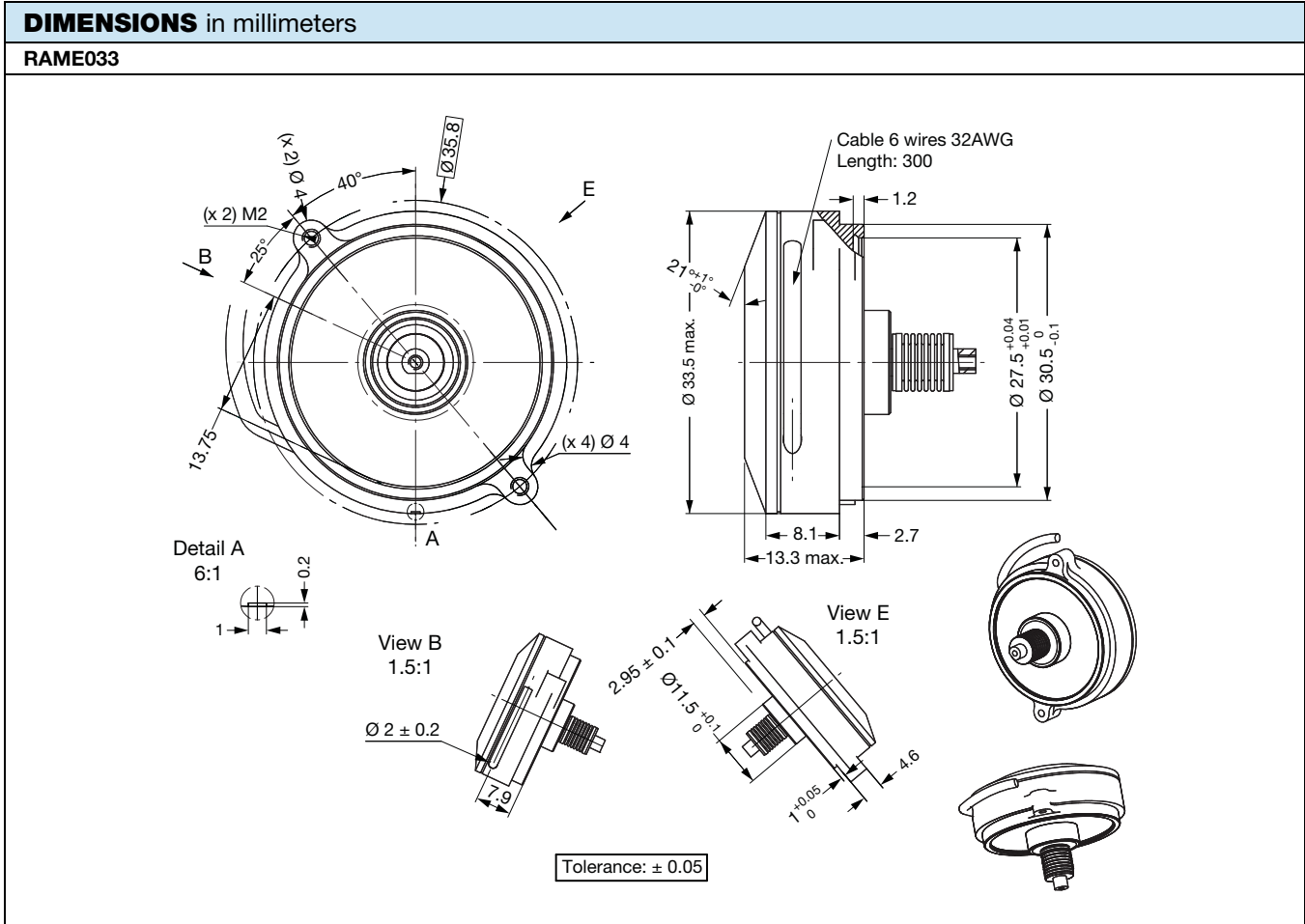
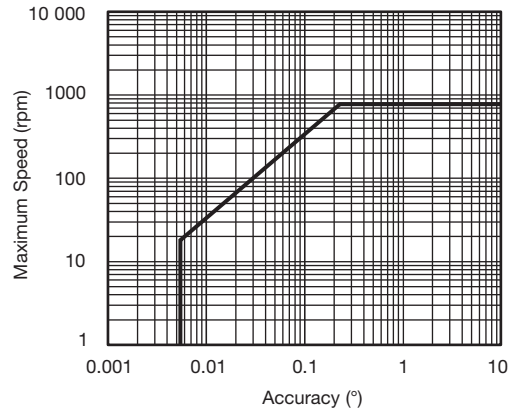
MECHANICAL SPECIFICATIONS

PARAMETER	
Mechanical angle	360°
Maximum speed rotation	18 rpm (up to 760 rpm with decreasing of accuracy, see "Maximum Speed vs. Accuracy" chart)
Weight	∅ 33 mm: 44.5 g ± 2 g; ∅ 37 mm: 56.5 g ± 2 g

SAP PART NUMBERING GUIDELINES

TYPE	MODEL	DESIGN	SIZE (mm)	TYPE	FUNCTION	ACCURACY (BITS)	RESOLUTION (BITS)	OUTPUT	PACKAGING
R = rotational	AM	E	033	M	1	15	21	I = SSI CW	B = box
			037						

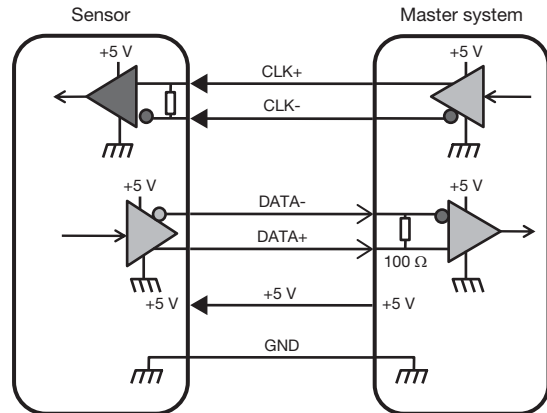
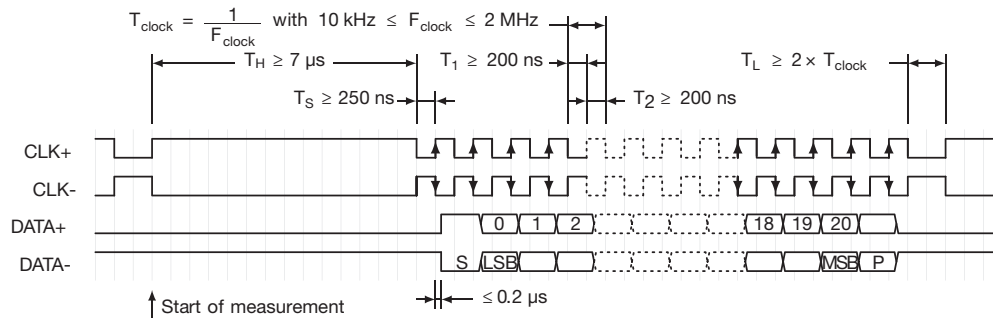
PERFORMANCE	
PARAMETER	
Operating temperature range	-46 °C to +105 °C (-46 °C to +115 °C on request)
Storage temperature range	-54 °C to +105 °C (-54 °C to +115 °C on request)
Vibration	14.8 grms, 10 Hz to 2000 Hz for 20 min along the three major axis
Shock	50 g, 11 ms, 1/2 sine, 3 shocks along the three axis

MAXIMUM SPEED VS. ACCURACY CHART


ELECTRICAL INTERFACE DESCRIPTION - SSI INTERFACE

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

SSI PARAMETERS	
Output code	Binary
Data differential interface	RS422 according to EIA-RS422
CLK differential interface	RS422 according to EIA-RS422
Minimum clock frequency	10 kHz
Maximum clock frequency	2 MHz
Data bit (n)	21 bits


Timing Diagram

OPTIONS

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



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