



RM10 Rotary Inductive Encoder

17-bit absolute angle feedback for servo motors, robot joints, spindles and rotary stages.

17 bit Resolution	0.001 deg Accuracy	10,000 RPM Speed	IP67 Protection	-40 to +85 deg C Temp range	+/-12 kV ESD
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1. General Description

The RM10 is a high-performance rotary inductive encoder based on the self-developed AFEA1001 detection IC. It provides absolute 17-bit angle measurement with 0.001 deg accuracy at up to 10,000 RPM, with RS485 (Tamagawa), BISS-C and SSI interfaces. Its inductive sensing principle is immune to dust, oil, moisture and magnetic interference, making it a drop-in alternative to imported optical and magnetic encoders in harsh industrial environments.

2. Technical Specifications

Parameter	Value
Product model	RM10
Product type	Rotary / angular inductive encoder
Core chip	AFEA1001 + NT32F430 controller
Sensing principle	Inductive (eddy-current coupling)
Resolution	17-bit single-turn / 17-bit multi-turn
Absolute accuracy	0.001 deg
Maximum speed	10,000 RPM
Communication protocols	RS485 (Tamagawa) / BISS-C / SSI
Communication frequency	<= 16 kHz
Supply voltage	2.5 V - 5.5 V
Working current	<= 15 mA
Low-power modes	Sleep < 25 uA / Deep Sleep < 2 uA
Operating temperature	-40 deg C to +85 deg C
Protection rating	IP67 (optional enhanced coating)

3. Interface & Pinout

**RS485 (Tamagawa protocol)**

Pin	Signal
1	5V VDD
2	GND
3	NC
4	NC
5	485+
6	485-
7	NC
8	NC

BISS-C

Pin	Signal
1	VDD
2	GND
3	DATA+
4	DATA-
5	CLK+
6	CLK-
7	NC
8	NC

SSI

Pin	Signal
1	VDD
2	GND
3	DATA+
4	DATA-
5	CLK+
6	CLK-
7	NC
8	NC



4. Reliability & Environment

Parameter	Value
Operating temperature	-40 deg C to +85 deg C
Protection rating	IP67 (optional enhanced conformal coating)
ESD protection	IEC 61000-4-2, +/-12 kV
Vibration	10 Hz - 2000 Hz, XYZ axes, 2 h each
Mechanical shock	980 m/s ² , 11 ms, 3 times per direction
Humidity	95% RH, 96 h high-temperature humidity soak

5. Ordering & Support

Samples are available for qualification. Minimum pilot order: 100 pcs. Volume pricing applies from 1,000 pcs/year. Custom protocols, connectors, housings and resolutions are supported - contact our engineering team with your mechanical drawing and electrical requirements. All units are 100% factory tested and covered by a 12-month warranty.

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