



RM20 Linear Inductive Encoder

17-bit absolute linear feedback with 0.03 μm accuracy and unlimited cascading range.

17 bit Resolution	0.03 μm Accuracy	1 m/s Speed	Unlimited cascade Range	IP67 Protection	-40 to +85 deg C Temp range
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1. General Description

The RM20 is a high-performance linear inductive encoder based on the AFEA1001 detection IC and a dedicated linear controller. It measures absolute linear position with 0.03 μm accuracy at up to 1 m/s, and supports infinite cascading so measurement range can be extended without accumulated error. Immune to oil, coolant, dust and magnetic interference, the RM20 suits linear motors, maglev systems, precision stages and long-travel automation.

2. Technical Specifications

Parameter	Value
Product model	RM20
Product type	Linear inductive encoder
Core chip	AFEA1001 + Xianji 5361 linear controller
Sensing principle	Inductive (eddy-current coupling)
Resolution	17-bit
Absolute accuracy	0.03 μm
Maximum linear speed	1 m/s
Measuring range	Infinite cascading - accuracy unaffected by range extension
Communication protocols	RS485 (Tamagawa) / BISS-C / SSI
Communication frequency	$\leq 16 \text{ kHz}$
Supply voltage	2.5 V - 5.5 V
Working current	$\leq 15 \text{ mA}$
Low-power modes	Sleep $< 25 \text{ uA}$ / Deep Sleep $< 2 \text{ uA}$
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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