

RMC35 commutation and incremental encoder solution



The RMC35 is designed for use in motor feedback applications requiring both A, B, Z incremental and U, V, W signals.

Robust non-contact OnAxis™ sensor technology provides ultimate long term reliability and with simple installation costs of ownership are minimal.

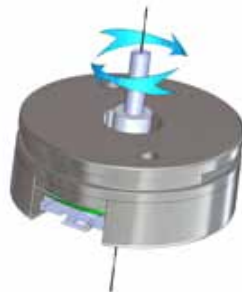
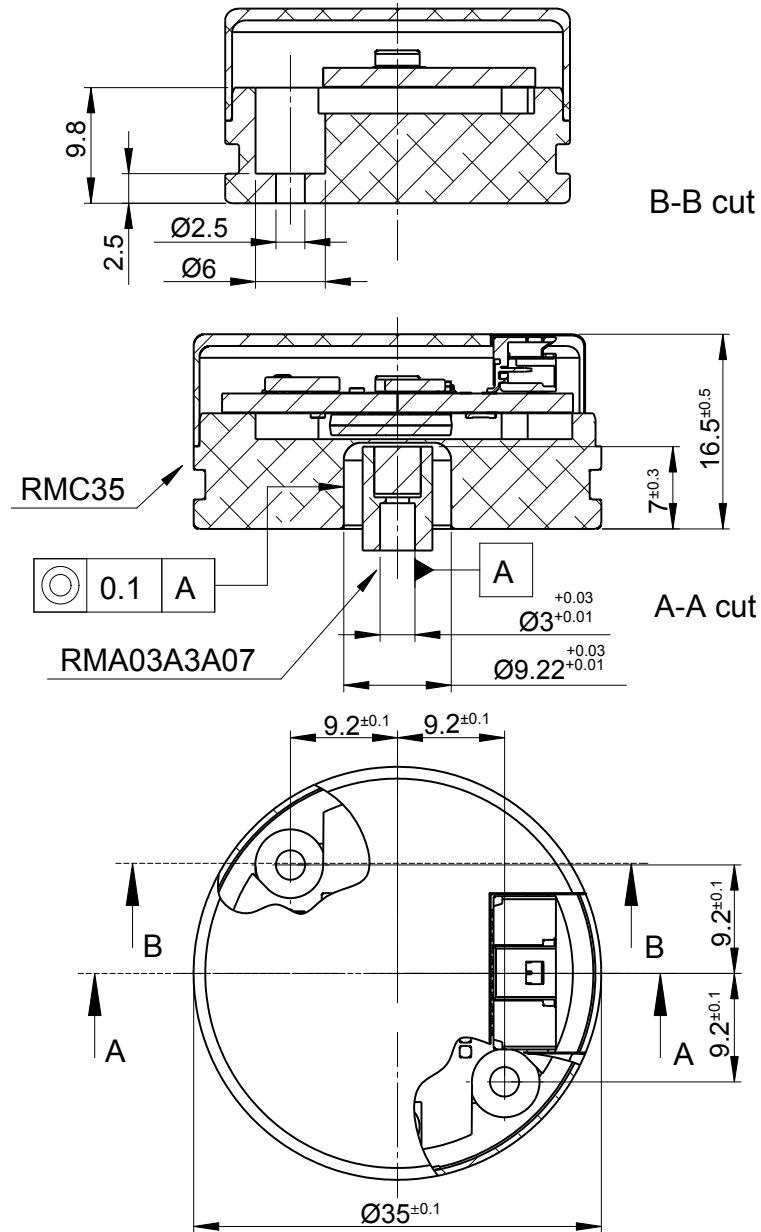
Installation is simplified with a range of magnetic actuators and mounting options for the encoder. A simple one time zero position programming then removes the need for careful adjustment of the encoder.

Resolutions are available from 64 to 2,048 pulses per revolution (256 to 8,192 counts per revolution with ×4 evaluation). U,V,W commutation signals are simultaneously output with 1 to 8 pole pairs (2 to 16 poles).

- Incremental resolution from 256 to 8,192 cpr
- Simple installation and setup
- U, V, W commutation signals with up to 16 poles
- Industry standard incremental outputs (RS422)
- Operating speed to 30,000 rpm
- Compact - 35 mm diameter body
- Non-contact, frictionless design
- Low inertia

Data sheet
RMC35D01_01

Installation drawing
Dimensions and tolerances in mm



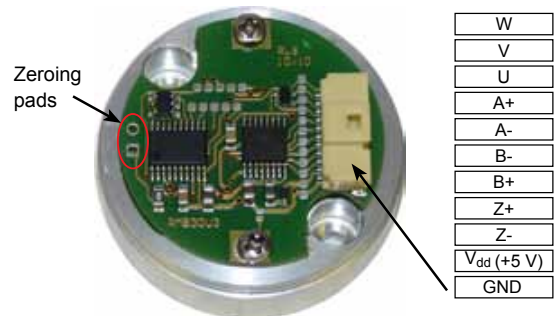
Clockwise rotation of magnetic actuator.

Connector type
Molex 501568-1107
Mating connector (Not provided)
Molex 501330-1100 (crimp terminal 501334-xxxx)

Product specification

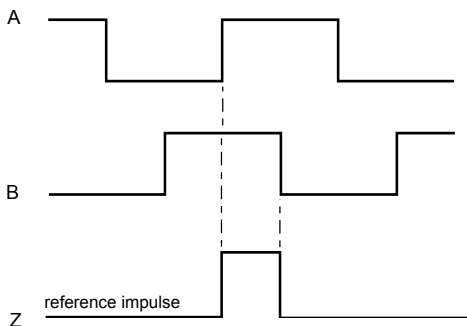
Power supply	5 V ± 10%
Power consumption	40 mA (not loaded)
Maximum speed	30,000 rpm
Accuracy	± 0.5°
Hysteresis	0.17° typ.
Incremental outputs	A+, B+, Z+, A-, B-, Z-
Incremental resolution	256, 320, 400, 500, 512, 800, 1,000, 1,024, 1,600, 2,000, 2,048, 4,096, 8,192 cpr
Commutation outputs	U, V, W
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Operating temperature	-40 °C to +85 °C
Weight	45 g

Connections



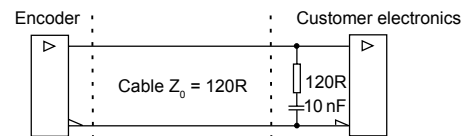
Timing diagram - Incremental

Complementary signals not shown
B leads A for clockwise rotation



Recommended signal termination

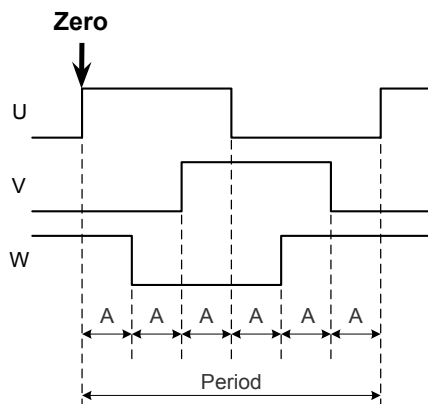
For complementary signals only



Zero function

The UVW commutation outputs can be zeroed at any angle with resolution of 0.0879 degrees. The first rise edge in the U signal will be reset at this point of zeroing. The reference impulse of the incremental signals is not changed by this procedure.

Timing diagram - Commutation for clockwise rotation



UVW outputs

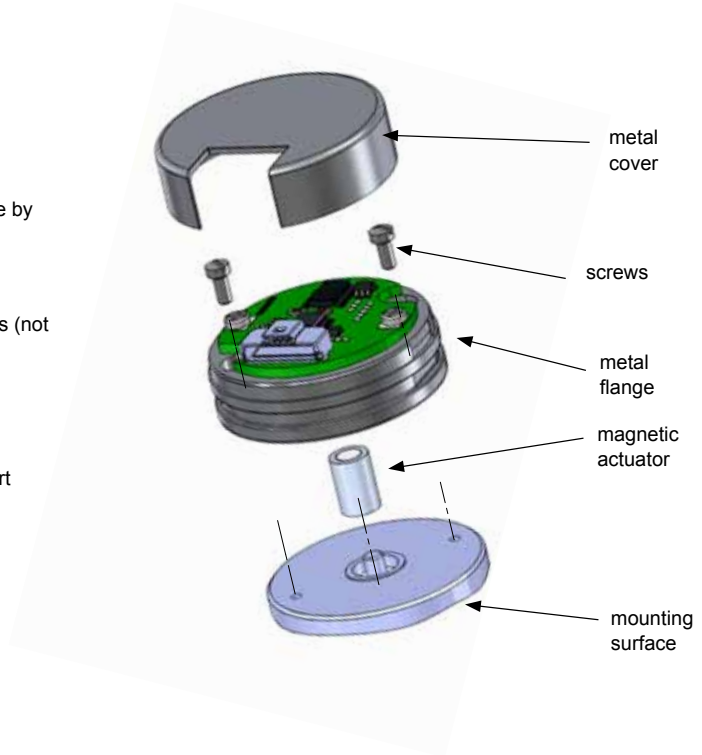
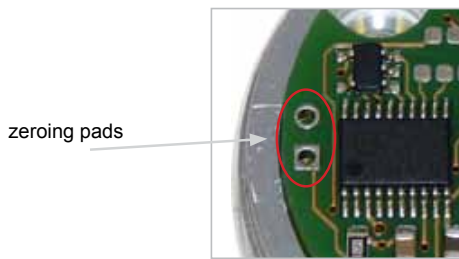
Pole	A	Period	Pole pairs*
2	60°	360°	one
4	30°	180°	two
6	20°	120°	three
8	15°	90°	four
10	12°	72°	five
12	10°	60°	six
14	8.57°	51.42°	seven
16	7.50°	45°	eight

* Number of pole pairs equals number of periods per revolution.

Data sheet
RMC35D01_01

Installation procedure

- 1. Install the magnetic actuator**
 Use glue to fix the magnetic actuator to the shaft (recommended LOCTITE 648). Actuator should protrude by 7 mm.
- 2. Install the flange with the encoder module on the mounting surface**
 Screw the flange to the mounting surface using 2 screws (not provided).
- 3. Turn the power on**
 Plug in the mating connector and turn on the power
- 4. Zero the UVW signals**
 Move the motor to the required zero UVW position. Short together the two zeroing pads.



- 5. Cover the encoder with the metal cover**
 Place the metal cover over the encoder and gently press it in position. Be sure to align the opening with the connector.

Ordering code

RMC35 UA 12B AA 10

Series ————

Output type ————

Resolution (counts per revolution) ————

Special requirements
 10 - None (standard)

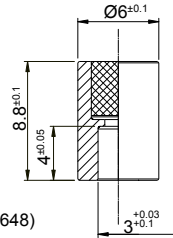
Connector type
 AA - Molex 501568-1107

UA - one period per rotation (2 poles)
 UB - two periods per rotation (4 poles)
 UC - three periods per rotation (6 poles)
 UD - four periods per rotation (8 poles)
 UE - five periods per rotation (10 poles)
 UF - six periods per rotation (12 poles)
 UG - seven periods per rotation (14 poles)
 UH - eight periods per rotation (16 poles)

Decimal		Binary	
D32 - 320	1D0 - 1,000	08B - 256	12B - 4,096
D40 - 400	1D6 - 1,600	09B - 512	13B - 8,192
D50 - 500	2D0 - 2,000	10B - 1,024	
D80 - 800		11B - 2,048	

Magnetic actuator and magnet ordering information

Actuator for integration onto shaft

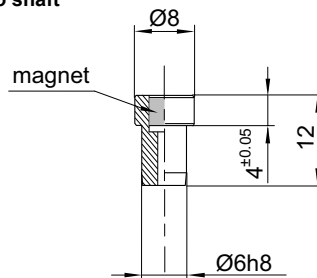


Fixing: Glue (recommended – LOCTITE 648)

Part number:

For resolutions from 10 bit absolute (800 cpr incremental) and above
RMA03A3A07 – $\varnothing 3$ mm shaft

Actuator for integration into shaft



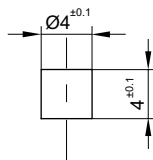
Hole = $\varnothing 6G7$

Fixing: Glue (recommended – LOCTITE 648)

Part numbers:

For resolutions from 10 bit absolute (800 cpr incremental) and above
RMH06A3A00

Magnet for direct recessing in non-ferrous shafts



Fixing: Glue (recommended – LOCTITE 648)

Part numbers:

For resolutions from 10 bit absolute (800 cpr incremental) and above
RMM44A3A00 (individually packed) – for sample quantities only
RMM44A3C00 (packed in tubes)

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Document issues

Issue	Date	Page	Corrections made
01	21. 4. 2011	-	New document

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