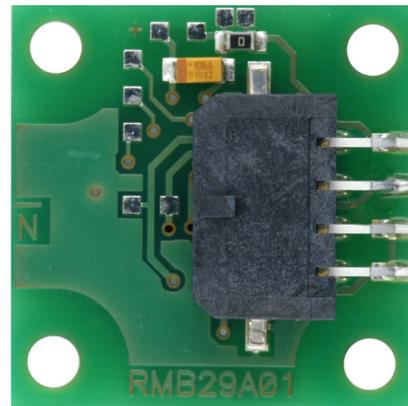


RMB29 angular magnetic encoder module



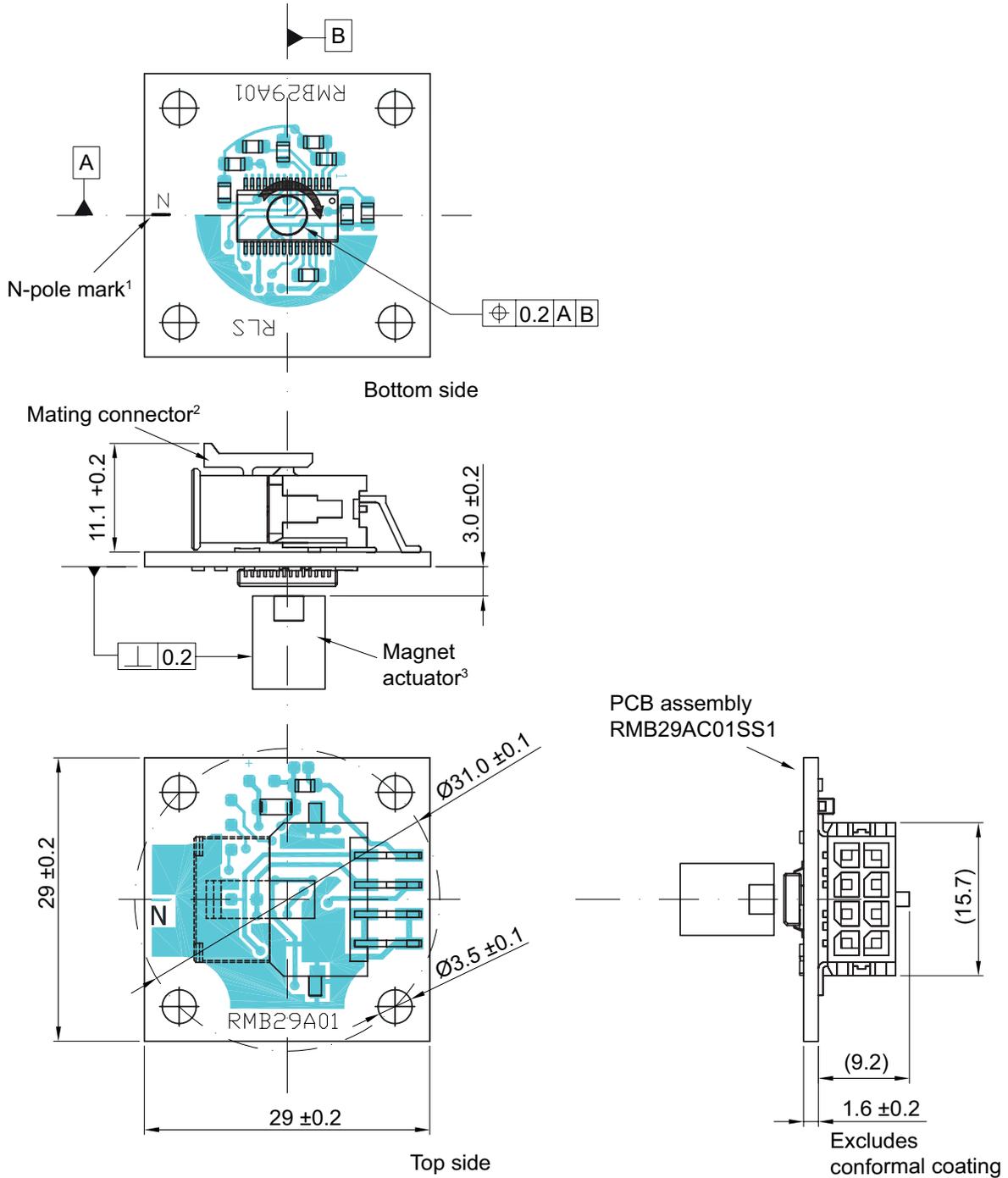
The RMB29 encoder module is designed for direct integration to high volume OEM applications. The low cost 29 mm square PCB is provided with a connector for easy installation.

The encoder module consists of a magnetic actuator and a separate sensor board. Rotation of the magnetic actuator is sensed by a custom encoder chip mounted on the sensor board, and processed to give one sine/cosine wave per revolution.

The RMB29 can be used in a wide range of applications including motor control and industrial automation.

- 29 mm square module
- Low cost for OEM integration
- 5 V power supply version
- High speed operation to 60,000 rpm
- Analogue sine/cosine output
- Accuracy to $\pm 0.5^\circ$
- RoHS compliant (lead free)
- Conformal coated
- RoHS compliant (lead free) - see Declaration of conformity

RMB29AC01SS1 installation drawing



¹ When N-pole marks of the magnet actuator and the PCB are aligned sine output = mid level and cosine output = max. level.

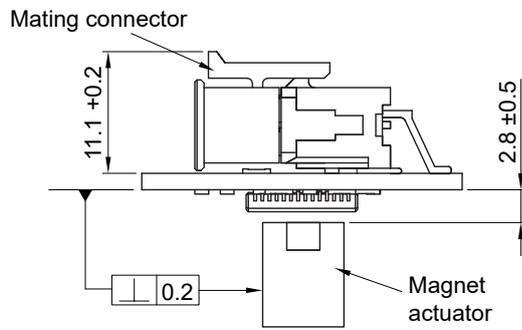
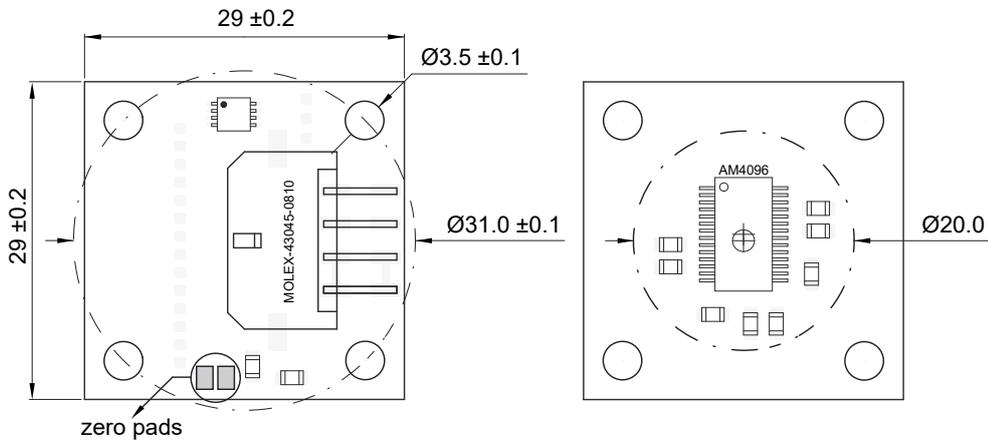
² Not supplied. See page 3 for details.

³ See page 4 for options.



Clockwise (CW) rotation of magnet

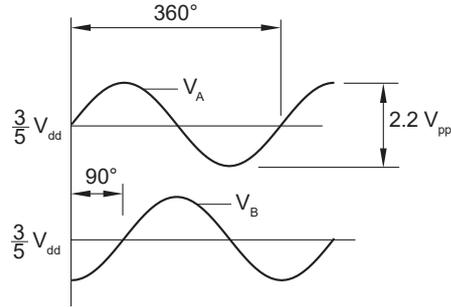
RMB29Ex12BS66 installation drawing



RMB29AC – Analogue sinusoidal

Power supply	$V_{dd} = 5\text{ V} \pm 5\%$
Current consumption	13 mA
Outputs	Signal amplitude: $1.1\text{ V} \pm 0.2\text{ V}$
Resolution	One sine/cosine wave per revolution
Accuracy	Typ. $\pm 0.5^\circ$
Hysteresis	0.45°
Maximum speed	60,000 rpm
Operating temperature	-40 °C to +105 °C (limited by connector) All other components used are specified for operation from -40 °C to +125 °C.

Timing diagram



Conformal coating type - Polyurethane

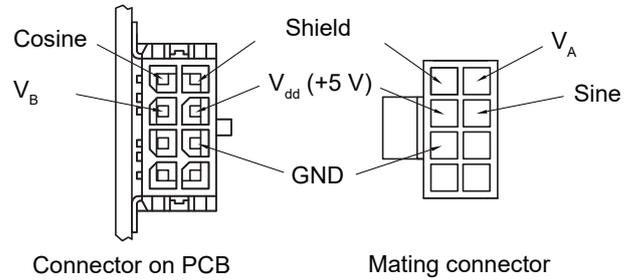
Connections

Connector on board: MOLEX 43045-0810

Mating connector:

Shell: MOLEX 43025-0800

8 pin crimp: MOLEX 43030-0010



RMB29Ex - Commutation outputs

Power supply	5 V $\pm 5\%$
Current consumption	30 mA (not loaded)
Commutation outputs	U, V, W
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Accuracy	Typ. $\pm 0.5^\circ$
Maximum speed	30,000 rpm
Operating temperature	-40 °C to +105 °C

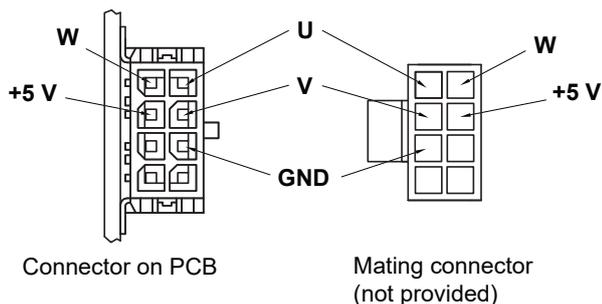
Connections

Connector on board: MOLEX 43045-0810

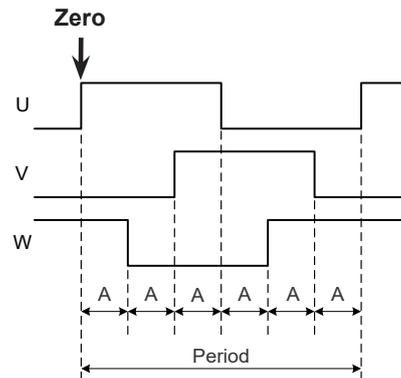
Mating connector (not provided):

Shell: MOLEX 43025-0800

8 pin crimp: MOLEX 43030-0010



Timing diagram



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.

Part numbering

RMB29 AC 01S S 1

Output type

AC - Analogue sinusoidal

Ex - Commutation outputs

- EA** - one period per rotation (2 poles)
- EB** - two periods per rotation (4 poles)
- EC** - three periods per rotation (6 poles)
- ED** - four periods per rotation (8 poles)
- EE** - five periods per rotation (10 poles)
- EF** - six periods per rotation (12 poles)
- EG** - seven periods per rotation (14 poles)
- EH** - eight periods per rotation (16 poles)

Special requirements

- 1** - No special requirements (standard) (for **AC** only)
- 66** - Push pull UVW, no incremental (with Molex connector and conformal coating) (for **Ex** only)
- 6A** - Push pull UVW, no incremental (without connector and conformal coating) (for **Ex** only)

Shape

S - Square

Resolution

For **AC**:

01S - one sine/cosine wave per revolution

For **Ex**:

12B - 4,096 counts per revolution

NOTE: Not all combinations are valid.

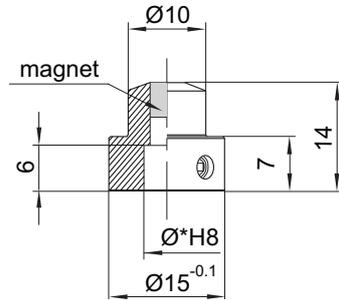
Series	Output type	Resolution	Shape	Special requirements
RMB29	AC	01S	S	1
	EA / EB / EC / ED / EE / EF / EG / EH	12B		66 / 6A

Magnetic actuator and magnet ordering information

Actuator for integration onto shaft



Shaft = \varnothing^*h7
Fixing: Grub screw provided

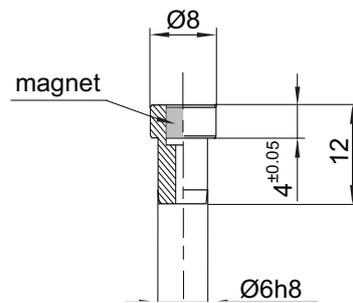


Part numbers:

For resolutions up to 9 bit absolute (512 cpr incremental)
RMA04A2A00 – $\varnothing 4$ mm shaft **RMA10A2A00** – $\varnothing 10$ mm shaft
RMA05A2A00 – $\varnothing 5$ mm shaft **RMA19A2A00** – $\varnothing 3/16''$ shaft
RMA06A2A00 – $\varnothing 6$ mm shaft **RMA25A2A00** – $\varnothing 1/4''$ shaft
RMA08A2A00 – $\varnothing 8$ mm shaft **RMA37A2A00** – $\varnothing 3/8''$ shaft

For resolutions from 10 bit absolute (800 cpr incremental) and above
RMA04A3A00 – $\varnothing 4$ mm shaft **RMA10A3A00** – $\varnothing 10$ mm shaft
RMA05A3A00 – $\varnothing 5$ mm shaft **RMA19A3A00** – $\varnothing 3/16''$ shaft
RMA06A3A00 – $\varnothing 6$ mm shaft **RMA25A3A00** – $\varnothing 1/4''$ shaft
RMA08A3A00 – $\varnothing 8$ mm shaft **RMA37A3A00** – $\varnothing 3/8''$ shaft

Actuator for integration into shaft



Part numbers:

For resolutions up to 9 bit absolute (512 cpr incremental)
RMH06A2A00

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

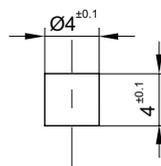
With N-pole marker scribed to a $\pm 5^\circ$ accuracy:

For resolutions up to 9 bit absolute (512 cpr incremental)
RMH06A2A02

For resolutions from 10 bit absolute (800 cpr incremental) and above
RMH06A3A02

Hole = $\varnothing 6G7$
Fixing: Glue (recommended – LOCTITE 648)

Magnet for direct recessing in non-ferrous shafts



Fixing: Glue (recommended – LOCTITE 648)

Part numbers:

For resolutions up to 9 bit absolute (512 cpr incremental)
RMM44A2A00 (individually packed) – for sample quantities only
RMM44A2C00 (packed in tubes)

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	Amendments done
1	8. 12. 2009	-	New document
2	31.3.2014	3	New operating temperature
3	14. 2. 2017	3	Timing diagram drawing amended
4	14. 6. 2018	3 - 5	Ex output added
5	16. 7. 2018	5	Part number amended
6	8. 8. 2019	2-3	Installation drawings amended
7	30. 8. 2019	2	Installation drawings amended

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