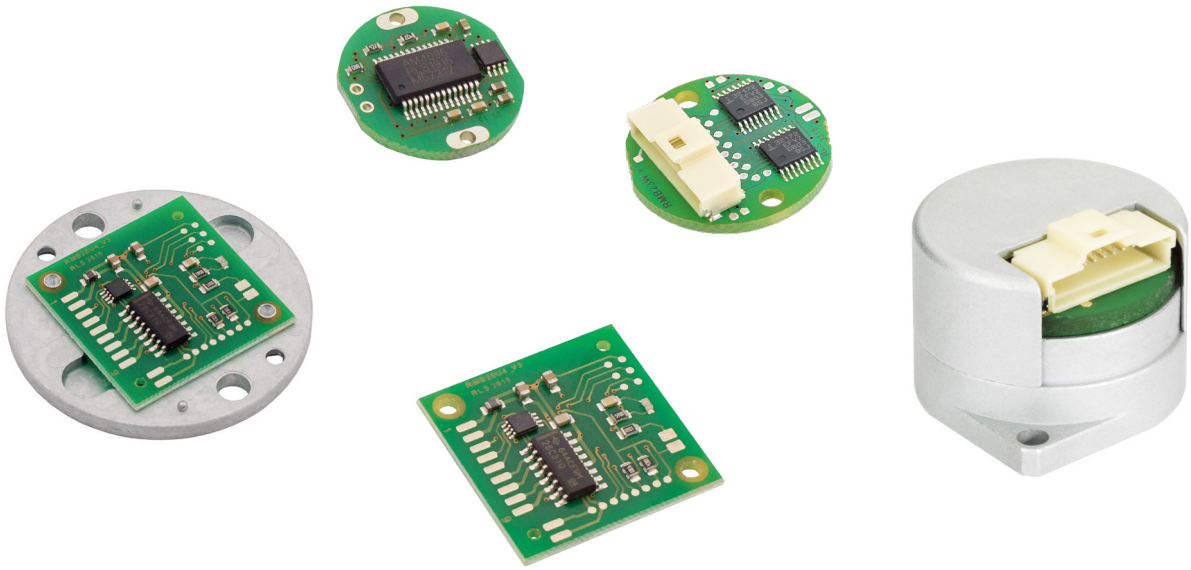
Data sheet
UVWD01_05
Issue 5, 27th September 2021

Commutation and incremental magnetic encoder solutions



Commutation and incremental encoders for motor applications

OnAxis™ commutation magnetic rotary encoder range is designed for use in motor feedback applications requiring both A, B, Z incremental and U, V, W commutation 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 zero position programming then removes the need for careful alignment of the encoder to starting position of the rotor.

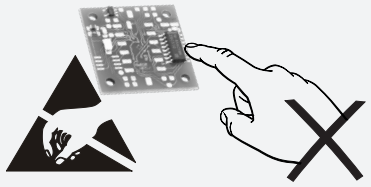
Resolutions are available from 64 to 2,048 pulses per revolution (256 to 8,192 counts per revolution with ×4 evaluation). U,V,W commutation signals are simultaneously output with 1 to 8 pole pairs (2 to 16 poles).

Commutation encoders are available in different design variants and sizes, from 20 mm diameter encoder module RMB20 to 44 mm diameter encoder module on a metal flange RMF44 or as RMC22 and RMC35 on a metal flange with a removable metal cap to allow easy installation and zeroing. The functionality of all the above mentioned encoders is based on the AM4096 magnetic encoder IC which provides reliable operation in tough environments. More on the functionalities of AM4096 magnetic encoder IC can be found in AM4096 data sheet.

- **Robust non-contact OnAxis encoders**
- **Resolutions from 256 to 8192 counts per revolution**
- **U, V, W commutation signals**
- **Encoder module sizes from 20 mm diameter to 44 mm diameter**
- **Operate in tough environments**
- **CE compliant, including RoHS - see Declaration of conformity**

UVW encoder technical specifications

Product	Dimensions	Available outputs	Commutation outputs	Incremental outputs	Power supply	Maximum speed
RMB29	29 mm × 29 mm	Ex	U, V, W	-	5 V ±10 %	30,000 rpm
RMB20	Ø20 mm	Ux		A, B, Z, A–, B–, Z– (RS422)		
RMB23	Ø23 mm	Wx	U, V, W and U+, U–, V+, V–, W+ W–			
RMB28	28 mm × 28 mm	Ux, Wx				
RMF44	Ø44 mm					
RM44	Ø44 mm					
RMC22	Ø22 mm	Ux	U, V, W			
RMC35	Ø35 mm					



WARNING!

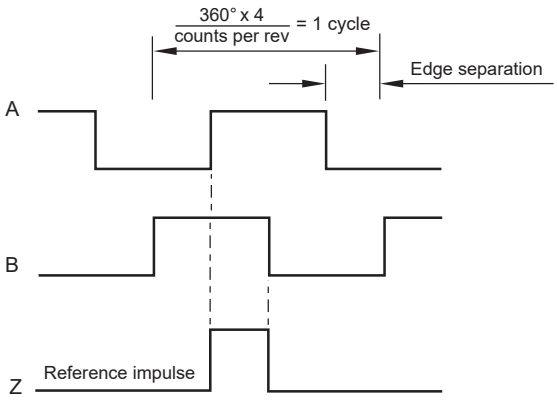
ESD protection
Encoder modules are ESD sensitive - handle with care. Do not touch electronic circuit or sensor area without proper ESD protection or outside of ESD controlled environment.

Output types

Incremental outputs

There are three signals for the incremental output: A, B and Z. Signals A and B are quadrature signals, shifted by 90°, and signal Z is a reference mark. The reference mark signal is produced once per revolution. The width of the Z pulse is 1/4 of the quadrature signal period and it is synchronized with the A and B signals. The position of the reference mark is at zero.
The chart below shows the timing diagram of A, B and Z signals with clockwise (CW) rotation of the magnet and positive counting direction. B leads A for CW rotation.

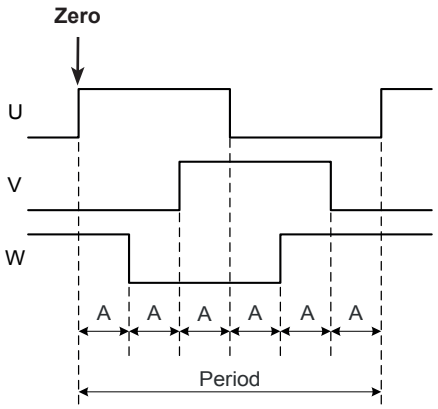
Timing diagram - Incremental
Complementary signals not shown



Commutation outputs

UVW outputs can be output as digital signals. The number of signal periods (P) equals number of pole pairs. The timing diagram shows the signals when the position data is increasing. The U signal always starts at zero position regardless the signal period length.
The resolution should be set to 4096 to ensure accurate transitions of the signals.

Timing diagram - Commutation
Complementary signals not shown

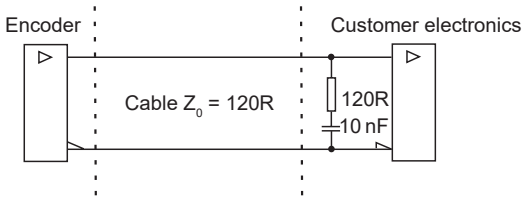


UVW outputs

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.

Recommended signal termination - for complementary signals only



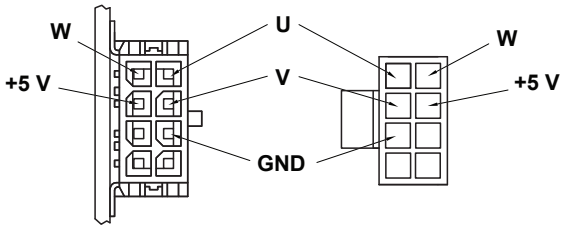
RMB29Ex

Output specifications

Power supply	5 V ±10 %
Current consumption	30 mA (not loaded)
Maximum speed	30,000 rpm
Accuracy	Typ. ±0.5°
Commutation outputs	U, V, W
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Temperature Operating and storage	–40 °C to +105 °C (Limited by connector. All other components used are specified for operation from –40 °C to +125 °C)

Connections

With pads or with Molex connector:

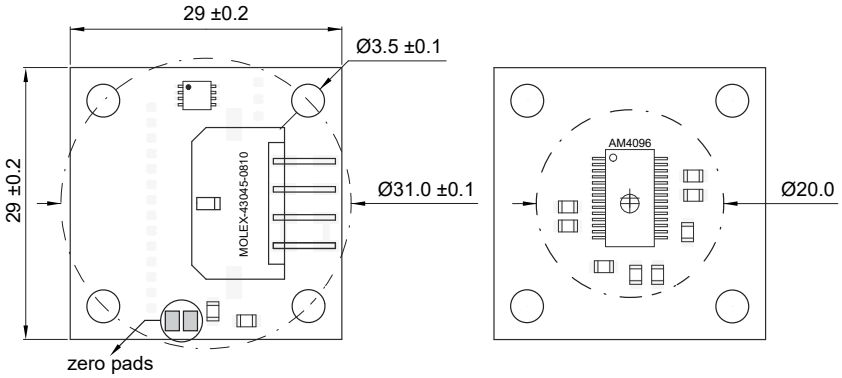


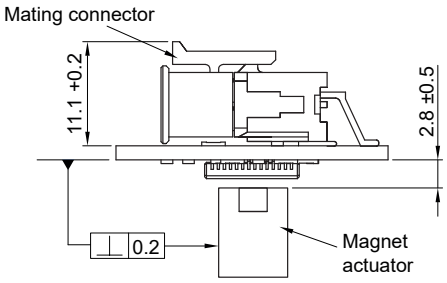
Connector on PCB

Mating connector
(not provided)

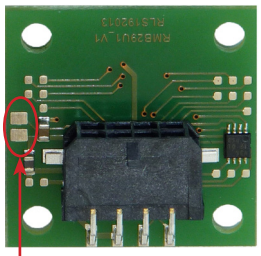
Dimensions and installation tolerance

Dimensions and tolerances in mm.





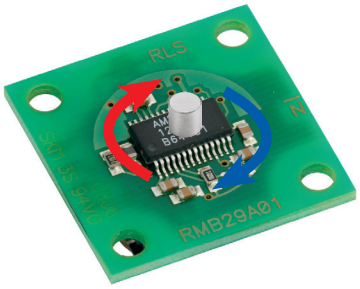
NOTE: For the accuracy specified the center line of the magnet needs to be square to the chip within 2° and aligned within the center of the board ±0.1 mm (mid point between the 2 mounting holes).



Zeroing
pads

Connector on board
Molex 43045-0810
Mating connector (Not provided)
Shell: Molex 43025-0800
8 pin crimp: Molex 43030-0010

NOTE: Product without connector is not conformal coated.



Clockwise rotation of magnetic actuator.

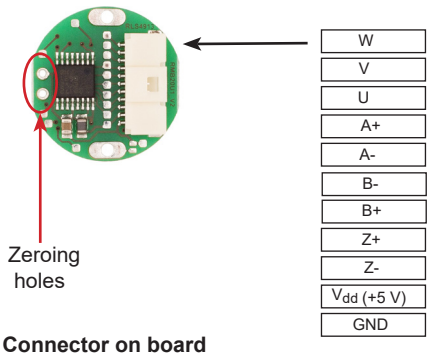
RMB20Ux

Output specifications

Power supply	5 V ±10 %
Current consumption	30 mA (not loaded)
Maximum speed	30,000 rpm
Accuracy	Typ. ±0.5°
Incremental outputs	A, B, Z, A–, B–, Z– (RS422)
Incremental resolutions	256, 512, 1,024, 2,048, 4,096 cpr
Commutation outputs	U, V, W
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Temperature Operating and storage	–40 °C to +125 °C –40 °C to +105 °C for option 10 (with connector)

Connections

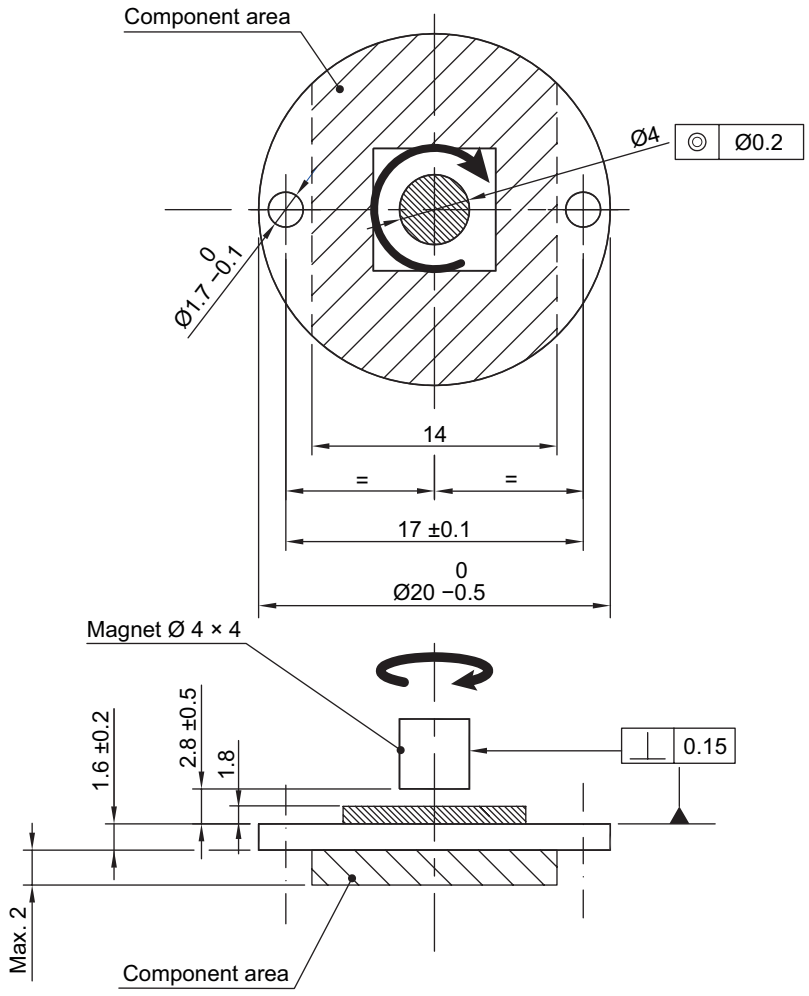
With pads or with Molex connector:

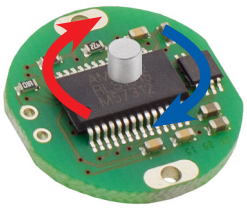


Connector on board
Molex 501568-1107
Mating connector (Not provided)
Shell: Molex 501330-1100
Crimp terminal: Molex 501334-xxxx

Dimensions and installation tolerance

Dimensions and tolerances in mm.





Clockwise rotation of magnetic actuator.

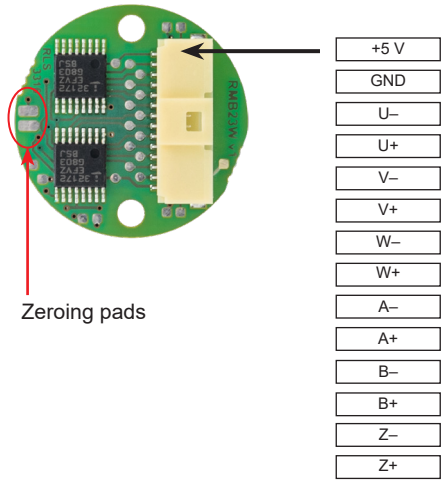
NOTE: For the accuracy specified the center line of the magnet needs to be square to the chip within 2° and aligned within the center of the board ±0.1 mm (mid point between the 2 mounting holes).

RMB23Wx

Output specifications

Power supply	5 V ±10 %
Current consumption	30 mA (not loaded)
Maximum speed	30,000 rpm
Accuracy	Typ. ±0.5°
Incremental outputs	A, B, Z, A–, B–, Z– (RS422)
Incremental resolutions	256, 512, 1,024, 2,048, 4,096 cpr
Commutation outputs	U, V, W, U–, V–, W– (RS422)
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Temperature Operating and storage	–40 °C to +105 °C

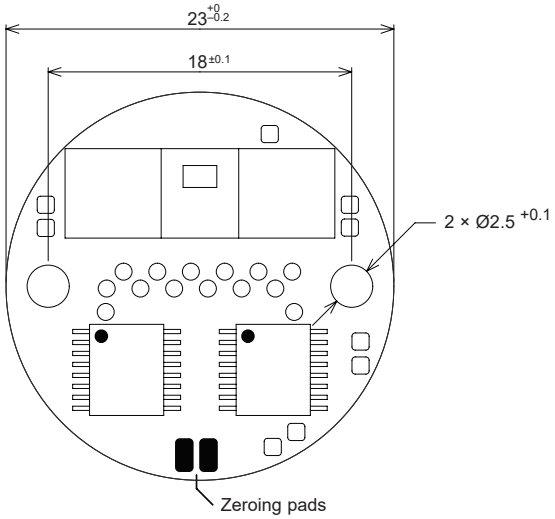
Connections

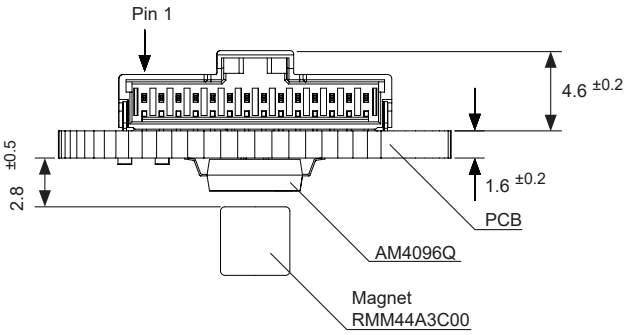


Connector on board
Molex 501568-1407
Mating connector (Not provided)
Shell: Molex 501330-1400
Crimp terminal: Molex 501334-xxxx

Dimensions and installation tolerance

Dimensions and tolerances in mm.





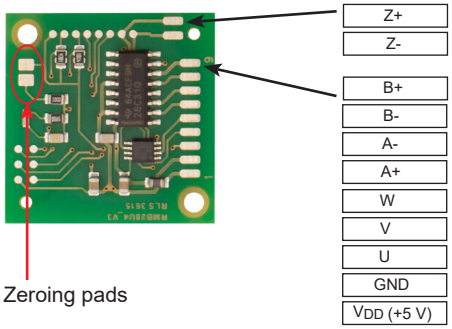
RMB28Ux / RMF44Ux

Output specifications

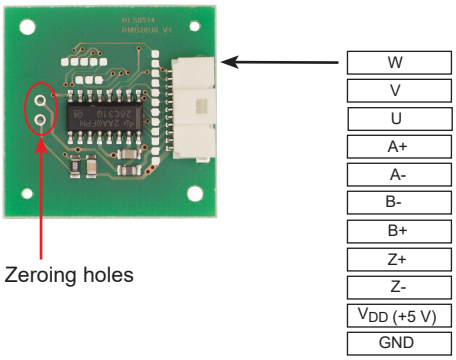
Power supply	5 V ±10 %
Current consumption	30 mA (not loaded)
Maximum speed	30,000 rpm
Accuracy	Typ. ±0.5°
Incremental outputs	A, B, Z, A–, B–, Z– (RS422)
Incremental resolutions	256, 320, 400, 500, 512, 800, 1,000, 1,024, 1,600, 2,000, 2,048, 4,096, 8,192 cpr
Commutation outputs	U, V, W (±24 mA output drive)
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Temperature Operating and storage	–40 °C to +125 °C –40 °C to +105 °C for option 12 (with connector)

Connections

With pads:



With Molex connector:

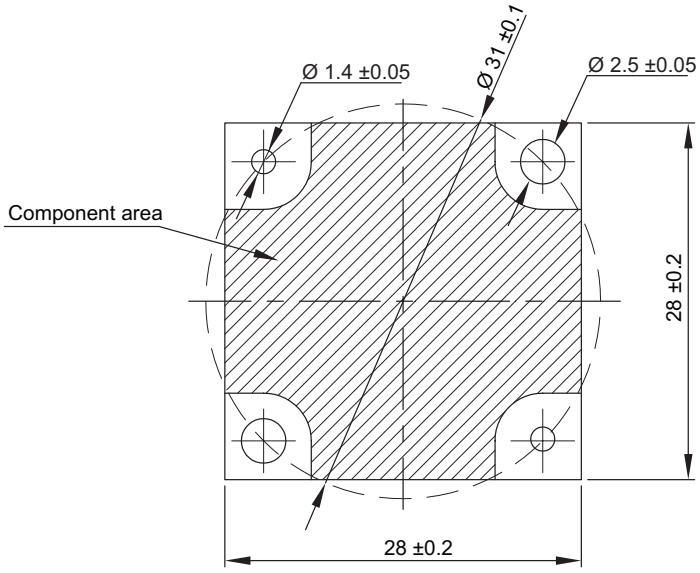


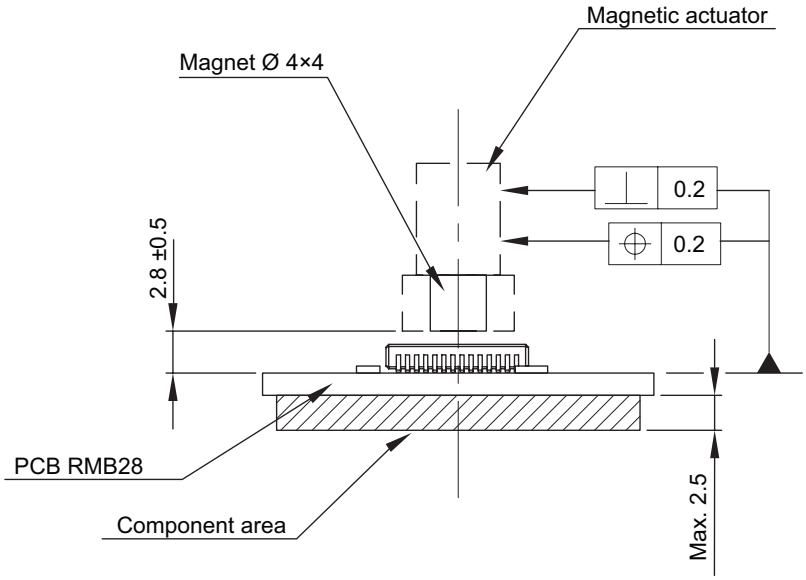
Connector on board
Molex 501568-1107
Mating connector (Not provided)
Shell: Molex 501330-1100
Crimp terminal: Molex 501334-xxxx

NOTE: Image may not represent actual product as components can vary based on chosen resolution.

RMB28Ux / RMB28Wx dimensions and installation tolerance

Dimensions and tolerances in mm.



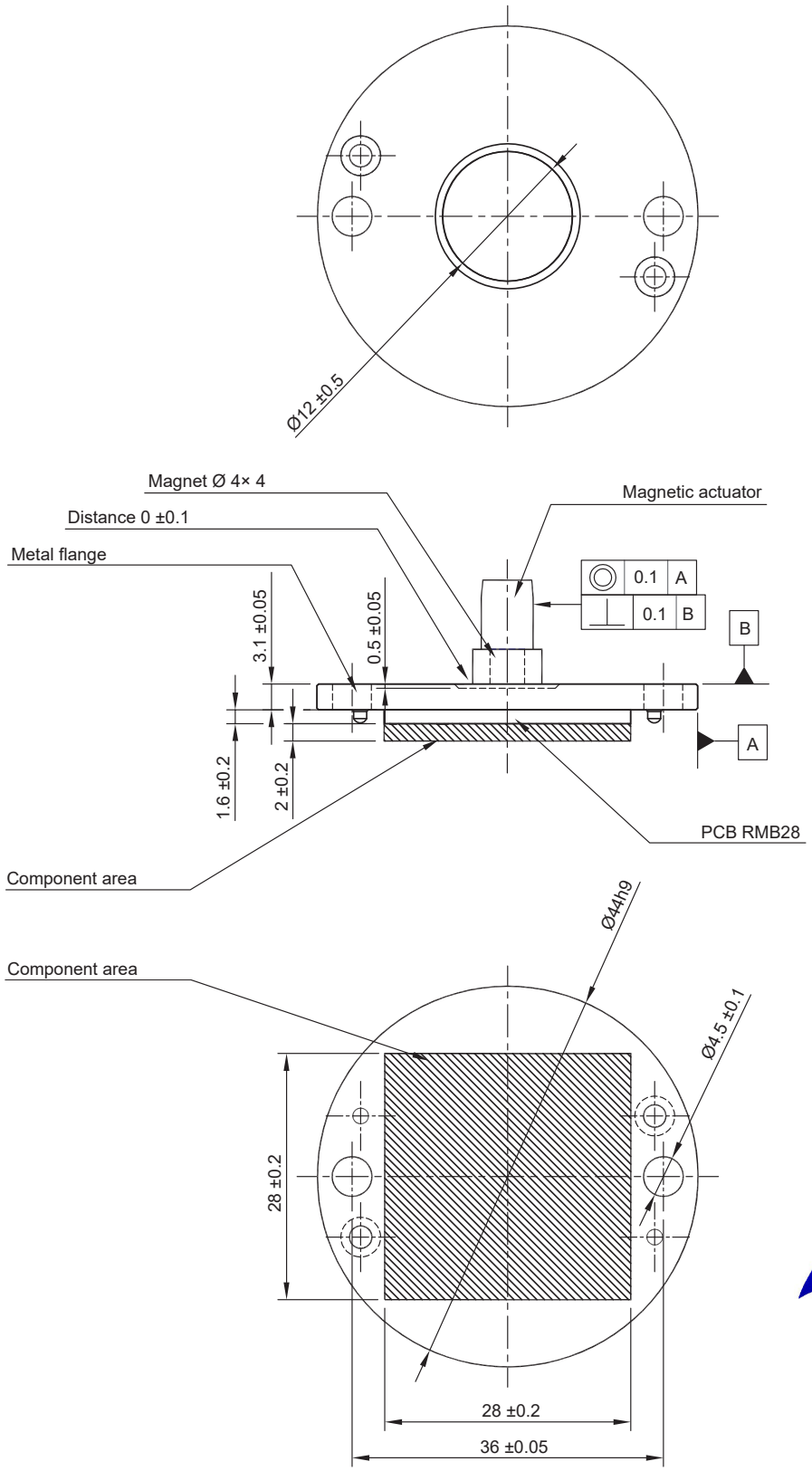


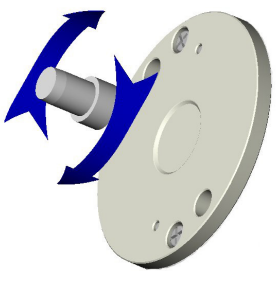
Clockwise rotation of magnetic actuator.

RMB28Ux / RMF44Ux continued

RMF44Ux / RMF44Wx dimensions and installation tolerance

Dimensions and tolerances in mm.





Clockwise rotation of magnetic actuator.

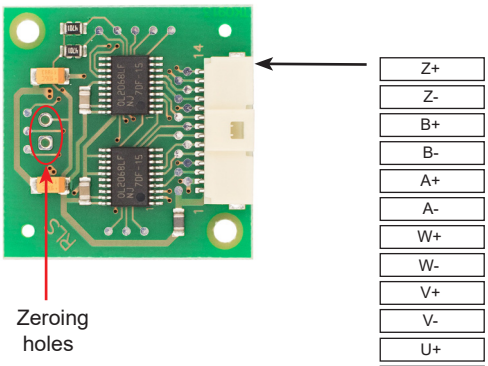
RMB28Wx / RMF44Wx

Output specifications

Power supply	5 V ±10 %
Current consumption	30 mA (not loaded)
Maximum speed	30,000 rpm
Accuracy	Typ. ±0.5°
Incremental outputs	A, B, Z, A–, B–, Z– (RS422)
Incremental resolutions	256, 512, 1,024, 2,048, 4,096 cpr
Commutation outputs	U, V, W, U–, V–, W– (RS422)
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Temperature Operating and storage	–40 °C to +125 °C –40 °C to +105 °C for option 12 (with connector)

Connections

With pads or with Molex connector:



Connector on board
Molex 501568-1407
Mating connector (Not provided)
Shell: Molex 501330-1400
Crimp terminal: Molex 501334-xxxx

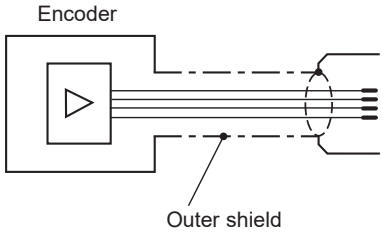
RM44Ux / Wx

Output specifications

Power supply	5 V ±10 %
Current consumption	30 mA (not loaded)
Accuracy	Typ. ±0.5°
Hysteresis	0.18°
Maximum speed	30,000 rpm
Incremental outputs	A, B, Z, A-, B-, Z- (RS422)
Incremental resolutions	256, 320, 400, 500, 512, 800, 1,000, 1,024, 1,600, 2,000, 2,048, 4,096, 8,192 cpr
Commutation outputs (for Ux)	U, V, W (±24 mA output drive)
Commutation outputs (for Wx)	U, V, W, U–, V–, W– (RS422)
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Temperature Operating and storage	–40 °C to +125 °C (IP64) –40 °C to +85 °C (IP68)
Mass	45 g

* RM44 with external zeroing is available with binary resolutions only.

Connections

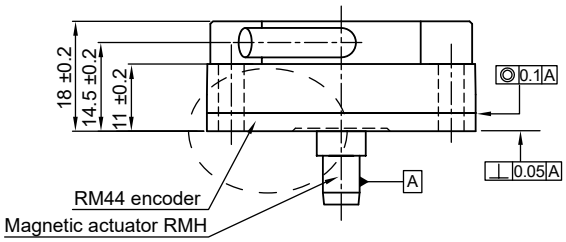


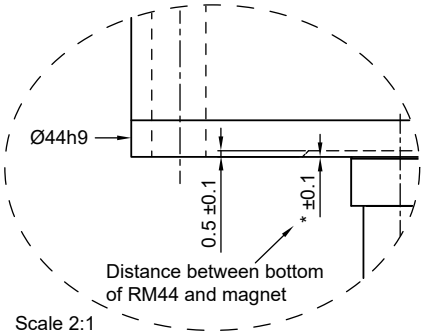
RM44Ux		RM44Wx	
Function	**Wire colour**	**Function**	**Wire colour**
V_{dd}	Red	V_{dd}	Red
GND	Blue	GND	Blue
A	Grey	U–	Green/Black
A–	Pink	U+	Black
B	Green	V–	Brown/Black
B–	Yellow	V+	Violet
Z	White	W–	White/Black
Z–	Brown	W+	Yellow/Black
U	Black	A–	Pink
V	Violet	A+	Grey
W	Grey/Violet	B–	Yellow
		B+	Green
		Z–	Brown
		Z+	White

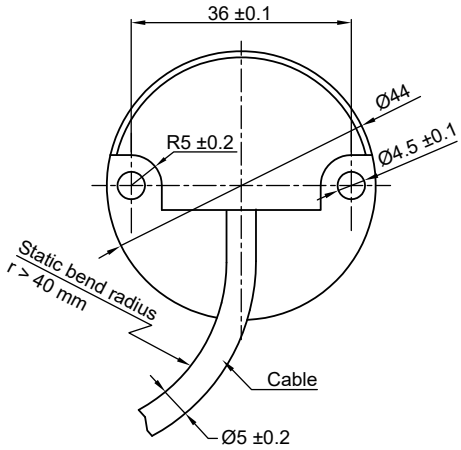
RM44Ux / Wx continued

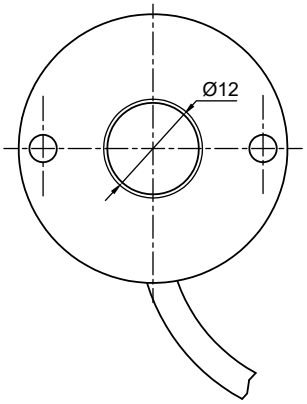
RM44Ux / RM44Wx dimensions and installation tolerance

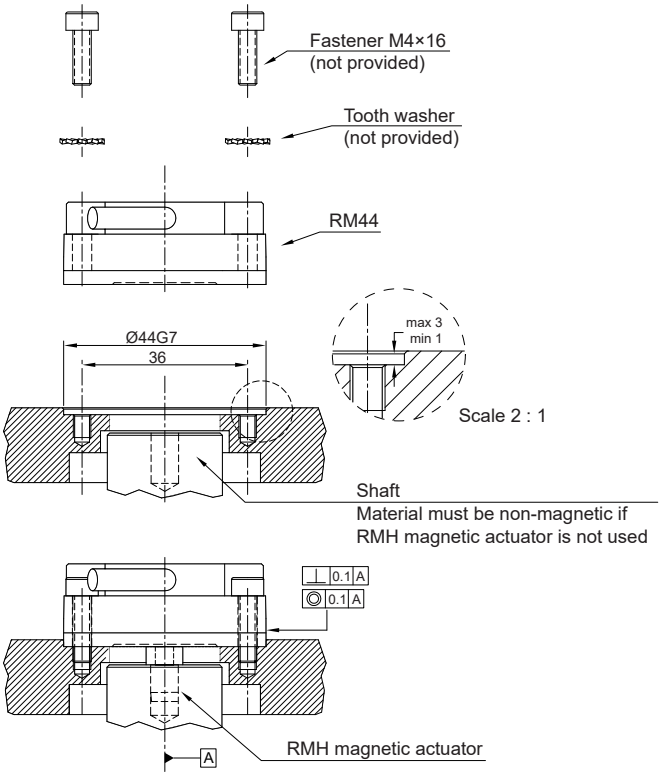
Dimensions and tolerances in mm.

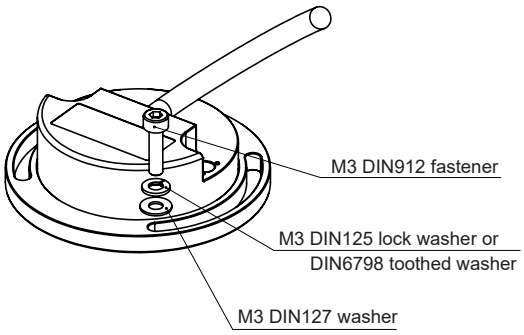


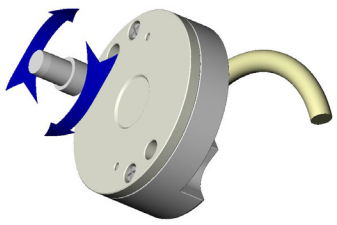












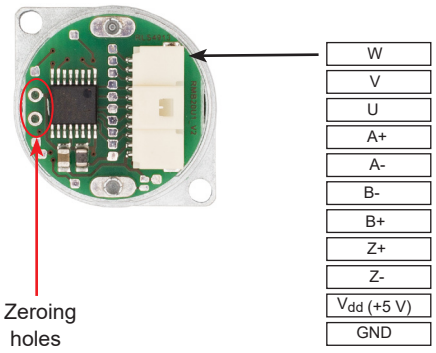
Clockwise rotation of magnetic actuator.

RMC22Ux

Output specifications

Power supply	5 V ±10 %
Current consumption	30 mA (not loaded)
Maximum speed	30,000 rpm
Accuracy	Typ. ±0.5°
Hysteresis	0.17°
Incremental outputs	A, B, Z, A–, B–, Z– (RS422)
Incremental resolutions	256, 512, 1,024, 2,048, 4,096 cpr
Commutation outputs	U, V, W (±24 mA output drive)
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Temperature Operating and storage	–40 °C to +105 °C (Limited by connector. All other components used are specified for operation from –40 °C to +125 °C)
Mass	22 g

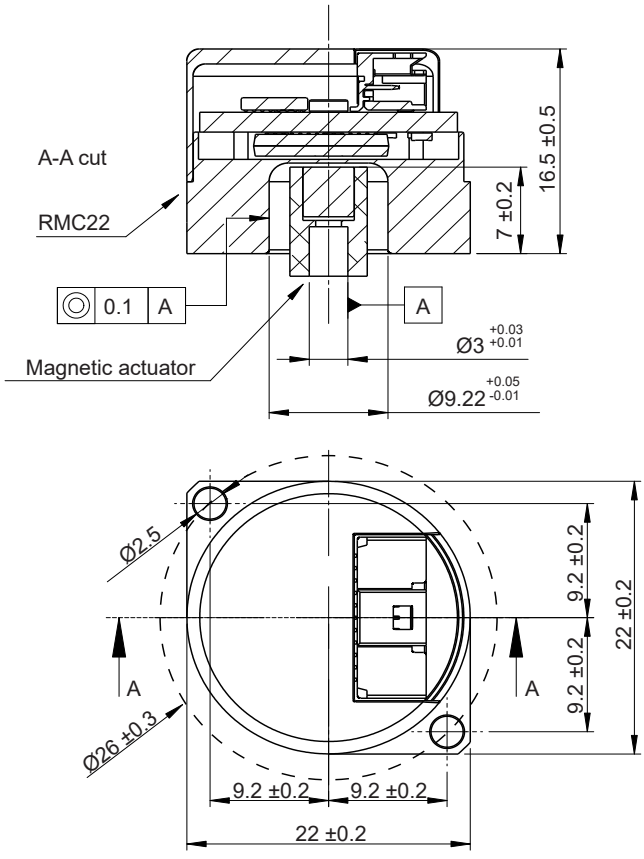
Connections

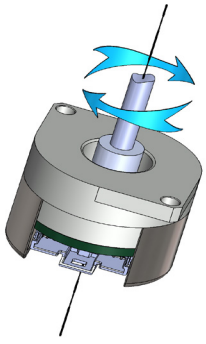


Connector on board
Molex 501568-1107
Mating connector (Not provided)
Shell: Molex 501330-1100
Crimp terminal: Molex 501334-xxxx

Dimensions and installation tolerance

Dimensions and tolerances in mm.





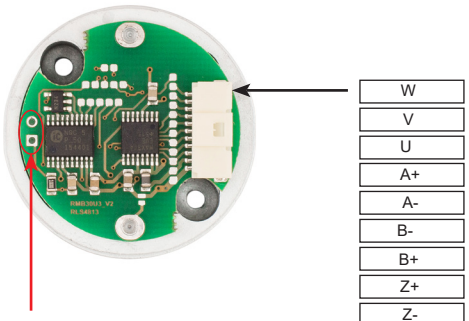
Clockwise rotation of magnetic actuator.

RMC35Ux

Output specifications

Power supply	5 V ±10 %
Current consumption	40 mA (not loaded)
Accuracy	Typ. ±0.5°
Hysteresis	0.18°
Maximum speed	30,000 rpm
Incremental outputs	A, B, Z, A-, B-, Z- (RS422)
Incremental resolutions	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 (±24 mA output drive)
Number of poles for commutation outputs	2, 4, 6, 8, 10, 12, 14, 16
Temperature Operating and storage	–40 °C to +105 °C (Limited by connector. All other components used are specified for operation from –40 °C to +125 °C)
Mass	45 g

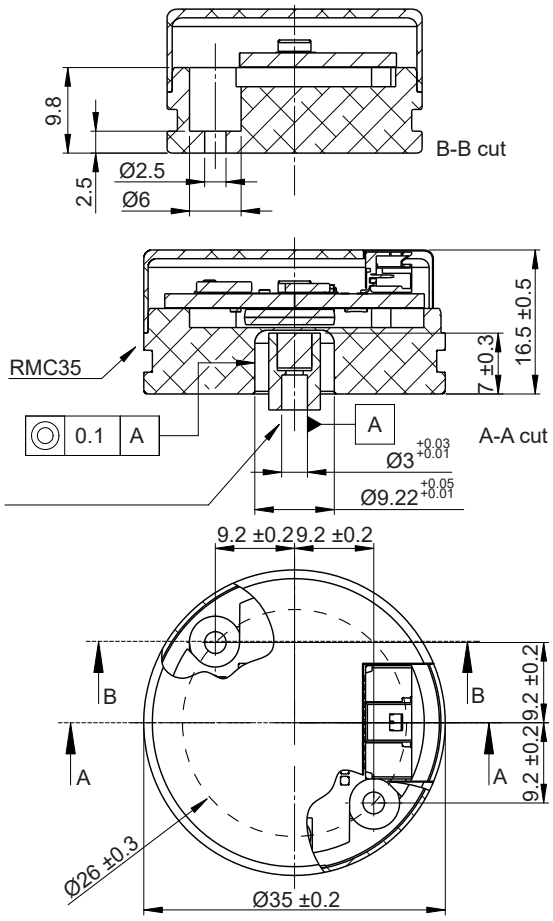
Connections

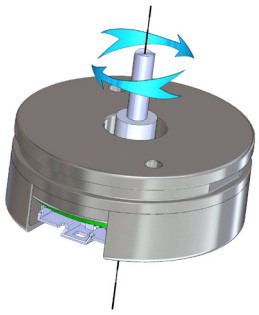


Connector on board
Molex 501568-1107
Mating connector (Not provided)
Shell: Molex 501330-1100
Crimp terminal: Molex 501334-xxxx

Dimensions and installation tolerance

Dimensions and tolerances in mm.





Clockwise rotation of magnetic actuator.

RMC22 / RMC35 continued

Installation procedure

1. Install the magnetic actuator

Use glue to fix the magnetic actuator to the shaft (recommended LOCTITE 648). Actuator should protrodue 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).

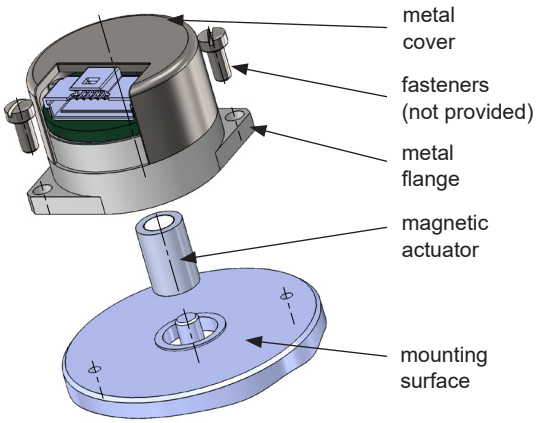
3. Set the zero position of the encoder (see below for details)

4. Cover the encoder with the metal cover

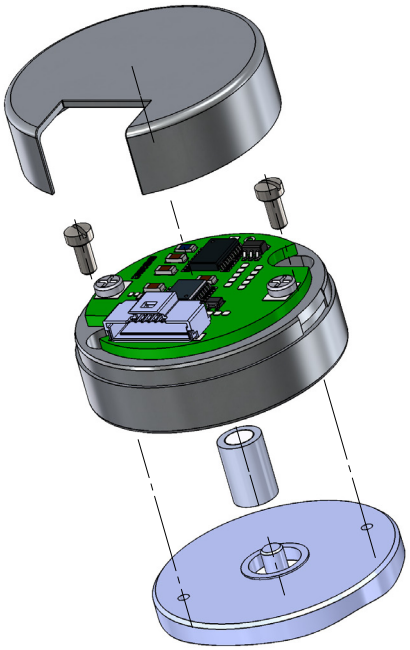
Place the metal cover over the encoder and gently press it in position. Be sure to align the opening with the connector.

5. Plug in the mating connector

RMC22 installation



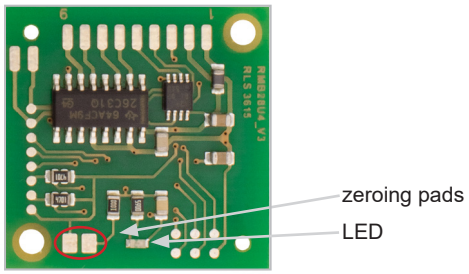
RMC35 installation



Zero position setting procedure

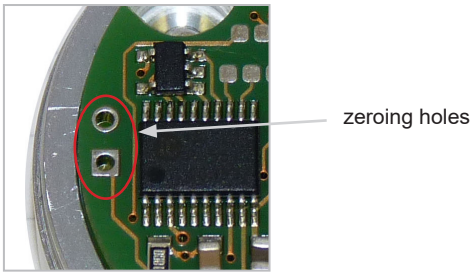
Encoder zero position can be easily set by shortening the zeroing pads on the board. After locking the motor at the mechanical zero position short together the two zeroing pads.

The output angle position data can be zeroed at any angle with resolution of 0.0879°.



RMB28U zeroing example

The zeroing pads can be shorted to set the zero position of the encoder. If the zeroing is successful, the LED flashes red.



RMC35U zeroing example

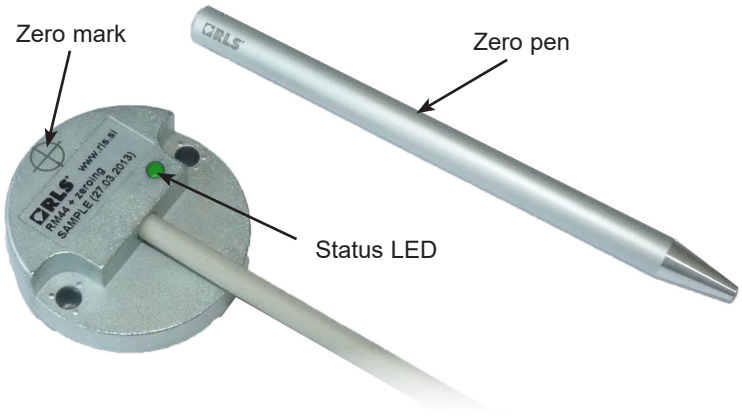
The zeroing holes can be shorted to set the zero position of the encoder.

External zeroing

The RM44 encoder-sensor base unit is designed for integration onto electric motors or other devices for shaft position and velocity measurement.

The RM44 with external zeroing is designed for setting the encoder zero position by using zero pen. It is designed for power supply voltage of 5 V only.

For electrical characteristics and dimensional drawings please refer to RM44 data sheet (RM44D01).



1. **Install the magnetic actuator and RM44 encoder.**
   Please refer to RM44 data sheet (RM44D01) for more information.
2. **Set the mechanical zero position.**
3. **Use the zero pen to set the encoder zero position (see image):**
   3.1 Touch the Zero mark with the apex of the Zero pen - the status LED goes off.
   3.2 Hold the Zero pen for 3 seconds.
   3.3 The new Zero position is set when status LED goes RED.

Status indicator LED

LED	Status
Green	Normal operation
Red	Zero position
No light	Presence of Zero pen

UVW part numbering

RMB20Ux (commutation and incremental complementary) part numbering

RMB20 UA 09B C 10

Special requirements
00 - Without connector
10 - Molex connector type 501568-1107[1]

Shape
C - Circular

Resolution
08B - 256 counts per revolution
09B - 512 counts per revolution
10B - 1,024 counts per revolution
11B - 2,048 counts per revolution
12B - 4,096 counts per revolution

Ux - Commutation single ended + incremental with line driver output type:
UA - One period per revolution (2 poles)
UB - Two periods per revolution (4 poles)
UC - Three periods per revolution (6 poles)
UD - Four periods per revolution (8 poles)
UE - Five periods per revolution (10 poles)
UF - Six periods per revolution (12 poles)
UG - Seven periods per revolution (14 poles)
UH - Eight periods per revolution (16 poles)

[1] Mating connector not provided.

Series	Output type	Resolution	Shape	Special requirements
RMB20	UA / UB / UC / UD / UE / UF / UG / UH	12B / 11B / 10B / 09B / 08B	C	00 / 10

RMB23Wx (commutation, commutation complementary and incremental complementary) part numbering

RMB23 WA 09B C 12

Special requirements
12 - Molex connector type 501568-1407[1]

Shape
C - Circular

Resolution
08B - 256 counts per revolution
09B - 512 counts per revolution
10B - 1,024 counts per revolution
11B - 2,048 counts per revolution
12B - 4,096 counts per revolution

Wx - Commutation with line driver + incremental with line driver:
WA - One period per revolution (2 poles)
WB - Two periods per revolution (4 poles)
WC - Three periods per revolution (6 poles)
WD - Four periods per revolution (8 poles)
WE - Five periods per revolution (10 poles)
WF - Six periods per revolution (12 poles)
WG - Seven periods per revolution (14 poles)
WH - Eight periods per revolution (16 poles)

[1] Mating connector not provided.

Please note!
Not all combinations are valid. Please check below table for available options.

Series	Output type	Resolution	Shape	Special requirements
RMB23	WA / WB / WC / WD / WE / WF / WG / WH	12B / 11B / 10B / 09B / 08B	C	12

UVW part numbering continued

RMB28Ux / RMF44Ux and RMB28Wx / RMF44Wx (commutation, commutation complementary and incremental complementary) part numbering

RMB28 W A 09B S 10

Series
RMB28 - Rotary magnetic board with 28 mm side
RMF44 - Rotary magnetic board on flange with 44 mm diameter aluminium flange

Output type
U - Commutation single ended + incremental with line driver
W - Commutation with line driver + incremental with line driver

UVW output configuration
A - One period per revolution (2 poles)
B - Two periods per revolution (4 poles)
C - Three periods per revolution (6 poles)
D - Four periods per revolution (8 poles)
E - Five periods per revolution (10 poles)
F - Six periods per revolution (12 poles)
G - Seven periods per revolution (14 poles)
H - Eight periods per revolution (16 poles)

Resolution
For **Wx** (counts per revolution)**:**
08B - 256
09B - 512
10B - 1,024
11B - 2,048
12B - 4,096

For **Ux** (counts per revolution)**:**

Decimal		
D32 - 320	**D80** - 800	**2D0** - 2000
D40 - 400	**1D0** - 1000	
D50 - 500	**1D6** - 1600	

Binary	
08B - 256	**11B** - 2048
09B - 512	**12B** - 4096
10B - 1024	**13B** - 8192

Shape
S - Square (for **RMB28** only)
A - Standard 44 mm diameter aluminium flange (for **RMF44** only)

Special requirements
10 - None (standard)
12 - Molex connector type 501568-1407[1]

[1] Mating connector not provided.

Please note!
Not all combinations are valid. Please check below table for available options.

Series	Output type	Resolution	Shape	Special requirements
RMB28	UA / UB / UC / UD / UE / UF / UG / UH	2D0 / 1D6 / 1D0 / D80 / D50 / D40 / D32 / 13B / 12B / 11B / 10B / 09B / 08B	S	10 / 12
	WA / WB / WC / WD / WE / WF / WG / WH	12B / 11B / 10B / 09B / 08B		

Series	Output type	Resolution	Shape	Special requirements
RMF44	UA / UB / UC / UD / UE / UF / UG / UH	2D0 / 1D6 / 1D0 / D80 / D50 / D40 / D32 / 13B / 12B / 11B / 10B / 09B / 08B	A	10 / 12
	WA / WB / WC / WD / WE / WF / WG / WH	12B / 11B / 10B / 09B / 08B		

UVW part numbering continued

RMB29Ex commutation part numbering

RMB29 Ex 12B S 66

Ex - UVW + incremental (no line drivers), 5 V:
EA - One period per revolution (2 poles)
EB - Two periods per revolution (4 poles)
EC - Three periods per revolution (6 poles)
ED - Four periods per revolution (8 poles)
EE - Five periods per revolution (10 poles)
EF - Six periods per revolution (12 poles)
EG - Seven periods per revolution (14 poles)
EH - Eight periods per revolution (16 poles)

Resolution
08B - 256
09B - 512
10B - 1,024
11B - 2,048
12B - 4,096

Shape
S - Square

Special requirements
66 - Push pull UVW, no incremental (with Molex connector and conformal coating)
6A - Push pull UVW, no incremental (without connector and conformal coating)

Series	Output type	Resolution	Shape	Special requirements
RMB29	EA / EB / EC / ED / EE / EF / EG / EH	12B / 11B / 10B / 09B / 08B	S	66 / 6A

RMC22Ux and RMC35Ux part numbering

RMC22 U A 09B AA 10

Series
RMC22 - Rotary magnetic compact encoder with 22 mm body
RMC35 - Rotary magnetic compact encoder with 35 mm body

Output type
U - Commutation single ended + incremental with line driver

UVW output configuration
A - One period per revolution (2 poles)
B - Two periods per revolution (4 poles)
C - Three periods per revolution (6 poles)
D - Four periods per revolution (8 poles)
E - Five periods per revolution (10 poles)
F - Six periods per revolution (12 poles)
G - Seven periods per revolution (14 poles)
H - Eight periods per revolution (16 poles)

Resolution
For **RMC22Ux** (counts per revolution):
08B - 256
09B - 512
10B - 1,024
11B - 2,048
12B - 4,096

For **RMC35Ux** (counts per revolution):

Decimal		
D32 - 320	**D80** - 800	**2D0** - 2000
D40 - 400	**1D0** - 1000	
D50 - 500	**1D6** - 1600	

Binary	
08B - 256	**11B** - 2048
09B - 512	**12B** - 4096
10B - 1024	**13B** - 8192

Connector type
AA - Molex 501568-1107

Special requirements
10 - None (standard)

Please note!
Not all combinations are valid. Please check below table for available options.

Series	Output type	Resolution	Connector type	Special requirements
RMC22	UA / UB / UC / UD / UE / UF / UG / UH	12B / 11B / 10B / 09B / 08B	AA	10
RMC35		2D0 / 1D6 / 1D0 / D80 / D50 / D40 / D32 / 13B / 12B / 11B / 10B / 09B / 08B		

UVW part numbering continued

RM44Ux / Wx (commutation and incremental complementary) part numbering

RM44 U A 00 12B 10 F 2 E 10

Series
RM44 - rotary magnetic encoder, contactless, 44 mm diameter body

Output type
U - Commutation single ended + incremental with line driver
W - Commutation with line driver + incremental with line driver

UVW output configuration
A - one period per revolution (2 poles)
B - two periods per revolution (4 poles)
C - three periods per revolution (6 poles)
D - four periods per revolution (8 poles)
E - five periods per revolution (10 poles)
F - six periods per revolution (12 poles)
G - seven periods per revolution (14 poles)
H - eight periods per revolution (16 poles)

Shaft size
00 - n/a

Resolution
For **Wx** (counts per revolution):
08B - 256
09B - 512
10B - 1,024
11B - 2,048
12B - 4,096

For **Ux** (counts per revolution):

Decimal		
D32 - 320	**D80** - 800	**2D0** - 2000
D40 - 400	**1D0** - 1000	
D50 - 500	**1D6** - 1600	

Binary	
08B - 256	**11B** - 2048
09B - 512	**12B** - 4096
10B - 1024	**13B** - 8192

For **RM44 with external zeroing** (counts per revolution):

05Z - 32	**08Z** - 256	**11Z** - 2048
06Z - 64	**09Z** - 512	**12Z** - 4096
07Z - 128	**10Z** - 1024	

Cable length
10 - 1.0 meter (or 10 meters if **1M** special requirement is chosen)

Connector options
F - Flying lead (no connector)

Body style and cable exit
2 - Cylindrical body, radial cable exit

Environment and material
E - IP64, die-cast body (Zinc alloy), standard EMC grade (standard)
F - IP68, die-cast body (Zinc alloy), standard EMC grade

Special requirements
10 - No special requirements (standard)
1M - Cable length in meters

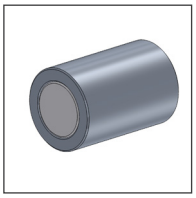
Please note!
Not all combinations are valid. Please check below table for available options.

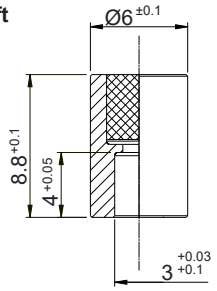
Series	Output type	Shaft size	Resolution	Cable length	Connector type	Body style	Environment and material	Special requirements
RM44Ux	UA / UB / UC / UD / UE / UF / UG / UH	00	2D0 / 1D6 / 1D0 / D80 / D50 / D40 / D32 / 13B / 12B / 11B / 10B / 09B / 08B	10	F	2	E / F	10 / 1M
	WA / WB / WC / WD / WE / WF / WG / WH		12B / 11B / 10B / 09B / 08B					
RM44Ux with external zeroing	UA / UB / UC / UD / UE / UF / UG / UH		12Z / 11Z / 10Z / 09Z / 08Z / 07Z / 06Z / 05Z					

Magnetic actuator and magnet part numbering

Dimensions and tolerances in mm.

Actuator for integration onto shaft



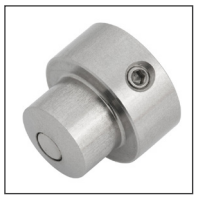


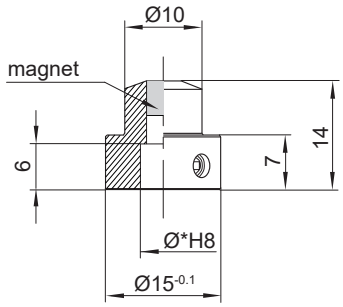
Fixing: Glue (recommended – LOCTITE 648 or LOCTITE 2701)

Part number:

For resolutions from 10 bit absolute (800 cpr incremental) and above
RMA03A3A07 – Ø3 mm shaft

Actuator for integration onto shaft





Shaft = Ø*h7
Fixing: Grub screw provided

* Hole diameter for nominal shaft size.
See table on the right for more information on available shaft sizes.

Part numbers:

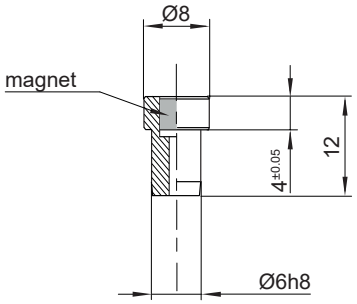
For resolutions up to 9 bit absolute (512 cpr incremental)

RMA04A2A00 – Ø4 mm shaft	**RMA10A2A00** – Ø10 mm shaft
RMA05A2A00 – Ø5 mm shaft	**RMA19A2A00** – Ø3/16” shaft
RMA06A2A00 – Ø6 mm shaft	**RMA25A2A00** – Ø1/4” shaft
RMA08A2A00 – Ø8 mm shaft	**RMA37A2A00** – Ø3/8” shaft

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

RMA04A3A00 – Ø4 mm shaft	**RMA10A3A00** – Ø10 mm shaft
RMA05A3A00 – Ø5 mm shaft	**RMA19A3A00** – Ø3/16” shaft
RMA06A3A00 – Ø6 mm shaft	**RMA25A3A00** – Ø1/4” shaft
RMA08A3A00 – Ø8 mm shaft	**RMA37A3A00** – Ø3/8” shaft

Actuator for integration into shaft



Hole = Ø6G7
Fixing: Glue (recommended – LOCTITE 648 or 2701)

Part numbers:

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

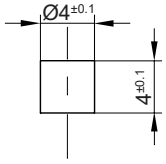
For resolutions from 10 bit absolute (800 cpr incremental) and above
RMH06A3A00

With N-pole marker scribed to a ±5° accuracy:

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

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

Magnet for direct recessing in non-ferrous shafts



Fixing: Glue (recommended – LOCTITE 648 or 2701)

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)

Accessories part numbering

Zeroing pen

Part number: ZEROPEN00

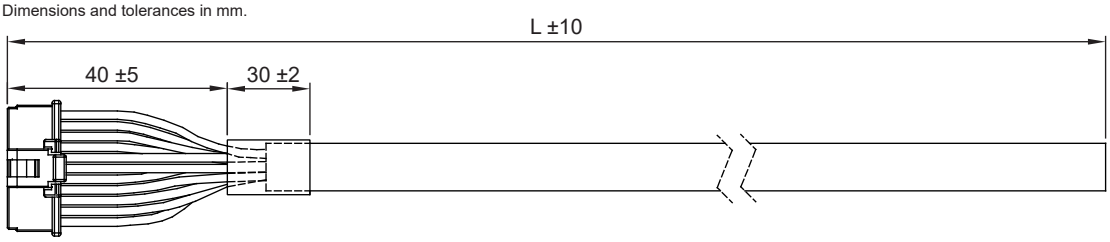
Cable assembly

Cable specifications for connection of Molex 501330-1100, 12 core

Part numbers	ACC001 (cable length: 30 cm) ACC002 (cable length: 50 cm) ACC003 (cable length: 100 cm)
Connector	Molex 501330-1100, 11 pins
Wire diameter	AWG26 (0.14 mm^2)
Sheath color	Grey (RAL7032)
Rated voltage	250 V
Operating temperature	From –30 °C to +125 °C
Environmental conformation	RoHS conform 73/23/EWG-Guideline CE conform Halogen free

Dimensions

Dimensions and tolerances in mm.



Pin	Wire color
1	Blue
2	Red
3	Brown
4	White
5	Green
6	Yellow
7	Grey
8	Pink
9	Black
10	Violet
11	Grey/Pink

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Document issues

Issue	Date	Page	Amendments done
1	26. 6. 2017	-	New document
2	26. 3. 2018	7	RMF44 installation drawing amended
		8, 16	RM44 Wx output added
3	19. 9. 2019	2, 6, 15	RMB23 Wx module added
		7	Technical drawing RMF44 amended
		8, 11	Resolutions amended
		10, 11	Magnet tolerance in RMC22Ux and RMC35Ux / Wx installation drawings amended
		20-21	ACC for RMC35W added
4	2. 4. 2020	2, 12, 17	RMC Wx module removed
		20	Accessories part numbering amended
		21	ACC for RMC35W removed
5	27. 9. 2021	10	RM44 dimensions amended