

Magnetic gear wheel encoder RGK2H-A-M1Z with analog output signals



Contactless incremental encoder for measuring rotary motion

- High-resolution measurement of rotational speed and rotational angle
- Magnetic, contactless gauging of the steel gear wheels with module $M = 1.0$
- Rotational direction recognition
- Robust, not sensitive to dirt
- Temperature stability up to 110°C
- High EMC and ESD stability
- Bespoke specifications due to a flexible design principle

- Potentiometer or I2C interface for the fine-tuning of signal parameters if required

- Use in drive spindles of machine tools
- Installation in drive motors

Output signals

- SIN- and COS signals
- Reference signal
- Remote Sense RS_UB
- Supply voltage $U_B = 5\text{V}$
- Reverse voltage protection
- Short-circuit proof

Design

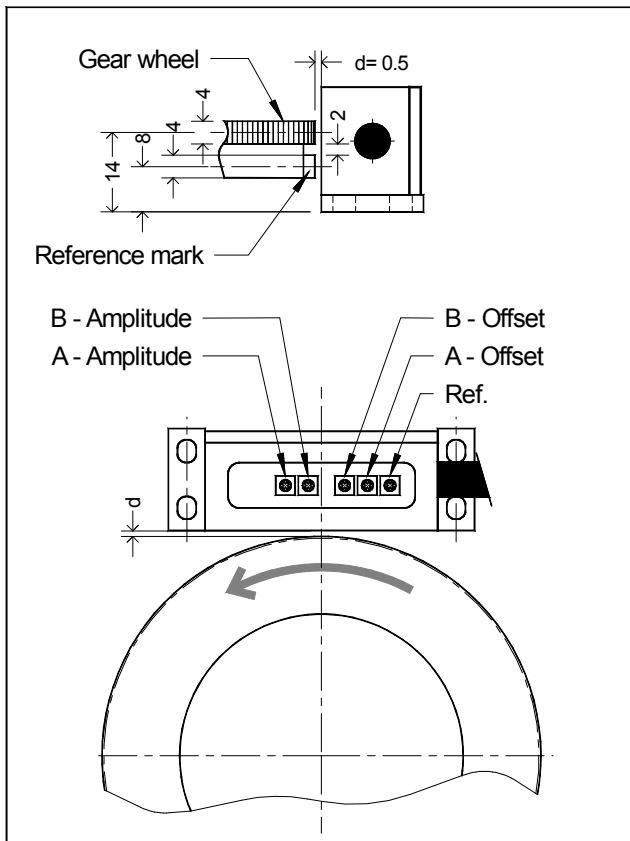
- Robust metal sensor housing
- GMR-Sensor elements
- Frontal coverage of the sensor elements using metal foil to act as extra protection against ESD impulses
- Electronics for signal conditioning
- Complete sealing of sensor interior
- Screened connection cable with AWG26
- Optional connector plug

RGK2H-A-M1Z

... for gear wheel module $M = 1.0$

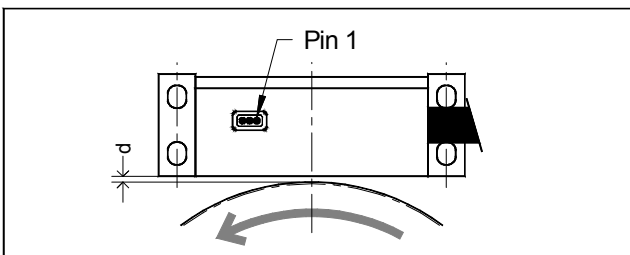
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Assembly & Electrical connection



The arrow indicates the direction of movement during counter-clockwise rotation of the gear wheel with a view to the encoder.

RGK2H-A-M1Z: Position of the trim potentiometers



RGK2H-A-M1X: Position and configuration of the connection sockets for the I2C interface.

The connection sockets can be reached after partially removing the guard tag.

Assembly

The encoder is assembled using the following procedure:

1. Gauge blocks of the corresponding gauges do are located on the front side of the encoder.
2. Fix the encoder using 4 M3 screws. The screws are still not firmly tightened. The encoder should be loose.
3. Push the encoder slightly against the gear wheel. Completely tighten the screws alternately.
4. After screwing the encoder tightly, remove the gauge block (spacer) in the upward direction.

Distance encoder - gear wheel d (air gap)

The optimal distance encoder - gear wheel do is:

- 0.5 +/- 0.02mm for Modul **M = 1.0**

For this distance do the encoders are balanced on optimal signal parameters. If required, the signal parameters can be adjusted via the I2C signal interface or by using the potentiometers provided (see fig.).

Cable assignment

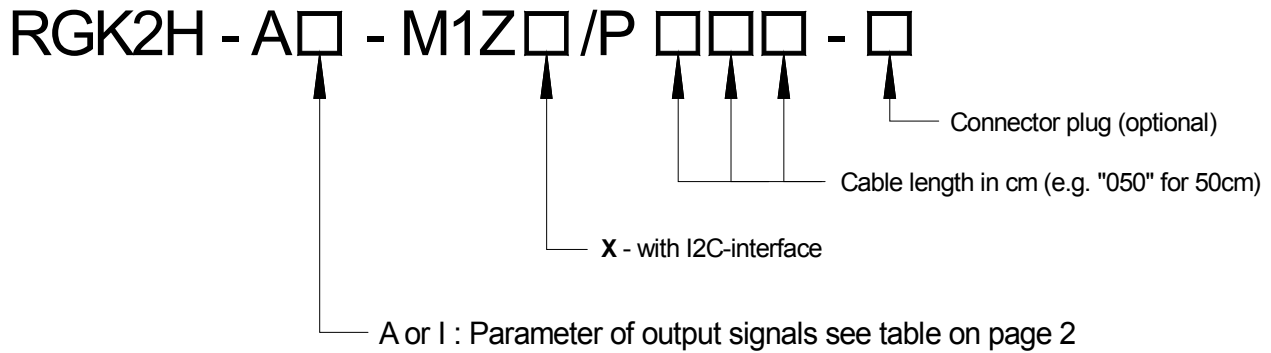
On the output of the encoder is a screened cable with 10 wires AWG26. The cable is assigned as follows:

- | | |
|----------------|--------|
| ■ Signal A + | brown |
| ■ Signal A - | green |
| ■ Signal B + | grey |
| ■ Signal B - | orange |
| ■ Signal Ref + | red |
| ■ Signal Ref - | black |
| ■ UB = 5VDC | violet |
| ■ GND (0V) | yellow |
| ■ RS_5V | blue |
| ■ RS_GND (0V) | white |

The **shield** is connected to the casing on the encoder side.

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Order identifiers & Accessories



Accessories

External interpolation box for the digitalisation and interpolation of the analogue encoder signals

PB-RGMA-USB box with **SPB-RGMA-USB** software for the fine alignment of encoder signals via the I2C-interface