

RMAX1

Rotative Magnetic Absolute Encoder



- Small sensor
- Absolute measurement
- For usage with round magnet
- Resolution 12 bit per revolution
- Analog 0.5 ... 4.5 V or PWM-interface

RMAX1 Rotative Magnetic Absolute Encoder

General: The angle measuring system RMAX1 is a combination of a sensor and a round magnet. The magnet is mounted directly on the motor shaft or axis. Therefore a very simple and quick installation is guaranteed (The RMAX1 is particularly suitable for the rotational angle measurement).

The sensor head with its high protection class is resistant against any kind of dust and dirt and wear-free. The resolution of the magnetic sensor is 12 bits over the entire measurement range.

The rotary measuring system RMAX1 also offers the advantage of absolute value measurement and thus it belongs to the category of single-turn encoder.

Important features:

- Rotative angle measuring system
- Resolution 12 bit per revolution
- Absolute measurement
- Different interfaces available:
analog output 0.5 ... 4.5 V or PWM output
- Direct measurement of motor shaft or axes possible
- contactless measuring principle



The magnet: The round magnet has a diameter of 6 mm and a height of 2.5 mm. One of the two flat sides must be aligned to the sensor, which however does not matter. There is no clearly defined top so it is irrelevant which flat side of the magnet is aligned to the sensor.

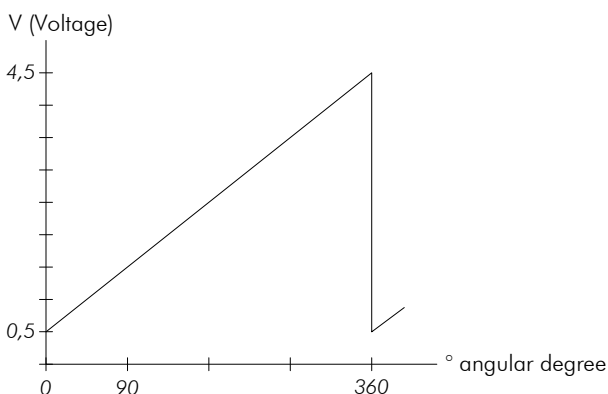
Note: The system has to be operated with the separately available magnet type DRM-000-060-025!

Distance to magnet: The ideal distance from the magnet to the active sensor surface of the measuring system is 1.0 mm to 3.0 mm (magnet must have a field strength between 30 mT and 70 mT). Outside this range the accuracy cannot be guaranteed!

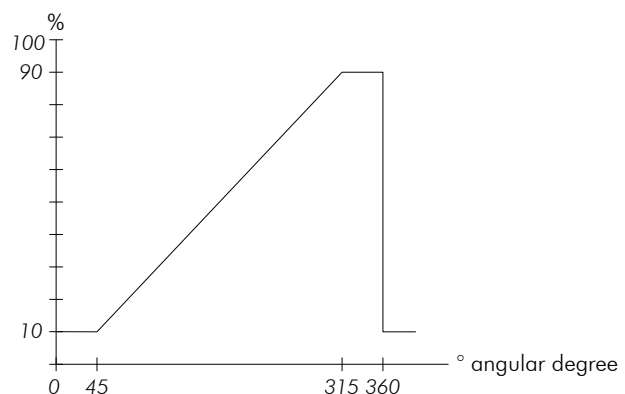
Fixing of the magnet: The magnet can be either glued or e.g. is embedded directly in a shaft or a guide body, as long as it is made of non-magnetic steel such as stainless steel V2A, V4A. The magnet and the bonding surface must be clean and free of grease before bonding. In a bonding with plastic it is recommended to slightly sanded with a fine sandpaper. Suitable adhesives are: LOCITIE 405 (liquid viscosity, curing in about one minute) LOCTITE 409 (gel-like viscosity, curing in about 2 minutes).

Alignment of the magnet: The drawing on the next page will show the correct alignment of the round magnet to the sensor. In order to guarantee a perfect function the determined position and tolerances must be exactly adhered to.

Pulse diagram ANALOG:



Pulse diagram PWM:



Technical Data:

RMAX1 (Standard version)

Mechanical Data

Dimensions (without cable)	L x W x H = 30 x 12.5 x 20 mm
Housing material	Zinc die-cast, black
Connection type	Open cable ends (standard)
Sensor cable	1.5 m standard cable length (others on request)

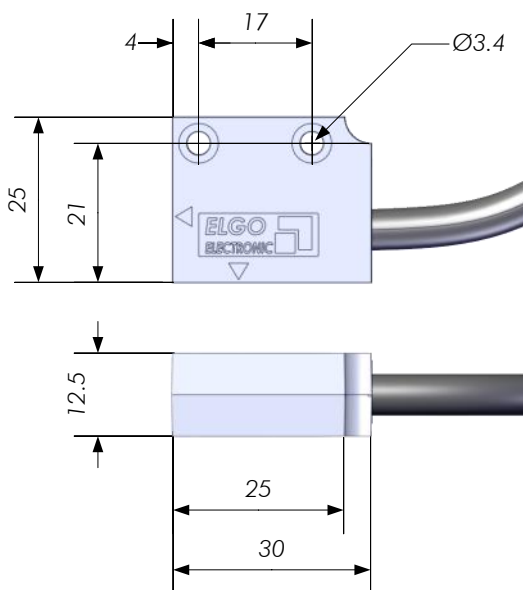
Electrical Data

Nominal voltage	+5 VDC (+/- 100 mV)
Ripple	< 100 mVpp
Reverse polarity protection	No reverse polarity protection!
Consumption	max. 10 mA variation analog max. 15 mA variation PWM
Interfaces:	Analog 0.5 ... 4.5 V, PWM f 200 Hz
Protection of the outputs/interfaces:	Not short-circuit-proof
Measuring principle	rotative
Angle range	0 ... 360° analog 0 ... 270° PWM, f = 200Hz (other ranges on request)
Resolution	12 bit
Distance from sensor to magnetic	1 ... 3 mm
Magnetic field strength	30 mT ... 70 mT
Maximum speed	max. 10.000 rpm

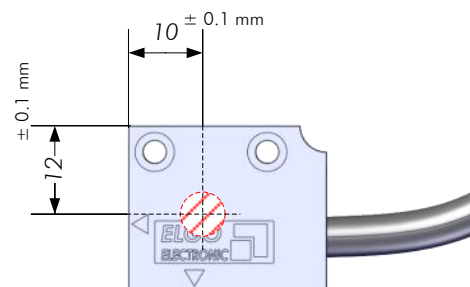
Conditions

Storage temperature	-20 °C ... +85 °C
Operation temperature	-10 °C ... +70 °C (-25 °C ... +85 °C upon request)
Humidity	max. 95 %, non-condensing
Protection class	IP67

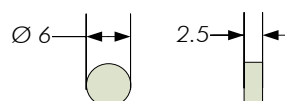
Dimensions:



Alignment of the magnet / sensor:



Round magnet (DRM):



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Accessories:

DRM-000-060-025 - round magnet

Order code:

When ordering, please use the following code:

RMAX1 - \bar{A} \bar{A} \bar{A} - \bar{B} \bar{B} . \bar{B} - \bar{C} \bar{C} \bar{C}

SN-Number

000 ELGO standard

001 first special version

Cable length

01.5 1.5 m (standard length)

Output signal:

ANALOG Analog output 0.5 ... 4.5 V

PWM PWM output

Example:

RMAX1 - 0 0 0 - 0 1. 5 - ANALOG
A A A - B B . B - C C C

RMAX1 ELGO standard, with 1.5 m cable
and analog output 0.5 ... 4.5 V

