

SERIES MIRE

Magnetic Incremental Rotary Encoder



- Contactless encoder for angles and speeds
- 1.40625° resolution (at 4-edge triggering)
- Speeds up to 10,000 revolutions per minute
- Direct measurement at the motor shaft or axis
- Wear-free and contactless measuring principle

MIRE - Magnetic Incremental Rotary Encoder

General:

MIRE=Magnetic Incremental Rotary Encoder. The angle measurement system MIRE is a combination of a sensor and a round magnet. The sensor is mounted directly on the engine shaft or on an axis. This ensures easy and quick installation. MIRE is especially suitable for measuring angles.

The sensor head with its high protection class IP64 is resistant against all kinds of dirt and dust and is completely wear-free. The resolution of the system is 1.40625° at 4-edge triggering. The maximum revolution speed of the magnet is 10,000 revolutions per minute.

Essential Features:

- Contactless encoder for angles and speeds
- 1.40625° resolution (at 4-edge triggering)
- Speeds up to 10,000 revolutions per minute
- Direct measurement at the motor shaft or axis
- Wear-free and contactless measuring principle

The magnet:

The round magnet has a diameter of 6mm and a height of 2.5 mm. One of the flat sides must be aligned with the center of the sensor; it does not matter which side faces the sensor. **Caution:** The MIRE measuring system may only be operated with the special ELGO "DRM magnet", which is available as an accessory part.

Distance between sensor and magnet:

The ideal distance range between magnet and the active sensor area of the measuring system is 0.2 ... 1.0 mm. Outside this range the accuracy cannot be guaranteed. In order to meet the correct mounting distance, the two side-mounted LEDs are used (see figure on next page).

Fastening of the magnet:

The magnet can either be glued or be placed directly on a shaft or a guiding system, as long as it is made of a non-magnetic material such as stainless steel, V2A, V4A or aluminium. The magnet and the bonding surface must be clean and greaseless before gluing the parts together. When gluing the magnet to a plastic surface, we recommend rubbing the surface with fine sand paper first.

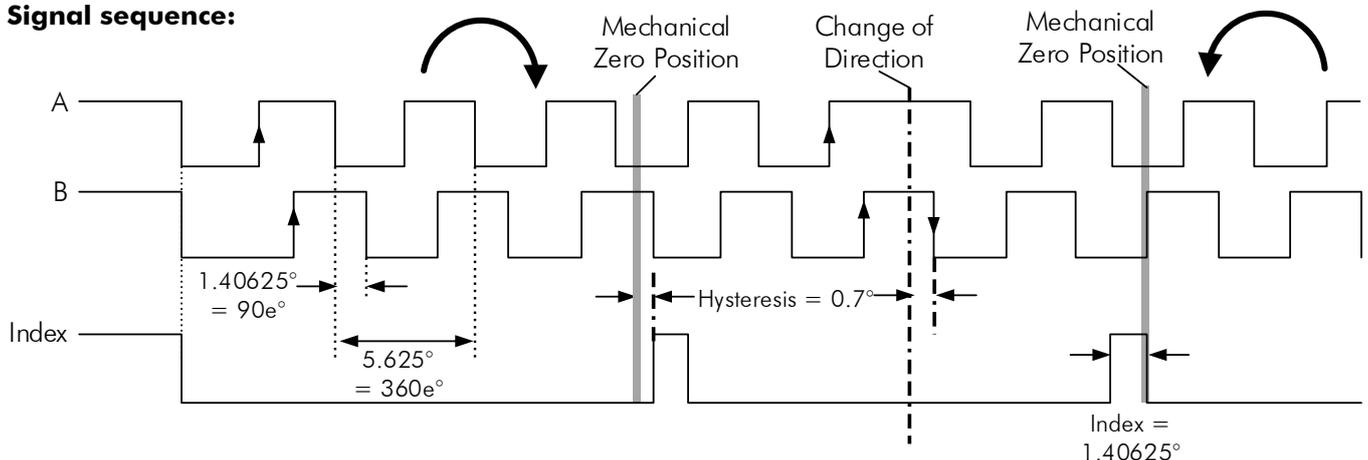
Suitable adhesives are:

- LOCTITE 405 (viscosity liquid, curing in about one minute)
- LOCTITE 409 (viscosity gel-like, curing in about two minutes)

Function:

During one full rotation of the magnet (360°), the sensor transmits 64 pulses. At 4-edge triggering this corresponds to 256 increments. The angular resolution at 4-edge triggering is 1.40625° . The maximum rotation speed of the magnet without losing increments is 10,000 revolutions/minute.

Signal sequence:



MIRE - Magnetic Incremental Rotary Encoder

Technical Data:

Mechanical Data

Measurement principle	incremental, rotative
Repeat accuracy	±1 increment
System accuracy in angular degrees at 20° C	±1 increment resp. ±1.40625°
Distance sensor/magnet	0.2 ... 1.0 mm
Round magnet Ø	6 mm
Sensor housing material	Hotmelt plastic
Sensor dimensions	L x W x H = 35 x 10 x 25 mm
Required magnet	DRM round magnet; type designation „DRM-000-060-025“
Measurement angle	max. 360°
Type of connection	Open cable ends
Weight	approx. 25 g without cable cable: approx. 60 g per meter

Electrical Data

Power supply voltage	10 ... 30 VDC or 5 VDC
Residual ripple	10 ... 30 VDC: < 10 %, resp. 5 VDC ±25 mV
Consumption	40 mA (unloaded output drivers)
Output signals	A, A', B, B', Z, Z' (push-pull, durable short circuit proof)
Output levels	10 ... 30 V-HTL or 5 V-TTL
Resolution	1.40625° (at 4 edge triggering)
Edges per revolution	256 edges (at 4 edge triggering) = 64 pulses
Output current	max. 50 mA / channel
Max. rotation speed	10,000 U/min
Sensor cable	1.5 m standard length (others on request), drag chain suitable
Available cable lengths	1.0 / 1.5 / 3.0 / 5.0 / 8.0 m
Bending radius of the sensor cable	min. 60 mm

Environmental Conditions

Operating temperature	-10 ... +70° C, (-25 ... +85° C on request)
Storage temperature	-25 ... +85° C
Protection class	IP64
Humidity	max. 80 %, not condensing

Installation LEDs:

To meet the correct mounting distance

LED Mag INC	LED Mag DEC	Description
OFF	OFF	Distance between sensor and magnet is correct
OFF	ON	Distance between sensor and magnet is too big
ON	OFF	Distance between sensor and magnet is too small
ON	ON	Distance is outside of the range

Type Designation:

Please use the following code for your orders:

MIRE - $\overline{A} \overline{A} \overline{A} - \overline{B} \overline{B} \cdot \overline{B} - \overline{C} \overline{C} \overline{C} - \overline{D} \overline{D}$

A SN-Number

000 ELGO Standard
001 1st special version

B Cable lengths

1.5m (ELGO standard)
others on request

C Pulses

64 pulses / revolution

D Supply / output levels

00 10 ... 30 VDC / 10 ... 30 V-HTL
01 10 ... 30 VDC / 5 V-TTL
11 5 VDC / 5 V-TTL

Example:

MIRE - 000 - 03.0 - 0064 - 00
A A A - B B . B - C C C C - D D

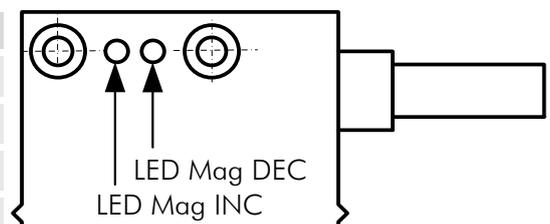
MIRE (ELGO standard), with 3.0 m cable length, 64 pulses / revolution, 10 ... 30 VDC power supply and 10 ... 30 V-HTL output levels

Your order:

MIRE - $\overline{A} \overline{A} \overline{A} - \overline{B} \overline{B} \cdot \overline{B} - \overline{C} \overline{C} \overline{C} - \overline{D} \overline{D}$

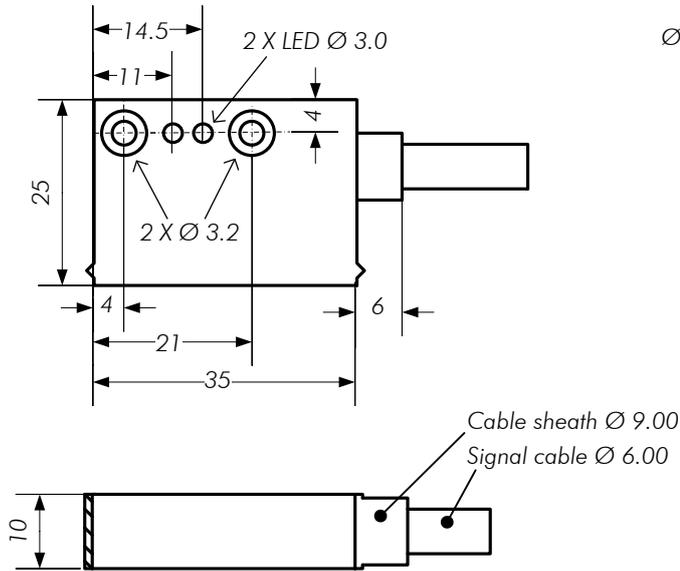
Accessories:

Type designation	Description
DRM-000-060-025	DRM round magnet for MIRE

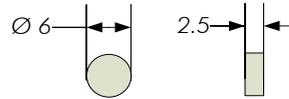


MIRE - Magnetic Incremental Rotary Encoder

Dimensions of the MIRE Sensor:



Dimensions of the DRM Magnet:



Active Sensor Area:

