ELGO
ELECTRONIC

SERIES *GMIX2*

Magnetic Incremental Encoder for large Measuring Distances

- Predestined for applications in storage and conveyor technology
- Mounting distance from sensor to magnetic tape up to 4 mm
- Compact sensor head with integrated evaluation electronics
- Magnetic measuring principle with contactless scanning
- Speed proportional square wave signal outputs
- Rotative applications with magnet ring possible
- Wear-free scanning of the magnetic encoding
- Resolution 2.5 mm (at 4-edge triggering)
- Insensitive to dust, dirt and water
- High IP67 protection class
- Quick and easy to install

GMIX2 - Magnetic Incremental Encoder for large Measuring Distances

General:

GMIX2 is an incremental sensor that can be mounted at a distance of up to 4 mm to the magnetic tape. For rotative resp. radial applications a magnet ring (see "Accessories" on last page) can be used alternatively. The evaluation electronics, which converts the measured signals into 90° phase-shifted square-wave signals A and B, is already integrated in the sensor head. Thus GMIX2 is ready-to-connect for subsequent electronics. The system is supplied with 10 … 30 VDC and generates HTL output signal levels according to the supply voltage.

Produkteigenschaften:

■ Predestined for applications in storage & conveyor technology
■ Compact sensor head with integrated evaluation electronics
■ High mounting distance to magnetic tape (max. 4 mm)
■ Speed proportional square wave signal outputs
■ 2.5 mm resolution (at 4-edge triggering)
■ Repeat accuracy ± 1 increment
■ High protection class IP67

Applications:

With its resolution of 2.5 mm and a maximum operating speed of 10 m/s, the GMIX2 measuring system is ideally suited for applications in storage or conveyor technology or for longer measuring distances. Thanks to the wear-free magnetic measuring principle and the high IP67 protection class, the sensor always works unaffected and reliably even in harsh environments.

Functional Principle:

The basis of the magnetic incremental encoder consists of a scanning technology, which scans the north and south poles on the coded magnetic tape and produces a single Sine/Cosine wave for each pole. The complete sine/cosine signal process is interpolated electronically. Depending on refinement of the interpolation, together with the pole distance of the magnetic tape, the resolution of the measuring system is determined.
The magnetic tape MB20-50-10-1-R has a pole pitch of 5 mm.
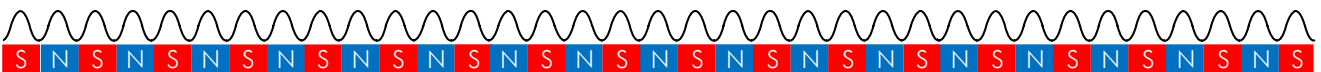
A special evaluation electronic (translator) processes the sine/cosine wave into HTL square output signals from the signal information of the magnetic tape. These square signals are equivalent to conventional rotary or linear encoder outputs.

Montagerichtung:
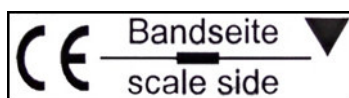
On the underside of the sensor there is a sticker which signals the magnetic tape side with the active sensor areas. In addition, the ▼-marking indicates the positive counting direction.

Mounting with Magnetic Tape or Magnet Ring:

The two drawings on the last page illustrate how the GMIX2 sensor is properly aligned to the magnetic tape or alternatively to a magnet ring.

Output Pulse Diagram:

The output level is HTL according to the supply voltage.

10 … 30 V

Channels A and B are phase-shifted by 90°

90°
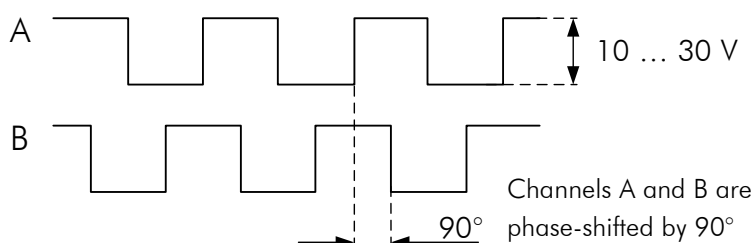
Connections:

Wiring is made via open cable ends:

Color	Function
black	0 V / GND
brown	10 … 30 VDC
red	A
orange	B
blank	Screen / shield

GMIX2 - Magnetic Incremental Encoder for large Measuring Distances

Technical Data:

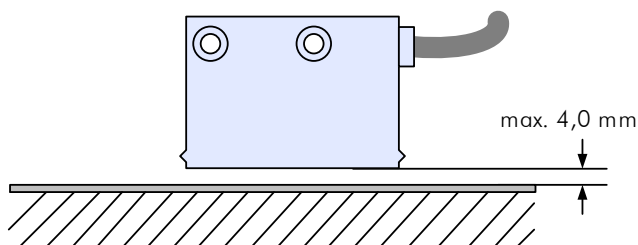### Mechanical Data

Measuring principle	incremental
Repeat accuracy	± 1 Increment
System accuracy at 20°C	±(25 + 20 x L), L = measuring length in meters
Distance sensor - magnetic tape	max. 4.0 mm
Housing material	HM-PA (polyamide), black
Housing dimensions (L x W x H)	38.5 x 25 x 10 mm
Required magnetic tape	MB20-50-10-1-R
Magnetic tape pole pitch	5 mm
Maximum measuring length	theoretically unlimited
Connections	open cable ends
Sensor cable	1.5 m standard cable length (others on request), drag-chain suitable
Sensor cable bending radius	min. 60 mm
Weight	sensor head: approx. 25 g (without cable); cable: approx. 45 g/m

Electrical Data

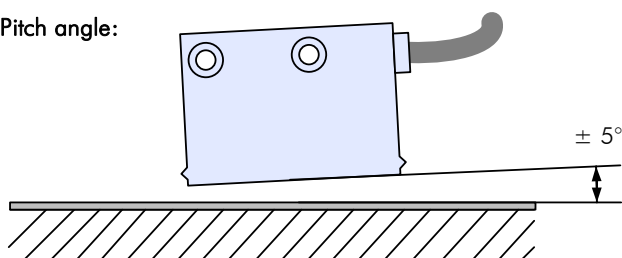|	
Power supply voltage	10 … 30 VDC
Residual ripple	< 10 %
Current consumption	max. 30 mA
Output signals	A, B
Output levels	HTL
Resolution	2.5 mm (at 4-edge triggering)
Output frequency per channel	max. 4 kHz
Operating speed	max. 10.0 m/s

Environmental Conditions

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

Type Designation:

To order, please use the following code:

GMIX2 - _ _ _ - _ _ . _
        AAA - BB.B

A Version

000 = standard version

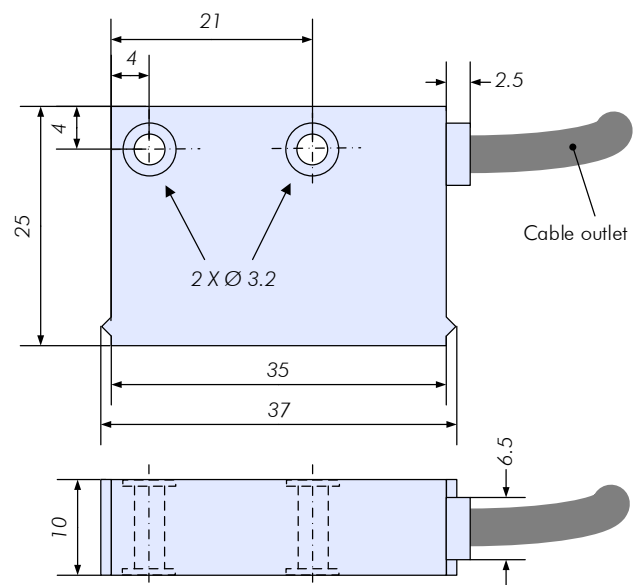001 = first special version etc.

B Signal Cable Length
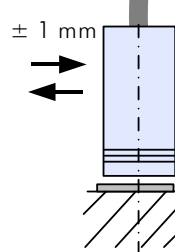
01.5 = 1.5 m standard length (others on request)

Example:

GMIX2 - 0 0 0 - 0 1 .5
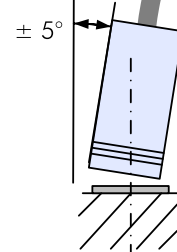   A A A - B B .B

Standard GMIX1A with 1.5 m long signal cable

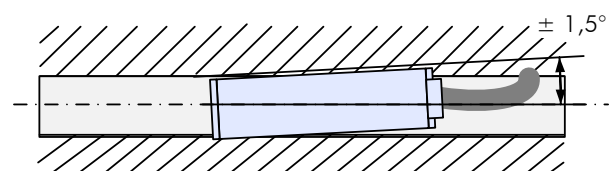## Dimensions:

Cable outlet

2 X Ø 3.2

Mounting Tolerances:

Sensor distance:

max. 4,0 mm

Lateral offset:

± 1 mm

Tilt angle:

± 5°

Pitch angle:

± 5°

Yaw angle:

± 1,5°

Alignment of the Sensor to the Magnetic Tape:

Top view:

approx. 1 mm

Sensor center = magnetic tape center

2 active sensor areas

Cable outlet

Side view:

max. 4.0 mm

Magnetic tape

Mounting surface

14.5

19

22

26.5

Alignment of the Sensor to the Magnetic Ring:

Side view:

*) Center between sensor area distance = center of magnetic ring

20,5*

Top view:

Sensor center = center of the magnet ring

approx. 1 mm

max. 4.0 mm

Magnet ring

Cable outlet

Positions of sensor areas:

2 active sensor areas

14.5

19

22

26.5
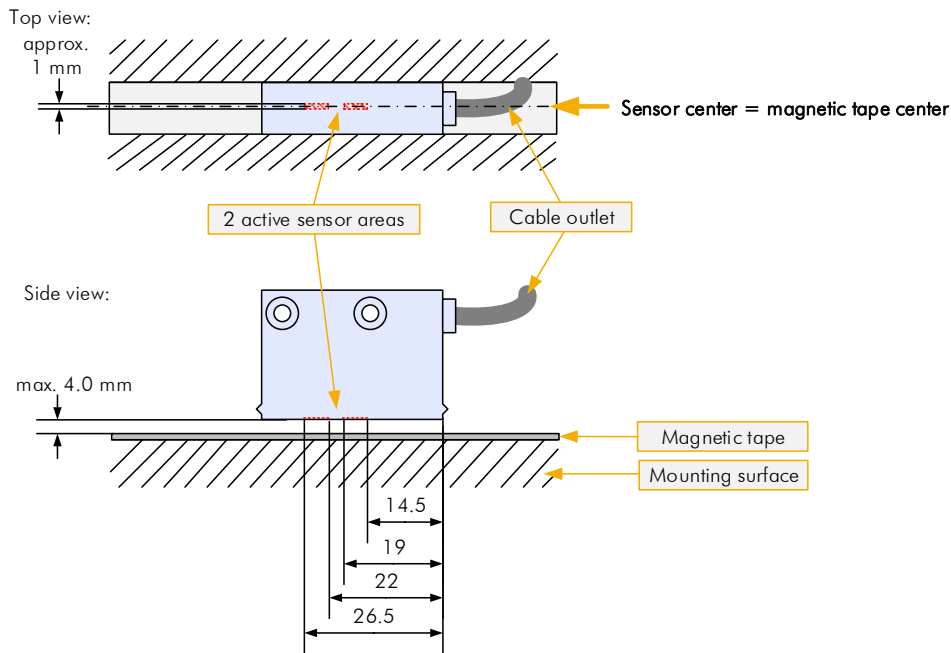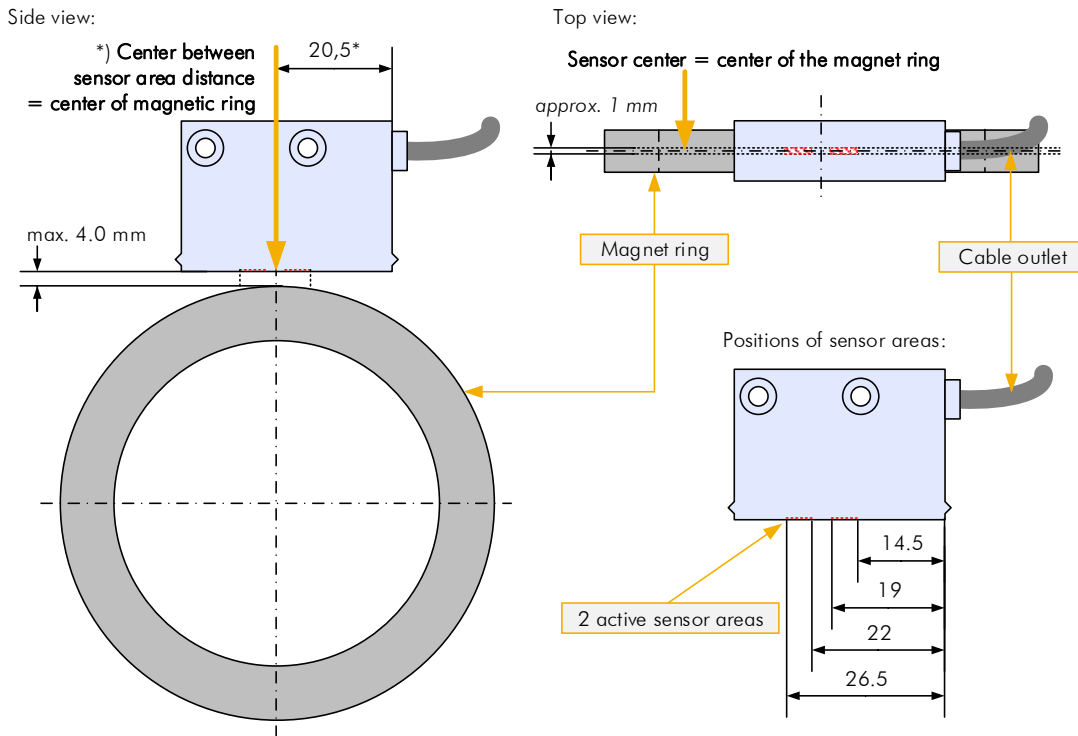
Accessories:

Order Designation	Description
MB20-50-10-1-R	Magnetic tape with 5 mm pole pitch (please indicate length in XX.X m)
10 mm end cap set	2 end caps (10 mm) for magnetic tape. Additional fixation and to protect the tape ends.
FS1000, FS1500 or FS2000	Guide rail for magnetic tape (length: 1.0 m, 1.5 m and max. 2.0 m available). For longer measuring lengths the rails can be lined up together.
AP-00-XX**	Aluminium cover-profile for magnetic tapes (as alternative to the cover tape). **) AP-00-1m = 1m long / AP-00-2m = 2 m long
MR2012	Magnet ring (Ø o = 19,75 mm / Ø i = 14.7 mm, w = 4.1 mm, 12 poles, IF = 2)
MR3824	Magnet ring (Ø o = 38 mm / Ø i = 30 mm, w = 6,5 mm, 24 poles, IF = 200)
MR7244	Magnet ring (Ø o = 72 mm / Ø i = 54 mm, w = 7 mm, 44 poles, IF = 500)
POSU	Pole finder card 85 x 55 mm