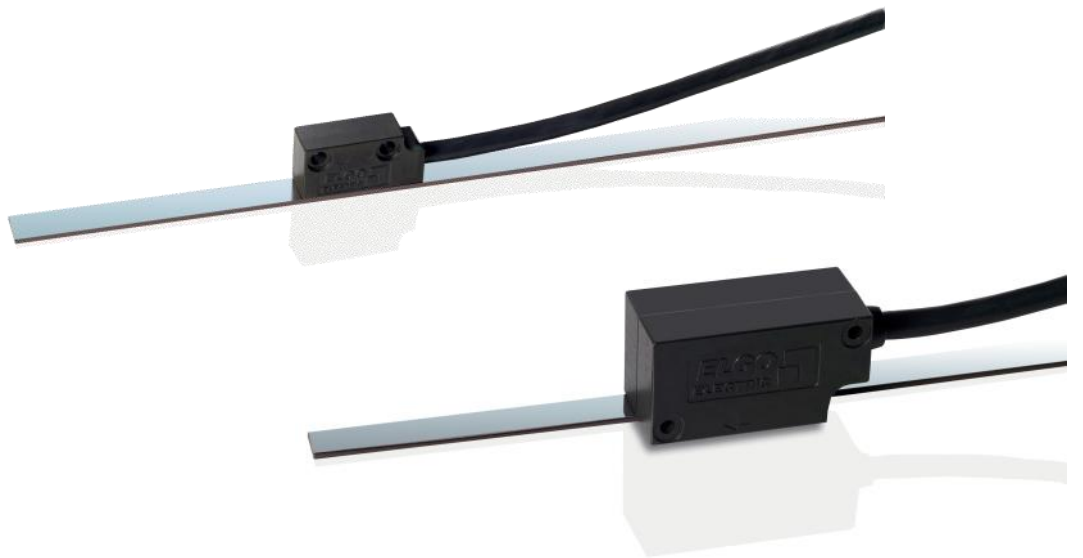


# Series EMIX1/3 and LMIX1/3



Magnetic Incremental Linear Encoders

## EMIX and LMIX1/3 Magnetic Incremental Measuring Systems

**General:** The magnetic incremental length measuring systems *LMIX/EMIX* consist of a sensor heading, translator circuit and a magnetic tape of the series MB20-50-10-1-R for *LMIX* or MB20-20-10-1-R for *EMIX*.

There are two versions in each system available:

- LMIX1/EMIX1*: Translator and Sensor head in separate housings
- LMIX3/EMIX3*: Translator and Sensor head integrated in one housing

The *LMIX* series operates with a resolution of 0.025 mm at four-edge or 0.1 mm at single edge triggering.

The *EMIX* series covers a wide range of applications with a resolution of 0.01 mm.

The repeating accuracy amounts up to +/- 0.025 mm (*LMIX*) resp. 0.01 mm (*EMIX*).

Both length measuring systems were conceived for dynamic applications up to a operation speed of 4 m/s. The translator circuit analyses the sinusoidal signals entered by the sensor and supplies two speed-proportional and 90 ° phase shifted square wave signals with 5 V/TTL-LINE driver or 10-30 V/HTL push-pull levels. The sensor can be guided contactless up to a distance of max. 0.8 mm (*EMIX*) or 2.0 mm (of *LMIX*), across the magnetic tape.

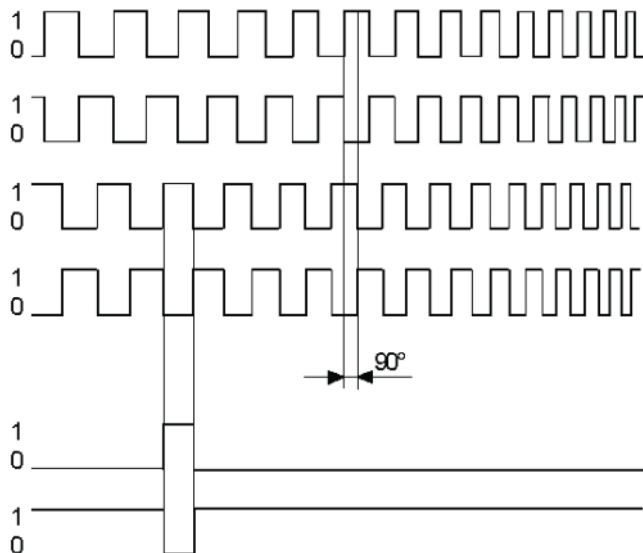
The system operates perfectly maintenance- and wear-free.

Thanks to direct measurement belt drive tolerances as well as slip or pitch errors at spindles will be compensated.

### Product Features:

- With index pulse (*EMIX3* and *LMIX3*)
- Resolution *EMIX* = 0.01 mm (at four edge triggering)  
Resolution *LMIX* = 0.025 mm (at four edge triggering)  
resp. 0.1 mm (at single edge triggering)
- Repeating accuracy +/- 0.01 mm (*EMIX*)
- Repeating accuracy +/- 0.025 mm (*LMIX*)
- Speed-proportional output of square waves

Signal form:



## Technical Data:

### EMIX1/3 and LMIX1/3 (Standard version)

#### Mechanical Data

Measuring principle	incremental
Repeat accuracy	+/- 1 increment
System accuracy at 20°C	EMIX1/3: +/- (20 μm + 20 μm x L[m]) LMIX1/3: +/- (25 μm + 20 μm x L[m]) L = measuring length in meters
Distance from sensor to magnetic tape	EMIX1/3: max. 0.8 mm LMIX1/3: max. 2.0 mm
Basic pole pitch	EMIX1/3: 2 mm LMIX1/3: 5 mm
Sensor housing material	Zinc die-cast
Sensor housing dimensions	EMIX1/LMIX1: L x W x H = 30 x 10 x 15 mm EMIX3/LMIX3: L x W x H = 56 x 24 x 26 mm
Necessary type	EMIX1/3: MB20-20-10-1-R LMIX1/3: MB20-50-10-1-R
Maximum measuring length	theoretically unlimited
Connection	EMIX1/LMIX1: D-SUB, 9-pin. EMIX3/LMIX3: open cable exit (others on request)
Sensor cable	1.5 m standard cable length, drag chain suitable (others on request)
Weight	EMIX1/LMIX1: Sensor + D-SUB (9-pin) ca. 40 g without cable; EMIX3/LMIX3: ca. 60 g without cable; Cable: ca. 60 g per meter

#### Electrical Data

Supply voltage	5 VDC or 10 - 30 VDC
Residual ripple	10 - 30 V < 10 % +/- (5 V +/- 25 mV)
Power input	max. 150 mA at 10-30 V max. 200 mA at 5 V
Output signals	push-pull, durable short-circuit-proof with inverted signals Channels: A, A', B, B', Z, Z'
Output level	10 - 30 V HTL or 5 V TTL
Output frequency per channel	EMIX1/3: max. 200 kHz LMIX1/3: max. 80 kHz
Resolution	EMIX1/3: 0.01 mm at 4-edge triggering LMIX1/3: 0.025 mm at 4-edge triggering
Speed	up to 4 m/s (depending on version)

#### Conditions

Storage temperature	-25 °C ... +85 °C
Operation temperature	-10 °C ... +70 °C (-25 °C ... +85 °C upon request)
Humidity	max. 95 %, non-condensing
Protection class	EMIX1/LMIX1: IP67 EMIX3/LMIX3: IP54 (Option V = IP67)

## Order Reference:

For orders, please use the following order code:

A - B B B - C C . C - D - E E - F

### A Series

EMIX1/LMIX1 external sensor without index pulse

EMIX3/LMIX3 integrated sensor with index pulse

### B Version

000 ELGO standard

001 First special version

### C Signal cable length

01.5 Standard length  
(other lengths on request)

### D Resolution (at four edge triggering)

1 LMIX= 0.025 mm

2 EMIX= 0.01 mm

### E

### Supply

00 10-30 VDC / 10-30 VDC

01 10-30 VDC / 5 V-TTL

F 11 5 V DC / 5 V-TTL

### Options

V sealed version IP67 (only EMIX3/LMIX3)

Example:

LMIX3 - 0 0 0 - 0 1 . 5 - 1 - 0 0 - V  
A B B B - C C . C - D - E E - F

LMIX3 ELGO standard with 1.5 m signal cable length, 0.025 mm resolution, 10-30 VDC / 10-30 VDC supply, in potted version, protection class IP67.

Your order:

A - B B B - C C . C - D - E E - F

## Accessories:

MB20-20-10-1-R	Magnetic tape EMIX
MB20-50-10-1-R	Magnetic tape LMIX
Magnetic tape end cap 10 mm - Set	2 end caps (10 mm) and 2 M3 screws; additional fixation in radial and linear areas, as well as a protection of the magnetic tape ends <u>Order No. 731031002</u>
Magnetic tape end cap 10 mm	1 end cap (10 mm) <u>Order No. 731031000</u>
AP1.0	Cover profile for magnetic tape
FW2060	Guide carriage for E/LMIX 1
FS-XXXX*	Guide rail for E/LMIX (without magnetic tape)

\*XXXX = length in mm (1000 = 1000 mm)

