

# SERIES PMIX

Mechanically guided Incremental Linear Encoder



- Wear-free alternative to conventional linear measuring systems
- Also ideally suited as a digital potentiometer replacement
- Technically based on LMIX resp. EMIX sensors or in combination with a battery powered ELGO display units of the series IZ
- Available resolutions: 0.1 / 0.025 / 0.01 or 0.001 mm depending on selected measuring system (LMIX, EMIX, EMIX23 or IZ display unit)
- Measuring lengths of 100, 200, 400 and 600 mm (others on request)
- The sensor head and the magnetic tape are permanently integrated in the guide cylinder, which ensures an optimal mechanical guidance

# PMIX - Mechanically guided Incremental Linear Encoder

## General:

The guided measuring system PMIX is based on the magnetic length measuring systems LMIX or EMIX. Due to the magnetic (and therefore contactless) measuring principle, it is a wear-free alternative to conventional linear encoders.

The sensor head and the magnetic tape are already integrated in a mechanical cylinder (standard measuring lengths are 100/200/400/600 mm). The sensor is optimally guided at linear movements. Thus the system can immediately be installed and connected.

## Application example:



PMIX in combination with a position indicator type IZ16E

Depending on the ordered version, an LMIX, EMIX or EMIX23 sensor can be integrated in the PMIX housing. As shown in the photo above, the PMIX system can be combined with the battery-powered ELGO position indicators IZ14E, IZ15E, IZ16E and IZ17E. In this case sensor and resolution comply with the selected IZ unit. Further no wiring is necessary. The respective ordering suffix is specified in the type designation.

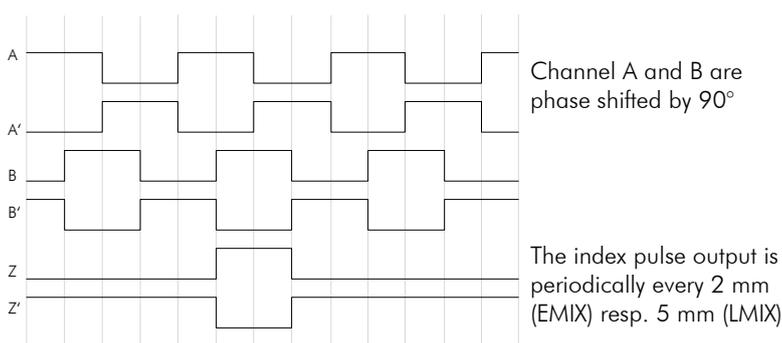
## Functionality of the sensor:

Integrated in the sensor head are the magneto-resistive measuring-bridges, the interpolation circuit and the output drivers. The bridge generates the distance dependent counting pulses for the signal processing electronic. The sensor cable is an 8-wire cable, highly flexible and suitable for drag chains. It consists of twisted pair wires and is shielded.

## Available basis measuring systems and resolutions:

Measuring system	Resolution	Magnetic tape pole pitch
LMIX	0.1 mm at single edge triggering 0.025 mm at four edge triggering	5 mm
EMIX	0.01 mm at four edge triggering	2 mm
EMIX23	0.001 mm at four edge triggering	2 mm
IZ14E / 15E / 16E / 17E	0.01 mm / 0.1 mm (einstellbar via Parameter)	2.5 mm

## Output pulse diagram:



## Connections:

Function	Color	Pin
0 V (GND)	White	1
5 V/10 ... 30 V	Brown	2
Channel A	Green	3
Channel B	Yellow	4
Channel Z	Black	8
Channel A'	Violet	6
Channel B'	Orange	7
Channel Z'	Grey	9
PE	screen/shield	housing

# PMIX - Mechanically guided Incremental Linear Encoder

## Technical data:

### Mechanical data :

Material	Cylinder housing: aluminium Sensor housing: plastic
Dimensions	see drawing on last page
Integrated magnetic tape	LMIX: MB20-50-10-1-R EMIX: MB20-20-10-1-R Series IZ: MB 20-25-10-1-R

### Electrical data:

Order suffix	Power supply	Output levels	Consumption	Cable length
00	10 - 30 V, ± 10 %	10 - 30 V HTL	max. 150 mA	max. 30 m
01	10 - 30 V, ± 10 %	5 V-TTL line driver	max. 150 mA	max. 50 m
11	5 V*, ± 5 %	5 V-TTL line driver	max. 200 mA	max. 10 m
	*) Residual ripple < 50 mV			
99	The sensor is supplied by the battery power of the IZ position indicator			
Output current	max. 20 mA per channel			
Outputs	Push-pull, durable short circuit proof			
Index pulse (LMIX / EMIX)	The pulse duration depends on the operation speed			
Resolution and Repeat Accuracy	LMIX: 0.025 mm (four edge triggering) resp. 0.1 mm (single edge triggering) EMIX: 0.01 mm (four edge triggering) EMIX23: 0.001 mm (four edge triggering) IZ: 0.01 or 0,1 mm (selectable parameter)			
Output frequency	LMIX: max. 80 kHz per channel EMIX: max. 200 kHz per channel EMIX23: max. 1 MHz per channel			
Operation speed	LMIX: max. 5.0 m/s EMIX: max. 4.0 m/s EMIX23: max. 2.0 m/s Serie IZ: max. 4.0 m/s (each at optimal evaluation)			

### Ambient conditions:

Operating temperature	-10 ... +70° C (-25 ... +85° C) on request
Storage temperature	-25 ... +85° C
Protection class	Cylinder: IP40 Sensor: IP65

### Ordering example:

PMIX - 000 - 01,5 - 1 - 00 - 0200 - D1 - M0  
A A A - B B B - C - D D - E E E E - F F - G G

ELGO standard PMIX with a 1.5 m long signal cable, 0.025 mm resolution (4 edge triggering), 10-30 V power supply / 10-30 V output levels, 200 mm measuring length, 9 pin D-SUB 9 connector and 4 holding plates without swivel heads.

## Type designation:

For orders please use the following code:

PMIX -      -      -      -      -      -      -      -      -      -       
A A A - B B , B - C - D D - E E E E - F F - G G

### A SN number

000 = ELGO standard  
001 = first customized version  
002 = etc.

### B Signal cable length in XX.X m

1.5 m standard length for LMIX/EMIX/EMIX23  
1.0 m standard length for IZ14E/IZ15E/IZ16E/IZ17E

### C Resolution / basis measuring system

1 = 0.025 mm\* with LMIX sensor  
2 = 0.01 / 0.1 mm\*\* combined with IZ14E  
3 = 0.01 mm\* with EMIX sensor  
6 = 0.01 / 0.1 mm\*\* combined with IZ17E  
7 = 0.001 mm\* with EMIX23 sensor  
8 = 0.01 / 0.1 mm\*\* combined with IZ15E  
9 = 0.01 / 0.1 mm\*\* combined with IZ16E

\*) at 4 edge triggering

\*\*) selectable by parameter

### D Power supply / output levels

00 = 10 ... 30 VDC / HTL  
01 = 10 ... 30 VDC / TTL  
11 = 5 VDC / TTL  
99 = Battery powered (with IZ indicators)

### E Measuring length\*

0100 = 100 mm  
0200 = 200 mm  
0400 = 400 mm  
0600 = 600 mm (others on request)

\*) Entire length of PMIX = Measuring length + 60 mm

### F Options

D1 = 9 pin D-SUB connector  
(ELGO standard pin assignment)

### G Mounting parts

M0 = with 4 holding plates (standard)  
M1 = with swivel head SAKB5F & 4 holding plates  
M2 = with 2 swivel heads SAKB5F

Your order:

PMIX -      -      -      -      -      -      -      -      -      -       
A A A - B B , B - C - D D - E E E E - F F - G G

