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:**

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:**

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

**Output pulse diagram:**

Channel A and B are phase shifted by 90°. The index pulse output is periodically every 2 mm (EMIX) resp. 5 mm (LMIX).

**Connections:**

<table>
<thead>
<tr>
<th>Function</th>
<th>Color</th>
<th>Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 V (GND)</td>
<td>White</td>
<td>1</td>
</tr>
<tr>
<td>5 V/10 ... 30 V</td>
<td>Brown</td>
<td>2</td>
</tr>
<tr>
<td>Channel A</td>
<td>Green</td>
<td>3</td>
</tr>
<tr>
<td>Channel B</td>
<td>Yellow</td>
<td>4</td>
</tr>
<tr>
<td>Channel Z</td>
<td>Black</td>
<td>8</td>
</tr>
<tr>
<td>Channel A'</td>
<td>Violet</td>
<td>6</td>
</tr>
<tr>
<td>Channel B'</td>
<td>Orange</td>
<td>7</td>
</tr>
<tr>
<td>Channel Z'</td>
<td>Grey</td>
<td>9</td>
</tr>
<tr>
<td>PE</td>
<td>screen/shield</td>
<td>housing</td>
</tr>
</tbody>
</table>
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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:
- Power supply: 10 - 30 V, ± 10 %
  - LMIX: max. 150 mA
  - EMIX: max. 50 mA
  - LMIX: max. 10 m
  - EMIX: max. 5 m
- Output levels: 10 - 30 V
- Consumption:
  - LMIX: 150 mA
  - EMIX: 50 mA
- Cable length: max. 20 m

Mechanically guided Incremental Linear Encoder

Ordering example:
PMIX - 000 - 0 1 5 - 1 - 0 00 - 0200 - D1 - M0
A A A - B B B - C - D D - 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 - F F - G G

A
- SN number
  - 000 = ELGO standard
  - 001 = first customized version
  - 002 = etc.

B
- Signal cable length in XXX 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 / TTL
  - 01 = 10 ... 30 VDC / HTL
  - 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
  - M0 = with 4 holding plates (standard)
  - M1 = with swivel head SAKBSF & 4 holding plates
  - M2 = with 2 swivel heads SAKBSF

G
- Mounting parts
  - M0 = with 4 holding plates (standard)
  - M1 = with swivel head SAKBSF & 4 holding plates
  - M2 = with 2 swivel heads SAKBSF

Your order:

PMIX - A A A - B B B - C - D D - E E E - F F - G G
Typical applications of PMIX:

The series PMIX is suitable for a variety of applications in machine and plant engineering. For example, it can be used everywhere where linear potentiometers are used, since the PMIX linear encoder is also suitable as a digital potentiometer replacement.

Typical applications in the range of machine engineering are e.g.

- Hydraulic presses
- Injection molding machines
- Stroke adjustments
- Pick & Place systems
- Dosing machines and systems
- and many other applications in the plastics, metal, wood, paper and textile processing or with packaging machines.

Dimensions of PMIX:

Accessories: Swivel head SAKB5F
Holding plate

Measuring Distance
60 mm + Measuring Distance

M5 / 16 deep