EMIX23 Magnetic Encoder for Velmex Linear Assemblies (Part # ENCMAGL1-xx)

Magnetic linear encoder

1 µm resolution
- With periodic index pulse
- Differential 5 V-TTL line driver outputs
- Resolution 0.001 mm (using 4 times edge multiplier)
- Repeating accuracy +/- 0.001 mm
- Small sensor with integrated translator

Connections

<table>
<thead>
<tr>
<th>Function</th>
<th>Color</th>
<th>Pin no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0V (GND)</td>
<td>White</td>
<td>D</td>
</tr>
<tr>
<td>5VDC VDC in</td>
<td>Brown</td>
<td>C</td>
</tr>
<tr>
<td>Channel A</td>
<td>Green</td>
<td>A</td>
</tr>
<tr>
<td>Channel B</td>
<td>Yellow</td>
<td>B</td>
</tr>
<tr>
<td>Channel Z</td>
<td>Black</td>
<td>F</td>
</tr>
<tr>
<td>Channel A'</td>
<td>Violet</td>
<td>N/C</td>
</tr>
<tr>
<td>Channel B'</td>
<td>Orange</td>
<td>N/C</td>
</tr>
<tr>
<td>Channel Z'</td>
<td>Gray</td>
<td>N/C</td>
</tr>
<tr>
<td>Shield</td>
<td>PE</td>
<td>E</td>
</tr>
</tbody>
</table>

Technical Specifications 5V TTL output version

<table>
<thead>
<tr>
<th>SENSOR electrical data</th>
<th>Incremental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring principle</td>
<td>Incremental</td>
</tr>
<tr>
<td>Signal output</td>
<td>Speed proportional</td>
</tr>
<tr>
<td>Resolution at 4 edge triggering</td>
<td>0.001 mm</td>
</tr>
<tr>
<td>Repeat accuracy</td>
<td>+/- 0.001 mm</td>
</tr>
<tr>
<td>Accuracy of the system in µm at 20 °C</td>
<td>+/- 25 + 20 x L (L = measuring length in meters)</td>
</tr>
<tr>
<td>Max. permitted distance to the tape</td>
<td>0.8 mm</td>
</tr>
<tr>
<td>Power supply</td>
<td>5 VDC</td>
</tr>
<tr>
<td>Tolerance of power supply</td>
<td>5 VDC: +/- 2.5 %, remaining ripple &lt; 50 mV</td>
</tr>
<tr>
<td>Consumption</td>
<td>5 VDC: max. 200 mA</td>
</tr>
</tbody>
</table>

Translator circuit intern/extern
- Intern

Output levels
- 5 VDC - TTL Line Driver

Output characteristics
- Push/pull, durable short circuit proof

Max. output frequency per channel
- TTL: 100 KHz at 0.4 m/s resp. 500 KHz at 2.0 m/s

Output current per channel
- 20 mA

Max. operating speed
- 2.0 m/s

Index pulses
- Periodic output of channels Z and Z’

Cable length
- 5 VDC / 5 V-TTL = 3 m
- (10 m max allowable)

Min. bend radius of sensor cable
- 60 mm’’s

Operation temperature
- 0... + 50 °C

Stock temperature
- -20... + 70 °C

Humidity
- 95 %, not condensing


A/B Quadrature Pulse diagram

The channels A and B are 90 ° phase shifted

The output of the index pulse is periodically after 2 mm’s