EH 50 FA / FP
THROUGH HOLLOW SHAFT INCREMENTAL ENCODER

Specifications

ø 50 mm encoder recommended for motor feedback. Suitable for small size motors due to its reduced dimensions.

- 3 channel encoder (A / B / Z) up to 1024 ppr
- High integrated optical ASIC
- Wide power supply up to +30 VDC
- Through hollow shaft up to 10 mm diameter
- Mounting by coupling flange or stator coupling (front or rear fixing)
- IP 65 as protection grade
- Wide temperature range -40 ... +100°C

ORDERING CODE

<table>
<thead>
<tr>
<th>SERIES</th>
<th>MODEL</th>
<th>RESOLUTION</th>
<th>ZERO PULSE</th>
<th>POWER SUPPLY</th>
<th>ELECTRONIC INTERFACE</th>
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<th>ENCLOSURE RATING</th>
<th>MAX ROTATION SPEED</th>
<th>OUTPUT TYPE</th>
<th>VARIANT</th>
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<tr>
<td>incremental encoder series EH</td>
<td>through hollow shaft with front fixing 50FA</td>
<td>ppr from 100 to 1024</td>
<td>without zero pulse S</td>
<td>5 ... 30 V DC 5/30</td>
<td>push-pull P</td>
<td>mm 6</td>
<td>IP 65 X</td>
<td>6000 rpm 6</td>
<td>cable radial (standard length 0,5 m) PR</td>
<td>custom version XXX</td>
</tr>
<tr>
<td>incremental encoder series EH</td>
<td>through hollow shaft with rear fixing 50FP</td>
<td>see table for pulses availability</td>
<td>with zero pulse Z</td>
<td>universal line driver TTL/HTL</td>
<td>power supply 5/30V - output RS-422 RS</td>
<td>mm 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9,52 mm (3/8&quot;) 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 mm 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See table for pulses availability.
**ELECTRICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>from 100 to 1024 ppr</td>
</tr>
<tr>
<td>Power supply</td>
<td>4.5 ... 30 V DC (with reverse polarity protection)</td>
</tr>
<tr>
<td>Power draw without load</td>
<td>600 mW</td>
</tr>
<tr>
<td>Max load current</td>
<td>20 mA / channel</td>
</tr>
<tr>
<td>Output type*</td>
<td>push-pull / line driver</td>
</tr>
<tr>
<td>Max output frequency</td>
<td>105 kHz</td>
</tr>
<tr>
<td>Counting direction</td>
<td>A leads B clockwise (shaft view)</td>
</tr>
<tr>
<td>Electromagnetic compatibility</td>
<td>IEC 61000-6-2 / IEC 61000-6-4</td>
</tr>
</tbody>
</table>

*output levels according to power supply, for further details please see under Technical basics section

**CONNECTIONS**

<table>
<thead>
<tr>
<th>Function</th>
<th>Cable output Line driver</th>
<th>Cable output Push-pull</th>
</tr>
</thead>
<tbody>
<tr>
<td>+V DC</td>
<td>red</td>
<td>red</td>
</tr>
<tr>
<td>0 V</td>
<td>black</td>
<td>black</td>
</tr>
<tr>
<td>Ch. A</td>
<td>green</td>
<td>green</td>
</tr>
<tr>
<td>Ch. A-</td>
<td>grey or brown</td>
<td>/</td>
</tr>
<tr>
<td>Ch. B</td>
<td>yellow</td>
<td>yellow</td>
</tr>
<tr>
<td>Ch. B-</td>
<td>orange</td>
<td>/</td>
</tr>
<tr>
<td>Ch. Z</td>
<td>blue</td>
<td>blue</td>
</tr>
<tr>
<td>Ch. Z-</td>
<td>white</td>
<td>/</td>
</tr>
<tr>
<td></td>
<td>shield</td>
<td>shield</td>
</tr>
</tbody>
</table>

**RESOLUTIONS**

100 - 200 - 256 - 360 - 400 - 500 - 1000 - 1024 ppr

please directly contact our offices for other pulses, preferred resolutions in bold

**MECHANICAL SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore diameter</td>
<td>Ø 6 / Ø 8 / 9,52 (3/8&quot;) / 10 mm</td>
</tr>
<tr>
<td>Enclosure rating</td>
<td>IP 65 (IEC 60529)</td>
</tr>
<tr>
<td>Max rotation speed</td>
<td>6000 rpm</td>
</tr>
<tr>
<td>Shock</td>
<td>50 G, 11 ms (IEC 60068-2-27)</td>
</tr>
<tr>
<td>Vibration</td>
<td>10 G, 10 ... 2000 Hz (IEC 60068-2-6)</td>
</tr>
<tr>
<td>Moment of inertia</td>
<td>0,5 x 10⁻⁴ kgm²</td>
</tr>
<tr>
<td>Starting torque (at +20°C / +68°F)</td>
<td>&lt; 0,01 Nm</td>
</tr>
<tr>
<td>Fixing torque for collar clamping</td>
<td>1 Nm recommended</td>
</tr>
<tr>
<td>Body material</td>
<td>EN-AW 2011 aluminum</td>
</tr>
<tr>
<td>Shaft material</td>
<td>1.4305 / AISI 303 stainless steel</td>
</tr>
<tr>
<td>Housing material</td>
<td>EN-AW 2011 aluminum</td>
</tr>
<tr>
<td>Bearings</td>
<td>2 ball bearings</td>
</tr>
<tr>
<td>Bearings life</td>
<td>10⁰ revolutions</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40° ... +100 °C (-40° ... +212°F)</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40° ... +100 °C (-40° ... +212°F)</td>
</tr>
<tr>
<td>Weight</td>
<td>150 g (5,29 oz) mod.FP / 200 g (7,05 oz) mod.FA</td>
</tr>
</tbody>
</table>

**ELECTRICAL SPECIFICATIONS**

- Resolution: from 100 to 1024 ppr
- Power supply: 4.5 ... 30 V DC (with reverse polarity protection)
- Power draw without load: 600 mW
- Max load current: 20 mA / channel
- Output type*: push-pull / line driver
- Max output frequency: 105 kHz
- Counting direction: A leads B clockwise (shaft view)
- Electromagnetic compatibility: IEC 61000-6-2 / IEC 61000-6-4

*output levels according to power supply, for further details please see under Technical basics section

**CONNECTIONS**

- **Function**
  - +V DC: red
  - 0 V: black
  - Ch. A: green
  - Ch. A-: grey or brown
  - Ch. B: yellow
  - Ch. B-: orange
  - Ch. Z: blue
  - Ch. Z-: white
  - : shield

**MECHANICAL SPECIFICATIONS**

- **Bore diameter**: Ø 6 / Ø 8 / 9.52 (3/8") / 10 mm
- **Enclosure rating**: IP 65 (IEC 60529)
- **Max rotation speed**: 6000 rpm
- **Shock**: 50 G, 11 ms (IEC 60068-2-27)
- **Vibration**: 10 G, 10 ... 2000 Hz (IEC 60068-2-6)
- **Moment of inertia**: 0.5 x 10⁻⁴ kgm²
- **Starting torque (at +20°C / +68°F)**: < 0.01 Nm
- **Fixing torque for collar clamping**: 1 Nm recommended
- **Body material**: EN-AW 2011 aluminum
- **Shaft material**: 1.4305 / AISI 303 stainless steel
- **Housing material**: EN-AW 2011 aluminum
- **Bearings**: 2 ball bearings
- **Bearings life**: 10⁰ revolutions
- **Operating temperature**: -40° ... +100 °C (-40° ... +212°F)
- **Storage temperature**: -40° ... +100 °C (-40° ... +212°F)
- **Weight**: 150 g (5.29 oz) mod.FP / 200 g (7.05 oz) mod.FA

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