EL - ER 58 F / G
EL - ER 63 F / G
BLIND HOLLOW SHAFT INCREMENTAL ENCODER

Specifications
Hollow shaft encoder series for industrial applications with high mechanical resistance requirements. These encoders are designed to withstand high radial and axial shaft loads.

- 3 channel encoder (A / B / Z) up to 24000 ppr
- Power supply up to +28 VDC with several electronic interfaces available
- Up to 500 kHz output frequency
- Cable or connector output
- Available with metal cover for heavy duty applications
- Blind hollow shaft diameter up to 15 mm
- Mounting by stator coupling, spring or anti-rotation pin

<table>
<thead>
<tr>
<th>ORDERING CODE</th>
<th>ER 58G</th>
<th>M* 500S 5/28N 8X 3P R . XXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIES</td>
<td>incremental encoder series EL</td>
<td></td>
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<tr>
<td></td>
<td>incremental encoder series ER</td>
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<tr>
<td>MODEL</td>
<td>blind hollow shaft with stator coupling 58F</td>
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<td>blind hollow shaft with anti-rotation pin 58G</td>
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<td>blind hollow shaft with spring 63F</td>
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<td></td>
<td>blind hollow shaft with anti-rotation pin 63G</td>
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<tr>
<td>METAL COVER</td>
<td>* add for metal cover M</td>
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<tr>
<td>RESOLUTION</td>
<td>ppr from 1 to 24000</td>
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<tr>
<td></td>
<td>see table for pulses availability</td>
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</tr>
<tr>
<td>ZERO PULSE</td>
<td>without zero pulse S</td>
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<tr>
<td></td>
<td>with zero pulse Z</td>
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</tr>
<tr>
<td>POWER SUPPLY</td>
<td>(with L electronic interface) 5 V DC 5</td>
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</tr>
<tr>
<td></td>
<td>(with L or PC electronic interface) 8 ... 24 V DC 8/24</td>
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</tr>
<tr>
<td></td>
<td>5 ... 28 V DC 5/28</td>
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</tr>
<tr>
<td>ELECTRONIC INTERFACE</td>
<td>NPN N</td>
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<tr>
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<td>NPN open collector C</td>
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<tr>
<td></td>
<td>push-pull P</td>
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<td>push-pull protected (AEIC-7272) PC</td>
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<tr>
<td></td>
<td>line driver L</td>
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<tr>
<td></td>
<td>power supply 5/28V - output RS-422 RS</td>
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<tr>
<td>BORE DIAMETER</td>
<td>mm 8</td>
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<tr>
<td></td>
<td>mm 10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>mm 12</td>
<td></td>
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<tr>
<td></td>
<td>mm 14</td>
<td></td>
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<tr>
<td></td>
<td>mm 15</td>
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<td>ENCLOSURE RATING</td>
<td>IP 54 X</td>
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<td>IP 66 S</td>
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<td>MAX ROTATION SPEED</td>
<td>3000 rpm 3</td>
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<tr>
<td>OUTPUT TYPE</td>
<td>cable (standard length 1.5 m) ) P</td>
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<tr>
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<td>MIL connector M</td>
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<tr>
<td></td>
<td>JIS-C-5432 connector J</td>
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<tr>
<td></td>
<td>M12 connector M12</td>
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<tr>
<td></td>
<td>M23 connector H</td>
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<tr>
<td></td>
<td>IP40 IEC 60130-3 connector C</td>
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<td>female connector included, without female please add 162 as variant code</td>
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<td>radial R</td>
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<tr>
<td>VARIANT</td>
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</table>

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**ELECTRICAL SPECIFICATIONS**

**Resolution**
- from 1 to 2500 ppr (58 G)
- from 1 to 24000 ppr (58 F - 63 F / G)

**Power supply**
- 5 = 4,5 ... 5,5 V DC
- 5/28 = 4,75 ... 29,4 V DC
- 8/24 = 7,6 ... 25,2 V DC (reverse polarity protection)

**Power draw without load**
- 800 mW

**Max load current**
- N / C / P / PC = 50 mA / channel
- L / RS = 20 mA / channel

**Output type**
- NPN / NPN open collector / push-pull / line driver

**Max output frequency**
- 250 kHz up to 6000 ppr
- 500 kHz from 7200 ppr

**Counting direction**
- A leads B clockwise (shaft view)

**Electromagnetic compatibility**
- IEC 61000-6-2
- IEC 61000-6-4

**MECHANICAL SPECIFICATIONS**

**Bore diameter**
- ø 8 / 10 / 12 / 14 / 15 mm

**Enclosure rating**
- X = IP 54 (IEC 60529)
- S = IP 64 (IEC 60529)

**Max rotation speed**
- 3000 rpm

**Shock**
- 50 G, 11 ms (IEC 60068-2-27)

**Vibration**
- 10 G, 10 ... 2000 Hz (IEC 60068-2-6)

**Moment of inertia**
- 4 x 10-6 kgm²

**Starting torque**
- < 0,02 Nm (IP 54)
- < 0,06 Nm (IP 66)

**Body material**
- EN-AW 2011 aluminum

**Shaft material**
- 1.4305 / AISI 303 stainless steel

**Housing material**
- PA66 glass fiber reinforced / painted aluminum

**Bearings**
- 2 ball bearings

**Bearings life**
- 10^9 revolutions

**Operating temperature**
- EL series: -10° ... +60°C (+14° ... +140°F)
- ER series: -20° ... +70°C (-4° ... +158°F)

**Storage temperature**
- -25° ... +70°C (-13° ... +158°F)

**Fixing torque for collar clamping**
- 1,5 Nm recommended

**Weight**
- 350 g (12,35 oz)

**CONNECTIONS**

**Function**
- Cable output
- 7 pin J output
- 7 pin M output
- 10 pin J output
- 10 pin M output
- 5 pin M12 output
- 8 pin M12 output
- 12 pin H output
- 5 pin C output
- 8 pin C output

**Cable output**
- N / C / P / PC

**Line driver**
- Line Driver
- Line Driver with Zero

**M connector (7 pin)**
- JIS-C-5432 Size 16
- solder side view FV

**M connector (10 pin)**
- JIS-C-5432 Size 16
- solder side view FV

**M12 connector (5 pin)**
- Amphenol MS3102-E-16-S
- solder side view FV

**M12 connector (8 pin)**
- Amphenol MS3102-E-18-1
- solder side view FV

**H connector (12 pin)**
- M23 CCW
- Hummel 7.410.000000 - 7.002.912.603
- solder side view FV

**C connector (5 pin)**
- IEC 60130-9
- solder side view FV

**C connector (8 pin)**
- IEC 60130-9
- solder side view FV

**J connector (7 pin)**
- Amphenol MS3102-E-16-S
- solder side view FV

**J connector (10 pin)**
- Amphenol MS3102-E-18-1
- solder side view FV

**C connector (8 pin)**
- IEC 60130-9
- solder side view FV

**M connector (10 pin)**
- Amphenol MS3102-E-18-1
- solder side view FV