

### MAIN FEATURES

∅ 120 mm through hollow shaft encoder designed for medium / big size motors.

- 3 channel encoder (A / B / Z) up to 2048 ppr
- Power supply up to +24 V DC with several electrical interfaces available
- Up to 105 kHz output frequency
- Cable output, connector available on cable end
- Through hollow shaft diameter up to 60 mm
- Shaft fixing by grub screws

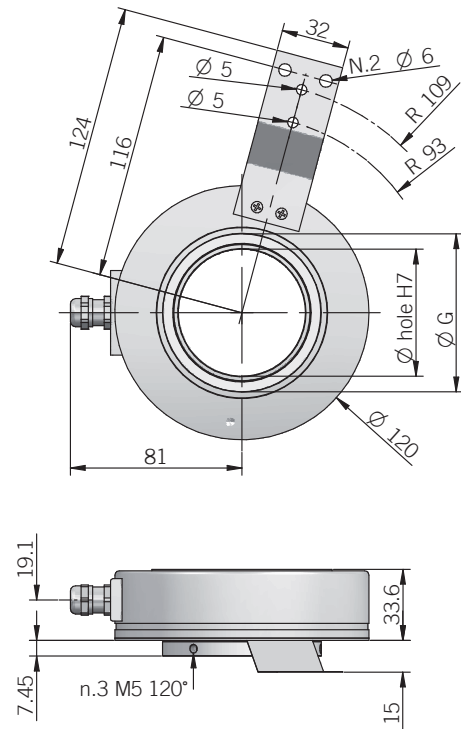


### ORDERING CODE

EL 120P 1024 S 5/28 P 50 X 3 PR .XXX

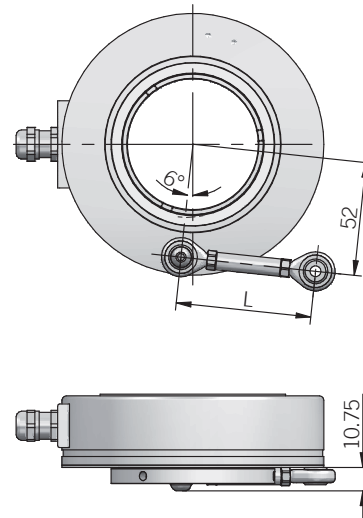
|   |  |   |  |  |  |  |   |  |   |   |
|---|--|---|--|--|--|--|---|--|---|---|
| <b>SERIES</b><br>incremental encoder series <b>EL</b> | <b>MODEL</b><br>through hollow shaft with spring <b>120P</b> | <b>RESOLUTION</b><br>ppr from <b>400</b> to <b>2048</b><br>refer to the available pulses list | <b>ZERO PULSE</b><br>without zero pulse <b>S</b><br>with zero pulse <b>Z</b> | <b>POWER SUPPLY</b><br>(with L electrical interface) 5 V DC <b>5</b><br>(with L electrical interface) 8 ... 24 V DC <b>8/24</b><br>5 ... 28 V DC <b>5/28</b> | <b>ELECTRICAL INTERFACE</b><br>NPN open collector <b>C</b><br>push-pull <b>P</b><br>line driver <b>L</b> | <b>BORE DIAMETER</b><br>mm <b>40</b><br>mm <b>50</b><br>mm <b>60</b> | <b>ENCLOSURE RATING</b><br>IP 54 <b>X</b> | <b>MAX ROTATION SPEED</b><br>3000 rpm <b>3</b> | <b>OUTPUT TYPE</b><br>radial cable (standard length 0,5 m) <b>PR</b><br>preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5) | <b>VARIANT</b><br>custom version <b>XXX</b> |
|---|--|---|--|--|--|--|---|--|---|---|

120 P



dimensions in mm

WITH TORQUE ARM



for torque arm please refer to Accessories

| ELECTRICAL SPECIFICATIONS               |  |
|---|--|
| <b>Resolution</b>                       | from 400 to 2048 ppr   |
| <b>Power supply<sup>1</sup></b>         | 5 = 4,5 ... 5,5 V DC<br>5/28 = 4,75 ... 29,4 V DC<br>8/24 = 7,6 ... 25,2 V DC (reverse polarity protection)                        |
| <b>Current consumption without load</b> | 100 mA max   |
| <b>Max load current</b>                 | C / P = 50 mA / channel<br>L = 20 mA / channel   |
| <b>Electrical interface<sup>2</sup></b> | NPN open collector (pullup max +30V DC)<br>push-pull / line driver HTL (AEIC-7272)<br>line driver RS-422 (AELT-5000 or equivalent) |
| <b>Max output frequency</b>             | 105 kHz  |
| <b>Counting direction</b>               | A leads B clockwise (shaft view)   |
| <b>Electromagnetic compatibility</b>    | according to 2014/30/EU directive  |
| <b>RoHS</b>                             | according to 2015/863/EU directive   |
| <b>UL / CSA</b>                         | certificate n. E212495   |

| CONNECTIONS |             |               |
|-------------|-------------|---------------|
| Function    | Cable C / P | Cable L       |
| +V DC       | red         | red           |
| 0 V         | black       | black         |
| A+          | green       | green         |
| A-          | /           | brown or grey |
| B+          | yellow      | yellow        |
| B-          | /           | orange        |
| Z+          | blue        | blue          |
| Z-          | /           | white         |
| ≡           | shield      | shield        |

| SHAFT DIAMETER | G    |
|----------------|------|
| ∅ 40           | ∅ 65 |
| ∅ 50           | ∅ 65 |
| ∅ 60           | ∅ 75 |

| MECHANICAL SPECIFICATIONS                  |  |
|--|--|
| <b>Bore diameter</b>                       | ∅ 40 / 50 / 60 mm  |
| <b>Enclosure rating</b>                    | IP 54 (IEC 60529)  |
| <b>Max rotation speed</b>                  | 3000 rpm   |
| <b>Shock</b>                               | 50 G, 11 ms (IEC 60068-2-27)   |
| <b>Vibration</b>                           | 10 G, 10 ... 2000 Hz (IEC 60068-2-6)   |
| <b>Moment of inertia</b>                   | approx 215 x 10 <sup>-6</sup> kgm <sup>2</sup> (51 x 10 <sup>-4</sup> lbf <sup>2</sup> ) |
| <b>Starting torque (at +20°C / +68°F)</b>  | < 0,05 Nm (7 Ozin)   |
| <b>Bearing stage material</b>              | EN-AW 2011 aluminum  |
| <b>Shaft material</b>                      | EN-AW 2011 aluminum  |
| <b>Housing material</b>                    | EN-AW 2011 aluminum  |
| <b>Bearings</b>                            | n.2 ball bearings  |
| <b>Bearings life</b>                       | 10 <sup>9</sup> revolutions  |
| <b>Operating temperature<sup>3,4</sup></b> | 0° ... +60 °C (+32° ... +140°F)  |
| <b>Storage temperature<sup>4</sup></b>     | -25° ... +70 °C (-13° ... +158°F)  |
| <b>Weight</b>                              | 750 g (26,46 oz)   |

<sup>1</sup> as measured at the transducer without cable influences

<sup>2</sup> for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section

<sup>3</sup> measured on the transducer flange

<sup>4</sup> condensation not allowed

| RESOLUTIONS   |
|---|
| <b>400 - 800 - 1000 - 1024 - 1440 - 1600 - 2000 - 2048</b>                          |
| please directly contact our offices for other pulses, preferred resolutions in bold |