# EL 120 P
## THROUGH HOLLOW SHAFT INCREMENTAL ENCODER

### MAIN FEATURES

ø 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, connectors 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|

**SERIES**
incremental encoder series EL

**MODEL**
through hollow shaft with spring 120P

**RESOLUTION**
ppr from 400 to 2048
refer to the available pulses list

**ZERO PULSE**
without zero pulse S
with zero pulse Z

**POWER SUPPLY**
(with L electrical interface) 5 V DC 5
(with L electrical interface) 8 ... 24 V DC 8/24
5 ... 28 V DC 5/28

**ELECTRICAL INTERFACE**
NPN open collector C
push-pull P
line driver L

**BORE DIAMETER**
mm 40
mm 50
mm 60

**ENCLOSURE RATING**
IP 54 X

**MAX ROTATION SPEED**
3000 rpm 3

**OUTPUT TYPE**
radial cable (standard length 0,5 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

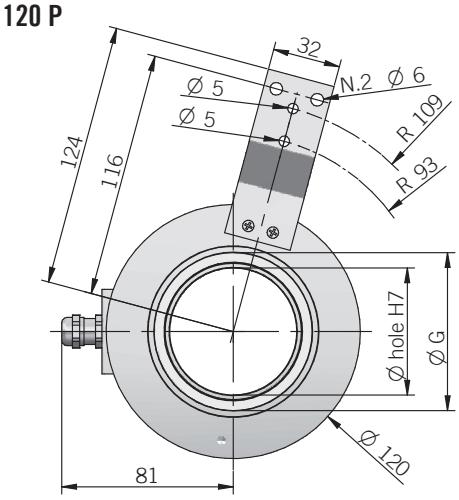
**VARIANT**
custom version XXX

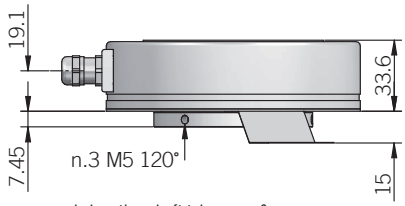




eltra@eltra.it

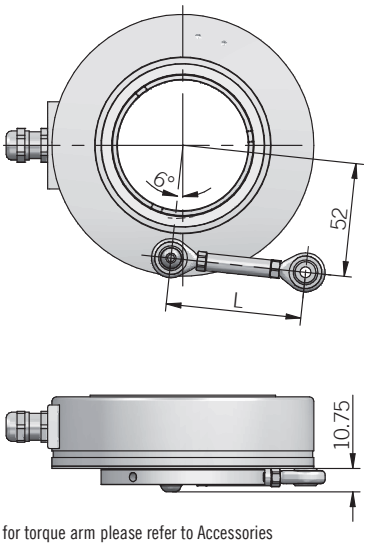
## 120 P




recommended mating shaft tolerance g6
dimensions in mm

## WITH TORQUE ARM




for torque arm please refer to Accessories

## ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| **Resolution** | from 400 to 2048 ppr |
| **Power supply**[1] | 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) |
| **Current consumption without load** | 100 mA max |
| **Max load current** | C / P = 50 mA / channel<br>L = 20 mA / channel |
| **Electrical interface**[2] | NPN open collector (pullup max +30V DC)<br>push-pull / line driver HTL (AEIC-7272)<br>line driver RS-422 (AELT-5000 or similar) |
| **Max output frequency** | 105 kHz |
| **Counting direction** | A leads B clockwise (shaft view) |
| **Electromagnetic compatibility** | according to 2014/30/EU directive |
| **RoHs** | according to 2011/65/EU directive |
| **UL / CSA** | 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 |
|---|---|
| ø 40 | ø 65 |
| ø 50 | ø 65 |
| ø 60 | ø 75 |

## MECHANICAL SPECIFICATIONS

| | |
|---|---|
| **Bore diameter** | ø 40 / 50 / 60 mm |
| **Enclosure rating** | IP 54 (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** | approx 215 x $10^{-6}$ kgm$^2$ (51 x $10^{-4}$ lbft$^2$) |
| **Starting torque (at +20°C / +68°F)** | < 0,05 Nm (7 Ozin) |
| **Bearing stage material** | EN-AW 2011 aluminum |
| **Shaft material** | EN-AW 2011 aluminum |
| **Housing material** | EN-AW 2011 aluminum |
| **Bearings** | n.2 ball bearings |
| **Bearings life** | $10^9$ revolutions |
| **Operating temperature**[3, 4] | 0° ... +60 °C (+32° ... +140°F) |
| **Storage temperature**[4] | -25° ... +70 °C (-13° ... +158°F) |
| **Weight** | 750 g (26,46 oz) |

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] measured on the transducer flange
[4] condensation not allowed

## RESOLUTIONS

**400** - 800 - 1000 - **1024** - 1440 - 1600 - 2000 - **2048**

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