

## MAIN FEATURES

Miniaturized  $\varnothing$  42 encoder series for general applications.

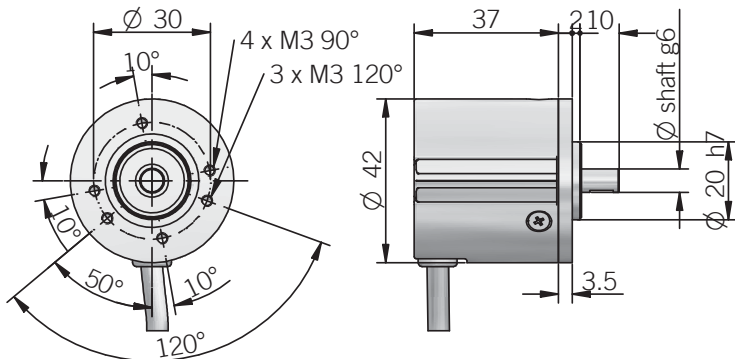
- Up to 25000 ppr with zero signal
- Several output types available
- Up to 28 V DC power supply
- Up to 220 kHz output frequency
- Cable output
- Up to 6000 RPM rotation speed
- Up to IP 66 sealing



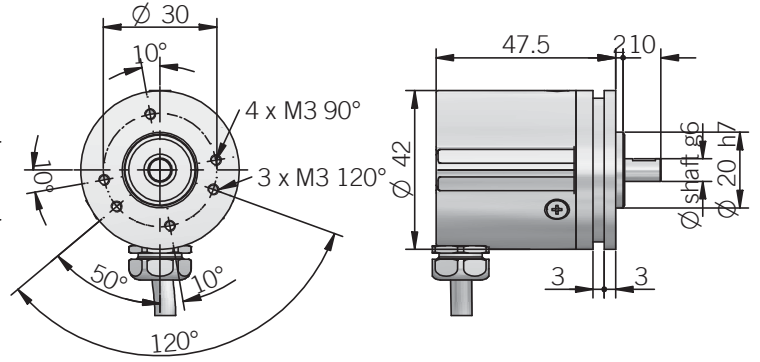
## ORDERING CODE

|   |                             |  |  |  |  |   |  |   |  |   |   |   |
|---|-----------------------------|--|--|--|--|---|--|---|--|---|---|---|
| <b>EL</b>   | <b>40</b>                   | <b>A</b>   | <b>500</b>   | <b>Z</b>   | <b>5/28</b>  | <b>N</b>                                    | <b>6</b>   | <b>X</b>  | <b>3</b>   | <b>P</b>  | <b>R</b>  | <b>. XXX</b>  |
| <b>SERIES</b><br>incremental encoder series <b>EL</b><br>incremental encoder series <b>ER</b> | <b>SIZE</b><br>mm <b>40</b> | <b>TYPE</b><br>fixing flange $\varnothing$ 20 mm <b>A</b><br>square flange $\square$ 36,5 mm <b>B</b><br>fixing flange $\varnothing$ 17,46 mm <b>C</b><br>fixing flange $\varnothing$ 15 mm <b>E</b><br>threaded flange M18 <b>H</b><br>threaded flange M21 <b>I</b><br>synchronous flange $\varnothing$ 21 mm <b>N</b><br>synchronous flange $\varnothing$ 30 mm <b>X</b> | <b>RESOLUTION</b><br>(EL - ER 40 A / B) max ppr <b>25000</b><br>(EL - ER 40 C / E / H / I / N / X) max ppr <b>2500</b><br><i>N.B.: please see resolution table or directly contact our offices for pulses availability</i> | <b>ZERO PULSE</b><br>without zero pulse <b>S</b><br>with zero pulse <b>Z</b> | <b>POWER SUPPLY</b><br>(available only with L electronic output) 5 V DC <b>5</b><br>(available only with L or PC electronic output) 8 ... 24 V DC <b>8/24</b><br>5 ... 28 V DC <b>5/28</b> | <b>VARIANT</b><br><b>XXX</b> custom version | <b>DIRECTION TYPE</b><br><b>A</b> axial (excluded EL - ER 40 X)<br><b>R</b> radial | <b>OUTPUT TYPE</b><br><b>P</b> cable output (standard length 0.5 m) | <b>MAX ROTATION SPEED</b><br><b>3</b> 3000 rpm<br><b>6</b> 6000 rpm<br><i>N.B.: 3000 RPM max with S enclosure rating</i> | <b>ENCLOSURE RATING</b><br><b>X</b> IP 54<br><b>S</b> IP 66 (optional for EL - ER 40 A / B) | <b>SHAFT DIAMETER</b><br><b>4</b> mm (EL - ER 40 A / B / C / E)<br><b>6</b> mm (EL - ER 40 A / B / C / H / I / N)<br><b>8</b> mm (EL - ER 40 X) | <b>ELECTRONIC INTERFACE</b><br><b>N</b> NPN<br><b>C</b> NPN open collector<br><b>P</b> push-pull<br><b>PC</b> protected push-pull (AEIC-7272)<br><b>L</b> line driver<br><i>N.B.: with N / C interface max 2500 ppr</i> |

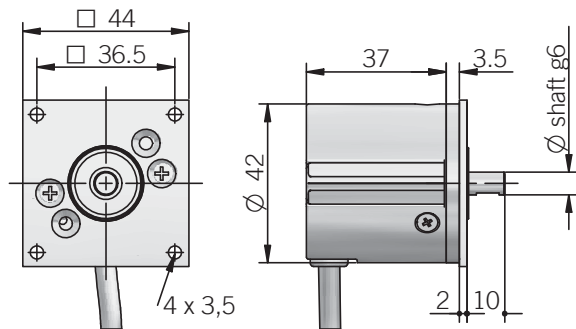
**EL - ER 40 A**



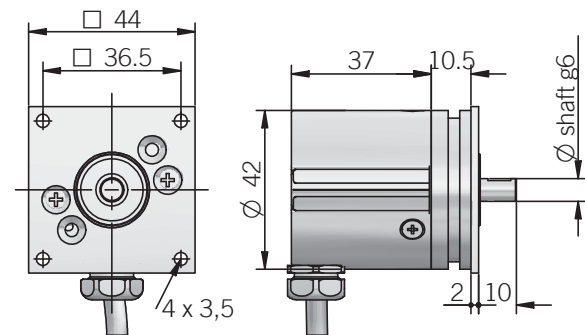
**EL - ER 40 A  
IP 66 version**



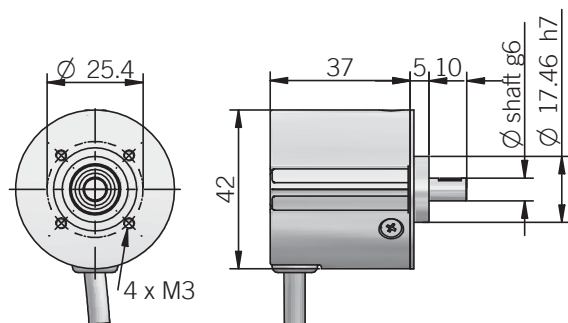
**EL - ER 40 B**



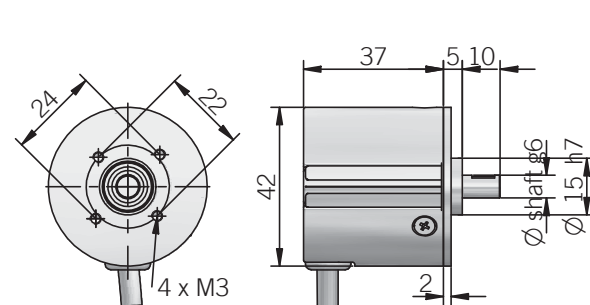
**EL - ER 40 B  
IP 66 version**



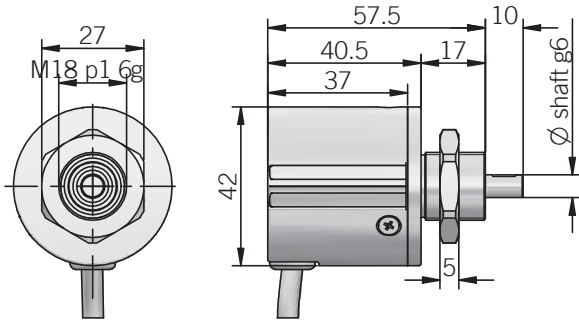
**EL - ER 40 C**



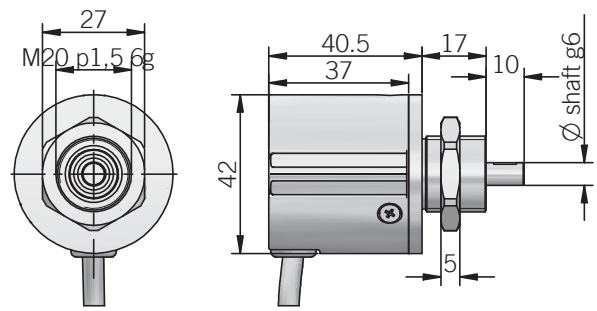
**EL - ER 40 E**



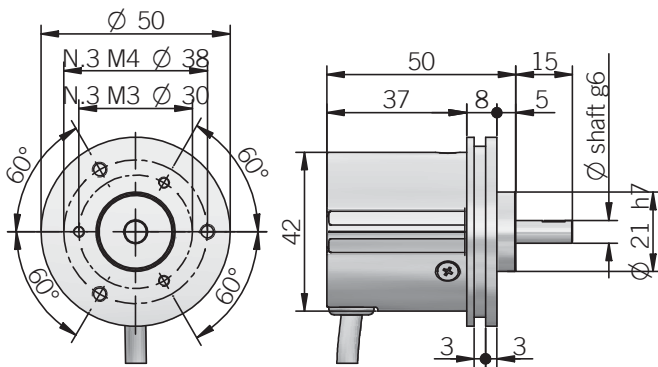
**EL - ER 40 H**



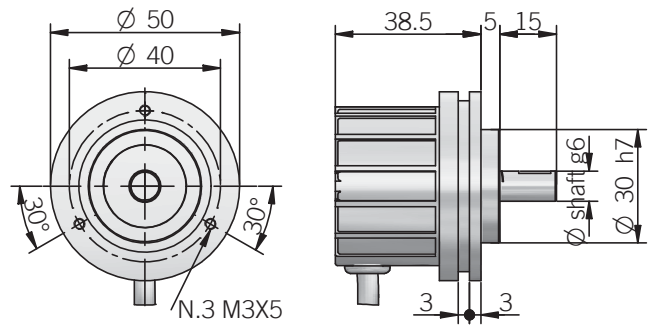
**EL - ER 40 I**



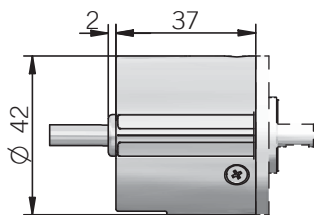
**EL - ER 40 N**



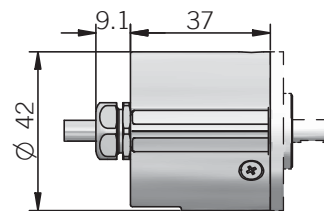
**EL - ER 40 X**



**EL - ER 40**  
dimension with axial output



**EL - ER 40**  
dimension with IP 66 axial output



## Electrical specifications

|   |  |
|---|--|
| <b>Resolution</b>                       | from 1 to 25000 ppr (EL - ER 40 A/B)<br>from 1 to 2500 ppr (EL - ER 40 C/E/H/I/N/X)                |
| <b>Power supply</b>                     | 5 V DC $\pm$ 10%<br>5 ... 28 V DC $\pm$ 5%<br>8 ... 24 V DC $\pm$ 5% (reverse polarity protection) |
| <b>Current consumption without load</b> | 100 mA max   |
| <b>Max load current</b>                 | 50 mA for channel<br>20 mA for channel (line driver)   |
| <b>Output type</b>                      | NPN<br>NPN open collector<br>push-pull<br>line driver  |
| <b>Max output frequency</b>             | 150 kHz EL series<br>220 kHz ER series   |
| <b>Counting direction</b>               | A leads B clockwise (shaft view)   |
| <b>Electromagnetic compatibility</b>    | IEC 61000-6-2<br>IEC 61000-6-4   |

## Mechanical specifications

|                              |   |
|------------------------------|---|
| <b>Shaft diameter</b>        | $\varnothing$ 4 mm (EL - ER 40 A/B/C/E)<br>$\varnothing$ 6 mm (EL - ER 40 A/B/C/H/I/N)<br>$\varnothing$ 8 mm (EL - ER 40 X) |
| <b>Enclosure rating</b>      | IP 54 (IEC 60529)<br>IP 66 (optional for EL - ER 40 A/B) (IEC 60529)  |
| <b>Max rotation speed</b>    | 3000 rpm<br>6000 rpm (only IP 54)   |
| <b>Max shaft load</b>        | 5 N (0.5 kgf) axial<br>5 N (0.5 kgf) radial   |
| <b>Shock</b>                 | 50 G, 11 ms (IEC 60068-2-27)  |
| <b>Vibration</b>             | 10 G, 10 ... 2000 Hz (IEC 60068-2-6)  |
| <b>Body material</b>         | EN-AW 2011 aluminum   |
| <b>Shaft material</b>        | 1.4305 / AISI 303 stainless steel   |
| <b>Housing material</b>      | PA 66 glass fiber reinforced  |
| <b>Bearings</b>              | 2 ball bearings   |
| <b>Bearings life</b>         | 10 <sup>9</sup> revolutions   |
| <b>Operating temperature</b> | -10° ... +60°C EL series<br>-20° ... +70°C ER series  |
| <b>Storage temperature</b>   | -25° ... +70°C  |
| <b>Weight</b>                | 100 g   |

## Connections and standard colours

| Function | Push pull / Npn / Npn open collector | Line driver |
|----------|--------------------------------------|-------------|
| +V DC    | red                                  | red         |
| 0 V      | black                                | black       |
| Ch. A    | green                                | green       |
| Ch. A-   | /                                    | brown       |
| Ch. B    | yellow                               | yellow      |
| Ch. B-   | /                                    | orange      |
| Ch. Z    | blue                                 | blue        |
| Ch. Z-   | /                                    | white       |
| $\equiv$ | shield                               | shield      |

## Resolutions ER series

100 - 120 - 128 - 150 - 200 - 240 - 250 - 256 - 300 - 360 - 400 - 480  
- 500 - 512 - 600 - 625 - 720 - 750 - 800 - 900 - 1000 - 1024 - 1200 - 1250  
- 1440 - 1500 - 1600 - 1800 - 2000 - 2048 - 2500

## Resolutions EL series

1 - 2 - 4 - 5 - 10 - 15 - 16 - 20 - 30 - 32 - 40 - 50 - 70 - 80 - 90 - 160 - 180  
- 350 - 450 - 660 - 700 - 2880 - 3000 - 3600 - 4000 - 4096 - 5000 - 6000  
- 7200 - 7500 - 8000 - 8192 - 10000 - 10240 - 12000 - 15000 - 16000  
- 16384 - 20000 - 20480 - 25000