

MAIN FEATURES

Miniaturized \varnothing 42 mm encoder series for general factory automation applications.

- 3 channel encoder (A / B / Z) up to 14400 ppr
- Power supply up to +28 V DC with several electrical interfaces available
- Up to 500 kHz output frequency
- Cable output, connectors available on cable end
- Solid shaft diameter up to 8 mm
- Mounting by clamping, square, threaded or synchronous flange



ORDERING CODE

ER 40A 100 S 5/28 P 6 X 6 P R .XXX

SERIES
 incremental encoder series **EL**
 incremental encoder series **ER**

MODEL
 clamping flange \varnothing 20 mm **40A**
 square flange \square 36,5 mm **40B**
 clamping flange \varnothing 17,46 mm **40C**
 M18 threaded flange **40H**
 M20 threaded flange **40I**
 synchronous flange \varnothing 21 mm **40N**
 synchronous flange \varnothing 30 mm **40X**

RESOLUTION
 (mod. A / B) ppr from **1** to **14400**
 (mod. C / H / I / N / X) ppr from **1** to **2500**
 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**
 5 ... 28 V DC **5/28**

ELECTRICAL INTERFACE
 NPN open collector **C**
 push-pull **P**
 line driver **L**
 power supply 5/28 V DC - output RS-422 **RS**

SHAFT DIAMETER
 (mod. A / B / C / H / I / N) mm **6**
 (mod. X) mm **8**

ENCLOSURE RATING
 IP 54 **X**
 (mod. A / B / H) IP 66 **S**

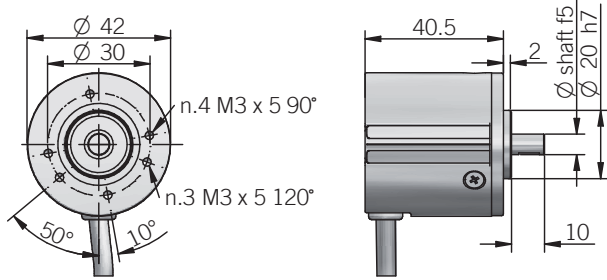
MAX ROTATION SPEED
 (IP 66) 3000 rpm **3**
 (IP 54) 6000 rpm **6**

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

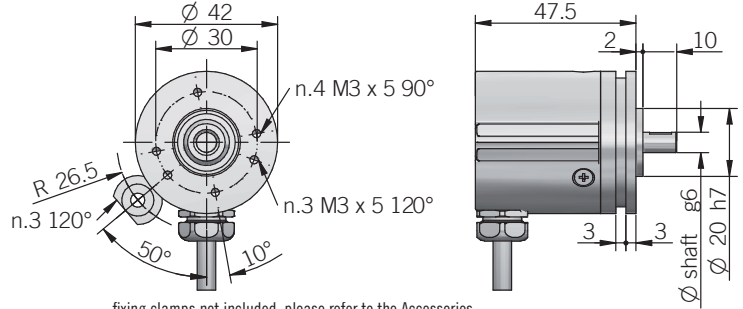
DIRECTION TYPE
 (mod. A / B / C / H / I / N) axial **A**
 radial **R**

VARIANT
 custom version **XXX**

40 A (X ENCLOSURE RATING)

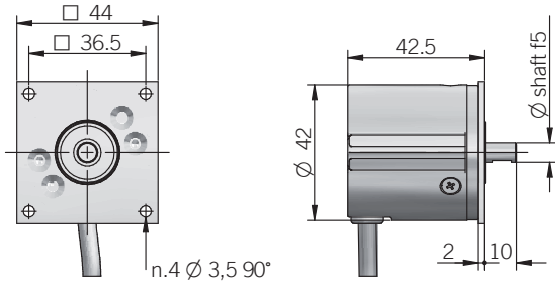


40 A (S ENCLOSURE RATING)

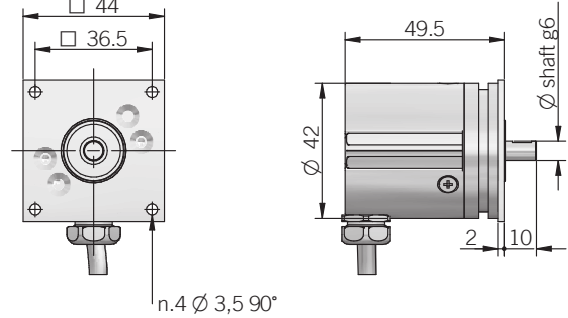


fixing clamps not included, please refer to the Accessories

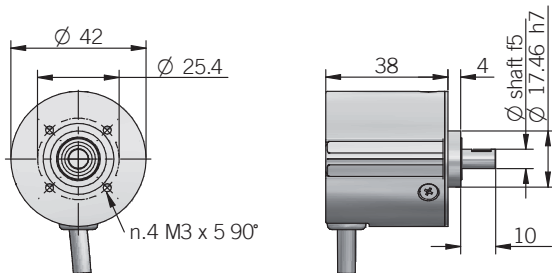
40 B (X ENCLOSURE RATING)



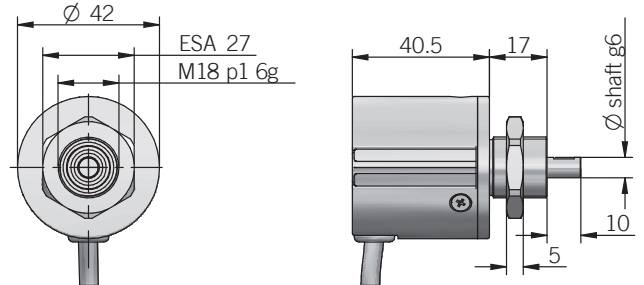
40 B (S ENCLOSURE RATING)



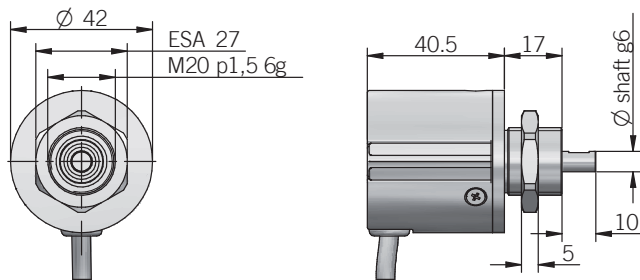
40 C



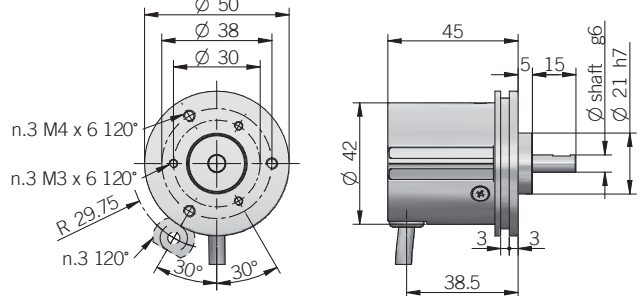
40 H



40 I

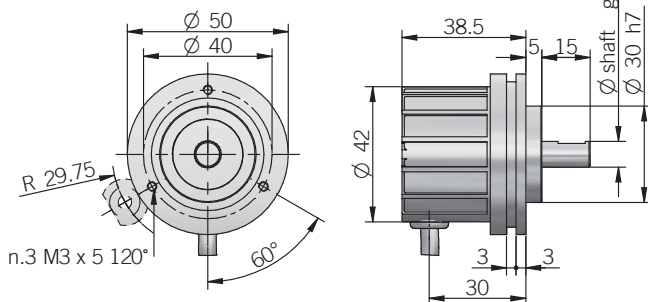


40 N



fixing clamps not included, please refer to the Accessories

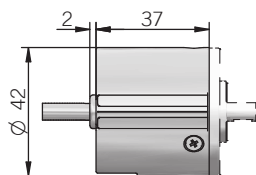
40 X



fixing clamps not included, please refer to the Accessories

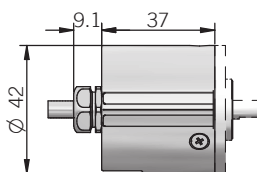
recommended mating shaft tolerance H7
dimensions in mm

DIMENSIONS WITH AXIAL OUTPUT WITH X ENCLOSURE RATING



dimensions in mm

DIMENSIONS WITH AXIAL OUTPUT WITH S ENCLOSURE RATING



ELECTRICAL SPECIFICATIONS

Resolution	from 1 to 14400 ppr (mod. A/B) from 1 to 2500 ppr (mod. C/H/I/N/X)
Power supply¹	5 = 4,5 ... 5,5 V DC 5/28 = 4,5 ... 30 V DC (reverse polarity protection)
Power draw without load	800 mW max
Max load current	C/P = 50 mA / channel L/RS = 20 mA / channel
Electrical interface²	NPN open collector (AEIC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or similar)
Max output frequency	EL series 150 kHz ER series 250 kHz up to 3600 ppr 500 kHz from 4000 ppr
Counting direction	A leads B clockwise (shaft view)
Index signal	180°e (Z&A)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2011/65/EU directive
UL / CSA	file n. E212495

CONNECTIONS

Function	Cable C/P	Cable L/RS
+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

MECHANICAL SPECIFICATIONS

Shaft diameter	ø 6 / 8 mm
Enclosure rating IEC 60529	X = IP 54 S = IP 66
Max rotation speed	6000 rpm with X enclosure rating 3000 rpm with S enclosure rating
Max shaft load³	30 N axial / radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	0,1 x 10 ⁻⁶ kgm ² (2,4 x 10 ⁻⁶ lbf ²)
Starting torque (at +20°C / +68°F)	< 0,01 Nm (1,42 Ozin) with X enclosure rating < 0,05 Nm (7,10 Ozin) with S enclosure rating
Bearing stage material	EN-AW 2011 or 2033 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	PA66 glass fiber reinforced
Bearings	n.2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature^{4,5}	-10° ... +60°C (+14° ... +140°F) EL series -25° ... +85°C (-13° ... +185°F) ER series
Storage temperature⁵	-25° ... +70°C (-13° ... +158°F)
Weight	100 g (3,52 oz)

¹ as measured at the transducer without cable influences
² for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
³ maximum load for static usage
⁴ measured on the transducer flange
⁵ condensation not allowed

EL SERIES RESOLUTIONS

1 - 2 - 4 - 5 - 10 - 15 - 16 - 20 - 30 - 32 - 40 - 50 - 70 - 80 - 90 - 750 - 1500

ER SERIES RESOLUTIONS

100 - 120 - 128 - 150 - 200 - 240 - 250 - 256 - 300 - 360 - 400 - 480 - 500 - 512 - 600 - 625 - 720 - 800 - 900 - 1000 - 1024 - 1200 - 1250 - 1440 - 1600 - 1800 - 2000 - 2048 - 2500 - 3000 - 3600 - 4000 - 4096 - 5000 - 6000 - 7200 - 8000 - 8192 - 10000 - 12000 - 14400

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