

ER 40 A / B / C / H / I / N / X

SOLID SHAFT INCREMENTAL ENCODER

MAIN FEATURES

Miniaturised ø 42 mm range of encoders for general factory automation applications.

- 3 channel encoder (A / B / Z) up to 14400 ppr
- Power supply up to +30 V DC with various electrical interfaces available
- Output frequency up to 500 kHz
- Cable output, connectors available at cable end
- Solid shaft diameter 6 mm or 8 mm
- Mounting by clamping, threaded or synchronous flange



ORDERING CODE

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

SERIES

(mod. A / B / C / H / I / N / X) incremental encoder series ER

MODEL

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

RESOLUTION

(mod. A / B) ppr from 100 to 14400
(mod. C / H / I / N / X) ppr from 100 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 shaft side / IP 67 cover side 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)

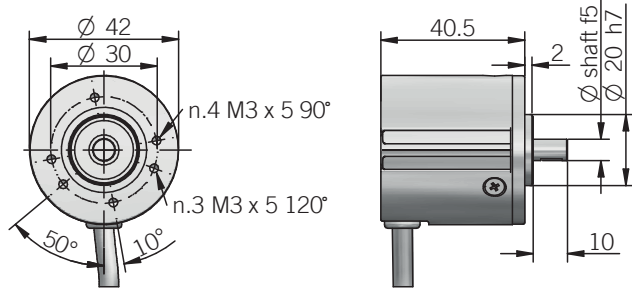
DIRECTION TYPE

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

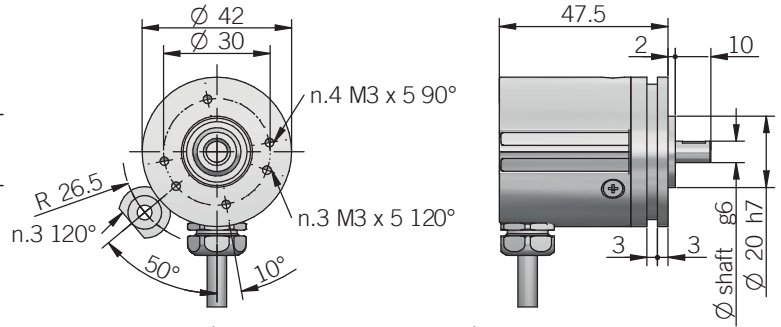
VARIANT

custom version XXX

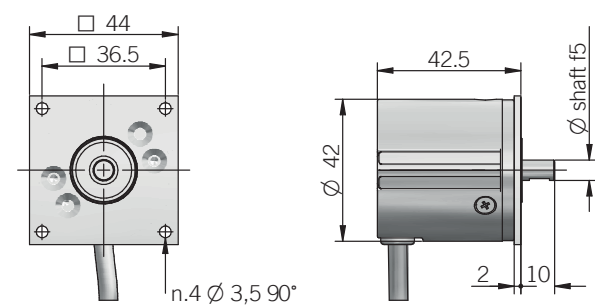
40A (X ENCLOSURE RATING)



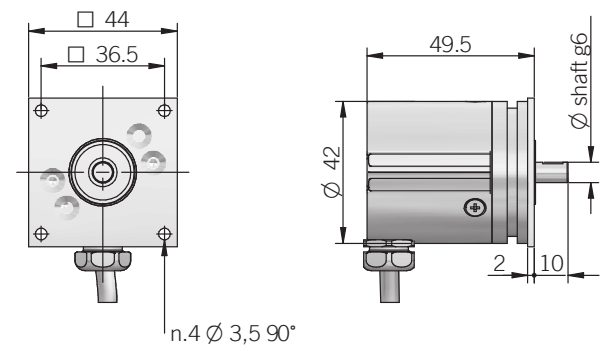
40A (S ENCLOSURE RATING)



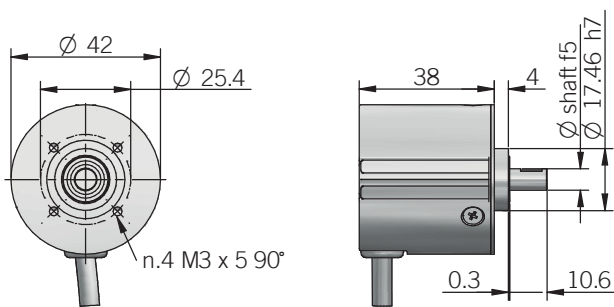
40B (X ENCLOSURE RATING)



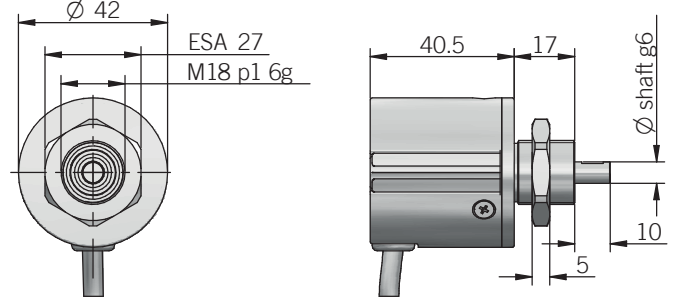
40B (S ENCLOSURE RATING)



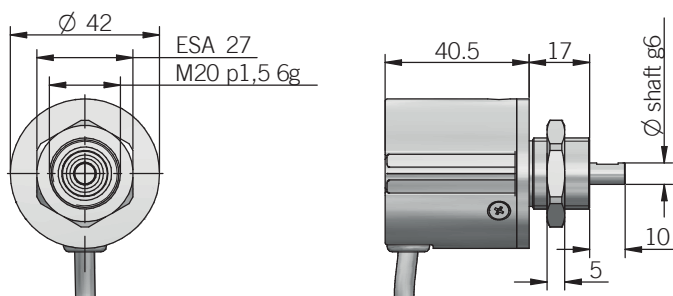
40C



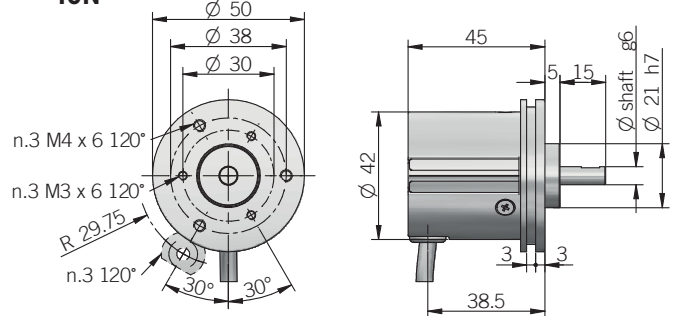
40H



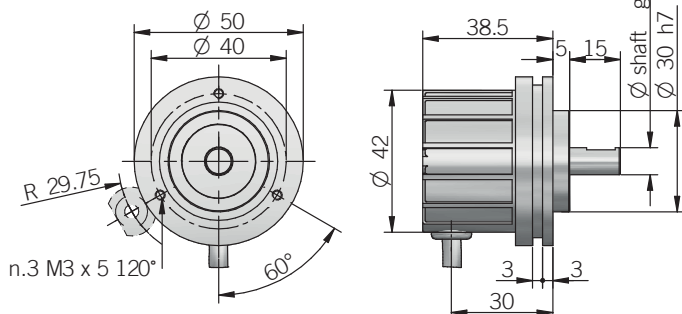
40I



40N

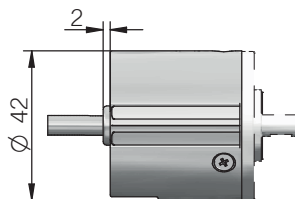


40X



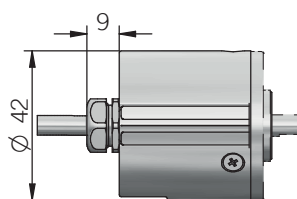
fixing clamps not included, please refer to the Accessories
recommended mating shaft tolerance H7
dimensions in mm

DIMENSIONS WITH AXIAL OUTPUT WITH X ENCLOSURE RATING



dimensions in mm

DIMENSIONS WITH AXIAL OUTPUT WITH S ENCLOSURE RATING



ELECTRICAL SPECIFICATIONS

Resolution	from 100 to 14400 ppr (mod. A / B) from 100 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	0,8 W 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 or similar) line driver RS-422 (AELT-5000 or similar)
Max output frequency	250 kHz up to 3600 ppr 500 kHz from 4000 ppr
Counting direction	A leads B clockwise (shaft view)
Index signal	180°e (gated A)
Mean time to dangerous failure (MTTF)_d³ according to EN ISO 13849-1	263 years
Mission time (Tm)³	20 years
Diagnostic coverage (DC)³	0%
Cable type	shielded - fixed installation conductors section 0,22 mm ² / AWG 24 bending radius min 60 mm
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 shaft side / IP 67 cover side
Max rotation speed	6000 rpm with X enclosure rating 3000 rpm with S enclosure rating
Max shaft load⁴	30 N (6,74 lbs) 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	aluminum aluminium / stainless steel (mod. B)
Shaft material	stainless steel
Housing material	PA66 glass fiber reinforced
Bearings	n.2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature^{5,6}	-25° ... +85°C (-13° ... +185°F)
Storage temperature⁶	-25° ... +70°C (-13° ... +158°F)
Weight	100 g (3,52 oz)

¹ as measured at the transducer without cable influences² for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section³ this product is not a safety component, for further details refer to TECHNICAL BASICS section⁴ maximum load for static usage⁵ measured on the transducer flange⁶ condensation not allowed

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