

MAIN FEATURES

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

- Innovative proprietary magnetic Asic
- 3 channel encoder (A / B / Z) up to 10000 ppr
- Power supply up to +30 V DC with several electrical interfaces available
- Cable output, connectors available on cable end
- Solid shaft diameter 6 mm
- Mounting by clamping, square, threaded or synchronous flange



ORDERING CODE

EMI 40A 100 S 5/30 P 6 X X P R .XXX

SERIES
magnetic incremental encoder series **EMI**

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**

RESOLUTION
ppr from 1 to 10000
please refer to the preferred resolutions list

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

POWER SUPPLY
(with L electrical interface) 5 V DC **5**
5 ... 30 V DC **5/30**

ELECTRICAL INTERFACE
NPN open collector **C**
push-pull **P**
line driver **L**
power supply 5/30 V DC - output RS-422 **RS**

SHAFT DIAMETER
mm **6**

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

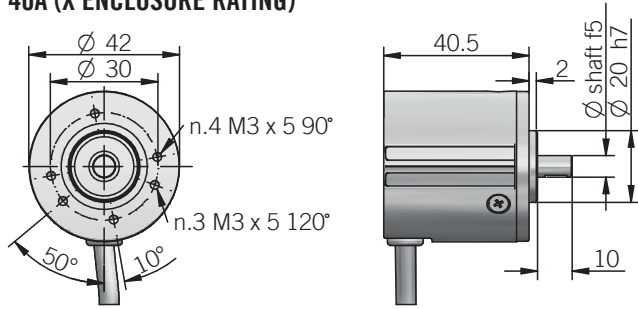
OPTION
to be reported **X**

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)

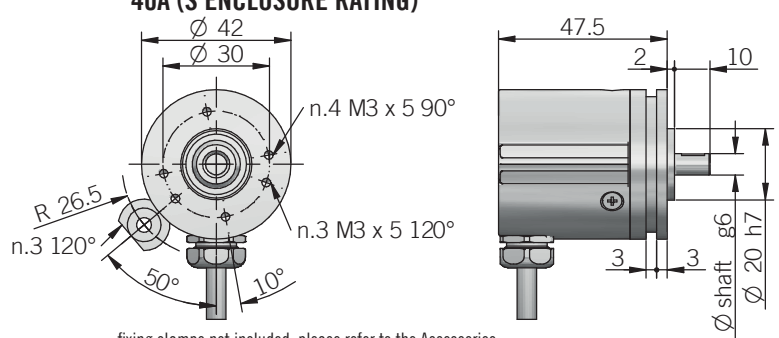
DIRECTION TYPE
(mod. A / B / C / H / I / N) axial **A**
radial **R**

VARIANT
custom version **XXX**

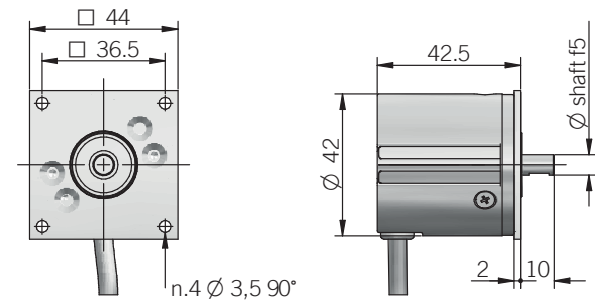
40A (X ENCLOSURE RATING)



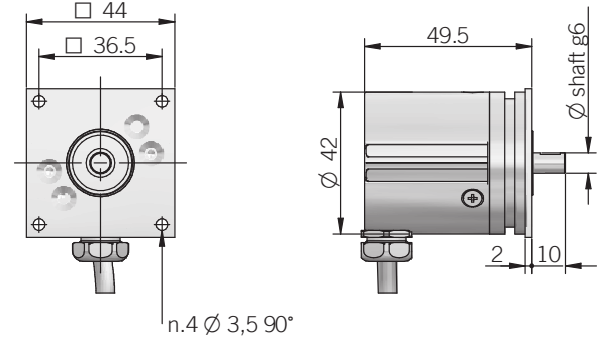
40A (S ENCLOSURE RATING)



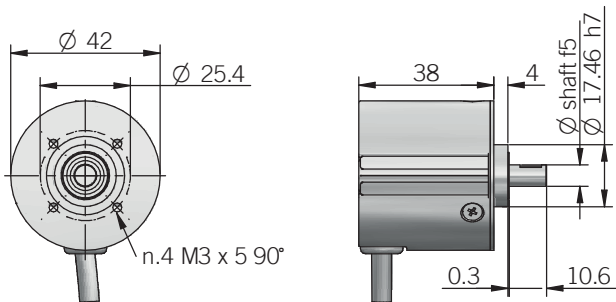
40B (X ENCLOSURE RATING)



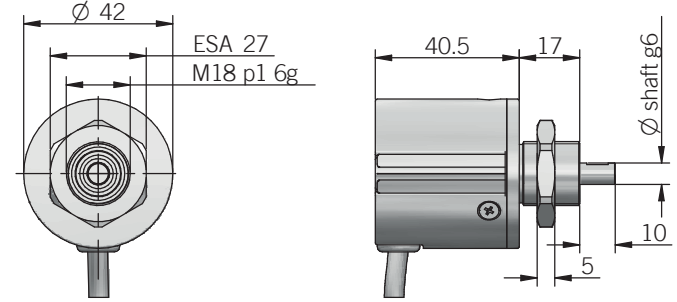
40B (S ENCLOSURE RATING)



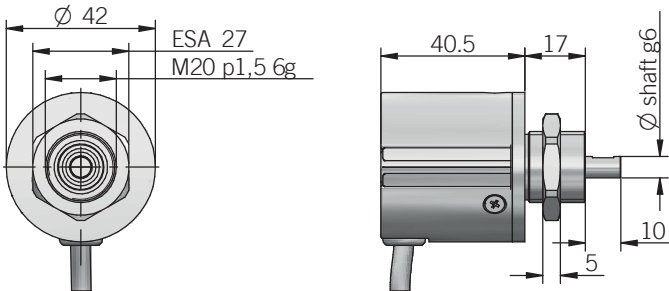
40C



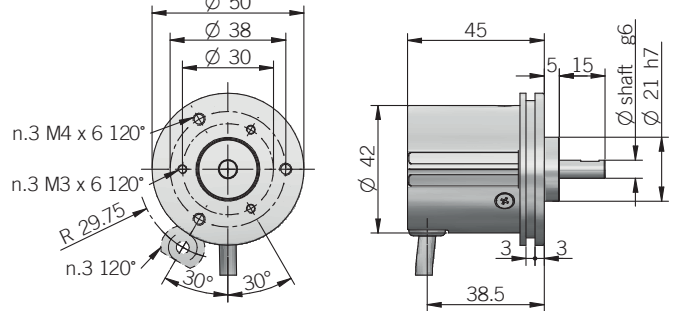
40H



40I

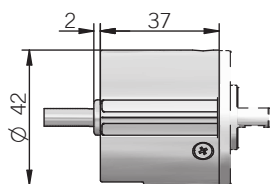


40N

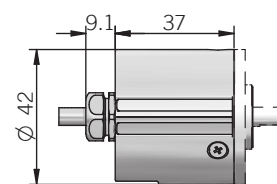


recommended mating shaft tolerance H7

DIMENSIONS WITH AXIAL OUTPUT WITH X ENCLOSURE RATING



DIMENSIONS WITH AXIAL OUTPUT WITH S ENCLOSURE RATING



dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 1 to 10000 ppr
Power supply¹	5 = 4,5 ... 5,5 V DC 5/30 = 4,5 ... 30 V DC (reverse polarity protection)
Power draw without load typical	0,4 W
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	800 kHz
Counting direction	A leads B clockwise (shaft view)
Index signal	180°e (gated A)
Startup time typical	10 ms
Accuracy	< 0,3° at +20°C (+68°F) ± 0,5° in the operating temperature range
Hysteresis	0,70° up to 256 ppr 0,35° from 257 ppr to 10000 ppr
Mean time to dangerous failure (MTTF_d)³ according to EN ISO 13849-1	275 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 mm
Enclosure rating IEC 60529	X = IP 54 S = IP 66
Max rotation speed	6000 rpm with X enclosure rating 4000 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
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° ... +100°C (-13° ... +212°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

PREFERRED RESOLUTIONS

2 - 4 - 5 - 6 - 8 - 10 - 12 - 16 - 20 - 30 - 40 - 50 - 60 - 80 - 90 - 100 - 125 - 128 -
200 - 250 - 256 - 360 - 400 - 500 - 512 - 720 - 1000 - 1024 - 1440 - 2000 - 2048 -
3600 - 4096 - 5000 - 7200 - 10000

please directly contact our offices for other pulses