

Absolute encoders - singleturn

**Miniature
magnetic**

2450 / 2470 (shaft / hollow shaft)

SSI



The absolute singleturn encoders 2450 and 2470 with SSI interface and magnetic sensor technology are the specialists when space is tight.

Because of their high 12 bit resolution with 4096 different positions for 360° they offer exceptional repeat accuracy.



High rotational speed



Temperature range



Shock / vibration resistant



Short-circuit proof



Reverse polarity protection



Magnetic sensor

Minimal space requirement

- The outer diameter measures 24 mm; the shaft diameter up to max. 6 mm.
- Flexible connection with radial or axial cable outlet.

Durable and accurate

- Long service life and freedom from wear due to non-contact measuring system.
- Wide temperature range from -20 °C up to +85 °C.
- High 12 bit resolution with 4096 different positions for 360°.

**Order code
Shaft version**

8.2450 . XX1X . G121
Type a b c d e

a Flange

- 1 = ø 24 mm [0.94"]
- 3 = ø 28 mm [1.10"]
- 2 = ø 30 mm [1.18"]

b Shaft (ø x L)

- 1 = ø 4 x 10 mm [0.16 x 0.39"]
- 3 = ø 5 x 10 mm [0.20 x 0.39"], with flat
- 2 = ø 6 x 10 mm [0.24 x 0.39"]

c Interface / supply voltage

- 1 = SSI / 5 V DC

d Type of connection

- 1 = axial cable, 2 m [6.56'] PUR
- A = axial cable, special length PUR *)
- 2 = radial cable, 2 m [6.56'] PUR
- B = radial cable, special length PUR *)

*) Available special lengths (connection types A, B):
3, 5, 8, 10, 15 m [9.84, 16.40, 26.25, 32.80, 49.21']
order code expansion .XXXX = length in dm
ex.: 8.2450.111A.G121.0030 (for cable length 3 m)

e Gray-code

12 bit resolution

**Order code
Hollow shaft**

8.2470 . 1X1X . G121
Type a b c d e

a Flange

- 1 = ø 24 mm [0.94"]

b Blind hollow shaft

- (insertion depth max. 14 mm [0.55"])
- 1 = ø 4 mm [0.16"]
- 2 = ø 6 mm [0.24"]

c Interface / supply voltage

- 1 = SSI / 5 V DC

d Type of connection

- 1 = axial cable, 2 m [6.56'] PUR
- A = axial cable, special length PUR *)
- 2 = radial cable, 2 m [6.56'] PUR
- B = radial cable, special length PUR *)

*) Available special lengths (connection types A, B):
3, 5, 8, 10, 15 m [9.84, 16.40, 26.25, 32.80, 49.21']
order code expansion .XXXX = length in dm
ex.: 8.2470.111A.G121.0030 (for cable length 3 m)

e Gray-code

12 bit resolution

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Mounting accessory for shaft encoders	Order no.
Coupling	8.0000.1202.0404

Further accessories can be found in the accessories section or in the accessories area of our website at: kuebler.com/accessories.
Additional connectors can be found in the connection technology section or in the connection technology area of our website at: kuebler.com/connection_technology.

Technical data

Mechanical characteristics	
Maximum speed	12000 min ⁻¹
Mass moment of inertia	approx. 0.1 x 10 ⁻⁶ kgm ²
Starting torque - at 20 °C [68 °F]	< 0.01 Nm
Shaft load capacity	radial 20 N axial 10 N
Weight	approx. 0.06 kg [2.11 oz]
Protection acc. to EN 60529	housing side IP65 flange side IP50 (IP64 on request)
Working temperature range	-20 °C ... +85 °C [-4 °F ... +185 °F]
Material	shaft / hollow shaft stainless steel clamping ring MS58
Shock resistance acc. to EN 60068-2-27	1000 m/s ² , 6 ms
Vibration resistance acc. to EN 60068-2-6	100 m/s ² , 55 ... 2000 Hz

Electrical characteristics	
Supply voltage	5 (+0.4) V DC ¹⁾
Power consumption (no load)	< 40 mA
Reverse polarity protection of the supply voltage	yes
Short circuit proof output	yes ²⁾
Measuring range	360°
Linearity, 25 °C [77 °F]	< 1.5°
Repeat accuracy	≤ 0.4°

SSI interface	
Output driver	RS485
Permissible load / channel	typ. 60 Ohm (acc. to RS485)
Resolution	12 bit
Code	gray
SSI clock speed	100 kHz ... 750 kHz
Monoflop time	typ. / max. 16 µs / 20 µs
Data refresh rate	typ. 100 µs

Approvals	
CE compliant in accordance with	EMC Directive 2014/30/EU RoHS Directive 2011/65/EU
UKCA compliant in accordance with	EMC Regulations S.I. 2016/1091 RoHS Regulations S.I. 2012/3032

Terminal assignment

Interface	Type of connection	Cable (isolate unused cores individually before initial start-up)						
1	1, 2, A, B	Signal:	0 V	+V	C+	C-	D+	D-
		Core color:	WH	BN	GN	YE	GY	PK

+V : Supply voltage encoder +V DC
0 V : Supply voltage encoder ground GND (0 V)
C+, C- : Clock signal
D+, D- : Data signal

1) The supply voltage at the encoder input must not be less than 4.75 V DC (5 V DC - 5 %).
2) Short circuit to 0 V or to output, only one channel at a time, supply voltage correctly applied.

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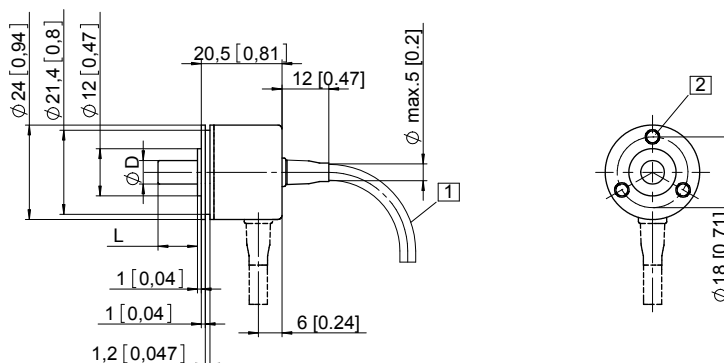
SSI

Dimensions shaft version

Dimensions in mm [inch]

Flange type 1, $\varnothing 24$ [0.94]

- 1 min. R50 [1.97]
- 2 3 x M3, 4 [0.16] deep

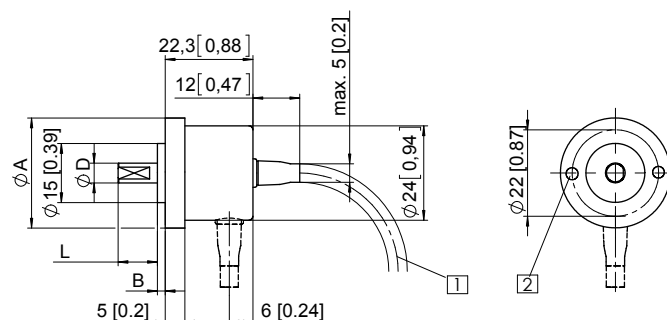


D	Fit	L
4 [0.16]	f7	10 [0.39]
5 [0.20]	f7	10 [0.39]
6 [0.24]	f7	10 [0.39]
1/4"	f7	10 [0.39]

Flange type 2, $\varnothing 30$ [1.18]

Flange type 3, $\varnothing 28$ [1.10]

- 1 min. R50 [1.97]
- 2 2 x M3, 4 [0.16] deep



D	Fit	L
4 [0.16]	f7	10 [0.39]
5 [0.20]	f7	10 [0.39]
6 [0.24]	f7	10 [0.39]
1/4"	f7	10 [0.39]

Flange type	A	B
2	$\varnothing 30$ [1.18]	3 [0.12]
3	$\varnothing 28$ [1.10]	2 [0.08]

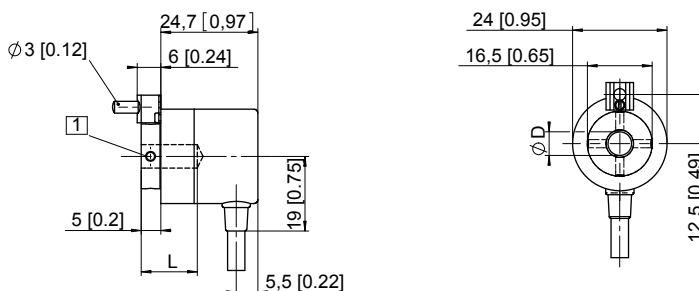
Dimensions hollow shaft version

Dimensions in mm [inch]

Flange type 1, $\varnothing 24$ [0.94]

- 1 4 x M3 DIN 915 - SW1.5

Recommended torque for the set screw in the clamping ring 0.1 Nm.
To ensure optimal clamping by the clamping ring, the customer shaft should be without flat surface.



D	Fit	L
4 [0.16]	H7	14 [0.55]
6 [0.24]	H7	14 [0.55]
1/4"	H7	14 [0.55]

L = insertion depth max. blind hollow shaft