

Absolute encoders - singleturn

Miniature magnetic	2450 / 2470 (shaft / hollow shaft)	SSI
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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 -20°...+85°C	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	8.2450	. XX1X .	G121
Shaft version	Type	a b c d	e

- | | | | |
|---|---|--|--|
| <p>a Flange</p> <p>1 = ø 24 mm [0.94"]
3 = ø 28 mm [1.10"]
2 = ø 30 mm [1.18"]</p> | <p>b Shaft (ø x L)</p> <p>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"]</p> <p>c Interface / supply voltage</p> <p>1 = SSI / 5 V DC</p> | <p>d Type of connection</p> <p>1 = axial cable, 2 m [6.56'] PVC
A = axial cable, special length PVC *)
2 = radial cable, 2 m [6.56'] PVC
B = radial cable, special length PVC *)</p> <p>*) 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)</p> | <p>e Gray-code</p> <p>12 bit resolution</p> |
|---|---|--|--|

Order code	8.2470	. 1X1X .	G121
Hollow shaft	Type	a b c d	e

- | | | | |
|---|---|--|--|
| <p>a Flange</p> <p>1 = ø 24 mm [0.94"]</p> | <p>b Blind hollow shaft (insertion depth max. 14 mm [0.55"])</p> <p>1 = ø 4 mm [0.16"]
2 = ø 6 mm [0.24"]</p> <p>c Interface / supply voltage</p> <p>1 = SSI / 5 V DC</p> | <p>d Type of connection</p> <p>1 = axial cable, 2 m [6.56'] PVC
A = axial cable, special length PVC *)
2 = radial cable, 2 m [6.56'] PVC
B = radial cable, special length PVC *)</p> <p>*) 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)</p> | <p>e Gray-code</p> <p>12 bit resolution</p> |
|---|---|--|--|

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Mounting accessory for shaft encoders		Order no.
Coupling	bellows coupling ø 15 mm [0.59"] for shaft 4 mm [0.16"]	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		Electrical characteristics	
Maximum speed	12000 min ⁻¹	Supply voltage	5 (+0.4) V DC ¹⁾
Mass moment of inertia	approx. 0.1 x 10 ⁻⁶ kgm ²	Power consumption (no load)	< 40 mA
Starting torque - at 20 °C [68 °F]	< 0.01 Nm	Reverse polarity protection of the supply voltage	yes
Shaft load capacity	radial 20 N axial 10 N	Short circuit proof output	yes ²⁾
Weight	approx. 0.06 kg [2.11 oz]	Measuring range	360°
Protection acc. to EN 60529	housing side IP65 (IP67 on request) flange side IP50 (IP67 on request)	Linearity, 25 °C [77 °F]	< 1.5°
Working temperature range	-20 °C ... +85 °C [-4 °F ... +185 °F]	Repeat accuracy	≤ 0.4°
Material	shaft / hollow shaft stainless steel clamping ring MS58	CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU
Shock resistance acc. to EN 60068-2-27	1000 m/s ² , 6 ms	SSI interface	
Vibration resistance acc. to EN 60068-2-6	100 m/s ² , 55 ... 2000 Hz	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

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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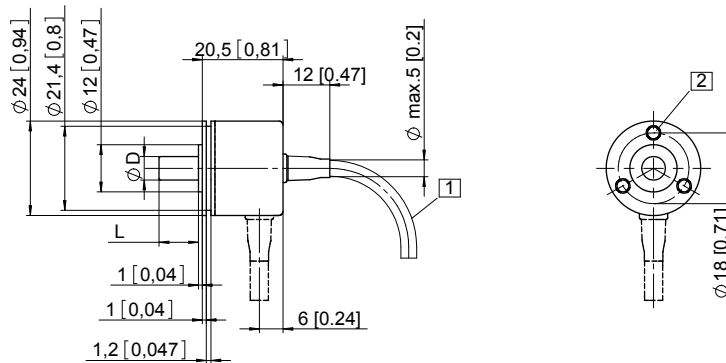
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Dimensions shaft version

Dimensions in mm [inch]

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

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

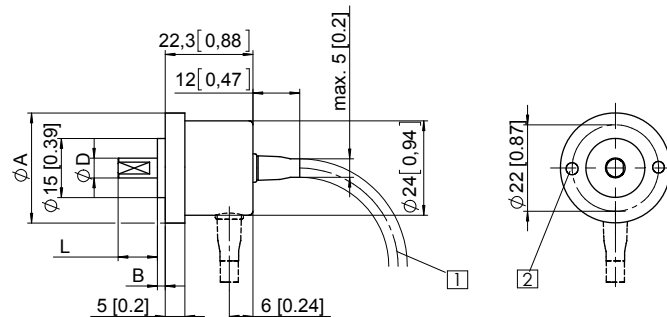


D	Fit	L
4 [0.16]	f7	10 [0.39]
5 [0.20]	f7	10 [0.39]
6 [0.24]	f7	10 [0.39]
1/4"	f7	10 [0.39]

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]

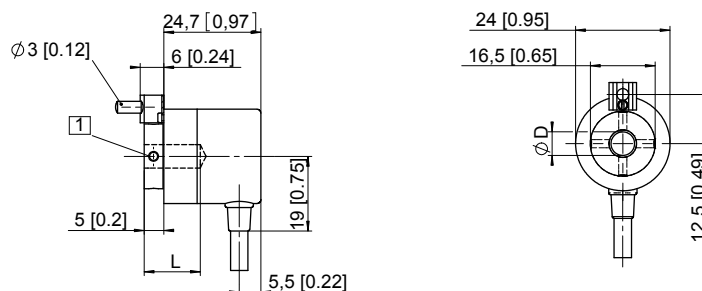
Dimensions hollow shaft version

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