

Bearingless encoders

Incremental, standard zero pulse, magnetic	RLI50 (hollow shaft)	Push-pull / RS422
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Thanks to its installation depth of only 16 mm, the bearingless magnetic rotary encoder RLI50, comprising a magnetic ring and sensor head, is ideally suited for plants and machinery where space is very tight. The non-contact measuring principle allows for error-free use even under harsh environmental conditions, as well as ensuring a long service life. In contrast to our measuring system RLI20, a single zero pulse is also implemented here.

IP68 / IP69k protection, special encapsulation technology and tested resistance to cyclic humidity and damp heat offer the highest levels of reliability, even in exposed outdoor use.

This bearingless encoder can be mounted on shafts with a diameter up to max. 35 mm.



High rotational speed



High protection level



Shock / vibration resistant



Reverse polarity protection

Hard-wearing and robust

- High shock and vibration resistance.
- Sturdy housing with IP67 protection. Option: special housing for maximum resistance against condensation (IP68 / IP69k, resistance to cyclic humidity acc. to EN 60068-3-38 as well as damp heat acc. to EN 60068-3-78).
- Non-contact measuring system, free from wear, ensures a long service life.

Fast start-up

- Function display via LED.
- Large mounting tolerance between magnetic band and sensor head.
- Requires very little installation space.
- Slotted hole fixing ensures simple alignment.

Order code RLI50

8.RLI50	. X 1 X X .	XXXX .	XXXX
Type	a b c	d	e

a Model

- 1 = IP67, standard
- 2 = IP68 / IP69k and humidity tested acc. to EN 60068-3-38, EN 60068-3-78

b Output circuit / Power supply

- 1 = RS422 / 4.8 ... 26 V DC
- 2 = Push-pull / 4.8 ... 30 V DC

c Type of connection

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

*) Available special lengths (connection type A):
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.RLI50.111A.2000.0080.0030 (for cable length 3 m)

d Pulses per revolution ¹⁾

- 1000, 1024, 2000, 2048, 3600

e Bore diameter

- 0060 = 6 mm [0.24"] 0158 = 5/8"
- 0080 = 8 mm [0.32"] 0254 = 1" ²⁾
- 0100 = 10 mm [0.39"]
- 0120 = 12 mm [0.47"]
- 0150 = 15 mm [0.59"]
- 0200 = 20 mm [0.79"]
- 0250 = 25 mm [0.98"] ²⁾
- 0300 = 30 mm [1.18"] ²⁾
- 0350 = 35 mm [1.34"] ³⁾

1) Other pulse rates on request.

2) Only possible for pulse rates 1024, 2048 and 3600.

3) Only possible for pulse rate 3600.

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Accessories / Display type 572	Order no.
Position display, 6-digit	with 4 fast switch outputs and serial interface 6.572.0116.D05
	with 4 fast switch outputs and serial interface and scalable analog output 6.572.0116.D95
Position display, 8-digit	with 4 fast switch outputs and serial interface 6.572.0118.D05
	with 4 fast switch outputs and serial interface and scalable analog output 6.572.0118.D95

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

Technical data

Mechanical characteristics	
Maximum speed	12000 min ⁻¹
Protection	model 1 IP67 acc. to EN 60529 model 2 IP68 / IP69k acc. to EN 60529, DIN 40050-9 and humidity tested acc. to EN 60068-3-38, EN 60068-3-78
Working temperature	-20°C ... +80°C [-4°F ... +176°F]
Shock resistance	5000 m/s ² , 1 ms
Vibration resistance	300 m/s ² , 10 ... 2000 Hz
Pole gap	5 mm from pole to pole
Housing (sensor head)	aluminum
Cable	2 m [6.56'] long, PUR 8 x 0.14 mm ² [AWG 26], shielded, may be used in trailing cable installations
Status LED	green pulse index red error; speed too high or magnetic fields too weak
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

Electrical characteristics					
Output circuit	RS422	Push-pull			
Power supply	4.8 ... 26 V DC	4.8 ... 30 V DC			
Power consumption (no load)	typ. 25 mA max. 60 mA	typ. 25 mA max. 60 mA			
Permissible load/channel	120 ohm	+/- 20 mA			
Min. pulse edge interval	1 µs	1 µs			
Signal level	HIGH min. 2.5 V LOW max. 0.5 V	min. +V - 2.0 V max. 0.5 V			
Reference signal	1 x per revolution				
System accuracy	typ. 0.3° with shaft tolerance g6				
Pulse rate [ppr]¹⁾	1000	1024	2000	2048	3600
max. speed min ⁻¹ without using zero pulse	9000	9000	4000	4000	2500
max. speed min ⁻¹ using zero pulse	3000	2000	3000	2000	1700

Terminal assignment

Output circuit	Type of connection	Cable (isolate unused cores individually before initial start-up)									
1, 2	1, A	Signal:	0 V	+V	A	\bar{A}	B	\bar{B}	0	$\bar{0}$	\perp
		Core color:	WH	BN	GN	YE	GY	PK	BU	RD	shield ²⁾

- +V: Encoder power supply +V DC
- 0 V: Encoder power supply ground GND (0 V)
- A, \bar{A} : Incremental output channel A / sine signal
- B, \bar{B} : Incremental output channel B / cosine signal
- 0, $\bar{0}$: Reference signal
- \perp : Plug connector housing (shield)

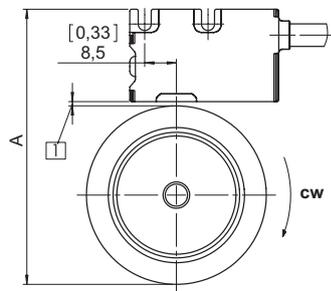
1) With an input frequency of the evaluation unit of 250 kHz.
 2) Shield is attached to connector housing.

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Mounting orientation and permissible mounting tolerances

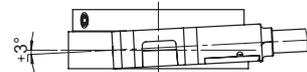
Distances



1 Distance sensor head / magnetic ring:
0.1 ... 1.5 [0.004 ... 0.06]
(1 [0.04] recommended)

Pulse rate	A for distance sensor head / magnetic ring = 1 [0.04]
1000, 2000	57.0 [2.24]
1024, 2048	74.3 [2.93]
3600	80.7 [3.18]

Torsion



Offset



Tilting

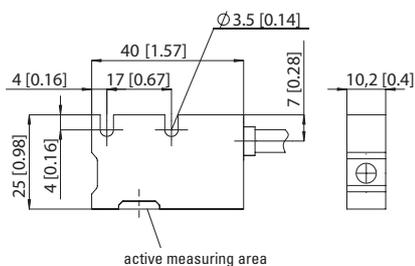


Warning: When mounting the sensor head, please ensure its correct orientation to the magnetic ring!

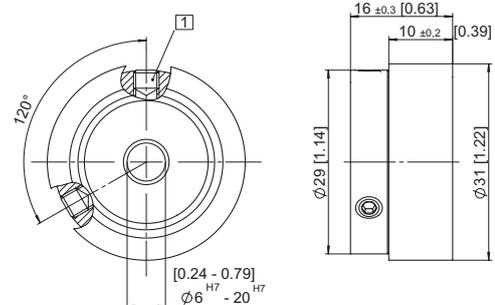
Dimensions

Dimensions in mm [inch]

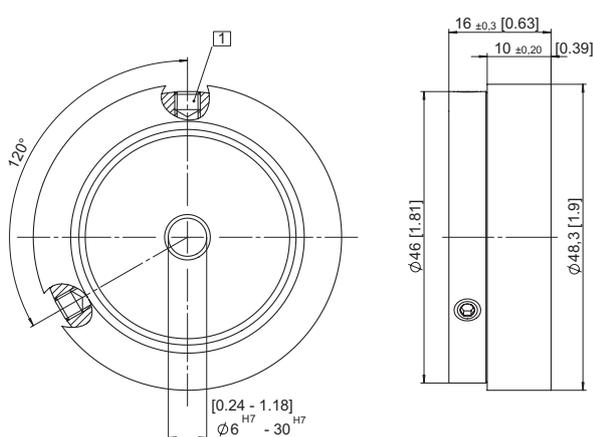
Sensor head



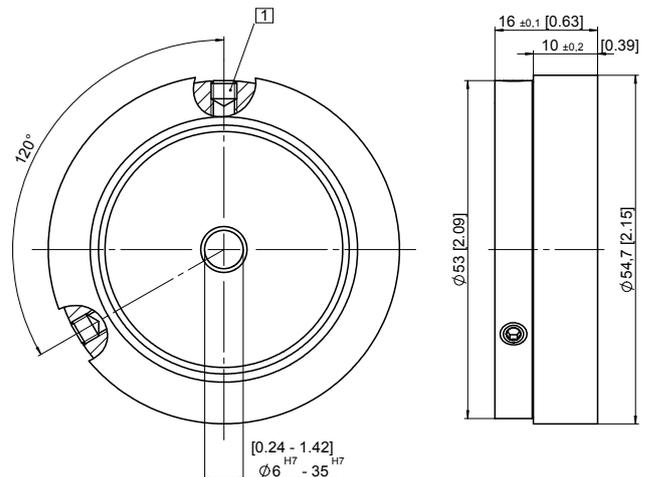
Magnetic ring for pulse rate 1000 or 2000



Magnetic ring for pulse rate 1024 or 2048



Magnetic ring for pulse rate 3600



1 M4 set screw