

Bearingless encoders

Incremental, large hollow shaft magnetic

RLI200 (hollow shaft)

Push-pull / RS422



Thanks to its installation depth of min. 10 mm, the bearingless magnetic rotary encoder RLI200, 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.

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. 390 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

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

Bearingless encoders

Order code RLI200

8.RLI200 . XX1XX . XXXXX . XXXX
Type a b c d e f

a Magnetic ring mounting method

- 1 = Press fit
- 2 = Hub screw ¹⁾
- 3 = Screwed flange ¹⁾

b Model

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

c Output circuit / Power supply

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

d 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.RLI200.1111A.0700.0760.0030 (for cable length 3 m)

e Pulses per revolution

- 700, 2240, 2800, 7000 (for hollow shaft ø 76 mm)
- 1600, 5120, 6400, 16000 (for hollow shaft ø 180 mm)
- (e.g.: 1600 pulses => 01600)

f Hollow shaft diameter

- 0760 = 76 mm [2.99"] ²⁾
- 1800 = 180 mm [7.09"] ²⁾

Optional on request

- other pulse rates
- other hollow shaft diameter (up to max. 390 mm)

Press fit



Hub screw



Screwed flange



1) On request.

2) With magnetic ring mounting method 2 or 3 on request.

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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

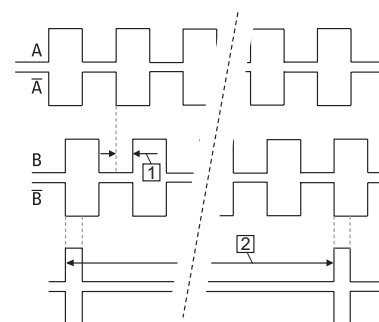
Further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.
Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology.

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	2 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	

Signal figures

- 1 Pulse edge interval:
Pay attention to the instructions in the technical data
- 2 Periodic index signal every 2 mm [0.08"]; the logical assignment A, B and 0-signal can change



Electrical characteristics					
Output circuit		RS422		Push-pull	
Power supply		4.8 ... 26 VDC		4.8 ... 30 VDC	
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			
Signal level		HIGH	min. 2.5 V	min. +V - 2.0 V	
		LOW	max. 0.5 V	max. 0.5 V	
Reference signal		index periodical ¹⁾			
System accuracy		typ. 0.3° with shaft tolerance g6			
Pulse rate [ppr] ²⁾		700	2240	2800	7000
max. speed min ⁻¹		12000	6600	5300	2100
		1600	5120	6400	16000
max. speed min ⁻¹		9300	2900	2300	900

1) At every pole change. The signal is generated by the sensor.

2) With an input frequency of the evaluation unit of 250 kHz.

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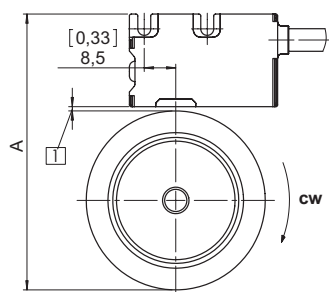
Terminal assignment

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

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

Mounting orientation and permissible mounting tolerances

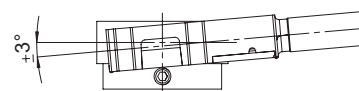
Distances



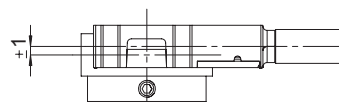
- 1 Distance sensor head / magnetic ring:
0.1 ... 1.0 (0.4 [0.02] recommended)

Pulse rate	A for distance sensor head / magnetic ring = 0.4 mm [0.02]
700, 2240, 2800, 7000	112.5 [4.43]
1600, 5120, 6400, 16000	227.7 [8.96]

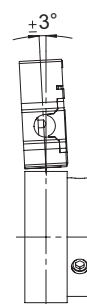
Torsion



Offset



Tilting



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

1) Shield is attached to connector housing.

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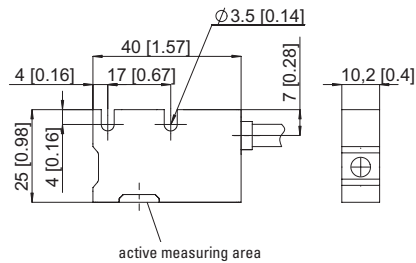
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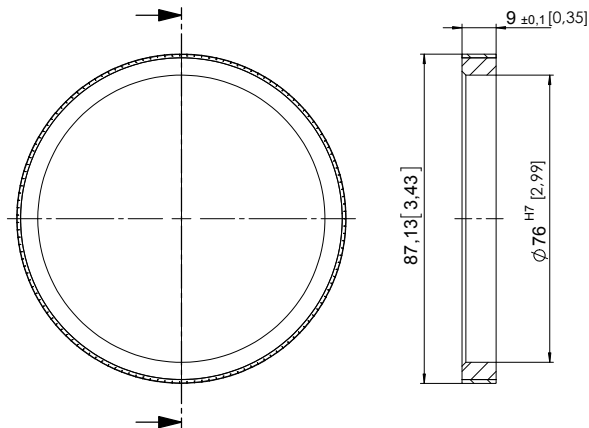
Dimensions

Dimensions in mm [inch]

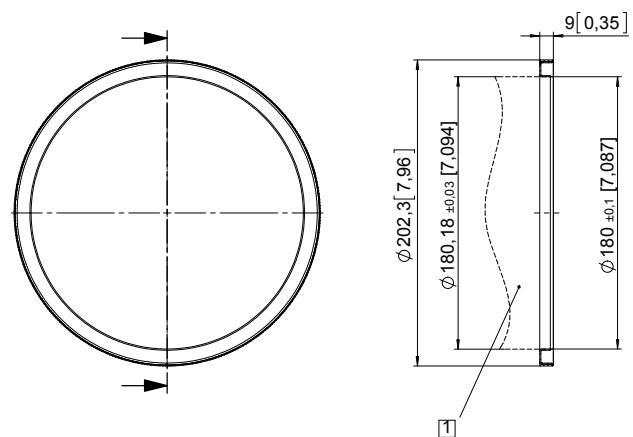
Sensor head



Magnetic ring (press fit) for pulse rate 700, 2240, 2800, 7000



Magnetic ring (press fit) for pulse rate 1600, 5120, 6400, 16000



1 Customer shaft