

Bearingless encoders

Incremental, large hollow shaft magnetic	RLI200 (hollow shaft)	Push-pull / RS422
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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.

Order code	RLI200	8.RLI200	. XX1XX	. XXXXX	. XXXX		
RLI200	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 / Supply voltage

- 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 ²⁾ (connection type A): 3, 5, 8, 10, 15, 20 m [9.84, 16.40, 26.25, 32.80, 49.21, 65.62']
- order code expansion .XXXX = length in dm
- ex.: 8.RLI200.1111A.07000.0760.0030 (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 => 016000)

f Hollow shaft diameter

- 0760 = 76 mm [2.99"] ³⁾
- 1800 = 180 mm [7.09"] ³⁾

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) Cable lengths >10 m only possible with supply voltage >10 V.
 3) 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 Kübler accessories can be found at: kuebler.com/accessories
 Further Kübler cables and connectors can be found at: kuebler.com/connection-technology

Technical data

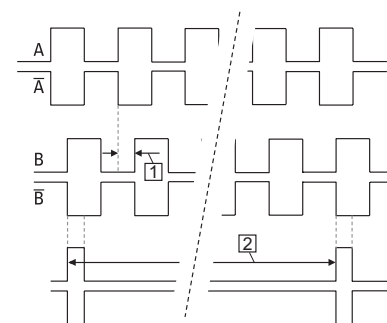
Mechanical characteristics	
Maximum speed	12000 min ⁻¹
Protection	Model 1 IP67 acc. to EN 60529 Model 2 IP68 / IP69k acc. to EN 60529, DIN 40050-9 and humidity tested acc. to EN 60068-3-38, EN 60068-3-78
Working temperature	-20 °C ... +80 °C [-4 °F ... +176 °F]
Shock resistance	5000 m/s ² , 1 ms
Vibration 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

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

Electrical characteristics			
Output circuit	RS422	Push-pull	
Supply voltage	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	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	index periodical ¹⁾		
System accuracy	typ. 0.3° with shaft tolerance g6		
Pulse rate [ppr] ²⁾	700	2240	2800
max. speed min ⁻¹	12000	6600	5300
	1600	5120	6400
max. speed min ⁻¹	9300	2900	2300
		7000	16000
		2100	900

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



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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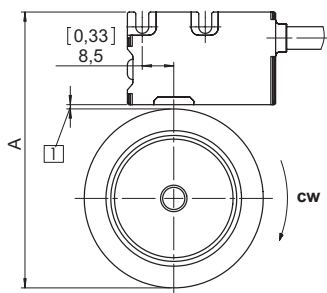
Terminal assignment

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

- +V: Supply voltage encoder +V DC
- 0 V: Supply voltage encoder 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

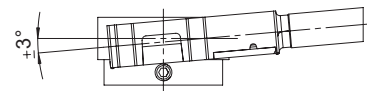
Distances



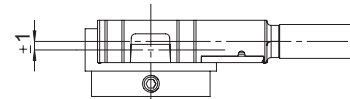
1 Distance sensor head / magnetic ring:
0.1 ... 1.0 (0.4 [0.02] recommended)

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]

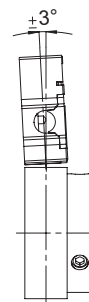
Torsion



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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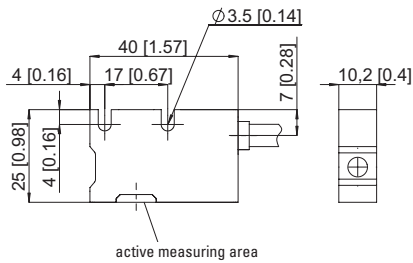
RLI200 (hollow shaft)

Push-pull / RS422

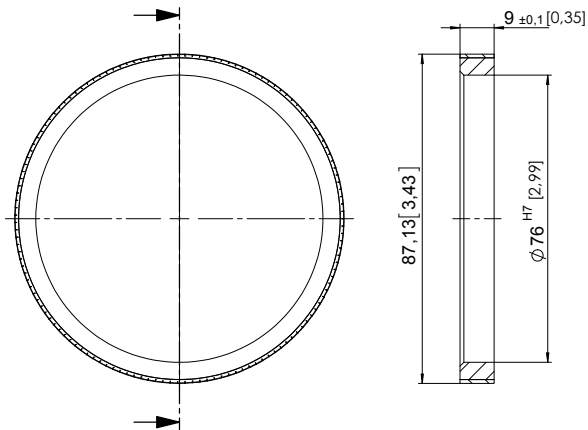
Dimensions

Dimensions in mm [inch]

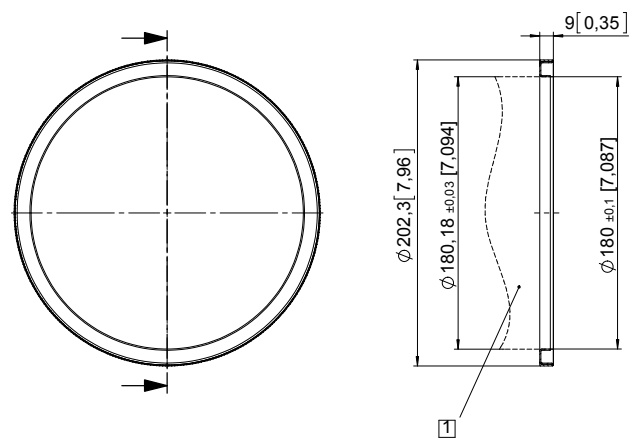
Sensor head



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