**Incremental, standard reference signal, magnetic** | **RLI50 (hollow shaft)** | **Push-pull / RS422**

**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 reference signal 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 / Supply voltage*
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 [1] (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.RLI50.111A.2000.0080.0030 (for cable length 3 m)

**d** *Pulses per revolution* [2]
1000, 1024, 2000, 2048, 3600

**e** *Bore diameter*
0060 = 6 mm [0.24"]
0080 = 8 mm [0.32"]
0100 = 10 mm [0.39"]
0120 = 12 mm [0.47"]
0150 = 15 mm [0.59"]
0158 = 5/8"
0200 = 20 mm [0.79"]
0250 = 25 mm [0.98"] [3]
0254 = 1" [3]
0300 = 30 mm [1.18"] [3]
0350 = 35 mm [1.34"] [4]

1) Cable lengths >10 m only possible with supply voltage >10 V.
2) Other pulse rates on request.
3) Only possible for pulse rates 1024, 2048 and 3600.
4) Only possible for pulse rate 3600.

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**Incremental, standard reference signal, magnetic** | **RLI50 (hollow shaft)** | **Push-pull / RS422**

## Accessories / Displays

Order no.

**Codix 560, preset counter 6-digit**

- Counter, tachometer, time counter and position display in one device
- Scalable display
- Readable via RS232/485 interface or configurable via MODBUS or CR/LF protocol

**6.560.010.XXX**

Details s. datasheet >

**571T touch, multifunction preset counters 8-digit**

- Measuring function for RPM, speed, speed from elapsed time, machine cycle time, throughput time (reciprocal rotary speed), as well as numerous count functions such as position display
- Fast counting input (250 kHz/HTL, 1 MHz/RS422)
- 4 switching outputs as limit values (response time < 1 ms)
- Scalable analog output (response time < 150 ms), resolution 16 bit
- Serial interface RS232 or RS485 for reading in and out the data

**6.571T.01X.XXX**

Details s. datasheet >

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** | | 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 |

### Electrical characteristics

| | | | |
|---|---|---|---|
| **Output circuit** | | **RS422** | **Push-pull** |
| **Supply voltage** | | 4.8 ... 26 V DC | 4.8 ... 30 V DC |
| **Power consumption** (no load) | | typ. 25 mA<br>max. 60 mA | typ. 25 mA<br>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 | min. +V - 2.0 V |
| | LOW | max. 0.5 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 reference sig. | 9000 | 9000 | 4000 | 4000 | 2500 |
| max. speed min$^{-1}$ using reference signal | 3000 | 2000 | 3000 | 2000 | 1700 |

### Approvals

**CE compliant** in accordance with

| | |
|---|---|
| EMC Directive | 2014/30/EU |
| RoHS Directive | 2011/65/EU |

### 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 | $\overline{A}$ | B | $\overline{B}$ | 0 | $\overline{0}$ | ⏚ |
| | | Core color: | WH | BN | GN | YE | GY | PK | BU | RD | shield [2] |

+V: Supply voltage encoder +V DC
0 V: Supply voltage encoder ground GND (0 V)
⏚: Plug connector housing (shield)

A, $\overline{A}$: Incremental output channel A
B, $\overline{B}$: Incremental output channel B
0, $\overline{0}$: Reference signal

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


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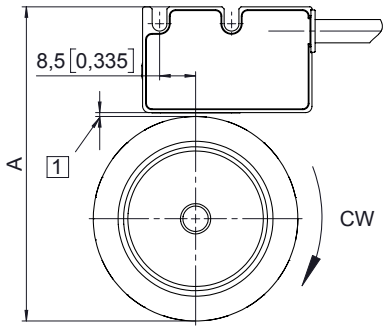
**Incremental, standard reference signal, magnetic** | **RLI50 (hollow shaft)** | **Push-pull / RS422**

## Mounting orientation and permissible mounting tolerances

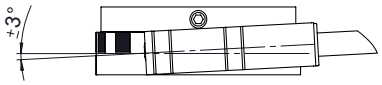
**Distances**



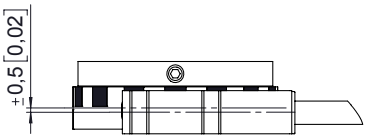

1 Distance sensor head / magnetic ring:
0.1 ... 1.5 [0.004 ... 0.06]
(1 [0.04] recommended)

| Pulse rate | A<br>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] |

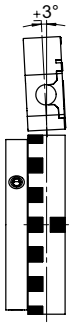
**Torsion**




**Offset**




**Tilting**

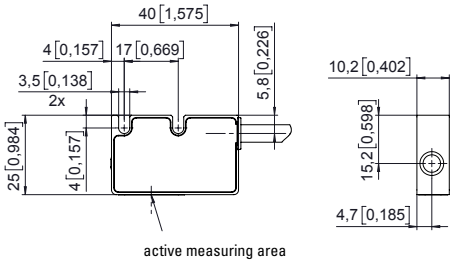



**Warning: When mounting the sensor head, please ensure its correct orientation to the magnetic ring!**

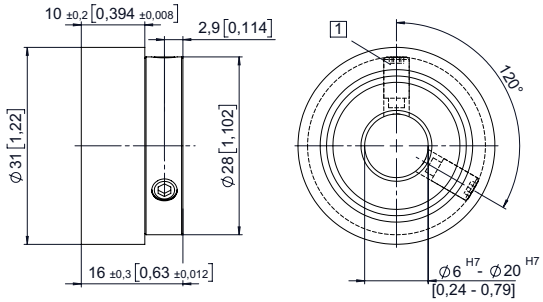
## Dimensions

Dimensions in mm [inch]

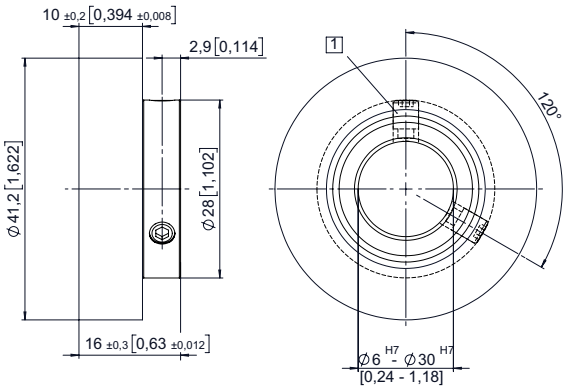
**Sensor head**



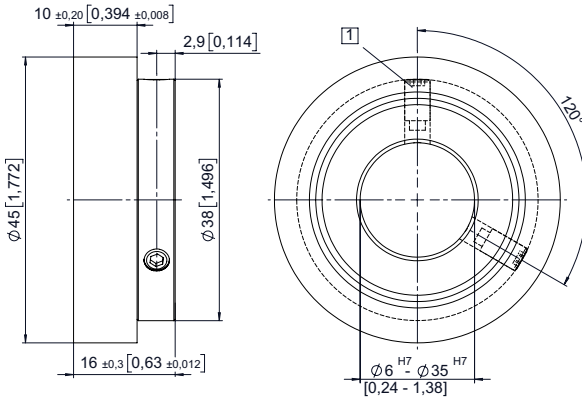

**Magnetic ring for pulse rate 1000 or 2000**




**Magnetic ring for pulse rate 1024 or 2048**




**Magnetic ring for pulse rate 3600**




1 M4 set screw

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