

## Magnetic rings RI20/ LI20



High rotational speed



High IP



Shock/vibration resistant



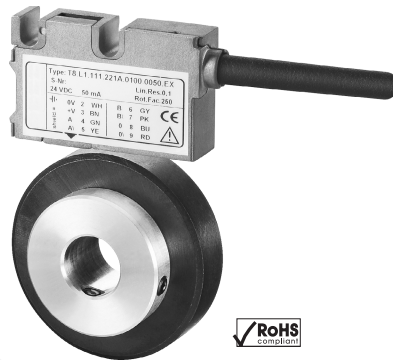
Reverse polarity protection

### Robust

- **Increased ability to withstand vibrations and rough installation.** Eliminates machine downtime and repairs. High shock and vibration resistance, thanks to non-contact technology.
- **Stays sealed even when subjected to harsh everyday use. Offers security against failures in the field.** Potted housing with up to IP67 protection.

### Compact

- Installation depth only 16 mm, width of magnetic ring 10 mm



- Large hollow shaft up to 30 mm  
Can be used even where space is very tight

### Simple installation

- **Fast start-up of the measuring system**  
Easy fixing of the magnetic ring and the sensor head
- **Easy mounting with large tolerances possible**  
Distance of sensor head to magnetic ring from 0.1-1.0 mm
- Tolerates lateral misalignment +1 mm
- Warning signal when magnetic field is too weak (LED)

### Technical data magnetic sensor LI20:

Output circuit:	Push-Pull	RS422
Supply voltage:	4.8-30 VDC	4.8-26 VDC
Load/channel, max. cable length:	±20 mA, max. 30 m	120 Ohm, RS422 standard
Current consumption (without load):	typ. 25 mA, max. 60 mA	
Short-circuit proof outputs 1):	yes	yes <sup>2)</sup>
Min. Pulse interval:	1 µs (edge interval) corresp. to 4 µs/period (see signal figures at right)	
Output signal:	A, $\bar{A}$ , B, $\bar{B}$ , I, $\bar{I}$	
Reference signal:	Index periodical	
<b>Accuracy:</b>		
System accuracy:	typ. ±0.3° with shaft tolerance g6	
Repeat accuracy:	±1 increment	
<b>Admissible alignment tolerance:</b>		
Gap sensor / magnetic ring:	0.1-1.0 mm (recommended 0.4 mm)	
Offset:	max. ±1 mm	
Tilting:	max. 3°	
Torsion:	max. 3°	
<b>Environmental conditions:</b>		
Working temperature:	-4 to +176°F (-20 to +80°C)	
Vibration resistance:	30 g (300 m/s <sup>2</sup> ), 10-2000 Hz	
Shock resistance:	500 g (5000 m/s <sup>2</sup> ), 1 ms	
Protection class:	IP67 according to DIN 60 529 (housing)	
Humidity:	100%, condensation possible	
Housing:	Zinc die-cast	
<b>General data:</b>		
Cable:	2 m, PUR 8 x 0.14 mm <sup>2</sup> , shielded, may be used in flexing cable installations	
Status-LED:	Green: Pulse-index; Red: Error, revs too high or magnetic field too weak (for T8.LI20.XXXX.X020 and T8.LI20.XXXX.X050)	
RoHS compliant acc. to EU guideline 2002/95/EG		

<sup>1)</sup> With supply voltage correctly applied

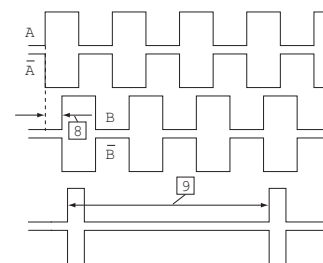
<sup>2)</sup> A max. of one channel only may be short-circuited: (when +V = 5 V, a short-circuit to another channel, 0 V, or +V is permissible.) (When +V = 5-30 V, a short-circuit to another channel or to 0 V is permissible.)

### Technical data magnetic ring RI20:

Pole gap:	2 mm from pole to pole
Temperature ranges:	Working temperature: -4 to +185°F (-20 to +80°C) Storage temperature: -4 to +185°F (-20 to +80°C)
Mounting:	Screwed on shaft typ. +0.3° (at 77°F (25°C)), Sensor/Magnetic ring distance 0.5 mm and drive shaft tolerance g6 in accordance with ISO 286-2
System accuracy:	

### Signal figures

with rotation of the magnetic ring in the CW-direction (see "permissible mounting tolerances")



8 Min. Pulse interval: pay attention to the instructions in the technical data

9 periodic index signal (every 2mm) the logical assignment A, B and I-signal can change

## Magnetic rings RI20/ LI20

Part number key: LI20

**T8.LI20.11X1.2XXX**

**Model**

**Design**

1 = standard

**Pulse interval**

1 = standard

**Voltage supply and output circuit**

1 = 4.8-26 VDC, RS422  
2 = 4.8-30 VDC, push-pull

**Code\***

005  
016  
020  
050

\* Annotations see table "selection guide", col 3

**Reference signal**

2 = index periodic

**Type of connection**

1 = cable (PUR), 2 m

Part number key: RI20

**8.RI20.XXX.XXXX.111**

**Model**

**Outer diameter**

031 = 31 mm  
041 = 41.2 mm  
045 = 45 mm

**Bore diameter**

0800 = 8 mm	1800 = 18 mm
0952 = 9.525 mm (3 / 8")	2000 = 20 mm
1000 = 10 mm	2500 = 25 mm
1200 = 12 mm	2540 = 25,4 mm (1") <sup>3)</sup>
1500 = 15 mm	3000 = 30 mm <sup>3)</sup>
1587 = 15,875 mm (5 / 8")	

<sup>3)</sup> only possible for outer diameters 041 and 045

### Selection guide: magnetic sensor Li20/magnetic ring RI20

Pulses/ppr	Part number for magnetic ring RI20	Part number for magnetic sensor LI20*	Max. rpm
250	8.RI20.031.XXXX.111	T8.LI20.11X1.2005	12,000
1000	8.RI20.031.XXXX.111	T8.LI20.11X1.2020	2,400
2500	8.RI20.031.XXXX.111	T8.LI20.11X1.2050	3,900
1024	8.RI20.041.XXXX.111	T8.LI20.11X1.2016	7,000
360	8.RI20.045.XXXX.111	T8.LI20.11X1.2005	12,000
3600	8.RI20.045.XXXX.111	T8.LI20.11X1.2050	2,700

\*At the listed rotational speed the min. pulse interval is 1 µs, this corresponds to 250 kHz. For the maximum rotational speed range a counter with a count input frequency of not less than 250 kHz should be provided.

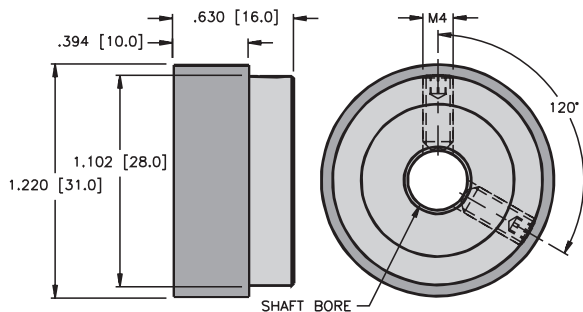
### Pin assignment:

Signal:	0V, GND	+V	A	$\bar{A}$	B	$\bar{B}$	I	$\bar{I}$
Color:	WH	BN	GN	YE	GY	PK	BU	RD

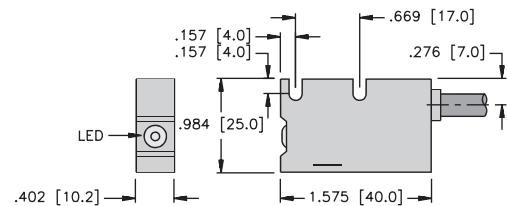
Shield is on the housing

### Dimensions: RI20 magnetic ring

8.RI20.031.XXXX.111, Ø 31 mm



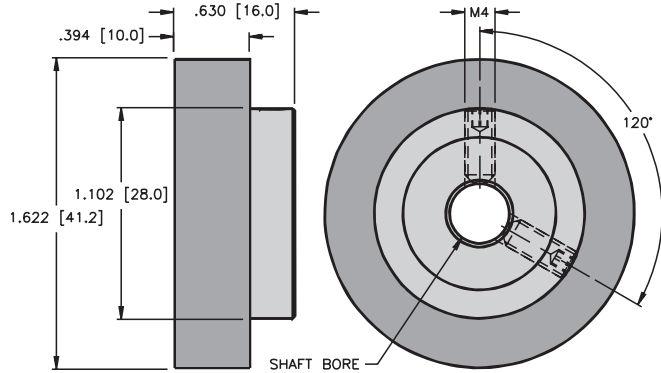
### Dimensions: Magnetic sensor LI20



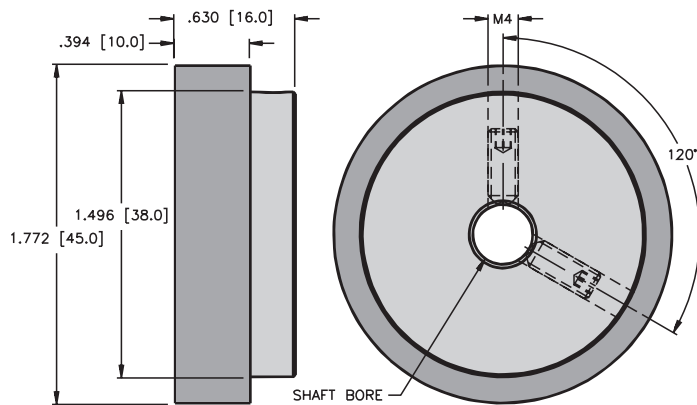
## Magnetic rings RI20/ LI20

Dimensions: RI20 magnetic ring

8.RI20.041.XXXX.111, Ø 41.2 mm



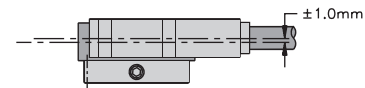
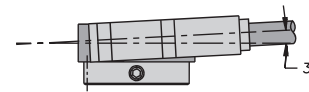
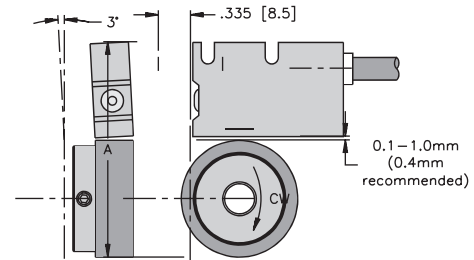
8.RI20.045.XXXX.111, Ø 45 mm



Recommended tolerance of the drive shaft diameter: g6 in accordance with ISO 286-2

Permissible mounting tolerances:

RI20 and linear read head



Part Number	Dimension A
8.RI20.031.XXXX.111	56.4 <sup>1)</sup>
8.RI20.041.XXXX.111	66.6 <sup>1)</sup>
8.RI20.045.XXXX.111	70.4 <sup>1)</sup>

<sup>1)</sup> Distance calculated with 0.4 mm between the sensor and magnetic ring

## Display type 572 for LI20



Counter series for demanding applications, with two individually scalable encoder inputs. HTL or TTL in each case A,  $\bar{A}$ , B,  $\bar{B}$  for count frequencies up to 1 MHz per channel. Operating modes can be selected for position or event counter, total counter, difference counter, cut-to-length display, diameter calculator, batch counter and more.

- Two separate freely scalable count inputs - HTL or TTL; also with inverted inputs
- Max. input frequency 1 MHz/ channel
- Four freely programmable fast solid-state outputs, each with 350 mA output current
- Step or tracking preset
- AC and DC supply voltage
- Can be used as a counter or position display with limit values
- Monitoring function, where two values are monitored or calculated with respect to each other
- Four fast programmable inputs with various functions such as reset, gate, display memory, reference input or switching between the display values.
- Optional scalable analog output 0/4-20 mA, +/-10 V or 0-10 V

- Two auxiliary power supplies for sensors: 5.2 VDC and 24 VDC
- Standard interface RS232

**Part number key specification:**

**Position display, 6 digits**, with 4 fast switch outputs and serial interface: 6.572.0116.D05

**Position display, 6 digits**, with 4 fast switch outputs and serial interface and scalable analog output: 6.572.0116.D95

**Position display, 8 digits**, with 4 fast switch outputs and serial interface: 6.572.0118.D05

**Position display, 8 digits**, with 4 fast switch outputs and serial interface and scalable analog output: 6.572.0118.D95