

Magnetic rings RI20/ LI20



High rotational speed



High IP



Shock/vibration resistant



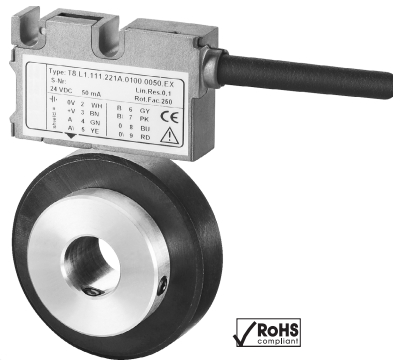
Reverse polarity protection

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 ²⁾
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	
Accuracy:		
System accuracy:	typ. ±0.3° with shaft tolerance g6	
Repeat accuracy:	±1 increment	
Admissible alignment tolerance:		
Gap sensor / magnetic ring:	0.1-1.0 mm (recommended 0.4 mm)	
Offset:	max. ±1 mm	
Tilting:	max. 3°	
Torsion:	max. 3°	
Environmental conditions:		
Working temperature:	-4 to +176°F (-20 to +80°C)	
Vibration resistance:	30 g (300 m/s ²), 10-2000 Hz	
Shock resistance:	500 g (5000 m/s ²), 1 ms	
Protection class:	IP67 according to DIN 60 529 (housing)	
Humidity:	100%, condensation possible	
Housing:	Zinc die-cast	
General data:		
Cable:	2 m, PUR 8 x 0.14 mm ² , 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		

¹⁾ With supply voltage correctly applied

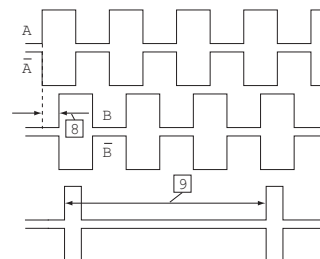
²⁾ A max. of one channel only may be short-circuited: (when +V = 5 V, a short-circuit to another channel, 0 V, or +V is permissible.) (When +V = 5-30 V, a short-circuit to another channel or to 0 V is permissible.)

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
0952 = 9.525 mm (3 / 8")
1000 = 10 mm
1200 = 12 mm
1500 = 15 mm
1587 = 15,875 mm (5 / 8")
1800 = 18 mm
2000 = 20 mm
2500 = 25 mm
2540 = 25,4 mm (1")³⁾
3000 = 30 mm³⁾

³⁾ 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:

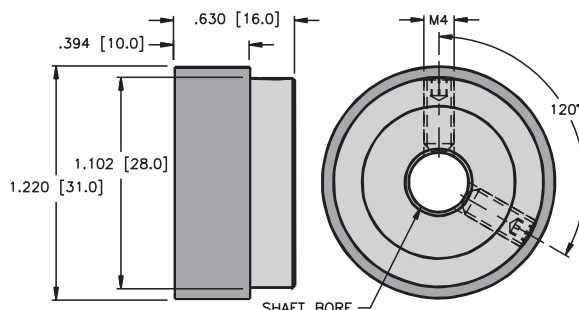
Signal:	0V, GND	+V	A	\bar{A}	B	\bar{B}	I	\bar{I}
Color:	WH	BN	GN	YE	GY	PK	BU	RD

Shield is on the housing

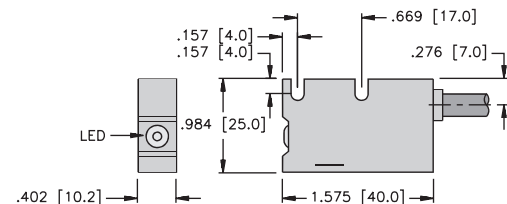
Incremental Encoders

Dimensions: RI20 magnetic ring

8.RI20.031.XXXX.111, Ø 31 mm



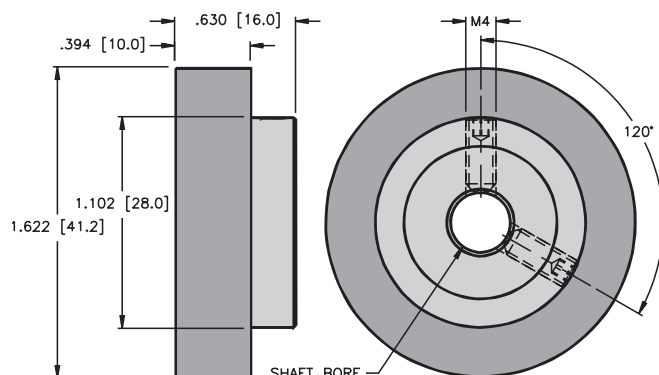
Dimensions: Magnetic sensor LI20



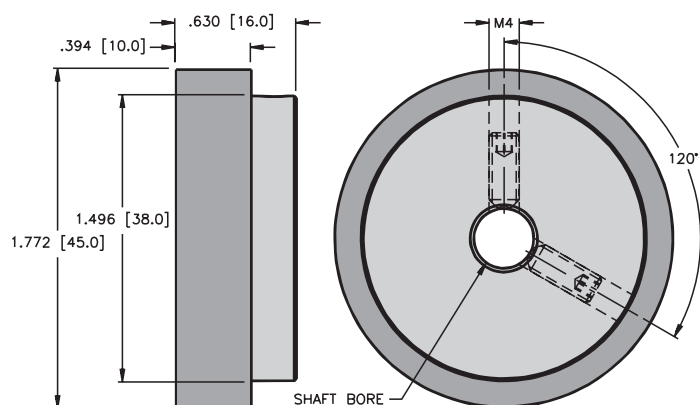
Magnetic rings RI20/ LI20

Dimensions: RI20 magnetic ring

8.RI20.041.XXXX.111, Ø 41.2 mm



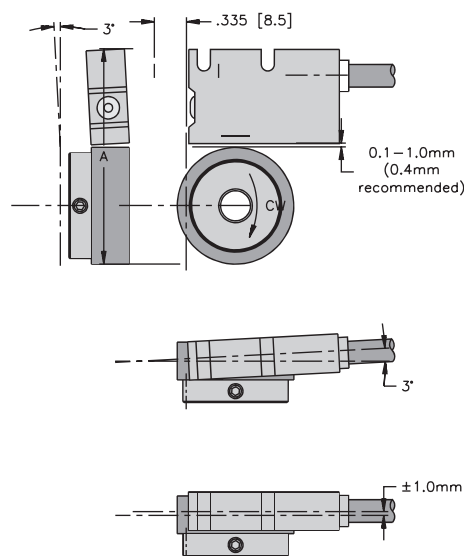
8.RI20.045.XXXX.111, Ø 45 mm



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 ¹⁾
8.RI20.041.XXXX.111	66.6 ¹⁾
8.RI20.045.XXXX.111	70.4 ¹⁾

¹⁾ 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