

Rotary Measuring Technology

Rotary magnetic measurement system

Rotary magnetic measurement system RI20/L1



High rotational speed



High IP



Shock/vibration resistant



Reverse polarity protection

Robust

- Increased ability to withstand vibrations and rough installation

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.

Solid housing with up to IP 67 protection.



Compact

- Installation depth only 16 mm, width of magnetic ring 10 mm
 - Large hollow shaft up to 30 mm with max. 45 mm overall diameter
- 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 to 1.0 mm
- Tolerates lateral misalignment ± 1 mm.

Technical data magnetic sensor LIMES L1:

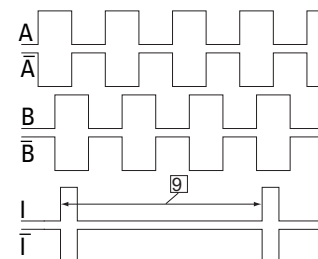
Supply voltage:	24 V DC ± 20 % or 5 V DC ± 5 %
Connection / cable length:	flying leads/2 m cable
Output circuit:	push pull or line-driver*
Permissible load/channel:	push pull: max. ± 50 mA line-driver: max. ± 20 mA
Output signal:	inverted
Reference signal:	index periodical
Resolution:	0.025 mm on quadruple evaluation (with x1 evaluation)
Max speed:	25 m/s
Power consumption:	max. 70 mA
Output signals:	A, \bar{A} , B, \bar{B} , I, \bar{I}
Gap sensor / magnetic band:	0.1 ... 1.0 mm
Adjusting tolerance:	lateral offset: ± 1 mm ; angle offset $\pm 3^\circ$
Repeat accuracy	± 1 increment
Jitter:	< 20 % for sensor/magnetic ring gap 0,5 mm
Interference protection class:	3, to IEC 801
Humidity:	100 % rF, condensation permissible
Temperature ranges:	working temperature: $-10 \dots +70$ °C storage temperature: $-10 \dots +80$ °C
Shock resistance:	200 g/6 ms
Vibration resistance	10 g/50 Hz
Protection class:	IP 67 according to DIN 40050 (housing)
Housing:	Plastic, green
Cable:	PUR 8x0.1 mm ² shielded, may be used in trailing cable installations

* For line driver (RS 422) output terminal resistors are to be used ≥ 470 Ohm to prevent thermal stress.

Technical data magnetic ring RI20:

Pole gap:	2 mm from pole to pole
Temperature ranges:	
working temperature:	$-10 \dots +70$ °C
storage temperature:	$-10 \dots +70$ °C
Mounting:	Screwed on shaft
System accuracy with Limes L1:	$\pm 0,3^\circ$ (with drive shaft tolerance g6)

Signal figures:



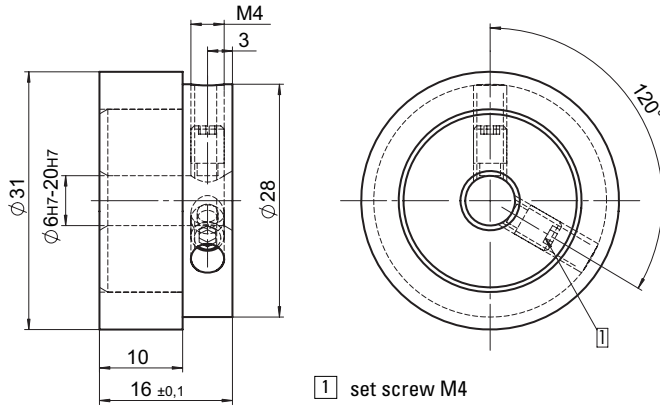
9 periodic index signal (every 2 mm) the logical allocation A, B and I-signal can change

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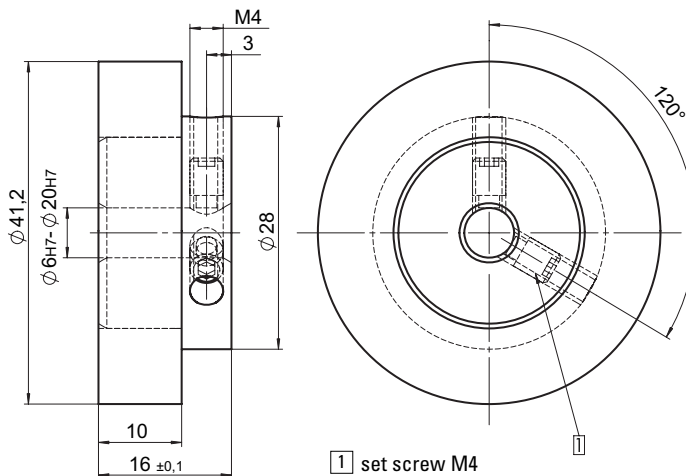
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Magnetic ring 8.RI20.031.XXXX.111, \varnothing 31 mm



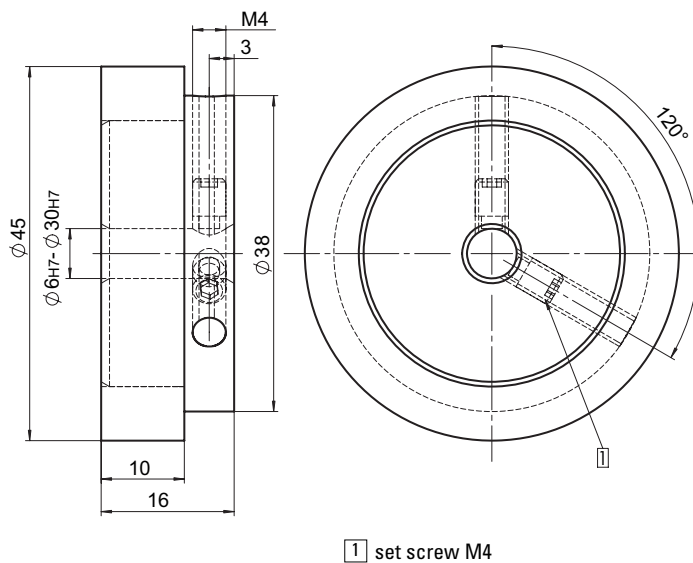
1 set screw M4

Magnetic ring 8.RI20.041.XXXX.111, \varnothing 41.2 mm



1 set screw M4

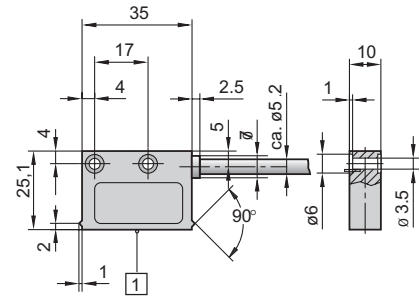
Magnetic ring 8.RI20.045.XXXX.111, \varnothing 45 mm



1 set screw M4

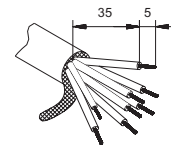
Recommended tolerance of the drive shaft diameter: g6

Magnetic sensor LIMES L1



1 active measuring area

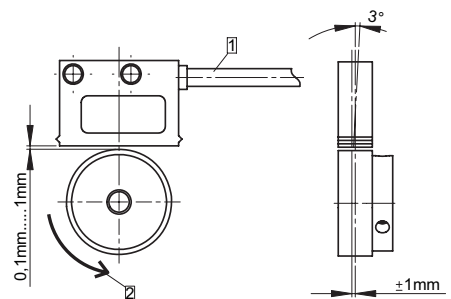
Connection:



Inverted signal with index signal

Signal	Colour
GND	black
U_B	brown
A	red
B	orange
\bar{A}	yellow
\bar{B}	green
I	blue
\bar{I}	violet

Mounting Tolerances:

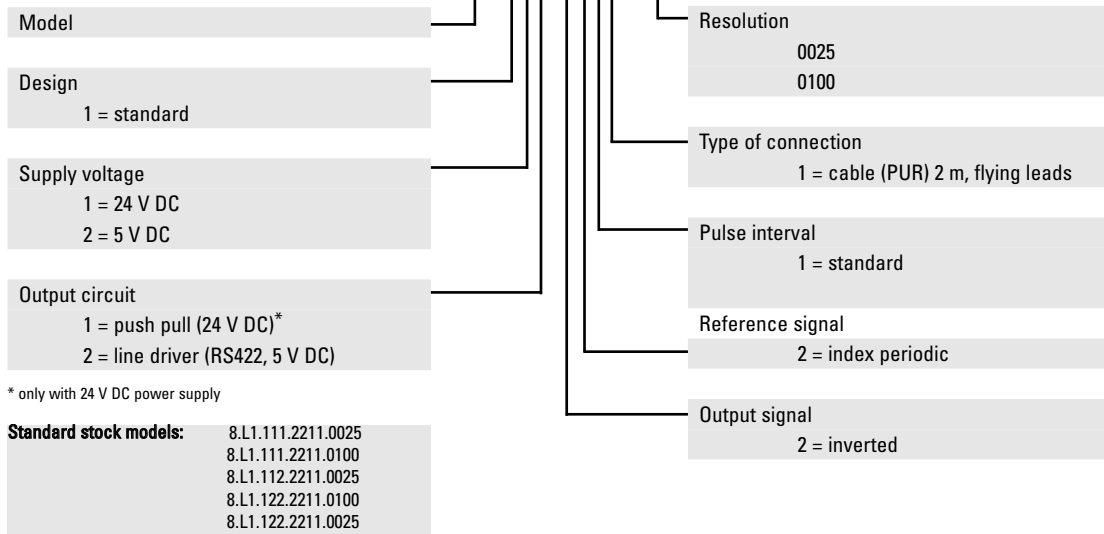


- 1 Cable outlet direction
- 2 Magnetic ring - direction of rotation Signal A before B

Rotary magnetic measurement system RI20/L1

Order code magnetic sensor **LIMES L1**:

8.L1.1XX.2211.0XXX



Order code magnetic ring **RI20**:

Selection guide:
LIMES L1/magnetic ring RI20

Order code/type	Outer diameter	Bore diameter	Stock model
8.RI20.031.0800.111	31 mm	8 mm	yes
8.RI20.031.1000.111	31 mm	10 mm	yes
8.RI20.031.1200.111	31 mm	12 mm	yes
8.RI20.031.1500.111	31 mm	15 mm	no
8.RI20.031.1587.111	31 mm	15.875 mm (5/8")	yes
8.RI20.031.2000.111	31 mm	20 mm	no
8.RI20.041.0800.111	41.2 mm	8 mm	yes
8.RI20.041.1500.111	41.2 mm	15 mm	no
8.RI20.045.0800.111	45 mm	8 mm	yes
8.RI20.045.0925.111	45 mm	9.525 mm (3/8")	yes
8.RI20.045.1200.111	45 mm	12 mm	yes
8.RI20.045.1500.111	45 mm	15 mm	yes
8.RI20.045.1800.111	45 mm	18 mm	no
8.RI20.045.2500.111	45mm	25 mm	yes
8.RI20.045.2540.111	45 mm	25.4 mm (1")	no
8.RI20.045.3000.111	45 mm	30 mm	no

Pulses/ppr	Order code RI20	Order code LIMES L1	max. rpm	max. frequency kHz
1000	8.RI20.031.XXXX.111	8.L1.1XX.2211.0025	15.000	250
250	8.RI20.031.XXXX.111	8.L1.1XX.2211.0100	15.000	60
1280	8.RI20.041.XXXX.111	8.L1.1XX.2211.0025	11.500	250
320	8.RI20.041.XXXX.111	8.L1.1XX.2211.0100	11.500	60
1440	8.RI20.045.XXXX.111	8.L1.1XX.2211.0025	10.500	250
360	8.RI20.045.XXXX.111	8.L1.1XX.2211.0100	10.500	60

Display 571 for LIMES L1



Your benefit

- AC and DC supply voltage in one unit 24 V DC/115/230 V AC
- Programmable measurement functions: frequency, speed, cycle time as well as many count and timing functions.
- Display may be adjusted using scaling-features
- Easy programming with 2 keys
- Large 15 mm high LED-display, 6 digit, with adjustable brightness

Product features

- Fast count input for our **LIMES L1** linear measurement system (100 kHz)
- Version with 2 optocoupler outputs as limits
- Version with scaling adjusted output, resolution 14 Bit, 0 ... 10 V, 0 ... -10 V, 0 ... 20 mA or 4 ... 20 mA
- Version with serial interface RS232/485
- 48 x 96mm DIN-housing, IP 65