

ROTAMAG

Modular magnetic encoder for Heavy-Duty applications

Series

SMRI5 • MRI



- Bearingless encoder
- Non contact magnetic sensing
- Sensor/ring clearance up to 1.5 mm
- IP67 washdown protection (IP69K on request)



SMRI5 • MRI

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range:	-25°C +85°C (-13°F +185°F)
Storage temperature range:	-40°C +100°C (-40°F +212°F)
Protection:	IP67

MECHANICAL SPECIFICATIONS

Dimensions:	see drawing
Hollow shaft diameter:	see drawing (from Ø 6 to 250 mm)
Shaft rotational speed:	MRI/31, MRI/48: 25000 rpm max. (mechanical) MRI/57: 22000 rpm max. (mechanical) MRI/114, MRI/141: 15000 rpm max. (mechanical) MRI/284: 9000 rpm max. (mechanical)
Gap sensor-ring:	0,1 ÷ 1,5 mm (typical)
Electrical connections:	M12 8 pin inline plug or Lika Hi-flex cable 1,0 m (3.3 ft)
Option:	• additional cable

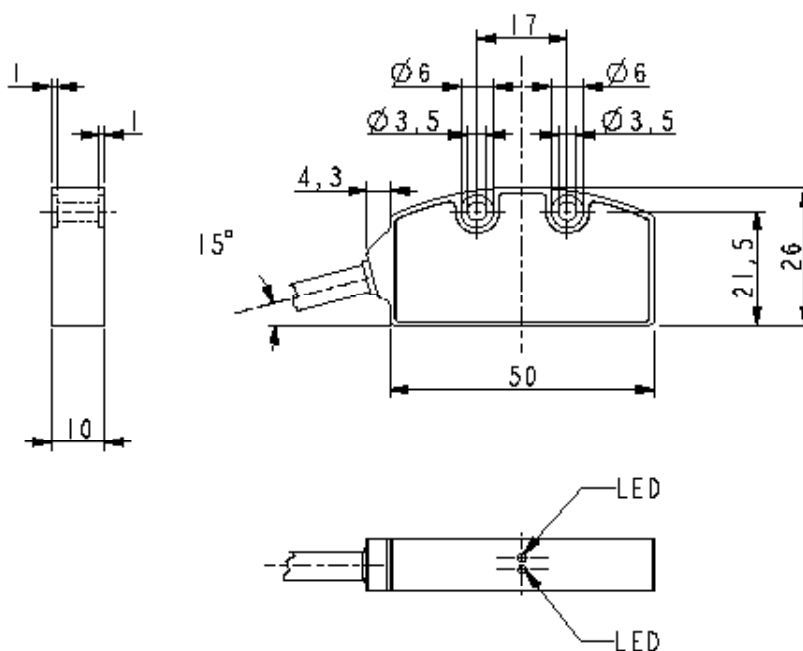
ELECTRICAL SPECIFICATIONS

Resolution (PPR):	see specifications
Accuracy:	± 0,05° (± 0,1° typical)
Output circuits:	Line Driver, Push-Pull
Power supply:	+5Vdc ±5%, +10Vdc ÷ +30Vdc
Consumption:	70 mA max.
Output signals:	AB /AB, ABO /ABO
Output current (per channel):	40 mA max.
Protection:	against inversion of polarity and short-circuit (except L circuit)
EMC:	electro-magnetic immunity, EN 61000-4-2 EN 61000-4-4

MATERIALS

Housing:	anticorodal, UNI EN AW-6082
Hub:	anticorodal, UNI EN AW-6082 or stainless steel
Ring:	ferrite or plastoferrite

Specifications subject to changes without prior notice



SMRI5

Order code

SMRI5	-	XX	-	X	-	XXX	-	XX	-	X	-	X	X	/Sxxx
		Ⓐ		Ⓑ		Ⓒ		Ⓓ		Ⓔ		Ⓕ	Ⓖ	Ⓗ

Ⓐ OUTPUT CIRCUITS

Y = Push Pull (AB)
 YC = Push Pull (AB, /AB)
 L = Line Driver (AB, /AB)

Ⓑ POWER SUPPLY

1 = +5Vdc ±5% (L)
 2 = +10Vdc± +30Vdc (Y and L)

Ⓒ RESOLUTION

see Resolution vs rpm combinations
 (other resolutions on request)

Ⓓ INDEX

N = without
 R = with reference signal

Ⓔ CONNECTIONS

L1 = cable output 1 m
 Lx = cable output x m
 M0,5 = 0,5 m cable + M12 8 pin inline plug
 M2 = 2 m cable + M12 8 pin inline plug

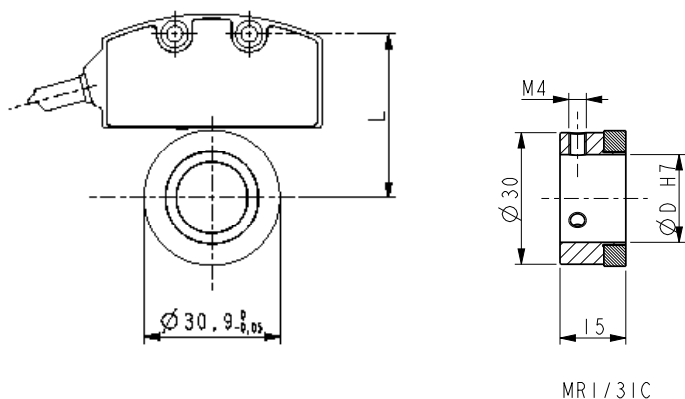
Ⓕ RING TYPE

A = MRI/31
 B = MRI/48
 C = MRI/57
 G = MRI/99
 K = MRI/114
 L = MRI/119
 M = MRI/141
 P = MRI/200
 Q = MRI/284
 R = MRI/301

Ⓖ MIN. EDGE DISTANCE

J = 0,5 µs (2 MHz)

Ⓗ CUSTOM VERSION



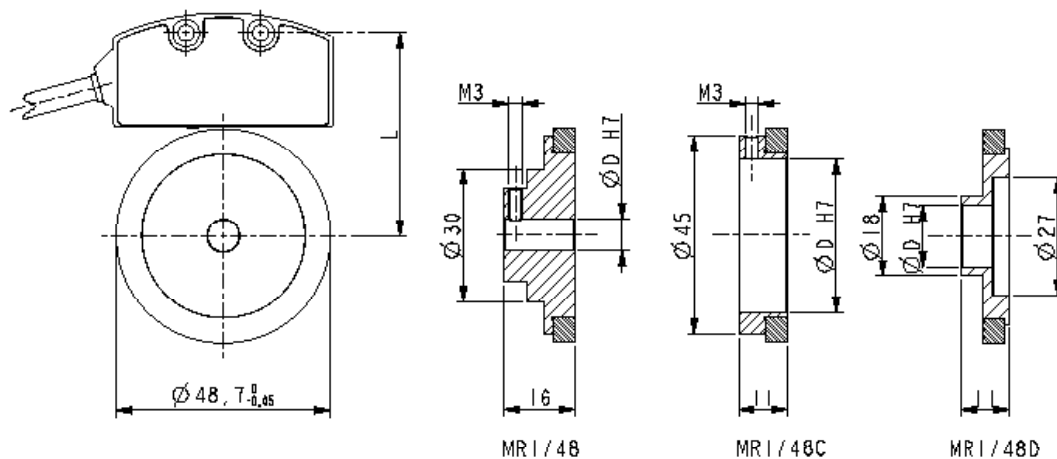
MRI / 31C

Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
100	500	21000 rpm
200	1000	21000 rpm
400	2000	11000 rpm
1K	5000	4000 rpm

Order code magnetic ring	D H7
MRI/31C-20-5-16	Ø 16 mm
MRI/31C-20-5-19	Ø 19 mm
MRI/31C-20-5-20	Ø 20 mm

All rings without reference



MRI / 48

MRI / 48C

MRI / 48D

Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
32	256	82000 rpm (a)
64	512	41000 rpm (a)
128	1024	20000 rpm
256	2048	10000 rpm
512	4096	5000 rpm

Order code magnetic ring	D H7
MRI/48-32-5-6	Ø 6 mm
MRI/48C-32-5-35	Ø 35 mm
MRI/48D-32-5-14	Ø 14 mm

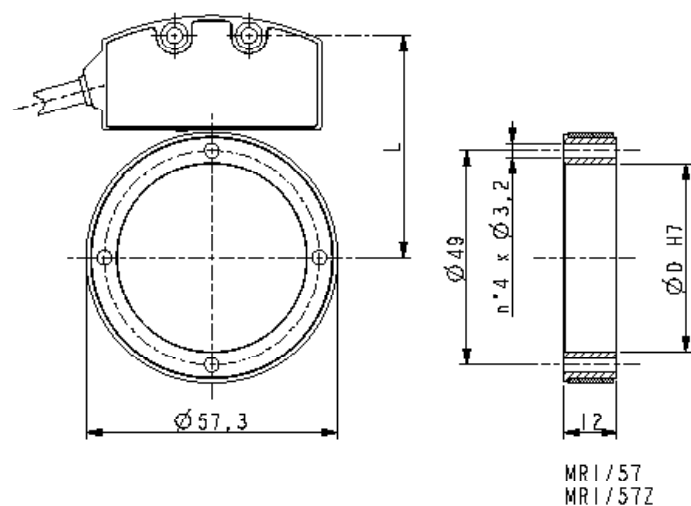
All rings without reference

(a) limited by mechanical speed

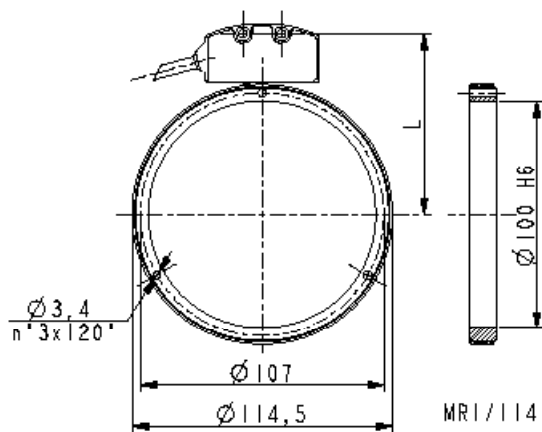
Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
80	760	7000 rpm
100	950	11000 rpm
128	1216	17000 rpm
800	7600	3000 rpm

Order code magnetic ring	D H7
MRI/57-38-5-43 (without reference)	Ø 43 mm
MRI/57Z-38-5-43 (with reference)	Ø 43 mm



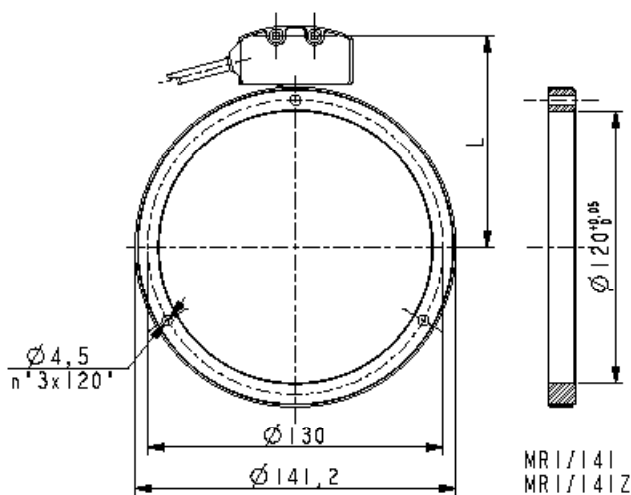
MRI / 57
MRI / 57Z



Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
100	1800	6000 rpm
200	3600	6000 rpm
400	7200	3000 rpm
500	9000	2500 rpm
1K	18000	1200 rpm

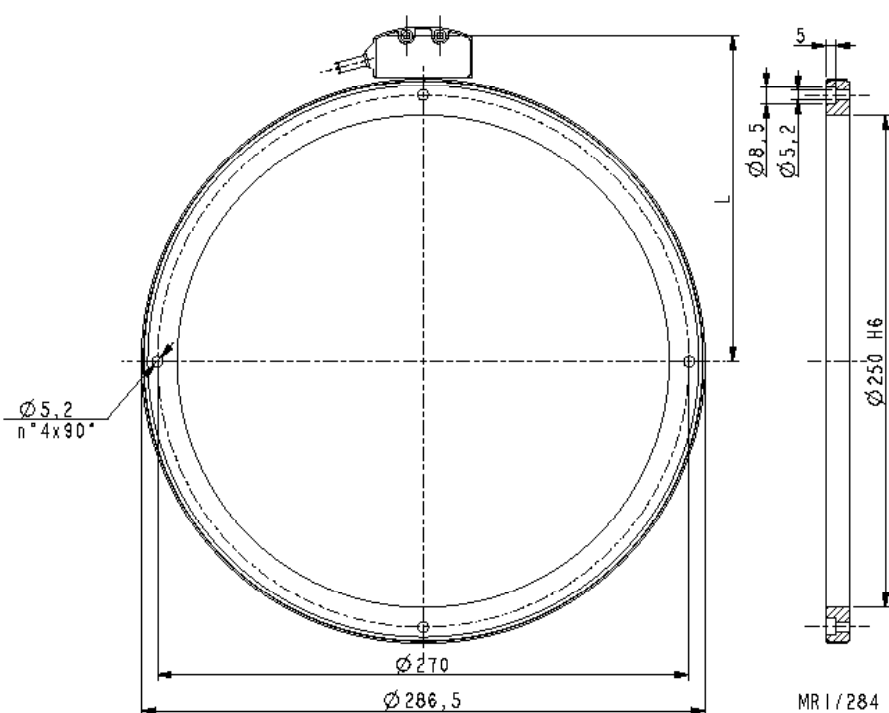
Order code magnetic ring	D H6
MRI/114-72-5-100 (without ref.)	Ø 100 mm
MRI/114Z-72-5-100 (with reference)	Ø 100 mm



Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
40	900	3000 rpm
80	1800	3000 rpm
160	3600	3000 rpm
200	4500	5000 rpm
320	7200	3000 rpm
400	9000	2500 rpm

Order code magnetic ring	D
MRI/141-90-5-120 (without ref.)	Ø 120 mm
MRI/141Z-90-5-120 (with reference)	Ø 120 mm



Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
8	360	58000 rpm (a)
32	1440	14000 rpm (a)
40	1800	1500 rpm
80	3600	1500 rpm
100	4500	2500 rpm
200	9000	2500 rpm

(a) limited by mechanical speed

Order code magnetic ring	D H6
MRI/284-180-5-250 (without ref.)	Ø 250 mm
MRI/284Z-180-5-250 (with reference)	Ø 250 mm