

- Bearingless encoder
- Resolution up to 180000 PPR
- Non contact magnetic sensing
- Sensor/ring clearance up to 1 mm
- IP67 washdown protection (IP69K on request)



SMRI2 • 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

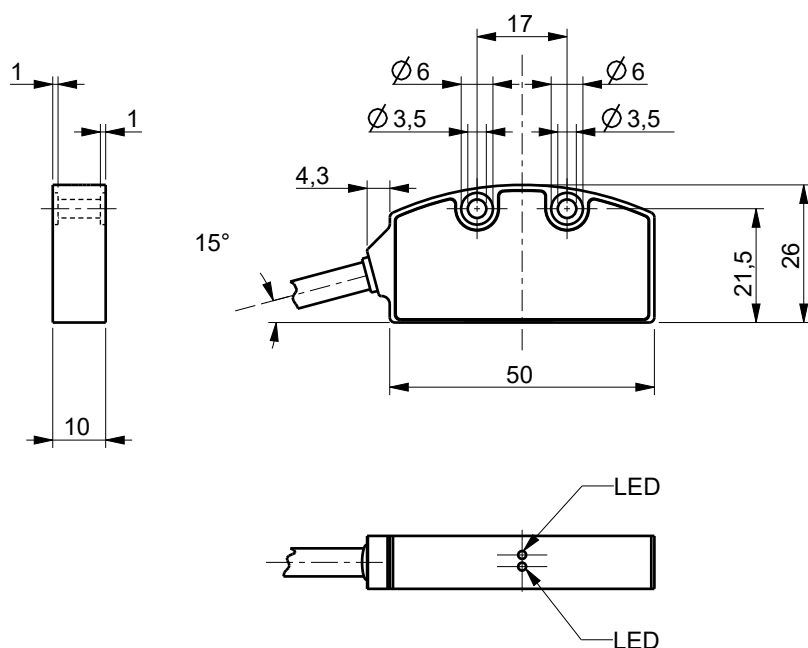
Dimensions:	see drawing
Hollow shaft diameter:	see drawing (from Ø 6 to 250 mm)
Shaft rotational speed:	MRI/31, MRI/48: 25000 rpm max. (mechanical) MRI/57: 22000 rpm max. (mechanical) MRI/114, MRI/141: 15000 rpm max. (mechanical) MRI/284: 9000 rpm max. (mechanical)
Gap sensor-ring:	0.1 ÷ 1.0 mm (without reference) 0.1 ÷ 0.7 mm (with reference)
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



SMRI2

Order code

SMRI2	-	XXX	-	XXXX	-	X	-	XXXX	-	X	-	X	/Sxxx
		(a)		(b)		(c)		(d)		(e)		(f)	(g)

(a) OUTPUT CIRCUITS / POWER SUPPLY

Y2 = Push Pull (AB), +10Vdc +30Vdc

YC2 = Push Pull (AB, /AB), +10Vdc +30Vdc

L1 = Line Driver (AB, /AB), +5Vdc ±5%

L2 = Line Driver (AB, /AB), +10Vdc +30Vdc

(b) RESOLUTION

see Resolution vs rpm combinations
(other resolutions on request)

(c) INDEX

N = without

R = with reference signal

(d) OUTPUT & CABLE LENGTH

L010 = cable output 1 m

Lxx0 = cable out. x m (max. length 10m)

M005 = 0,5 m cable + M12 8 pin inline plug

M020 = 2 m cable + M12 8 pin inline plug

(e) 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

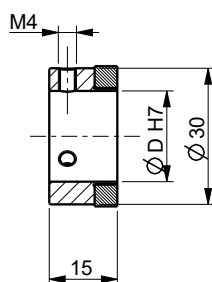
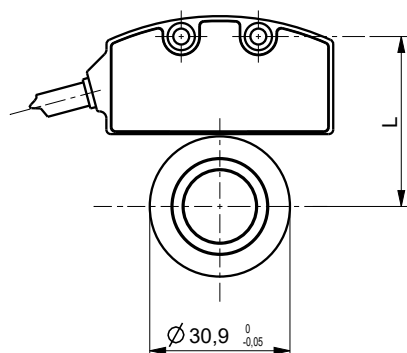
(*) Magnetic rings have to be ordered separately.

(f) MIN. EDGE DISTANCE

J = 0,5 µs (2 MHz)

(g) CUSTOM VERSION

Document release	Date	Description
1.2	6.03.2025	Order code magnetic ring (MRI/57)
1.1	19.12.24	Drawing update (MRI114, MRI141, MRI284)
1.0	September 2023	New order code



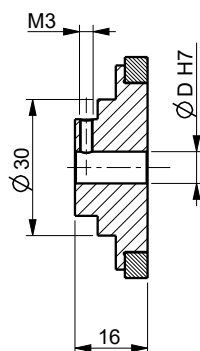
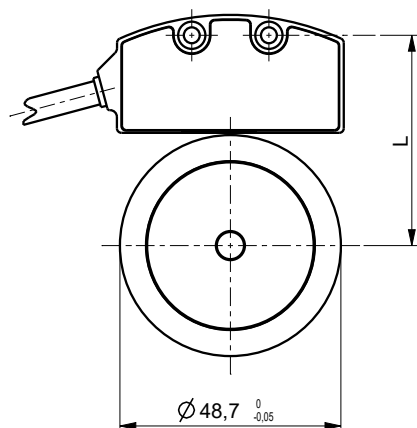
Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
100	1200	8750 rpm
200	2400	8750 rpm
500	6000	3500 rpm
1K	12000	1750 rpm

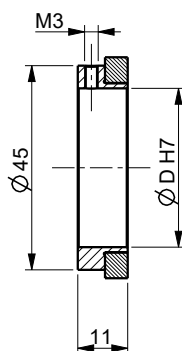
Order code magnetic ring

Order code magnetic ring	D H7
MRI/31C-016-A-F-48/2N-R	Ø 16 mm
MRI/31C-019-A-F-48/2N-R	Ø 19 mm
MRI/31C-020-A-F-48/2N-R	Ø 20 mm

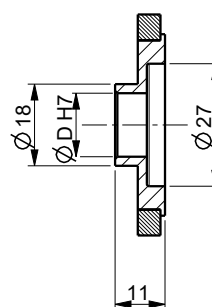
All rings are without reference track



MRI/48



MRI/48C



MRI/48D

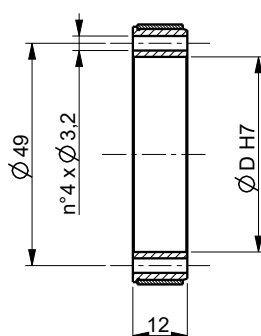
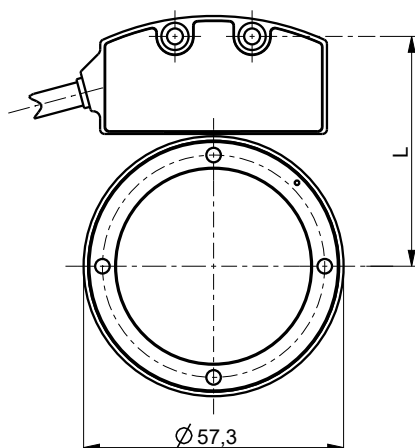
Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
100	2000	5250 rpm
200	4000	5250 rpm
500	10000	2160 rpm
1K	20000	1050 rpm

Order code magnetic ring

Order code magnetic ring	D H7
MRI/048-006-A-F-80/2N-R	Ø 6 mm
MRI/48C-035-A-F-80/2N-R	Ø 35 mm
MRI/48D-014-A-F-80/2N-R	Ø 14 mm

All rings are without reference track

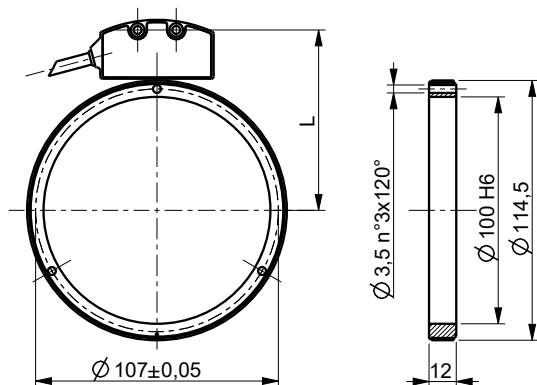


Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
80	1800	2900 rpm
128	2880	7300 rpm
160	3600	2900 rpm
400	9000	2300 rpm
800	18000	1150 rpm

Order code magnetic ring

Order code magnetic ring	D H7
MRI/057-043-S-E-90/2N-R (without reference)	Ø 43 mm
MRI/057-043-S-E-90/2Z-R (with reference)	Ø 43 mm



MRI/114

Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
1K	45500	460 rpm
2K	91000	230 rpm

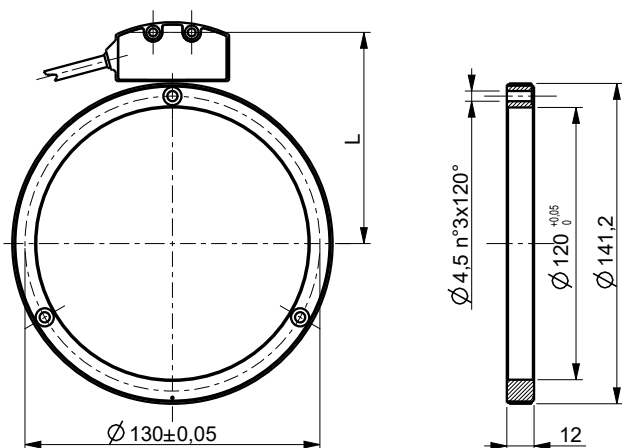
Order code magnetic ring

MRI/114-100-S-E-182/2N-R

D H6

 $\varnothing 100$ mm

Ring without reference track

MRI/141
MRI/141Z

Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
100	5600	1930 rpm
200	11200	1930 rpm
400	22400	960 rpm
1K	56000	390 rpm

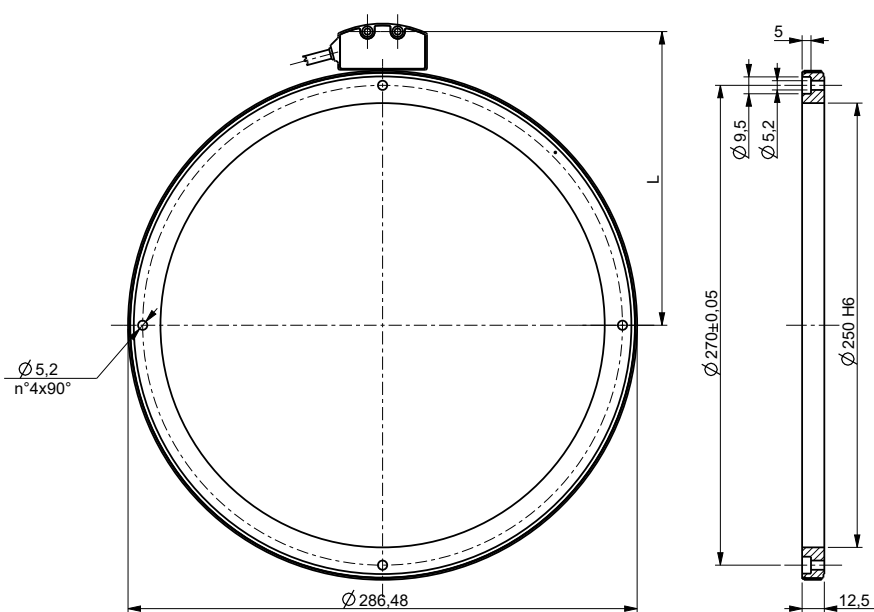
Order code magnetic ring

MRI/141-120-S-E-224/2N-R

D

 $\varnothing 120$ mm

Ring without reference track



MRI/284

Resolution vs rpm combinations

Order code Resolution	PPR	Max. counting speed
80	9000	580 rpm
320	36000	580 rpm
800	90000	230 rpm
1K	112500	180 rpm
1KB	115200	180 rpm
1K6	180000	120 rpm

Order code magnetic ring

MRI/284-250-S-E-450/2N-R
(without reference)

D H6

 $\varnothing 250$ mmMRI/284-250-S-E-450/2Z-R
(with reference) $\varnothing 250$ mm