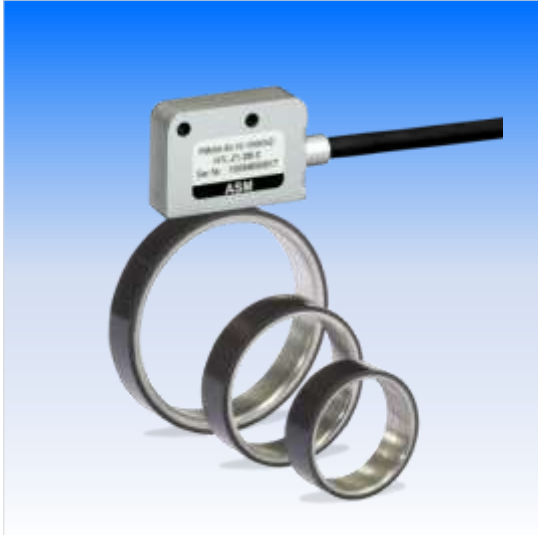
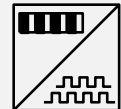


PMIS4, PMIR7, PMIR7N
Magnetic incremental encoder



Magnetic wheels for rotative applications

- All metal housing
- Protection class IP67
- Excellent protection of the active measurement area
- Highest EMC protection
- Suitable for harsh environments
- Up to 184,320 pulses/360°



Specifications

Output	Incremental encoder output A/B with differential push-pull output, TTL/24 V-, TTL/RS-422- or HTL-compatible
Excitation voltage	10 ... 30 VDC oder 5 VDC ±5%
Excitation current	300 mA max.
Magnetic period of the sensor	2 mm
Guided spacing between sensor and wheel x_z	0.1 ... 0,8 mm
Side tracking tolerance of the sensor	±1 mm
Linearity (sensor with mag. wheel PMIR4)	0.1°
Repeatability	±1 Digit
Maximum pulse frequency f_p	50 kHz, 20 kHz, 10 kHz (standard 50 kHz, max. 480 kHz)
Output signals	A, \bar{A} , B, \bar{B} / signal Z, \bar{Z} (optional) / status signal \bar{ERR} (optional)
Material of housing	Zinc die casting
Connection	Cable 8 wire, dia. 5 mm, open cable end. 15 pin D-Sub connector at the cable end as option. Max. length of the integrated sensor cable: output TTL: 3 m; HTL/TTL24V: 20 m
Weight	30 g ±5 g (without cable and connector)
Protection class (EN 60529)	IP67
Shock	DIN EN 60068-2-27:1993, 50 g 6 ms, 100 shocks
Vibration	DIN EN 60068-2-6:1995, 20 g, 10-2000 Hz, 10 cycles
Temperature	-40 ...+85°C
EMC	DIN EN 61326-1:2013

Order code sensor head PMIS4

PMIS4 – 1 – 2 – 3 – 4 – 5 – 6 – 7

1 Magnetic period

20 = 2 mm

2 Scaling factor

See table*

3 Maximum pulse frequency (in kHz, standard 50 kHz)

50 / 20 / 10 (other frequencies on request, max. 480 kHz)

4 Output

HTL = HTL output with excitation 24 V DC, output 24 V
TTL = TTL output with excitation 5 V DC, output TTL/RS422
TTL24V = TTL output with excitation 24 V DC, output TTL/10 mA

5 Signal Z / status signal

Z0 = A/B without signal Z
Z1 = A/B with signal Z
Z3 = A/B with signal Z and status signal, only for non-differential (single-ended) outputs

6 Cable length

2M = Standard 2 m

7 Connection

S = open cable end
P15 = D-Sub connector at the cable end, 15 pin

Order example sensor head

PMIS4 – 20 – 100 – 50KHZ – HTL – Z0 – 2M – S

*Table “Scaling factor sensor PMIS4-50...” (see page 175)



The subsequent counting device must be able to process the specified maximum pulse frequency of the sensor.

Output signals

Saturation voltage	UH, UL = 0,2 V UH, UL = 0,4 V C _{last} < 10 nF	I _{out} = ±10 mA (UH = UB - U _{out}) I _{out} = ±30 mA
Short circuit current	ISL, ISH < 800 mA ISL, ISH < 90 mA	(UH, UL = 0 V) (UH, UL = 1,5 V)
Rise time	tr, tf < 200 ns	with cable length 1 m, 10 % ... 90 %

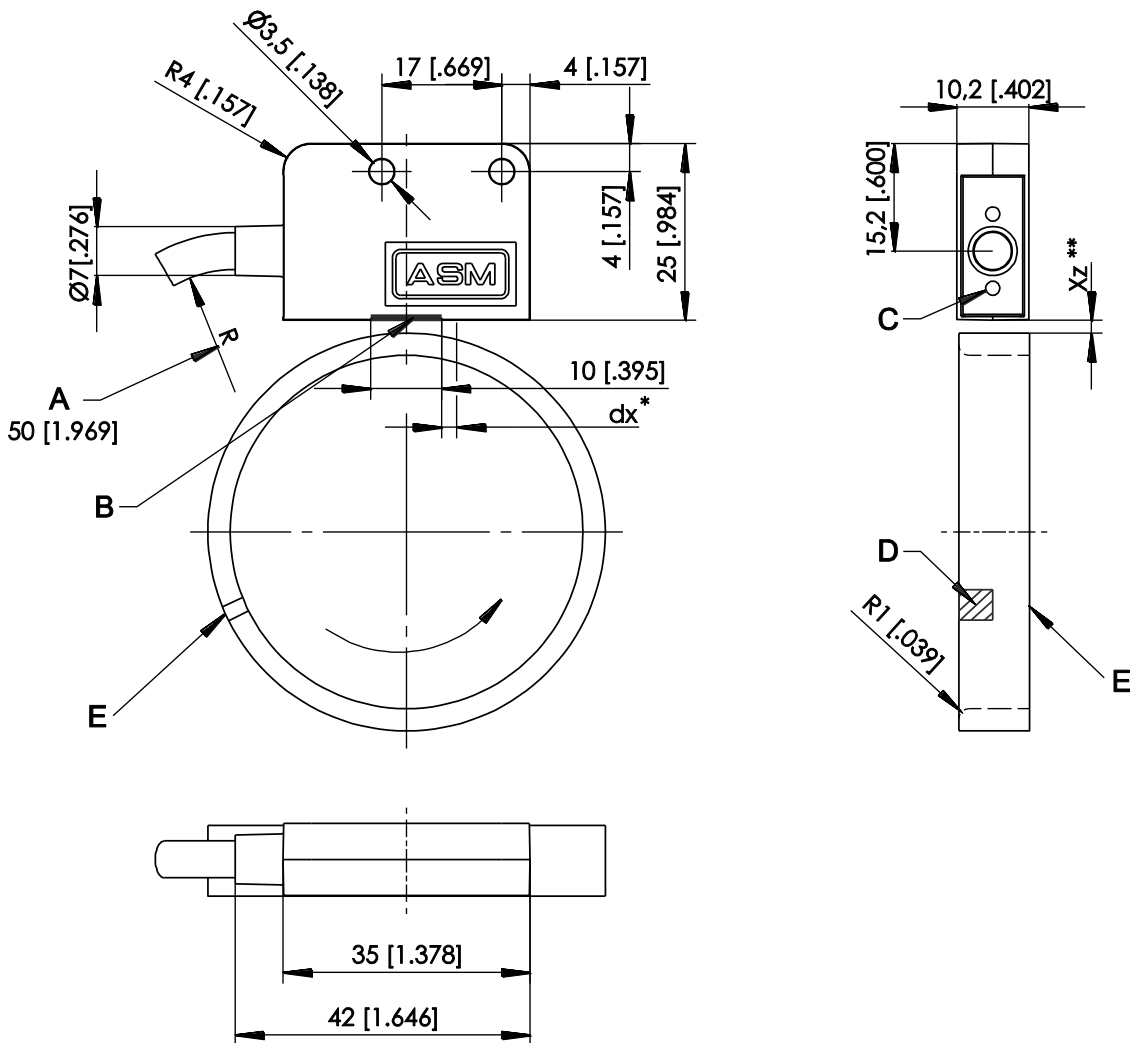
Pulse frequency in dependence on the cable length

Load/cable length	Load/pulse frequency fp		
	HTL single ended UB = 24 V	TTL/RS422 differential UB = 5 V *	TTL/24 V UB = 24 V
Max. output current	50 mA	50 mA	10 mA
R _{last} min.	500 Ω	100 Ω	500 Ω
C _{last} max.	10 nF	10 nF	1 nF
200 m	15 kHz	—	—
100 m	25 kHz	100 kHz	—
50 m	50 kHz	200 kHz	50 kHz
10 m	100 kHz	300 kHz	100 kHz

* = consider the voltage loss of the cable; the excitation voltage 5 V ± 5% of the sensor must be guaranteed.

Note: For longer distances (see specification above) you must use min. 0.5 mm² wire for „Excitation+“ and „Excitation GND“ (see signal wiring), all signal wires must be min. 0.14 mm²!

Dimensions PMIS4 and PMIS7



- A – Minimum bending radius
- B – Active measurement area
- C – Status indicator
- D – Reference mark
- E – Marking

* = position tolerance of the active measurement area: $dx = \pm 1$ mm
 ** = see "Specifications"

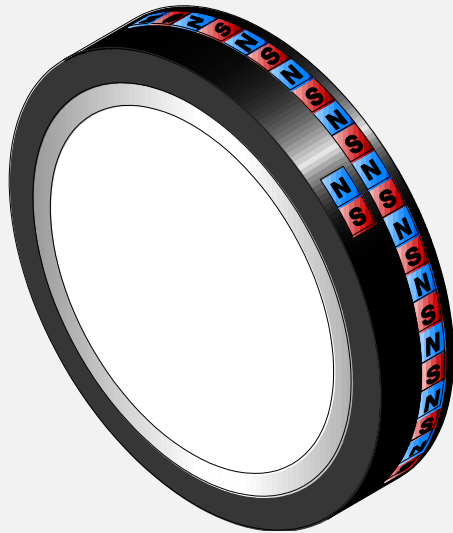
Dimensions in mm [inch]
 Dimensions informative only.
 For guaranteed dimensions please consult factory.

PMIR7(N) - Incremental magnetic rings

Specifications PMIR7, PMIR7N

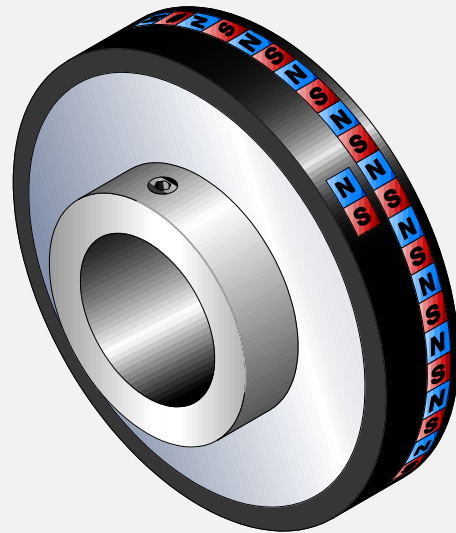
PMIR7

Magnetic rings



PMIR7N

Magnetic rings with hub



Material	Elastomer bonded hard ferrite
Base material	PMIR7: stainless steel PMIR7N: stainless steel (hub: aluminium)
Poles per revolution	50 / 64 / 90 poles/360°
Magnetic period	2 mm
Temperature range	-40 ...+85°C
Linearity with sensor PMIS4	Approx. $\pm 0.1^\circ$

Standard magnetic rings

Type	Poles	∅	Width	Signal periods/rotation	Inside diameter
PMIR7(N)-20-50-M-27(20)	50	31.8	10	50 to 102 400 (refer to the table below)	27H7 (20H7)
PMIR7(N)-20-64-M-35(20)	64	40.7	10	64 to 131 072 (refer to the table below)	35H7 (20H7)
PMIR7(N)-20-90-M-50(20)	90	57.3	10	90 to 184 320 (refer to the table below)	50H7 (20H7)

Scaling factor sensor PMIS4-20- ...	PMIR7(N)-20-50-M-27(20)		PMIR7(N)-20-64-M-35(20)		PMIR7(N)-20-90-M-50(20)	
	Signal periods	r.p.m. * (at 480 kHz)	Signal periods	r.p.m. * (at 480 kHz)	Signal periods	r.p.m. * (at 480 kHz) *
1	50	6000	64	6000	90	6000
2	100	6000	128	6000	180	6000
4	200	6000	256	6000	360	6000
8	400	6000	512	6000	720	6000
10	500	5760	640	4500	900	3200
16	800	6000	1024	6000	1440	6000
20	1000	5760	1280	4500	1800	3200
25	1250	6000	1600	6000	2250	5120
32	1600	6000	2048	6000	2880	6000
40	2000	5760	2560	4500	3600	3200
50	2500	6000	3200	6000	4500	5120
64	3200	6000	4096	5625	5760	4000
80	4000	5760	5120	4500	7200	3200
100	5000	4608	6400	3600	9000	2560
125	6250	3686	8000	2880	11 250	2048
128	6400	3600	8192	2813	11 520	2000
200	10 000	2304	12 800	1800	18 000	1280
250	12 500	1843	16 000	1440	22 500	1024
256	12 800	1800	16 384	1406	23 040	1000
400	20 000	1152	25 600	900	36 000	640
500	25 000	922	32 000	720	45 000	512
512	25 600	900	32 768	703	46 080	500
1024	51 200	450	65 536	352	92 160	250
2048	102 400	225	131 072	176	184 320	125

* Maximum revolution per minute mechanically 6.000 r.p.m.

Order code

Order code magnetic ring PMIR7

PMIR7 - -

1 Magnetic period

20 = 2 mm

2 Number of poles and inner diameter [in mm]

50 - M - 27
64 - M - 35
90 - M - 50

Order example magnetic ring

PMIR7 - 20 - 64 - M - 35

Order code magnetic ring PMIR7N

PMIR7N - -

1 Magnetic period

20 = 2 mm

2 Number of poles and inner diameter [in mm]

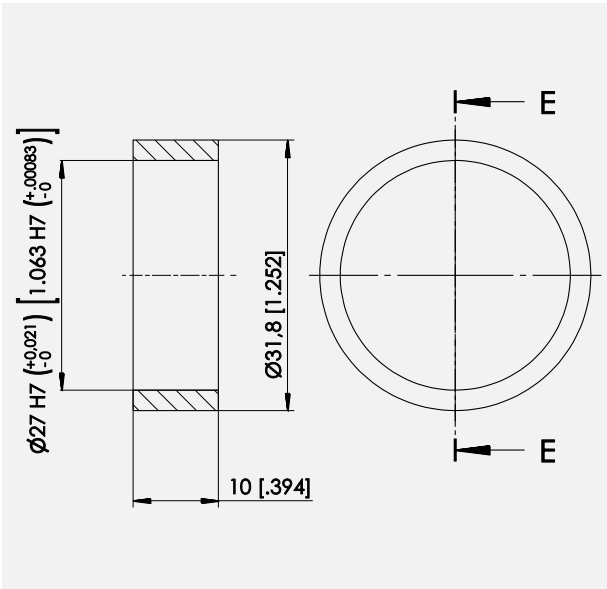
50 - M - 20
64 - M - 20
90 - M - 20

Order example magnetic ring

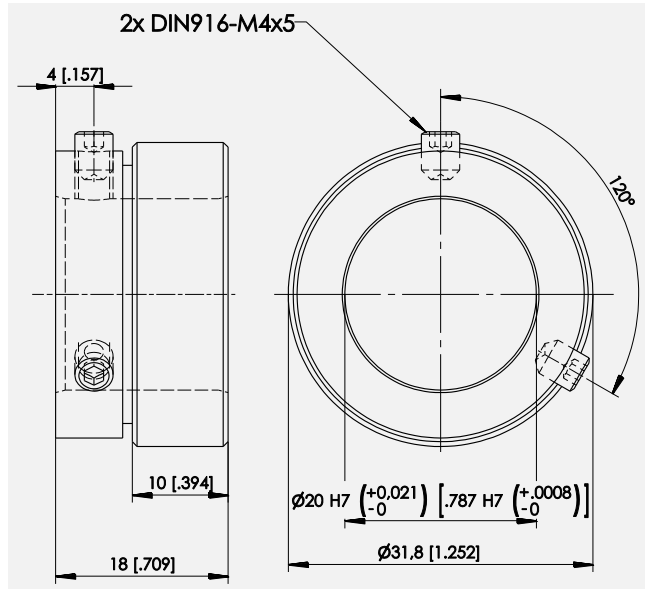
PMIR7N - 20 - 64 - M - 20

Dimensions

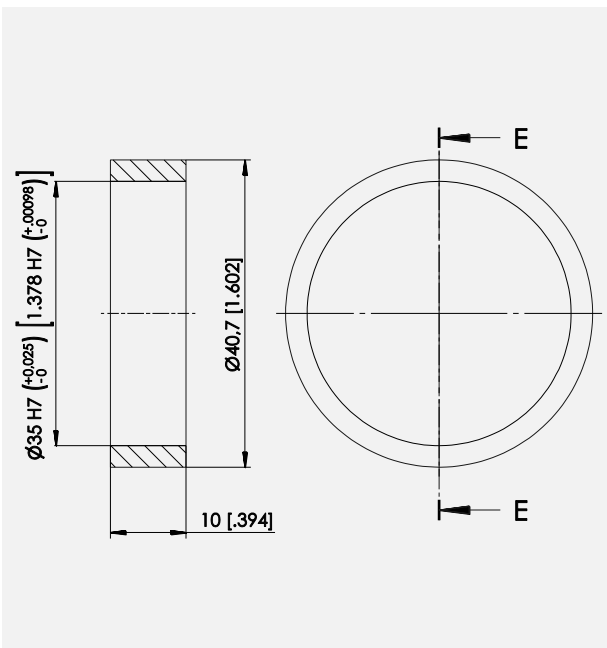
PMIR7-20-50-M-27



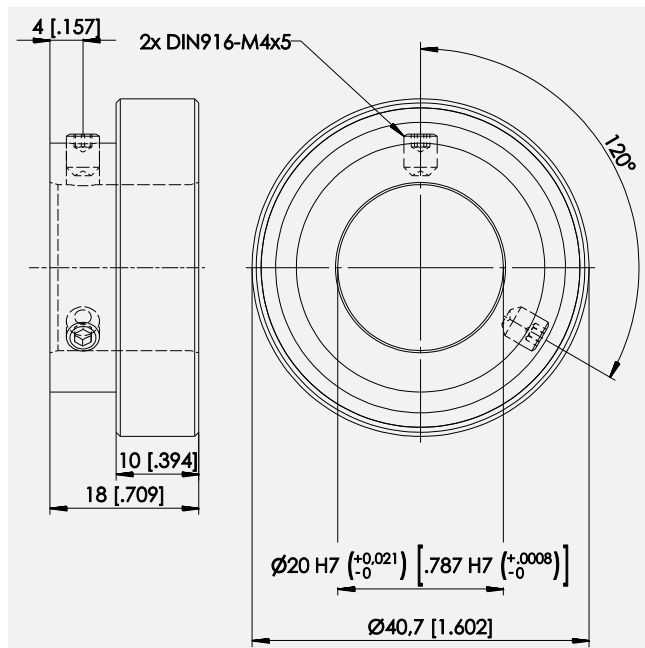
PMIR7N-20-50-M-20



PMIR7-20-64-M-35

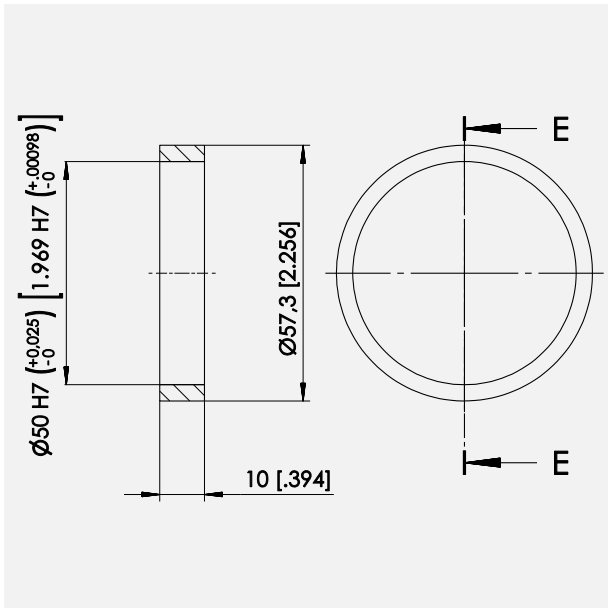


PMIR7N-20-64-M-20

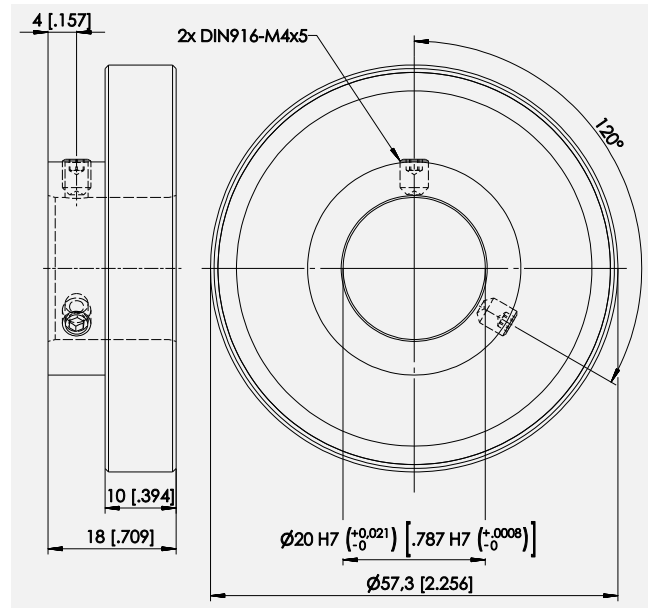


Dimensions in mm [inch].
 Dimensions informative only.
 For guaranteed dimensions consult factory.

PMIR7-20-90-M-50



PMIR7N-20-90-M-20



Dimensions in mm [inch].
 Dimensions informative only.
 For guaranteed dimensions consult factory.

How to mount the PMIR7/PMIR7N magnetic rings

The PMIR7/PMIR7N magnetic rings can be mounted in several ways on the customer's shaft resp. hub:

- press ring
- press fit
- bonding
- shaft nut

