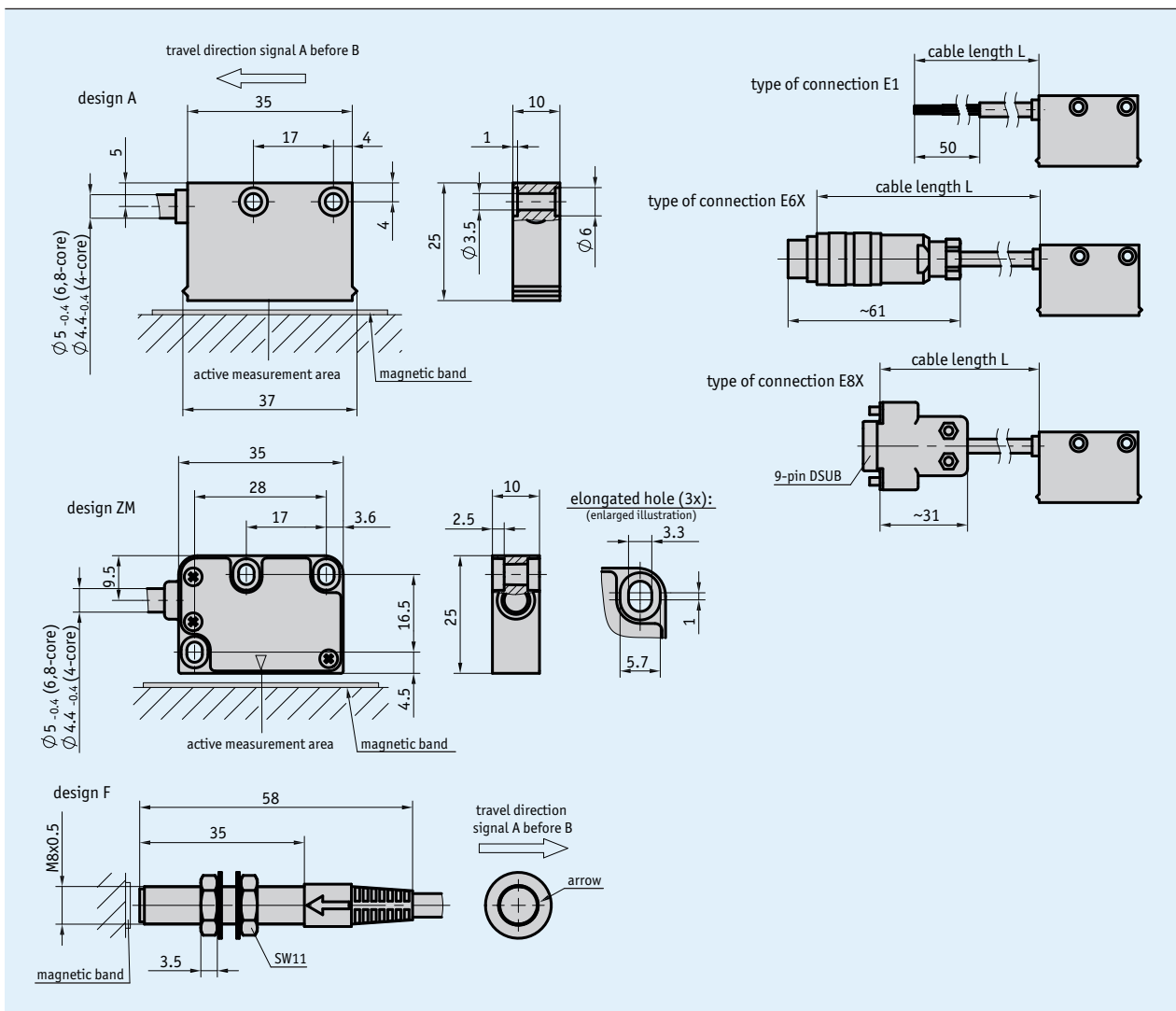
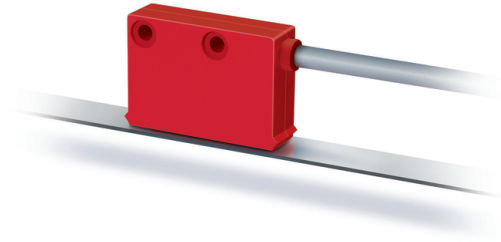


Profile

- max. resolution 0.018° with MR320 and MBR320 (250 poles)
- Repeat accuracy of ±1 increment
- Works with MR320 magnetic ring, MBR320 magnetic tape ring
- Reading distance ≤2 mm
- Max. 5000 pulses/revolution with MR320 and MBR320 (250 poles)



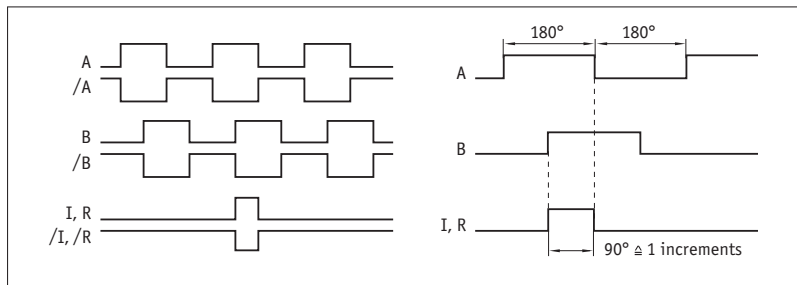
Mechanical data

Feature	Technical data	Additional information
Housing	red plastic	A design
	steel	F design
	zinc die-cast	ZM design
Sensor/ring reading distance	0.1 ... 2 mm	O, I reference signals
	0.1 ... 1 mm	R reference signal
Cable sheath	PUR suitable for drag-chain use	4-wire $\varnothing 4.4_{-0.4}$ mm; 5, 6, 8-wire $\varnothing 5.0_{-0.4}$ mm

Electrical data

Feature	Technical data	Additional information
Operating voltage	24 V DC $\pm 20\%$	reverse polarity protected
	5 V DC $\pm 5\%$	no reverse polarity protection
Current consumption	<20 mA	at 24 V DC, unloaded
	<75 mA	loaded
Output circuit	PP, LD (RS422), TTL	PP only at 24 V
Output signals	A, A/, B, B/, I, I/, R, R/	quadrature signal
Output signal level high	>UB - 2.5 V	PP
	>2.5 V	LD
	>2.4 V	TTL
Output signal level low	<0.8 V	PP
	<0.5 V	LD
	<0.4 V	TTL
Jitter	<15 %	0.5 mm reading distance
Pulse width of reference signal	1 increment(s)	
Real-time requirement	speed-proportional signal output	
Type of connection	open cable end	
	plug connector	7/8-pole
	D-Sub	9-pole

Signal pattern



! The logical condition of signals A and B is not defined in reference to the index signal I or the reference signal R. It can deviate from the signal form.

System data

Feature	Technical data	Additional information
Scaling factor	1, 4, 5, 8, 10, 16, 20, 64	
System accuracy	$\pm 0.1^\circ$	
Repeat accuracy	± 1 increment(s)	
Measuring range	∞	
Circumferential speed	≤ 25 m/s	≤ 3.2 m/s referencing speed

Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	-10 ... 70 °C	
Storage temperature	-30 ... 80 °C	
Relative humidity	100 %	condensation admissible
EMC	EN 61000-6-2	interference resistance / immission
	EN 61000-6-4	emitted interference / emission
Protection category	IP67	EN 60529
Shock resistance	500 m/s ² , 11 ms	EN 60068-2-27
Vibration resistance	100 m/s ² , 5 ... 150 Hz	EN 60068-2-6

Pin assignment

■ Not inverted without reference signal

Signal	E1	E6X	E8X
GND	black	1	1
+UB	brown	2	2
A	red	3	3
B	orange	4	4
nc		5	5
nc		6	6
nc		7	7
nc			8
nc			9

■ Inverted with reference signal

Signal	E1	E6X	E8X
A	red	1	1
B	orange	2	2
I	blue	3	3
+UB	brown	4	4
GND	black	5	5
A/	yellow	6	6
B/	green	7	7
I/	violet	8	8
nc			9

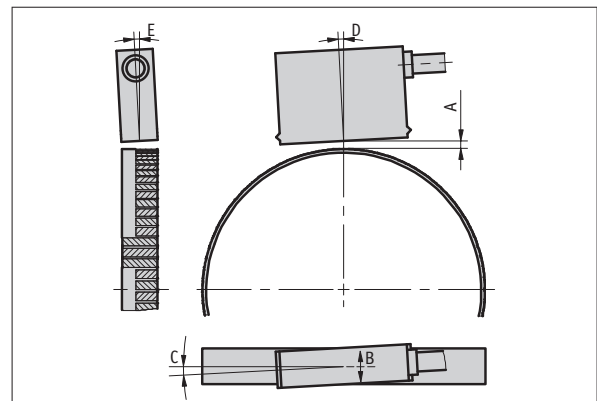
■ Inverted without reference signal

Signal	E1	E6X	E8X
A	red	1	1
B	orange	2	2
nc		3	3
+UB	brown	4	4
GND	black	5	5
A/	yellow	6	6
B/	green	7	7
nc			8
nc			9

Hint for mounting

For systems with reference points on the magnetic ring take care that sensor and ring are aligned correctly (see picture)

Reference signal	O, I	R
A, Sensor/ring reading distance	≤2 mm	≤1.0 mm
B, Lateral offset	±2 mm	±0.5 mm
C, Alignment error	±3°	±3°
D, Longitudinal inclination	±1°	±1°
E, Lateral inclination	±3°	±3°



(symbolic sensor representation)

Order

Ordering information

one or more system components are required:

Magnetic ring MR320
 Magnetic band ring MBR320
 Magnetic ring MRI01

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Ordering table

Feature	Ordering data	Specification	Additional information
Operating voltage	4	24 V DC ±20 %	reverse polarity protected
	5	5 V DC ±5 %	
Design	A	rectangular	only with NI output signal, 0 reference signal and scaling factor 8
	ZM	metal housing without status LEDs	
	F	round	
Type of connection	E1	open cable end	
	E6X	bullet connector without mating connector	
	E8X	D-SUB 9-pole without mating connector	
		extension cables on request	
Cable length L	...	1.0 ... 20 m, in steps of 1 m	
		others on request	
Output circuit	PP	push-pull	only operating voltage 4
	LD	Line-Driver	
	TTL		only with non-inverted output signal, ≤ 5 m cable length
Output signal	NI	not inverted	only with A or ZM design and I or R reference signal
	I	inverted	
Reference signal	0	without	only with A or ZM design, index signal every 3.2 mm
	I	periodic index	
	R	fixed reference	
Scaling factor	...	1, 4, 5, 8, 10, 16, 20, 64	
		others on request	

Order key

MSK320 rotativ - - - - - - - -

A B C D E F G H

Scope of delivery: Fastening set, Mounting instructions, MSK320 rotativ