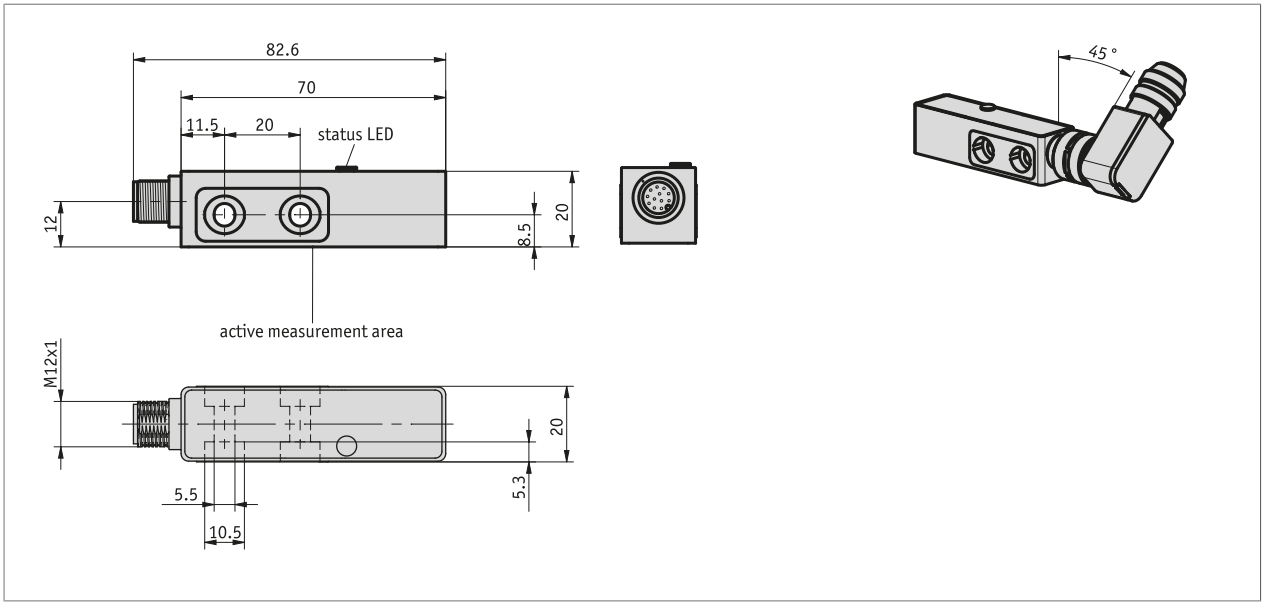
Magnetic sensor MSAC501

Absolute, high-resolution position acquisition for rotative applications

Profile

- Max. resolution 0.0014° (MRAC501) or 4.88 µm
- Repeat accuracy of 0.0014° (MRAC501) or 4.88 µm
- System accuracy ±0.06° (MRAC501) or ±0.03 mm
- SSI output circuit, RS485 (absolute), optional LD (incremental)
- Signal period 5 mm
- Status LEDs for diagnosis



Mechanical data

Feature	Technical data	Additional information
Housing	zinc die-cast	
Sensor/ring reading distance	≤0.2 mm	

Electrical data

Feature	Technical data	Additional information
Operating voltage	4.5 ... 30 V DC	
Power input	<1.5 W	
SSI clock speed input	≤750 kHz	depending on cable length
Output circuit	without, LD (RS422)	
Interface	SSI, RS485	
Cycle time	≤30 µs	
Type of connection	M12 plug connector (A-coded)	12-pole, 1x pin

System data

Feature	Technical data	Additional information
Pole length	5 mm	
Resolution	4.88 µm	
	0.0014 °	at MRAC501-256 pole
Scaling factor	7, 8, 9, 10 bit	absolute
	7, 8, 9, 10 bit	incremental
System accuracy	±0.06 ° at T_U = 20° C	
	±0.03 mm at T_U = 20° C	
Repeat accuracy	±0.0014 ° at T_U = 20° C	
	±0.005 mm at T_U = 20° C	
Measuring range	360 °	singelturn
Circumferential speed	≤5 m/s	absolute

Incremental peripheral speed

		Circumferential speed [m/s]								
Incremental scaling	7 bit	25.00	15.63	7.81	3.13	1.95	0.98	0.49	0.24	0.12
	8 bit	19.53	7.81	3.91	1.56	0.98	0.49	0.24	0.12	0.06
	9 bit	9.77	3.91	1.95	0.78	0.49	0.24	0.12	0.06	0.03
	10 bit	4.88	1.95	0.98	0.39	0.24	0.12	0.06	0.03	0.01
Pulse interval [µs]		0.2	0.5	1	2.5	4	8	16	32	66
Counting frequency [kHz]		1250	500	250	100	62.5	31.25	15.63	7.81	3.79

Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	-30 ... 85 °C	
Storage temperature	-40 ... 85 °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, with mating connector fitted
Shock resistance	500 m/s², 11 ms	EN 60068-2-27
Vibration resistance	<100 m/s², 5 ... 150 Hz	EN 60068-2-6

pin assignment

without LD

SSI	RS485	PIN
nc	nc	1
D+	DÜA	2
D-	DÜB	3
T-	nc	4
+UB	+UB	5
nc	nc	6
nc	nc	7
nc	nc	8
nc	nc	9
config	config	10
T+	nc	11
GND	GND	12

With LD

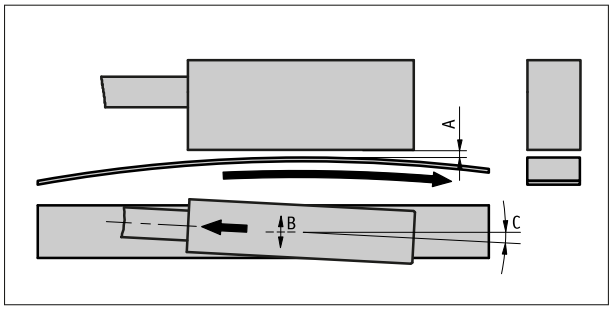
SSI	RS485	PIN
nc	nc	1
D+	DÜA	2
D-	DÜB	3
T-	nc	4
+UB	+UB	5
/A	/A	6
A	A	7
/B	/B	8
B	B	9
config	config	10
T+	nc	11
GND	GND	12

Hint for mounting

Please ensure that both system components are correctly aligned with each other when mounting the sensor and magnetic ring.

A, Sensor/ring reading distance	≤0.2 mm
B, Lateral offset	±1.5 mm
C, Alignment error	<±0.5°

Further assembly instructions for the MSAC501 magnetic sensor can be found in the MBAC501 magnetic band data sheet



(Sensor representation symbolic)

Order

When ordering the system components please take care that the same code size is used

Ordering information

One or more system components are required:

Magnetic tape MBAC501	www.siko-global.com
Magnetic ring MRAC501	www.siko-global.com

Ordering table

Feature	Ordering data		Spezifikation	Additional information
code size	A	7	7 bit	
		8	8 bit	
		9	9 bit	
		10	10 bit	
		11	11 bit	
absolute scaling	B	7	7 bit	
		8	8 bit	
		9	9 bit	
		10	10 bit	
Interface	C	RS485	SIKONETZ3	
		SSI	SSI	
Output circuit	D	0	without	
		LD	LineDriver	
incremental scaling	E	7	7 bit	only with LD
		8	8 bit	only with LD
		9	9 bit	only with LD
		10	10 bit	only with LD
Pulse interval	F	...	0.2, 0.5, 1.0, 2.5, 4.0, 8.0, 16.0, 32.0, 66.0 in µs	only with LD

Order key

MSAC501 - [A] - [B] - [C] - [D] - [E] - [F] - S

Scope of delivery:
MSAC501, Installation Instructions, Distance gage