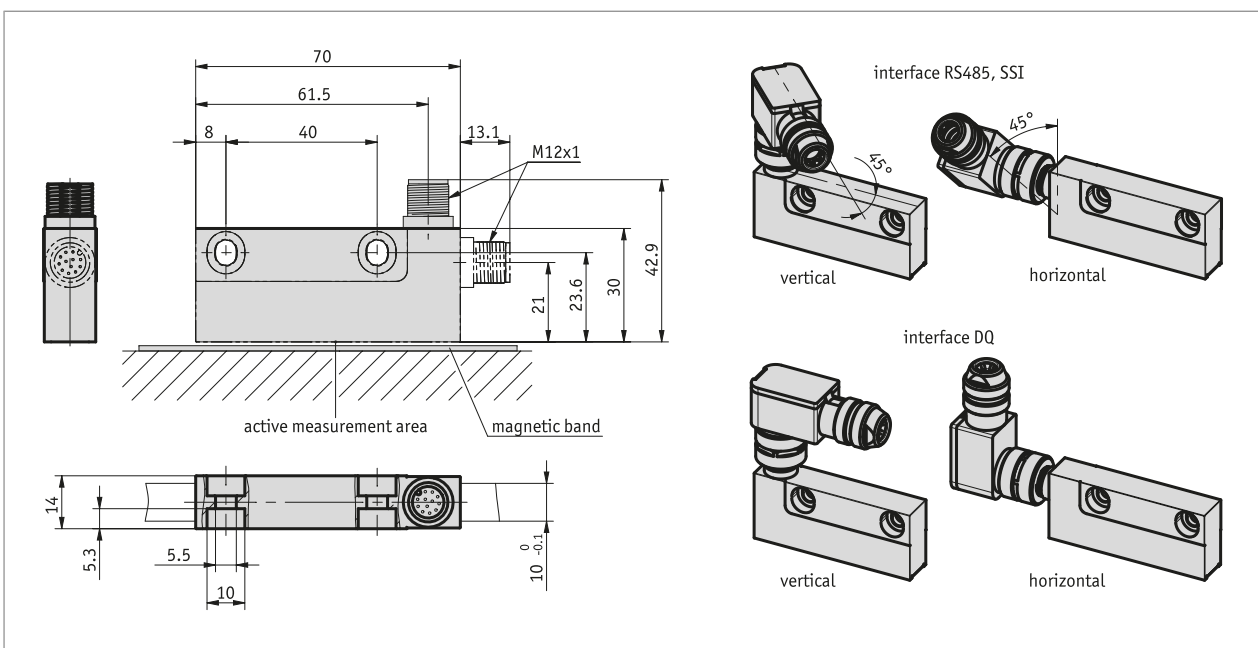
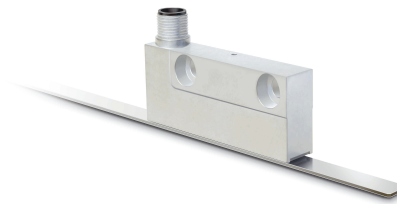


### Profile

- Additional analog real-time signal output Sin/Cos 1 V<sub>SS</sub> for highly dynamic control (SSI/RS485)
- Repeat accuracy 2 μm
- System accuracy up to 10 μm
- SSI, RS485, DRIVE-CLiQ output circuits
- Signal period 1 mm
- Certified according to SIL2 (DRIVE-CLiQ) for safety applications
- Industry 4.0 ready



### Mechanical data

Feature	Technical data	Additional information
Housing	zinc die-cast	
Sensor/band reading distance	≤0.3 mm	(without masking tape on magnetic tape)

### Electrical data

Feature	Technical data	Additional information
Operating voltage	4.5 ... 30 V DC 10 ... 30 V DC	reverse polarity protected (RS485, SSI) reverse polarity protected, SELV/PELV (DRIVE-CLiQ)
Power input	≤1.2 W ≤1.6 W	RS485, SSI DRIVE-CLiQ
Temperature sensor input	external sensor, type KTY84	DRIVE-CLiQ (12-pole plug connector)
SSI clock speed input	≤750 kHz	caution: max. clock rate depends on cable length
Output voltage	1 V	RS485, SSI
Period length of sin/cos output	1000 μm	RS485, SSI
Interface	SSI, RS485, DRIVE-CLiQ	
Real-time requirement	speed-proportional signal output	sin/cos output (RS485, SSI)
Cycle time	25 μs 30 μs	RS485, SSI DRIVE-CLiQ
Type of connection	M12 plug connector (A-coded) M12 plug connector (A-coded)	12-pole, 1x pin (RS485, SSI, DRIVE-CLiQ with temperature sensor input) 8-pole, 1x pin (DRIVE-CLiQ)

### System data

Feature	Technical data	Additional information
Pole length	1 mm	
Resolution	1 µm	
System accuracy	±10 µm at T <sub>U</sub> = 20 °C	
Repeat accuracy	≤2 µm	unidirectional
Measuring range	≤4000 mm	
Travel speed	≤2 m/s ≤10 m/s ≤5 m/s	static mode (RS485, SSI) dynamic operation (sin/cos) (RS485, SSI) DRIVE-CLiQ
Functional safety	SIL 2 according to EN 61508	as well as EN 61800-5-2 category 3, PL d according to EN ISO 13849-1: 2008 (DRIVE-CLiQ)
Failure rate	413 Year(s) 3.82 x 10 <sup>-9</sup> /h	at 40 °C (MTTF <sub>d</sub> ), DRIVE-CLiQ at 40 °C (PFH), DRIVE-CLiQ
Error detection	92.2 % at 40 °C (DC <sub>avg</sub> )	DRIVE-CLiQ
Safe position	6 mm	DRIVE-CLiQ

### Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	-30 ... 85 °C -30 ... 80 °C	RS485, SSI DRIVE-CLiQ
Storage temperature	-40 ... 85 °C	
Expansion coefficient	(11 ±1) x 10 <sup>-6</sup> /K	
Relative humidity	100 %	condensation admissible
EMC	EN 61000-6-2 EN 61000-6-4	interference resistance / immission emitted interference / emission
Protection category	IP67	EN 60529, with mating connector fitted
Shock resistance	500 m/s <sup>2</sup> , 11 ms	EN 60068-2-27
Vibration resistance	<100 m/s <sup>2</sup> , 5 ... 150 Hz	EN 60068-2-6

### pin assignment

#### ■ RS485, SSI

RS485	SSI	PIN
adjust	adjust	1
D+	D+	2
D-	D-	3
nc	T-	4
+UB	+UB	5
/sin	/sin	6
sin	sin	7
/cos	/cos	8
cos	cos	9
config	config	10
nc	T+	11
OV	OV	12

#### ■ DRIVE-CLiQ with temperature sensor input\*

Signal	Pin
+24 V	1
T <sub>sens+</sub>	2
GND	3
TXN	4
TXP	5
NC	6
RXN	7
RXP	8
DÜA	9
T <sub>sens-</sub>	10
nc	11
DÜB	12

\* Only works with a connected temperature sensor

#### ■ DRIVE-CLiQ without temperature sensor input

Signal	PIN
+24 V	1
DÜA	2
RXP	3
RXN	4
GND	5
TXN	6
TXP	7
DÜB	8

### Industry 4.0

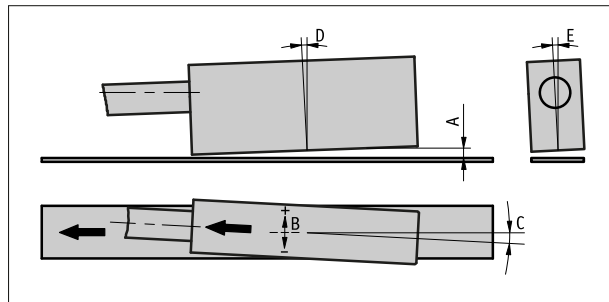
In most cases, data exchange with the magnetic encoders is limited to the exchange of process data. In addition to the process data, intelligent drives provide additional information that can be evaluated for condition monitoring up to predictive maintenance:

Process data	Smart Value	Smart Function
Actual position	Temperature	Plausibility monitoring

### Hint for mounting

When mounting sensor and magnetic tape, please be careful to align both system components correctly. The arrow marks on the tape and sensor must point in the same direction when mounting the components.

A, Sensor/tape reading distance	≤0.3 mm
B, Lateral offset	+0.4 mm, -0.2 mm
C, Alignment error	<±1°
D, Longitudinal inclination	max. sensor/tape A reading distance must never be exceeded.
E, Lateral inclination	max. sensor/tape A reading distance must never be exceeded.



(Sensor representation symbolic)

### Order

#### ■ Ordering information

One or more system components are required:

Mounting kit ZB3053  
Magnetic tape MBA111

[www.siko-global.com](http://www.siko-global.com)  
[www.siko-global.com](http://www.siko-global.com)

#### ■ Ordering table

Feature	Ordering data	Spezifikation	Additional information
Interface	A SSI DQ RS485	RS422 DRIVE-CLiQ SIKONETZ3	
temperature sensor	B K E	without for external temperature sensor	only with DQ interface
connector position	C H V	horizontal vertical	
Software	D S SW1	standard SIL2-compliant	with SSI, RS485, DQ without SIL2 Only with DQ. SIL2-compliance only ensured with ZB3053 mounting kit; it is imperative that the kit is ordered as well!

#### ■ Order key

MSA111C -  -  -  -

A      B      C      D

**Scope of delivery:**

MSA111C, Installation Instructions, Distance gage

**Accessories you can find:**

Cable extension KV12S2, SSI, RS485, DQ with temperature sensor input  
Installation tool ZB3055  
Overview, Mating connector  
Mating connector, DQ, 8-pole, socket  
Mating connector, SSI, RS485, DQ with temperature sensor input, 12-pole, socket  
Mating connector, SSI, RS485, DQ with temperature sensor input, 12-pole, angular socket  
Mating connector, DQ, 8-pole, angle socket

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