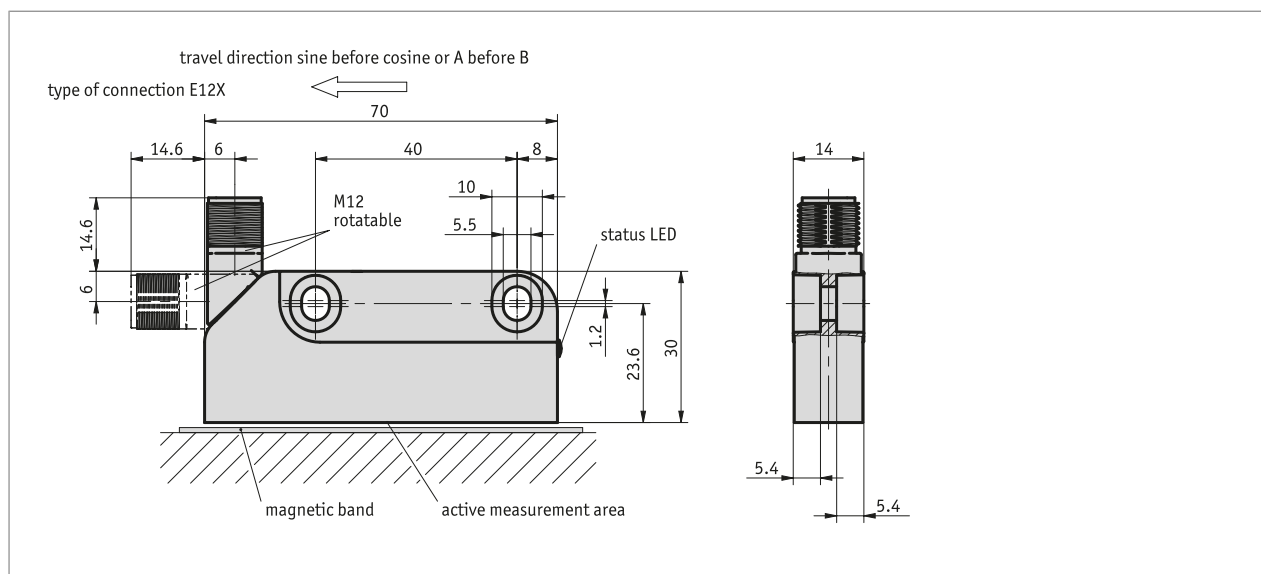
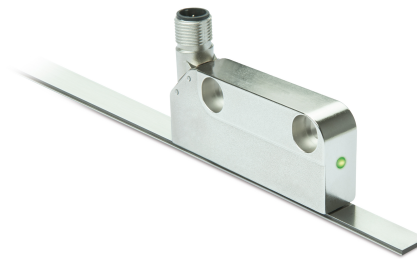


Profile

- High absolute resolution 1 μm
- Repeat accuracy max. $\pm 1 \mu\text{m}$
- Reading distance $\leq 0.8 \text{ mm}$
- Measuring range 0 ... 16 m
- Function and status display LED
- Interface BiSS C, SSI, IO-Link
- Optionally analog Sin/Cos 1 Vss or digital line driver
- Connection technology M12 (A-coded), swivel-mounted
- Industry 4.0 ready



Mechanical data

Feature	Technical data	Additional information
Housing	zinc die-cast	
Sensor/band reading distance	$\leq 0.8 \text{ mm}$	
Weight	$\sim 0.095 \text{ kg}$	

Electrical data

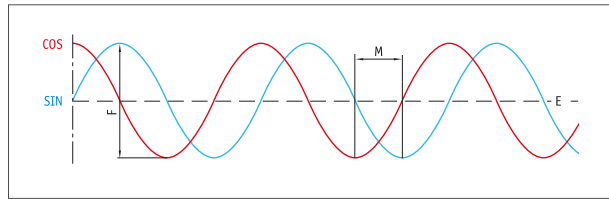
Feature	Technical data	Additional information
Operating voltage	7.5 ... 30 V DC	reverse polarity protected (IOL)
	4.5 ... 30 V DC	reverse polarity protected (SSI + BiSS/C)
Current consumption	200 mA	
Status display	RGB-LED	Plausibility error, distance warning, device status
Output circuit	without, LD	
Interface	SSI, BiSS C, IO-Link	
Type of connection	M12 plug connector (A-coded)	12-pole, 1x pin (IOL)
	M12 plug connector (A-coded)	4-pole, 1x pin (IOL)

■ Signal pattern, Sin/Cos output

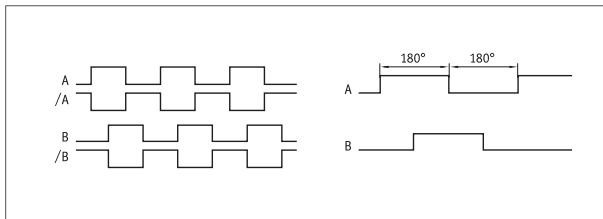
E: reference voltage 2.5 V

F: 1 V_{SS} ±10 %

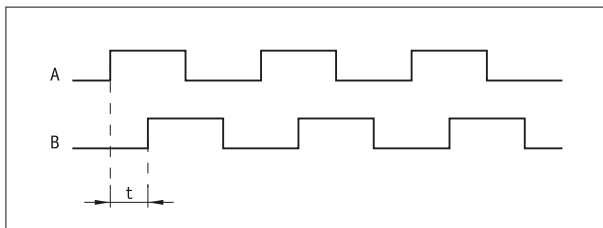
M: 90° ±1.0° / ±3° (25 kHz)



■ Signal pattern, LD output circuit



■ Pulse interval, LD output circuit



Example: Pulse interval t = 1 μs

(i. e., the downstream unit must be able to process 250 kHz)

$$\text{Formula for counting frequency} = \frac{1}{1 \mu\text{s} \times 4} = 250 \text{ kHz}$$

System data

Feature	Technical data	Additional information
Pole length	2 mm	incremental
Resolution	1 μm	absolute
	1, 5, 10 μm	LD, incremental
Linearity deviation	±10 μm	
Repeat accuracy	±1 μm	
Measuring range	≤16384 mm	
Travel speed	≤5 m/s	absolute

■ Travel speed, LD output circuit

		Travel speed Vmax [m/s]					
Resolution [μm]	1	10.00	5.00	2.00	1.00	0.50	0.20
	5	25.00	25.00	10.00	5.00	2.50	1.00
	10	25.00	25.00	20.00	10.00	5.00	2.00
Pulse interval [μs]		0.10	0.20	0.50	1.00	2.00	5.00
Counting frequency [kHz]		2500.00	1250.00	500.00	250.00	125.00	50.00

Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	-40 ... 85 °C	
Storage temperature	-40 ... 85 °C	
Relative humidity	100 %	condensation admissible
EMC	EN 61000-6-2	interference resistance / immission, class B emission limit
	EN 61000-6-4	interference emission / emission, class B emission limit
Protection category	IP67	EN 60529, with mating connector fitted
Shock resistance	≤500 m/s ² , 11 ms	EN 60068-2-27, half-sine, 3 axes (+/-), each 3 shocks
Vibration resistance	≤100 m/s ² , 10 Hz ... 2000 Hz	EN 60068-2-6, 3 axes, each 10 cycles

pin assignment

■ SSI, BiSS C interface without LD, 1 Vss

SSI	BiSS C	PIN
nc	nc	1
D+	SLO	2
D-	NSLO	3
T-	NMA	4
+UB	+UB	5
nc	nc	6
nc	nc	7
nc	nc	8
nc	nc	9
nc	nc	10
T+	MA	11
GND	GND	12

■ IO-Link interface without LD, 1 Vss

Signal	PIN
L+ (+UB)	1
I/Q	2
L- (GND)	3
C/Q	4

■ SSI, BiSS C interface with LD, 1 Vss

SSI	BiSS C	PIN
nc	nc	1
D+	SLO	2
D-	NSLO	3
T-	NMA	4
+UB	+UB	5
/A, Sin-	/A, Sin-	6
A, Sin+	A, Sin+	7
/B, Cos-	/B, Cos-	8
B, Cos+	B, Cos+	9
nc	nc	10
T+	MA	11
GND	GND	12

■ IO-Link interface with LD, 1 Vss

Signal	PIN
nc	1
nc	2
nc	3
nc	4
L+ (+UB)	5
/A, Sin-	6
A, Sin+	7
/B, Cos-	8
B, Cos+	9
C/Q	10
I/Q	11
L- (GND)	12

Industry 4.0

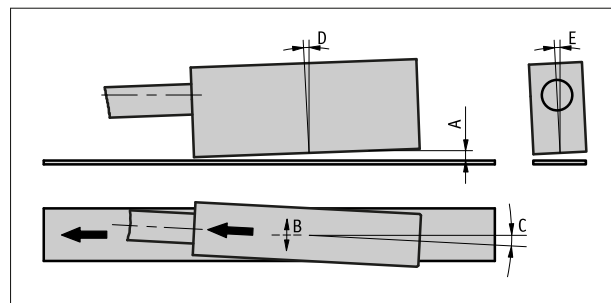
In most cases, data exchange with the magnetic encoders is limited to the exchange of process data. In addition to the process data, intelligent drives provide additional information that can be evaluated for condition monitoring up to predictive maintenance:

Process data	Smart Value	Smart Function
Actual position	--	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	≤0.8 mm
B , Lateral offset	±0.6 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.



Symbolic representation

Order

■ Ordering information

One or more system components are required:
Magnetic tape MBA213 www.siko-global.com

■ Ordering table

Feature	Ordering data	Spezifikation	Additional information
incremental resolution	A ...	1, 5, 10 in µm no information required	
Pulse interval	B ...	0.1, 0.2, 0.5, 1, 2, 5 in µs no information required	

■ Order key

MSA213K - E12X - IOL - LD - A - B - S

**Scope of delivery:**
MSA213K, Distance gage, Quick Start Guide

**Accessories you can find:**
Cable extension KV04S2 www.siko-global.com
Cable extension KV12S2 www.siko-global.com
Installation tool ZB3055 www.siko-global.com