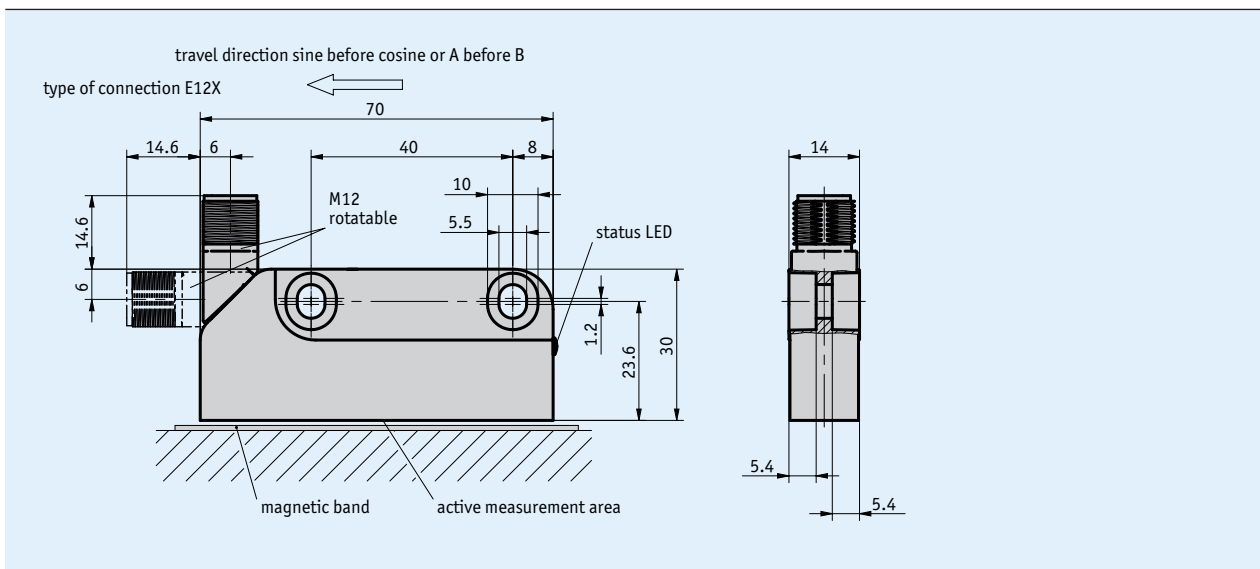
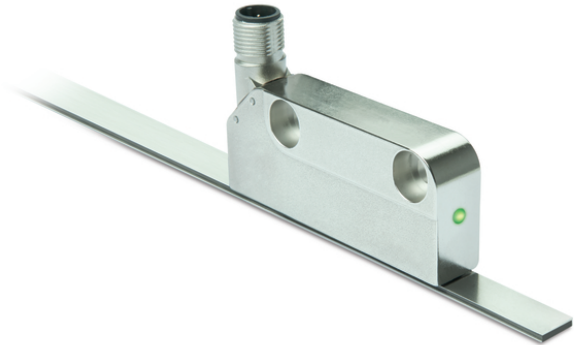


Profile

- 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



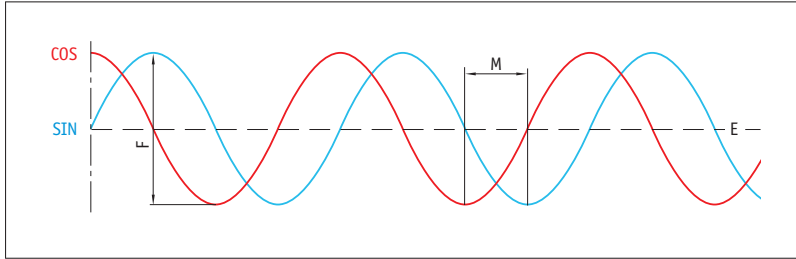
Mechanical data

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

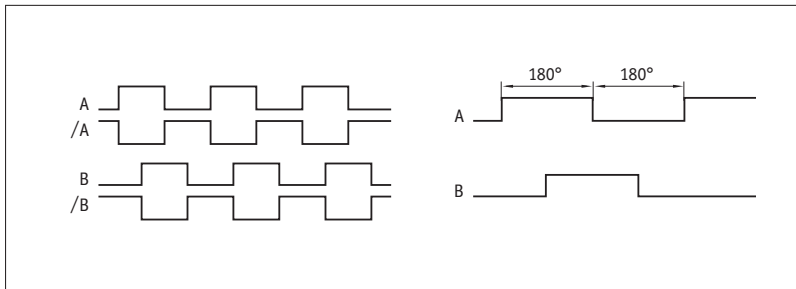
Feature	Technical data	Additional information
Operating voltage	7.5 ... 30 V DC	reverse polarity protected (IOL)
Current consumption	$< 200 \text{ mA}$	
Status display	RGB-LED	plausibility error, distance warning, device status
Output circuit	without, LD	
Interface	SSI, BiSS C, IO Link	
Type of connection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

Signal pattern, Sin/Cos output

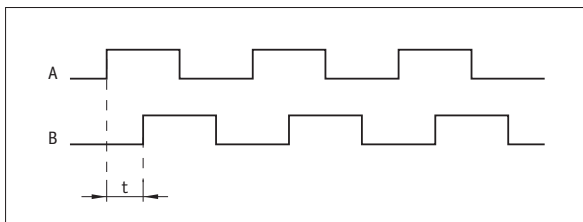


E: reference voltage 2.5 V
 F: $1 V_{SS} \pm 10\%$
 M: $90^\circ \pm 1.0^\circ / \pm 3^\circ$ (25 kHz)

Signal pattern, LD output circuit



Pulse interval, LD output circuit



Example: Pulse interval $t = 1 \mu s$
 (i. e., the downstream unit must be able to process 250 kHz)

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

System data

Feature	Technical data	Additional information
Pole length	2 mm	incremental
Resolution	1 μm	absolute
	1, 5, 10 μm	LD, incremental
Linearity deviation	$\pm 10 \mu m$	
Repeat accuracy	$\pm 1 \mu m$	
Measuring range	$\leq 16384 \text{ mm}$	
Travel speed	$\leq 5 \text{ m/s}$	absolute

Travel speed, LD output circuit

Resolution [μm]	Travel speed V_{max} [m/s]						
	1	5	10	20	50	100	200
1	10.00	25.00	25.00	50.00	100.00	100.00	200.00
5	25.00	25.00	25.00	50.00	100.00	100.00	200.00
10	25.00	25.00	25.00	50.00	100.00	100.00	200.00
Pulse interval [μs]	0.10	0.20	0.50	1.00	2.00	5.00	10.00
Counting frequency [kHz]	2500.00	1250.00	500.00	250.00	125.00	50.00	25.00

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 pulses
Vibration resistance	≤100 m/s ² , 10 ... 2000 Hz	EN 60068-2-6, 3 axes, each 10 cycles

Pin assignment

■ SSI interface, BiSS C 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

■ SSI interface, BiSS C 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

■ IO-Link interface without LD, 1 Vss

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

Industry 4.0

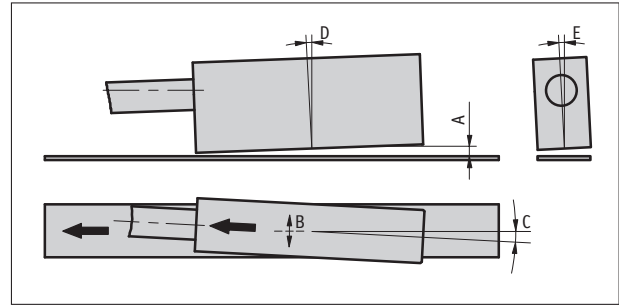
In most cases, data exchange with the magnetic encoders is limited to the exchange of process data. In addition to the process data, intelligent drives provide additional information that can be evaluated for condition monitoring up to predictive maintenance:

Process Data	Smart Value	Smart Function
Actual position	--	Plausibility monitoring

Hint for mounting

When you mount the 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 tilt	max. sensor/tape A reading distance must never be exceeded.
E, Lateral tilt	max. sensor/tape A reading distance must never be exceeded.



Symbolic representation

Order

Ordering information

One or more system components are required:
Magnetic band MBA213

www.siko-global.com

Ordering table

Feature	Ordering data	Specification	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 - - - S

Scope of delivery: MSA213K, distance gage, Quick Start Guide

Accessories you can find:

Cable extension KV12S2
Installation tool ZB3055

www.siko-global.com
www.siko-global.com