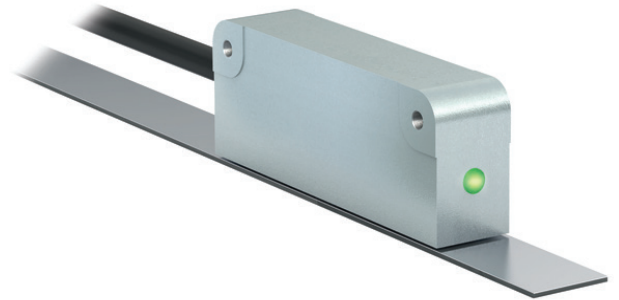


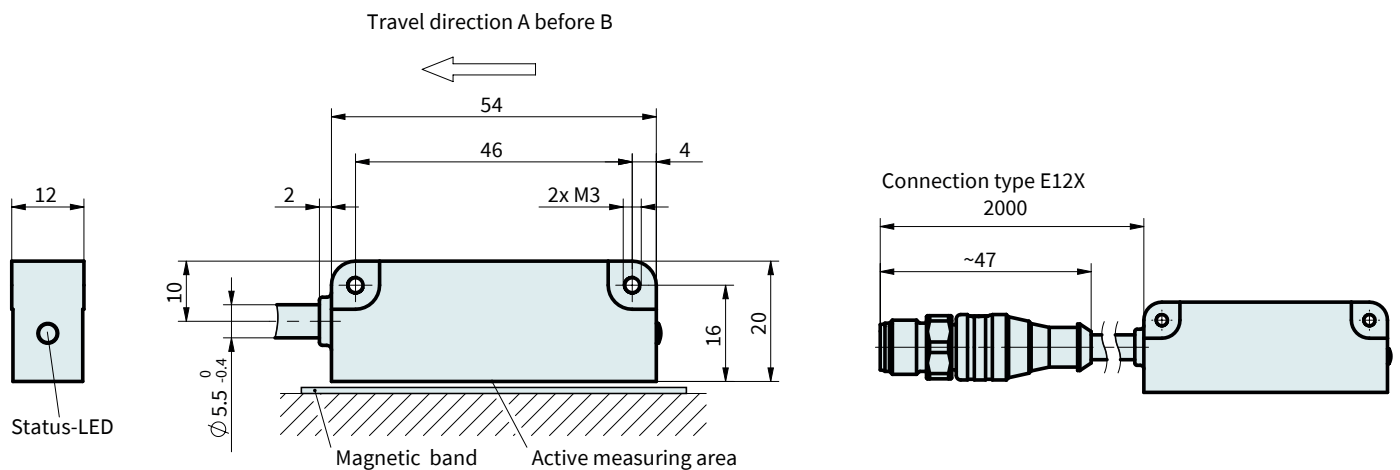
## External Position Sensor MS01-1/D-BiSS

Feature:

- » High absolute resolution 1  $\mu\text{m}$
- » 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



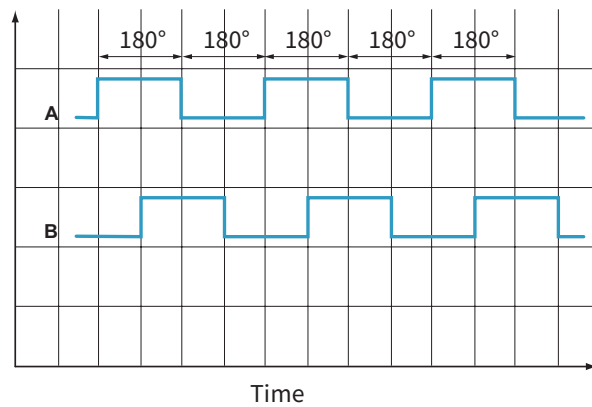
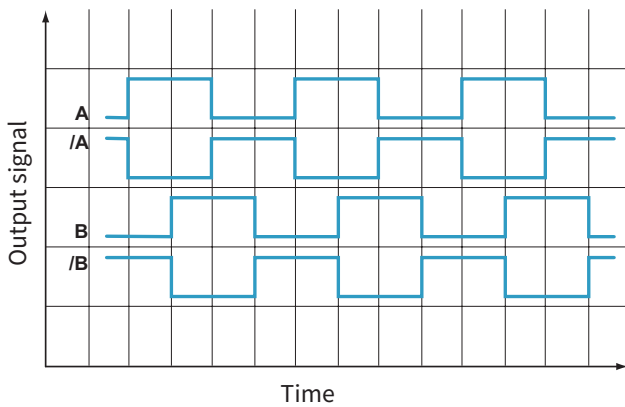
### DIMENSIONS



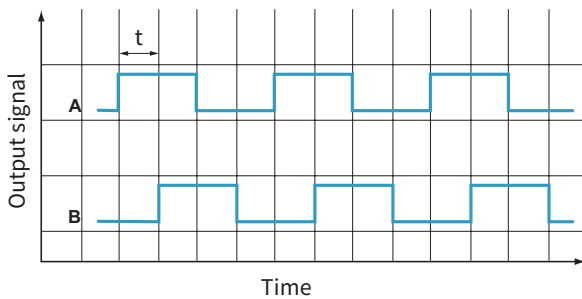
Mechanical data		
Feature	Technical data	Additional information
Housing	zinc die-cast	
Sensor/band reading distance	$\leq 0.8 \text{ mm}$	lateral offset $\pm 0.6 \text{ mm}$
Cable length	2 m	
Cable sheath	PUR, suitable for drag-chain use	10-core $\varnothing 5.5_{-0.4} \text{ mm}$ (E1, twisted in pairs)
Cable bending radius	28 mm	static
	42 mm	dynamic
Service life of cable	5 million cycles	under the following test conditions: Travel distance 4.5 m Travel speed 3 m/s Acceleration 5 m/s <sup>2</sup> Ambient temperature 20° C $\pm$ 5° C
Weight	$\sim 0.05 \text{ kg}$	without cable

Electrical data		
Feature	Technical data	Additional information
Operating voltage	4.5 ... 30 V DC	reverse polarity protected
Current consumption	<200 mA	
Status display	RGB-LED	plausibility error, distance warning, device status
Output circuit	LD	
Interface	BiSS C	
Type of connection	M12 connector	2 m cable

**SIGNAL PATTERN, LD OUTPUT CIRCUIT**



**PULSE INTERVAL, LD OUTPUT CIRCUIT**



Example: Pulse interval  $t = 1 \mu\text{s}$   
(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 $\mu\text{m}$	absolute
Linearity deviation	$\pm 10 \mu\text{m}$	
Repeat accuracy	$\pm 1 \mu\text{m}$	
Measuring range	$\leq 16000 \text{ mm}$	
Travel speed	$\leq 5 \text{ m/s}$	absolute

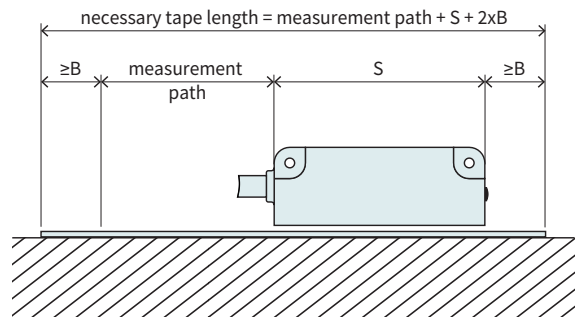
Travel speed, LD output circuit						
Travel speed [m/s]	10.00	5.00	2.00	1.00	0.50	0.20
Pulse interval [ $\mu\text{s}$ ]	0.10	0.20	0.50	1.00	2.00	5.00
Counting frequency [kHz]	2500.00	1250.00	500.00	250.00	125.00	50.00

Ambient conditions		
Feature	Technical data	Additional information
Ambient temperature	-40 ... 80 °C	
Storage temperature	-40 ... 80 °C	
Relative humidity	100 %	condensation admissible
EMV	EN 61326-1	industry immunity requirement, class B emission limit
Protection category	IP67	EN 60529
Shock resistance	≤500 m/s <sup>2</sup> , 11 ms	EN 60068-2-27, half-sine, 3 axes (+/-), each 3 pulses
Vibration resistance	≤100 m/s <sup>2</sup> , 10 ... 2000 Hz	EN 60068-2-6, 3 axes, each 10 cycles

### Necessary tape length

The necessary tape length is calculated from:  
measured distance + sensor length "S" + (2 x forerun or overrun "B", resp.).

S	Cf. drawing of sensor used
B	5 mm (forerun and overrun)

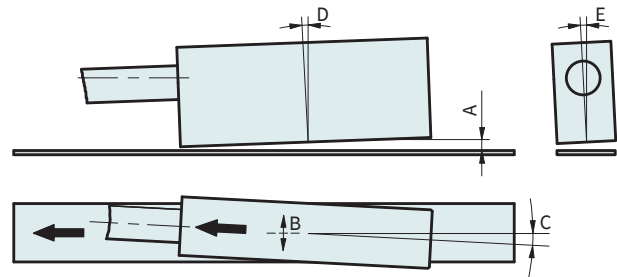


Symbolic display

### 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 display

Pin assignment KSS01-12		Extension cable		Sensor cable	
Pin	Signal	Color	Connector	Color	Connector
Pin 1	Do not connect	grey-pink		-	
Pin 2	SLO	pink		grey	
Pin 3	NSLO	grey		white	
Pin 4	NMA	black		blue	
Pin 5	+UB	white		brown	
Pin 6	/A	green		yellow	
Pin 7	A	yellow		red	
Pin 8	/B	blue		green	
Pin 9	B	red		orange	
Pin 10	Do not connect	red-blue		-	
Pin 11	MA	violett		blue	
Pin 12	GND	brown		black	

## ORDERING INFORMATION

Item Item-No.	Description	Item-No.
<b>MS01-1/D-BISS</b>	Linear Encoder 1 µm, A/B (for absolute strip)	<a href="#">0150-4717</a>
<b>MB01-1000-ABS/BISS</b>	Magnetic absolute strip for MS01-1/D-BISS (per cm)	<a href="#">0150-4730</a>
<b>EC01-ABS/ENC-12-S</b>	Encoder connector straight	<a href="#">0150-3616</a>
<b>Special cabel KSS01-12-D15/ABS-ENC-</b>	for MS01-1/D-SSI/BiSS on C1100/C1200/C1400/E1200/E1400 Drives	<a href="#">0150-3652</a>
<b>KSS01-12.../ABS-ENC-10</b>	Cable für MS01-1/D-SSI/BiSS, 10m, flying leads	<a href="#">0160-3387</a>

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