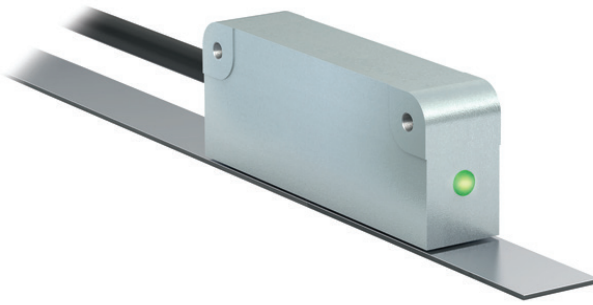


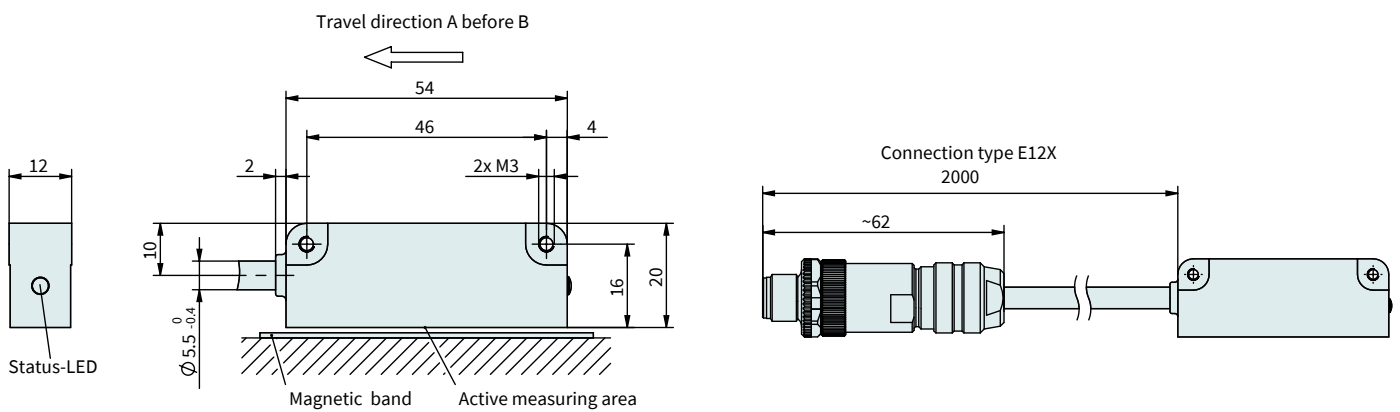
## External Position Sensor MS01-1/D-BiSS

Feature:

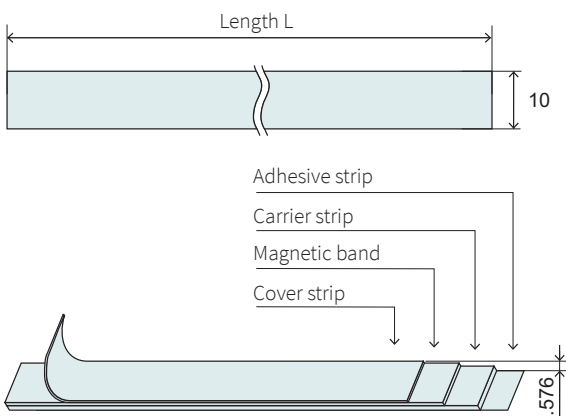
- » High absolute resolution 1 µm
- » Repeat accuracy max. ±1 µm
- » Reading distance ≤0.8 mm
- » Measuring range 0 ... 16 m
- » Function and status display LED
- » Interface BiSS C



### DIMENSIONS



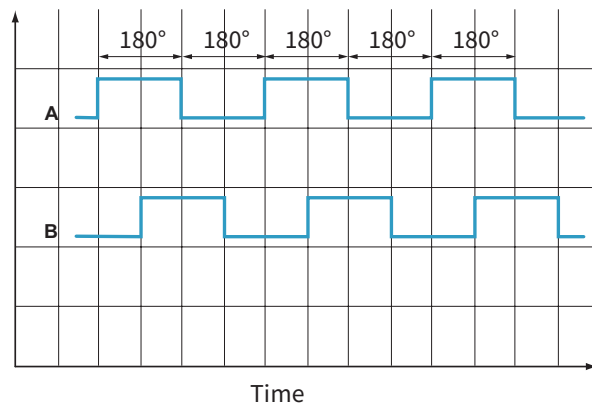
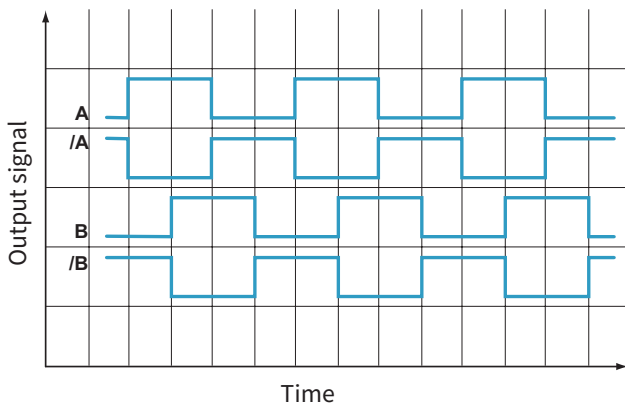
Mechanical data		
Feature	Technical data	Additional information
Housing	zinc die-cast	
Sensor/band reading distance	≤0.8 mm	lateral offset ±0.6 mm
Cable length	2 m	
Cable sheath	PUR, suitable for drag-chain use	10-core ø5.5 <sub>-0.4</sub> mm (E1, twisted in pairs)
Cable bending radius	28 mm	static
	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 ± 5° C
Weight	~0.05 kg	without cable



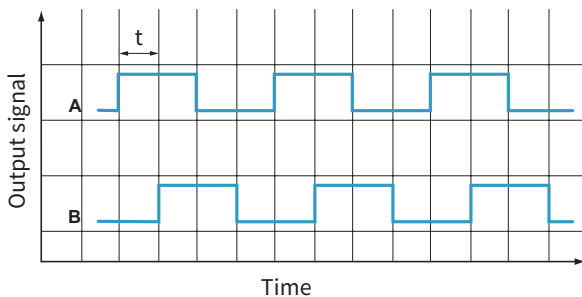
Technical data magnetic tape	
Necessary tape length	Measured distance +80 mm
Band width	10 mm
Cover material	rustproof stainless steel
Linearity deviation	± 30 µm
Expansion coefficient	(11 ± 1) × 10 <sup>-6</sup> / °K
Ambient temperature	-40...100°C
Storage temperature	-40...100°C
Relative humidity	100%
Mounting type	double-sided tape premounted

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

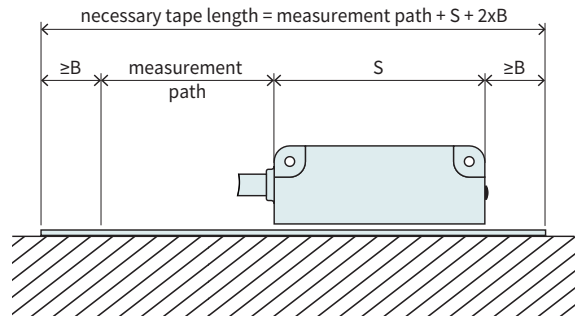
Travel speed, LD output circuit						
Travel speed [m/s]	10.00	5.00	2.00	1.00	0.50	0.20
Pulse interval [ $\mu\text{s}$ ]	0.10	0.20	0.50	1.00	2.00	5.00
Counting frequency [kHz]	2500.00	1250.00	500.00	250.00	125.00	50.00

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)

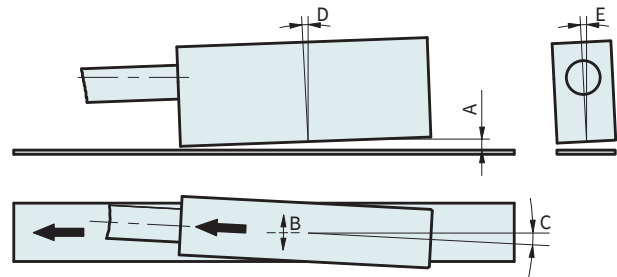


Symbolic display

### 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		Sensor cable		Extension cable	
Pin	Signal	Color	Connector	Color	Connector
1	-	-	<b>Connector m</b> 	grey-pink	<b>Connector f</b> 
2	SLO	grey		pink	
3	/SLO	white		grey	
4	/MA	purple		black	
5	+Vcc	brown		white	
6	/A	yellow		green	
7	A	red		yellow	
8	/B	green		blue	
9	B	orange		red	
10	-	-		red-blue	
11	MA	blue		violett	
12	GND	black		brown	
Case	Shield (EMC-GND)	shield	shield		

1) The shield connection is introduced from version code A11xxxx.

### ORDERING INFORMATION

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>

# ALL LINEAR MOTION FROM A SINGLE SOURCE

## Europe / Asia Headquarters    North / South America Headquarters

### NTI AG - LinMot & MagSpring

Bodenaeckerstrasse 2  
CH-8957 Spreitenbach  
Switzerland

☎ +41 (0)56 419 91 91

☎ +41 (0)56 419 91 92

✉ office@linmot.com

🏠 www.linmot.com

### LinMot USA, Inc.

N1922 State Road 120, Unit 1  
Lake Geneva, WI 53147  
United States

☎ 262-743-2555

✉ usasales@linmot.com

🏠 www.linmot-usa.com