

MAGNETIC SCALE

Links to further documents for this series:

[Installation guide sensor](#)

[Installation guide magnetic tape](#)

[Manual](#)



MXS2 SERIES

Key-Features:

- Measurement ranges up to 8165 mm
- Linearity up to $\pm 2 \mu\text{m}$
- Resolution up to $1 \mu\text{m}$
- Available interfaces SSI & BiSS
- Unaffected by dust, debris or liquids, IP67
- Operating temperature range from $-25 \text{ }^\circ\text{C}$ to $+85 \text{ }^\circ\text{C}$
- Large mounting tolerances
- Additional incremental output for speed feedback

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TECHNICAL DATA SENSOR MXS2

Measurement range	[mm]	up to 8165 (magnetic tape length -55 mm)				
Linearity max.	[μm]	± 2	± 5	± 10	± 50	
Repeatability		± 1 increment				
Resolution	[μm]	1	2	5	10	50
Position refresh (absolute)	[μs]	33				
Counting frequency (incremental)		see table below				
Output		absolute: SSI, BiSS-C incremental: NPN (AB)				
Supply	[VDC]	+5 $\pm 5\%$				
Power consumption	[W]	max. 1				
Connection		Hi-flex cable with open wires or cable with connector M12, 8 pins				
Protection class		IP67				
Operating temperature	[$^{\circ}\text{C}$]	-25...+85				
Storage temperature	[$^{\circ}\text{C}$]	-40...+100				
Shock resistance		250 g, 6 ms according to CEI EN 60068-2-27				
Vibration resistance		10 g, 5...2000 Hz according to CEI EN 60068-2-6				
Short-circuit protection		yes				
EMC		according to EN 61000-6-2 level 3				
Gap between sensor and tape	[mm]	0.1...0.6				
Travel speed (mechanical)	[m/s]	max. 10				
Housing		anticorrosive, UNI EN AW-6082				

COUNTING FREQUENCY

Resolution [μm]	Max. travel speed [m/s] ¹⁾	Max. counting frequency [kHz]	Length of data word	Max. number of information
50	7	73	19 bits	18 bits (262143)
10	7	350	21 bits	20 bits (1048575)
5	7	580	22 bits	21 bits (2097151)
2	1.8	580	23 bits	22 bits (4194303)
1	1.4	580	24 bits	23 bits (8388607)

¹⁾ min. edge distance = 0.25 μs (4 MHz). Double speed possible with reduced sensor linearity ($\pm 4 \mu\text{m}$)

TECHNICAL DATA MAGNETIC TAPE WBA2

Length	[mm]	max. 8220
Accuracy class	[$\mu\text{m}/\text{m}$]	± 40
Polar pitch	[mm]	2
Protection class		IP67
Operating temperature	[$^{\circ}\text{C}$]	-25...+85
Storage temperature	[$^{\circ}\text{C}$]	-40...+100
Thermal expansion coefficient	[1/K]	0.000016

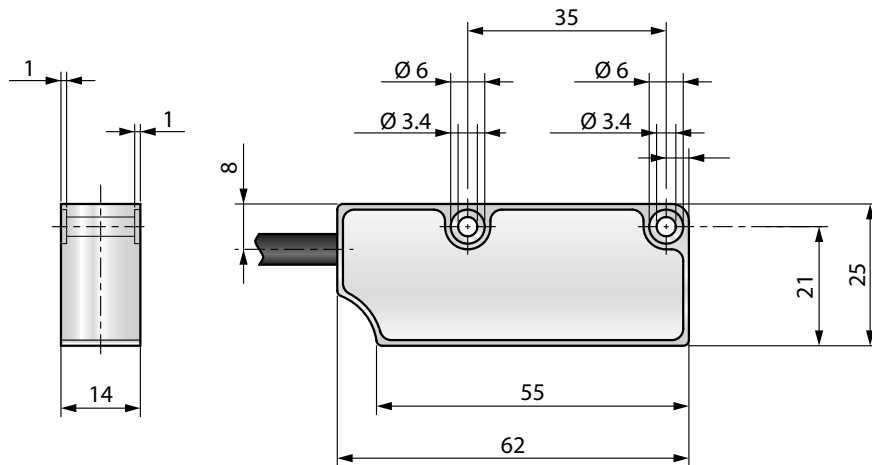
CHEMICAL RESISTANCE MAGNETIC TAPE WBA2

Acetone	••	Kerosene	•	Seawater	••
Acetylene	••	Ketone	•••	Steam heat	•
Antifreeze (Glacial acetic acid)	•	Mineral / Motor oil	•	Thinner	•••
Benzene	•••	Petrol	••	Turpentine	••
Heptane	•••				

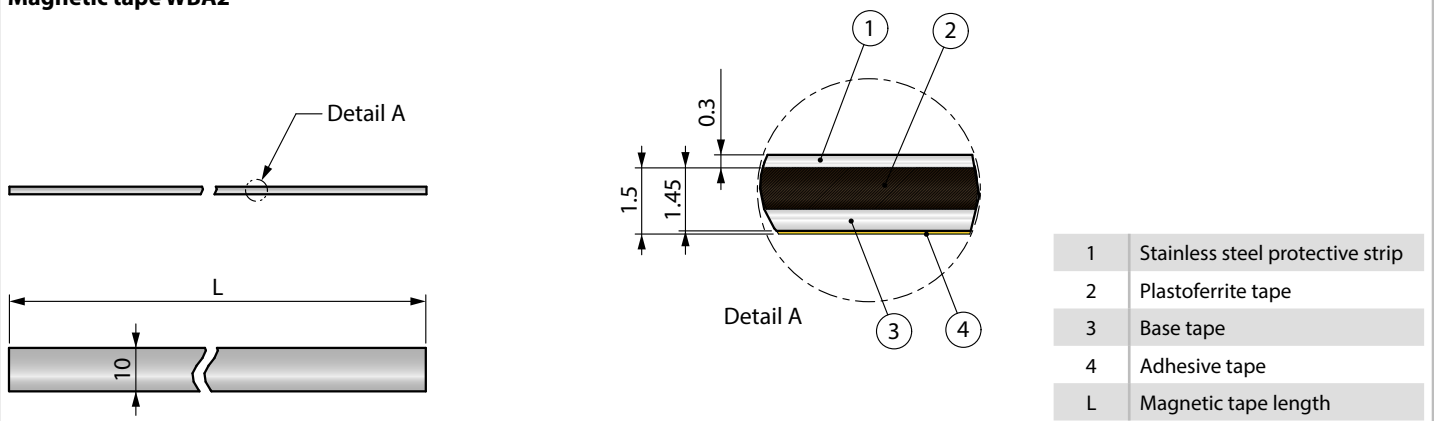
• No effect or low effect •• Low to Medium effect ••• Strong effect

TECHNICAL DRAWING

Sensor MXS2



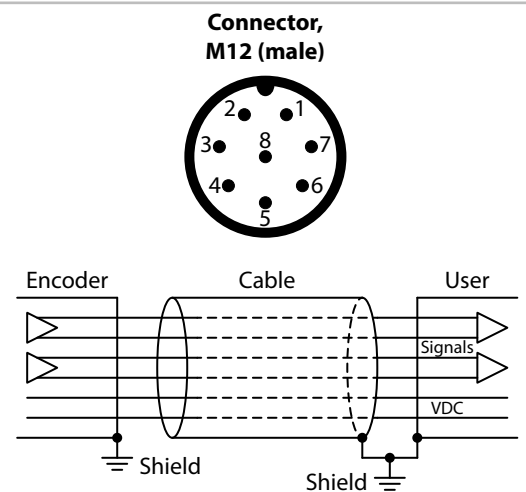
Magnetic tape WBA2



ELECTRICAL CONNECTION

Function	Cable output	Connector output	Connection cable K8P...
GND	BK	Pin 1	WH
+V	RD	Pin 2	BN
Clock IN + / MA +	YE	Pin 3	GN
Clock IN - / MA -	BU	Pin 4	YE
Data OUT + / SLO +	GN	Pin 5	GY
Data OUT - / SLO -	OG	Pin 6	PK
A ¹⁾	WH	Pin 7	BU
B ¹⁾	GY	Pin 8	RD
Shield	Shield	Housing	Shield

¹⁾ only available with output options SSII and BISS



ORDER CODE SENSOR

MXS2 - [] - [] - []

Output signal	
SSI, Gray MSB aligned	SSIG
SSI, Gray MSB aligned, + incremental	SSII
SSI, Binary MSB aligned	SSIB
BiSS-C, + incremental	BISS

Resolution	
1 µm	1
2 µm	2
5 µm	5
10 µm	10
50 µm	50

Connection	
L2	Cable output 2 m
L5	Cable output 5 m
M0,5	Cable 0.5 m + M12 connector
M2	Cable 2 m + M12 connector

ORDER CODE MAGNETIC TAPE

WBA2 - [] - [] - []

Length [mm]	
1000 (measurement range max. 945)	1
2000 (measurement range max. 1945)	2
3000 (measurement range max. 2945)	3
4000 (measurement range max. 3945)	4
5000 (measurement range max. 4945)	5
6000 (measurement range max. 5945)	6
7000 (measurement range max. 6945)	7
8220 (measurement range max. 8165)	8,2

1	Stainless steel protective strip Supplied
40	Accuracy class ±40 µm/m

ACCESSORIES

Cable with connector (female) M12, 8 poles, shielded, IP67

K8P2M-S-M12	2 m, straight connector
K8P5M-S-M12	5 m, straight connector
K8P10M-S-M12	10 m, straight connector

Mating connector (female) M12, 8 poles, for self assembly

D8-G-M12-S	straight connector
D8-W-M12-S	angular connector

Digital displays for sensors with SSI output, 2 channel

WAY-SX-S	touch screen, supply: 18...30 VDC
WAY-SX-AC	touch screen, supply: 115...230 VAC

For more information and options please refer to the [WAY-SX data sheet](#).

Subject to change without prior notice.

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