

## ALS26

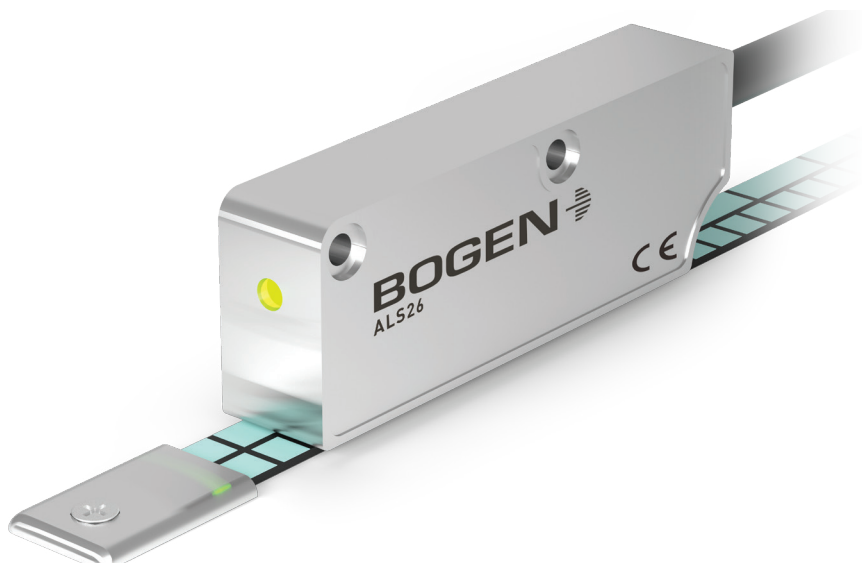
### Absolute Linear Magnetic Sensing Head

The Absolute Magnetic Sensing Head ALS26 combined with BOGEN's magnetic scales offer cost-efficient magnetic measurement solutions for many industrial applications where movements or positions have to be measured. ALS26 can be used for linear measurements up to 32700 mm length with a resolution up to 1  $\mu\text{m}$ . The measuring head provides both BiSS-C and SSI outputs or a Panasonic output and an additional incremental output for speed feedback. Thanks to IP67 class protection and rugged mechanical design ALS26 can be implemented even in harsh industrial environments.

Absolute  
Measuring

Linear  
Applications

ALWAYS  
ABSOLUTE



## Features and Benefits

- BiSS-C, SSI, Panasonic interface
- resolution up to 1  $\mu\text{m}$
- additional incremental output for speed feedback
- error bit output
- sensor vs tape gap diagnostic LED
- measuring length up to 32,7 m

## Specifications

### Environmental Specifications

shock	250 g, 6 ms acc. to CEI EN 60068-2-27
vibrations	10 g, 5-2000 Hz acc. to CEI EN 60068-2-6
protection	IP67
operating temperature range	-25°C +85°C (-13°F +185°F)
storage temperature range	-40°C +100°C (-40°F +212°F)

### Mechanical Specifications

dimensions	see drawing
housing material	anticorrosive, UNI EN AW-6082
electrical connection	hi-flex cable T12 2,0 m or M12 inline plug
gap sensor/tape	0.1 to 0.6 mm
travel speed (mechanical)	10 m/s max.
measurement length	32749 mm max.; measurement length = tape length - 63 mm

### Electrical Specifications

resolution	50, 10, 5, 2, 1 µm
sensor accuracy	±2 µm max.
repeat accuracy	±1 increment
output circuits	absolute: SSI, BiSS-C, Panasonic RS485; incremental: Line Driver RS422
position refresh (absolute)	33 µs
counting frequency (incremental)	see table below
power supply	+5Vdc ±5%, +5 +30Vdc
power consumption	1 W max.
protection	against inversion of polarity and short-circuit
EMC	acc. to EN 61000-6-2 level 3

### Accessories

magnetic tape	LMS2-A153-I2-W10-A40; article code 51246 / on reels; (essential accessory)
cover tape	ADBD-S10x0.1-K0.13, stainless steel, 10 x 0.1mm, adhesive 3M9469, 0.13mm, article code 50318
end clamps (BOGEN)	set (SPA-E-05.2-SET) including 1 pc each (00100281) terminal (SPA-E-05.2) (00022238) and screw with hexagon socket (SCHR-ISO14581-M2x5-A2) (00022394)
end clamps (Lika)	kit of 10 pcs black plastic terminals for magnetic tape, incl. screws (KIT LKM-1440)
connector	M12 8 pin mating connector; M12 12 pin mating connector

### Counting Frequency Between Signal Edges (Incremental)

resolution code (µm)	max. travel speed (m/s)*		max. counting frequency of AB at max. speed (kHz) <sup>(3)</sup>
	a <sup>(1)</sup>	b <sup>(2)</sup>	
50	< 7	10	200
10	< 7	10	1000
5	< 7	10	2000
2	< 2.8	4.7	2320
1	< 1.4	2.4	2320

(1) speed limit for best signal (jitter) performance

(2) max. allowed speed limit

(3) min. edge distance = 0,25 µs (4MHz)

## Pin Assignment

### SSI and BiSS Connections

function	M12 8-pin	M12 12-pin	T12 cable
0 Vdc	1	1	white_green
+Vdc <sup>(1)</sup>	2	2	brown_green
clock in+/MA+	3	3	violet
clock in-/MA-	4	4	yellow
data out+/SLO+	5	5	grey
data out-/SLO-	6	6	pink
A <sup>(2)</sup>	-	9	green
/A <sup>(2)</sup>	-	10	brown
B <sup>(2)</sup>	-	11	red
/B <sup>(2)</sup>	-	12	black
not connected	7, 8	7, 8, 9, 10, 11, 12	white, blue, green, brown, red, black
shield	case	case	shield

(1) 5 Vdc or 5 - 30 Vdc, depending on ordered supply

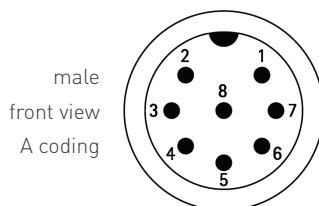
(2) AB /AB incremental output only available in ordered interface

### RS-485 Serial Connections

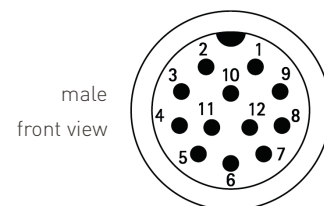
function	M12 8-pin	M12 12-pin	T12 cable
0 Vdc	1	1	white_green
+5 Vdc ± 5 %	2	2	brown_green
reserved	3, 4	3, 4	violet, yellow
A (REQ+ / SD+)	5	5	grey
B (REQ- / SD-)	6	6	pink
not connected	7, 8	7, 8, 9, 10, 11, 12	white, blue, green, brown, red, black
shield	case	case	shield

## Connector Specifications

M12 8-pin connector



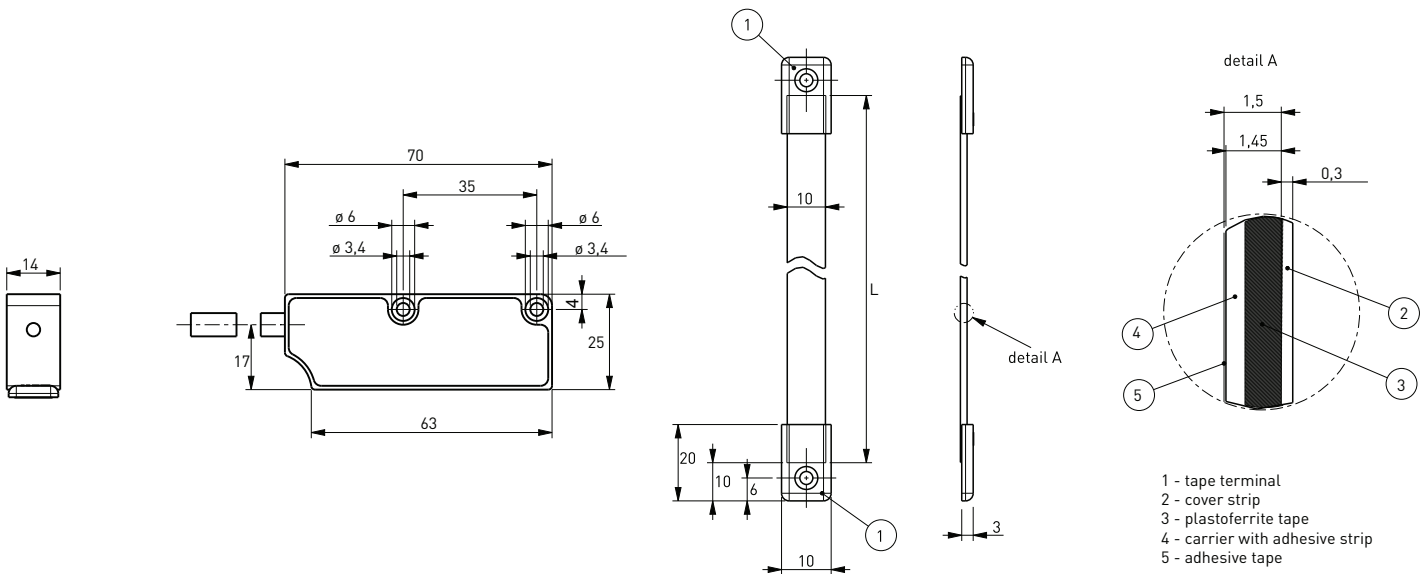
M12 12-pin connector



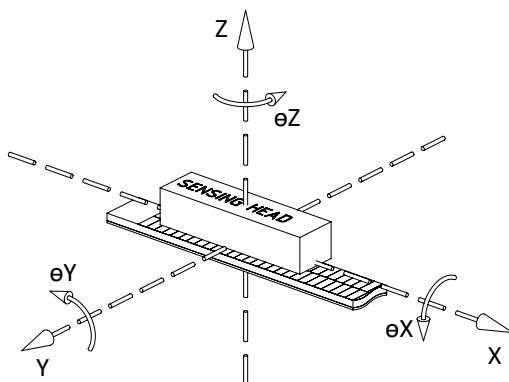
## T12 Cable Specifications

<b>model</b>	High-Flex Twisted Encoder cable type T12
<b>cross section</b>	4 x 2 x 0.14 mm <sup>2</sup> + 4 x 0.25 mm <sup>2</sup> twisted pairs [26/24 AWG]
<b>jacket</b>	matt polyurethane (TPU) halogen free, oil, hydrolysis, abrasion resistant
<b>shield</b>	tinned copper braid, coverage ≥ 85%
<b>outer diameter</b>	6.1 mm ± 0.10 mm / 0.24" ± 0.004"
<b>min. bend radius</b>	outer diameter x 7.5
<b>work temperature</b>	fixed application: - 50 °C + 90 °C / - 58 °F + 194 °F dynamic application: - 40 °C + 90 °C / - 40 °F + 194 °F
<b>conductor resistance</b>	≤148 Ω/km [0.14 mm <sup>2</sup> ], ≤90 Ω/km [0.25 mm <sup>2</sup> ]

## Dimensions



## Installation Tolerances



Z [mm] <sup>(1)</sup>	0.1 to 0.6
Y [mm]	0.3
θY	1°
θX	1°
θZ	1°

<sup>(1)</sup> air gap: distance magnet surface/housing

## Order Code

### ALS26 - V - R - A - L - C

			code	explanation
parameters	V	supply voltage	V5	+ 5 Vdc ± 5 %
			V30	+ 5 to + 30 Vdc
	R	resolution	R50	50 µm
			R10	10 µm
			R5	5 µm
			R2	2 µm
			R1	1 µm
			A1	SSI, Gray MSB aligned
	A	interface absolute	A2	SSI, Gray MSB aligned + AB, /AB
			A3	SSI, Binary MSB aligned
			A4	SSI, Binary MSB aligned + AB, /AB
			A5	BiSS-C interface + AB, /AB
			A6	Panasonic RS485 <sup>(1) (2)</sup>
			L	cable length
	C	connections	Lx	cable output x m <sup>(3)</sup>
			L0.5C1	0.5 m cable + M12 8-pin inline plug <sup>(4)</sup>
			L2C1	2 m cable + M12 8-pin inline plug <sup>(4)</sup>
			L0.5C2	0.5 m cable + M12 12-pin inline plug
			L2C2	2 m cable + M12 12-pin inline plug
			LxC0	x m cable + flying leads
LxC99	x m cable + customized connector			

(1) with 1 µm resolution max. measurement length is 16410 mm

(2) this interface option is only available with + 5 Vdc ± 5 % supply voltage

(3) max. cable output length: 10 m

(4) only available with supply voltage + 5 Vdc ± 5 % in combination with interface options A1, A3, A6; and with supply voltage + 5 to + 30 Vdc in combination with interface options A1, A3

## Ordering Example Linear Magnetic Scale

**LMS2-A154-I2-L30000-W10-A40**

accuracy class: ± 40 µm/m  
 total width: 10 mm  
 total height: 1.30 mm  
 total length: 30000 mm (code length = 32749 mm)  
 without cover tape  
 without adhesive tape  
 with BOGEN standard imprint

For further information please refer to our dedicated [LMSI datasheet](#).

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