

ALS21

Absolute Linear Magnetic Sensing Head

The Absolute Magnetic Sensing Head ALS21 combined with BOGEN's magnetic scales offer cost-efficient magnetic measurement solutions for many industrial applications where movements or positions have to be measured. ALS21 can be used for linear measurements up to 8100 mm length with a resolution up to 1 μm . The measuring head provides both BISS-C or SSI outputs, including incremental signal output in parallel. Thanks to IP67 class protection and rugged mechanical design ALS21 can be implemented even in harsh industrial environments.

Absolute
Measuring

Linear
Applications

ALWAYS
ABSOLUTE



Features and Benefits

- BISS & SSI interface
- additional incremental output for speed feedback
- resolution up to 1 μm
- error bit output
- measuring length up to 8,1 m
- high mounting tolerances

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 M8 2,0 m or M12 8 pin inline plug |
| gap sensor/tape | 0,1 ... 0,6 mm |
| travel speed (mechanical) | 10 m/s max. |
| measurement length | 8165 mm max. (measurement length = tape length - 55 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: NPN o.c. (AB) |
| position refresh (absolute) | 33 µs |
| counting frequency (incremental) | see table below |
| power supply | +5Vdc ±5%, +5 +30Vdc |
| power consumption | 1 W max. |
| protection | against short-circuit |
| EMC | acc. to EN 61000-6-2 level 3 |

Counting frequency between signal edges (incremental)

| resolution code (µm) | Travel speed (m/s)* | | max. counting frequency of AB (kHz)* |
|----------------------|---------------------|-----|--------------------------------------|
| | a | b | |
| 50 | <7 | 10 | 200 |
| 10 | <7 | 10 | 1000 |
| 5 | <7 | 10 | 2000 |
| 2 | <2.8 | 4,7 | 2320 |
| 1 | <1.4 | 2,4 | 2320 |

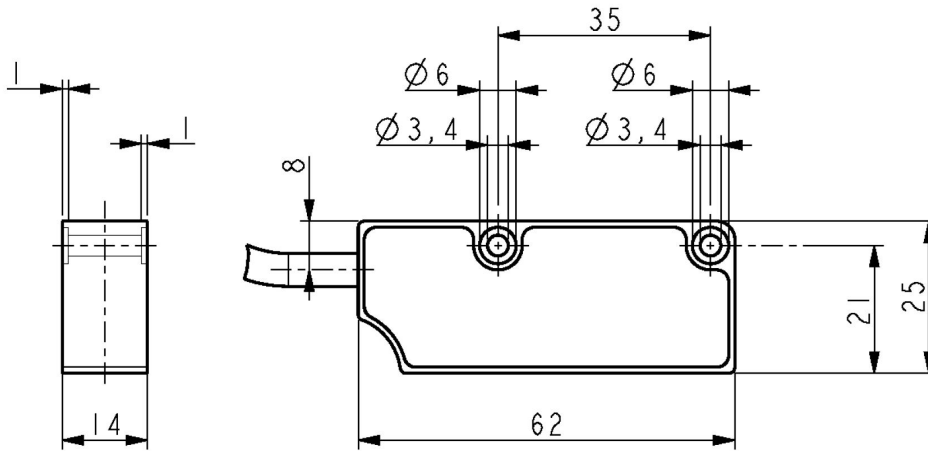
(a) speed limit for best signal (jitter) performance

(b) max allowed speed limit

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

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 |
| set of end clamps (10 pcs) | K29-05-2, 13 x 10 x 2.5mm [L x W x H], article code 22283 |
| connector | M12 8 pin mating connector, E-M12F8 |



Order Code

ALS21 - 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 |
| | | | A | interface absolute |
| | A2 | SSI, Gray MSB aligned + AB incremental, + 5Vdc ± 5 % | | |
| | A3 | SSI, Binary MSB aligned, + 5Vdc ± 5% | | |
| | A4 | SSI, Binary MSB aligned + AB incremental, +5Vdc ±5% | | |
| | A5 | BiSS-C interface + AB incremental, +5Vdc ± 5% | | |
| | A6 | Panasonic RS485, +5Vdc ±5% | | |
| | A7 | SSI, Gray MSB aligned, +5 +30Vdc | | |
| | A8 | SSI, Gray MSB aligned + AB incremental, +5 +30Vdc | | |
| | A9 | SSI, Binary MSB aligned, +5 +30Vdc | | |
| | A10 | SSI, Binary MSB aligned + AB incremental, +5 +30Vdc | | |
| | A11 | BiSS-C interface + AB incremental, +5 +30Vdc | | |
| | L | cable length | L2 | cable output 2 m |
| | | | Lx | cable output x m (max. length 10m) |
| C | connections | L0.5C1 | 0.5 m cable + M12 8-pin inline plug | |
| | | L2C1 | 2 m cable + M12 8-pin inline plug | |
| | | LxC0 | x m cable + flying leads (max. length 10m) | |

Corresponding Linear Magnetic Scales

BOGEN offers a comprehensive scope of standard and tailor-made scales in a variety of sizes and accuracy classes.

For more information on our standard magnetic scales, [please refer to our dedicated datasheets](#).

For your special requests, [please click here to contact our application engineers](#).

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