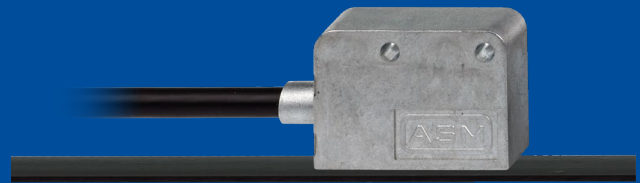




PMIS3

Position Sensor for industrial applications

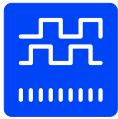


- Protection class IP67
- Measurement length up to 30,000 mm
- Shielded metal housing
- Contactless and wear-free
- Reference pulse and end position signal
- Indicator for velocity / position errors

Product version



Incremental encoder output A/B/Z



PMIS3 - Magnetic Scale Position Sensor
Incremental encoder output

Specifications

| | | Order options | |
|--|---|---------------|--|
| Magnetic period | 2 mm 5 mm | 1 | 20 50 |
| Guided spacing between sensor and mag. scale (x _z) | 0.1 ... 0.8 mm 0.1 ... 2 mm | | |
| Side tracking tolerance of the sensor | ±1 mm ±1 mm | | |
| Linearity (sensor with magnetic scale PMIB3) | 15 µm ± 40 µm/m 30 µm ± 40 µm/m | | |
| Resolution with ext. times 4 counting mode [µm] | 5 10 20 50 10 25 50 125 | 2 | 5 / 10 / 20 / 50 / 10 / 25 / 50 / 125 |
| Max. velocity with f _p =50 kHz [m/s] | 0,8 1,6 3,2 8 1,6 4 8 20 | | |
| Repeatability | ± 1 Digit | | |
| Excitation voltage | 10 ... 30 VDC or 5 VDC ±5 % | | |
| Excitation current | 50 mA to 300 mA, depending on pulse frequency, cable length and load | | |
| Max. pulse frequency f _p | 50 kHz 20 kHz 10 kHz (standard 50 kHz) <small>(The subsequent counting device must be able to process the specified maximum pulse frequency of the sensor)</small> | 3 | 50KHZ 20KHZ 10KHZ |
| Output | Incremental encoder output A/B with differential push-pull output HTL output with excitation 24 VDC, output 24 V TTL output with excitation 5 VDC, output TTL/RS422 TTL output with excitation 24 VDC, output TTL/10 mA | 4 | HTL TTL TTL24V |
| Reference pulse / end position signal / status signal | Z0 = A/B without reference pulse Z1 = A/B with reference pulse Z Z2 = A/B with end position signal Z3 = A/B with reference pulse and status signal <small>(Option Z3 only for non-diferential output, single ended)</small> | 5 | Z0 Z1 Z2 Z3 |
| Output signals | A, \bar{A} , B, \bar{B} , reference pulse Z, \bar{Z} , end position signal E, \bar{E} status signal (\overline{ERR}) | | |
| Housing material | Zinc die casting | | |
| Cable length | Standard 2 m Cable 8 wire, Ø 5 mm, max. Max. length of the integrated sensor cable for output TTL: 3 m; HTL/TTL24V: 20 m | 6 | 2M |
| Electrical connection | S = open cable end P = SUB-D connector at the cable end (9 pin) P15 = SUB-D connector at the cable end (15 pin) | 7 | S P P15 |
| Weight | 30 ±5 g (without cable and connector) | | |

| | |
|-----------------------------|--|
| Protection class (EN 60529) | IP67 |
| Environmental | |
| Shock | EN 60068-2-27:2010, 50 g 6 ms, 100 shocks |
| Vibration | EN 60068-2-6:2008, 20 g, 10-2000 Hz, 10 cycles |
| EMC | DIN EN 61326 |
| Operating temperature | -40 ...+85°C |

Order code

| | | | | | | | | | | | | | | |
|-------|---|----------|---|----------|---|----------|---|----------|---|----------|---|----------|---|----------|
| PMIS3 | - | 1 | - | 2 | - | 3 | - | 4 | - | 5 | - | 6 | - | 7 |
|-------|---|----------|---|----------|---|----------|---|----------|---|----------|---|----------|---|----------|

Order example: PMIS3 - 50 - 25 - 50KHZ - HTL - Z1 - 2M - S

Output signals

| | | | |
|------------------------------|---------------------------|------------------------------------|-------------------------------|
| Saturation voltage | UH, UL = 0,2 V | $I_{out} = \pm 10 \text{ mA}$ | (UH = UB - U _{out}) |
| | UH, UL = 0,4 V | $I_{out} = \pm 30 \text{ mA}$ | |
| | C _{last} < 10 nF | | |
| Short circuit current | ISL, ISH < 800 mA | (UH, UL = 0 V) | |
| | ISL, ISH < 90 mA | (UH, UL = 1,5 V) | |
| Rise time | tr, tf < 200 ns | with cable length 1, 10 % ... 90 % | |

Pulse frequency in dependence on the cable length

| Load/cable length | Load/pulse frequency fp | | |
|------------------------|-------------------------------|--------------------------------------|-----------------------|
| | HTL single ended UB = 24 V | TTL/RS422 differential UB = 5 V * | TTL/24 V UB = 24 V |
| Max. output current | 50 mA | 50 mA | 10 mA |
| R _{last} min. | 500 Ω | 100 Ω | 500 Ω |
| C _{last} max. | 10 nF | 10 nF | 1 nF |
| 200 m | 15 kHz | — | — |
| 100 m | 25 kHz | 100 kHz | — |
| 50 m | 50 kHz | 200 kHz | 50 kHz |
| 10 m | 100 kHz | 300 kHz | 100 kHz |

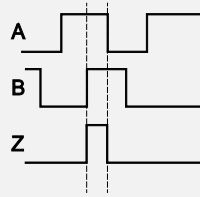
* = consider the voltage loss of the cable; the excitation voltage 5 V ± 5% of the sensor must be guaranteed.

NOTICE

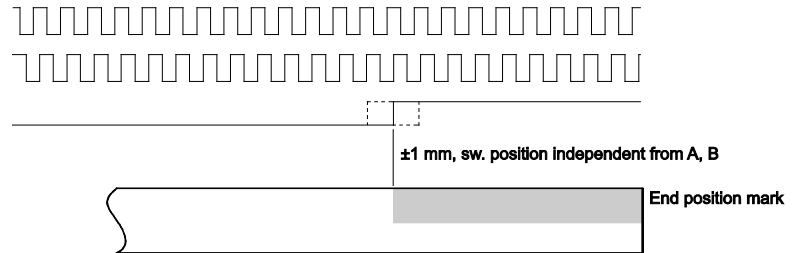
- For longer distances (see specification above) you must use min. 0.5 mm² wire for „Excitation+“ and „Excitation GND“ (see signal wiring next page), all signal wires must be min. 0.14 mm²!

Output signals

Option Z1
(Reference pulse)



Option Z2
(End position signal)



Signal wiring

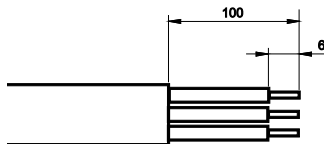
| Signal | | | | | Open cable end cable color | Connector Sub-D, Pin no. | |
|--------|---------------------|-----------|-----------|-------------|----------------------------|--------------------------|---------|
| Option | Z0 | Z1 | Z2 | Z3* | | 9 pin | 15 pin |
| | Excitation + | | | | white | 1 | 1 |
| | Excitation GND (0V) | | | | brown | 5 | 2 |
| | B | B | B | B | green | 2 | 6 |
| | A | A | A | A | yellow | 3 | 4 |
| | \bar{B} | \bar{B} | \bar{B} | \bar{ERR} | grey | 7 | 7 |
| | \bar{A} | \bar{A} | \bar{A} | – | pink | 6 | 5 |
| | – | Z | \bar{E} | Z | blue | 4 | 8 |
| | – | \bar{Z} | E | – | red | 8 | 9 |
| | Shield | | | | black | 9 | housing |

Z = reference pulse

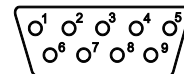
E = end position signal

\bar{ERR} = status signal, periodical approx. 16 Hz, for side tracking and velocity errors

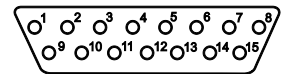
* = status signal ERR available only with HTL (single ended) output



Dimensions open cable end



Connector SUB-D
(9 pin)



Connector SUB-D
(15 pin)

View to the connector pins

NOTICE

- Unused wires are connected inside the sensor head. Do not connect unused wires to each other or to supply U_B or ground potential GND. Isolate and secure unused wires at switch cabinet terminal.

Accessories

Masking tape PMAB

Masking tape made of stainless steel for posimag® magnetic scale PMIB3, width 10 mm, thickness 0.2 mm

Order code

PMAB

-

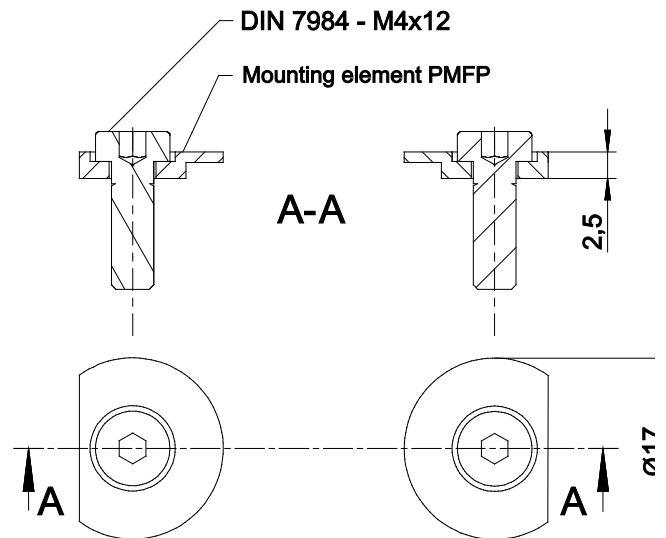
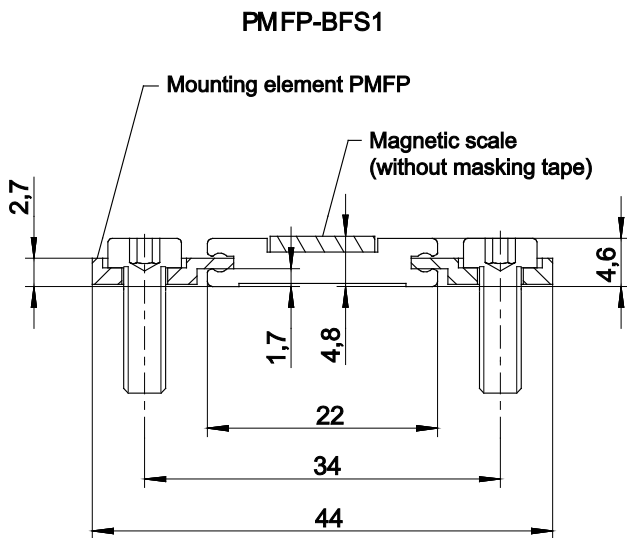
10MM

-

Length in mm

Flat profile PMFP

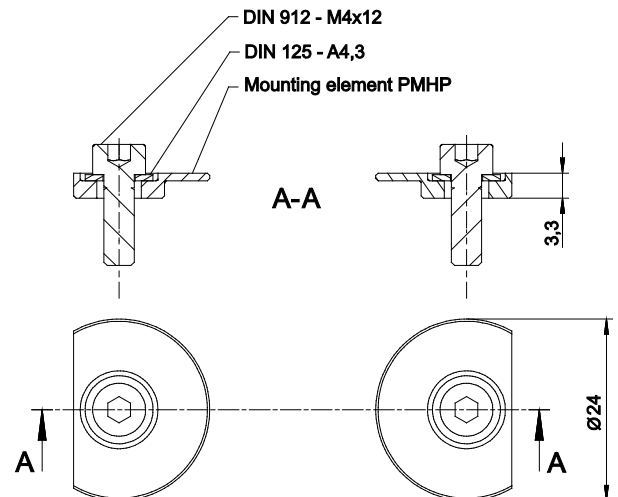
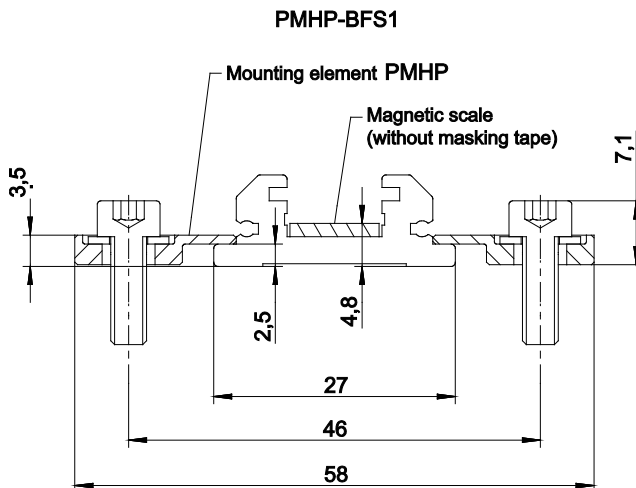
PMFP-BFS1



Mounting element PMFP-BFS1

High profile PMHP

PMHP-BFS1



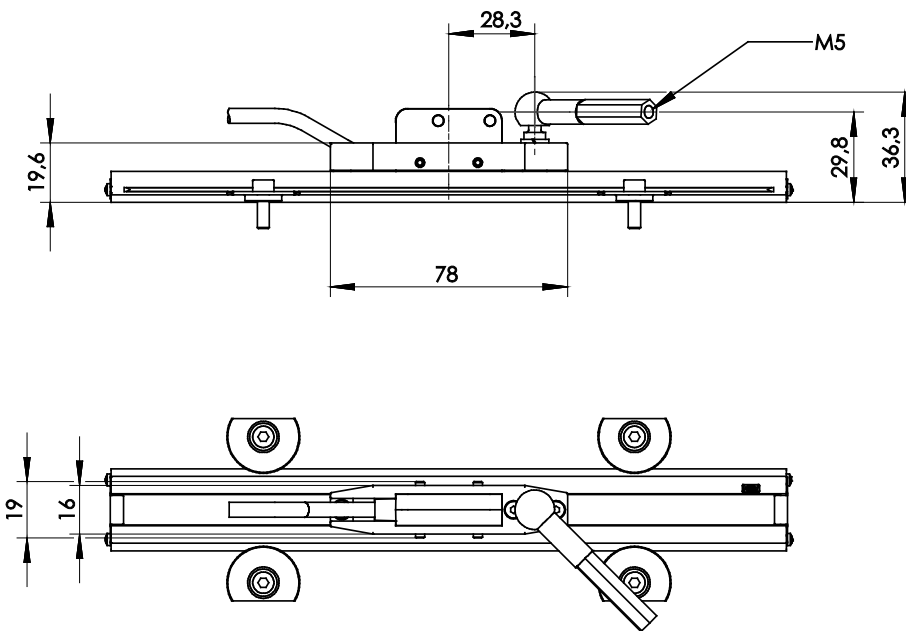
Mounting element PMHP-BFS1

Dimensions in mm [inch].

Dimensions informative only.

For guaranteed dimensions consult factory.

Slider for high profile PMGW3



Dimensions in mm [inch].
Dimensions informative only.
For guaranteed dimensions consult factory.

