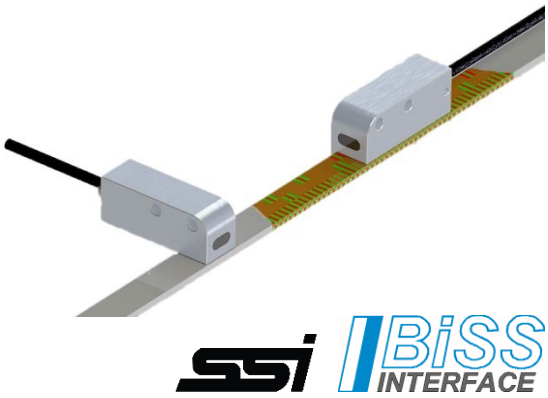
Datasheet

With SSI / Analog sin/cos (1 Vpp) or BiSS C-Interface

Features

- The AHP1-SSI/BiSS-C sensor is multifunctional, high accurate and very robust.
- With the dimensions 14 mm x 13 mm x 40 mm the AHP1 is the smallest and most effective absolute distance-measuring system of class.
- Available with a max. measuring length of 256 mm (up to 997 mm length on request)
- Easy installation in longitudinal or transverse position to the magnetic scale
- Directly after applying the supply voltage, the absolute value is available via an SSI interface / or optionally via a BiSS-C interface.



The extremely small evaluation electronics of the AHP1 are equipped with a worldwide unique full metal protection. This patented design (DE 103 13 643) provides perfect mechanical protection for the sensitive magneto-resistive sensors through a hard stainless steel coating. In addition, this special "Faraday cage" also provides the best EMC protection in its class. The IP67 protection class is also achieved, of course.

Mechanical data

Suitable Magnetic Scale	PMA
Vertical Distance Sensor - Magnetic Scale (gap)	0.01 mm to 0.35 mm (without cover tape)
Yaw Angle (azimuth)	α = ± 1°
Pitch Angle (longitudinal tilt)	β = ± 1°
Roll Angle (transverse tilt)	γ = ± 1°
Traversing Speed	10 m/s

Electrical data

Power Supply	5 VDC; (24 VDC on request)
Power Consumption	50 mA to 80 mA (no load)
Generated Wavelength	λ = 1 mm
Interpolation Factor	1024
Interpolation Accuracy	± 1.5 µm to ± 2 µm

There is no hysteresis (backlash) measurable with the magnetic measuring elements of the Permagnet© series The very small harmonic distortion (Typ. <0,1 %) of the signals enables a perfect control action with high dynamic positioning process (e.g. direct drive).

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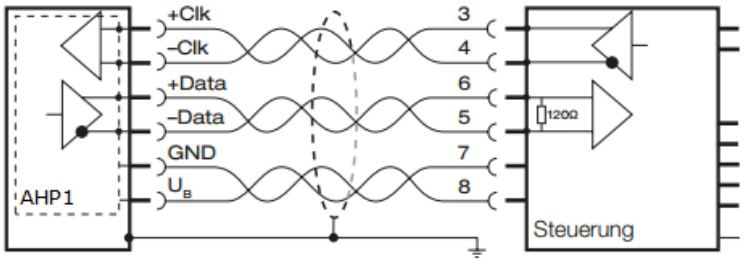
Output and clock signals SSI / BiSS

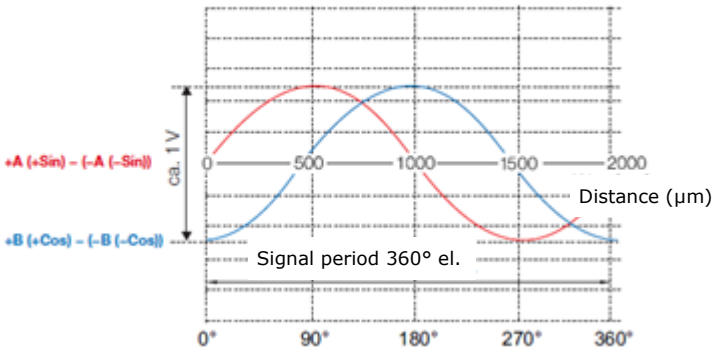


Signal Level	0 V / RS422
Outputs	Line Driver
Clock Signal	Line Driver
Termination -resistor	120 Ω

Output signal analogue (1Vpp)

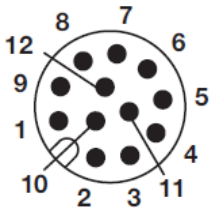
Signal level A,B	0.8 to 1.2 Vpp
Mean voltage	2.5 ± 0.5 V
Signal ratio A/B	0.9 to 1.1
Phase angle l	90° ± 0.1° el.
Harmonic distortion	Type <0.1%
Signal period A, B	1000 µm

Output voltage



Siemens specification for encoder signals is fulfilled (only with BiSS).

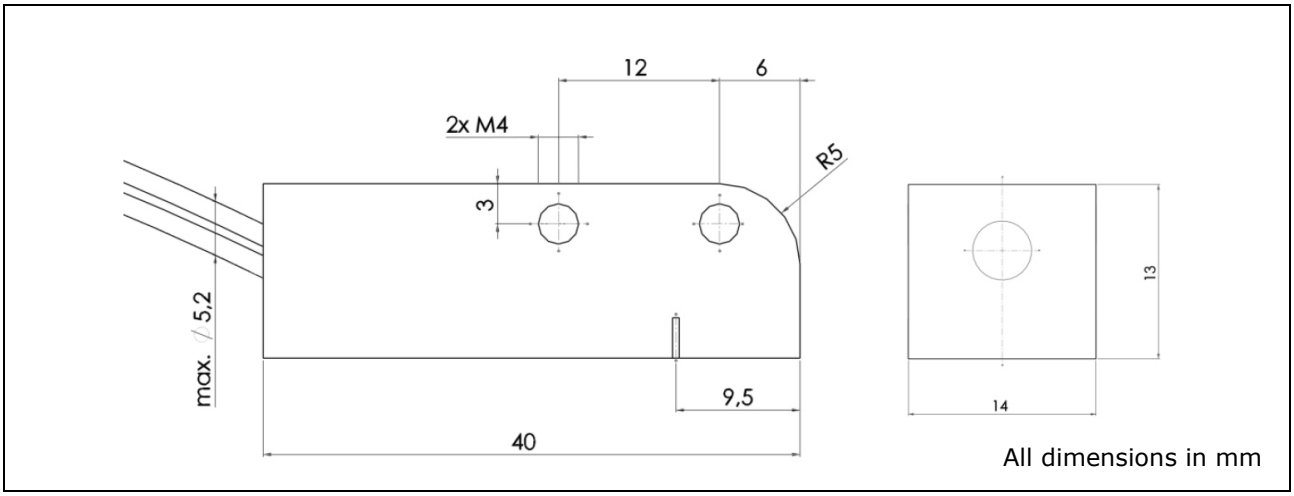
Pin assignment



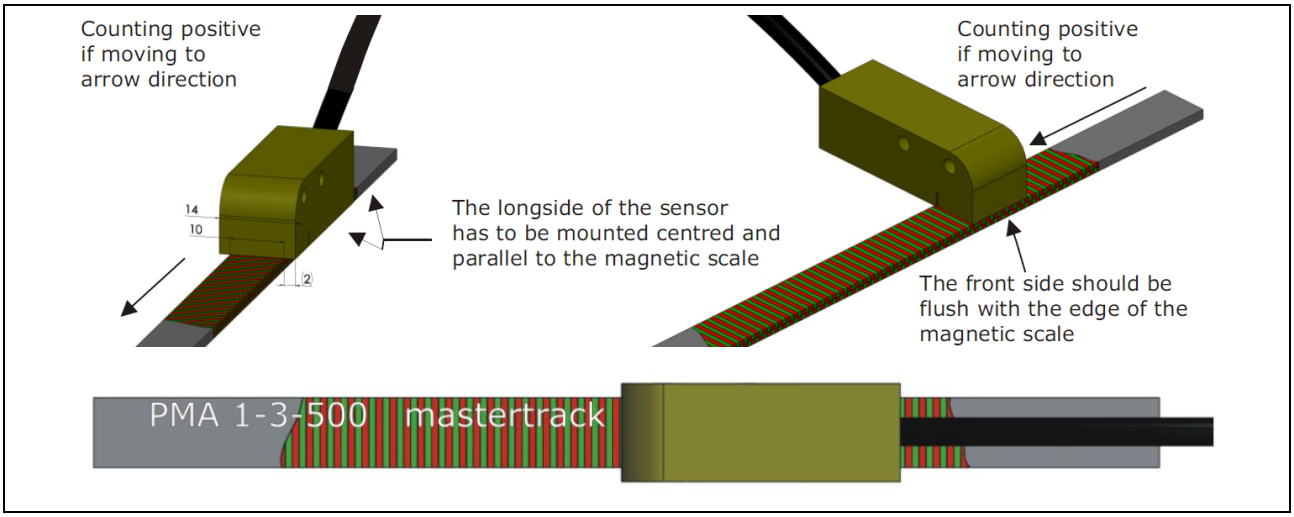
Signal	Colour	D-Sub 15-pin (F)	M12-Connector
+B / +(COS)	white	6	1
$\overline{B}$ / -(COS)	brown	7	2
+Clk	green	14	3
-Clk	yellow	15	4
-Data	grey	8	5
+Data	pink	5	6
GND	blue	2	7
U_B	red	1	8
$\overline{A}$ / -(SIN)	black	4	9
+A / +(SIN)	violet	3	10
GND Sense	grey/pink	11	11
U_B Sense	red/blue	9	12

Cable ends are open as standard or optionally assembled with a D-Sub plug (15-pin). A high-quality 12-core (Ø4.9 mm) shielded cable with sense power (measuring lines) is used to compensate for voltage drop in the supply line.

Dimensions



Mounting position



Sensor movement in cable direction = count code falling
Sensor movement in sensor head direction = counting code increasing

Datasheet

Ordering example

Type	AHP1	-		-	64	-	IP1024	-	SSI	-	1,0	-	5	-	16b

Mounting position [1)]

= along to magnetic scale (standard)
90 = 90° transversely to magnetic scale

Coding/Measuring length

64; 256; 1024

Resolution

IP1024

Interface

SSI
BiSS

Cable length/Connector

1,0 = 1 m
2,0 = 2 m
5,0 = 5 m
C0,3/M12 = M12-connector (plug), 12-pin; 0,3 m
SUBD15/0,3 = D-Sub-connector, 15-pin; 0,3 m

Power supply [2)]

5 = 5 VDC

Nominal length

16b; 18b; 20b

[1)] Indication only for 90° transversely to magnetic scale.
[2)] 24 VDC optional, on request.

Without prior notice, the products may be subject to modifications that the Manufacturer reserves to introduce as deemed necessary for their improvement.

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