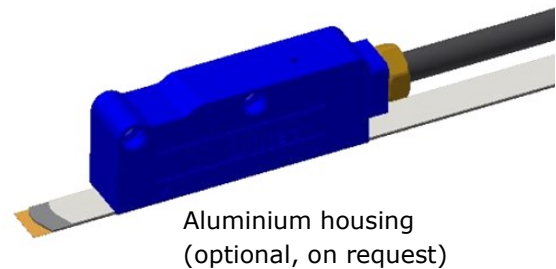


Datasheet

General features

- Linear magnetic sensor, with direct reading of the absolute position.
- Resolutions up to 1 μm .
- Measuring length up to 30.000 mm.
- High-speed SSI - BiSS C (unidirectional) serial interface.
- Contactless reading through positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy).
- Warning indication through LED.
- Extremely easy and fast mounting of the sensor and application of the magnetic scale, with wide alignment tolerances.
- Possibility to fix the magnetic sensor with M4 screws or with through M3 screws.
- Small size, to allow installation in narrow spaces.
- Axial or radial robust sealed cable output.
- Cable suitable for continuous movements.



Mechanical characteristics

Material housing	Zinc-die-cast (standard) or aluminium (optional)
Cable type	6-wire shielded cable $\varnothing = 7$ mm, PVC external sheath 10-wire shielded cable $\varnothing = 7.1$ mm, PUR external sheath
Weight	80 g
Measuring length ML	up to 30.000 mm
Warning indication through LED	LED lights up: operational LED does not light up: check distance
Traversing Speed	< 300 m/min < 90 m/min -> with a resolution of 1 μm
Operating Temperature	0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$ (-20 $^{\circ}\text{C}$ to +80 $^{\circ}\text{C}$ on request)
Storage Temperature	-20 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$ (-45 $^{\circ}\text{C}$ to +90 $^{\circ}\text{C}$ on request)
Relative Humidity	100%
Vibration Resistance (EN 60068-2-6)	200 m/s^2 [55 to 2.000 Hz]
IP-Rating (EN60529)	IP67

Electrical characteristics

Pole pitch	2+2 mm
Signal period	2 mm
Resolution Absolute 1 Vpp	500; 100; 50; 10; 5; 1 μm < 1 μm (depending on CNC division factor)
Incremental Signal	Sinus/Cosinus 1 Vpp (A and B output signals, with phase displacement of 90 $^{\circ}$)
Accuracy	± 15 μm (at $T_U = 20$ $^{\circ}\text{C}$)
Repeatability	± 1 increment
Interface	SSI BiSS unidirectional
Supply Power	5 to 28 VDC ± 5 %
Consumption Power	150 mA (with $R = 120$ Ω) – 5 VDC 100 mA (with $R = 1200$ Ω) – 24 VDC
Max. Cable length	20 m ¹⁾

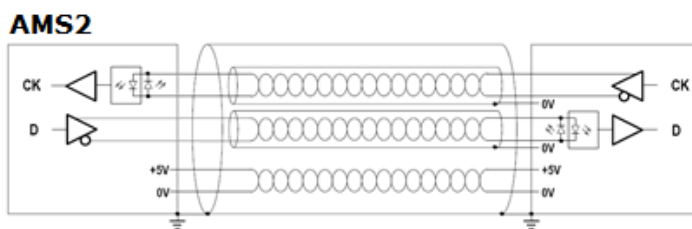
¹⁾ Ensuring a minimum power supply of 5 V to the sensor, the maximum cable length can be extended to 50 m.

Datasheet

Serial output

- Shielded twisted pair for analog signals (SIN, COS)
- The cable is suitable for continuous movement
- 6-wire shielded cable, $\varnothing = 7 \text{ mm}$, PVC external sheath, with low friction coefficient, oil-resistant
- Conductors section:
 - Power supply $0,25 \text{ mm}^2$
 - Signals $0,25 \text{ mm}^2$

i The cable's bending radius should not be lower than 70 mm.



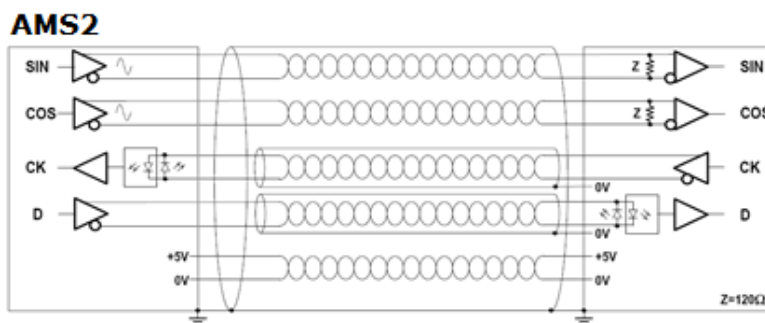
Signal	Colour
+V	brown
0V	white
CK	green
CK/	yellow
Data	pink
Data/	grey
SCH	shield

Wiring assignment: 6-wire shielded cable, opposite open cable end (according to DIN 47100)

Analog + Serial output

- Shielded twisted pair for analog signals (SIN, COS)
- The cable is suitable for continuous movement
- 10-wire shielded cable, $\varnothing = 7.1 \text{ mm}$, PUR external sheath
- Conductors section:
 - Power supply 0.35 mm^2
 - Signals 0.15 mm^2

i The cable's bending radius should not be lower than 80 mm.



Signal	Colour
+V	red
0V	blue
A	green
A/	orange
B	white
B/	bright blue
CK	brown
CK/	yellow
Data	pink
Data/	grey
SCH	shield

Wiring assignment: 10-wire shielded cable, opposite open cable end (according to DIN 47100)

Datasheet

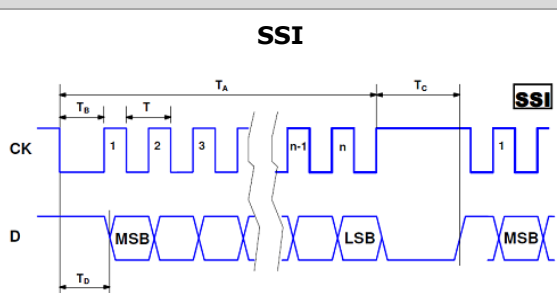
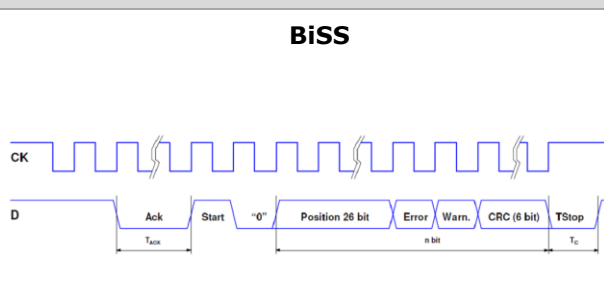


In case of cable extension, it is necessary to guarantee:

- the electrical connection between the body of the connectors and the cables shield
- a minimum power supply voltage of 5 V to the sensor

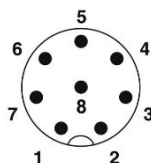
Avoid locating the cable next to any device that may cause electromagnetic interferences (motors, solenoid valves, inverters). If interferences are detected, act directly on the source of disturb using EMC filters.

Output signals

AMS2		AMS2	
			
Interface	SSI binary-Gray	Interface	BiSS C unidirectional
Clock frequency [MHz]	0.1 ÷ 1.2 MHz	Clock frequency [MHz]	0.1 ÷ 8 MHz
n	Position bit	n	26 + 2 + 6 bit
T_c	max. 25 µs	T_c	8 µs

Connector M12 plug straight, 8-pin, type CI9

PIN	Signal	Colour
1	CK/	yellow
2	CK	green
3	+V	brown
4	--	--
5	Data/	grey
6	Data	pink
7	--	--
8	0V	white
9	--	--
10	--	--
11	--	--
12	Shield	



Connector type **CI9**:
M12 plug straight, 8-pin,
view on plug side.

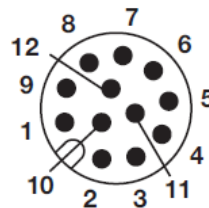
Shield = connected to plug housing

Wiring and Pin Assignment: M12 plug straight, 8-pin (according to DIN 47100)

Datasheet

Connector M23 plug straight, 8-pin type CG4

PIN	Signal	Colour
1	Data	pink
2	Data/	grey
3	--	--
4	--	--
5	--	--
6	--	--
7	CK	green
8	CK/	yellow
9	--	--
10	GND	white
11	+V	brown
12	Shield	



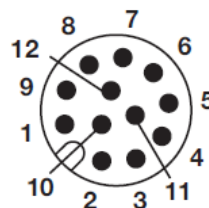
Connector type **CG4**:
M23 plug straight, 8-pin,
view on plug side.

Shield = connected to plug housing

Wiring and Pin Assignment: M23 plug straight, 8-pin (according to DIN 47100)

Connector M23 plug straight, 12-pin type CG4

PIN	Signal	Colour
1	Data	pink
2	Data/	grey
3	A	green
4	A/	orange
5	B	white
6	B/	bright blue
7	CK	brown
8	CK/	yellow
9	--	--
10	GND	blue
11	+V	red
12	Shield	



Connector type **CG4**:
M23 plug straight, 12-pin,
view on plug side.

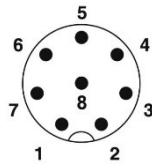
Shield = connected to plug housing

Wiring and Pin Assignment: M23 plug straight, 8-pin (according to DIN 47100)

Datasheet

Connector M12 plug straight, 8-pin, type C08

PIN	Signal	Colour
1	--	--
2	--	--
3	CK	green
4	CK/	yellow
5	Data/	grey
6	Data	pink
7	0V	white
8	+V	brown

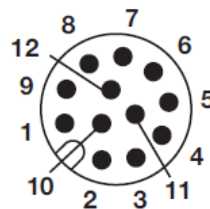


Connector type **C08**:
 M12 plug straight, 8-pin,
 view on plug side.

Wiring and Pin Assignment: M12 plug straight, 8-pin (according to DIN 47100)

Connector M12 plug straight, 12-pin, type C12

PIN	Signal	Colour
1	B	white
2	B/	bright blue
3	CK	brown
4	CK/	yellow
5	Data/	grey
6	Data	rosa
7	0V	blue
8	+V	red
9	A/	orange
10	A	green
11	--	--
12	--	--



Connector type **C12**:
 M12 plug straight, 12-pin,
 view on plug side.

Wiring and Pin Assignment: M12 plug straight, 12-pin (according to DIN 47100)

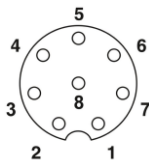
Datasheet

Extension cables

Extension cable type **VLK-8** with M12 **socket**, 8-pin, straight, opposite open cable end.

- Conductors section: 8 x 0.25 mm² for power supply and signals, PUR/PVC external sheath

PIN	Signal	Colour
1	--	white
2	--	brown
3	CK	green
4	CK/	yellow
5	Data/	grey
6	Data	pink
7	0V	blue
8	+V	red



Connector type **C08**:
 M12 socket straight, 8-pin,
 view on socket side.

Wiring and Pin Assignment: M12 socket straight, 8-pin (according to DIN 47100)

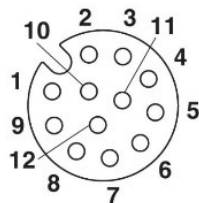


Connection extension cable type VLK-8 only in combination with M12 plug, 8-pin type C08 (standard).

Extension cable type **VLK-12** with M12 **socket**, 12-pin, straight, opposite open cable end.

- Conductors section: 12 x 0.14 mm² for power supply and signals, PUR/PVC external sheath

PIN	Signal	Colour
1	B	brown
2	B/	blue
3	CK	white
4	CK/	green
5	Data/	pink
6	Data	yellow
7	0V	black
8	+V	grey
9	A/	red
10	A	violet
11	--	grey/pink
12	--	red/blue



Connector type **C12**:
 M12 socket straight, 12-pin,
 view on socket side.

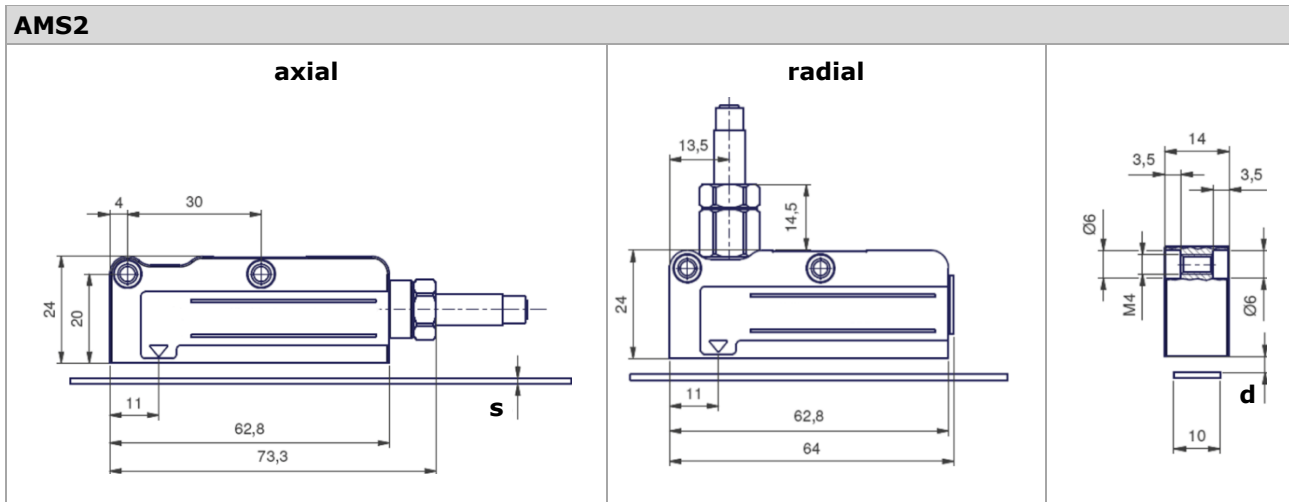
Wiring and Pin Assignment: M12 socket straight, 12-pin (according to DIN 47100)



Connection extension cable type VLK-12 only in combination with M12 plug, 12-pin type C12 (standard).

Datasheet

Dimensions



All dimensions in mm

s (mm) = thickness magnetic scale

MBA2¹⁾	thickness without double-sided adhesive tape	1.3
	thickness with double-sided adhesive tape	1.5
MBA2 + DB01²⁾	thickness with double-sided adhesive tape and cover tape DB01	1.7

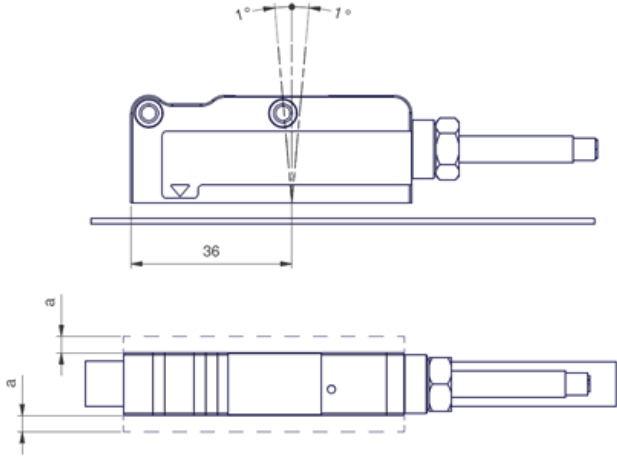
d (mm) = distance to be maintained between sensor and surface

MBA2¹⁾	distance to be maintained between sensor and surface of the magnetic scale (without cover tape)	0.3 ... 1.0
MBA2+ DB01²⁾	distance to be maintained between sensor and surface of the cover tape	max. 0.7

- 1) Absolute magnetic scale MBA2, composed by a magnetized plastoferrite tape, with pole pitch 2+2 mm. The plastoferrite is supported by a stainless steel tape, already provided with an adhesive tape.
- 2) Non-magnetic stainless steel cover tape DB01 on which a double-sided adhesive tape is pre-mounted for a quick sticking and an easy fixing on the magnetic scale.

Datasheet

Alignment tolerances

AMS2 + MBA2	a (mm) = alignment tolerance
	<p>a = 0.5_{MAX}</p>

NOTICE

- Avoid the direct contact with magnetized objects or tools that could damage the surface.
- **Do not touch** the contacts of the cable's connector to avoid electrostatic discharges (ESD) on the device.

