GIVI MISURE
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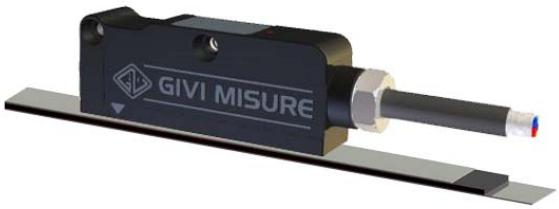
Code	Project	Release	
ST02	***A47-A***	***D***	***TECHNICAL DATASHEET***

ABSOLUTE MAGNETIC SENSOR AGM

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 serial interface.
- Contactless reading.
- Warning indication through LED.
- Extremely easy and fast mounting of the entire measuring system, with wide alignment tolerances.
- Small size, to allow installation in narrow spaces.
- Option: 1 Vpp analog signal.
- Axial or radial cable output.



MECHANICAL AND ELECTRICAL CHARACTERISTICS

MECHANICAL

- Magnetic sensor with die-cast body.
- Possibility to fix the magnetic sensor with M4 screws or with through M3 screws.
- Wide alignment tolerances.
- Robust sealed cable exit.

ELECTRICAL

- 14 Bit reading device, for absolute code.
- Option: 1 Vpp A and B output signals, with phase displacement of 90° (electrical).
- Serial protocol SSI – BiSS.
- Reading through positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy).
- Electrical protection against inversion of power supply polarity and short circuits on output ports.

- CABLE:
  - Shielded twisted pair for digital signals (SSI – BiSS).
  - The cable is suitable for continuous movements.

SERIAL OUTPUT VERSION

- 6-wire shielded cable ∅ = 7 mm, PVC external sheath, with low friction coefficient, oil resistant.
- Conductors section: power supply 0.25 mm^2; signals 0.25 mm^2.
- **The cable's bending radius should not be lower than 35 mm.**

ANALOG + SERIAL OUTPUT VERSION

- 10-wire shielded cable ∅ = 7.1 mm, PUR external sheath.
- Conductors section: power supply 0.35 mm^2; signals 0.10 mm^2.
- **The cable's bending radius should not be lower than 45 mm.**

SIGNALS	CONDUCTOR COLOR
V+	Brown
V-	White
CK	Green
$\overline{CK}$	Yellow
D	Pink
$\overline{D}$	Grey
SCH	Shield

Cod. AGM	M
Pole pitch	2+2 mm
Incremental signal	sine wave 1 Vpp (optional)
Resolution 1 Vpp	up to 1 µm *
Repeatability	± 1 increment
Signal period	2 mm
Serial interface	SSI – BiSS
Resolution absolute position	500 - 100 - 50 - 10 - 5 - 1 µm
Accuracy	± 15 µm
Measuring length ML	up to 30 000 mm
Max. traversing speed	300 m/min
Vibration resistance (EN 60068-2-6)	200 m/s^2 [55 ÷ 2 000 Hz]
Protection class (EN 60529)	IP 67
Operating temperature	0 °C ÷ 50° C
Storage temperature	-20 °C ÷ 70° C
Relative humidity	100%
Power supply	5 ÷ 28 Vdc
Current consumption	150 mA_{MAX} (with R = 120 Ω)
Max. cable length	25 m **
Electrical connections	see related table
Electrical protections	inversion of polarity and short circuits
Weight	80 g

* Depending on CNC division factor.
** Ensuring a minimum power supply of 5 V to the sensor, the maximum cable length can be extended to 100 m.

GIVI MISURE S.R.L. A SOCIO UNICO
C.F. e Iscrizione al Reg. Imprese di Monza e Brianza n° 04355540156 - Cap. Soc. € 51.480,00 I.V.

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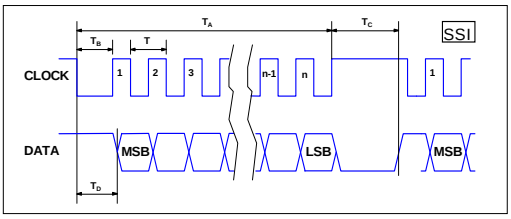
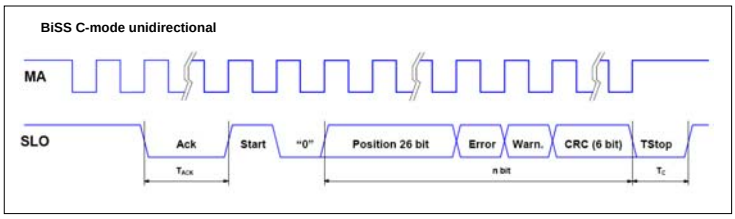
OUTPUT SIGNALS

SSI Version



Interface	SSI Binary – Gray
Signals level	EIA RS 485
Clock frequency	0.1 ÷ 1.2 MHz
n	Position bit
T_C	12 ÷ 65 µs

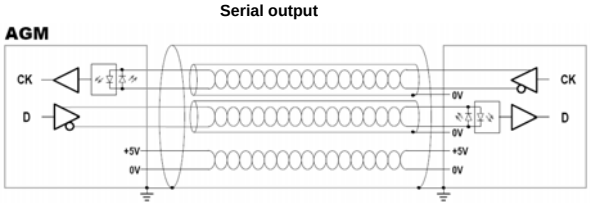
BiSS C (unidirectional) Version



Interface	BiSS C unidirectional
Signals level	EIA RS 485
Clock frequency	0.1 ÷ 4 MHz
n	26 + 2 + 6 bit
T_C	12 ÷ 20 µs

CABLE

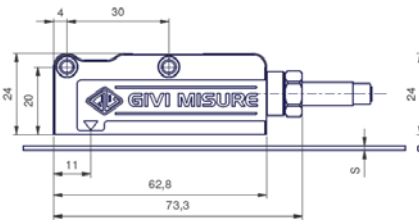
Serial output



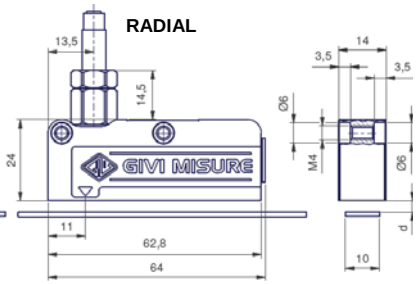
In case of cable extension, it is necessary to guarantee:
- **the electrical connection between the body of the connectors and the cables shield;**
- **a minimum power supply voltage of 5 V to the sensor.**

SENSOR DIMENSIONS

AXIAL



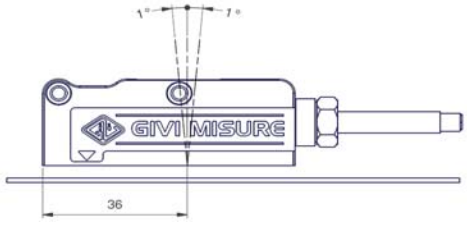
RADIAL

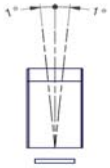


values in mm	MP200A	MP200A + CV103	MP200A + SP202
s	1.3	1.6	2.1
d	0.3 ÷ 1	0.7_{MAX}	0.2_{MAX}

s = thickness
d = distance to be maintained between sensor and surface of the magnetic band (or eventual cover/support)

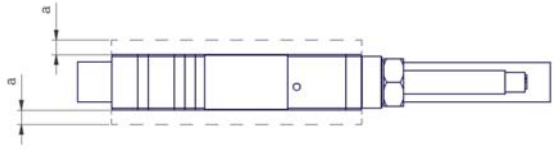
SENSOR ALIGNMENT TOLERANCES





a	0.5 mm

a = alignment tolerance



ORDERING CODE

MODEL	POLE PITCH	RESOLUTION	CABLE OUTPUT	POWER SUPPLY	OUTPUT SIGNALS	INCREMENTAL SIGNAL	CABLE LENGTH, CABLE TYPE	CONNECTOR
AGM	**M**	**1**	**A**	**528V**	**S0**	**V**	**M03 / S**	**SC**

M = 2+2 mm

500 = 500 µm
100 = 100 µm
50 = 50 µm
10 = 10 µm
5 = 5 µm
1 = 1 µm

A = axial
R = radial

528V= 5 ÷ 28 V

S0 = SSI programmable
S1 = SSI binary
S2 = SSI binary+even parity
S3 = SSI binary+odd parity
S4 = SSI binary+error
S5 = SSI binary+even parity+error
S6 = SSI binary+odd parity+error
S7 = SSI Gray
B1 = BiSS binary

V = + 1 Vpp
No cod. = no incremental signal

Mnn = length in m
M02 = 2 m (standard)
100 = 100 m
R = 6 wires (only serial)
S = 10 wires (serial + analog)

SC = without connector
Cnn = progressive

Example ☞ **ABSOLUTE MAGNETIC SENSOR AGM M1A 528V S0 V M03/S SC**