

Code ST02	Project A48-C	Release G	TECHNICAL DATASHEET
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ABSOLUTE MAGNETIC SENSOR AGM

GENERAL FEATURES

- Linear magnetic sensor, with direct reading of the absolute position.
- High-speed SSI - BiSS C (unidirectional) serial interface.
- Resolutions up to 1 μm .
- Contactless reading.
- Measuring length up to 30 000 mm.
- 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

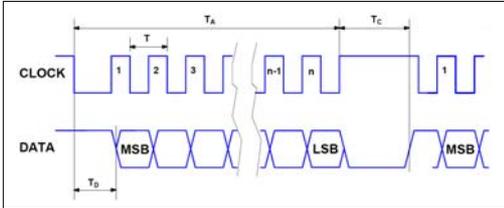
	Cod. AGM	M																
<p>MECHANICAL</p> <ul style="list-style-type: none"> • Magnetic sensor with die-cast body. • Possibility to fix the magnetic sensor with M4 screws or with through M3 screws. • Wide alignment tolerances. • Robust sealed cable exit. <p>ELECTRICAL</p> <ul style="list-style-type: none"> • Option: 1 Vpp A and B output signals, with phase displacement of 90° (electrical). • Serial protocol SSI - BiSS C (unidirectional). • 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. <p>CABLE:</p> <ul style="list-style-type: none"> - Shielded twisted pair for digital signals (SSI - BiSS). - The cable is suitable for continuous movements. <p>ANALOG + SERIAL OUTPUT VERSION</p> <ul style="list-style-type: none"> - 10-wire shielded cable $\varnothing = 7.1 \text{ mm}$, PUR external sheath. - Conductors section: power supply 0.35 mm²; signals 0.10 mm². <p>The cable's bending radius should not be lower than 80 mm.</p> <p>SERIAL OUTPUT VERSION</p> <ul style="list-style-type: none"> - 6-wire shielded cable $\varnothing = 7 \text{ mm}$, PVC external sheath, with low friction coefficient, oil resistant. - Conductors section: power supply 0.25 mm²; signals 0.25 mm². <p>The cable's bending radius should not be lower than 70 mm.</p> <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>SIGNALS</th> <th>CONDUCTOR COLOR</th> </tr> </thead> <tbody> <tr> <td>+ V</td> <td>Brown</td> </tr> <tr> <td>0 V</td> <td>White</td> </tr> <tr> <td>CK</td> <td>Green</td> </tr> <tr> <td>$\overline{\text{CK}}$</td> <td>Yellow</td> </tr> <tr> <td>D</td> <td>Pink</td> </tr> <tr> <td>$\overline{\text{D}}$</td> <td>Grey</td> </tr> <tr> <td>SCH</td> <td>Shield</td> </tr> </tbody> </table>	SIGNALS	CONDUCTOR COLOR	+ V	Brown	0 V	White	CK	Green	$\overline{\text{CK}}$	Yellow	D	Pink	$\overline{\text{D}}$	Grey	SCH	Shield	Pole pitch 2+2 mm	M
	SIGNALS	CONDUCTOR COLOR																
	+ V	Brown																
	0 V	White																
	CK	Green																
	$\overline{\text{CK}}$	Yellow																
	D	Pink																
	$\overline{\text{D}}$	Grey																
	SCH	Shield																
		Incremental signal sine wave 1 Vpp (optional)																
		Resolution 1 Vpp up to 1 μm *																
		Signal period 2 mm																
		Repeatability ± 1 increment																
		Serial interface SSI - BiSS C (unidirectional)																
		Resolution absolute position 500 - 100 - 50 - 10 - 5 - 1 μm																
		Accuracy $\pm 15 \mu\text{m}$																
		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 \div 2 000 Hz]																
		Protection class (EN 60529) IP 67																
	Operating temperature 0 °C \div 50 °C standard -20 °C \div 80 °C on request																	
	Storage temperature -30 °C \div 90 °C standard -45 °C \div 90 °C on request																	
	Relative humidity 100%																	
	Power supply 5 \div 28 Vdc \pm 5%																	
	Current consumption 150 mA _{MAX} (with R = 120 Ω) 5 Vdc 100 mA _{MAX} (with R = 1200 Ω) 24 Vdc																	
	Max. cable length 20 m **																	
	Electrical connections see related table																	
	Electrical protections inversion of polarity and short circuits																	
	Weight 80 g																	

* Depending on CNC division factor.

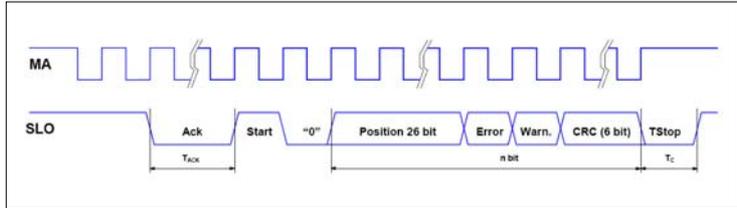
** Ensuring a minimum power supply of 5 V to the sensor, the maximum cable length can be extended to 50 m.

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OUTPUT SIGNALS

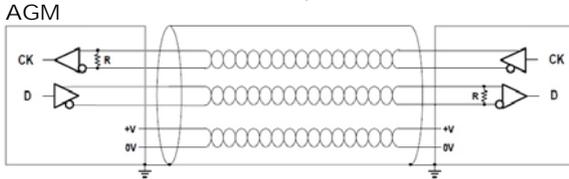
SSI Version


Interface	SSI Binary - Gray
Clock frequency	0.1 ÷ 1.2 MHz
n	Position bit
Tc	max. 25 µs

BiSS C (unidirectional) Version


Interface	BiSS C unidirectional
Clock frequency	0.1 ÷ 8 MHz
n	26 + 2 + 6 bit
Tc	8 µs

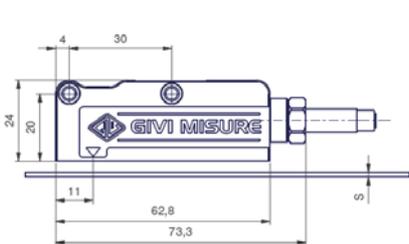
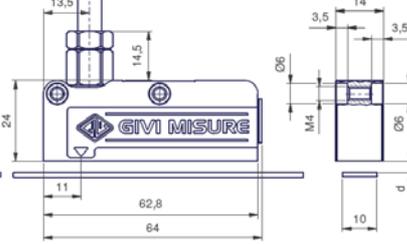
CABLE

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.

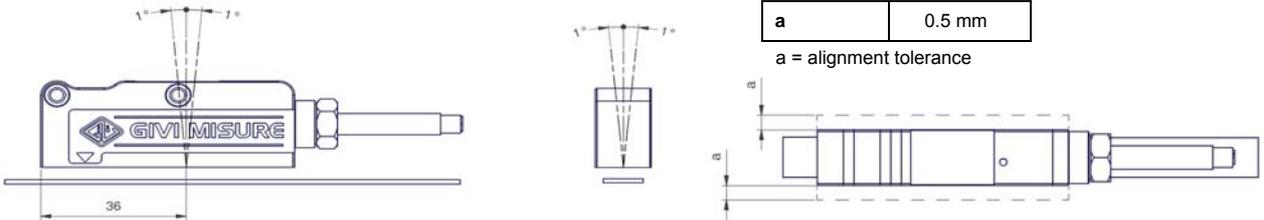
SENSOR DIMENSIONS

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



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	M02 / S	SC

M = 2+2 mm **500** = 500 µm **A** = axial **528V** = 5 ÷ 28 V **S0** = SSI programmable **V** = +1 Vpp **Mnn** = length in m
100 = 100 µm **R** = radial **S1** = SSI binary **No cod.** = no incremental signal **M02** = 2 m (standard)
50 = 50 µm **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 **M50** = 50 m
10 = 10 µm **S8** = SSI binary+even parity+error **S9** = SSI binary+odd parity+error **S10** = SSI Gray **S11** = SSI Gray **S12** = SSI Gray **S13** = SSI Gray **S14** = SSI Gray **S15** = SSI Gray **S16** = SSI Gray **S17** = SSI Gray **S18** = SSI Gray **S19** = SSI Gray **S20** = SSI Gray **S21** = SSI Gray **S22** = SSI Gray **S23** = SSI Gray **S24** = SSI Gray **S25** = SSI Gray **S26** = SSI Gray **S27** = SSI Gray **S28** = SSI Gray **S29** = SSI Gray **S30** = SSI Gray **S31** = SSI Gray **S32** = SSI Gray **S33** = SSI Gray **S34** = SSI Gray **S35** = SSI Gray **S36** = SSI Gray **S37** = SSI Gray **S38** = SSI Gray **S39** = SSI Gray **S40** = SSI Gray **S41** = SSI Gray **S42** = SSI Gray **S43** = SSI Gray **S44** = SSI Gray **S45** = SSI Gray **S46** = SSI Gray **S47** = SSI Gray **S48** = SSI Gray **S49** = SSI Gray **S50** = SSI Gray **S51** = SSI Gray **S52** = SSI Gray **S53** = SSI Gray **S54** = SSI Gray **S55** = SSI Gray **S56** = SSI Gray **S57** = SSI Gray **S58** = SSI Gray **S59** = SSI Gray **S60** = SSI Gray **S61** = SSI Gray **S62** = SSI Gray **S63** = SSI Gray **S64** = SSI Gray **S65** = SSI Gray **S66** = SSI Gray **S67** = SSI Gray **S68** = SSI Gray **S69** = SSI Gray **S70** = SSI Gray **S71** = SSI Gray **S72** = SSI Gray **S73** = SSI Gray **S74** = SSI Gray **S75** = SSI Gray **S76** = SSI Gray **S77** = SSI Gray **S78** = SSI Gray **S79** = SSI Gray **S80** = SSI Gray **S81** = SSI Gray **S82** = SSI Gray **S83** = SSI Gray **S84** = SSI Gray **S85** = SSI Gray **S86** = SSI Gray **S87** = SSI Gray **S88** = SSI Gray **S89** = SSI Gray **S90** = SSI Gray **S91** = SSI Gray **S92** = SSI Gray **S93** = SSI Gray **S94** = SSI Gray **S95** = SSI Gray **S96** = SSI Gray **S97** = SSI Gray **S98** = SSI Gray **S99** = SSI Gray **S100** = SSI Gray
5 = 5 µm **S** = 10 wires (serial + analog)
1 = 1 µm **SC** = without connector **Cnn** = progressive

Example **AGM M1A 528V S0 V M02 / S SC**