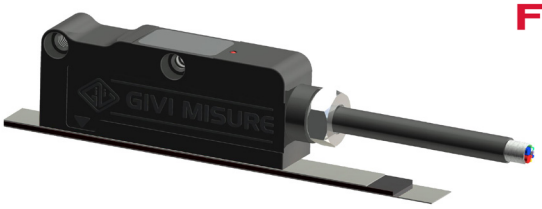
MAGNETIC SENSOR AGM-2

FANUC αi INTERFACE

TECHNICAL DATASHEET 1/4

code **ST02** | project **A75** | release **B**



FANUC

GENERAL FEATURES

- Magnetic sensor with direct reading of the absolute position.
- FANUC αi serial interface.
- Resolution 1 µm and measuring length up to 30000 mm.
- Contactless reading.
- Status indication through LED RGBW.
- Extremely easy and fast mounting of the sensor and application of the magnetic band, with wide alignment tolerances.
- Small size, to allow installation in narrow spaces.
- Axial or radial cable output.
- Magnetic band composed by a magnetized plastoferrite tape, with pole pitch 2+2 mm. The plastoferrite is supported by a stainless steel tape, already provided with the adhesive tape, for an easy application on the machine. To be used with magnetic band MP200A.

Cod. AGM-2

Pole pitch	2+2 mm
Serial interface	FANUC αi
Resolution absolute measure	1 µm
Accuracy grade	± 10 µm *
Interpolation error (SDE)	± 1.5 µm **
Unidirectional repeatability	± 0.5 µm **
Hysteresis	2 µm **
Measuring length ML	up to 30000 mm
Max. traversing speed	600 m/min
Vibration resistance (EN 60068-2-6)	200 m/s^2 [55 ÷ 2000 Hz]
Protection class (EN 60529)	IP 67
Operating temperature	-20 °C ÷ 75 °C
Storage temperature	-40 °C ÷ 80 °C
Relative humidity	100%
Power supply	5 Vdc ± 5%
Current consumption	200 mA_{MAX} (with R = 120 Ω)
Electrical protections	inversion of polarity and short circuits
Weight	80 g

* The declared accuracy grade of ± X µm is referred to a measuring length of 1 m.
** The error declared is subject to the respect of the alignment tolerances.

MECHANICAL CHARACTERISTICS

- 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 CHARACTERISTICS

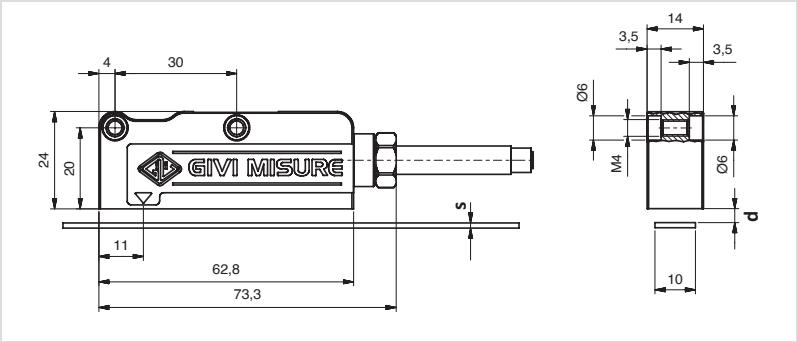
- Reading through positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy).
- Electrical protection against inversion of power supply polarity and short circuits on output ports.
- Serial protocol FANUC αi.
- CABLE:
  - 6-wire shielded cable ø = 6.2 mm, PUR external sheath with low friction coefficient, resistant to oil and suitable for continuous movements.
  - Conductors section: power supply 0.35 mm^2; signals 0.25 mm^2.

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

  - Cable length 1 m with M12 connector. With cable extension, the maximum length can be extended to 30 m.

GIVI MISURE
Via Assunta 57, 20834 Nova Milanese (MB), Italia
Tel. +39 0362 366126 Fax +39 0362 366876
www.givimisure.it sales@givimisure.it
GIVI MISURE S.R.L. A SOCIO UNICO
C.F. e Iscrizione al Reg. Imprese di Monza e Brianza
04355540156 Cap. Soc. € 51.480,00 I.V.

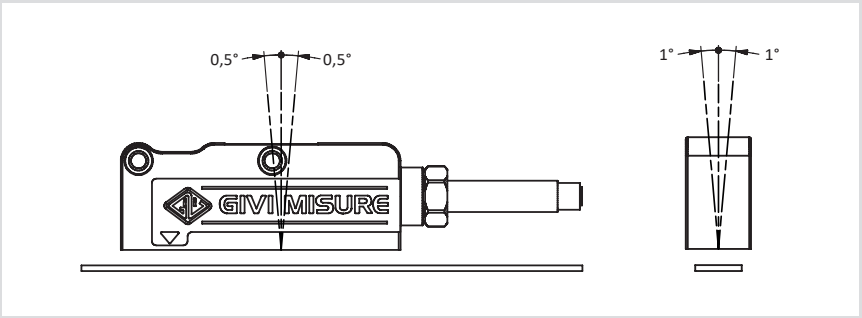
DIMENSIONS



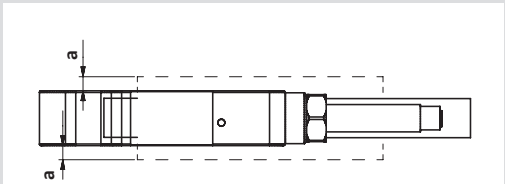
	MP200A	MP200A + CV103	MP200A + SP202
s (mm)	1.3	1.6	2.1
d (mm)	0.4 ÷ 1	0.7_{MAX}	0.2_{MAX}

s = thickness without double-sided tape. Thickness with double-sided tape + 0.1 mm.
d = distance to be maintained between sensor and surface of the magnetic band (or eventual cover/support).

ALIGNMENT TOLERANCES



WARNING: Respect the maximum distance between the sensor and the magnetic band.

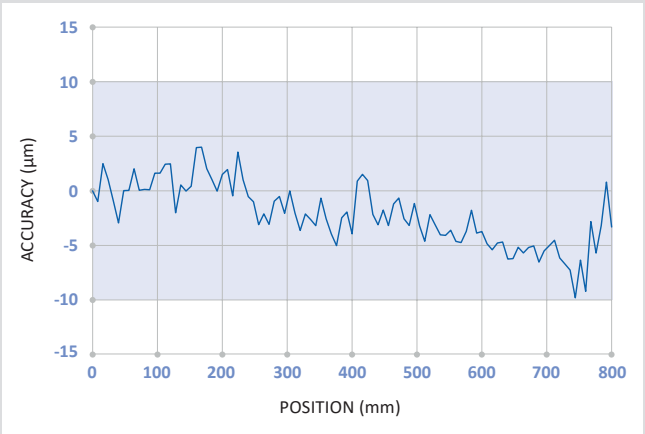


	AGM-2
a (mm)	0.5_{MAX}

a = alignment tolerance

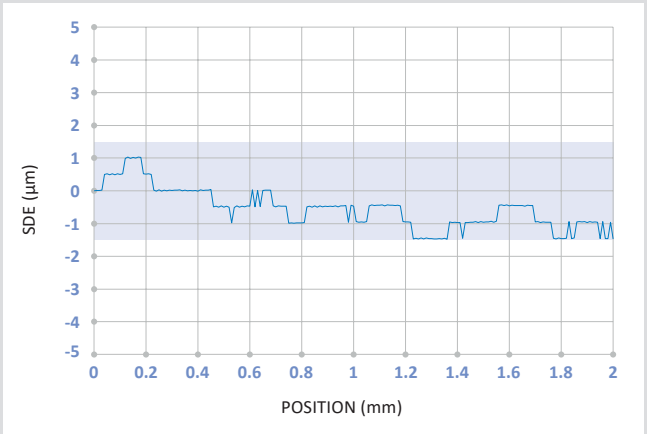
The following graphs show tests carried out in a metrological room under controlled climatic conditions: T= 20 °C ± 0.1 °C and R.H.= 45 ÷ 55%. The reference system for the comparison of position measurements is interferometric with 1 nm resolution and equipped with an environmental compensation device. The sensor is installed according to the recommended mechanical configuration at a distance of 0.5 mm from the magnetic band.

ACCURACY



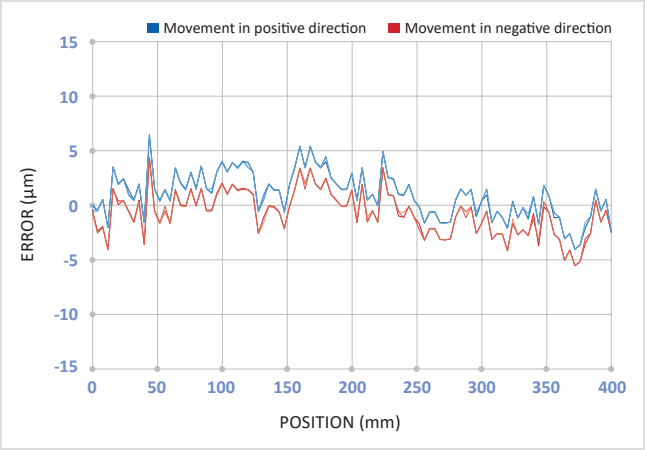
Accuracy graph: deviation between the value measured by the sensor and the value measured by the reference system.

INTERPOLATION - SDE



SDE (sub-division error) graph: accuracy of the interpolation device within the single pole pitch.

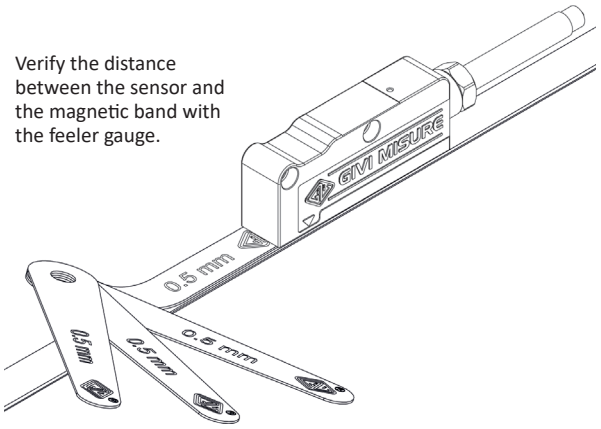
REPEATABILITY



Repeatability graph obtained by carrying out the measurements several times in both directions of advancement.

- Unidirectional repeatability: measurement error detected without inverting the movement direction of the sensor.
- Hysteresis: difference in the measure due to the inversion of the sensor movement direction.

Verify the distance between the sensor and the magnetic band with the feeler gauge.



WARNING!

Make sure the tools used for assembly are rigorously demagnetized.
DO NOT TOUCH the cable terminals (or connector contacts) to avoid electrostatic discharges (ESD) on the device.

ORDERING CODE

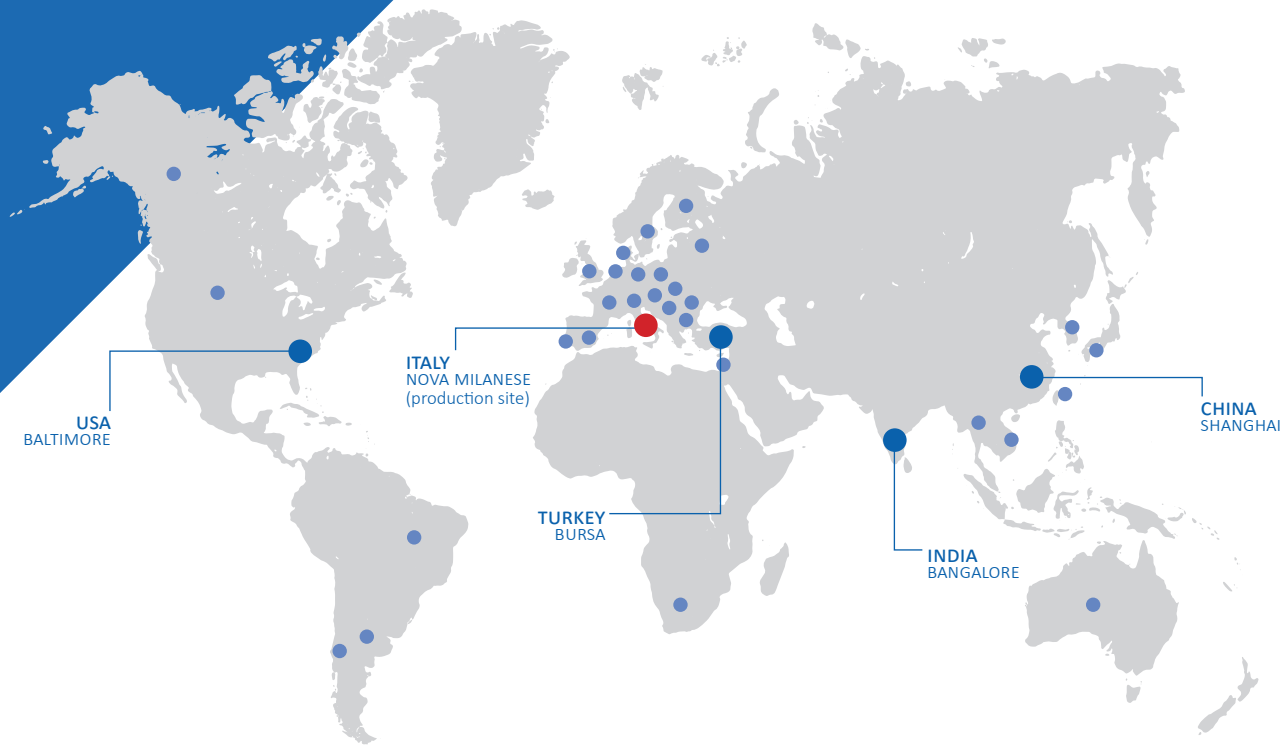
Example MAGNETIC SENSOR **AGM-2 M1A V F1 M01/S CZ4**

Model	Pole pitch	Resolution	Cable output	Power supply	Output signals	Cable length, cable type	Connector, wiring
AGM-2	M = 2+2 mm	1 = 1 µm	A = axial R = radial	V = 5 Vdc	F1 = FANUC αi	M01 = 1 m S = PUR cable	CZ4

WORLDWIDE BRANCHES AND SERVICE CENTERS

GIVI MISURE
Measuring and control systems

Our branches in China, India, Turkey and USA are completely independent in providing a before and after sales service and a fast and qualified technical assistance.



DISTRIBUTORS AND SERVICE CENTERS AROUND THE WORLD

- ARGENTINA
- AUSTRALIA
- BRAZIL
- BULGARIA
- CANADA
- CHILE
- CHINA
- CZECH REPUBLIC
- DENMARK
- FINLAND
- FRANCE
- GERMANY
- GREAT BRITAIN
- HUNGARY
- INDIA
- ISRAEL
- ITALY
- JAPAN
- MALAYSIA
- NEW ZEALAND
- POLAND
- PORTUGAL
- ROMANIA
- SLOVAKIA
- SOUTH AFRICA
- SOUTH KOREA
- SPAIN
- SWEDEN
- SWITZERLAND
- TAIWAN
- THAILAND
- THE NETHERLANDS
- TURKEY
- USA
- VIETNAM

Linear encoders

Magnetic systems

Rotary encoders

Digital readouts

Position controllers

QUALITY SYSTEM CERTIFICATION DNV ISO 9001

GIVI MISURE S.r.l. A SOCIO UNICO
Via Assunta, 57 - 20834 Nova Milanese (MB) - Italy
Tel.: +39 0362 366126 - Fax: +39 0362 366876
www.givimisure.it - info@givimisure.it

Applications

- CNC machines
- Press brakes
- Traditional machines
- Automation
- Wood, glass and marble processing machines
- Renewable energies
- Special applications