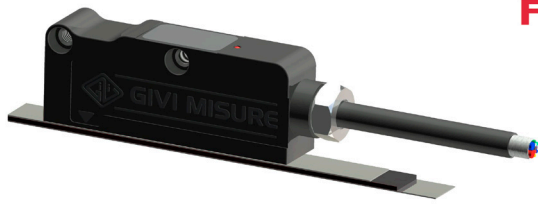


code **ST02** | project **A75-A** | release **A****FANUC****GENERAL FEATURES**

- Magnetic sensor with direct reading of the absolute position.
- FANUC  $\alpha$  serial interface.
- Resolutions up to 1  $\mu$ m 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 $\alpha$
Resolution absolute measure	500 - 100 - 50 - 10 - 5 - 1 $\mu$ m
Accuracy grade	$\pm 10 \mu$ m *
Interpolation error (SDE)	$\pm 1.5 \mu$ m **
Unidirectional repeatability	$\pm 0.5 \mu$ m **
Hysteresis	2 $\mu$ m **
Measuring length ML	up to 30000 mm
Max. traversing speed	600 m/min
Vibration resistance (EN 60068-2-6)	200 m/s <sup>2</sup> [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 $\pm 5\%$
Current consumption	200 mA <sub>MAX</sub> (with R = 120 $\Omega$ )
Electrical protections	inversion of polarity and short circuits
Weight	80 g

\* The declared accuracy grade of  $\pm X \mu$ m 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  $\alpha$ .
- CABLE:

- 6-wire shielded cable  $\varnothing = 6.2$  mm, PUR external sheath with low friction coefficient, resistant to oil and suitable for continuous movements.

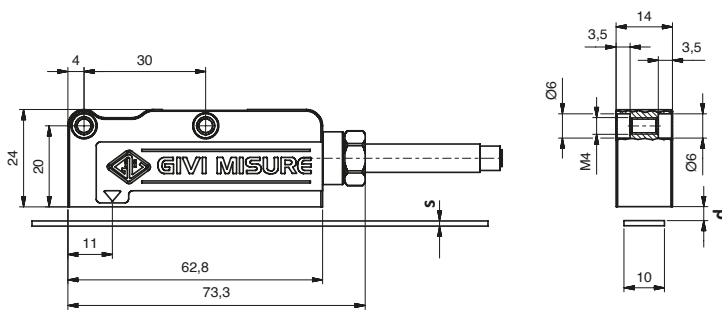
- Conductors section:  
power supply 0.35 mm<sup>2</sup>;  
signals 0.25 mm<sup>2</sup>.

**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.

code **ST02** | project **A75-A** | release **A**

### DIMENSIONS

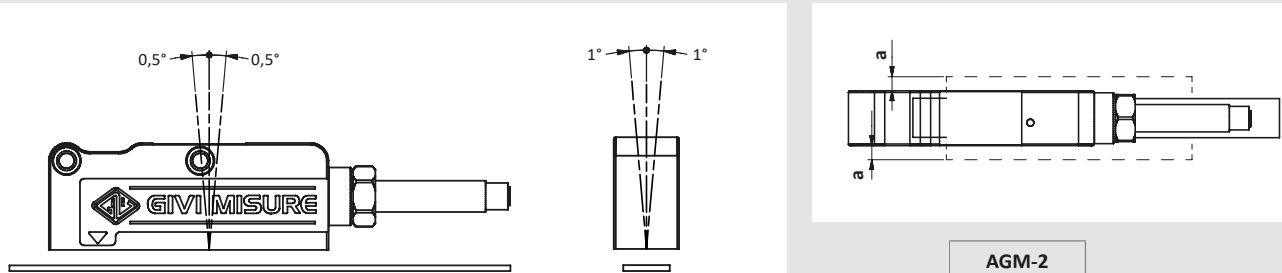


	MP200A	MP200A + CV103	MP200A + SP202
<b>s (mm)</b>	1.3	1.6	2.1
<b>d (mm)</b>	0.4 ÷ 1	0.7 <sub>MAX</sub>	0.2 <sub>MAX</sub>

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



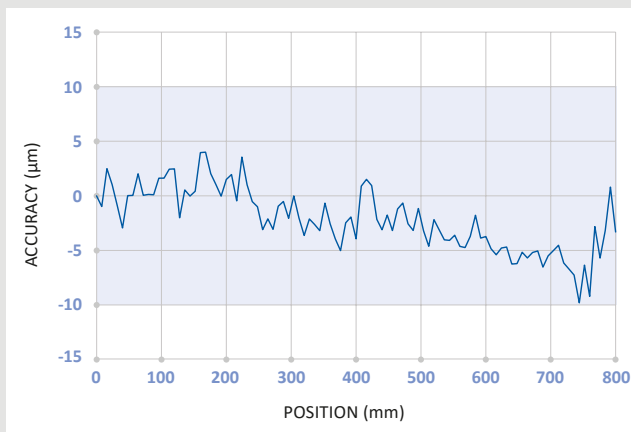
	AGM-2
<b>a (mm)</b>	0.5 <sub>MAX</sub>

a = alignment tolerance

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

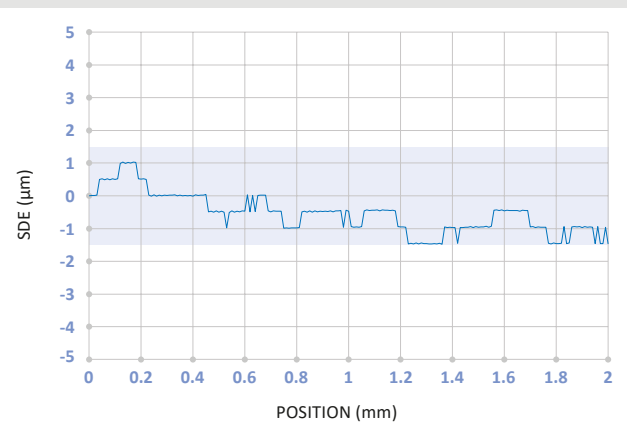
The following graphs show tests carried out in a metrological room under controlled climatic conditions: T= 20 °C ± 0.1 °C and R.H.= 45 ÷ 55%. The reference system for the comparison of position measurements is interferometric with 1 nm resolution and equipped with an environmental compensation device. 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.

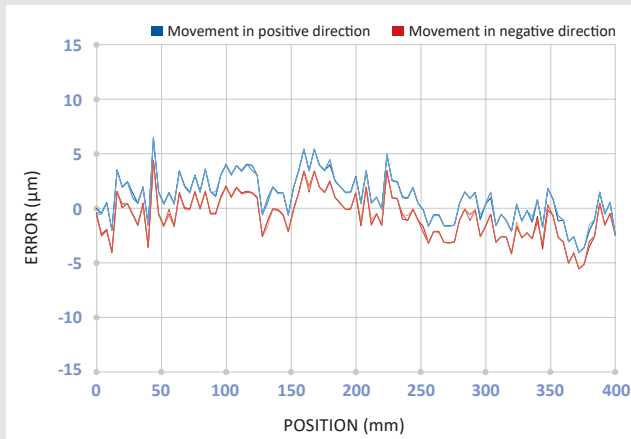
### INTERPOLATION - SDE



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

code **ST02** | project **A75-A** | release **A**

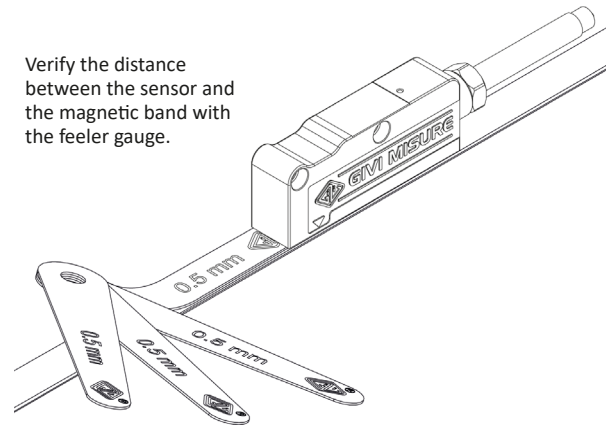
### REPEATABILITY



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

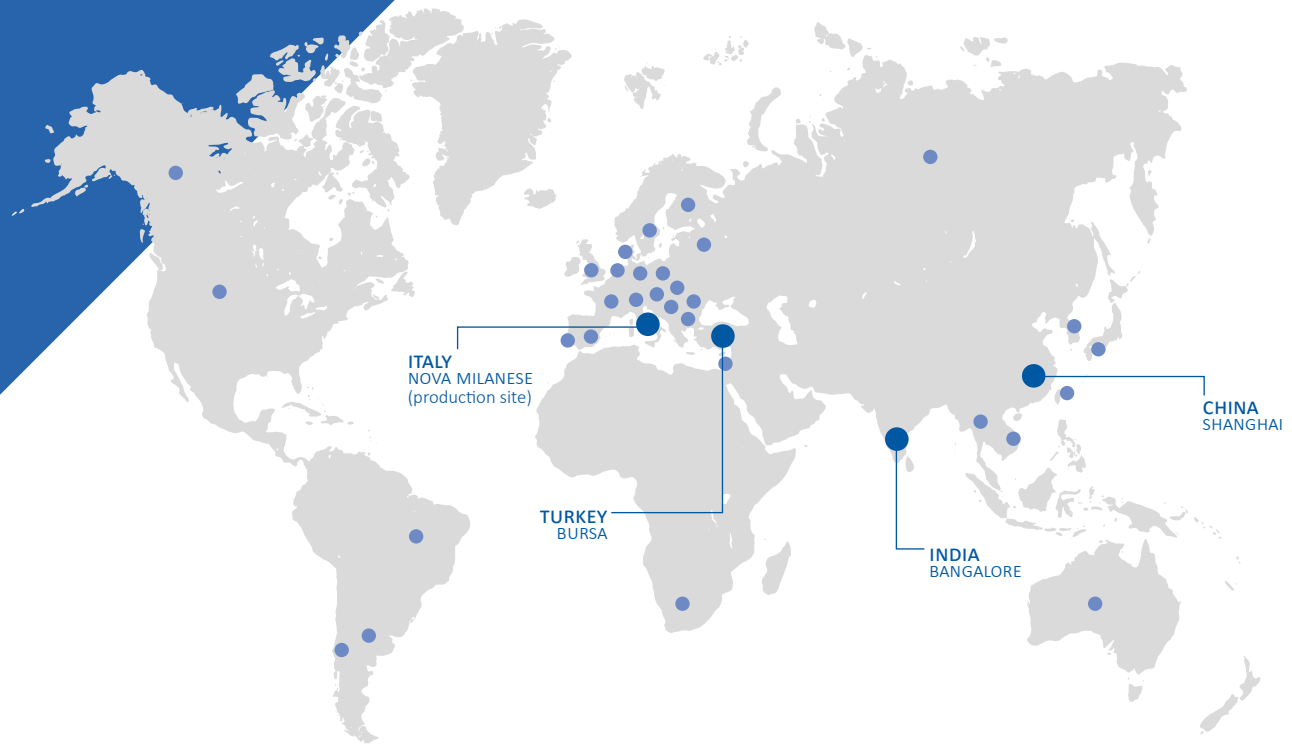
Example MAGNETIC SENSOR **AGM-2 M1A V F1 M01/S CZ4**

Model	Pole pitch	Resolution	Cable output	Power supply	Output signals	Cable length, cable type	Connector, wiring
AGM-2	M = 2+2 mm	500 = 500 µm 100 = 100 µm 50 = 50 µm 10 = 10 µm 5 = 5 µm 1 = 1 µm	A = axial R = radial	V = 5 Vdc	F1 = FANUC $\alpha$	M01 = 1 m S = PUR cable	CZ4

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