GIVI MISURE
Via Assunta, 57 - 20834 Nova Milanese (MB) - ITALY
Tel. +39 0362 366126 Fax +39 0362 366876 www.givimisure.it sales@givimisure.it

Code	Project	Release	
ST30	***A25-C***	***A***	***TECHNICAL DATASHEET***

MAGNETIC SENSOR MTS H

GENERAL CHARACTERISTICS

- Magnetic sensor for linear and angular reading.
- Resolutions up to 1 µm.
- Contactless reading.
- Extremely easy and fast mounting of the entire measuring system, with wide alignment tolerances.
- Small size, to allow installation in narrow spaces.
- Magnetic band composed by a magnetized plastoferrite tape, with pole pitch 5+5 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 MP500 or MP500Z (with reference indexes positioned upon request).

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.

ELECTRICAL

- Very flexible power cable.
- Reading through positioning sensor based on magneto resistance, with AMR effect (Magnetic Anisotropy).
- High signal stability.
- Electrical protection against inversion of power supply polarity and short circuits on output port.
- For applications where the maximum speed exceeds 1 m/s, it is necessary to use a cable **suitable for continuous movements**.
- CABLE:

  As a standard, the sensor is supplied with the following cable:
  - 8-wire shielded cable ∅ = 6.1 mm, PVC external sheath, with low friction coefficient, oil resistant;
  - Conductors section: power supply 0.35 mm^2; signals 0.14 mm^2.

PUR cable or cable with reduced section on request.

The cable's bending radius should not be lower than 60 mm.

LINE DRIVER	PUSH-PULL	CONDUCTOR COLOR
A	A	Green
$\overline{A}$		Orange
B	B	White
$\overline{B}$		Light-blue
I_0	I_0	Brown
$\overline{I_0}$		Yellow
+ V	+ V	Red
0 V	0 V	Blue
SCH	SCH	Shield

As a standard, the sensor is supplied with a 2-m cable.
Longer lengths are available, with the following limits:
L_{max} = 10 m sensor cable
L_{max} = 100 m 2 m sensor cable + cable extension *

Cod. MTS	H						
Pole pitch	5+5 mm						
Reference indexes	**C** = constant step (every 5 mm) ** **E** = external **Z** = positioned on the magnetic band						
Resolution (µm)	250	100	50	25	10	5	1
Accuracy * **	± 50 µm		± 30 µm				
Max. traversing speed **	1.2 m/s (**res. 1 µm**) 30 m/s (**res. 25 µm**)						
Max. frequency	300 kHz (up to 500 kHz on request)						
Repeatability	± 1 increment						
A, B and I_0 output signals	LINE DRIVER / PUSH-PULL						
Vibration resistance (EN 60068-2-6)	300 m/s^2 [55 ÷ 2,000 Hz]						
Shock resistance (EN 60068-2-27)	1,000 m/s^2 (11 ms)						
Protection class (EN 60529)	IP 67						
Operating temperature	0 °C ÷ 50° C						
Storage temperature	-20 °C ÷ 80° C						
Relative humidity	100%						
Power supply	5 ÷ 28 Vdc ± 5%						
Current consumption without load	60 mA_{MAX}						
Current consumption with load	140 mA_{MAX} (with 5 V and R = 120 Ω) 90 mA_{MAX} (with 28 V and R = 1.2 kΩ)						
Electrical connections	see related table						
Electrical protections	inversion of polarity and short circuits						
Weight	40 g						

* Cable extensions need to have a 0.5 mm^2 section for power supply conductors.
** With 100 µm resolution, the constant step is 10 mm.
*** To obtain the declared accuracy values, it is necessary to respect the alignment tolerances prescribed by the Manufacturer. Better accuracy can be obtained by reducing the gap between the sensor and the magnetic band.
**** The indicated speeds are referred to a maximum frequency of 300 kHz.

上海鑫天精密仪器有限公司 电话：021-54321756 邮箱：shxintian@126.com 网址：www.gschi.com

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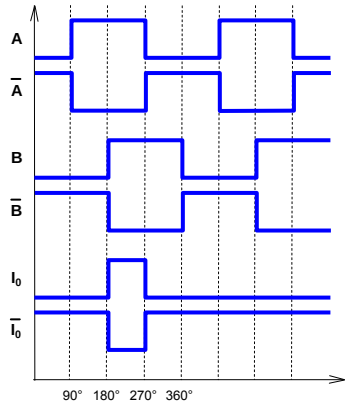
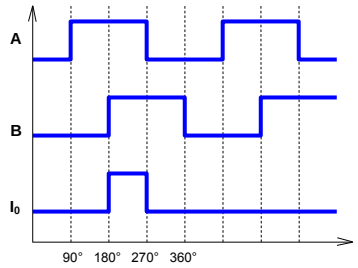
OUTPUT SIGNALS

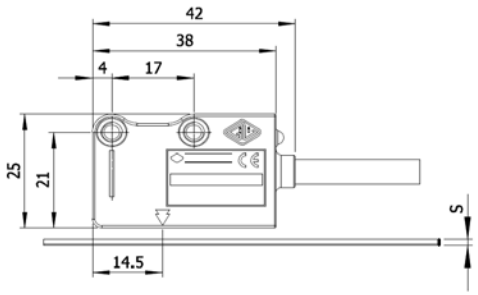
LINE DRIVER

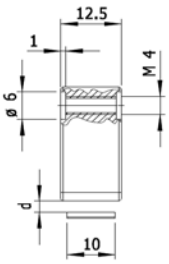


PUSH-PULL



SENSOR DIMENSIONS



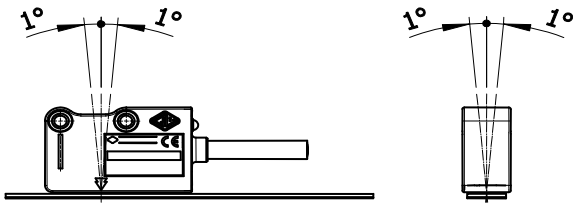


values in mm	MP500	MP500 + CV103	MP500 + SP202	MP500 + GVS 100
s	1.3	1.6	2.1	7.6
d	0.3 ÷ 4	3.7$_{MAX}$	3.2$_{MAX}$	0.3 ÷ 1

values in mm	MP500Z	MP500Z + CV103	MP500Z + SP202
s	1.3	1.6	2.1
d	0.35 ÷ 2	1.7$_{MAX}$	1.2$_{MAX}$

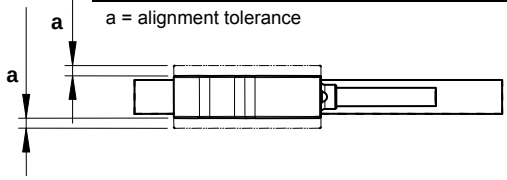
s = thickness
d = distance to be maintained between sensor and surface of the magnetic band (or eventual cover/support)

SENSOR ALIGNMENT TOLERANCES



values in mm	MTS HxxxC MTS HxxxE	MTS HxxxZ	MTS H for GVS 100
a	3$_{MAX}$	1$_{MAX}$	1$_{MAX}$

a = alignment tolerance



ORDERING CODE

MODEL	POLE PITCH	RESOLUTION	REFERENCE INDEXES	POWER SUPPLY	OUTPUT SIGNALS	CABLE	CONNECTION	PROGRAMMING	SPECIAL
MTS	**H**	**1**	**C**	**528V**	**L**	**M02 / N**	**SC**	**F**	
	H = 5+5 mm	**250** = 250 µm **50** = 50 µm **1** = 1 µm	**C** = constant step **E** = external **Z** = positioned on magnetic band	**528V** = 5÷28 Vdc **5285** = 5÷28 Vdc with 5 V output	**L** = LINE DRIVER **Q** = PUSH-PULL	**M01/N** = 1 m **M02/N** = 2 m **M03/N** = 3 m	**SC** = without connector **Cnn** = progressive	**F** = fixed **V** = variable **G** = for GVS 100	**No cod** = standard **SPnn** = special nn

Example ☞ **MAGNETIC SENSOR MTS H 1 C 528V L M02 / N SC F**

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