Code	Project	Release	
ST02	*A25-C*	*A*	*TECHNICAL DATASHEET*

MAGNETIC SENSOR MTS P

GENERAL CHARACTERISTICS

- Magnetic sensor for linear and angular reading.
- Resolutions up to 0.5 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 1+1 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 MP100.

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 $\varnothing$ = 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	P
Pole pitch	1+1 mm
Reference indexes	**C** = constant step (every 1 mm)
Resolution	10 - 5 - 1 - 0.5 µm
Accuracy **	± 6 µm
Max. traversing speed ***	0.6 m/s (**res. 0.5 µm**) 6 m/s (**res. 10 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.
**   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.
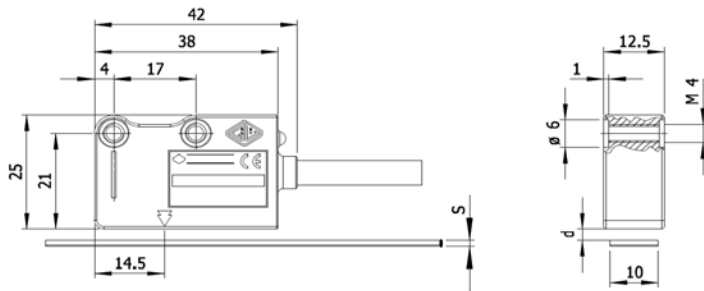*** The indicated speeds are referred to a maximum frequency of 300 kHz.

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OUTPUT SIGNALS

LINE DRIVER	PUSH-PULL
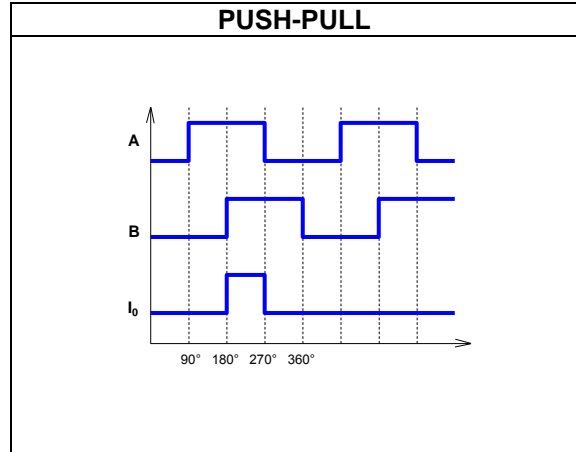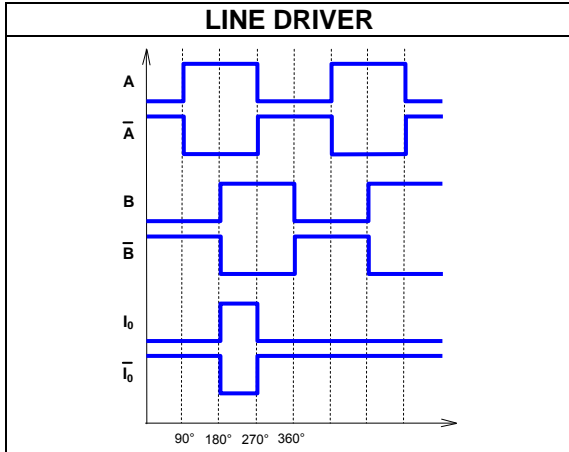
SENSOR DIMENSIONS

values in mm	MP100	MP100 + CV103	MP100 + SP202	MP100 + GVS 100
s	1.3	1.6	2.1	7.6
d	0.1 ÷ 0.4	N.A.	N.A.	N.A.

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

SENSOR ALIGNMENT TOLERANCES
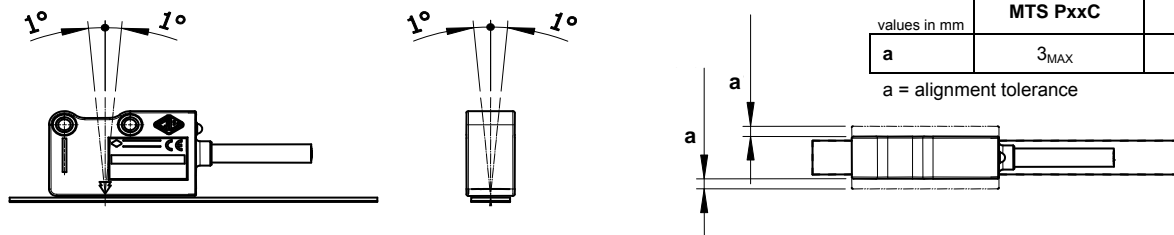
values in mm	MTS PxxC	MTS P for GVS 100
a	3$_{MAX}$	N.A.

a = alignment tolerance

ORDERING CODE

MODEL	POLE PITCH	RESOLUTION	REFERENCE INDEXES	POWER SUPPLY	OUTPUT SIGNALS	CABLE	CONNECTION	PROGRAMMING	SPECIAL
MTS	**P**	**1**	**C**	**528V**	**L**	**M02 / N**	**SC**	**F**	

	P = 1+1 mm	**10** = 10 µm	**C** = constant step	**528V** = 5÷28 Vdc	**L** = LINE DRIVER	**M01/N** = 1 m	**SC** = without connector	**F** = fixed	**No cod** = standard
		5 = 5 µm		**5285** = 5÷28 Vdc with 5 V output	**Q** = PUSH-PULL	**M02/N** = 2 m	**Cnn** = progressive	**V** = variable	**SPnn** = special nn
		1 = 1 µm				**M03/N** = 3 m			
		05 = 0.5 µm							

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