

Code ST22	Project A25-C	Release A	TECHNICAL DATASHEET
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MAGNETIC SENSOR MTS I

GENERAL CHARACTERISTICS

- Magnetic sensor for linear and angular reading.
- Resolutions up to 24,000 DPI.
- 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 2.54+2.54 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 MP254.



MECHANICAL AND ELECTRICAL CHARACTERISTICS

<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. <p>ELECTRICAL</p> <ul style="list-style-type: none"> • 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 suited for continuous movements. <p>• 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 mm²; signals 0.14 mm².</p> <p>PUR cable or cable with reduced section on request.</p> <p>The cable's bending radius should not be lower than 60 mm.</p> <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <thead> <tr> <th>LINE DRIVER</th> <th>PUSH-PULL</th> <th>CONDUCTOR COLOR</th> </tr> </thead> <tbody> <tr><td>A</td><td>A</td><td>Green</td></tr> <tr><td>\bar{A}</td><td></td><td>Orange</td></tr> <tr><td>B</td><td>B</td><td>White</td></tr> <tr><td>\bar{B}</td><td></td><td>Light-blue</td></tr> <tr><td>I₀</td><td>I₀</td><td>Brown</td></tr> <tr><td>\bar{I}_0</td><td></td><td>Yellow</td></tr> <tr><td>+ V</td><td>+ V</td><td>Red</td></tr> <tr><td>0 V</td><td>0 V</td><td>Blue</td></tr> <tr><td>SCH</td><td>SCH</td><td>Shield</td></tr> </tbody> </table> <p>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 *</p>	LINE DRIVER	PUSH-PULL	CONDUCTOR COLOR	A	A	Green	\bar{A}		Orange	B	B	White	\bar{B}		Light-blue	I ₀	I ₀	Brown	\bar{I}_0		Yellow	+ V	+ V	Red	0 V	0 V	Blue	SCH	SCH	Shield	Cod. MTS	I
	LINE DRIVER	PUSH-PULL	CONDUCTOR COLOR																													
	A	A	Green																													
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	+ V	+ V	Red																													
	0 V	0 V	Blue																													
	SCH	SCH	Shield																													
	Pole pitch	2.54+2.54 mm																														
	Reference indexes	C = constant step (every 2.54 mm)																														
	Resolution	600 - 1,200 - 2,400 - 3,000 - 4,800 - 6,000 - 9,600 - 12,000 - 24,000 DPI																														
	Accuracy **	± 10 µm																														
Max. traversing speed ***	1.2 m/s (24,000 DPI) 14 m/s (1,200 DPI)																															
Max. frequency	300 kHz (up to 500 kHz on request)																															
Repeatability	± 1 increment																															
A, B and I₀ 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																															

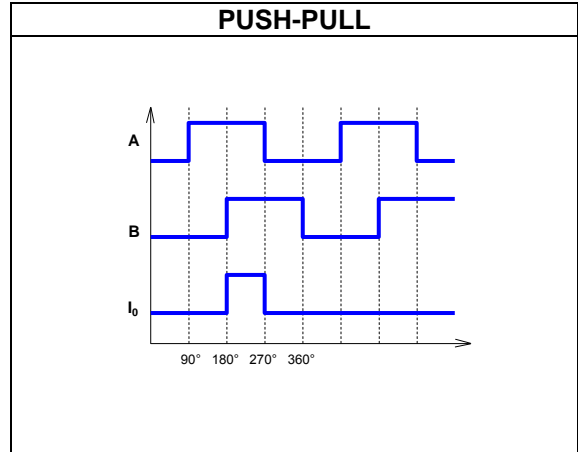
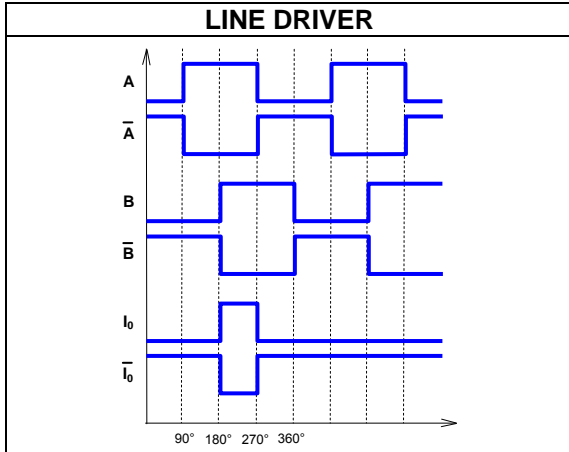
* Cable extensions need to have a 0.5 mm² section for power supply conductors.

** 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. With 600 DPI resolution, the accuracy is ± 14 µm.

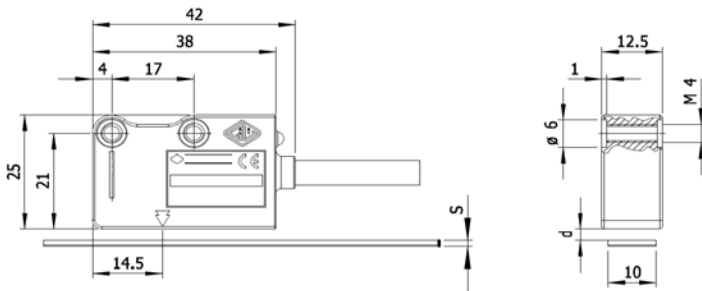
*** The indicated speeds are referred to a maximum frequency of 300 kHz.

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OUTPUT SIGNALS



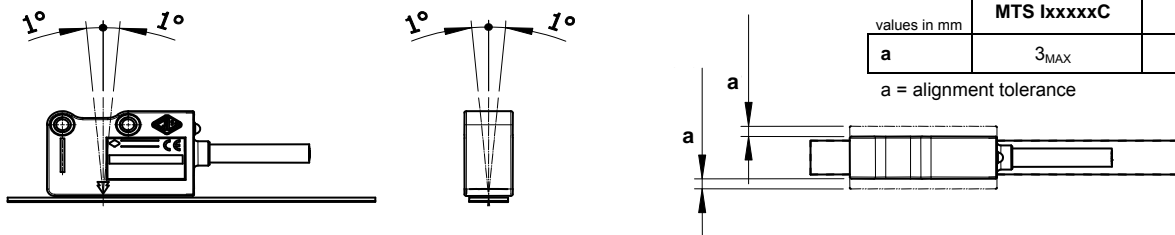
SENSOR DIMENSIONS



values in mm	MP254	MP254 + CV103	MP254 + SP202	MP254 + GVS 100
s	1.3	1.6	2.1	7.6
d	0.2 ÷ 1.4	1.1 _{MAX}	0.6 _{MAX}	0.3 ÷ 1

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 IxxxxxC	MTS I for GVS 100
a	3 _{MAX}	1 _{MAX}

a = alignment tolerance

ORDERING CODE

MODEL	POLE PITCH	RESOLUTION	REFERENCE INDEXES	POWER SUPPLY	OUTPUT SIGNALS	CABLE	CONNECTION	PROGRAMMING	SPECIAL
MTS	I	600	C	528V	L	M02 / N	SC	F	

I = 2.54+2.54 mm 24000 = 24,000 DPI C = constant step 528V = 5÷28 Vdc L = LINE DRIVER M01/N = 1 m SC = without connector F = fixed No cod = standard
 6000 = 6,000 DPI 1200 = 1,200 DPI 600 = 600 DPI 5285 = 5÷28 Vdc with 5 V output Q = PUSH-PULL M02/N = 2 m Cnn = progressive V = variable SPnn = special nn
 G = for GVS 100

Example  **MAGNETIC SENSOR MTS I 600 C 528V L M02 / N SC F**