GIVI MISURE

MEGATRON AG
FERROXCUBE DISTRIBUTOR FOR MAGNETIC COMPONENTS

Megatron AG – Gewerbehaus Ergolz, Wölferstrasse 5 4414 Füllinsdorf
Telefon: +41 (0)55 617 00 88
E-Mail: sales@megatron.ch
www.megatron.ch

Code	Project	Release	
ST02	***A40-B***	***A***	***TECHNICAL DATASHEET***

MAGNETIC SENSOR MTV P

GENERAL CHARACTERISTICS

- Magnetic sensor for linear and angular reading.
- Resolutions up to 0.1 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 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 ∅ = 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.

SIGNALS	CONDUCTOR COLOR
A	Green
$\overline{A}$	Orange
B	White
$\overline{B}$	Light-blue
I_0	Brown
$\overline{I_0}$	Yellow
+ V	Red
0 V	Blue
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. MTV	P
Pole pitch	1+1 mm
Reference indexes	**C** = constant step (every 1 mm)
Resolution	up to 0.1 µm **
Accuracy	± 6 µm ***
Max. traversing speed	12 m/s
Max. frequency	12 kHz
Repeatability	± 1 increment
A, B and I_0 output signals	sine wave 1 Vpp
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	90 mA_{MAX}
Current consumption with load	110 mA_{MAX} (with 5 V and R = 120 Ω) 70 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.
** Depending on CNC division factor.
*** 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.

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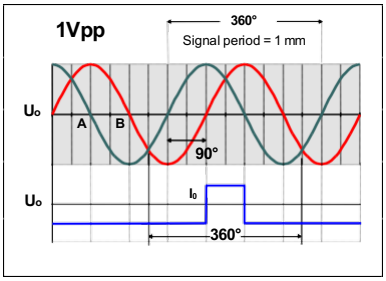
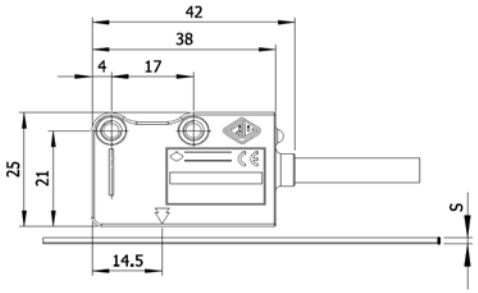
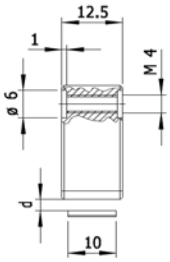
OUTPUT SIGNALS



A and B amplitude	0.6 Vpp ÷ 1.2 Vpp typical 1 Vpp
I_0 amplitude	0.25 V ÷ 0.6 V (usable component)
A and B phase displacement	90° ± 10° electrical
Reference voltage U_0	≈ 2.5 V
Signal amplitude is referred to a differential measurement made with 120 Ω impedance and a minimum power supply voltage of 5 V to the sensor.	

SENSOR DIMENSIONS

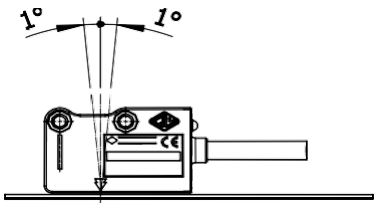


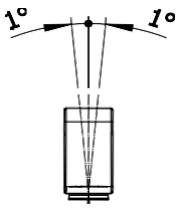


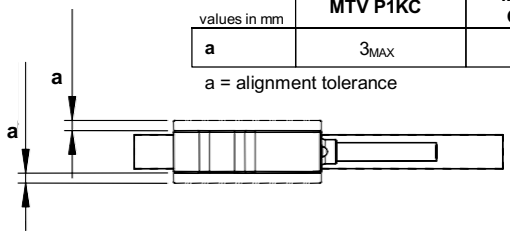
values in mm	MP100	MP100 + CV103	MP100 + SP202	MP100 + GVS 100
s	1.3	1.6	2.1	7.6
d	0.1 ÷ 0.4	N.A.	N.A.	N.A.

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	MTV P1KC	MTV P for GVS 100
a	3_{MAX}	N.A.

a = alignment tolerance

ORDERING CODE

MODEL	POLE PITCH	PERIOD	REFERENCE INDEXES	POWER SUPPLY	OUTPUT SIGNALS	CABLE	CONNECTION	SPECIAL
MTV	**P**	**1K**	**C**	**528V**	**S**	**M02 / N**	**SC**	
	P = 1÷1 mm	**1K** = 1 mm	**C** = constant step	**528V** = 5÷28 Vdc	**S** = sine wave	**M01/N** = 1 m **M02/N** = 2 m **M03/N** = 3 m	**SC** = without connector **Cnn** = progressive	**No cod** = standard **SPnn** = special nn

Example 👉 **MAGNETIC SENSOR MTV P 1K C 528V S M02 / N SC**