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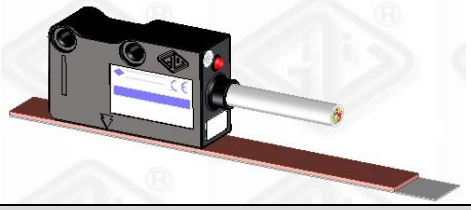
| Code | Project | Release | Title |
|---|---|---|---|
| *ST04* | *A25-B* | *F* | *TECHNICAL DATASHEET* |

# MAGNETIC TRANSDUCER MTS M

## GENERAL FEATURES

- Small overall dimensions of the TRANSDUCER.
- MAGNETIC BAND MP200 (or MP200Z with positioned reference signals upon request) is composed of a magnetic strip, which is polarized at regular distances of 2+2 mm and supported by a stainless steel tape. Extremely easy to mount on the operating machine.



## MECHANICAL AND ELECTRICAL FEATURES

**MECHANICAL**
- Die-cast transducer.
- Double fixing system transducer with M4 screw thread or with M3 through screws.
- Liberal mounting tolerances.
- Reference signals at required positions (only with MP200Z).

**ELECTRICAL**
- Very flexible power cable.
- High stability of the signals.
- For applications where max. speed exceeds 1m/s, the use of a "special cable" is requested.

### CABLE (2 meters standard length)

| Minimum bending radius 60 mm | 8 CORES Ø 5.3 mm | |
|---|---|---|
| **CONNECTIONS** | **LINE DRIVER** | **PUSH-PULL** |
| GREEN | A | A |
| ORANGE | $\overline{A}$ | |
| WHITE | B | B |
| SKY BLUE | $\overline{B}$ | |
| BROWN | Z | Z |
| YELLOW | $\overline{Z}$ | |
| RED | V + | V + |
| BLUE | V - | V - |
| SHIELD | | |

The sensor is normally supplied with a 2 m cable.
It is possible to require longer cables, considering the following maximum available length.
$L_{MAX}$=10 m (sensor cable);
$L_{MAX}$=100 m (2 m sensor cable + cable extension*).

| Code MTS M | |
|---|---|
| **Reference signal** | constant pitch every 2 mm*** **(C)**<br>external **(E)**<br>positioned on magnetic band **(Z)** |
| **Pole pitch** | 2+2 mm |
| **Resolution** | 1000 - 500 - 100 - 50 - 25 - 10 - 5 - 1 µm |
| **Accuracy**** | ± 15 µm |
| **Repeatability** | ± 1 increment |
| **Cable** | 8 cores |
| **Output signals** | LINE DRIVER / PUSH-PULL |
| **Max. measuring frequency** | 300 kHz |
| **Sensor - magnetic band distance** | see drawings |
| **Power supply** | 5 ÷ 28 Vdc ± 5% |
| **Current consump. without load** | 60 $mA_{MAX}$ |
| **Current consumption with load** | 140 $mA_{MAX}$ (with 5 V and Zo = 120 Ω)<br>115 $mA_{MAX}$ (with 12 V and Zo =1.2 kΩ)<br>90 $mA_{MAX}$ (with 28 V and Zo = 1.2 kΩ) |
| **Phase displacement** | 90° ± 5° electrical |
| **Max. speed** | 1.2 m/s **(MTS M1)** / 12 m/s **(MTS M10)** |
| **Vibration resistance** | 300 $m/s^2$ [55 ÷ 2000 Hz] |
| **Shock resistance** | 1000 $m/s^2$ (11 ms) |
| **Protection class** | IP 67 DIN 40050/IEC 529 |
| **Operating temperature** | 0° ÷ 50°C |
| **Storage temperature** | -20° ÷ 80°C |
| **Relative humidity** | 100% (not condensed) |
| **Weight of transducer** | 40 g |
| **Electrical protections** | inversion of power supply polarity and short-circuits on output port |

* Cable extension with power supply conductor section of 0.5 $mm^2$.
** In order to obtain this accuracy value, it is necessary to respect the alignment tolerance values prescribed by Manufacturer. Better accuracy results can be obtained by reducing the gap between the sensor and the magnetic band.
*** Except for model 1K (resolution 1000 µm), having constant pitch every **4**mm.

## ORDERING CODE

| MODEL | PITCH | RESOLUTION | ZERO MARKER | POWER SUPPLY | OUTPUT | CABLE | CONNECTION |
|---|---|---|---|---|---|---|---|
| **MTS** | **M** | **10** | **C** | **528V** | **L** | **M02/N** | **SC** |
| **MTS** | **M** = 2+2mm | **1** = 1µm<br>**5** = 5µm<br>**10** = 10µm<br>**1K** = 1000µm | **C** = constant pitch<br>**E** = external<br>**Z** = selected on magnetic band | **528V** = 5÷28V | **L** = LINE DRIVER | **M01/N** = 1m<br>**M02/N** = 2m<br>**M10/N** = 10m | **SC** = without conn.<br>**C3** = C3<br>**C4** = C4 |

Example ☞ **MAGNETIC SENSOR MTS M10C 528VL M02/N SC**

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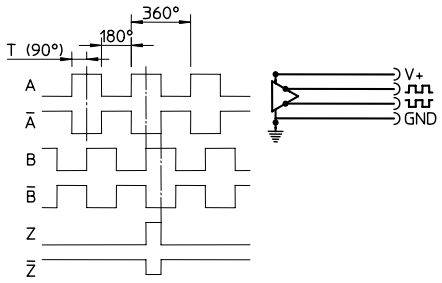
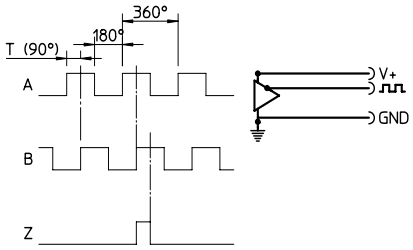
## OUTPUT SIGNALS DIAGRAM

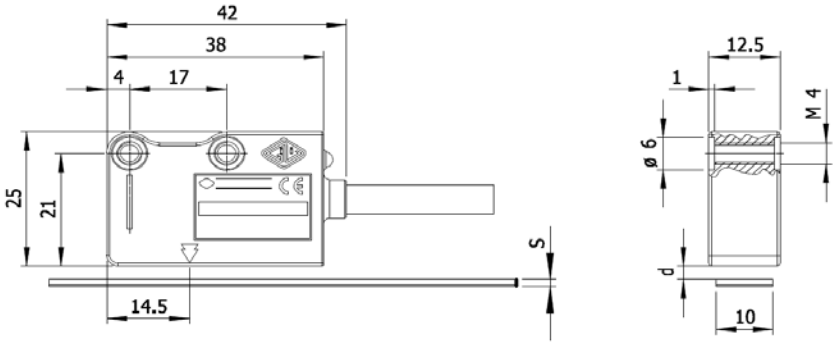
### LINE DRIVER




### PUSH-PULL




## SENSOR DIMENSIONS





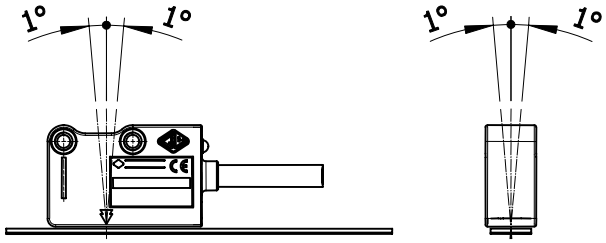


| S(mm) | *MP200Z* | *MP200Z+CV103* | *MP200Z+SP202* |
|---|---|---|---|
| | *1.3* | *1.6* | *2.1* |
| **d(mm)** | **0.35÷0.9** | **$0.7_{MAX}$** | **$0.2_{MAX}$** |

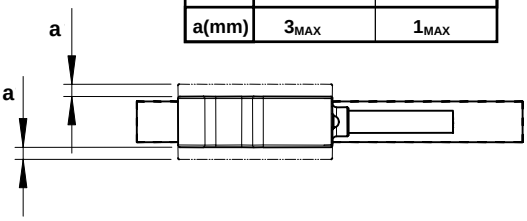
| S(mm) | *MP200* | *MP200+CV103* | *MP200+SP202* |
|---|---|---|---|
| | *1.3* | *1.6* | *2.1* |
| **d(mm)** | **0.3÷1.5** | **$1.2_{MAX}$** | **$0.7_{MAX}$** |

**d → distance between sensor and top side of S**

## ALIGNMENT TOLERANCES SENSOR-STRIP




| | *MTS MxxxC MTS MxxxE* | *MTS MxxxZ* |
|---|---|---|
| **a(mm)** | **$3_{MAX}$** | **$1_{MAX}$** |




## INSTALLATION AND HANDLING

**RECOMMENDED MAGNETIC BAND FIXING**

1. Remove grease from the surfaces by using alcohol and give a finishing touch by using a dry cloth.
2. Fix the magnetic band.
3. Fix the cover strip.

After 48 hours the best adhesion will be obtained.

**WHAT TO AVOID**

1. All mechanical reworks (cutting, drilling, face milling etc.).
2. All modifications of the body of slider.
3. All mishandling.
4. Impacts and external stress.
5. Exposure to external magnetic fields.

Without prior notice, the products may be subject to modifications that the Manufacturer reserves to introduce as deemed necessary for their improvement.