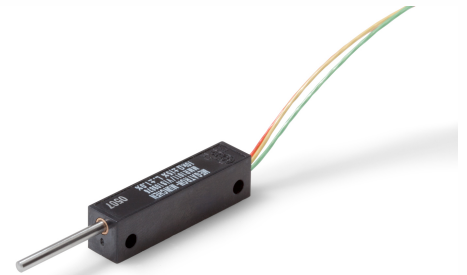


## Serie MM10 - Potentiometric Linear Transducer

- Conductive plastic element, resolution quasi infinite
- Electrical travel from 8 mm to 15 mm
- Small dimensions
- Double sleeve bearing
- High Lifetime
- Spring return optional



The compact series MM are mounted in a Dusoplast housing. The stainless shaft can be provided with a spring return device, thus it is useabel as a sensor.

### Drawing

|                                                              |  |
|--------------------------------------------------------------|--|
| <p>MM10_8 / MM10_11 / MM10_12<br/>with or without spring</p> |  |
| <p>MM10_15<br/>without spring</p>                            |  |
| <p>MM10_15<br/>with spring</p>                               |  |

# Serie MM10 - Potentiometric Linear Transducer

## Dimensions

| Type                 | MM(R)10_8 | MM(R)10_11 | MM(R)10_12 | MM10_15 | MMR10_15 |
|----------------------|-----------|------------|------------|---------|----------|
| C max. [ $\pm 1$ mm] | 18        | 22         | 23         | 28      | 37       |
| C min. [ $\pm 1$ mm] | 10        | 10         | 10         | 10      | 19       |
| D max. [ $\pm 1$ mm] | 20        | 22         | 23         | 28      | 18       |
| D min. [ $\pm 1$ mm] | 10        | 10         | 10         | 10      | 0        |

## Wiring:

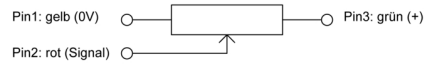


Diagram is equivalent to the shaft position in the drawing above

| Electrical Data                    | MM10_8                            | MM10_11     | MM10_12 | MM10_15 |
|------------------------------------|-----------------------------------|-------------|---------|---------|
| Electrical Travel [ $\pm 0,5$ mm]  | 8                                 | 11          | 12,7    | 15      |
| Resistance Values                  | 1, 2, 5, 10, 20 kOhm              |             |         |         |
| Resistance Tolerance               | $\pm 15\%$ ( $\pm 10\%$ optional) |             |         |         |
| Linearity Tolerance                | $\pm 2\%$ ( $\pm 1\%$ optional)   |             |         |         |
| Linearity Tolerance, best possible | --                                | $\pm 0,5\%$ | --      | --      |
| Resolution                         | <0,01 mm                          |             |         |         |
| Power Rating at 40°C               | 0,2 W                             |             |         | 0,3 W   |
| Temperature Coefficient Resistor   | 400 ppm/K                         |             |         |         |
| Starting Resistance                | <2%                               |             |         |         |
| Insulation                         | > 1000 MOhm (bei 500 VDC)         |             |         |         |
| Dielectric Strength                | 500 Veff. / 1 min.                |             |         |         |
| Maximum Wiper Current              | 1 mA                              |             |         |         |
| Recommendende Wiper Current        | < 1 $\mu$ A (voltage divider)     |             |         |         |

# Serie MM10 - Potentiometric Linear Transducer

| Mechanical Data                       | MM10_8                                                                                                                  | MM10_11   | MM10_12   | MM10_15      |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------|-----------|-----------|--------------|
| Mechanical Travel                     | 8 ± 1 mm                                                                                                                | 12 ± 1 mm | 13 ± 1 mm | 15 + 5/-0 mm |
| Maximum Operating Friction MM         | 0,3 N                                                                                                                   |           |           | 0,5 N        |
| Maximum Operating Friction MMR        | 3 N                                                                                                                     |           |           | 5 N          |
| Stopper strength statically           | 10 N                                                                                                                    |           |           |              |
| Weight                                | ≈5 g                                                                                                                    |           |           |              |
| Rod Bearing                           | 2 Sleeve Bearings                                                                                                       |           |           |              |
| Max. Displacement Speed               | 2 m/s                                                                                                                   |           |           |              |
| Average lifetime<br>(shaft movements) | MM: 40 Mio.<br>MMR: 20 Mio.                                                                                             |           |           |              |
| Housing Material                      | Duroplast                                                                                                               |           |           |              |
| Rod Material                          | stainless Steel                                                                                                         |           |           |              |
| Terminal Material                     | MM 10_8, 11, 12: 3 insulated wires Ø0,8mm, length 150mm ± 5mm<br>MM 10_15: gold-plated solder lugs (opt. 3 wires AWG28) |           |           |              |

| Ambient Conditions    |                                                |
|-----------------------|------------------------------------------------|
| Operating Temperature | -25 ... + 105° C                               |
| Storage Temperature   | -40 ... + 125° C                               |
| Vibration             | 15 g / 10...2000 Hz                            |
| Shock                 | 50g / 11ms                                     |
| Protection Class      | IP40 / optional IP54 with different connection |

| Options                                                                                                                                                                                                 |                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mechanical                                                                                                                                                                                              | Electrical                                                                                                                                                                   |
| <ul style="list-style-type: none"> <li>• Special shaft (length, shape, thread)</li> <li>• Spring return device (lower lifetime)</li> <li>• IP54 (Attention: different mechanical dimensions)</li> </ul> | <ul style="list-style-type: none"> <li>• Special resistance value</li> <li>• Tighter tolerances</li> <li>• MM 10 15: connection with wires instead of solder lugs</li> </ul> |

| Order Code                      |          |            |           |             |            |
|---------------------------------|----------|------------|-----------|-------------|------------|
| Series                          | MM (R)10 |            |           |             |            |
| Resistance value                |          | <b>R1k</b> |           |             |            |
|                                 |          | R2k (*)    |           |             |            |
|                                 |          | <b>R5k</b> |           |             |            |
|                                 |          | R10k       |           |             |            |
| Stroke [mm]                     |          |            | <b>8</b>  |             |            |
|                                 |          |            | 11        |             |            |
|                                 |          |            | <b>12</b> |             |            |
|                                 |          |            | 15        |             |            |
| Resistance tolerance            |          |            |           | <b>W15%</b> |            |
|                                 |          |            |           | W10% (*)    |            |
| Independent linearity tolerance |          |            |           |             | <b>L2%</b> |
|                                 |          |            |           |             | L1% (*)    |

"bold print = standard option"

short-term stock types can be found on: <http://www.megatron.de/en/stocklists/linear-sensors/lagerliste.html>

(\*) = on request available for projects

23.02.2015