**ESA MESSTECHNIK GMBH**

Schlossstrasse 119 · D - 82140 Olching/München

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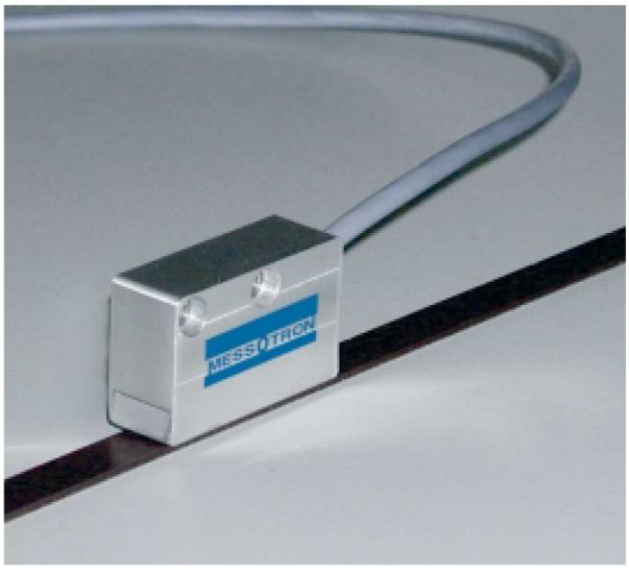


# Magneto-resistive Position Sensing

**The MRP system detects position and motion using the magneto-resistive effect. An electronics sensor contactlessly detects its position from the pole pattern induced in a magnetic tape.**

- **High-accuracy position detection in µm range**
- **Contactless, no-wear sensing technology based on rugged components**
- **Measurement range from few mm to 100 m**
- **Flexible and easy accommodation of strip**
- **Compact electronics**
- **Economic long range linear position sensing**

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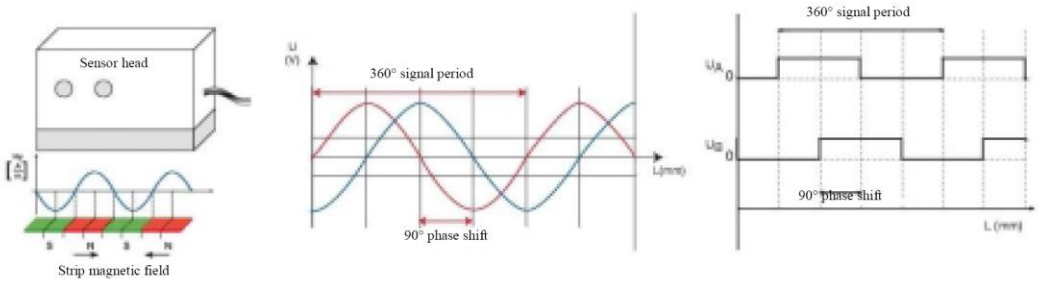
# Magneto-resistive linear system MRP

## Principle of sensing




## Components

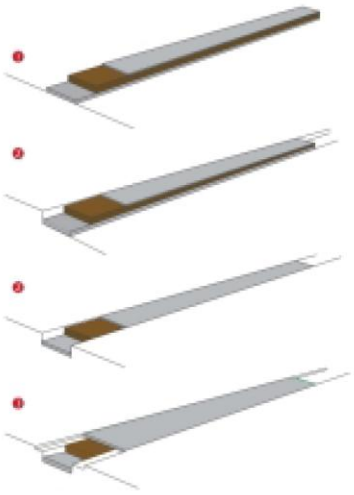
*Electronics*
Compact sensor head integrated electronics, easy to mount above magnetic strip

*Strip assembly*

- Cover strip (stainless steel)
- Adhesive tape
- Magnetic tape
- Carrier strip (stainless steel)
- Adhesive tape

## Mounting

1) Standard top mounting (glued); sensor head hovering above magnetic strip at specified distance (typically 1 mm)



2) Edge and groove mounting with increased protection, no height increase

3) Groove mount with widened upper cover; maximum degree of integration and system protection (e.g. against dust, fluids)

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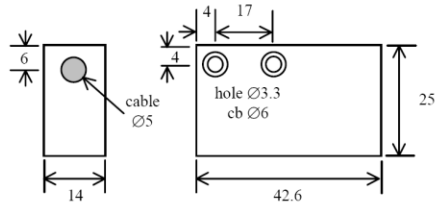
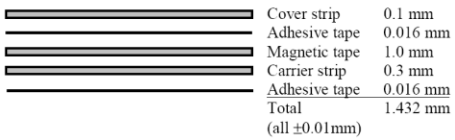
# Magneto-resistive linear system MRP

## Technical Data

| Model | MRP 2000 | MRP 1000 | MRP 100 |
|---|---|---|---|
| *Electrical* | | | |
| Measuring range | Standard: 100 ... 2000 mm, other ranges optional | | |
| Resolution | 100 µm | 10 µm | 5 µm |
| Accuracy | ± 15 µm/m | ± 15 µm/m | ± 10 µm/m |
| Pole pattern | 2 + 2 mm | | |
| Measuring pattern | 400 | | |
| Referenz | strip internal or external ref. Optional | | |
| Repetivity | ± 1 increment @ 20°C | | |
| Frequency | 500KHz | | |
| Max. displacement speed | 5.5 m/s (higher speed optional) | | |
| | | | |
| Signal output | 5V TTL A/B/Reference, Line Driver | | |
| Connection | 3m cable with 9-pin Sub-D connector | | |
| | | | |
| EMI | IEC 801, level 3 | | |
| | | | |
| Supply | 5 VDC, ± 5% | | |
| Consumption | 150 mA | 180 mA | |
| *Mechanical* | | | |
| Sensor head dimensions [in mm] |  | | |
| Strip assembly dimensions [in mm] |  | | |
| Mass | 50 g (sensor head)<br>120 g/m (standard cable) | | |
| Protection class | IP 67 (sensor head)<br>≥ IP64 (strip assembly; depending on installation) | | |
| Temperature range | -10°C ... +70°C | | |
| Relative humidity | 0 ... 100% rF, long-term condensation allowed | | |

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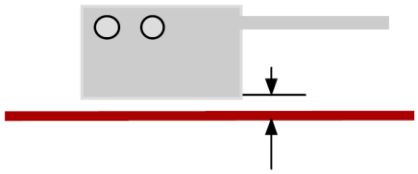
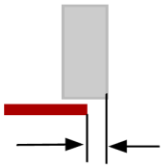
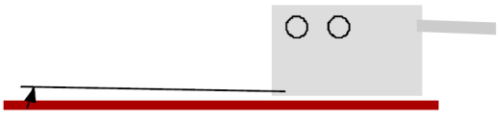
## Mounting guidelines

| | | |
|---|---|---|
| sensor head to strip gap |  | +0.1 ... +0.8 mm |
| lateral sensor head shift wrt strip |  | ± 2 mm |
| misalignment |  | ≤ 4° |
| back tilt angle |  | ≤ 2.5° |
| front tilt angle |  | ≤ 1.5° |