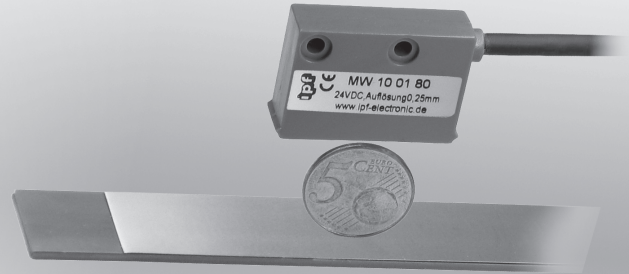


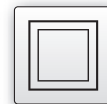
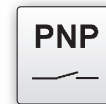
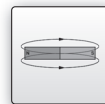
dimensions **10x37x25mm**

incremental resolution **0.25mm**



- ✓ insensitive to dirt, humidity and vibration
- ✓ robust metal or plastic housing
- ✓ very easy installation of the complete measuring system
- ✓ high initial acceleration is possible
- ✓ resistant to wear maintaining high accuracy
- ✓ linear resolution 0.25mm after 4-time interpretation

**distance sensor / band: 5 ... 20mm**  
**lateral offset  $\pm 5$ mm**



### description

Sensors for the detection of changes in position (linear) or angular change (rotating), which can detect the distance and direction of path and/or change of angle and direction of rotation are referred to as incremental encoders. The path measuring system consists of two parts: The sensing head and the magnetic tape. On the 10mm (20mm) wide magnetic tape, north and south poles are alternating in a longitudinal direction with an exactly defined pole width. The magnetic tape is protected by a carrier strip on the rear and by a magnetically permeable masking tape made of stainless steel. A double-faced adhesive tape glued to the rear side is used as a fixture.

The sensing head mounted above the magnetic tape consecutively senses the different poles. From the sinusoidal signal which is generated, the integrated electronic system forms square wave signals.

These can be processed directly via a counter or a control. The sensor element has a width of 5mm and is located in

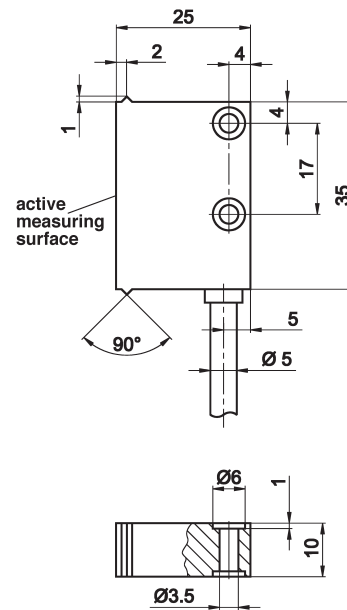
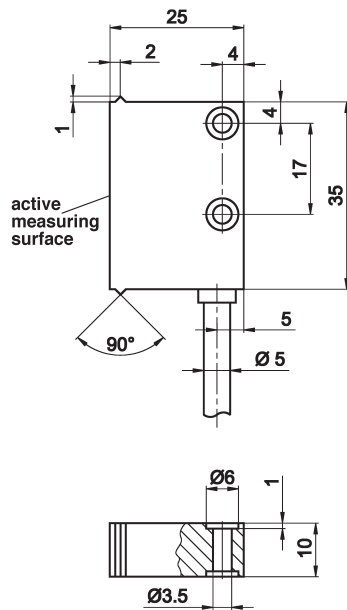
the center of the sensing head. In environments with dust, chipping, humidity or mechanical impacts, a protective aluminum section (**AM000050**) can be screwed above the magnetic tape (**AM000085**). For 20 mm wide magnetic tape **AM000109** stands the porofil rail **AM000117** available. The maximum tape length is 80m.

The precision of the system, taking into account the magnetic tape length "L" in meters is  $\pm(1 + 0.03 \times L)$  mm. The magnetic tape has to be 100mm longer than the required measured distance, 50mm need to be added on each side. For higher requirements, please use measuring system **MW11** (resolution 10 $\mu$ m, precision 50 $\mu$ m) with magnetic tape **AM000059**!

### application examples

- ▶ Linear measurement under toughest ambience conditions

|                            |                 |                  |
|----------------------------|-----------------|------------------|
| article-no.                | MW100150        | MW100180         |
| operating voltage          | 24V DC          | 24V DC           |
| output current (max. load) | 2 x 20mA        | 2 x 20mA         |
| output signal              | A,B / push pull | A, B / push pull |



### TECHNICAL DATA

|                                 |                                |                                |
|---------------------------------|--------------------------------|--------------------------------|
| sensing range                   | 10mm                           | 20mm                           |
| output signal                   | A,B / push pull                | A,B / push pull                |
| operating voltage               | 24V DC ± 20%                   | 24V DC ± 20%                   |
| current consumption (w/o load)  | < 50mA                         | < 50mA                         |
| output current (max. load)      | 2x20mA                         | 2x20mA                         |
| voltage drop (max. load)        | ≤ 1.5V DC                      | ≤ 1.5V DC                      |
| accuracy *                      | ±(1+0.03*L)mm                  | ±(1+0.03*L)mm                  |
| repeat accuracy                 | max. ± 0.25mm                  | max. ± 0.5mm                   |
| traversing speed                | < 10m/s                        | < 15m/s                        |
| vibration resistance            | 10g/50Hz                       | 10g/50Hz                       |
| humidity                        | 100%rh, condensation permitted | 100%rh, condensation permitted |
| display (signal)                | -                              | -                              |
| short-circuit protection        | +                              | +                              |
| reverse polarity protection     | +                              | +                              |
| housing material                | plastic                        | plastic                        |
| dimensions                      | 10x37x25mm                     | 10x37x25mm                     |
| operating temperature           | -10 ... +70°C                  | -10 ... +70°C                  |
| system of protection (EN 60529) | IP67                           | IP67                           |
| connection                      | 2m PUR cable, 4-wire           | 2m PUR cable, 4-wire           |
| mounting accessories            | 2x M3x14mm hexagon socket      | 2x M3x14mm hexagon socket      |

\* L = magnetic tape length in m at +20° C

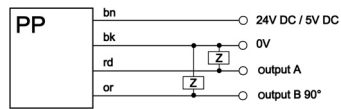
|                       |                                 |             |
|-----------------------|---------------------------------|-------------|
| article-no.           | AM000085                        | AM000050    |
| version               | magnetic tape                   | profil rail |
| pole length           | 20mm                            | -           |
| operating temperature | -20 ... +70°C                   | -           |
| humidity              | 100% rh, condensation permitted | -           |
| material              | see drawing                     | aluminium   |
| mounting              | glued joint                     | -           |
|                       |                                 |             |
| article-no.           | AM000109                        | AM000117    |
| version               | magnetic tape                   | profil rail |
| pole length           | 40mm                            | -           |
| operating temperature | -20 ... +70°C                   | -           |
| humidity              | 100% rh, condensation permitted | -           |
| material              | see drawing                     | aluminium   |
| mounting              | glued joint                     | -           |
|                       |                                 |             |

## 1050 magnetic linear measurement

4

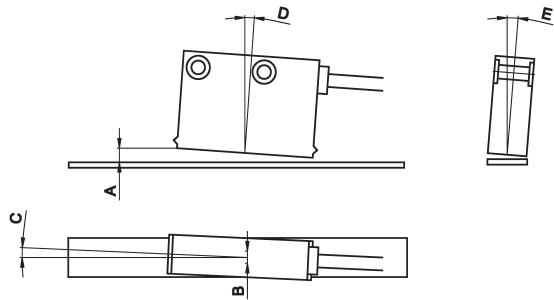
### connection

cable device

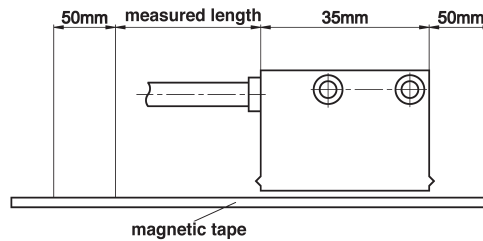


wire colors: bn = brown, bk = black, rd = red, or = orange

### mounting notes



### determination of the magnetic tape length



measured length + 35mm + (2\*50mm) = magnetic tape length

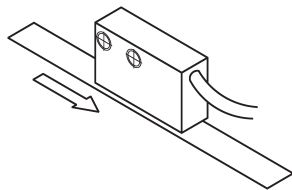
### MW100150

|                          |   |            |
|--------------------------|---|------------|
| sensing range            | A | max. 10mm  |
| lateral offset           | B | max. ± 2mm |
| misalignment             | C | < ±3°      |
| longitudinal inclination | D | < ±3°      |
| lateral inclination      | E | < ±3°      |

### MW100180

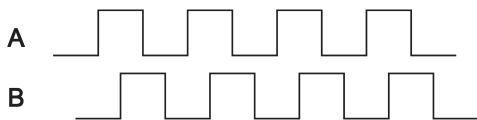
|                          |   |            |
|--------------------------|---|------------|
| sensing range            | A | 5 ...20mm  |
| lateral offset           | B | max. ± 5mm |
| misalignment             | C | < ±10°     |
| longitudinal inclination | D | < ±3°      |
| lateral inclination      | E | < ±3°      |

### traversing direction



The arrow points to the direction of the linear measurement of the magnetic tape (signal A before B). An indication for positioning the **MW10** is the cable outlet.

### signal pictures



This data sheet contains the available standard versions only. Kindly request the availability of other output- and connection functions.

**Warning:** Never use these devices in applications where the safety of a person depends on their functionality.

You also find this data sheet, as well as contact details under [www.ipf-electronic.com](http://www.ipf-electronic.com)

