

# Magnetic sensors

## MDRM/MDFM

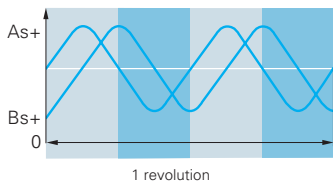
### features

- Can replace mechanical potentiometers
- sine/cosine or linear output signals
- high protection class
- cylindrical and rectangular design

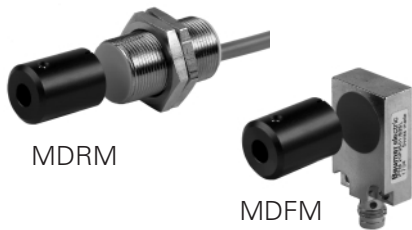
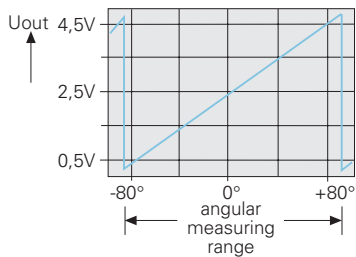
### description

The MDRM/MDFM miniature encoders have been designed to replace mechanical potentiometers in certain motion control applications. They are magnetically controlled by a small rotor closely positioned in front of the active sensing face. The encoders provide either 2 sinusoidal signals or a DC voltage signal which is linear over +/- 80°. Further processing of the signals, having a maximum resolution of 10 bits, is easily accomplished using a standard PLC. Field plate sensors as well as the non-contact potentiometers offer IP 67 protection which makes them ideal components for an array of applications in harsh industrial environments involving wide working temperature ranges. Both products can be provided either in threaded barrel type housings or in rectangular enclosures.

### output signals sin/cos



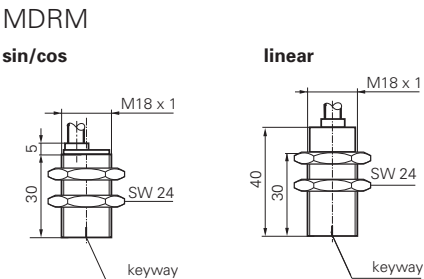
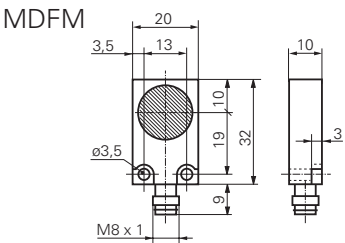
### output signals linear



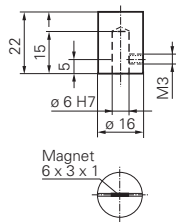
| output type                                          | part numbers             |
|------------------------------------------------------|--------------------------|
| output signals sin/cos<br>cylindrical design M18 x 1 | <b>MDRM 18U4501</b>      |
| output signals sin/cos<br>rectangular design         | <b>MDFM 20U4501/S35A</b> |
| output signals linear<br>cylindrical design M18 x 1  | <b>MDRM 18U9501</b>      |
| magnetic rotor                                       | <b>123344</b>            |

| technical data           | sin/cos                                        | linear                          |
|--------------------------|------------------------------------------------|---------------------------------|
| voltage supply +Vs       | 5 VDC ±5%                                      | 5 VDC ±5%                       |
| supply range             | typ. 10 mA                                     | < 20 mA                         |
| output signals           | 2 Vpp (sin, 2 periods per R)                   | 0,3-4,7VDC                      |
| load                     | ≥ 400 Ω                                        | ≥ 400 Ω                         |
| offset voltage           | 2,5 VDC ±5%                                    | -                               |
| linearity                | ±11° linear                                    | ±80° linear                     |
| linearity error          | typ. 2,5%                                      | 2,5%                            |
| temperature range        | -20...+85 °C                                   | -20...+85 °C                    |
| temperature coefficient  | -0,3%/K                                        | -0,3%/K                         |
| switching frequency max. | 20 kHz                                         | 20 kHz                          |
| mounting sensor          | M18 x 1                                        | M18 x 1                         |
| mounting rotor           | hollow shaft<br>ø 6 x 15 mm                    | hollow shaft<br>ø 6 x 15 mm     |
| installation tolerance   | longitudinal ±0,5 mm<br>horizontal ±0,5 mm     | long. ±0,3 mm<br>horiz. ±0,3 mm |
| zero point adjustment    | coarse: by keyway<br>fine: sequence electronic |                                 |
| protection class         | IP 67                                          | IP 67                           |
| material sensor          | brass nickel plated                            |                                 |
| material rotor           | alu anodized                                   |                                 |

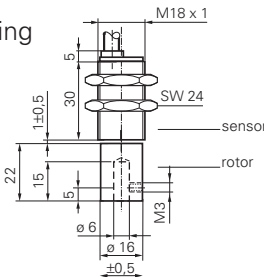
### dimensions



### rotor



### mounting



### assignment connector

for connector version /S35A (MDFM only)

| pin nr. | signals    |
|---------|------------|
| 1       | +Vs        |
| 2       | output Bs+ |
| 3       | 0 V        |
| 4       | output As+ |

### accessories

| designation      | part number  |
|------------------|--------------|
| connector 2m PUR | ESW 31AH0200 |
| right angle      | ESG 32AH0200 |
| straight         |              |

| cable assignment | sin/cos      | linear  |
|------------------|--------------|---------|
| color            | abbreviation | signals |
| brown            | BN           | +Vs     |
| black            | BK           | As+     |
| blue             | BU           | 0 V     |
| white            | WH           | Bs+     |

### accessories

| designation    | part number |
|----------------|-------------|
| magnetic rotor | 123344      |