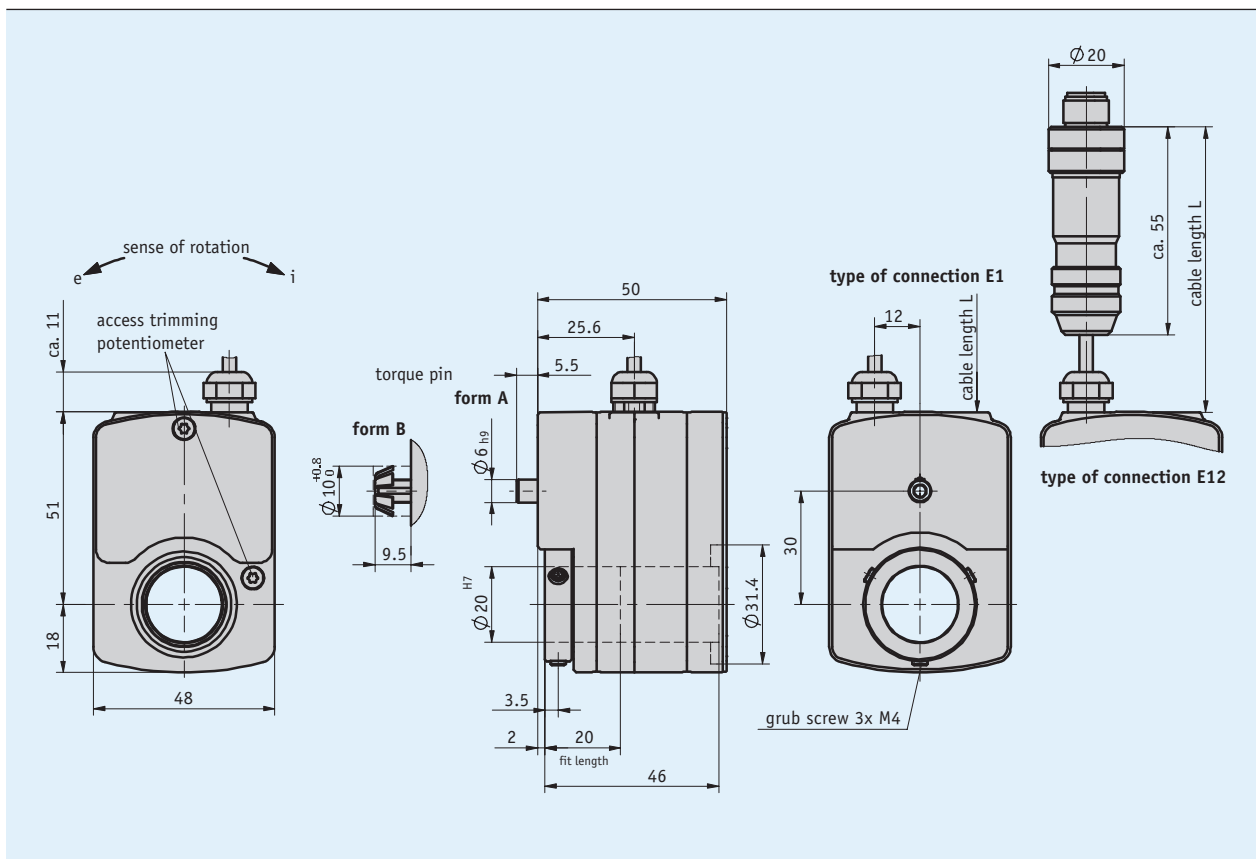


Profile

- Resistant to external influences
- Through hollow shafts up to $\varnothing 20$ mm
- Adaptation to various measurement distances owing to a wide range of gear ratios
- Integrated slip clutch to protect the potentiometer
- Compact design
- Potentiometer, power or voltage output
- IP68 protection category with oil filling possible
- Easy mounting



Mechanical data

| Feature | Technical data | Additional information |
|----------------------------|-------------------------------|---------------------------|
| Shaft | stainless steel | |
| Housing | zinc die-cast | |
| Gear ratio | 0.2 ... 244 | |
| Speed | ≤ 500 rpm | depending on transmission |
| Shaft load rating | ≤ 400 N | radial |
| | ≤ 150 N | axial |
| Potentiometer service life | 1×10^6 revolution(s) | |

Electrical data

Encoder potentiometer type 01, 1 helix

| Feature | Technical data | Additional information |
|------------------------------|----------------|------------------------|
| Power rating | 1 W at 70 °C | ≤30 V |
| Resistance | 1, 5, 10 kΩ | |
| Resistance tolerance | ±10 % | |
| Standard terminal resistance | 0.5 % | |
| Linearity tolerance | ±1 % | |
| Design | hybride | |

Encoder potentiometer type 02, 10 helices

| Feature | Technical data | Additional information |
|------------------------------|----------------|------------------------|
| Power rating | 2 W at 70 °C | ≤30 V |
| Resistance | 1, 5, 10 kΩ | |
| Resistance tolerance | ±5 % | |
| Standard terminal resistance | 0.2 % | |
| Linearity tolerance | ±0.25 % | |
| Design | wire | |

Encoder potentiometer type 03/0.1, 10 helices

| Feature | Technical data | Additional information |
|------------------------------|----------------|------------------------|
| Power rating | 2 W at 70 °C | ≤30 V |
| Resistance | 1, 5, 10 kΩ | |
| Resistance tolerance | ±5 % | |
| Standard terminal resistance | 0.2 % | |
| Linearity tolerance | ±0.1 % | |
| Design | hybride | |

Transducer, power output

| Feature | Technical data | Additional information |
|-------------------|----------------|------------------------|
| Operating voltage | 24 V DC ±20 % | |
| Output current | 4 ... 20 mA | at ≤500 Ω load |

Transducer, voltage output

| Feature | Technical data | Additional information |
|-------------------|----------------|------------------------|
| Operating voltage | 24 V DC ±20 % | |
| Output voltage | 0 ... 10 V | |

System data

| Feature | Technical data | Additional information |
|-----------------|-----------------------------------|--------------------------------|
| Measuring range | 340° ±5° (mechanical full-length) | potentiometer type 01 |
| | 3600° +10° | potentiometer types 02, 03/0.1 |

Ambient conditions

| Feature | Technical data | Additional information |
|---------------------|------------------|-------------------------------------|
| Ambient temperature | -20 ... 80 °C | without oil fill |
| | -10 ... 80 °C | with oil fill |
| Relative humidity | | condensation inadmissible |
| EMC | EN 61000-6-2 | interference resistance / immission |
| | EN 61000-6-4 | emitted interference / emission |
| Protection category | IP52, IP65, IP68 | EN 60529 |

Pin assignment

Without transducer

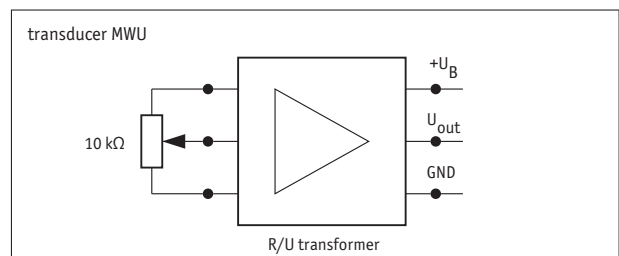
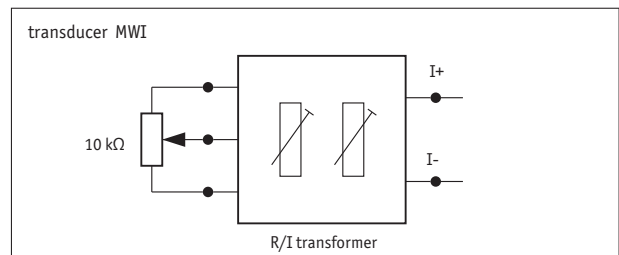
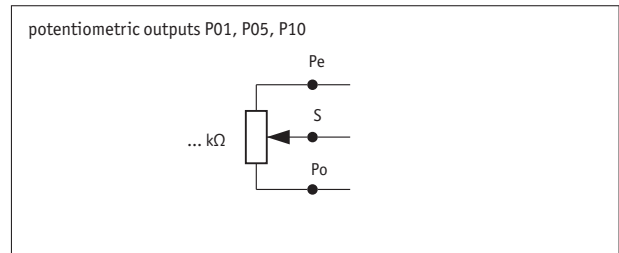
| Signal | Cable color E1 | PIN E12 |
|--------|----------------|---------|
| Po | white | 1 |
| S | green | 2 |
| Pe | brown | 3 |
| nc | - | 4 |

MWI transducer

| Signal | Cable color E1 | PIN E12 |
|--------|----------------|---------|
| I- | white | 1 |
| nc | - | 2 |
| I+ | brown | 3 |
| nc | - | 4 |

MWU transducer

| Signal | Cable color | PIN E12 |
|----------|-------------|---------|
| GND | white | 1 |
| Uout | green | 2 |
| +24 V DC | brown | 3 |
| nc | - | 4 |



Order

■ Gear ratio calculation

$$\text{Formula: } i_1 = \frac{n \times 360^\circ}{\alpha}$$

n = number of revolutions on the driving shaft
 α = potentiometer angle of rotation
 340° with 1-coil potentiometer
 3600° with 10-coil potentiometer
 i1 = order feature for gear ratio

If the calculated ratio "i1" is the same as a value in the ordering table for the "ratio" feature, but this is not available, select the next highest ratio.

■ Ordering table

| Feature | Ordering data | Specification | Additional information |
|-----------------------|--|--|--|
| Gear ratio | ... A | 0.184, 0.27, 0.361, 0.740, 1, 2, 2.503, 3.048, 4, 5.213, 6, 8.003, 10, 12, 15.238, 20, 24.167, 40.034, 45.494, 53.333, 58.333, 76.190, 100.392, 150.036 others on request | |
| Torque pin/form | A B | form A, cylindrical pin form B, for tolerance compensation | |
| Potentiometer type | 01 02 03/0.1 | C 1 helix, hybrid 10 helices, wire 10 helices, hybrid, linear tolerance ±0.1 % | |
| Analog output | MWI MWU P01 P05 P10 | D transducer 4 ... 20 mA transducer 0 ... 10 V potentiometer 1 kΩ potentiometer 5 kΩ potentiometer 10 kΩ | |
| Sense of rotation | E e i | no information required counter-clockwise ascending values clockwise ascending values | only for P01, P05, or P10 analog output only for MWI or MWU analog output only for MWI or MWU analog output |
| Type of connection | E1 E12 | F open cable ends connector, M12 | |
| Cable length | ... G | 00.3 ... 20.0 m, in intervals of 0.1 m | |
| Protection category | IP52 IP65 IP68 | H IP52 IP65 IP68 | with oil filling, against condensation |
| Number of revolutions | ... I | no information required, adjustable by customer 0.17, 0.25, 0.333, 0.6, 1, 2.5, 4, 5, 10, 12, 20, 24, 40, 60, 75, 100 others on request | except with IP68 only with IP68 type of protection and analog output MWI, MWU only with IP68 type of protection and analog output MWI, MWU |

■ Order key



Scope of delivery: GP09, Mounting instructions

Accessories:

Electronic display MA50
 Mating Connector Overview
 Mating connector, 4-pole, socket

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