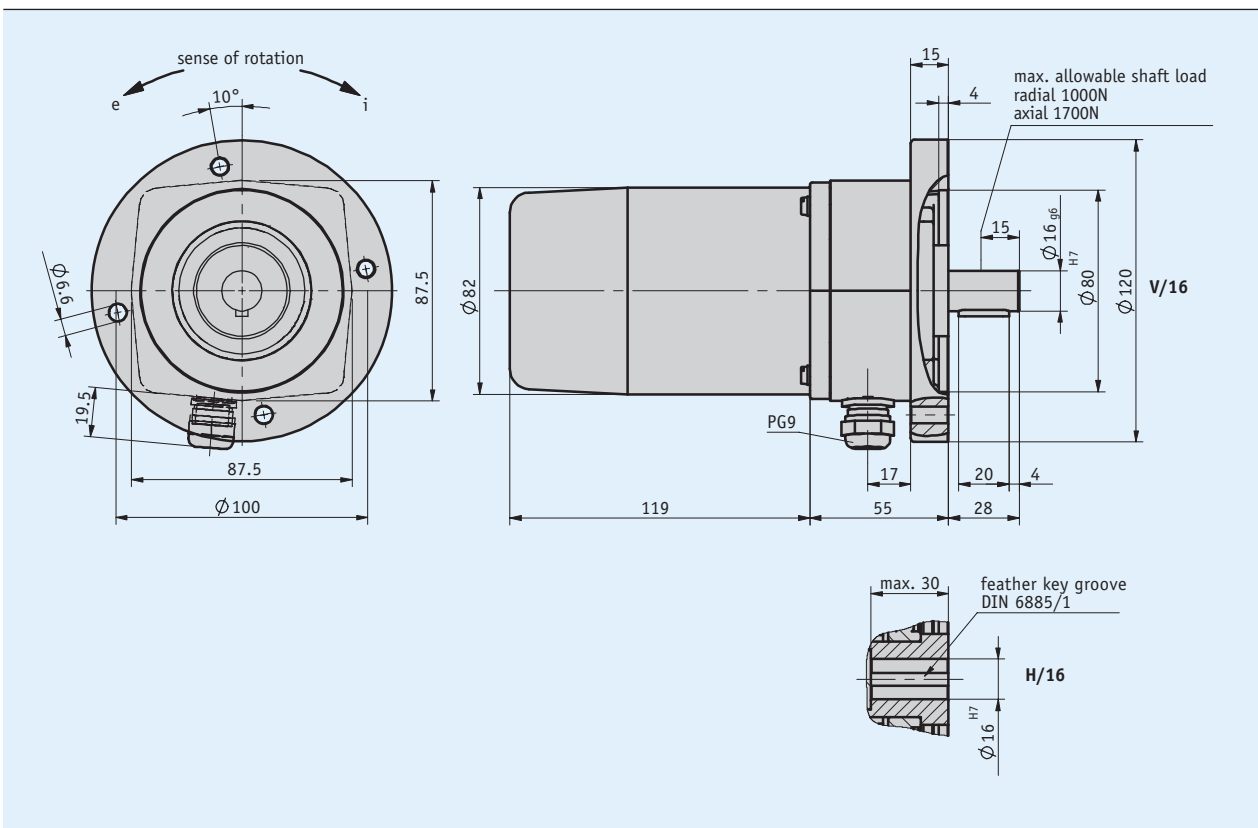
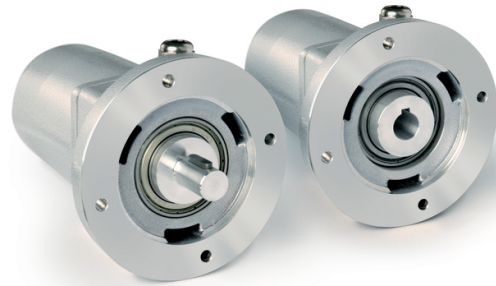


### Profile

- Extremely resistant to external influences
- Solid or blind-hole hollow shaft, max.  $\varnothing$  20 mm
- Adaptation to various measurement distances owing to a wide range of gear ratios
- Integrated slip clutch to protect the potentiometer
- Potentiometer, power or voltage output
- IP65 protection category



### Mechanical data

Feature	Technical data	Additional information
Shaft	aluminum	IP52
	black-finished steel	IP65
Housing	aluminum	
Gear ratio	0.2 ... 256	
Speed	$\leq 500$ rpm	depending on the transmission
Shaft load rating	$\leq 10000$ N	radial
	$\leq 17000$ N	axial
Potentiometer service life	$1 \times 10^6$ 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	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	0.5 %	
Linearity tolerance	±0.25 %	
Design	wire	

### Encoder potentiometer type 03, 10 helices

Feature	Technical data	Additional information
Power rating	2 W at 70 °C	≤30 V
Resistance	1, 5 W, 10 kΩ	
Resistance tolerance	±5 %	
Standard terminal resistance	0.5 %	
Linearity tolerance	±0.25 %	
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

## Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	-20 ... 80 °C	
Relative humidity		condensation inadmissible
EMC	EN 61000-6-2	interference resistance / immission
	EN 61000-6-4	emitted interference / emission
Protection category	IP52, IP65	EN 60529

## Pin assignment

### Without transducer

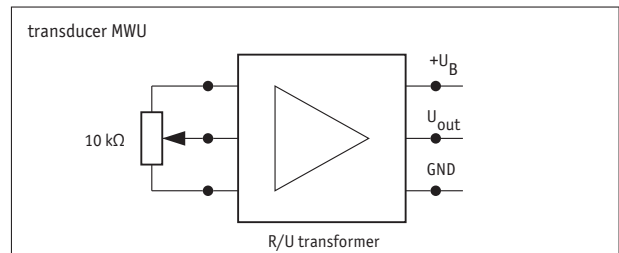
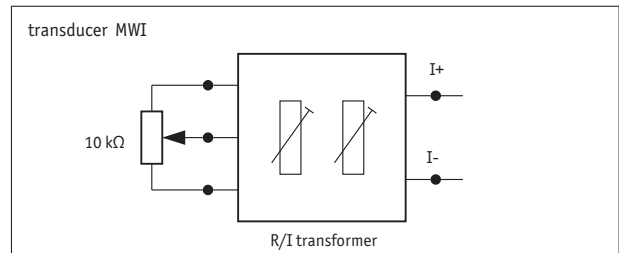
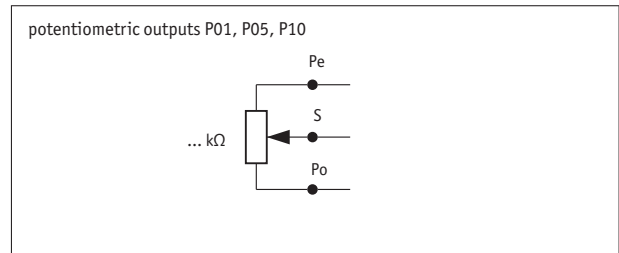
Signal	Terminal
Po	1
Pe	2
S	3

### MWI transducer

Signal	Terminal
I+	1
I-	2
nc	3

### MWU transducer

Signal	Terminal
+24 V DC	1
GND	2
Uout	3



## 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	...	<b>A</b> 0.1, 0.166, 0.25, 0.333, 0.5, 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 24, 30, 40, 55	
		others on request	
Drive shaft	H/20	<b>B</b> hollow shaft ø20 mm	
	H/16	hollow shaft ø16 mm	
	V/20	solid shaft ø20 mm	
	V/16	solid shaft ø16 mm	
Potentiometer type	01	<b>C</b> 1 helix, hybrid	only for P05 or P10 analog output
	02	10 helices, wire	
	03	10 helices, hybrid	
Analog output	MWI	<b>D</b> transducer 4 ... 20 mA	
	MWU	transducer 0 ... 10 V	
	P01	potentiometer 1 kΩ	
	P05	potentiometer 5 kΩ	
	P10	potentiometer 10 kΩ	
Sense of rotation		<b>E</b> no information required	only for P01, P05, or P10 analog output
	e	clockwise ascending values	only for MWI or MWU analog output
	i	counter-clockwise ascending values	only for MWI or MWU analog output
Protection category	52	<b>F</b> IP52	
	65	IP65	

### ■ Order key

GP04/1 -  -  -  -  -  -

A      B      C      D      E      F

Scope of delivery: GP04/1, Mounting instructions

Accessories:  
 Electronic display MA50

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