

## Rotary Sensor Industrial-Grade Potentiometer

Series IP6000

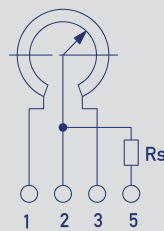


If the operating voltage is applied via connection 5, a protective resistance prevents a short circuit between the wiper and the supply voltage, as it may happen during wiring.

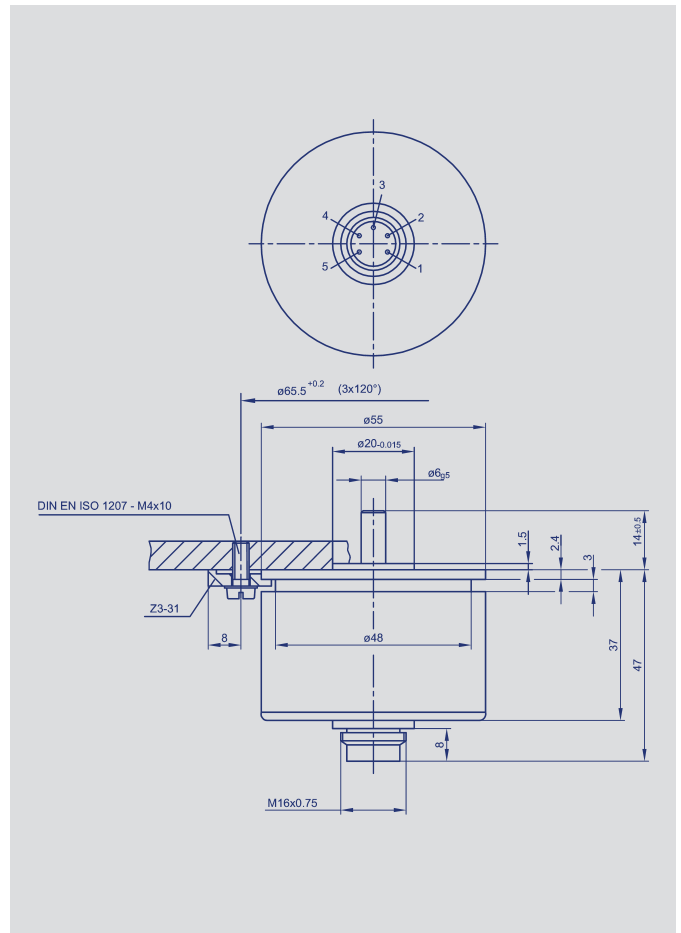
Special versions with different electrical angles and shaft dimensions are available.

### Special features

- excellent linearity -  $\pm 0.075\%$  standard,  $\pm 0.025\%$  on request
- long life -  $100 \times 10^6$  movements
- excellent repeatability -  $0.007^\circ$
- continuous rotation allowed
- sealed to IP65



Schematic, using PINS of the EEM connector



### Description

Case	aluminium, anodized, with shaft seal
Shaft	stainless steel
Bearings	stainless steel ball bearings
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	5-pin connector (see „Accessories“)

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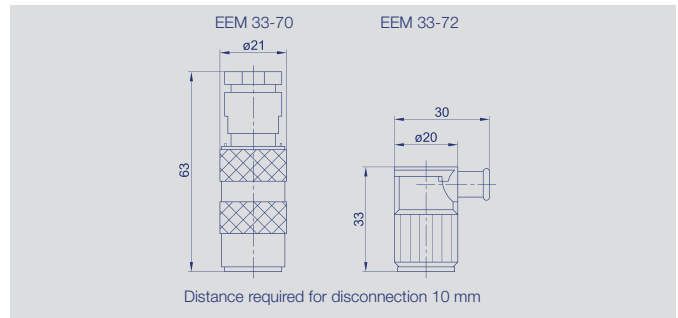
Mechanical Data		
Dimensions	see drawing	
Mounting	with 3 clamps Z 3-31	
Mechanical travel	360, continuous	°
Permitted shaft loading (axial and radial) static or dynamic force	45	N
Starting torque	<1.5	Ncm
Maximum operational speed	2,000	RPM
Weight	180	g
Electrical Data		
Defined electrical travel	355 ±2	°
Nominal resistance	5	kΩ
Resistance tolerance	±20	%
Independent linearity	±0.075 (<0.05 on request)	%
Repeatability	0.002 ( 0.007°)	%
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5	ppm/K
Max. permissible applied voltage	42	V
Max. wiper current in case of malfunction	10	mA
Protective resistance RS	5.6 kΩ between connection 2 and 5	
Recommended operating wiper current	≤ 1	μA
Insulation resistance (500 VDC)	≥ 10	MΩ
Dielectric strength (500 VAC, 50 Hz)	≤ 100	μA
Environmental Data		
Temperature range	-40...+100	°C
Vibration	5...2000	Hz
	A <sub>max</sub> = 0.75	mm
	a <sub>max</sub> = 20	g
Shock	50	g
	11	ms
Life	100 x 10 <sup>6</sup>	movements
Protection class	IP 65 (DIN 400 50 / IEC 529) (with plug EEM 33-70)	

#### Order designations

Type	P/N
IP-6501-A502	010001

#### Additional models available

IP-6501-G252	010004	↗ 90° ±2°, indep. lin ± 0.3 % R = 2.5 kΩ ±20 %
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**Included in delivery**  
3 mounting clamps Z3-31

**Recommended accessories**  
Fork coupling Z-104-G06 (backlash free), P/N 005690;  
Fork coupling Z-105-G06 (backlash-free), P/N 005691;  
Mating plug EEM 33-70, protection class IP 67, P/N 005611;  
Rightangled plug EEM 33-72, protection class IP 40, P/N 005613;  
MAP Process control indicators with display;  
MUP/MUK signal conditioners for standardized voltage and current output signals.

**Important**  
All the values given in this data sheet for linearity, lifetime and temperature coefficient in the voltage dividing mode are quoted for the device operating with the wiper voltage driving on operational amplifier working as a voltage follower, where virtually no load is applied to the wiper ( $I \leq 1 \mu A$ )