

Angle Sensor Potentiometer

Series SP4000



Special features

- highly robust potentiometer for demanding applications
- Long lifetime - to 4 million movements
- easy mounting
- protection class up to IP6k9k (when mounted with O-ring), IP40 shaft side
- return spring in cw direction
- good price/performance ratio

The SP4000 potentiometer converts angular position into a proportional analog voltage. It utilizes Novotechnik's highly robust conductive plastic technology.

The use of a precious metal multifinger wiper ensures reliable contact even under most severe working conditions.

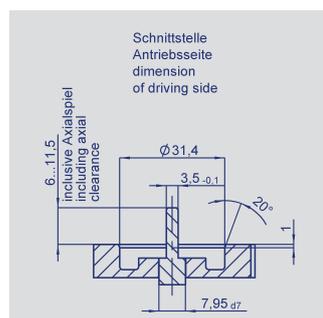
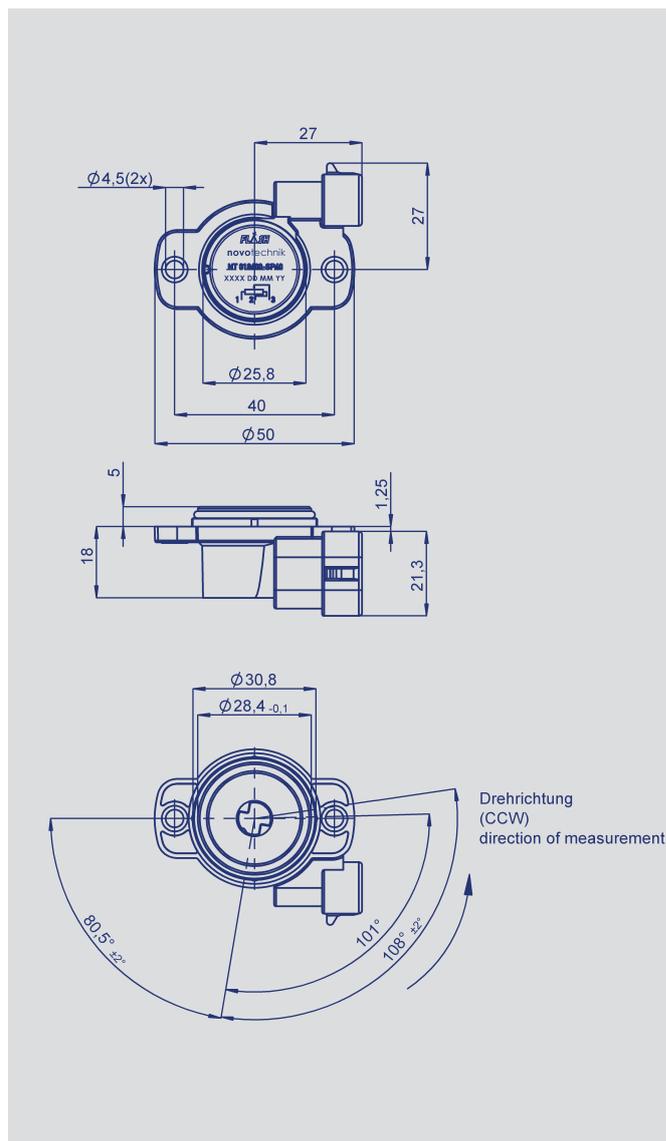
The housing is made of special high-grade temperature-resistant plastic. Two mounting holes with brass insert allow easy mounting.

The design makes use of the customer-side bearing on the driving shaft. This allows for fast and easy mounting.

The SP4000 is sealed to IP6k9k, making it insensitive to dirt and moisture. It is suitable for use in difficult environments, such as automotive under-hood applications.

The 3-pin Delphi Metri-Pack connector offers a popular and reliable plug connection.

Special models with different electrical angles and contact versions are available upon request.



Description

Housing	high-grade, temperature-resistance plastic
Integrated shaft coupling	high-grade, temperature-resistance plastic
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	connector (male) with 3 pins, Delphi Metri-Pack 150, document No. 12059265
Sealing	O-ring

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Mechanical Data		
Dimensions	see drawing	
Mounting	with 2 cylinder head screws M4	
Mounting torque of clamps at housing flange	2.5 ±0.5	Nm
Max. permissible torque at end stops	0.6	Nm
Mechanical angle	approx. 108	°
Operating torque	2 ... 12	Ncm
Weight	approx. 20	g
Electrical Data		
Actual electrical angle	101 ±3	°
Nominal resistance	1.2	kΩ
Resistance tolerance	±30	%
Hysteresis	≤ ±1.0	%
Absolute linearity	< ±2	% VDD
Protective wiper resistor	0.75	kΩ
Temperature coefficient of the output-to-applied voltage ratio	typical 15	ppm/K
Max. permissible applied voltage	16	VDC
Recommended operating wiper current	≤ 1	μA
Max. allowed wiper current in case of malfunction	10	mA
Insulation resistance (500 VDC)	≥ 10	MΩ
Dielectric strength (500 VAC, 50 Hz)	≤ 100	μA
Environmental Data		
Temperature range	-40...+125	°C
Vibration	5...2000 Amax = 0.75 amax = 20 4 h per RR	Hz mm g
Life	4 x 10 ⁶	movements
Functional safety	When using our products in safety-related systems, please contact us	
Operating speed	100	RPM
Protection class (ISO 20653)	IP6k7, IP6k9k (when mounted with O-ring)	

Important

All values given for linearity, lifetime and temperature coefficient are derived with no electrical load on the wiper (Ie < 1 μA).

Necessary accessories

Socket plug (female) Delphi Metri-Pack 150 connector No. 12047909 rev. B, tinned contacts.

Recommended accessories

MAP process control indicators with display, MUW / MUK signal conditioners for standardized output signals.

Order designations

Type	P/N	Electr. angle	Output on	Resistance
SP 4001 101 003 003	018400	101°	Pin 3	1.2 kΩ

Other versions on request.