

Sensor Potentiometers

Series SP2800



Special features

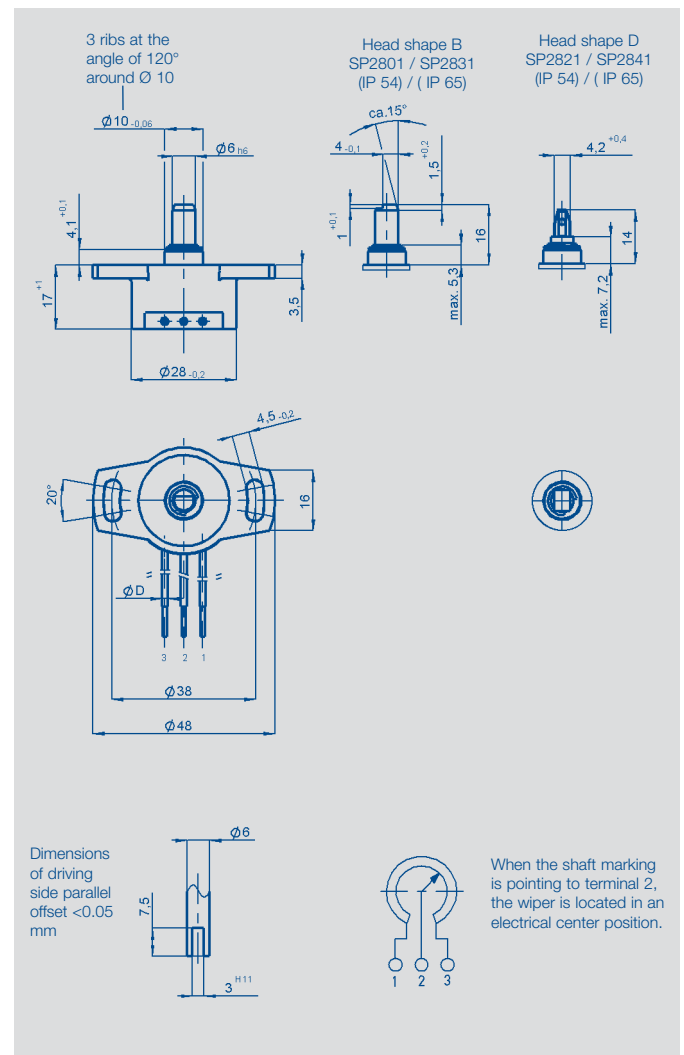
- available with marked shaft (shape B) or with push-on coupling (shape D)
- Easy mounting
- Protection class IP 54 or IP 65
- long life
- 1-channel or 2-channel (electr. full redundant)
- good price/performance ratio

Designed to convert rotary movement into a proportional voltage, these sensors utilize conductive plastic technology on both the resistance and collector tracks.

The housing and bearings are produced in a special high-grade temperature-resistant plastic material. Fixings are in the form of elongated slots which allow simplicity in mounting together with ease of mechanical adjustment.

The special backlash-free push-on coupling ensures extremely quick and easy installation. The sensor is not sensitive to either dirt or dampness. Electrical connections are made via conductors which are sealed into the housing. They are suitable for use with any of the termination methods currently in use. The use of elastomer-damped precious metal multi-finger wiper ensures reliable contact even under the severest of working conditions.

Special models with different electrical travels and shaft dimensions are available.



Description

Housing and bearing	high-grade, temperature-resistant plastic
Shaft	stainless steel
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Mounting position	any optional position
Electrical connections (standard)	conductors, TPE-PEE-insulation, l = 300 mm 1-channel: 3 conductors, diameter = 2.1 mm 1 = brown, 2 = red, 3 = orange 2-channel: 6 conductors, diameter = 1.6 mm 1 = brown, 2 = red, 3 = orange 4 = brown, 5 = red, 6 = orange

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Mechanical Data			
Dimensions	see drawing		
Mounting	2 fillister head screws M4 and washer		
Starting torque of mounting screws with washer at housing flange	180		Ncm
Mechanical angles	360, continuous		°
Permitted shaft loading (axial and radial) static or dynamic force	20		N
Torque	0.2 (IP54), 0.5 (IP65)		Ncm
Maximum operational speed	120		min ⁻¹
Weight	30		g

Electrical Data				
Actual electrical angle	100	308	345	° ± 2°
Nominal resistance	3	5	5	kΩ
Resistance tolerance	±20			%
Repeatability (dependent from mounting tolerances)	with shaft shape B ≤ 0.03 with shaft shape D ≤ 0.06			° °
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5			ppm/K
Independent linearity	1.0	0.3	0.3	±%
Max. permissible applied voltage	42			V
Recommended operating wiper current	≤ 1			μA
Max. wiper current in case of malfunction	10			mA
Insulation resistance (500 VDC, 1 bar, 2 s)	≥ 10			MΩ
Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC)	≤ 100			μA
Conductor length, bared, tinned	approx. 300			mm
Conductor diameter	approx. 1			mm ²

Environmental Data		
Temperature range	-40 ... +120 (temporary 150°C, max. 1 h)	°C
Vibration	5...2000 A _{max} = 0.75 a _{max} = 20	Hz mm g
Life	50 x 10 ⁶	movements
Protection class	IP 54 or IP 65 (DIN 400 50 / IEC 529)	

Order designations		
Type	Art.no.	
SP2801 308 000 001	019520	↯ 308°, 6 mm shaft, IP 54
SP2821 308 000 001	019540	↯ 308°, push-on coupling, IP 54
SP2831 308 000 001	019521	↯ 308°, 6 mm shaft, IP 65
SP2841 308 000 001	019541	↯ 308°, push-on coupling, IP 65
SP2801 100 002 001	019522	↯ 100°, 6 mm shaft, IP 54,
SP2831 100 002 001	019527	↯ 100°, 6 mm shaft, IP 65,
SP2841 100 002 001	019542	↯ 100°, push-on coupling, IP 65
SP2841 345 065 001	019564	↯ 345°, push-on coupling, IP 65
SP2841 100 067 006	019565	redundant (without diagramm - drawing on request); push-on coupling, IP65 per track: ↯100° ±2°, 3 kΩ ±20 %, indepen. linearity ±1.0 %

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 ($I_e \leq 1 \mu A$).

Recommended accessories

Processor controlled indicators MAP... with display,
 Signal conditioner MUP... /
 MUK ... for standardized output signals