

**Sensor  
Potentiometers**

SP2800 Series



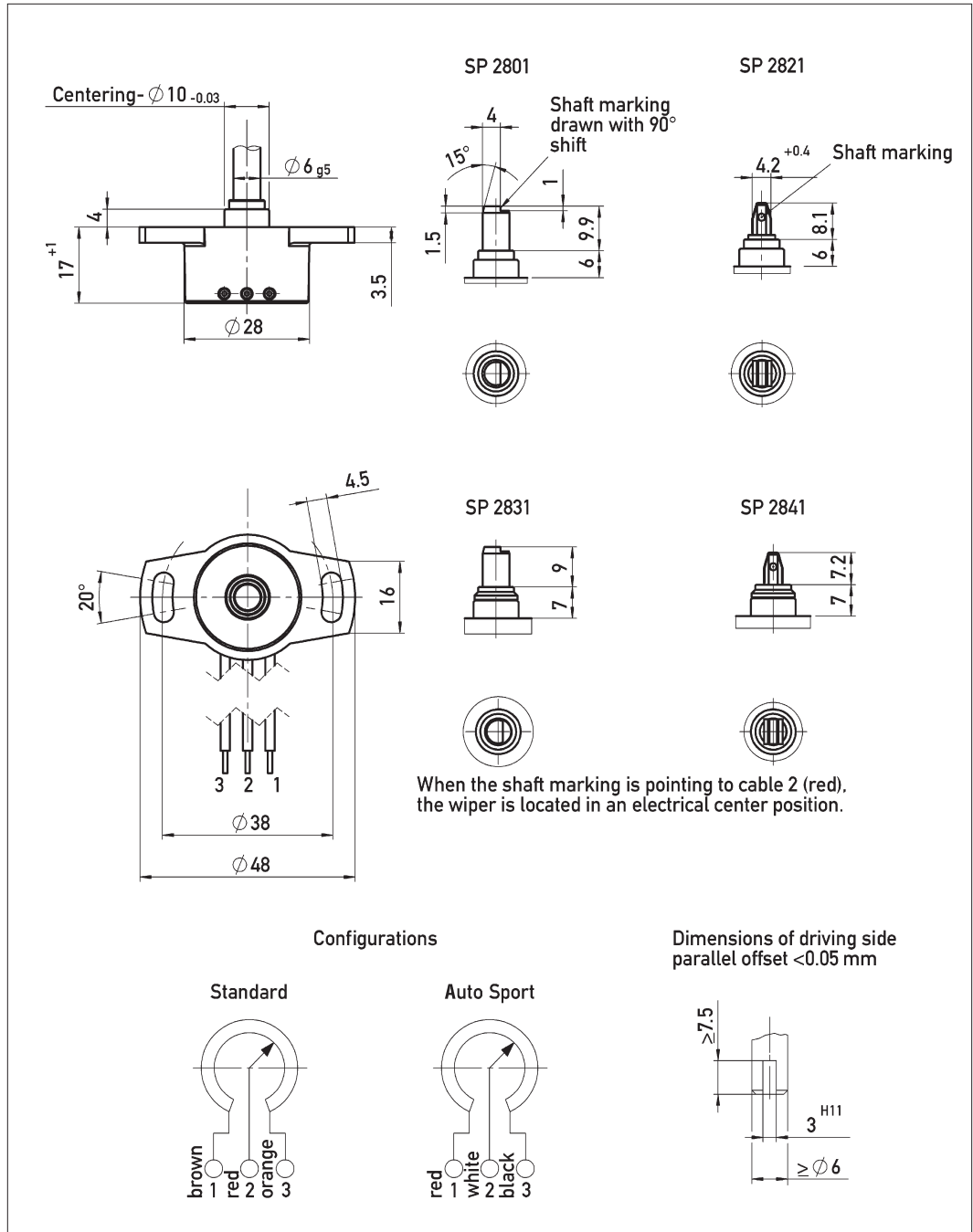
**Special features**

- available with push-on coupling or marked shaft
- simple mounting
- protection class IP 54 or IP 65
- long life
- good price/performance ratio

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

The housing is manufactured from a special high-grade temperature-resistant plastic material (PPS). It has elongated mounting slots to facilitate installation and adjustment.

The special backlash-free push-on coupling ensures extremely quick and simple installation. The transducer 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 an 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.

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Description	
Case	high-grade, temperature-resistant plastic
Shaft	stainless steel
Bearings	glide bearings
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Mounting position	any optional position
Electrical connections	three conductors, PTE-PEE-insulation

### Mechanical Data

Dimensions	see drawing
Mounting	with 2 M4 fillister-head screws + washer
Mechanical travel	360, continuous °
Permitted shaft loading (axial and radial) static or dynamic force	20 N
Torque	0.5 (IP 65) 0.2 (IP 54) Ncm
Maximum operational speed	120 RPM
Weight	32 g

### Electrical Data

Actual electrical travel	308 ±2 °
Nominal resistance	5 kΩ
Resistance tolerance	±20 %
Repeatability	≤0.01 ( Δ 0.03°) %
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5 ppm/K
Independent linearity	±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 <sup>2</sup>

### Environmental Data

Temperature range		
IP 54	-40...+100	°C
IP 65	-40...+150 (+150°C on request)	°C
Vibration	5...2000 A <sub>max</sub> = 0.75 a <sub>max</sub> = 20	Hz mm g
Life	> 50 x 10 <sup>6</sup>	movem.
Protection class	IP 54 or IP 65 (DIN 400 50 / IEC 529)	

### Order designations

Type	Art. no.	
SP2801 A502	019320	6 mm shaft, IP 54
SP2821 A502	019340	Push-on coupling, IP 54
SP2831 A502	019321	6 mm shaft, IP 65
SP2841 A502	019341	Push-on coupling, IP 65
SP2801 S0002	019322	6 mm shaft, IP 54, ±100°, R = 3 kΩ independent linearity ±1%
SP2831 S0002	019327	6 mm shaft, IP 65, ±100°, R = 3 kΩ independent linearity ±1%
SP2841 S0002	019342	Push-on coupling, IP 65, ±100°, R = 3 kΩ independent linearity ±1%
SP2841 S0067	019265	Push-on coupling, IP 65, 2 x ±100°, R = 3 kΩ independent linearity ±1%

### Auto Sport Configurations

Model Designation	Body Material	Shaft Style	Electrical Angle	Linearity
SP2836 a 502	PPS	6 mm	308	0.3%
SP2836 s 0002	PPS	6 mm	100	1%
SP2836 s 0050	PPS	6 mm	130	1%
SP2836 s 0065	PPS	6 mm	340	0.3%
SP2846 a 502	PPS	Push-on	308	0.3%
SP2846 s 0002	PPS	Push-on	100	1%
SP2846 s 0050	PPS	Push-on	130	1%
SP2846 s 0065	PPS	Push-on	340	0.3%
SP2890 s 0002	Aluminum	Push-on	100	1%
SP2890 s 0050	Aluminum	Push-on	130	1%
SP2890 s 0065	Aluminum	Push-on	340	0.3%

Notes: All auto sport models are sealed to IP 65 and are supplied with Raychem 55 cable attached. The temperature rating is 40° to 150°C for all auto sport configurations.

### Recommended accessories

MAP process-control indicators and display. MUP or MUK signal conditioner for standardized output signals.

### Important

All values given for this series – including linearity, lifetime, micro-linearity, resistance to external disturbances and temperature coefficient in voltage dividing mode – are quoted for the device operating with the wiper voltage driving an operational amplifier working as a voltage follower where virtually no load is applied to the wiper ( $I_e \leq 1 \mu A$ ).

Subject to changes

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