

**Rotary Sensor  
Potentiometer**

**SP2800 Series  
Motorsport Models**



The SP2800 series of angle sensors convert angular position into a proportional analog voltage. They utilize Novotechnik's highly robust conductive plastic technology.

They are ideal for arduous motorsports position feedback applications including Steering angle, Sequential transmission, throttle and suspension measurement.

The housing is special highgrade temperature resistant plastic material. The precious metal wipers are elastomerdamped for reliable contact under severe working conditions.

The SP2800 is sealed to as high as IP 67, making it insensitive to dirt and moisture.

Electrical connections are via independent wires, which are sealed into the housing.

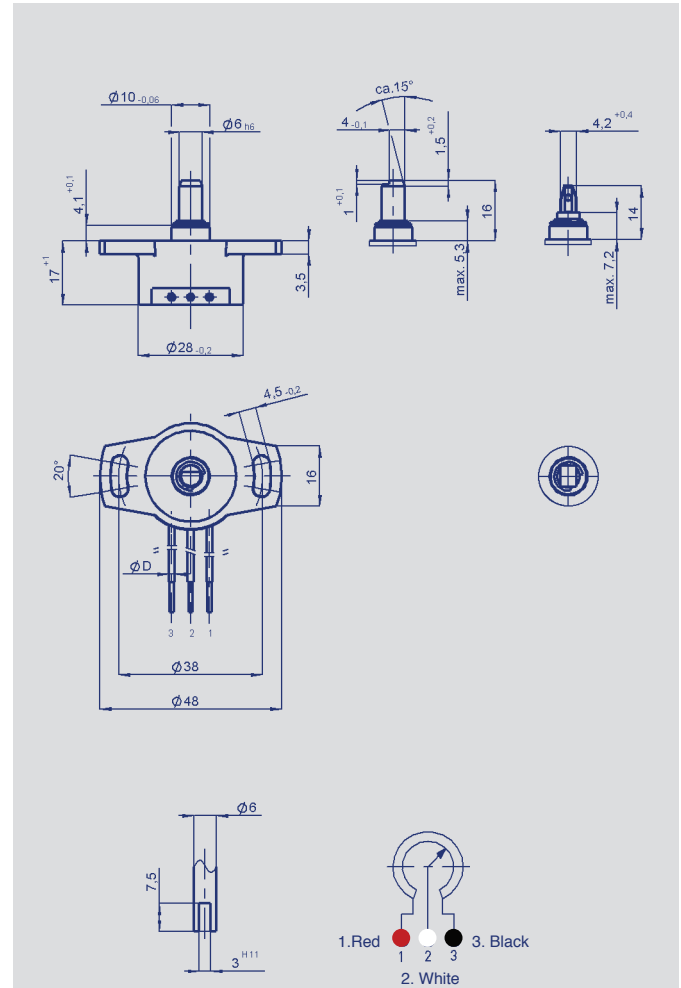
The sensor is mounted via slots which allow easy mounting and mechanical adjustment.

An optional backlash-free "push-on" shaft coupling provides fast and easy installation.

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

**Special features**

- Highly robust potentiometer for demanding industrial and mobile applications
- Plastic or aluminum housing
- Wide temperature range
- Elastomer damped wipers
- Excellent lifetime - in excess of 50 million movements
- Single channel or fully electrically redundant
- Sealed to IP 67
- Easy mounting and mechanical adjustment
- Two shaft styles, including easy "push-on" coupling
- Excellent price/performance ratio



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 orientation
Electrical connections (Motorsport)	Raychem 55, l=1000 mm 1-channel: 3 conductors, diameter = 2.1 mm 1 = red, 2 = white, 3 = black

**Important**

All values given for linearity, lifetime and temperature coefficient are derived with no electrical load on the wiper ( $I \leq 1\mu A$ ).

**Recommended accessories**

MAP - processor control indicator, with display MUP / MUK - signal conditioners.

Mechanical Data				
Dimensions	see drawing			
Mounting	2 fillister head screws M4 with washers			
Maximum torque for mounting screws (with washer)	180			Ncm
Mechanical angles	360, continuous			°
Maximum shaft loading (axial and radial) static or dynamic force	20			N
Maximum operational speed	120			RPM
Weight	30			g
Electrical Data				
Defined electrical angle	100	08	345	° ± 2°
Nominal resistance	3	5	5	kΩ
Resistance tolerance	±20			%
Repeatability	0.01			%
Effective temperature coefficient of the output-to-applied voltage ratio	typical 5			ppm/K
Max. permissible applied voltage	42			V
Recommended operating wiper current	≤ 1			μA
Max. allowed 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
Cable length	1,000			mm
Cable type	Raychem 55, 22			AWG
Environmental Data				
Temperature range	-40 ... +150			°C
Vibration	5...2000 Amax = 0.75 amax = 20			Hz mm g
Life	50 x 10 <sup>6</sup>			movements
Protection class	IP 67			

**Order designations & Part numbers**

Type	Art. No.				
Part Number	Electrical Angle +/- 1°	Linearity %	Housing material	Shaft type	Nominal resistance k Ω +/- 20%
SP2836 100 002 101	100	1	Duraplast	6 mm	3
SP2836 308 000 101	308	0.3	Duraplast	6 mm	5
SP2836 345 065 101	345	0.3	Duraplast	6 mm	5
SP2836 130 069 101	130	0.5	Duraplast	6 mm	3
SP2846 100 002 101	100	1	Duraplast	Push-on	3
SP2846 100 054 101	100	0.5	Duraplast	Push-on	3
SP2846 100 067 102	2 x 100	1	Duraplast	Push-on	2 x 3
SP2846 130 050 101	130	1	Duraplast	Push-on	3
SP2846 345 065 101	345	0.3	Duraplast	Push-on	5
SP2846 130 069 101	130	0.5	Duraplast	Push-on	3
SP2846 308 000 101	308	0.3	Duraplast	Push-on	5
SP2846 345 065 101	345	0.3	Duraplast	Push-on	5
SP2846 350 082 101	350	0.3	Duraplast	Push-on	5
SP2890 s 0002	100	1	Aluminum	Push-on	3
SP2890 s 0054	100	0.5	Aluminum	Push-on	3
SP2890 s 0050	130	1	Aluminum	Push-on	3
SP2890 s 0069	130	0.5	Aluminum	Push-on	3
SP2890 s 0065	345	0.3	Aluminum	Push-on	5
SP2891 s 0069**	130	0.5	Aluminum	Push-on	3
SP2891 s 0065**	345	0.3	Aluminum	Push-on	5

\*\* Improved sealing