

Rotary Sensor Potentiometer

SP2800 Series Motorsport Models



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

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.

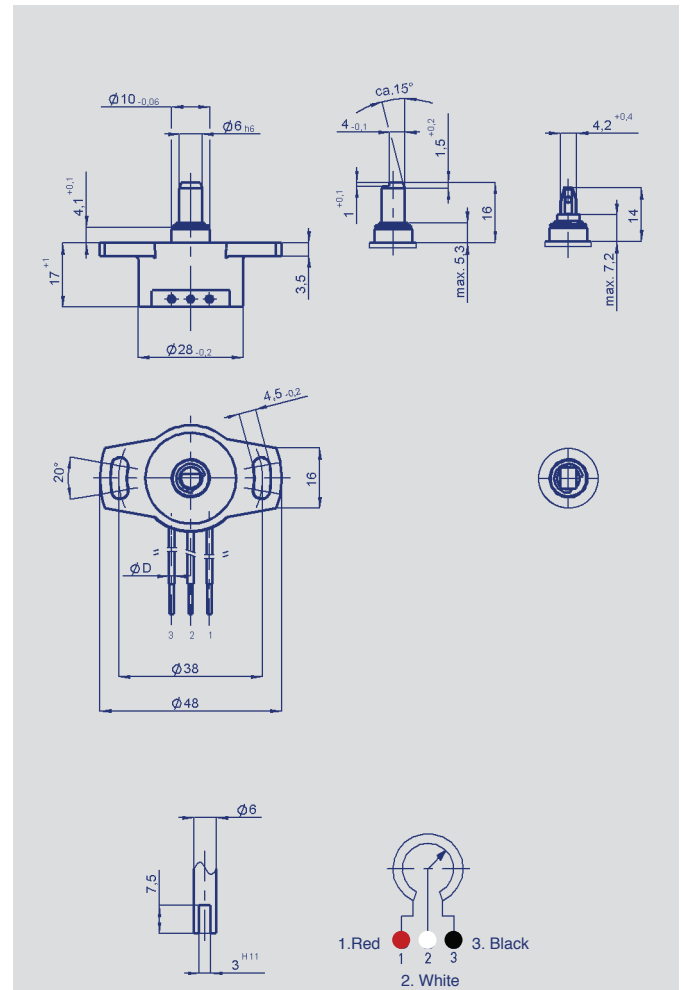
The SP2800 is sealed to as high as IP 67, making it insensitive to dirt and moisture.

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.



| 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 ⁶ | | | 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