

# SRS280 sealed rotary sensor

The SRS 280 sealed rotary sensor has been specially developed to meet the harsh requirements of today's automotive, motorsport and industrial position sensing applications. Interchangeable with the popular 38mm fixing centres format, several innovative features are included to increase reliability and performance over similar devices already in service.

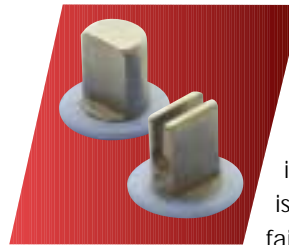
## Crush proof inserts

The sensor housing is a high strength glass-filled engineering polymer that has the added feature of stainless steel inserts around the mounting screw area so preventing damage to the flange by over-tightening. This permits the sensor to be re-used after installation and allows minute adjustments to be made.



## Shaft attachment

The sensor shaft has the option of two attachment formats that are interchangeable with existing installations. The sprung shaft style is a one-piece design that eliminates failures caused by two-piece designs. The shaft can be sealed to meet IP50 or IP68 protection.



## Cable outlet

The sensor rear housing has an integrally moulded cable fully sealed to IP68, effectively eliminating the need to over-fit a moulded boot to improve sealing, thus saving the user time and cost. To facilitate the addition of supplementary heatshrink sleeving over the cable, a small lip on the moulding assists attachment at the sensor housing. Cable lengths of 0.5m and 2m can be specified.



# SRS880 submersible rotary sensor

The SRS880 submersible rotary sensor has been specially developed to meet the harsh operating environments in heavy duty industrial position sensing applications, including construction, agricultural and military vehicles, steelworks and power generating plants. The sensor is sealed to meet IP68M protection.

## Choice of mounting

The sensor can be mounted by three M6 clearance holes through the body, or alternatively by three M6 threaded attachment holes in the front face. The sensor shaft has a flat on the diameter that would allow it to be secured by a locking screw, or an optional lever kit can be used to attach to the moving surface via a selection of M8 threaded holes.



## Rugged design - superior protection

The rugged, 88mm diameter housing in a choice of aluminium or stainless steel, includes a stainless steel operating shaft supported by a heavy duty, twin ball-race bearing system for maximum strength. Environmental protection is achieved by a unique double sealing system that allows the sensor to operate fully submersed to 2m.

# SRS 280 SEALED ROTARY SENSOR

## PERFORMANCE

### ELECTRICAL

|                            |          |   |
|----------------------------|----------|---|
| Electrical angle $\pm 2$   | °        | 10 to 350 in 10° increments   |
| Resistance $\pm 20\%$      | $\Omega$ | 14.3 per degree   |
| Hysteresis (repeatability) | °        | < 0.03  |
| Accuracy                   |          | < 1 degree (e.g. $\pm 0.3\%$ over 330°, $\pm 1\%$ over 100°)              |
| Power dissipation at 20°C  | W        | 0.003 W per angular degree  |
| Applied voltage maximum    | Vdc      | 0.2 per angular degree  |
| Resolution                 |          | Virtually infinite  |
| Output smoothness          |          | To MIL-R-39023 grade C 0.1%   |
| Insulation resistance      |          | Greater than 100M $\Omega$ at 500Vdc                                      |
| Operating mode             |          | Voltage divider only - see Circuit Recommendation below                   |
| Wiper circuit impedance    |          | Minimum of 100 x track resistance or 0.5M $\Omega$ (whichever is greater) |

### MECHANICAL

|                          |       |   |
|--------------------------|-------|---|
| Mechanical angle         | °     | 360, continuous   |
| Mounting                 |       | Use 2 x M4 socket head cap screws and M4 washer - maximum tightening torque 2Nm   |
| Operating torque maximum |       |   |
| unsealed shaft IP50      | gm cm | 100   |
| sealed shaft IP68        | gm cm | 120   |
| Shaft velocity maximum   | °/sec | 3000  |
| Weight                   | g     | 32 (cable option A), 64 (cable option B)  |
| Phasing                  |       | When shaft flat (or shaft ident mark) is facing the cable exit, wiper is at mid travel<br>The sensor housing allows for $\pm 10^\circ$ adjustment via the mounting flange slots |

### ENVIRONMENTAL

|                         |    |   |
|-------------------------|----|---|
| Life                    |    |   |
| unsealed shaft IP50     |    | Exceeds 20 million operations (10 x 10 <sup>6</sup> cycles) of $\pm 75^\circ$ |
| sealed shaft IP68       |    | 20 million operations (10 x 10 <sup>6</sup> cycles) of $\pm 75^\circ$         |
| Dither life             |    | 200 million operations (100 x 10 <sup>6</sup> cycles) of $\pm 3^\circ$ , 60Hz |
| Operational temperature | °C | -40 to +130 (continuous)  |
| Vibration               |    | RTCA-DO160D, 10Hz to 2000Hz (random), 12.61g rms - all axes                   |
| Shock                   |    | Survival to 2500g - all axes  |

### CIRCUIT RECOMMENDATION

Hybrid track potentiometers feature a high wiper contact resistance, therefore operational checks should be carried out only in the voltage divider mode. Hybrid track potentiometers should be used only as voltage dividers, with a minimum wiper circuit impedance of 100 x track resistance or 0.5M $\Omega$  (whichever is greater). Operation with wiper circuits of lower impedance will degrade the output smoothness and affect the linearity.

### OPTIONS

|                  |  |
|------------------|--|
| Electrical angle | Can be supplied from 10° to 350° in 10° increments   |
| Shaft style      | D section, sprung shaft (S) or 2.4mm blade shaft (H) |
| Shaft sealing    | IP50 or IP68   |
| Cable length     | 0.5m or 2m   |

### AVAILABILITY

All standard configurations can be supplied rapidly from the factory - check with your local supplier for more details

## ORDERING CODES

SRS280/...../...../...../.....

Electrical angle

Shaft style D = D shaft

S = Sprung shaft

H = 2.4mm blade shaft

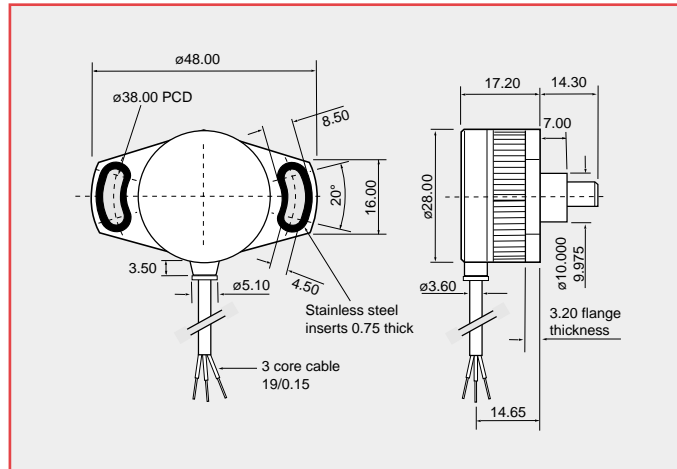
Cable A = 0.5m, B = 2m

Shaft sealing 50 = IP50

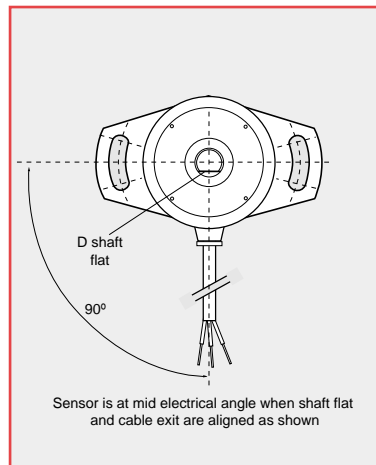
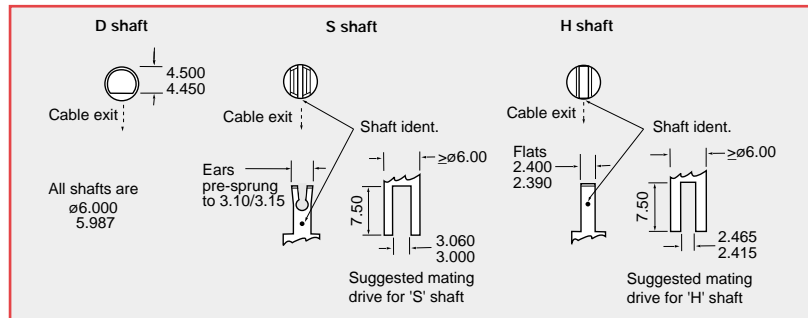
68 = IP68

## DIMENSIONS

Note: drawings not to scale



## SHAFT OPTIONS



## ELECTRICAL CONNECTIONS

3 core cable: PUR sheathed, with PTFE insulated 19/0.15 cores.

