

ROTARY POTENTIOMETERS

Penny+Giles high durability potentiometer track technology provides virtually infinite resolution, low electrical noise and high stability under extremes of temperature, humidity, vibration and shock over a long operating life.

These potentiometers are ideally suited and race proven in providing data acquisition systems with clean, robust signals for throttle angle, steering angle and gear select position indication.



Features

- Corrosion resistant stainless steel shaft
 - Duplex shaft bearing support
 - Choice of shaft attachments
- Hybrid and conductive plastic tracks
 - Electrical angles from 10° to 350°
 - Rugged mechanical design
 - Sealing to IP68 (SRS280)
- Rapid despatch of any option (SRS280)
 - CE Approved (SRS280)

Benefits

- Accurate drive location in hostile environments
- Optimum performance under vibration
- Interchangeable with existing installations
- Stable output signal over a long life
- Maximum sensitivity in all applications
- Operation in high shock and vibration environments
- Operation in hostile environments
- Eliminates customer inventory
- Confidence in EMC performance

SRS280

The SRS280 sealed rotary sensor has been specially developed to meet the harsh operating requirements of automotive and motorsport position sensing applications. Innovative design features provide maximum performance under extremes of temperature, humidity, vibration and shock. The SRS280 is completely interchangeable with similar devices already in service using the standard 38mm fixing centres format.

PERFORMANCE

Electrical angle ± 2	°	10 to 350 in 10° steps
Resistance $\pm 20\%$	Ω	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 Ω at 500Vdc
Operating mode		Voltage divider only - see Circuit Recommendation below
Wiper circuit impedance		Minimum of 0.5M Ω
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 IP66	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 in line with cable exit, wiper is at mid travel
Life unsealed shaft IP50		Exceeds 20 million operations (10 x 10 ⁶ cycles) of $\pm 75^\circ$
sealed shaft IP66		20 million operations (10 x 10 ⁶ cycles) of $\pm 75^\circ$
Dither life		200 million operations (100 x 10 ⁶ 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

The SRS280 range of potentiometers feature a high wiper contact resistance, therefore operational checks should be carried out only in the voltage divider mode. These potentiometers should be used only as voltage dividers, with a minimum wiper circuit impedance of 100 x track resistance or 0.5M Ω (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° steps
Shaft style	D or sprung shaft
Shaft sealing	IP50 or IP68
Cable length	0.5m or 2m

AVAILABILITY

All configurations can be supplied within five days from the factory

ORDERING CODES

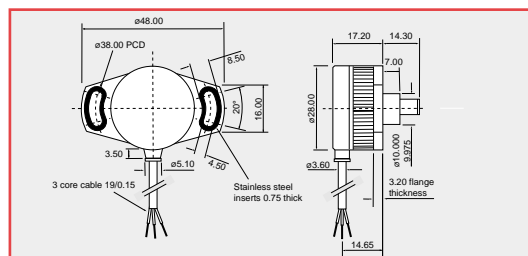
SRS280/...../...../...../.....

Electrical angle _____
 Shaft style D = D shaft
 S = Sprung shaft

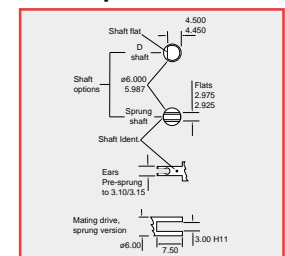
Cable A = 0.5m, B = 2m
 Shaft sealing 50 = IP50
 68 = IP68

DIMENSIONS

Note: drawings not to scale



Shaft options



ELECTRICAL CONNECTIONS

See page 20

RCP11/2S

This specially developed RCP11 has dual electrical output and facilitates low electrical noise and virtually infinite resolution over exceptionally long operating life under extreme operating conditions. This potentiometer is ideally suited and race proven in providing data acquisition systems with clean, robust signals for gear select position indication.

PERFORMANCE

Electrical angle ± 1	$^{\circ}$	350
Resistance $\pm 10\%$	kΩ	1
Independent linearity	$\pm\%$	0.25
Power dissipation at 20°C	W	1.5
Dielectric strength	Vrms	750
Applied voltage - maximum Vdc		38
Resolution		Virtually infinite
Output smoothness		To MIL-R-39023 grade C 0.1%
Insulation resistance		Greater than 100M Ω at 500Vdc
Phasing between tracks $\pm 1^{\circ}$		at 50% applied voltage
Operating mode		Voltage divider only - see Circuit Recommendation below
Maximum wiper current	mA	10
Mechanical angle	$^{\circ}$	360 continuous
Starting torque - maximum gm cm		16
Shaft run out - TIR	mm	0.025
Lateral run out - TIR	mm	0.051
Pilot run out - TIR	mm	0.025
Shaft end play - maximum	mm	0.076
Weight	g	25
Life		Greater than 50 million rotations
Operational temperature	$^{\circ}\text{C}$	-65 to +130

CIRCUIT RECOMMENDATION

The RCP11 range of potentiometers feature a high wiper contact resistance, therefore operational checks should be carried out only in the voltage divider mode. These potentiometers should be used only as voltage dividers, with a minimum wiper circuit impedance of 100 x track resistance or 0.5M Ω (whichever is greater). Operation with wiper circuits of lower impedance will degrade the output smoothness and affect the linearity.

OPTIONS

Electrical angle	Non standard angles can be specified
Resistance	Non standard resistance values can be specified
Single gang output	Single gang output only can be specified
Mounting	Custom mounting configurations can be specified

AVAILABILITY

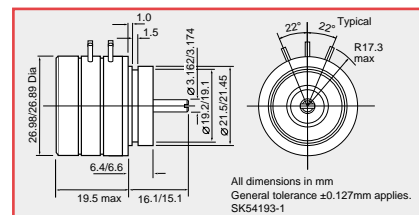
Please consult our sales office for details

ORDERING CODE

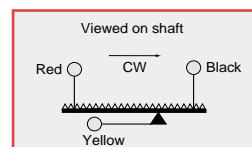
RCP11/2S D150397

DIMENSIONS

Note: drawings not to scale

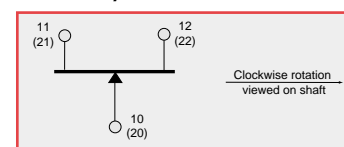


ELECTRICAL CONNECTIONS SRS280



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

RCP11/2S



6x terminals,
gold plated

Penny+Giles

A Curtiss-Wright Company

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Penny & Giles

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