

NEW  
PRODUCT

*Penny+Giles*  
YOUR PARTNERS  
*In Control*

# SLS 190 Linear Displacement Sensors



Creative solutions  
for position measurement and control

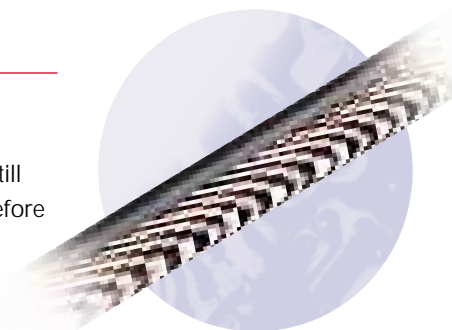
# Hybrid Technology LINEAR SENSORS

SLS 190 is an entirely new range of linear position sensors designed to provide maximum performance benefits within an extremely compact size. Using the proven benefits of Hybrid Track Technology and including a number of unique design features, the SLS 190 range is ideally suited to high volume OEM manufacturers, where high performance and reliability with competitive pricing and rapid despatch has paramount importance.

- Competitively priced
- Easy installation
- Long life
- High reliability
- Rapid despatch

## Hybrid Track

The hybrid track comprises a high resistivity conductive plastic film bonded to a precision wire-wound element. The conductive plastic film is wiped by a precious metal contact. The technology provides infinite resolution and a very long life (since the majority of the current still flows in the wire, the carbon content of the conductive plastic film is low, and the film is therefore very hard). Track linearity is very good, temperature coefficient of resistance is low and predictable and resistance stability with change in humidity is excellent.



## High integrity reduces design cost

Hybrid track technology sensors used in a control system allow simple, low current electronics to be used, while the low hysteresis, low electrical noise and the self-compensating effect for track wear allow the system designer to achieve improved control system accuracy and long term integrity without increasing design costs. The technology also enables quick, easy installation.



## Total reliability

Hybrid track technology provides a highly reliable solution for absolute position sensing problems. The self-cleaning, long life contact design and stable, predictable output of the hybrid track improves service life and reduces the need for regular maintenance or re-calibration of the control system.



NO MAINTENANCE

# HYBRID TECHNOLOGY LINEAR SENSORS



Available from stock

## SLS 190

### Features

- Shorter body to stroke length
- Sealing to IP66 and corrosion resistant rod end bearings
- Cable assembly integrally moulded
- Reduced weight
- Rapid delivery
- CE approved
- Interchangeable with Penny + Giles HLP 190 sensors

### Benefits

- Reduced installation space
- Operation in hostile environments
- Improved strain relief and sealing
- Ideal for mobile applications
- Reduced customer inventory
- Confidence in EMC performance
- Better performance at a lower price



EMC

The products detailed in this document have been tested to the requirements of EN50081-1 (Emissions) and EN50082-2 (Immunity).

## 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 0.5MΩ (whichever is greater). Operation with wiper circuits of lower impedance will degrade the output smoothness and affect the linearity.

For variable resistor applications Penny & Giles wirewound potentiometers should be used. Please ask for technical literature.

## PERFORMANCE

Electrical stroke E	mm	<b>25</b>	<b>50</b>	<b>75</b>	<b>100</b>	<b>125</b>	<b>150</b>	<b>175</b>	<b>200</b>	<b>225</b>	<b>250</b>	<b>275</b>	<b>300</b>	<b>325</b>	<b>350</b>
Resistance $\pm 10\%$	k $\Omega$	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Independent linearity															
guaranteed	$\pm\%$	0.25	0.25	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
typical	$\pm\%$	0.15	0.15	0.15	0.10	0.10	0.07	0.07	0.07	0.07	0.05	0.05	0.05	0.05	0.05
Power dissipation at 20°C	W	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0
Applied voltage maximum	Vdc	22	44	67	74	74	74	74	74	74	74	74	74	74	74
Electrical output		Minimum of 0.5% to 99.5% applied volts													
Resolution		Virtually infinite													
Hysteresis (repeatability)		Less than 0.01mm													
Operational temperature	°C	-30 to +100													
Output smoothness		To MIL-R-39023 grade C 0.1%													
Insulation resistance		Greater than 100M $\Omega$ at 500V d.c.													
Operating mode		Voltage divider only - see Circuit Recommendations on page 2													
Wiper circuit impedance		Minimum of 100 x track resistance or 0.5M $\Omega$ (whichever is greater)													
Operating force maximum		500 in horizontal plane													
sealed	gf	250 in horizontal plane													
unsealed	gf	Typically greater than 100 million operations (50 x 10 <sup>6</sup> cycles) at 25mm stroke length													
Life at 250mm per second		200 million operations (100 x 10 <sup>6</sup> cycles) at $\pm 0.5$ mm, 60Hz													
Dither life		20 million operations (10 x 10 <sup>6</sup> cycles) - replaceable													
Shaft seal life															

## OPTIONS

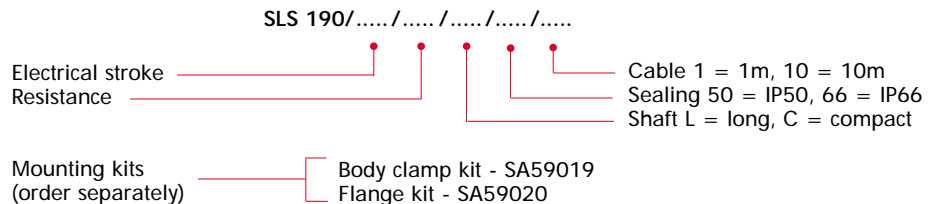
Compact shaft	Compact shaft will reduce dimension D by 25mm
Integral shaft seal - IP 66	Designed to accept integral shaft seal to give IP66 rating
Extended cable length	10m output cable can be specified
Mounting	Body clamp or flange mounting kits can be supplied

## AVAILABILITY

Instruments normally available from stock

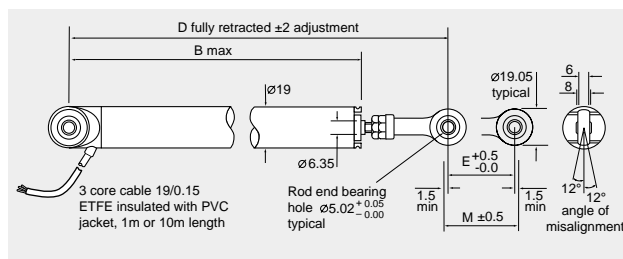
All stroke lengths, seal option IP50 with standard length shaft, SA bearing mounting

## ORDERING CODES



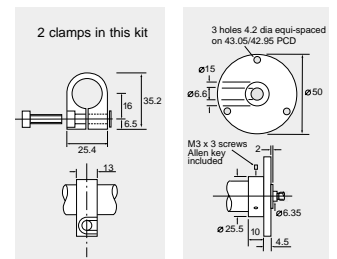
## DIMENSIONS AND MOUNTING OPTIONS

### SELF ALIGNING BEARING MOUNTING SLS 190



Note: Drawings not to scale

### BODY CLAMP AND FLANGE MOUNTING KITS



SA59019

SA59020

Electrical stroke E	mm	<b>25</b>	<b>50</b>	<b>75</b>	<b>100</b>	<b>125</b>	<b>150</b>	<b>175</b>	<b>200</b>	<b>225</b>	<b>250</b>	<b>275</b>	<b>300</b>	<b>325</b>	<b>350</b>
Mechanical stroke M	mm	<b>29</b>	<b>54</b>	<b>79</b>	<b>104</b>	<b>129</b>	<b>154</b>	<b>179</b>	<b>204</b>	<b>229</b>	<b>254</b>	<b>279</b>	<b>304</b>	<b>329</b>	<b>354</b>
Body length B	mm	110.5	135.5	160.5	210.5	235.5	260.5	285.5	310.5	333.5	360.5	385.5	435.5	460.5	485.5
Between centres D															
standard sensor (L)	mm	173.6	198.6	223.6	273.6	298.6	323.6	348.6	373.6	398.6	423.6	448.6	498.6	523.6	548.6
compact shaft sensor	mm	148.6	173.6	198.6	248.6	273.6	298.6	323.6	348.6	373.6	398.6	423.6	473.6	498.6	523.6
Weight approximate															
standard sensor (L)	g	109	126	144	161	179	196	214	231	249	266	284	301	319	336
compact shaft sensor	g	103	120	138	155	173	190	208	225	246	260	278	295	316	330

## ELECTRICAL CONNECTIONS

3 core cable: PVC sheathed 1m long with ETFE insulated 19/0.15 cores.

