

NEW  
PRODUCT

*Penny+Giles*  
YOUR PARTNERS  
*In Control*

# SLS 095 Linear Displacement Sensors



Creative solutions  
for position measurement and control

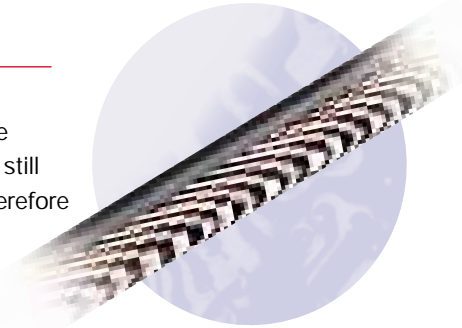
# Hybrid Technology LINEAR SENSORS

SLS 095 is an entirely new range of miniature linear position sensors designed to provide maximum performance benefits within an extremely compact body diameter of 9.5mm. Using the proven benefits of Hybrid Track Technology and including a number of unique design features, the SLS 095 is ideally suited to volume OEM manufacturers, where high performance and reliability with competitive pricing and rapid despatch has paramount importance.

- Competitively priced
- Simple to install
- Long operating life
- Superior 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



Rapid Despatch

## SLS 095

### Features

- Short body to stroke length
- Sealing to IP66 and corrosion resistant rod end bearings
- Cable integrally moulded
- Minimum size and weight
- Rapid despatch of any option
- CE approved
- Interchangeable with Penny+Giles HLP 095 sensors

### Benefits

- Reduced installation space
- Operation in hostile environments
- Excellent strain relief with secure sealing
- Ideal for robotics and small mechanisms
- Eliminates customer inventory
- Confidence in EMC performance
- Increased performance with a significant cost saving



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	10	20	30	40	50	75	100
Resistance $\pm 10\%$	k $\Omega$	0.4	0.8	1.2	1.6	2.0	3.0	4.0
Independent linearity	$\pm\%$	0.5	0.35	0.25	0.25	0.25	0.15	0.15
Power dissipation at 20°C	W	0.2	0.4	0.6	0.8	1.0	1.5	2.0
Applied voltage maximum	Vdc	8.9	17.9	26	40	44	67	74
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								
sealed	gf	300 in horizontal plane						
unsealed	gf	100 in horizontal plane						
Life at 250mm per second		Typically greater than 100 million operations (50 x 10 <sup>6</sup> cycles) at 25mm stroke length						
Dither life		200 million operations (100 x 10 <sup>6</sup> cycles) at $\pm 0.5$ mm, 60Hz						
Shaft seal life		20 million operations (10 x 10 <sup>6</sup> cycles)						
Shaft velocity maximum	m/s	2.5						
Vibration		RTCA 160D 10Hz to 2kHz (random) @ 4.12g (rms) - all axes						
Shock		40g 6mS half sine						

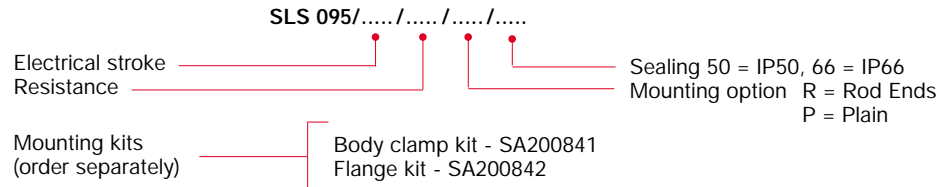
## OPTIONS

Integral shaft seal - IP 66	Designed to accept integral shaft seal to give IP66 rating
Mounting	Can be supplied with rod end bearings or a plain body for use with body clamps or flange mounting kit.

## AVAILABILITY

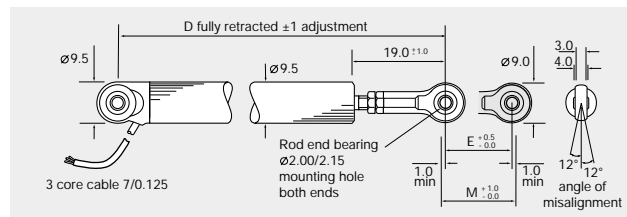
All configurations can be supplied within 5 days from the factory.

## ORDERING CODES

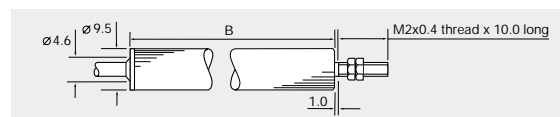


## DIMENSIONS AND MOUNTING OPTIONS

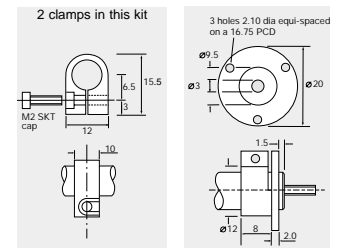
### ROD END BEARING MOUNTING SLS 095



### PLAIN BODY MOUNTING SLS 095



### MOUNTING OPTIONS



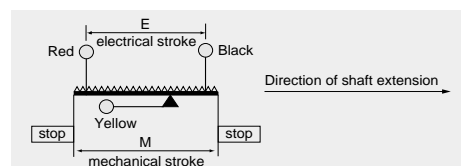
Body clamp SA200841  
Flange mounting SA200842

Note: Drawings not to scale

Electrical stroke E	mm	10	20	30	40	50	75	100
Mechanical stroke M	mm	12.5	22.5	32.5	42.5	52.5	77.5	102.5
Body length B	mm	45.5	55.5	65.5	75.5	85.5	110.5	135.5
Between centres D		70	80	90	100	110	135	160
Weight approximate (Mounting option R)	g	11	13	14.5	16	17.5	21.5	25.5

## ELECTRICAL CONNECTIONS

3 core cable: PUR sheathed 0.3m long with PTFE insulated 7/0.125 cores.



## Available from Penny+Giles

A wide range of instrumentation for measurement and control solutions in industrial and aerospace applications. Please ask for more details.

Penny+Giles quality systems meet the requirements of ISO9001, the Civil Aviation Authority and numerous customer's certification standards.

Quality is at the heart of all our systems ensuring the reliability of our products from initial design to final despatch.

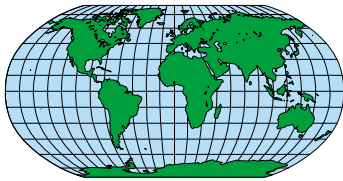


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- VRVTs ■ LVDTs - industrial/aerospace ■ Hybrid Linear Potentiometers
- Solenoids ■ Rotary Potentiometers ■ Joystick Controllers ■ In-Cylinder Transducers

## Contact Worldwide



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