

# SLS130 LINEAR DISPLACEMENT SENSOR

The SLS130 range is designed to provide performance benefits within a compact, lightweight package in stroke lengths from 25 to 200mm. With a choice of mounting options and accessories, this sensor is ideally suited to a wide range of industrial applications.

## 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> |
| Resistance $\pm 10\%$      | k $\Omega$ | 1                                                                                                 | 2         | 3         | 4          | 5          | 6          | 7          | 8          |
| Independent linearity      |            |                                                                                                   |           |           |            |            |            |            |            |
| guaranteed                 | $\pm\%$    | 0.25                                                                                              | 0.25      | 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       |
| Power dissipation at 20°C  | W          | 0.5                                                                                               | 1.0       | 1.5       | 2.0        | 2.5        | 3.0        | 3.5        | 4.0        |
| Applied voltage maximum    | Vdc        | 22                                                                                                | 44        | 67        | 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 (tested to +130 for 12 hours duration)                                                |           |           |            |            |            |            |            |
| 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)                         |           |           |            |            |            |            |            |
| Operating force maximum    |            |                                                                                                   |           |           |            |            |            |            |            |
| sealed                     | gf         | 500 in horizontal plane                                                                           |           |           |            |            |            |            |            |
| unsealed                   | gf         | 250 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                       |           |           |            |            |            |            |            |
| Sealing                    |            | IP50 standard - IP66 see options                                                                  |           |           |            |            |            |            |            |
| Shaft seal life            |            | 20 million operations (10 x 10 <sup>6</sup> cycles) - replaceable                                 |           |           |            |            |            |            |            |
| Shaft velocity maximum     | m/s        | 10                                                                                                |           |           |            |            |            |            |            |
| Vibration                  |            | RTCA 160D 10Hz to 2kHz (random) @12.6g (rms) - all axes                                           |           |           |            |            |            |            |            |
| Shock                      |            | Less than 0.04% output change @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

|                             |                                                                                 |
|-----------------------------|---------------------------------------------------------------------------------|
| 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, flange or quick release balljoint mounting kits can be supplied     |
| Protective sleeve           | For all stroke lengths - self aligning bearings only. See ordering code         |
| Spring loaded shaft kit     | For stroke lengths 25 to 150mm with /L shaft option and /50 sealing option only |

## ACCESSORIES

|                                          |                                                                                                                                                                    |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mounting kits                            | <div> <div></div> <div>Body clamp kit - SA200264, Flange kit - SA200266</div> </div> <div> <div></div> <div>Quick release balljoint (Heim) - SA200337</div> </div> |
| Protective sleeve - SA202984/...../..... | <div> <div></div> <div>Shaft L=Long, C=Compact</div> </div> <div> <div></div> <div>Electrical stroke (select to match SLS130 sensor)</div> </div>                  |
| Spring loaded shaft kit -                | SA200265/stroke (For use with option L/50 units only)                                                                                                              |

## AVAILABILITY

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

## ORDERING CODES

SLS130/...../...../...../...../.....

Electrical stroke

Shaft L = long, C = compact

Protective sleeve N = None, P = Fitted

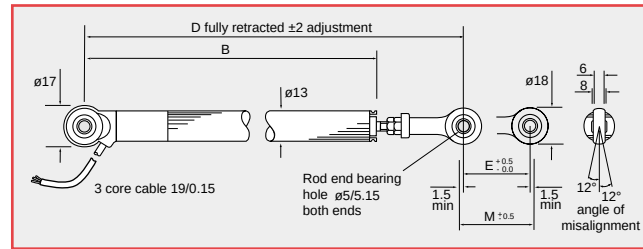
Cable 1 = 1m, 10 = 10m

Sealing 50 = IP50, 66 = IP66

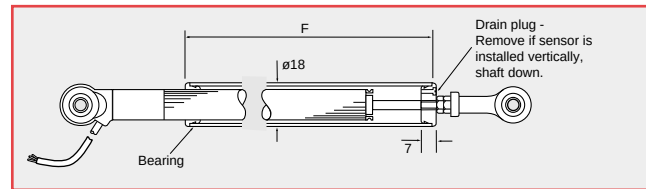
## DIMENSIONS AND MOUNTING OPTIONS

Note: drawings not to scale

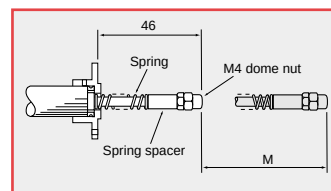
### SELF ALIGNING BEARING MOUNTING



### PROTECTIVE SLEEVE OPTION - P

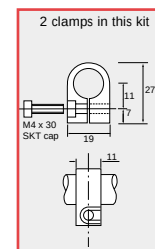


### SPRING RETURN OPTION †

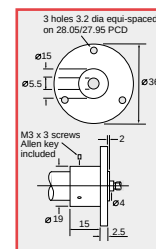


SA200265/stroke  
(25 to 150mm stroke lengths  
and /L/50 options only)

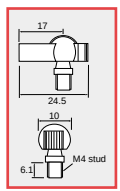
### MOUNTING OPTIONS



Body clamp  
SA200264



Flange mounting  
SA200266

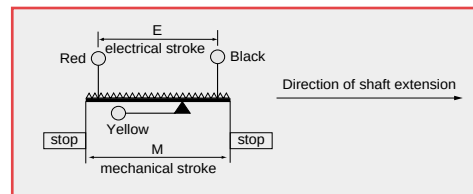


Quick release  
ball joint  
SA200337

|                          |    |       |       |       |       |       |       |       |       |
|--------------------------|----|-------|-------|-------|-------|-------|-------|-------|-------|
| Electrical stroke E      | mm | 25    | 50    | 75    | 100   | 125   | 150   | 175   | 200   |
| Mechanical stroke M      | mm | 29    | 54    | 79    | 104   | 129   | 154   | 179   | 204   |
| Body length B            | mm | 110.5 | 135.5 | 160.5 | 185.5 | 210.5 | 235.5 | 260.5 | 285.5 |
| Between centres D        |    |       |       |       |       |       |       |       |       |
| standard sensor (L)      | mm | 173.6 | 198.6 | 223.6 | 248.6 | 273.6 | 298.6 | 323.6 | 348.6 |
| compact shaft sensor (C) | mm | 148.6 | 173.6 | 198.6 | 223.6 | 248.6 | 273.6 | 298.6 | 323.6 |
| Sleeve length F          |    |       |       |       |       |       |       |       |       |
| standard sensor (L)      | mm | 102   | 127   | 152   | 177   | 202   | 227   | 252   | 277   |
| compact shaft sensor (C) | mm | 77    | 102   | 127   | 152   | 177   | 202   | 227   | 252   |
| Weight approximate       |    |       |       |       |       |       |       |       |       |
| standard sensor (L)      | g  | 64    | 71    | 78    | 85    | 92    | 99    | 106   | 113   |
| compact shaft sensor (C) | g  | 60    | 67    | 74    | 81    | 88    | 95    | 102   | 109   |

## ELECTRICAL CONNECTIONS

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



† Body clamp or flange mounting options should be ordered separately