The MLS130 sealed linear sensor is designed to provide superior performance within a compact, lightweight package in stroke lengths from 25 to 200mm. With a choice of mounting options, including metal rod end bearings, and an optional protective sleeve for extreme environmental conditions, this sensor is ideally suited to motorsport data acquisition applications on suspension and throttle position feedback, where high performance and reliability with competitive pricing and rapid despatch are vital. The sensor is supplied fully sealed to IP66, with an integrally moulded DR25 sheathed multicore cable.

**Performance**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical stroke E mm</td>
<td>25 50 75 100 125 150 175 200</td>
</tr>
<tr>
<td>Resistance ±10% kΩ</td>
<td>1 2 3 4 5 6 7 8</td>
</tr>
<tr>
<td>Independent linearity guaranteed ±%</td>
<td>0.25 0.25 0.15 0.15 0.15 0.15 0.15 0.15</td>
</tr>
<tr>
<td>Typical ±%</td>
<td>0.15 0.15 0.15 0.10 0.10 0.07 0.07 0.07</td>
</tr>
<tr>
<td>Power dissipation at 20°C W</td>
<td>0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0</td>
</tr>
<tr>
<td>Applied voltage maximum Vdc</td>
<td>22 44 67 74 74 74 74 74</td>
</tr>
<tr>
<td>Electrical output</td>
<td>Minimum of 0.5% to 99.5% applied volts</td>
</tr>
<tr>
<td>Resolution</td>
<td>Virtually infinite</td>
</tr>
<tr>
<td>Hysteresis (repeatability) °C</td>
<td>Less than 0.01mm</td>
</tr>
<tr>
<td>Output smoothness</td>
<td>-30 to +100 (tested to +130 for 12 hours duration)</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>Greater than 100MΩ at 500Vdc</td>
</tr>
<tr>
<td>Operating mode</td>
<td>Voltage divider only - see Circuit Recommendation below</td>
</tr>
<tr>
<td>Wiper circuit impedance</td>
<td>Minimum of 100 x track resistance or 0.5MΩ (whichever is greater)</td>
</tr>
<tr>
<td>Operating force maximum gf</td>
<td>500 in horizontal plane</td>
</tr>
<tr>
<td>Sealing</td>
<td>IP66</td>
</tr>
<tr>
<td>Shaft seal life (replaceable)</td>
<td>20 million operations (10 x 10⁶ cycles)</td>
</tr>
<tr>
<td>Sensor track life at 0.25m/s</td>
<td>Greater than 100 million operations (50 x 10⁵ cycles) at 25mm stroke length</td>
</tr>
<tr>
<td>Sensor track dither life</td>
<td>200 million operations (100 x 10⁶ cycles) at ±0.5mm, 60Hz</td>
</tr>
<tr>
<td>Shaft velocity maximum m/s</td>
<td>10</td>
</tr>
<tr>
<td>Vibration</td>
<td>RTCA 160D 10Hz to 2kHz (random) @ 12.6g (rms) - all axes</td>
</tr>
<tr>
<td>Shock</td>
<td>Less than 0.04% output change @ 2500g - all axes</td>
</tr>
</tbody>
</table>

**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.

**Options**

- Mounting: Metal rod end bearings, quick release balljoints or plain M4 stud
- Protective sleeve: Available for all stroke lengths

**Accessories**

For maximum installation flexibility the following parts are available to purchase separately:
- Metal rod end (rear) P202605
- Metal rod end (shaft) P202604
- Quick release balljoint assembly SA200337
- Locknut, M4 X63 - 072 - 340
- Protective sleeve assembly SA202984/stroke/C

A suitable stud lock compound should be used to secure the rear rod end or balljoint assembly. Use Loctite™ activator 7471 and Loctite™ 648 on metal rod end. Use Loctite™ 382 on quick release balljoint.

**Availability**

All standard configurations can be supplied rapidly from the factory - check with your local supplier for more details.
ORDERING CODES
MLS130/...../.....
Protective sleeve N = None, P = Fitted
Electrical stroke
Mounting
Q = Quick release balljoints, R = Metal rod end bearings, S = M4 studs

DIMENSIONS AND MOUNTING OPTIONS
Note: drawings not to scale

ORDERING CODES

DIMENSIONS AND MOUNTING OPTIONS

QUICK RELEASE BALLJOINTS (Q)

METAL ROD END BEARINGS (R)

M4 STUD END (S)

PROTECTIVE SLEEVE (P)

Electrical stroke E mm
Mechanical stroke M mm
Body length B mm
Between centres D mm
Between centres G mm
Sleeve length F mm
Weight approximate g

3 core cable: DR25 sheathed 1m long with ETFT insulated 19/0.15 cores.
Penny & Giles
Position sensors, joysticks and solenoids for commercial and industrial applications.

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