Position sensors S114
Linear inductive position sensor

Description

- Non-contacting inductive technology
- to eliminate wear
- Travel set to customer’s requirement
- Compact and self-contained
- High durability and reliability
- High accuracy and stability
- Sealing to IP68 10Bar
- High durability and reliability

As a leading designer and manufacturer of linear, rotary, tilt and intrinsically safe position sensors, has the expertise to supply a sensor to suit a wide variety of applications. Our S114 LIPS® (Linear Inductive Position Sensor) is an affordable, durable, high-accuracy position sensor. The S114 is an affordable, durable, high-accuracy position sensor derived from the P101. Designed for applications where the sensor would be completely submerged during normal operation, it retains desirable features such as compact size, good sensor performance yet capable of working in pressures up to 10Bar.

The S114, like all our sensors, provides a linear output proportional to displacement. Each unit is supplied with the output calibrated to the travel required by the customer, from 5 to 800mm and with full EMC protection built in. The sensor is very robust, the body and push rod being made of stainless steel for long service life and environmental resistance.

Overall performance, repeatability and stability are outstanding over a wide temperature range. The sensor is easy to install with mounting options including M5 stainless steel rod eye bearings and body clamps. The push rod can be supplied free or captive, with female M5 thread, an M5 rod eye or dome end, captive push rods can be spring extended on sensors with up to 300mm of travel. The S114 also offers a wide range of mechanical and electrical options, environmental sealing is to IP68 10Bar.

Specifications

<table>
<thead>
<tr>
<th>DIMENSIONS</th>
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<tbody>
<tr>
<td>Body diameter</td>
</tr>
<tr>
<td>Body length (Axial version)</td>
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<tr>
<td>Body length (Radial version)</td>
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<tr>
<td>Push rod extension</td>
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For full mechanical details see drawing S114-11

- Independent linearity:
  - < ± 0.25% up to 450mm @ 20°C
  - < ± 0.5% over 450mm @ 20°C

- Temperature coefficients:
  - < ± 0.01%/°C Gain &
  - < ± 0.01%/°C Offset

- Frequency response:
  - > 10 kHz (-3dB)
  - > 300 Hz (-3dB) 2 wire 4 to 20 mA

- Resolution: Infinite

- Noise: < 0.02% FSO

- Environmental Temperature Limits (Non Icing):
  - Operating: -40 to +125°C standard
  - -20 to +85°C buffered

- Storage: -40 to +125°C

- Sealing: IP68 10Bar

- EMC Performance: EN 61000-6-2, EN 61000-6-3

- Vibration: IEC 68-2-6: 10g

- Shock: IEC 68-2-29: 40 g

- MTBF: 350,000 hrs 40°C Gf

- Drawing List:
  - S114-11 Sensor Outline

Drawings, in AutoCAD® dwg or dxf format, available on request.
How PIPS® technology eliminates wear for longer life

PIPS® technology (Inductive Position Sensor) is a major advance in displacement sensor design. PIPS®-based displacement transducers have the simplicity of a potentiometer with the life of an LVDT/RVDT.

PIPS® technology combines the best in fundamental inductive principles with advanced micro-electronic integrated circuit technology. A PIPS® sensor, based on simple inductive coils using ASIC control technology, directly measures absolute position giving a DC analogue output signal. Because there is no contact between moving electrical components, reliability is high and wear is eliminated for an exceptionally long life.

PIPS® overcomes the drawbacks of LVDT technology – bulky coils, poor length-to-stroke ratio and the need for special magnetic materials. It requires no separate signal conditioning.

Our LIPS® range are linear sensors, while RIPS® are rotary units and TIPS® are for detecting tilt position. Ask us for a full technical explanation of PIPS® technology. We also offer a range of ATEX-qualified intrinsically-safe sensors.

Table of options

<table>
<thead>
<tr>
<th>MEASUREMENT RANGE</th>
<th>Factory-set to any length from 5 to 800mm in increments of 1mm.</th>
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<tr>
<th>ELECTRICAL INTERFACE OPTIONS</th>
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<tr>
<th>OUTPUT SIGNAL</th>
<th>SUPPLY INPUT</th>
<th>OUTPUT LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard: 0.5-4.5V dc ratiometric ± 0.5V.</td>
<td>+5V dc nom.</td>
<td>± 0.5V. 5kΩ min.</td>
</tr>
<tr>
<td>Buffered: 0.5-4.5V dc</td>
<td>+24V dc nom. + 9-28V.</td>
<td>5kΩ min.</td>
</tr>
<tr>
<td>±5V dc</td>
<td>±15V dc nom. ± 9-28V.</td>
<td>5kΩ min.</td>
</tr>
<tr>
<td>0.5-9.5V dc</td>
<td>+24V dc nom. + 13-28V.</td>
<td>5kΩ min.</td>
</tr>
<tr>
<td>±10V dc</td>
<td>±15V dc nom. ± 13.5-28V.</td>
<td>5kΩ min.</td>
</tr>
</tbody>
</table>

Supply Current: 10mA typical, 20mA maximum.

4-20mA (2 wire) +24V dc nom. + 18-28V. 300Ω @ 24V.
(3 wire sink) +24V dc nom. + 13-28V. 950Ω @ 24V.
(3 wire source) +24V dc nom. + 13-28V. 300Ω max.

CONNECTOR OPTIONS

<table>
<thead>
<tr>
<th>Cable with PG7 gland</th>
<th>Axial, IP68 10Bar</th>
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<tbody>
<tr>
<td>Cable with PG7 gland</td>
<td>Radial, IP68 10Bar</td>
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</table>

Cable length >50cm – please specify length in cm

MOUNTING OPTIONS

| MS rod eye bearing (radial versions), Body Tube Clamp/s (axial or radial versions). |
| PUSH ROD OPTIONS – standard retained with MSx0.8 female thread, MS rod eye bearing, Dome end, Spring extended or Free. |

The information provided herein is to the best of our knowledge true and accurate; it is provided for guidance only. All specifications are subject to change without prior notification.

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