



# LIPS<sup>®</sup> S114 SUBMERSIBLE STAND-ALONE LINEAR POSITION SENSOR

Position feedback for industrial and scientific applications

- **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/IP69K**



As a leading designer and manufacturer of linear, rotary, tilt and intrinsically safe position sensors, Positek<sup>®</sup> has the expertise to supply a sensor to suit a wide variety of applications.

Our S114 LIPS<sup>®</sup> (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, it is 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 at pressure. The S114, like all Positek<sup>®</sup> sensors, provides a linear output proportional to travel. Each unit is supplied with the output calibrated to the travel required by the customer, any stroke from 0-5mm to 0-800mm 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, dome end or magnetic tip. Captive push rods can be sprung loaded, in either direction, on sensors up to 300mm of travel. The S114 also offers a selection of mechanical and electrical options, environmental sealing is to IP68 10bar/IP69K.

## SPECIFICATION

### Dimensions

Body diameter	35 mm
Body length (Axial version)	calibrated travel + 168 mm
Body length (Radial version)	calibrated travel + 189 mm
Push rod extension	calibrated travel + 9 mm, OD 9.5 mm

*For full mechanical details see drawing S114-11*

### Independent Linearity

$\leq \pm 0.25\%$ FSO @ 20°C - up to 450 mm
$\leq \pm 0.5\%$ FSO @ 20°C - over 450 mm
$\leq \pm 0.1\%$ FSO @ 20°C* available upon request.

\*Sensors with calibrated travel from 10 mm up to 400 mm.

### Temperature Coefficients

<  $\pm 0.01\%$ /°C Gain &

<  $\pm 0.01\%$ FS/°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°C to +125°C standard

-20°C to +85°C buffered

Storage -40°C to +125°C

### Sealing

IP68 10bar/IP69K

### EMC Performance

EN 61000-6-2, EN 61000-6-3

### Vibration

IEC 68-2-6: 10 g

### Shock

IEC 68-2-29: 40 g

### MTBF

350,000 hrs 40°C Gf

### Drawing List

S114-11 Sensor Outline

*Drawings, in AutoCAD<sup>®</sup> dwg or dxf format, available on request.*

**Do you need a position sensor made to order to suit a particular installation requirement or specification? We'll be happy to modify any of our designs to suit your needs - please contact us with your requirements.**



For further information please contact:

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S114-17f



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## How Positek's PIPS<sup>®</sup> technology eliminates wear for longer life

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

PIPS<sup>®</sup> technology combines the best in fundamental inductive principles with advanced micro-electronic integrated circuit technology. A PIPS<sup>®</sup> sensor, based on simple inductive coils using Positek's 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<sup>®</sup> 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<sup>®</sup> range are linear sensors, while RIPS<sup>®</sup> are rotary units and TIPS<sup>®</sup> are for detecting tilt position. Ask us for a full technical explanation of PIPS<sup>®</sup> technology.

We also offer a range of ATEX-qualified intrinsically-safe sensors.

## TABLE OF OPTIONS

**CALIBRATED TRAVEL:** Factory set to any length from 0-5mm to 0-800mm (e.g. 254mm)

### ELECTRICAL INTERFACE OPTIONS

OUTPUT SIGNAL	SUPPLY INPUT	OUTPUT LOAD
Standard: 0.5-4.5V dc ratiometric	+5V dc nom. ± 0.5V.	5kΩ min.
Buffered: 0.5-4.5V dc	+24V dc nom. + 9-28V.	5kΩ min.
±5V dc	±15V dc nom. ± 9-28V.	5kΩ min.
0.5-9.5V dc	+24V dc nom. + 13-28V.	5kΩ min.
±10V dc	±15 V dc nom. ± 13.5-28V.	5kΩ min.
Supply Current	10mA typical, 20mA maximum.	
4-20mA (2 wire)	+24 V dc nom. + 18-28V.	300Ω @ 24V.
(3 wire sink)	+24 V dc nom. + 13-28V.	950Ω @ 24V.
(3 wire source)	+24 V dc nom. + 13-28V.	300Ω max.

### CONNECTOR/CABLE OPTIONS

Cable with Pg 7 gland Axial or Radial, IP68 10bar/IP69K  
Cable length >50 cm – please specify length in cm

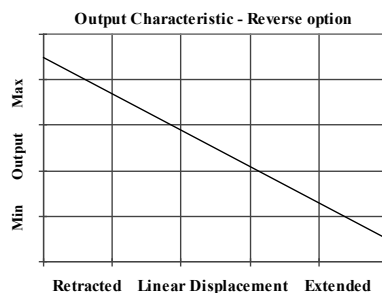
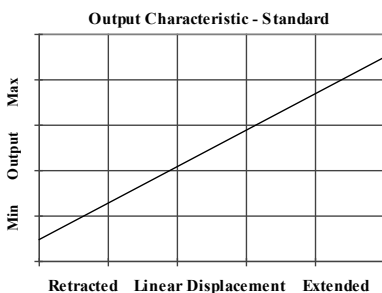
### MOUNTING OPTIONS

M5 rod eye bearing ( radial versions), Body Tube Clamp/s (axial or radial versions).

**PUSH ROD OPTIONS** – Retained<sup>†</sup> or Free with M5x0.8 female thread, M5 rod eye bearing or Magnetic tip, Spring loaded - retract or extend, Dome end<sup>#</sup>.

<sup>†</sup> standard, retained with female thread.

<sup>#</sup> with spring extend.



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