

# LIPS® P114 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



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

Our P114 LIPS® (Linear Inductive Position Sensor) is an affordable, durable, high-accuracy position sensor. Derived from the P101, the P114 was designed for applications where the sensor would be completely submerged during normal operation, up to a pressure of 10Bar, and yet retain desirable features such as compact size, good sensor performance.

The P114, like all Positek sensors, provides a linear output proportional to displacement. Each unit is supplied with the output calibrated to the travel required by the customer, from 50 to 600mm 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, or an M5 stainless steel rod eye. The P114 also offers a wide range of mechanical and electrical options, environmental sealing is to IP68 10Bar.

## SPECIFICATION

### DIMENSIONS

Body diameter	35 mm
Body length (Axial version)	measurement length + 166 mm
Body length (Radial version)	measurement length + 189 mm
Push rod extension	measurement length + 9mm, OD 9.45mm

*For full mechanical details see drawing P114-11*

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

**Temperature coefficients** < ± 0.01%/°C Gain &  
 < ± 0.01%FS/°C Offset

**Typical overall accuracy** < ± 0.75% FSO

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

**Resolution** Infinite

**Noise** < 0.02% FSO

### Environmental Temperature Limits

**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**

P114-11 Sensor Outline

*Drawings, in AutoCAD® 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.

# LIPS<sup>®</sup> P114 SUBMERSIBLE STAND-ALONE LINEAR POSITION SENSOR

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

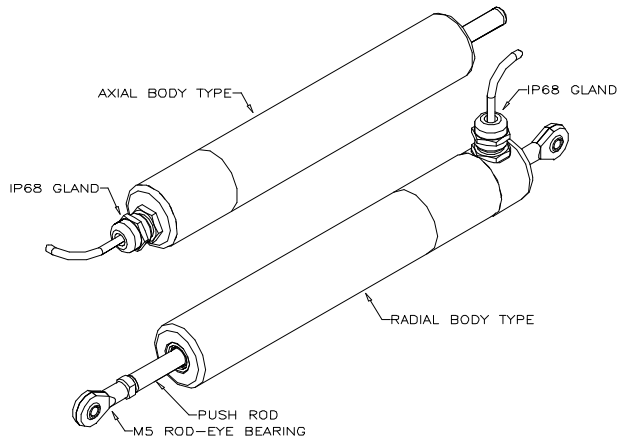
Positek's PIPS<sup>®</sup> technology (Positek Inductive Position Sensor) is a major advance in displacement sensor design. PIPS<sup>®</sup>-based displacement transducers have the simplicity of a potentiometer with the life of an LVDT/RVDT.

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

**MEASUREMENT RANGE:** Factory-set to any length from 50 to 600 mm in increments of 1mm.

#### ELECTRICAL INTERFACE OPTIONS

OUTPUT SIGNAL	SUPPLY INPUT	OUTPUT LOAD
Standard:		
0.5-4.5V dc ratiometric	+5V dc nom. ± 0.5V.	2kΩ min.
Buffered:		
0.5-4.5V dc	+24V dc nom. + 9-28V.	2kΩ min.
±5V dc	±15V dc nom. ± 9-28V.	2kΩ 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.

Option for output signal 'zero' and 'span' adjustment available.

#### CONNECTOR OPTIONS

Cable with PG7 gland Axial, IP68 10Bar  
Cable with PG7 gland Radial, IP68 10Bar

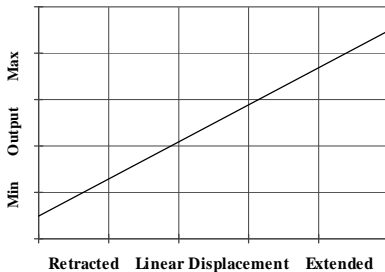
Cable length >50cm – please specify length in cm

#### MOUNTING OPTIONS

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

**PUSH ROD OPTIONS** – standard retained with M5x0.8 female thread, M5 rod eye bearing, Free.

Output Characteristic - Standard



Output Characteristic - Reverse option

