

# RIPS® P501 MINIATURE ROTARY SENSOR

High-resolution angle feedback for industrial and scientific applications

- **Non-contacting inductive technology to eliminate wear**
- **Angle set to customer's requirement**
- **Compact, durable and reliable**
- **High accuracy and stability**
- **Sealing to IP67**



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 P501 RIPS® (Rotary Inductive Position Sensor) is an affordable, durable, high-accuracy rotary sensor designed for industrial and scientific feedback applications, but requires a smaller footprint than the P500.

Like all Positek® sensors, the P501 provides a linear output proportional with input shaft rotation. Each unit is supplied with the output calibrated to the angle required by the customer, between 30 and 140 degrees and with full EMC protection built in.

It is particularly suitable for OEMs seeking good sensor performance for applications where space is important.

Overall performance, repeatability and stability are outstanding over a wide temperature range. The sensor has a rugged nickel plated aluminium body and integrated mounting flange. The flange has two 4.3mm by 20 degree wide slots on a 48mm pitch to simplify mounting and position adjustment. Environmental sealing is to IP67 on the cable version.

## SPECIFICATION

### Dimensions

Body diameter	28.3 mm (solder pins) 30.8 mm (with cable boot)
Body Length (to seal face)	23.2 mm
Shaft	8.5 mm Ø 4 mm

For full mechanical details see drawing P501-11

### Power Supply

+5V dc nom. ± 0.5V, 10mA typ 20mA max

### Output Signal

0.5-4.5V dc ratiometric, Load: 5kΩ min.

### Independent Linearity

≤ ± 0.31% FSO @ 20°C - up to 80°  
 ≤ ± 0.1% FSO @ 20°C\* available upon request.

\*Sensors with calibrated travel up to 80°.

### Temperature Coefficients

< ± 0.01%/°C Gain &  
 < ± 0.01%FS/°C Offset

### Frequency response

> 10 kHz (-3dB)

### Resolution

Infinite

### Noise

< 0.02% FSO

### Torque

< 20 mNm Static

### Environmental Temperature Limits

Operating	-40°C to +125°C
Storage	-40°C to +125°C

### Sealing

IP67

### 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

P501-11	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.**

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# RIPS<sup>®</sup> P501 MINIATURE ROTARY 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

**CALIBRATED TRAVEL:** Factory-set to any angle from  $\pm 15^\circ$  to  $\pm 70^\circ$  in increments of 1 degree.  
 Full 360° Mechanical rotation.

### ELECTRICAL INTERFACE

OUTPUT SIGNAL	SUPPLY INPUT	OUTPUT LOAD
0.5-4.5V dc ratiometric	+5V dc nom. $\pm 0.5V$ .	5k $\Omega$ min.

### CONNECTOR/CABLE OPTIONS

Solder pins  
 Cable with boot IP67  
 Cable length >50 cm – please specify length in cm

### MOUNTING OPTIONS

Plain 4 mm diameter shaft with flat or tongue with spring clip .

