

# RIPS® S520 SUBMERSIBLE ROTARY SENSOR

High-resolution angle feedback for industrial and scientific applications

- Non-contacting inductive technology to eliminate wear
- Angle set to customer's requirement
- Durable and reliable
- High accuracy and stability
- Pressure balanced for use to 350 Bar in under water applications



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 S520 RIPS® (Rotary Inductive Position Sensor) is an affordable, durable, high-accuracy rotary sensor designed for arduous underwater applications such as ROVs. The S520, like all Positek® sensors, is supplied with the output calibrated to the angle required by the customer, between 15 and 160 degrees and with full EMC protection built in. The sensor provides a linear output characteristic proportional with the rotation of the input shaft. There is a machined registration mark to identify the calibrated mid point.

Overall performance, repeatability and stability are outstanding over a wide temperature range. The S520 has long service life and environmental resistance with a rugged 316 stainless steel body and shaft. The flange mounting makes the sensor easy to install. There are a range of electrical options. Environmental sealing is to IP68 350Bar

## SPECIFICATION

<b>Dimensions</b>	
Body Diameter	60 mm, Flange 92 mm
Body Length	70 mm to mounting face
Shaft	15 mm Ø 6 mm
<i>For full mechanical details see drawing S520-11</i>	
<b>Independent Linearity</b>	≤ ± 0.25% FSO @ 20°C - up to 100° travel ≤ ± 0.1% FSO @ 20°C* available upon request.
*Sensors with calibrated travel up to 100°.	
<b>Pressure Effects</b>	Output changes with pressure < 1°
<b>Temperature Coefficients</b>	< ± 0.01%/°C Gain & < ± 0.01%FS/°C Offset
<b>Frequency Response</b>	> 10 kHz (-3dB) (Electrical) > 300 Hz (-3dB) 2 wire 4 to 20 mA
<b>Resolution</b>	Infinite
<b>Noise</b>	< 0.02% FSO
<b>Torque</b>	< 20 mNm Static
<b>Environmental Temperature Limits (Non Icing)</b>	
Operating	-30°C to +80°C
Storage	-40°C to +85°C
<b>Sealing</b>	Sealed to 350 Bar
<b>EMC Performance</b>	EN 61000-6-2, EN 61000-6-3
<b>Vibration</b>	IEC 68-2-6: 10 g
<b>Shock</b>	IEC 68-2-29: 40 g
<b>MTBF</b>	350,000 hrs 40°C Gf
<b>Drawing List</b>	
S520-11	Sensor Outline
<i>Drawings, in AutoCAD® dwg or dxf format, available on request.</i>	

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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## 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  $\pm 7.5^\circ$  to  $\pm 80^\circ$  in increments of 1 degree.

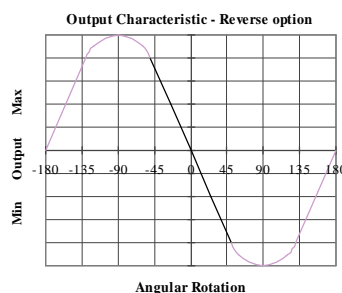
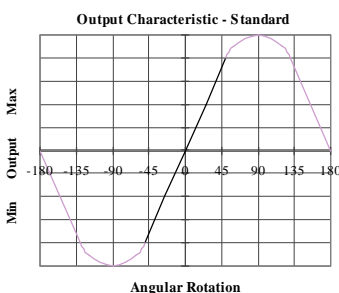
Full 360° Mechanical rotation.

### ELECTRICAL INTERFACE OPTIONS

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

### CONNECTOR

Wet mate 4 pin MC BH-4-M  
 Supplied with mating connector and 0.5 m cable as standard.  
 Mating connector with longer lengths available.



For further information please contact: