OUTPUT OPTION	OUTPUT	SUPPLY	
A	0.5 TO 4.5V RATIOMETRIC	5V	STANDARD
C	0.5 TO 9.5V	24V	BUFFERED
G	0.5 TO 4.5V	24V	BUFFERED
H	4 TO 20mA	24V	BUFFERED

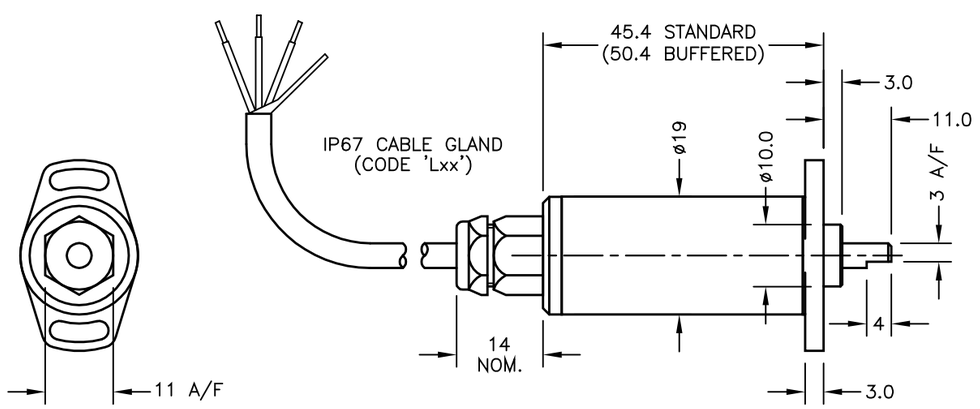
SUPPLY CURRENT 12mA TYP. 20mA MAX. PLUS O/P CURRENT
CABLE: 0.2mm², O/A SCREEN, PUR JACKET – SUPPLIED WITH 50cm OR REQUIRED LENGTH IN cm. e.g. 'L50'
3–CORE: JACKET ø4mm

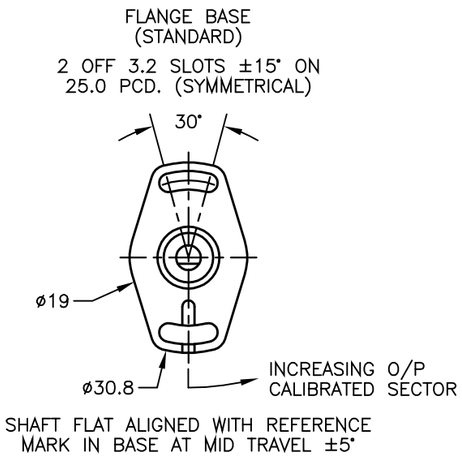
CABLE/CONNECTOR* CONNECTIONS;
3 CORE CONNECTOR

RED	:1	+Ve
BLACK	:3	0V
WHITE	:2	OUTPUT
SCREEN	:4	BODY

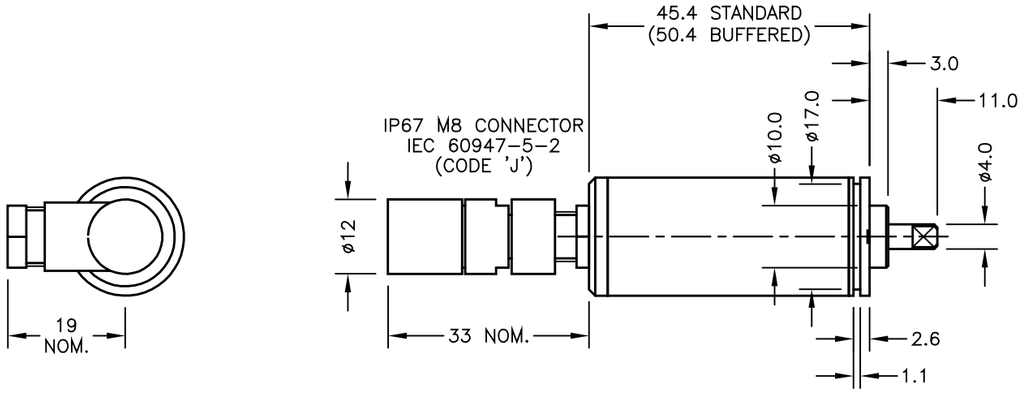
*CONNECTORS; MAXIMUM CONDUCTOR CROSS SECTION 0.25mm²
RANGE OF DISPLACEMENT FROM 0–15° TO 0–160° e.g. 76°, IN INCREMENTS OF 1°.

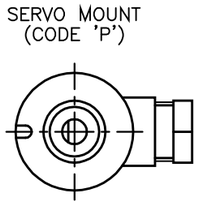
BODY MATERIAL: STAINLESS STEEL.
FLANGE BASE MATERIAL:– ALUMINIUM.
SERVO MOUNT MATERIAL:– ALUMINIUM.





SHAFT FLAT ALIGNED WITH REFERENCE MARK IN BASE AT MID TRAVEL ±5°





D	SHAFT LENGTH REDUCED 0.5 - RAN538.	PDM
E	SERVO MOUNT SHOWN AT MID POSITION	RDS
F	OPTION 'J' ADDED - RAN1068.	PDM
G	RANGE NOTE AMENDED ~ RAN1200	PDM
H	4 TO 20mA ADDED RAN1256	RDS

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D	21/01/15		CHECKED BY	X ±0.4
E	7/4/15		-	X.X ±0.2
F	02/12/15			X.XX ±0.1
G	12/09/17	DESCRIPTION		DIMS mm
H	12/09/18	P505 RIPS MINIATURE ROTARY SENSOR		

SCALE 5mm

DRAWING NUMBER P505-11 REV H

SHEET 1 OF 1

POSITEK LIMITED

RIPS® P505 SLIM-LINE 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 P505 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 P505 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 15 and 160 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 P505 has long service life and environmental resistance with a stainless steel body and shaft, the flange and servo mounts are anodised aluminium. The flange or servo mounting options make the sensor easy to install, the flange has two 3.2mm by 30 degree wide slots on a 25mm pitch. The P505 also offers a range of mechanical and electrical options. Environmental sealing is to IP67.

SPECIFICATION

Dimensions	
Body diameter	19 mm
Body Length (to mounting face)	45.4 mm
Shaft	8 mm Ø 4 mm
For full mechanical details see drawing P505-11	
Independent Linearity	≤ ± 0.25% FSO @ 20°C - up to 100°
Temperature Coefficients	< ± 0.01%/°C Gain &
	< ± 0.01%FS/°C Offset
Frequency response	> 10 kHz (-3dB)
Resolution	Infinite
Noise	< 0.02% FSO
Torque	< 15 mNm Static
Environmental Temperature Limits	
Operating	-40°C to +125°C standard
	-20°C to +85°C buffered
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	
P505-11	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.

For further information please contact:
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RIPS® P505 SLIM-LINE ROTARY SENSOR

High-resolution angle feedback for industrial and scientific applications

How Positek's PIPS® technology eliminates wear for longer life

Positek's **PIPS®** technology (Positek 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 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® 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

CALIBRATED TRAVEL: Factory-set to any angle from ±8° to ±80° 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. ± 0.5V.	5kΩ min.
Buffered:		
0.5-4.5V dc	+24V dc nom. + 9-28V.	5kΩ min.
0.5-9.5V dc	+24V dc nom. + 13-28V.	5kΩ min.
4-20mA	+24V dc nom. + 13-28V.	300R Max.
Supply Current	10mA typical, 20mA max. plus O/P current	

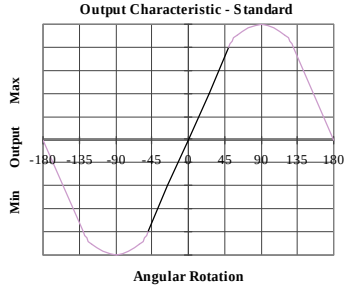
CONNECTOR/CABLE OPTIONS

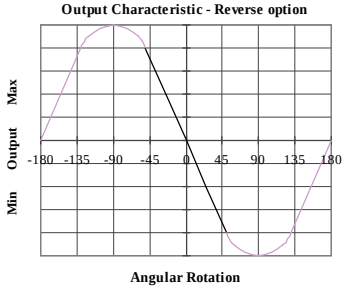
Connector - M8 IEC 60947-5-2	IP67
Cable with M8 gland	IP67

Cable length >50 cm – please specify length in cm

MOUNTING OPTIONS

Flange, Servo.





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RIPS® SERIES P505 Slim-Line Rotary Sensor

	a	b	c	d	e
P505	. Displacement	Output	Connections	Option	Z-code

a **Displacement** (degrees)		**Value**
Displacement in degrees	e.g. 0 - 54 degrees	**54**

b **Output**		
Supply V dc V_s (tolerance)	**Output**	**Code**
+5V (4.5 - 5.5V)	0.5 - 4.5V (ratiometric with supply)	**A**
+24V nom. (13 - 28V)	0.5 - 9.5V	**C**
+24V nom. (9 - 28V)	0.5 - 4.5V	**G**
+24V nom. (13 - 28V)	4 - 20mA 3 wire Source	**H**

c **Connections** Cable* or Connector		**Code**
Connector	IP67 M8 IEC 60947-5-2	**J**
Cable Gland	IP67 M12	**Lxx**

*Supplied with 50 cm as standard, specify required cable length specified in cm. e.g. L2000 specifies cable gland with 20 metres of cable. Nb: restricted cable pull strength.

d **Sensor Mounting**	**Code**
Flange - default	blank
Servo Mount	**P**

e **Z-code**	**Code**
Connector with cable option 'J' with length required in cm i.e. J500 specifies connector with 500cm of cable.	**Z999**

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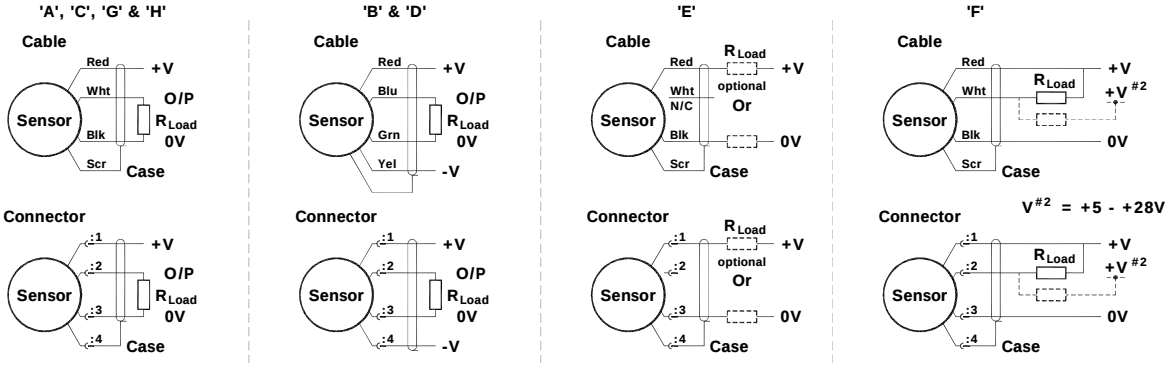
Installation Information

RIPS® P505 SLIM-LINE ROTARY SENSOR

Output Option	Output Description:	Supply Voltage: V_s (tolerance)	Load resistance: (include leads for 4 to 20mA O/Ps)
A	0.5 - 4.5V (ratiometric with supply)	+5V (4.5 - 5.5V)	≥ 5kΩ
C	0.5 - 9.5V	+24V nom. (13 - 28V)	≥ 5kΩ
G	0.5 - 4.5V	+24V nom. (9 - 28V)	≥ 5kΩ
H	4 –20mA	+24V nom. (13 - 28V)	300R MAX

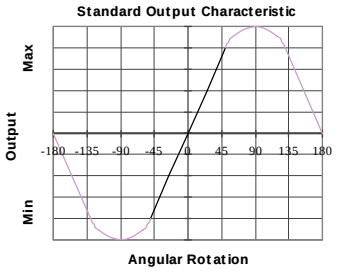
Not all output options available - see product datasheet for full options list

Connector Pin Layout:
IEC 60947-5-2



Mechanical Mounting: Flange mounted. The flange slots are 3.2mm by 30 degrees wide on a 25mm pitch. The sensor should be mounted with minimal axial and radial loading on the shaft for optimum life. It is recommended that the shaft is coupled to the drive using a flexible coupling.

Output Characteristic: The sensor has full rotational freedom and two sectors, 180° apart, over which linear response can be achieved. At the mid point of the calibrated range the output signal will be half full scale deflection, and the flat on the shaft is aligned with the registration mark in the base of the sensor. In the calibrated range the output increases as the shaft is rotated in an anti-clockwise direction viewed from the shaft. The calibrated output is factory set to be between 15 and 160°.



Incorrect Connection Protection levels:-

A **Not protected** – the sensor is **not** protected against either reverse polarity or over-voltage. The risk of damage should be minimal where the supply current is limited to less than 50mA.

C & G Supply leads diode protected. Output must not be taken outside 0 to 12V.

H Supply and output lead diode protected. Do take output negative of 0 volts.

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