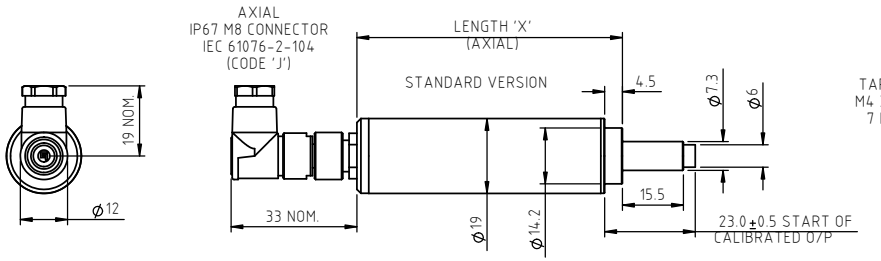
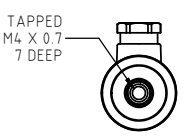
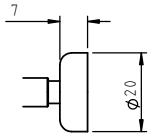






ELECTRICAL OPTIONS/ SPECIFICATIONS

OUTPUT	SUPPLY
A 0.5 - 4.5V RATIOMETRIC	5V
C 0.5 - 9.5V	24V
G 0.5 - 4.5V	24V
H 4 - 20mA	24V

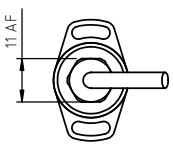
SUPPLY CURRENT 12mA TYP. 20mA MAX. PLUS O/P CURRENT

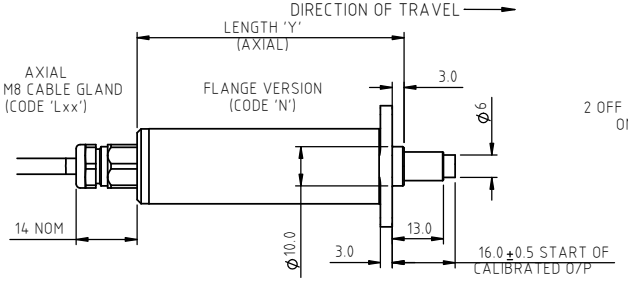
CONNECTIONS;	CABLE	CONNECTOR
+Ve	RED	:1
0V	BLACK	:3
OUTPUT	WHITE	:2
BODY	SCREEN	:4

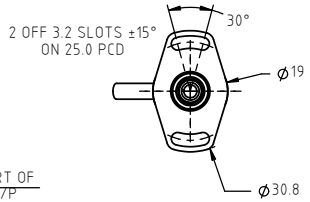
CABLE; 3-CORE 0.2mm², O/A SCREEN, PUR JACKET Ø4mm
SUPPLIED WITH 50cm OR REQUIRED LENGTH IN cm. e.g. 'L50'
CONNECTORS; MAXIMUM CONDUCTOR CROSS SECTION 0.25mm²

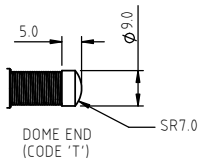
RANGE OF DISPLACEMENT FROM 0-2mm TO 0-50mm IN INCREMENTS OF 1mm e.g.36.
BODY MATERIAL:- STAINLESS STEEL.
FLANGE BASE MATERIAL:- STAINLESS STEEL (CODE 'N')

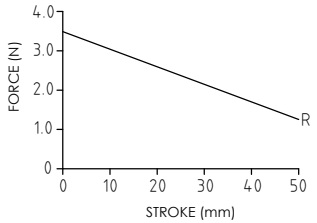
FURTHER OPTIONS:
SINGLE PAIR OF BODY CLAMPS (CODE 'P')
SPRUNG PLUNGER, TO EXTENDED POSITION (CODE 'R')
DOME END (CODE 'T') IN CONJUNCTION WITH SPRUNG PLUNGER (CODE 'R')
PLUNGER FREE (CODE 'V') NOT AVAILABLE WITH SPRUNG OPTION
MAGNETIC TIP (CODE 'WA')



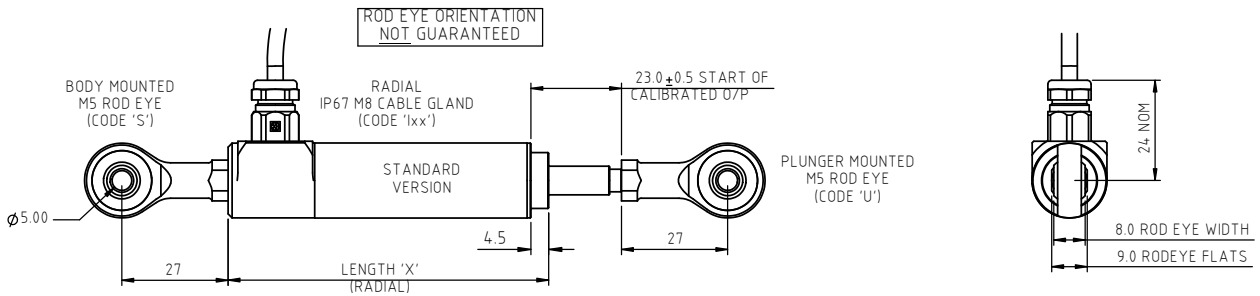


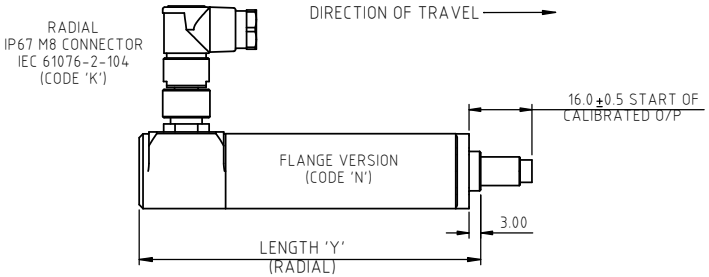


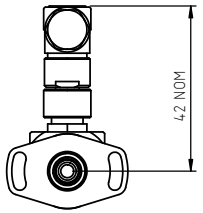




SPRING FORCE VS STROKE
(CODE 'R')







DRAWINGS NOT TO BE CHANGED WITHOUT REFERENCE TO THE CHANGE PROCEDURE.
CHANGES TO PARTS USED IN INTRINSICALLY SAFE PRODUCT MUST BE APPROVED BY THE AUTHORISED PERSON.
THIS IS AN UNCONTROLLED PRINT AND WILL NOT BE UPDATED.

REV	CHANGE HISTORY	DR'WN	DATE	CHK'D
F	MAG TIP & RADIAL END/ROD EYES RAN1311/1312	ASC	22/03/2021	PDM

BODY STYLE	NOTE: SENSORS WITH TRAVEL UP TO 50mm ARE MADE IN STANDARD LENGTHS					
	BODY LENGTH (mm)					
	TRAVEL (mm)		'X' STANDARD		'Y' FLANGE	
	CALIBRATED	MECHANICAL	O/P - A	O/P - C,G,H	O/P - A	O/P - C,G,H
AXIAL	0-2 TO 0-10	10	72.5	77.5	78.0	83.0
	0-11 TO 0-20	20	82.5	87.5	88.0	93.0
	0-21 TO 0-30	30	92.5	97.5	98.0	103.0
	0-31 TO 0-50	50	112.5	117.5	118.0	123.0
RADIAL	0-2 TO 0-10	10	91.5	96.5	97.0	102.0
	0-11 TO 0-20	20	101.5	106.5	107.0	112.0
	0-21 TO 0-30	30	111.5	116.5	117.0	122.0
	0-31 TO 0-50	50	131.5	136.5	137.0	142.0

THE PLUNGER RETRACTS 8mm FROM START OF CALIBRATED TRAVEL (2mm FOR SPRUNG VERSIONS) AND EXTENDS 11mm* BEYOND END OF MECHANICAL TRAVEL.
*DOES NOT INCLUDE DIFFERENCE BETWEEN CALIBRATED AND MECHANICAL TRAVEL.
DIMENSIONS ARE NOMINAL.
'V' CODED PLUNGER WILL DEPART SENSOR BODY.

Positek

APPROVED BY	REV		X ±0.4 X.X ±0.2 X.XX ±0.1 DIMS mm
RDM	F		

DESCRIPTION
P118 SHORT STROKE SLIM-LINE LINEAR POSITION SENSOR

SCALE	DRAWING NUMBER
3:4	P118-11
A3	SHEET 1 OF 1

LIPS® P118 SHORT STROKE SLIM-LINE LINEAR POSITION SENSOR

Position feedback for industrial and scientific applications

- **Non-contacting inductive technology to eliminate wear**
- **Travel set to customer's requirement**
- **Compact 19 mm diameter body**
- **High durability and reliability**
- **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 P118 LIPS® (Linear Inductive Position Sensor) is an affordable, durable, accurate position sensor designed for a wide range of industrial applications. It is particularly suitable for OEMs seeking good sensor performance in situations where a small diameter, short-bodied sensor is needed and cost is important. The unit is compact and space-efficient, being responsive along almost its entire length, and like all Positek® sensors provides a linear output proportional to travel. Each unit is supplied with the output calibrated to the travel required by the customer, from 2 to 50mm and with full EMC protection built in.

Overall performance, repeatability and stability are outstanding over a wide temperature range.

The sensor has a compact 19 mm diameter stainless steel body, is easy to install and set up. Mounting options include flange, M5 rod eye bearings and body clamps. The plunger can be supplied free or captive, with a female M4 thread, an M5 rod eye, magnetic tip, or spring-loaded with a dome end. The P118 also offers a range of mechanical and electrical options, environmental sealing is to IP67.

SPECIFICATION

Dimensions

Body diameter: 19 mm

Body length dependant on selected calibrated travel, selected electrical output, cable/connector orientation and mounting option:

Body Length (Axial version/Standard Output Signal):

Calibrated Travel	Standard	Flange mounted
2 mm to 10 mm	72.5 mm	78 mm
11 mm to 20 mm	82.5 mm	88 mm
21 mm to 30 mm	92.5 mm	98 mm
31 mm to 50 mm	112.5 mm	118 mm

Body Length (Axial version/Buffered Output Signal):

Calibrated Travel	Standard	Flange mounted
2 mm to 10 mm	77.5 mm	83 mm
11 mm to 20 mm	87.5 mm	93 mm
21 mm to 30 mm	97.5 mm	103 mm
31 mm to 50 mm	117.5 mm	123 mm

Body Length (Radial version/Standard Output Signal):

Calibrated Travel	Standard	Flange mounted
2 mm to 10 mm	91.5mm	97 mm
11 mm to 20 mm	101.5 mm	107 mm
21 mm to 30 mm	111.5 mm	117 mm
31 mm to 50 mm	131.5 mm	137 mm

Body Length (Radial version/Buffered Output Signal):

Calibrated Travel	Standard	Flange mounted
2 mm to 10 mm	96.5mm	102 mm
11 mm to 20 mm	106.5 mm	112 mm
21 mm to 30 mm	116.5 mm	122 mm
31 mm to 50 mm	136.5 mm	142 mm

Plunger: Ø 6mm

For full mechanical details see drawing P118-11

Independent Linearity ≤ ± 0.25% FSO @ 20°C
≤ ± 0.1% FSO @ 20°C* available upon request.

*Sensors with calibrated travel of 10 mm and above.

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

Frequency Response > 10 kHz (-3dB)

Resolution Infinite

Noise < 0.02% FSO

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

P118-11 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:
www.positek.com sales@positek.com
Tel: +44(0)1242 820027 fax: +44(0)1242 820615
Positek, Andoversford Industrial Estate, Cheltenham GL54 4LB. U.K.

LIPS® P118 SHORT STROKE SLIM-LINE LINEAR POSITION SENSOR

Position 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 length from 0-2mm to 0-50mm (e.g. 36mm).

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 - 4-pole M8 IEC 61067-2-104	Axial/ Radial, IP67
Cable† with M8 gland	Axial/Radial, IP67

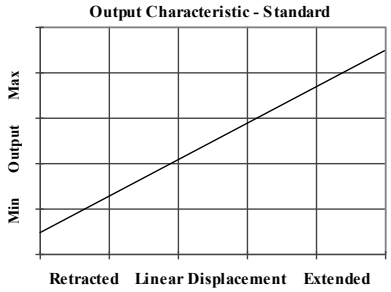
Cable length >50 cm – please specify length in cm

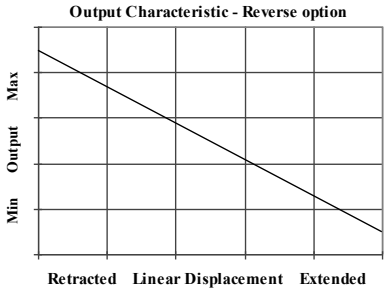
MOUNTING OPTIONS

Flange, Body Tube Clamp (axial or radial versions),
M5 rod eye bearings (radial versions only).

PUSH ROD OPTIONS – Retained† or Free with M4x0.7 female thread, M5 rod eye bearing or Magnetic tip, Spring loaded with or without# Dome end.

† standard, retained with female thread.
# spring supplied loose.





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Positek, Andoversford Industrial Estate, Cheltenham GL54 4LB. U.K.

P118 Short Stroke Slim-Line Position Sensor

	a	b	c	d	e	f	g	h	j
P118	.	Displacement	Output	Connections	Option	Option	Option	Option	Option	Z-code

a **Displacement** (mm)		**Value**
Displacement in mm	e.g. 0 - 22 mm	**22**

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**
Cable Gland - Radial	IP67 metal	**Ixx**
Connector - Axial	IP67 M8 IEC 60176-2-104 nylon	**J**
	pre-wired	**Jxx**
Connector - Radial	IP67 M8 IEC 60176-2-104 nylon	**K**
	pre-wired	**Kxx**
Cable Gland - Axial	IP67 metal	**Lxx**

Specify required cable length **'xx'** in cm. e.g. L2000 specifies cable gland with 20 m of cable, 50 cm supplied as standard.

d **Housing**		**Code**
Standard - default		blank
Flange Mount		**N**
M5 Rod-eye Bearing	Radial body style only	**S**

e **Body Fittings**		**Code**
None - default		blank
Body Clamps - 1 pair		**P**

f **Sprung Plunger**		**Code**
None - default		blank
Spring Extend	Captive plunger only.	**R**

g **Plunger Fittings**		**Code**
None - default	Female Thread M4x0.7x7 deep	blank
Dome end	Requires option 'R'	**T**
M5 Rod-eye Bearing		**U**
Magnetic Tip		**WA**

h **Plunger Options**		**Code**
Captive - default	Plunger is retained	blank
Non-captive	Plunger can depart body	**V**

j **Z-code**	**Code**
≤± 0.1% @20°C Independent Linearity displacement between 10mm & 50mm only!	**Z650**

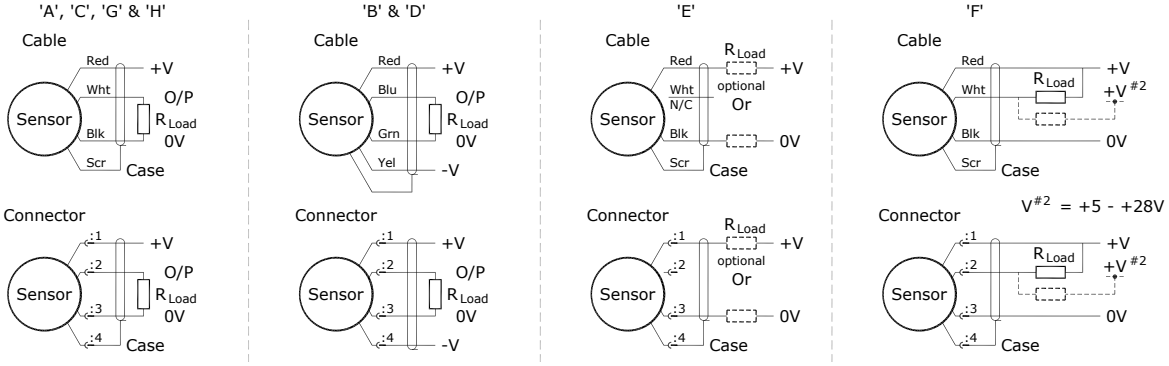
Installation Information

P118 SHORT STROKE SLIM-LINE LINEAR POSITION 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

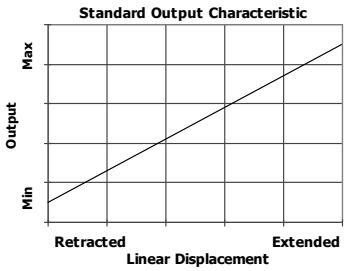
Connector Pin Layout:
IEC 60947-5-2



Gain and Offset Adjustment: Not available.

Mechanical Mounting: Flange mounted or by clamping the sensor body - body clamps are available, if not already ordered. The flange slots are 3.2 mm by 30 degrees wide on a 25 mm pitch.

Output Characteristic: Plunger extended, at start of normal travel, from mounting face by:
Standard body : 18.5 mm*
Flanged body : 16 mm*
*Note: where ball end option is fitted add 5 mm.
The output increases as the plunger extends from the sensor body, the calibrated stroke is between 2 mm and 50 mm.



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.

For further information please contact:
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