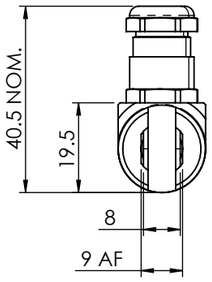
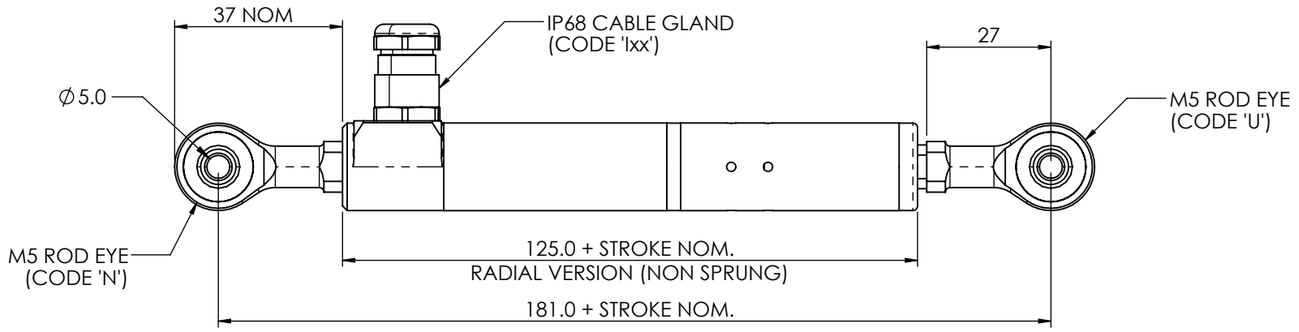
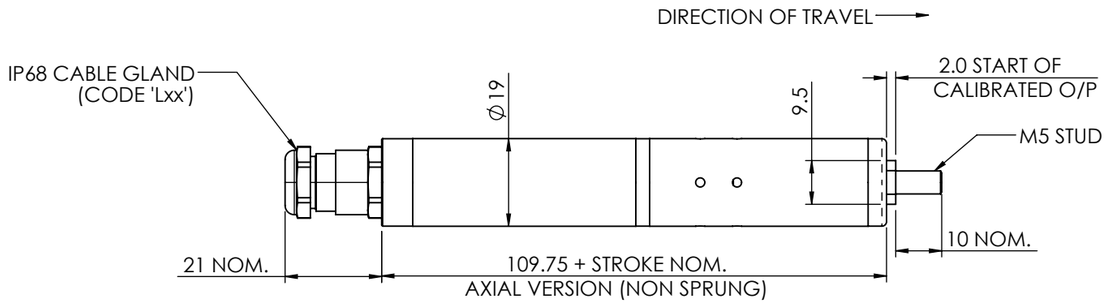
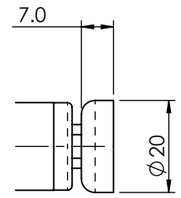








MAGNETIC TIP
(CODE 'WA')

ELECTRICAL OPTIONS/ SPECIFICATIONS

OUTPUT	SUPPLY (NOM.)
'A' 0.5 - 4.5V RATIOMETRIC	5V
'C' 0.5 - 9.5V	24V
'G' 0.5 - 4.5V	24V
SUPPLY CURRENT 12mA TYP. 20mA MAX.	
'H' 4 TO 20mA SOURCE‡	24V

‡ DRIVE 300Ω MAXIMUM TO 0V

CONNECTIONS;	CABLE 3-CORE
+Ve	RED
0V	BLACK
-Ve	-
OUTPUT	WHITE
BODY	SCREEN

CABLE; 0.2mm², O/A SCREEN, PUR JACKET, SUPPLIED WITH 50cm
OR REQUIRED LENGTH IN cm (15000cm MAX).
STANDARD 3-CORE: BLACK Ø4mm JACKET e.g. L50

RANGE OF DISPLACEMENT FROM 0-2mm TO 0-350mm
IN INCREMENTS OF 1mm e.g.36.
BODY MATERIAL:- STAINLESS STEEL.

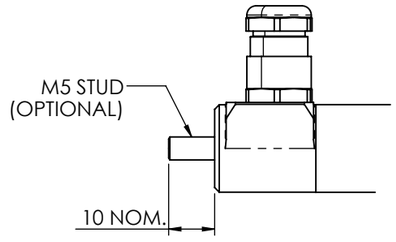
FURTHER OPTIONS:
SINGLE PAIR OF BODY CLAMPS (CODE 'P')
TWO PAIRS OF BODY CLAMPS (CODE 'P2')

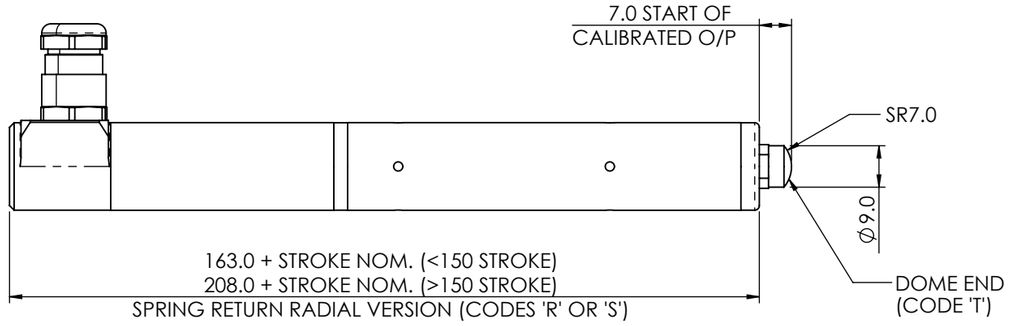
SPRING RETURN PUSH-ROD, TRAVEL ≤ 300mm
RETURN TO EXTENDED POSITION (CODE 'R')
RETURN TO RETRACTED POSITION (CODE 'S')

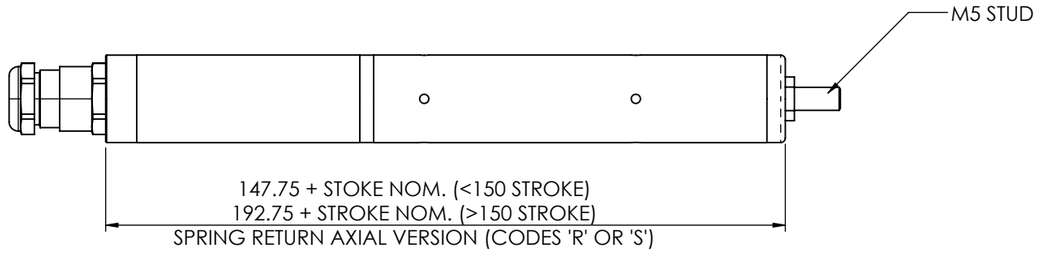
DOME END* (CODE 'T') IN CONJUNCTION WITH SPRUNG PUSH-ROD (CODE 'R')
PUSH-ROD FREE (CODE 'V') N.b. NOT AVAILABLE WITH SPRUNG OPTION.
MAGNETIC TIP (CODE 'WA')

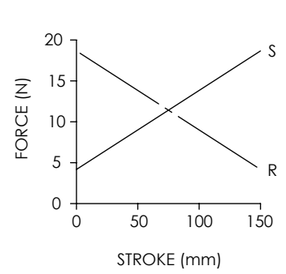
NOTE: ROD-EYE ORIENTATION RELATIVE TO GLAND/CONNECTOR NOT GUARANTEED.
THE PUSH-ROD RETRACTS AND EXTENDS 2mm NOM. AT EITHER END OF CALIBRATED TRAVEL.
'V' CODED PUSH-ROD WILL DEPART SENSOR BODY

MAXIMUM WORKING DEPTH: 100m/325ft.
WHERE THR FREE END OF THE CABLE IS TO BE TERMINATED IN A SUBMERGED POSITION, ADEQUATE SEALING MUST BE PROVIDED TO PROTECT CONNECTIONS.

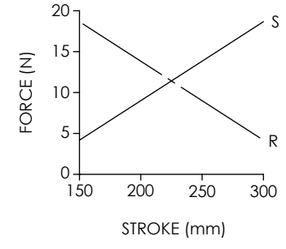








SPRING FORCE VS STROKE
(CODE 'R' OR 'S' <150mm STROKE)



SPRING FORCE VS STROKE
(CODE 'R' OR 'S' >150mm STROKE)

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
A	FIRST RELEASE	ASC	14/07/2021	-

Positek

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

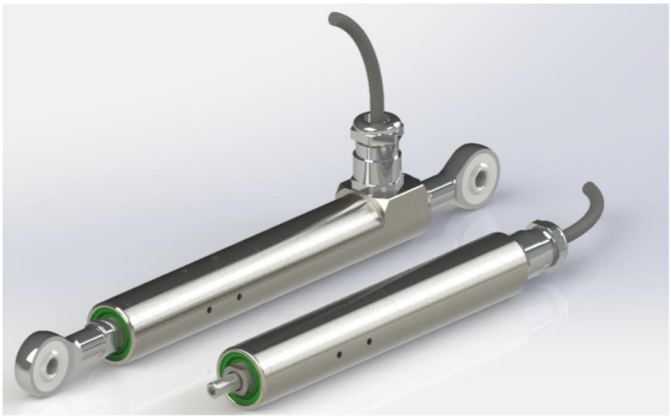
DESCRIPTION
10BAR SLIM-LINE SUBMERSIBLE
LINEAR POSITION SENSOR

SCALE 3:4	DRAWING NUMBER
A3	S119-11
	SHEET 1 OF 1

POSITEK LIMITED

LIPS® S119 SUBMERSIBLE SLIM-LINE LINEAR POSITION SENSOR

Position feedback for industrial, marine, mobile and harsh environmental applications



- **Sealing to IP68 10 bar / IP69K**
- **Stainless steel 316 construction**
- **Travel set to customer's requirement**
- **Compact 19 mm diameter body,**
- **High accuracy and stability**
- **Non-contacting inductive technology to eliminate wear**

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 S119 LIPS® (Linear Inductive Position Sensor) is an affordable, durable, high-accuracy position sensor designed for industrial, marine, mobile and harsh environmental applications.

It is particularly suitable for OEMs seeking good sensor performance for arduous applications such as wash down, marine, agricultural, mobile and industrial machinery.

Overall performance, repeatability and stability are outstanding over a wide temperature range. The unit is very compact and space-efficient with a small 19mm diameter body. The sensor is very robust and has a complete 316 stainless steel construction. The sensor is easy to install with mounting options including M5 male stud and M5 rod eye bearing. The push rod can be supplied free or captive, with male M5 thread or M5 rod eye or dome end. Captive push rods can be sprung loaded in either direction. Like all Positek® sensors, the S119 provides a linear output proportional to travel. Each unit is supplied with the output calibrated to the travel required by the customer, up to 350mm and with full EMC protection built in. The S119 offers a range of mechanical and electrical options, environmental sealing is IP68 10 bar / IP69K.

SPECIFICATION

Dimensions	
Body diameter	19 mm
Body Length	
(Axial version)	calibrated travel + 109.75 mm
(Axial version - sprung)	calibrated travel + 147.75 mm up to 150 mm travel
	calibrated travel + 192.75 mm over 150 mm travel
(Radial version)	calibrated travel + 125 mm
(Radial version - sprung)	calibrated travel + 163 mm up to 150 mm travel
	calibrated travel + 208 mm over 150 mm travel
For full mechanical details see drawing S119-11	
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	IP68 10 bar/IP69K
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	
S119-11	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 Ltd, Andoversford Industrial Estate, Cheltenham GL54 4LB U.K.

CE

LIPS® S119 SUBMERSIBLE SLIM-LINE LINEAR POSITION SENSOR

Position feedback for industrial, marine, mobile and harsh environmental 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 0-5mm to 0-350mm (e.g. 76mm).

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	

CABLE OPTIONS

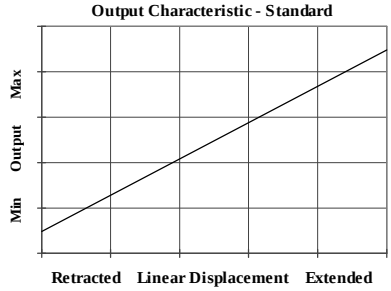
Cable with Pg 7 gland Axial or Radial, IP68 10 bar / IP69K

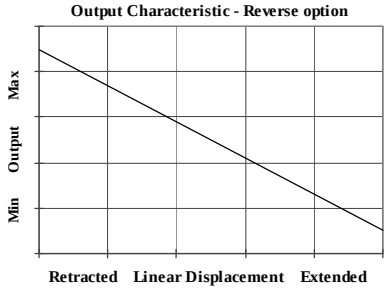
Cable length >50 cm – please specify length in cm

MOUNTING OPTIONS

M5 rod eye bearing or M5x0.8 male thread (radial version), Body Tube Clamp/s (axial or radial versions).

PUSH ROD OPTIONS – standard retained with M5x0.8 male thread, M5 rod eye bearing, Dome end, Sprung loaded (retraction or extension), Magnetic Tip Ø20mm x 7mm Neodymium 15.8kg Pull or Free.





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

CE

LIPS® SERIES S119 Slim-Line Linear Position Sensor

	a	b	c	d	e	f	g	h	j
S119	.	Displacement	Electrical Option	Connections	Option	Option	Option	Option	Option	Z-code

a **Displacement** (mm)		**Value**
Displacement in mm	e.g. 0 - 254 mm	**254**

b **Electrical Option**		
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	IP68 10bar / IP69K	**Ixx**
Cable Gland - Axial	IP68 10bar / IP69K	**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.

d **Body Fittings**		**Code**
None - default	Male Thread M5x0.8x10 long - Radial body (option I) only.	blank
M5 Rod-eye Bearing	Radial body (option I) only	**N**

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

f **Sprung Push Rod**		
None - default		blank
Spring Extend	Captive push rod only.	**R**
Spring Retract		**S**

g **Push Rod** Fittings		**Code**
None - default	Male Thread M5x0.8x10 long	blank
M5 Rod-eye Bearing		**U**
Dome End	Required for option 'R'	**T**
Magnetic Tip		**WA**

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

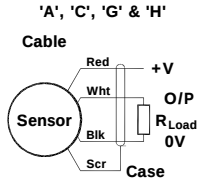
j **Z-code**	**Code**
≤± 0.1% @20°C Independent Linearity Available for ≥ 10mm displacement	**Z650**

POSITEK LIMITED

Installation Information

LIPS® S119 SUBMERSIBLE SLIM-LINE LINEAR POSITION SENSOR

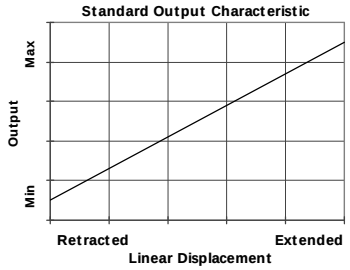
Output Option	Output Description:	Supply Voltage: V_s (tolerance)	Load resistance: (include leads for 4 to 20mA O/Ps)
A	0.5 - 4.5V (ratiometric with supply)	+5V (4.5 - 5.5V)	≥ 5kΩ
C	0.5 - 9.5V	+24V nom. (13 - 28V)	≥ 5kΩ
G	0.5 - 4.5V	+24V nom. (9 - 28V)	≥ 5kΩ
H	4 –20mA	+24V nom. (13 - 28V)	300R MAX



Mechanical Mounting: Depending on options;
Body can be mounted by M5x0.8 male thread, M5 rod eye or by clamping the sensor body - body clamps are available, if not already ordered. Target by M5x0.8 male thread or M5 rod eye. It is assumed that the sensor and target mounting points share a common earth.

Where the free end of the cable is to be terminated in a submerged position, adequate sealing must be provided to protect connections.

Output Characteristic: Target is extended 2 mm from end of body at start of normal travel. The output increases as the target extends from the sensor body, the calibrated stroke is between 5 mm and 350 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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