



### MAIN CHARACTERISTICS

- Strokes from 50 to 900 mm
- Direct and reverse analog output in single and redundant configurations.
- Working temperature: -40...+85 °C
- IP67 protection

Contactless linear position transducer with TWIIST patented technology for longer lifetime. The absence of contact on the sensing element allows to obtain a fully-sealed, robust and compact sensor.

The high performance in terms of robustness, thermal stability and EMC immunity make the LS-A series suitable for use both in industrial and mobile hydraulic environments.

### TECHNICAL DATA

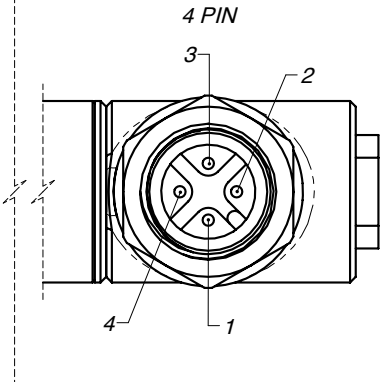
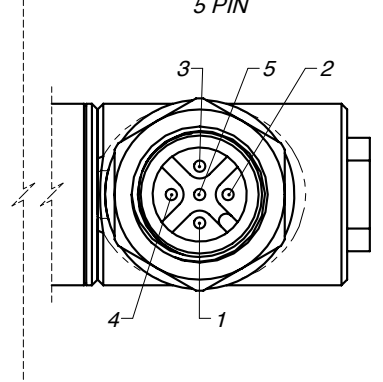
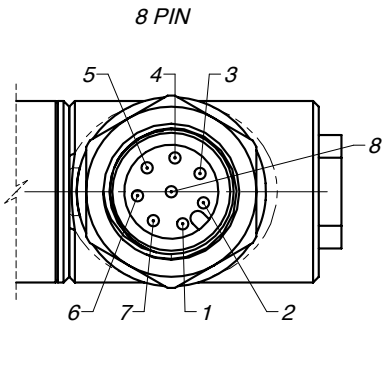
Stroke (FS)	From 50 to 900 mm
Measurement	Displacement
Position reading sampling time	typ. 300 $\mu$ s
Displacement speed	< 5 m/s
Resolution	typ. 12 bit
Linearity (BFSL method)	typ. < $\pm$ 0.15% FS
Repeatability	typ. < 0.1% FS

Hysteresis	typ. < 0.1% FS
IP Protection Level	IP67
Housing Material	AISI444 stainless steel, brass, aluminium, PA12
Shock	Impulsive on 3 axes; 40g 11 ms IEC 60068-2-27
Vibrations	12g - 10 Hz ... 2000 Hz IEC 60068-2-6
Industrial EMC	EN 61326 - 1

### ELECTRICAL DATA

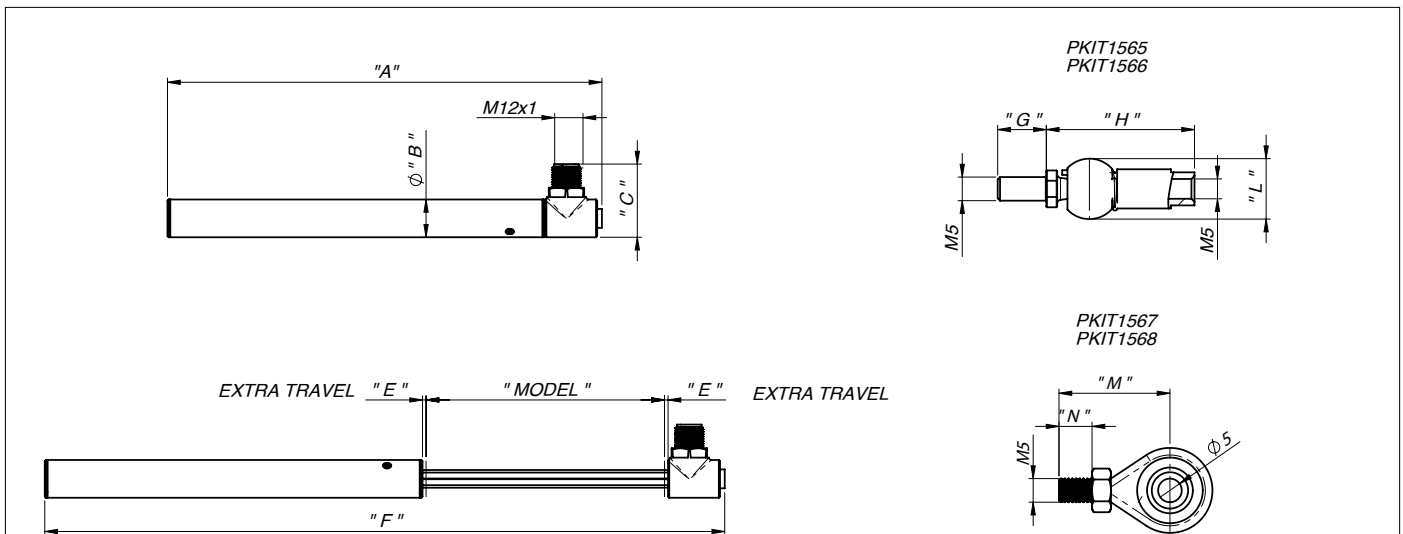
Output signal	0.5...4.5 V (K/I)	0...10 V (N/M)	0...10 V (W/R)	4...20 mA (E/S)	10...90% V supply voltage (X/V)
Circuit type	Single	Single	Single	Single	Single, Redundant
Supply voltage	11...32 V DC	11...32 V DC	10...18 V DC	9...32 V DC	5 V DC $\pm$ 10%
Typical current consumption (no load condition)	11 mA	11 mA	11 mA	-	9 mA (Single), 18 mA (Redundant)
Output load	$\geq$ 10 k $\Omega$	$\geq$ 10 k $\Omega$	$\geq$ 10 k $\Omega$	50...500 $\Omega$	$\geq$ 10 k $\Omega$
Output signal in absence of cursor	5 V	10.5 V	10.5 V	21 mA	100%
Supply voltage reverse polarity protection	Up to -33 V DC	Up to -33 V DC	Up to -33 V DC	Up to -33 V DC	Up to -20 V DC for max. 1h @25 °C
Overvoltage protection	33 V DC (continuous)	33 V DC (continuous)	33 V DC (continuous)	33 V DC (continuous)	5.5 V DC (continuous), +20 V DC for max. 1h @25 °C
Short circuit protection	Yes				
Working temperature	-40...+85 °C				
Temperature coefficient	typ. < $\pm$ 50 ppm/°C				

## ELECTRICAL CONNECTIONS

	4 PIN	5 PIN	8 PIN
			
PIN	M12 4 pole connector	M12 5 pole connector	M12 8 pole connector
1	V+	V+	V+1
2	OUT	OUT	OUT1
3	V-	V-	V-1
4	TEST <sup>1</sup>	TEST <sup>1</sup>	TEST1 <sup>1</sup>
5		N. C. (not internally connected)	V+2
6			OUT2
7			V-2
8			TEST2 <sup>1</sup>

TEST<sup>1</sup> : for internal use, must not be connected.

## MECHANICAL DIMENSIONS



Model	"A" mm	ø "B" mm	"C" mm	"E" mm	"F" mm	"G" mm	"H" mm	"L" mm	"M" mm	"N" mm
50	134	16	31	1,5	187	10,5	32	13	23,5	7
100	184				287					
150	234				387					
200	284				487					
250	334				587					
300	384				687					
350	434				787					
400	484				887					
450	534				987					
500	584				1087					
550	634				1187					
600	684				1287					
650	734				1387					
700	784				1487					
750	834				1587					
800	884				1687					
850	934	1787								
900	984	1887								

## ORDERING CODE

Product		Accessories											
LS	A	0	000X										
-	-	0	0										
-	-	0	0X										
-	-												
-	-												
-	-												
<b>Analog Output</b>		<b>Connectors</b>											
<b>Output 1</b>		<table border="1"> <tr><td>0</td><td>None</td></tr> <tr><td>1</td><td>CON031 – 5-pin M12 female mating conn., IP67</td></tr> <tr><td>2</td><td>CON035 – 8-pin M12 female mating conn., IP67</td></tr> <tr><td>3</td><td>CON041 – Angled 5-pin M12 female mating conn., IP67</td></tr> <tr><td>4</td><td>CON042 – Angled 8-pin M12 female mating conn., IP67</td></tr> </table>		0	None	1	CON031 – 5-pin M12 female mating conn., IP67	2	CON035 – 8-pin M12 female mating conn., IP67	3	CON041 – Angled 5-pin M12 female mating conn., IP67	4	CON042 – Angled 8-pin M12 female mating conn., IP67
0	None												
1	CON031 – 5-pin M12 female mating conn., IP67												
2	CON035 – 8-pin M12 female mating conn., IP67												
3	CON041 – Angled 5-pin M12 female mating conn., IP67												
4	CON042 – Angled 8-pin M12 female mating conn., IP67												
10...90% Vsupply (ratiometric)	X	<b>Mechanical Connection Joints (PKIT)</b>											
0...10V	N	<table border="1"> <tr><td>0</td><td>None</td></tr> <tr><td>A</td><td>PKIT 1567 Ball joints</td></tr> <tr><td>B</td><td>PKIT 1565 Axial joints</td></tr> <tr><td>C</td><td>PKIT 1566 SS Axial joints (AISI316)</td></tr> <tr><td>D</td><td>PKIT 1568 SS Ball joints (AISI316)</td></tr> </table>		0	None	A	PKIT 1567 Ball joints	B	PKIT 1565 Axial joints	C	PKIT 1566 SS Axial joints (AISI316)	D	PKIT 1568 SS Ball joints (AISI316)
0	None												
A	PKIT 1567 Ball joints												
B	PKIT 1565 Axial joints												
C	PKIT 1566 SS Axial joints (AISI316)												
D	PKIT 1568 SS Ball joints (AISI316)												
0...10V (10...18Vdc)	W	<b>Linearity certificate</b>											
0.5...4.5V	K	<table border="1"> <tr><td>0</td><td>No certificate</td></tr> <tr><td>L</td><td>Certificate</td></tr> </table>		0	No certificate	L	Certificate						
0	No certificate												
L	Certificate												
4...20mA	E												
90...10% Vsupply (ratiometric)	V												
10...0V	M												
10...0V (10...18Vdc)	R												
4.5...0.5V	I												
20...4mA	S												
<b>Output 2</b>													
None (base option)	0												
10...90% Vsupply (ratiometric)	X												
90...10% Vsupply (ratiometric)	V												
<b>Connector</b>													
4 pole M12 output conn.	Z												
5 pole M12 output conn.	A												
8 pole M12 output conn. (only for ratiometric output)	H												
<b>Model (stroke) – steps of 50mm</b>													
50 mm	0050												
900 mm	0900												

**Example: LS-A-E-0-Z-0150 0-00X-A-0-0X**

Contactless linear position transducer with TWIIST technology, 4... 20mA, single circuit (no output 2), 4 pole M12 connector, stroke 150mm, ball joints.

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice