

GEFRAN

LS-A

Linear Position Sensor with TWIIST Non-Contact Technology

Analog Output

TWIIST



MAIN CHARACTERISTICS

- Strokes from 50 to 1000 mm
- Direct and reverse analog output in single and redundant configurations.
- Working temperature: -40...+85 °C
- IP69K 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 1000 mm*
Measurement	Displacement
Position reading sampling time	typ. 300 μ 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

*For sensor strokes greater than 500mm, refer to installation manual for suggestion.

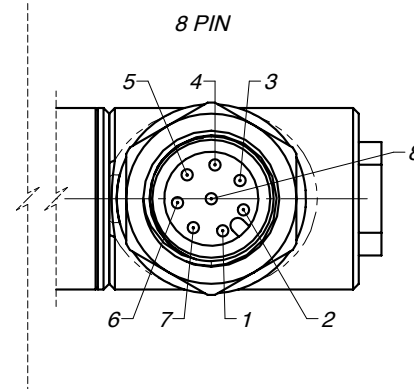
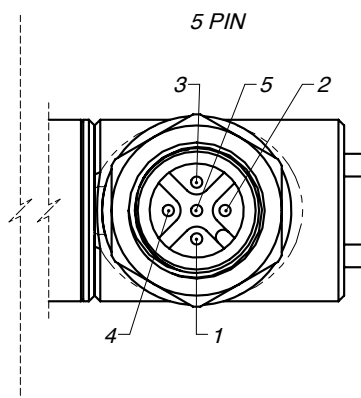
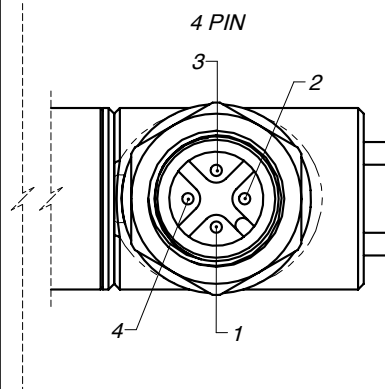
To ensure sensor self-alignment, shield option can be adopted.

IP Protection Level	IP69K
Housing Material	AISI444 stainless steel, brass, aluminium, PBT, PPS
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 Ω	$\geq$ 10 k Ω	$\geq$ 10 k Ω	50...500 Ω	$\geq$ 10 k Ω
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				

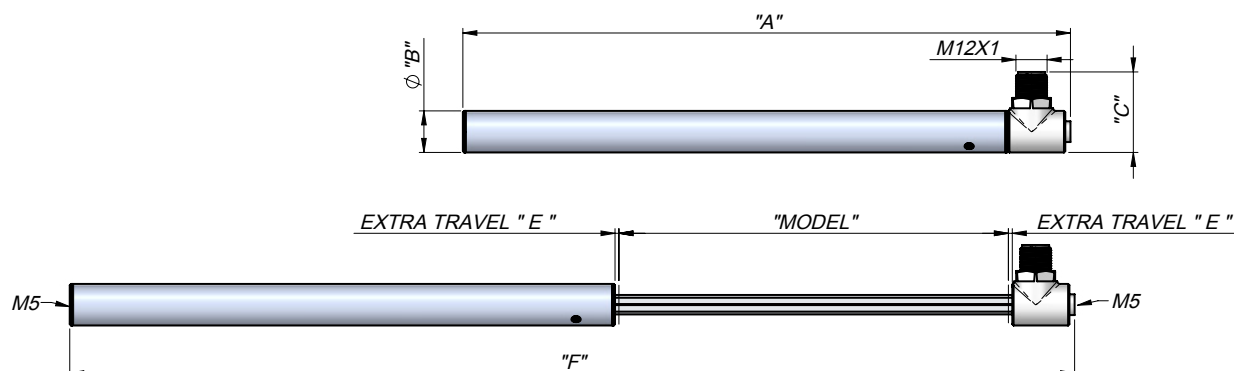
ELECTRICAL CONNECTIONS



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*	TEST*	TEST1*
5		N. C. (<i>not internally connected</i>)	V+2
6			OUT2
7			V-2
8			TEST2*

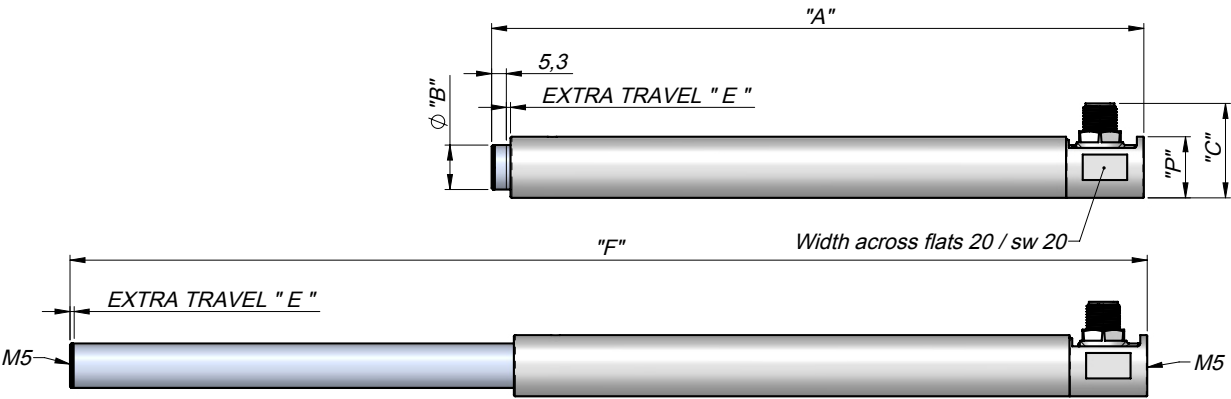
TEST* : for internal use, must not be connected.

MECHANICAL DIMENSIONS WITHOUT SHIELD



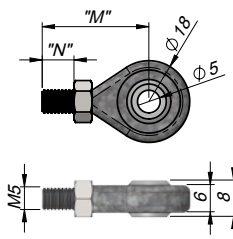
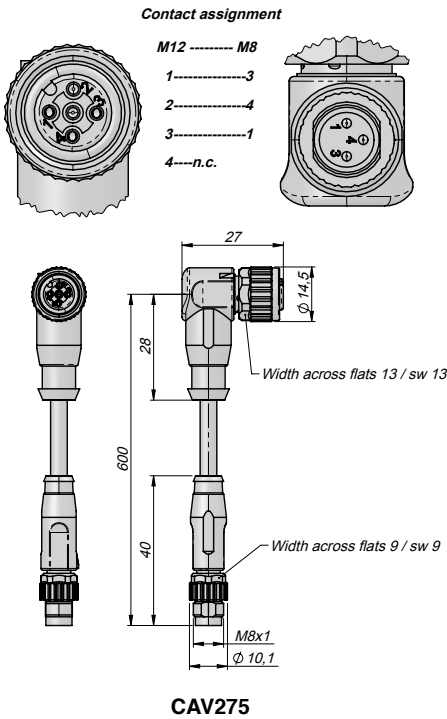
Model	"A" mm	"B" mm	"C" mm	"E" mm	"F" mm	"G" mm	"H" mm	"L" mm	"M" mm	"N" mm	"R" mm
50	134	16	34	1,5	187	10,5	32	13	23,5	7	25
100	184				287						
150	234				387						
200	284				487						
250	334				587						
300	384				687						
350	434				787						
400	484				887						
450	534				987						
500	584				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						
950	1034				1987						
1000	1084				2087						

MECHANICAL DIMENSIONS WITH SHIELD

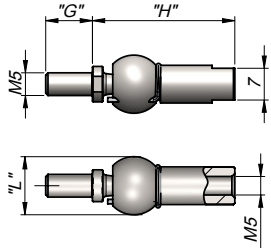


Model	"A" mm	"B" mm	"C" mm	"E" mm	"F" mm	"G" mm	"H" mm	"L" mm	"M" mm	"N" mm	"P" mm	"R" mm
50	135	16	34	1,5	188	10,5	32	13	23,5	7	22	25
100	185				288							
150	235				388							
200	285				488							
250	335				588							
300	385				688							
350	535				888							
400	585				888							
450	535				988							
500	585				1088							
550	635				1188							
600	685				1288							
650	735				1388							
700	785				1488							
750	835				1588							
800	885				1688							
850	935				1888							
900	985				1888							
950	1035				1988							
1000	1085				2088							

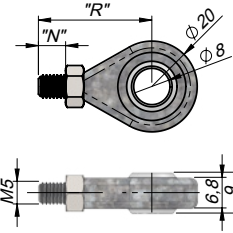
ACCESSORIES



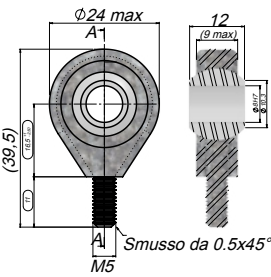
PKIT 1567
PKIT 1568



PKIT 1565
PKIT 1566



PKIT 1574



PKIT 1571
PKIT 1573

ORDERING CODE

Product		Accessories																					
LS	A - - - - -	0	000X - 0 - 0 - 0X																				
Analog Output		Shield Option																					
Output 1		<table border="1"> <tr> <td>0</td> <td>Without shield</td> </tr> <tr> <td>S</td> <td>With shield</td> </tr> </table>		0	Without shield	S	With shield																
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Output 2		<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> <tr> <td>5</td> <td>CAV275 - Cable 0.6MT M12 5P 90°/ M8 3P straight</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	5	CAV275 - Cable 0.6MT M12 5P 90°/ M8 3P straight								
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Connector		<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 (AIS1316)</td> </tr> <tr> <td>D</td> <td>PKIT 1568 SS Ball joints (AIS1316)</td> </tr> <tr> <td>E</td> <td>PKIT 1571 Ball joints Twist 316 M5/F8 sp.12mm</td> </tr> <tr> <td>F</td> <td>PKIT 1573 Ball joints Twist M5/F8 sp.12mm</td> </tr> <tr> <td>G</td> <td>PKIT 1574 Ball joints Twist M5/Hole 8/Sp. 9</td> </tr> </table>		0	None	A	PKIT 1567 Ball joints	B	PKIT 1565 Axial joints	C	PKIT 1566 SS Axial joints (AIS1316)	D	PKIT 1568 SS Ball joints (AIS1316)	E	PKIT 1571 Ball joints Twist 316 M5/F8 sp.12mm	F	PKIT 1573 Ball joints Twist M5/F8 sp.12mm	G	PKIT 1574 Ball joints Twist M5/Hole 8/Sp. 9				
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Model (stroke) – steps of 50mm		<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																
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L	Certificate																						
<table border="1"> <tr> <td>50 mm</td> <td>0050</td> </tr> <tr> <td>1000 mm</td> <td>1000</td> </tr> </table>		50 mm	0050	1000 mm	1000																		
50 mm	0050																						
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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