

MS-13 series – Compact Linear Potentiometers



Manufactured in UK

- **Rugged Construction**
- **Compact Design**
- **Sealed to IP67**
- **Long Life**
- **Excellent Linearity**
- **Regulated Output Options**



The MS-13 series of linear potentiometers are designed to withstand the harsh environments of motorsport, testing and industrial applications. Using proven 'Conductive Plastic' technology, the sensors offer high performance and reliability at operational temperatures up to +150°C

The rugged, yet compact 13mm diameter MS-13 is available with stroke lengths up to 250mm, flange mount, a choice of potentiometer and regulated analogue outputs, sealing up to IP67.

Specifications

Electrical (Potentiometer Output)

Technology	Conductive plastic
Max. Supply Voltage	40VDC
Resolution	Essentially infinite
Recommended Wiper Current	<10µA
Output Signal	Potentiometer (voltage divider)
Repeatability	≤0.01mm
Independent Linearity	≤0.5%

Electrical (Regulated Outputs)

Technology	Conductive plastic with 'on board' signal conditioning
Supply Voltage	6-30VDC (4-20mA, 0-5V output) ; 11-30VDC (0-10V output)
Resolution	Essentially infinite
Reverse Polarity Protection	Yes
Output Signal	4-20mA ; 0-5VDC ; 0-10VDC regulated output options
Repeatability	≤0.01mm
Independent Linearity	≤0.5%

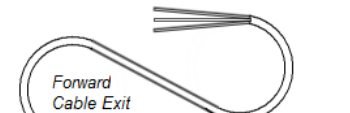
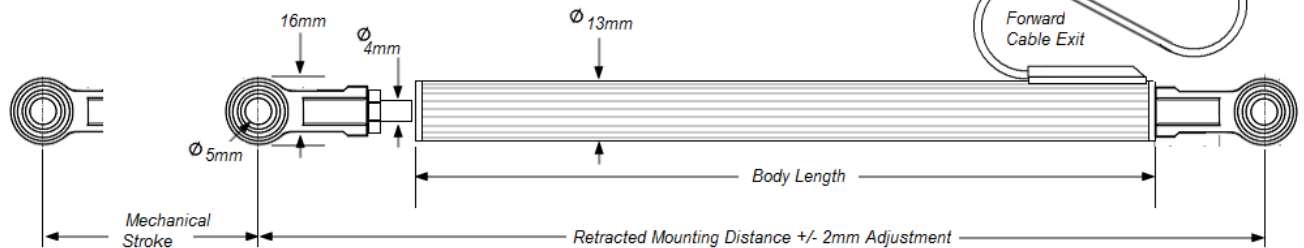
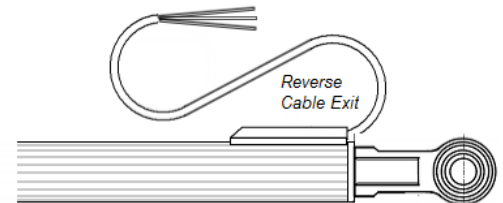
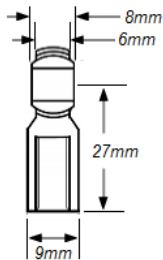
Mechanical

Operating Temperature	-40°C - +150°C (Potentiometer output) ; -30°C - +125°C (4-20mA, 0-5V, 0-10V output)
Stroke lengths	25mm – 250mm
Operational Speed	10m/s max
Electrical & Mechanical Life	>25 million operations (depending on installation and environmental conditions)
Housing Material	Aluminium
Shaft Material	Stainless steel
Sealing	IP54 (felt) ; IP65 (2 x Viton O ring) ; IP67 (PTFE U spring, Viton O ring)

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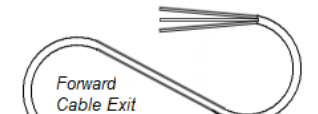
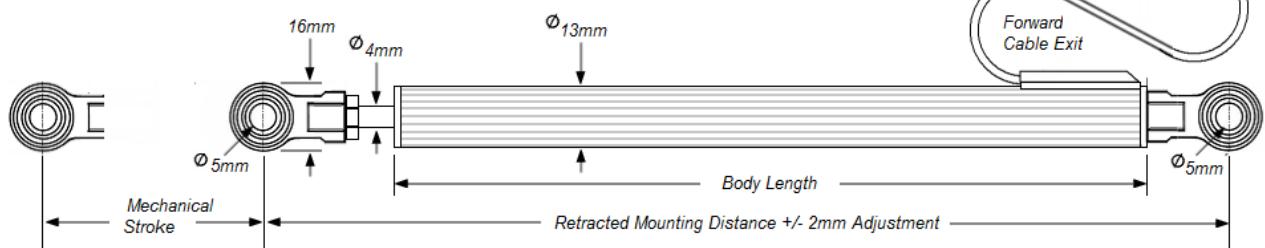
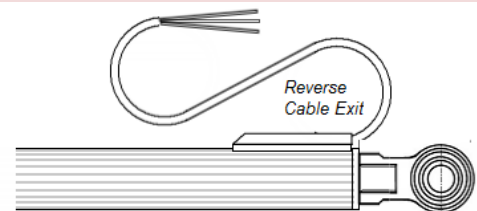
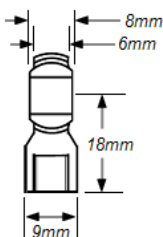
MS-13M-

Electrical Stroke (mm)	25	50	75	100	125	150	175	200	225	250
Retracted Mounting Distance (mm)	173	198	223	248	273	298	323	348	373	398
Min. Mechanical Stroke (mm)	27	52	77	102	127	152	177	202	227	252
Body Length (mm)	107	132	157	182	207	232	257	282	307	332
Approx. Weight Without Cable (g)	53	58	63	68	73	78	83	88	93	98
Resistance (K Ω +/-20%)	1.7	3.4	5	6.7	8.4	10	11.7	13.4	15	16.7
Mechanical Fixing	Standard Rod End Bearings - \varnothing 5mm									



MS-13C-

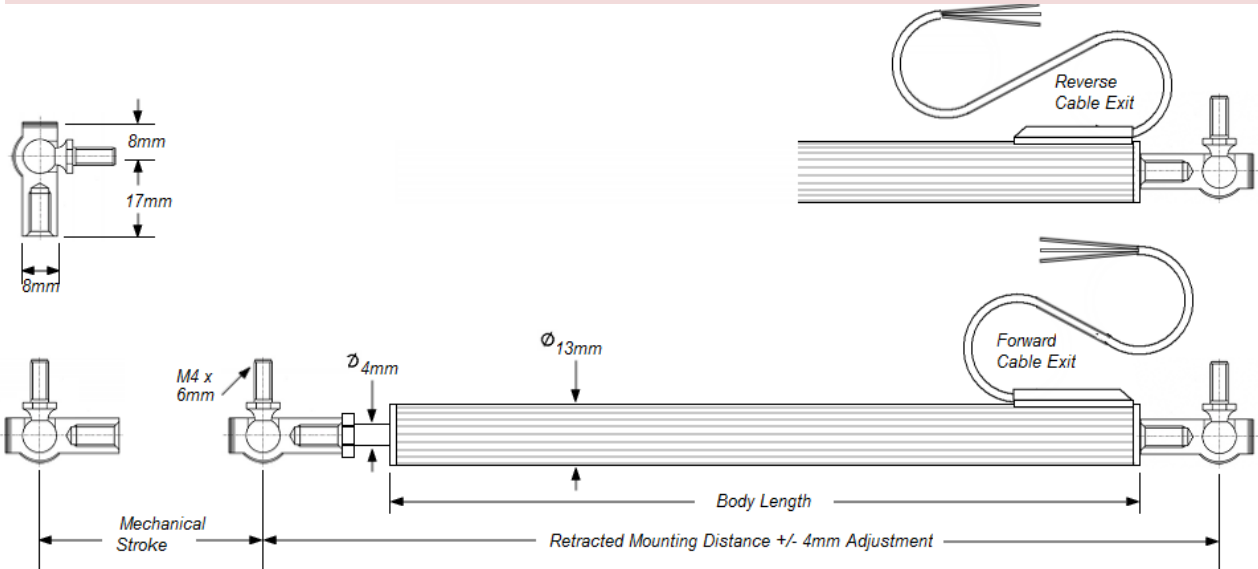
Electrical Stroke (mm)	25	50	75	100	125	150
Retracted Mounting Distance (mm)	142	167	192	217	242	267
Min. Mechanical Stroke (mm)	27	52	77	102	127	152
Body Length (mm)	97	122	147	172	197	222
Approx. Weight Without Cable (g)	43	48	53	58	63	68
Resistance (K Ω +/-20%)	1.7	3.4	5	6.7	8.4	10
Mechanical Fixing	Compact Rod End Bearings - \varnothing 5mm					



MS-13 series – Compact Linear Potentiometers

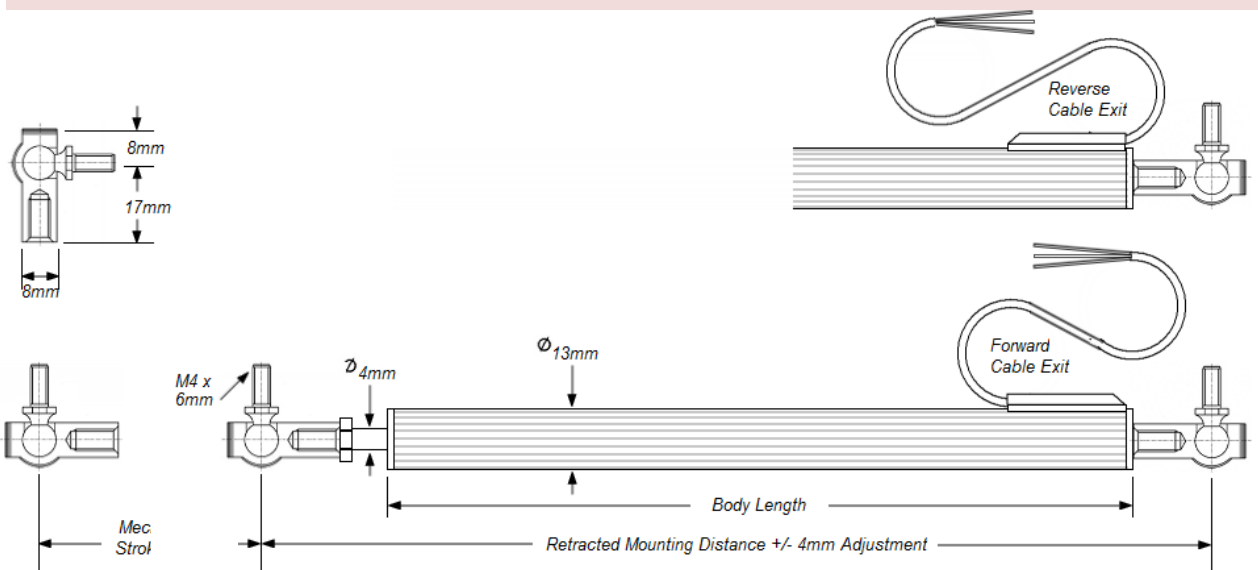
MS-13MP-

Electrical Stroke (mm)	25	50	75	100	125	150	175	200	225	250
Retracted Mounting Distance (mm)	173	198	223	248	273	298	323	348	373	398
Min. Mechanical Stroke (mm)	27	52	77	102	127	152	177	202	227	252
Body Length (mm)	107	132	157	182	207	232	257	282	307	332
Approx. Weight Without Cable (g)	53	58	63	68	73	78	83	88	93	98
Resistance (K Ω +/-20%)	1.7	3.4	5	6.7	8.4	10	11.7	13.4	15	16.7
Mechanical Fixing	Pop Joints M4 x 6mm									



MS-13CP-

Electrical Stroke (mm)	25	50	75	100	125	150
Retracted Mounting Distance (mm)	140	165	190	215	240	265
Min. Mechanical Stroke (mm)	27	52	77	102	127	152
Body Length (mm)	97	122	147	172	197	222
Approx. Weight Without Cable (g)	40	45	50	55	60	65
Resistance (K Ω +/-20%)	1.7	3.4	5	6.7	8.4	10
Mechanical Fixing	Pop Joints M4 x 6mm					



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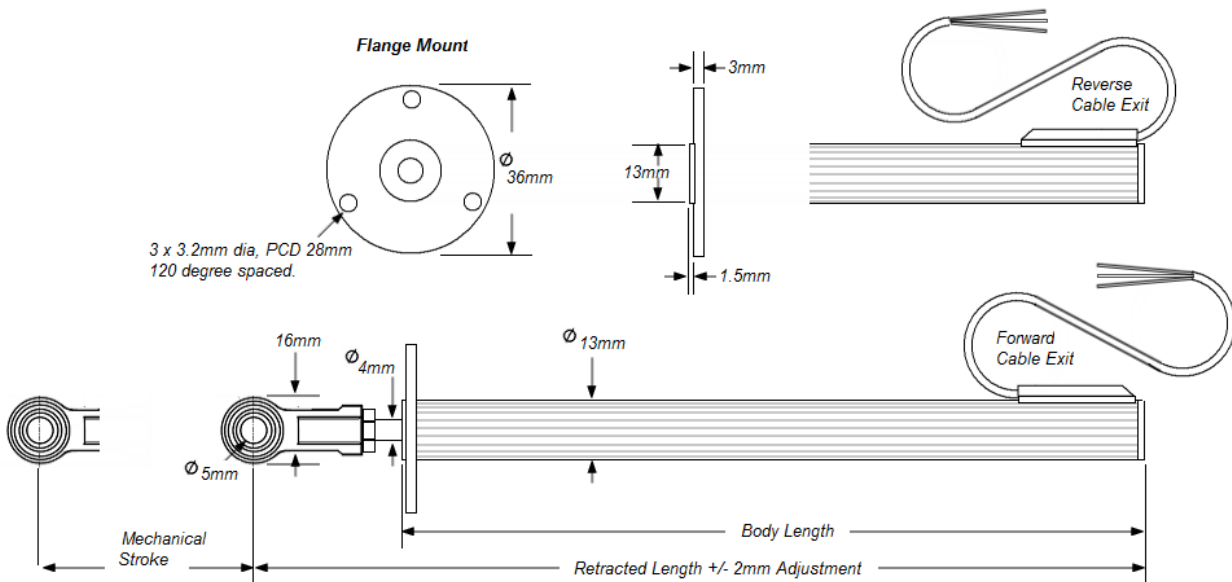
Flange Mount

Compatible with MS-13M, 13C, 13MP & 13CP – Refer to model for specifications, except below:

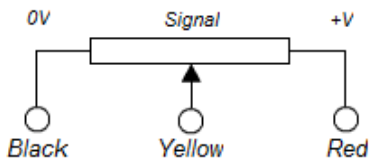
Rod End Bearing (MS-13M, 13C) or Pop Joint (MS-13MP, 13CP) is removed from the rear of the sensor

Retracted Length (mm) = Retracted Mounting Distance -27mm (13M) , -18mm (13C) , -17mm (13MP, 13CP)

Body Length (mm) = +2.5mm to all models



Electrical Connection (Potentiometer output)



Wiring	+Ve Supply	0V Supply (GND)	Signal
Single Output	RED	BLACK	YELLOW
Dual Output (option)	BROWN	BLUE	WHITE
Output Signal	Output signal may be reversed by swapping connections to the Red & Black and Brown & Blue wires. DO NOT connect +Ve supply to the Yellow or White wires, as this will cause damage to the sensor element.		

Electrical Connection (0-5VDC ; 0-10VDC output)

Wiring	+Ve Supply	0V Supply (GND)	Signal
Single Output	RED	BLACK	YELLOW

Electrical Connection (4-20mA output) 2 wire

Wiring	+Ve Supply	0V Supply (GND)	
Single Output	RED	BLACK	(Yellow wire = Not Used)

Electrical Cable

Cable Type	Raychem 55A, 26AWG, FDR 25 sleeve
Cable Length	Approximately 500mm

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Ordering Information

Please use the chart below to construct your product code...

Sample Product Code: **MS – 13M – 150 – 67 – F – 000**

Series	MS - 13
Mounting	
M = Standard - Rod End Bearings	
C = Compact - Rod End Bearings	
MP = Standard - Pop Joints	
CP = Compact - Pop Joints	
Stroke Length	
Insert required length in mm	*13M & 13MP only
25 , 50 , 75 , 100 , 125 , 150 , 175* , 200* , 225* , 250*	
Seal Rating	
54 = IP54	
65 = IP65	
67 = IP67	
Cable Exit Direction	
F = Forward facing cable exit	
R = Reverse facing cable exit	
Options (compatible options may be selected, separated by – between codes)	
000 = No options selected	
FL = Flange Mount	
Dual = Dual output (6 wire)	
SLV = Protective sleeve (refer to accessories below)	
420 = 4-20mA regulated output (single output only)	
V05 = 0-5VDC regulated output (single output only)	
V10 = 0-10VDC regulated output (single output only)	
Lxxxx = Cable length in mm (500mm cable supplied as standard)	

Accessories



Protective Sleeve SLV For use with all models except **Flange Mount**

Material

Carbon fibre, Peek Ø16mm

Since the suitability of these products depends upon a wide range of factors not in our control, the manufacturer expects and understands that you will conduct the testing and evaluation necessary to determine that these products are suitable for your application. Whilst every effort is made to ensure the above details are correct at the time of printing, the manufacturer reserves the right to make material changes, and / or technical changes without notification.