

# MLS 130 LINEAR DISPLACEMENT SENSOR

The MLS130 sealed linear sensor is designed to provide superior performance within a compact, lightweight package in stroke lengths from 25 to 200mm. With a choice of mounting options, including metal rod end bearings, and an optional protective sleeve for extreme environmental conditions, this sensor is ideally suited to motorsport data acquisition applications on suspension and throttle position feedback, where high performance and reliability with competitive pricing and rapid despatch are vital. The sensor is supplied fully sealed to IP66, with an integrally moulded DR25 sheathed multicore cable.

## PERFORMANCE

		25	50	75	100	125	150	175	200
Electrical stroke E	mm	25	50	75	100	125	150	175	200
Resistance $\pm 10\%$	k $\Omega$	1	2	3	4	5	6	7	8
Independent linearity									
guaranteed	$\pm\%$	0.25	0.25	0.15	0.15	0.15	0.15	0.15	0.15
typical	$\pm\%$	0.15	0.15	0.15	0.10	0.10	0.07	0.07	0.07
Power dissipation at 20°C	W	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
Applied voltage maximum	Vdc	22	44	67	74	74	74	74	74
Electrical output		Minimum of 0.5% to 99.5% applied volts							
Resolution		Virtually infinite							
Hysteresis (repeatability)		Less than 0.01mm							
Operational temperature	°C	-30 to +100 (tested to +130 for 12 hours duration)							
Output smoothness		To MIL-R-39023 grade C 0.1%							
Insulation resistance		Greater than 100M $\Omega$ at 500Vdc							
Operating mode		Voltage divider only - see Circuit Recommendation below							
Wiper circuit impedance		Minimum of 100 x track resistance or 0.5M $\Omega$ (whichever is greater)							
Operating force maximum	gf	500 in horizontal plane							
Sealing		IP66							
Shaft seal life (replaceable)		20 million operations (10 x 10 <sup>6</sup> cycles)							
Sensor track life at 0.25m/s		Greater than 100 million operations (50 x 10 <sup>6</sup> cycles) at 25mm stroke length							
Sensor track dither life		200 million operations (100 x 10 <sup>6</sup> cycles) at $\pm 0.5$ mm, 60Hz							
Shaft velocity maximum	m/s	10							
Vibration		RTCA 160D 10Hz to 2kHz (random) @ 12.6g (rms) - all axes							
Shock		Less than 0.04% output change @ 2500g - all axes							

## CIRCUIT RECOMMENDATION

Hybrid track potentiometers feature a high wiper contact resistance, therefore operational checks should be carried out only in the voltage divider mode. Hybrid track potentiometers should be used only as voltage dividers, with a minimum wiper circuit impedance of 100 x track resistance or 0.5M $\Omega$  (whichever is greater). Operation with wiper circuits of lower impedance will degrade the output smoothness and affect the linearity.

## OPTIONS

Mounting	Metal rod end bearings, quick release balljoints or plain M4 stud
Protective sleeve	Available for all stroke lengths

## ACCESSORIES

For maximum installation flexibility the following parts are available to purchase separately:

Metal rod end (rear)	P202605
Metal rod end (shaft)	P202604
Quick release balljoint assembly	SA200337
Locknut, M4	X63 - 072 - 340
Protective sleeve assembly	SA202984/stroke/C

A suitable stud lock compound should be used to secure the rear rod end or balljoint assembly. Use Loctite™ activator 7471 and Loctite™ 648 on metal rod end. Use Loctite™ 382 on quick release balljoint.

## AVAILABILITY

All standard configurations can be supplied rapidly from the factory - check with your local supplier for more details

## ORDERING CODES

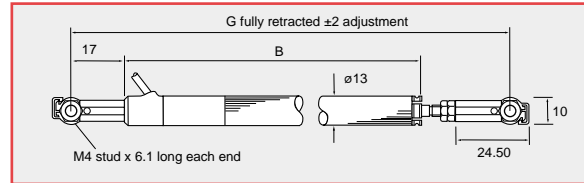
MLS130/...../...../.....

Electrical stroke \_\_\_\_\_ Protective sleeve N=None, P=Fitted  
 Mounting \_\_\_\_\_  
 Q=Quick release balljoints, R=Metal rod end bearings, S=M4 studs

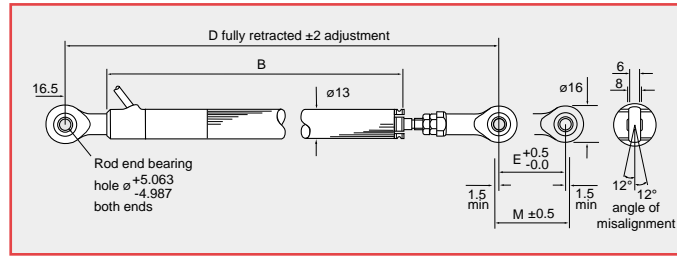
## DIMENSIONS AND MOUNTING OPTIONS

Note: drawings not to scale

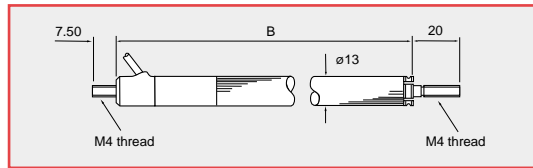
### QUICK RELEASE BALLJOINTS (Q)



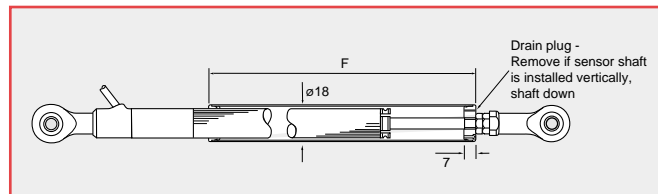
### METAL ROD END BEARINGS (R)



### M4 STUD END (S)



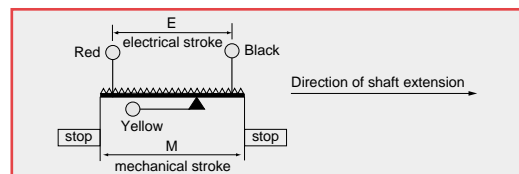
### PROTECTIVE SLEEVE (P)



Electrical stroke E	mm	25	50	75	100	125	150	175	200
Mechanical stroke M	mm	29	54	79	104	129	154	179	204
Body length B	mm	110.8	135.8	160.8	185.8	210.8	235.8	260.8	285.8
Between centres D	mm	164.5	189.5	214.5	239.5	264.5	289.5	314.5	339.5
Between centres G	mm	153.6	178.6	203.6	228.6	253.6	278.6	303.6	328.6
Sleeve length F	mm	77	102	127	152	177	202	227	252
Weight approximate	g	80	87	94	101	108	115	122	129

## ELECTRICAL CONNECTIONS

3 core cable: DR25 sheathed 1m long with ETFT insulated 19/0.15 cores.





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