

# SPRING RETURN LINEAR DISPLACEMENT SENSOR

## HLP190 Linear Potentiometers

The HLP190 range of hybrid linear potentiometers provides the facility for single or dual electrical output with a body diameter of only 19mm. Stroke lengths are from 25mm to 150mm, with a choice of body clamp (BS) or flange (FS) mounting. This model is supplied with a spring loaded shaft, biased to the fully extended position. Suited to a wide range of industrial applications for medium stroke length requirements – especially structural monitoring data acquisition.



### PERFORMANCE

Electrical stroke E	mm	25	50	75	100	125	150
Resistance $\pm 10\%$	k $\Omega$	1	2	3	4	5	6
Independent linearity	$\pm\%$	0.3	0.3	0.2	0.2	0.2	0.2
Power dissipation at 20°C	W	0.5	1.0	1.5	2.0	2.5	3.0
Applied voltage maximum	Vdc	22	44	67	74	74	74
Electrical output		Single or dual – minimum of 0.5% to 99.5% applied volts					
Resolution		Virtually infinite					
Hysteresis (repeatability)		Less than 0.01mm					
Phasing between elements		0.5mm total in retracted position (multi output units)					
Operational temperature	°C	-30 to +85					
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	450	475	500	525	550	600
Life at 250mm per second		Typically greater than 100 million operations (50 x 10 <sup>6</sup> cycles) at 25mm stroke length					
Shaft velocity maximum	m/s	1					
Shaft seal		No seal fitted due to spring loaded probe action					

### 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	Body clamp (BS) or flange (FS)
Outputs	Single (1) or dual (2)
Stroke length	25 to 150mm in 25mm increments
Resistance	Standard value is 1k $\Omega$ per 25mm. Alternative values are possible – contact our sales team to discuss your application

### AVAILABILITY

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

## ORDERING CODES

HLP190/...../...../...../.....

Mounting BS = Body clamp  
 FS = Flange

Output 1 = Single  
 2 = Dual

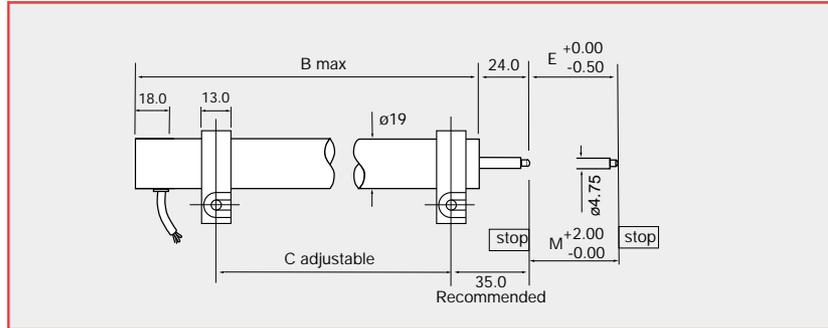
Stroke length mm

Resistance

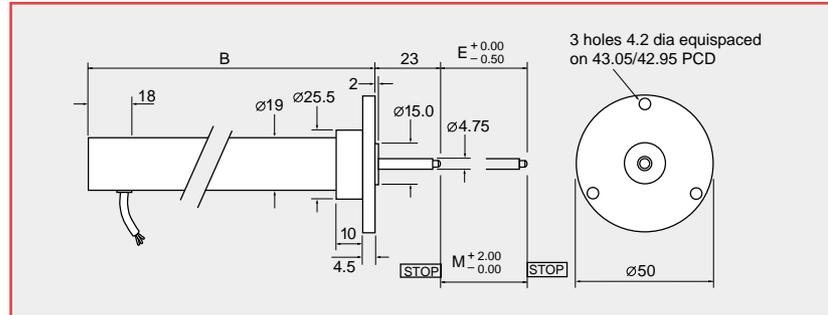
## DIMENSIONS AND MOUNTING OPTIONS

Note: drawings not to scale

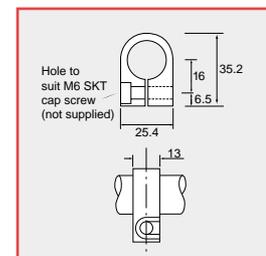
### BODY CLAMP MOUNTING WITH SPRING LOADED SHAFT - HLP190/BS



### FLANGE MOUNTING WITH SPRING LOADED SHAFT - HLP190/FS



#### Body clamp detail



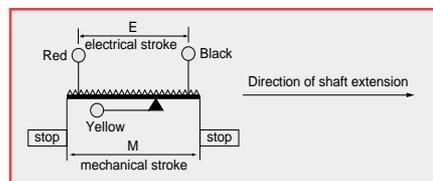
Mechanical stroke M	mm	25	50	75	100	125	150
<b>Body length B</b>							
Type BS	mm	155	205	230	255	305	355
Type FS	mm	156	206	231	256	306	356
<b>Clamp spacing C<sup>†</sup></b>	mm	114	164	189	214	264	314
<b>Weight approximate</b>							
Type BS	g	115	135	150	180	195	210
Type FS	g	120	140	155	185	200	215

† recommended position

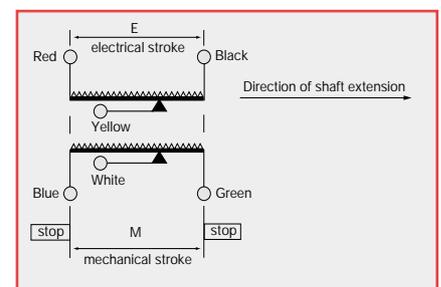
## ELECTRICAL CONNECTIONS

3 core cable: PVC sheathed 0.5m long with ETFE insulated 19/0.15 cores (6 core cable for dual output version)

### Single output



### Dual output





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