

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 $\pm 10\%$ | kΩ | 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 Ω at 500Vdc | | | | | |
| Operating mode | | Voltage divider only - see Circuit Recommendation below | | | | | |
| Wiper circuit impedance | | Minimum of 100 x track resistance or 0.5M Ω (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 ⁶ 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 Ω (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 Ω 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

Stroke length mm

Output 1 = Single

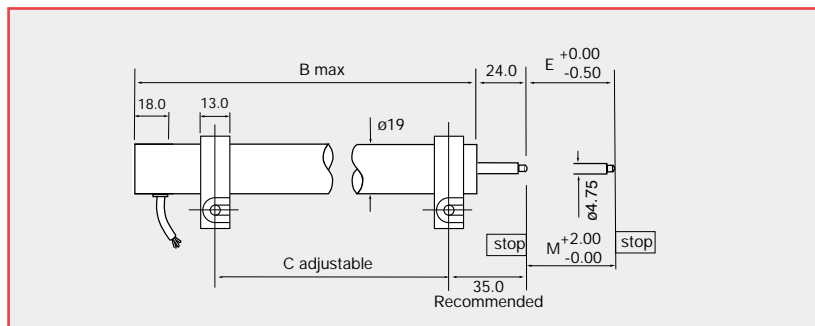
2 = Dual

Resistance

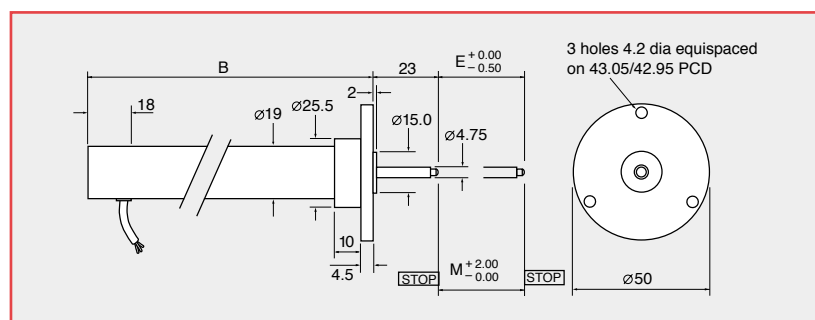
DIMENSIONS AND MOUNTING OPTIONS

Note: drawings not to scale

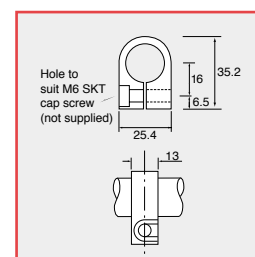
BODY CLAMP MOUNTING WITH SPRING LOADED SHAFT - HLP190/BS



FLANGE MOUNTING WITH SPRING LOADED SHAFT - HLP190/FS



Body clamp detail



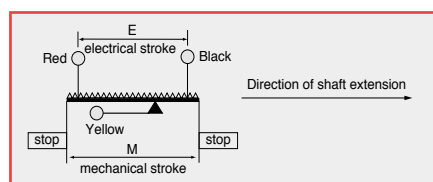
| Mechanical stroke M | mm | 25 | 50 | 75 | 100 | 125 | 150 |
|---------------------------|----|-----|-----|-----|-----|-----|-----|
| Body length B | | | | | | | |
| Type BS | mm | 155 | 205 | 230 | 255 | 305 | 355 |
| Type FS | mm | 156 | 206 | 231 | 256 | 306 | 356 |
| Clamp spacing C† | mm | 114 | 164 | 189 | 214 | 264 | 314 |
| Weight approximate | | | | | | | |
| 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

