

## SA-LPxxxD-000

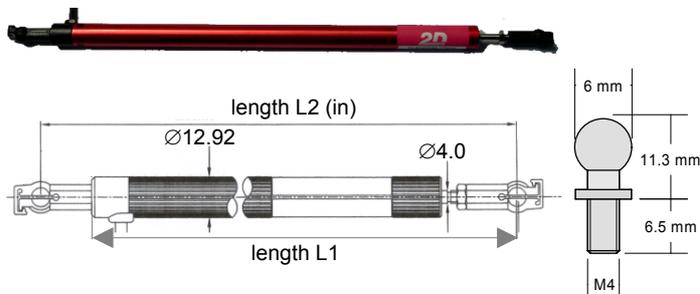
## Linear potentiometer double track

### Function

- Linear potentiometers are designed to convert linear movement into a proportional voltage output using a simple 3-wire, low current operating circuit.
- To measure linear motions e.g. front fork, steering or rear wing

### Features

- Higher reliability by using "double track" technology
- high temperature Raychem FDR-type55-22 cabling for total system reliability
- Superior quality
- Long operational life
- High accuracy
- Compact design
- Simple assembly by using "Pop Joints" to suit 6mm balls
- Suitably for rough environment



electrical stroke	length L1	length L2 (in)	length L2 (out)
75	158.5	175	250
150	243.5	260	410
175	268.5	285	460

all values in [mm]; Tolerance  $\pm 0.5$  mm



175 [mm] = standard (in stock)  
 75 and 150 [mm] = optional on request

### Technical specifications

#### Electrical characteristics

Measurement range $\pm 0.5$ mm.....	175 mm
Retracted mounting distance.....	285 mm
Resistance $\pm 10\%$ .....	1.75 K $\Omega$
Non-linearity $< \pm$ .....	0.15 %
Supply voltage (2D System).....	5 V DC
Maximum supply voltage.....	130 V DC
Wiper load.....	700 K $\Omega$

#### Remark

Other ranges on customer request !

#### Mechanical characteristics

Mechanical range (measurement range +1).....	mm
Shaft velocity.....	$< 1$ m / sec
Insulation resistance (@500 Vdc)	$> 100$ M $\Omega$
Shaft operating force (typical).....	$< 100$ g
Cable & connector	
type.....	Raychem, 3 core type55
wire cross section..	AWG24 with FDR sleeve $\varnothing 3.2$ mm
length.....	1200mm
connector.....	Binder 719, 5PM
Weight (approx.).....	90 g

#### Environmental data

Operating temperature range.....	-40 to + 100 °C
Sealing class.....	Felt Seal IP50

#### Ordering information

Mechanical stroke Art.No.:

75 [mm]	SA-LP075D-000
150 [mm]	SA-LP150D-000
175 [mm]	SA-LP175D-000

#### Calibration

 Use the formulas on 2<sup>nd</sup> page to calculate the physical values

## SA-LPxxxD-000

## Linear potentiometer double track

### Formulas

	SA-LPxxxD-000	=	Multiplicator	*	Digits	-	Offset
12 Bit A/D	Stroke [mm]	=	xxx / 4095	*	Digits	-	0
16 Bit A/D	Stroke [mm]	=	xxx / 65535	*	Digits	-	0
Voltage*)	Stroke [mm]	=	15 30 35	*	Volt	-	0

SA-LP075D

SA-LP150D

SA-LP175D

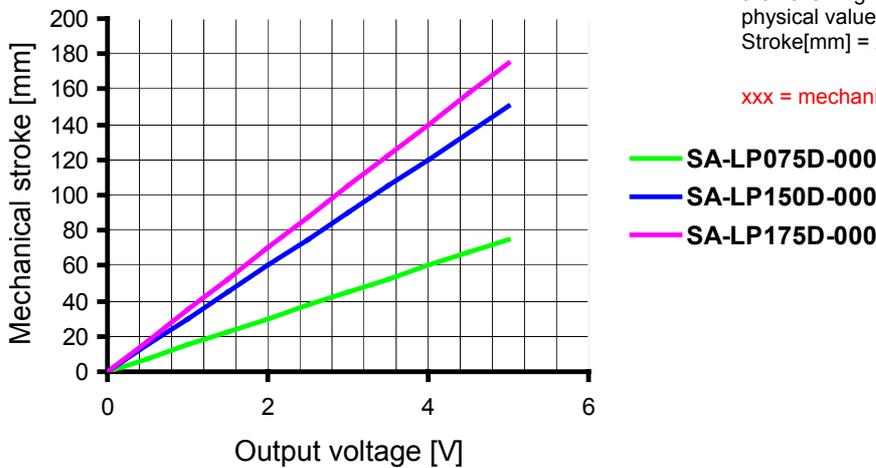
Remark: Replace the **xxx** with the mechanical stroke of your sensor.  
 → Possible values are 75, 150 and 175 mm (other values on request)

\*) You can use the "voltage formula" only, if the voltage supply of the sensor is +5V

▽ In case of other sensor supplying, you must use the following general formula to calculate the physical value:

$$\text{Stroke[mm]} = \text{xxx} / \text{voltage supply} * \text{Volt} - 0$$

xxx = mechanical stroke 75, 150 or 175



### Installation advice

- Metal heads with thread Mx4 are fixed to. E.g. diving tube and fork bridge. The potentiometer is simply plugged onto the metal heads
- Make sure that the potentiometer moves easily.
- Do not stress the potentiometer over its end position.
- To avoid water entering the housing, mount the grinder bar facing downwards.



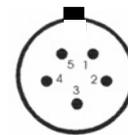
**Incorrect wiring may cause internal damage to the sensor !**

### Connector layout

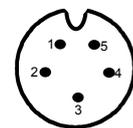
	Pin	Name	Description	Color
Analog-line Binder 719, 5pin	1	AGND	Analog Ground	black
	2	Power	Power supply	red
	3	n.c.	Not connected	-
	4	n.c.	Not connected	-
	5	Signal	Analog signal	white

### Mating plug

### Connector at sensor



Binder 719, 5 PF  
(front side)



Binder 719, 5 PM  
(front side)



Possible options concerning connector and cable on customer request !

### Please note:

For the first order of special customer options please use the following order code: **SA-LPxxxD-000**. After the first order you will get from 2D a uniquely order code for your next orders.