

# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

## Series RC13



The displacement sensors RC13 in IP60 are used in applications where a single push rod with 25 up to 250 mm is recommended.

- Linear potentiometer (conductive plastic) with almost infinite resolution
- Measuring lengths from 25 mm to 250 mm
- Long life span (100 million movements)

The variant with ball joints compensates movements transversely to the push rod, so that non-linear movements can also be coupled simply and without stress. The three types of construction open up a broad field of application.

Electrical Data	RC13-25	RC13-50	RC13-75	RC13-100	RC13-125	RC13-150	RC13-200	RC13-250
Effective electrical travel (mm +1/-0) 1.)	25	50	75	100	125	150	200	250
Total electrical travel (mm) 1.)	26 ±1	51 ±1	76 ±1	101 ±1	126 ±1	151 ±1	201 ±1	251 ±1
Total resistance (mm) 1.)	1 kOhm	2 kOhm	3 kOhm	4 kOhm	5 kOhm	6 kOhm	8 kOhm	6 kOhm
Resistance tolerance	±20%							
Independent linearity (best straight line) 1.)	±0.2 %	±0.1 %			±0.05 %			
Theoretical resolution 1.)	Almost infinite							
Max. / recommended wiper current 1.)	1 mA (@40 °C, 1 min in case of failure) / <1 µA							
Power rating @40 °C (0 W @120 °C)	≤ 0.5 W	≤ 1 W	≤ 1.5 W	≤ 2 W	≤ 2.5 W	≤ 3 W		
Isolation voltage 1.)	<100 µA @500 VAC, 1bar, 2s							
Isolation resistance 1.)	100 MOhm @ 500 VDC, 1bar, 2s							

Mechanical Data, Environmental Conditions,	RC13-25	RC13-50	RC13-75	RC13-100	RC13-125	RC13-150	RC13-200	RC13-250
Mechanical stroke (mm) 1.)	25 +5	50 +5	75 +5	100 +5	125 +5	150 +5	200 +5	250 +5
Lifetime (90 % effective electrical travel) 2.)	> 25 million meters or 100 million movements (the smaller value applies)							
Max. operational speed	< 10 m/s							
Operational force @ RT 1.) 2.)	≤ 0.5 N							
Operational temperature	-30..+100 °C							
Storage temperature	-50..+120 °C							
Protection grade (IEC60529)	IP60							
Vibration (IEC 68-2-6, Test Fc)	20 g (10..2000 Hz, 0.75 mm)							
Shock (IEC 68-2-27, Test Ea)	50 g, halfsine, 11 ms							
Housing length construction M (1 mm)	74.5	99.5	124.5	149.5	174.5	199.5	249.5	299.5
Housing length construction G (mm)	102	127	152	177	202	227	277	327
Housing length construction F (mm)	74.5	99.5	124.5	149.5	174.5	199.5	249.5	299.5

# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

Series RC13

Mechanical Data, Environmental Conditions, Miscellaneous	RC13-25	RC13-50	RC13-75	RC13-100	RC13-125	RC13-150	RC13-200	RC13-250
Mass construction M	45 g	55 g	65 g	75 g	85 g	95 g	115 g	135 g
Mass construction G	70 g	80 g	90 g	100 g	110 g	120 g	140 g	160 g
Mass construction F	60 g	70 g	80 g	90 g	100 g	110 g	130 g	150 g
Mounting parts (included in delivery)	Construction M: 2 x mounting brackets / construction G: 2 x ball joints							
Material housing	Aluminium, Nylon 66 G 25							
Material push rod	Stainless steel AISI303							
Connection type	Round cable 1 m 3-pole							

1.) According IEC 60393

2.) Determined by climatic conditions according to IEC 68-1, para. 5.3.1 without load collectives

Please note: Max. permissible supply voltage <75 VDC respectively <50 VAC in addition the max. power rating must be observed

Order Code							
Description	Selection: standard=black/bold, possible options=grey/cursive						
<b>Series:</b>	<b>RC13</b>						
<b>Effective electrical travel:</b>							
25 mm		<b>25</b>					<b>L0,2%</b>
50 mm		<b>50</b>					<b>L0,1%</b>
75 mm		<b>75</b>					<b>L0,1%</b>
100 mm		<b>100</b>					<b>L0,1%</b>
125 mm		<b>125</b>					<b>L0,05%</b>
150 mm		<b>150</b>					<b>L0,05%</b>
200 mm		<b>200</b>					<b>L0,05%</b>
250 mm		<b>250</b>					<b>L0,05%</b>
<b>Construction:</b>							
<b>Mounting Brackets</b>				<b>M</b>			
<b>Ball Joints</b>				<b>G</b>			
<b>Flange</b>				<b>F</b>			
<b>Electrical connection:</b>							
<b>Round cable 1 m</b>						-	
<i>Option cable length in m</i>						<i>Kxx</i>	
<b>Resistance tolerance :</b>							
<b>±20%</b>							<b>W20%</b>
<b>Independent linearity:</b>							
<b>Standard depends on electrical travel</b>							<b>see above</b>

**For higher quantities or on-going demand, additional options are available as described below on request**

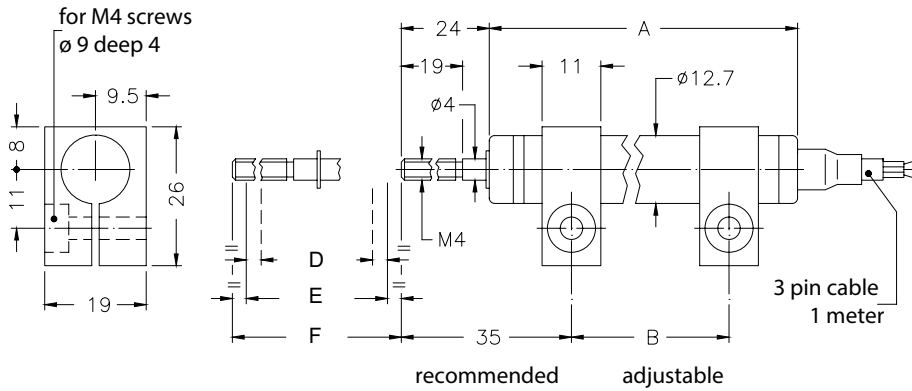
For example:

- Special axis length and much more

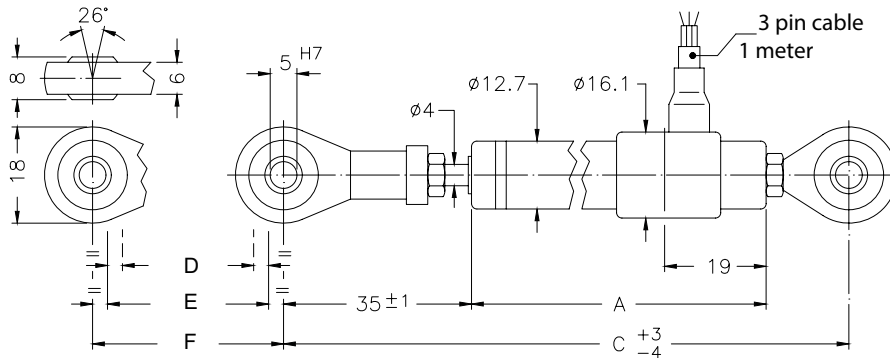
Note: When calibrating the linear transducer, be careful to set the stroke so that the output does not drop below 1 % or rise beyond 99 % of the supply voltage.

### Drawing

#### Construction M - Mounting Brackets

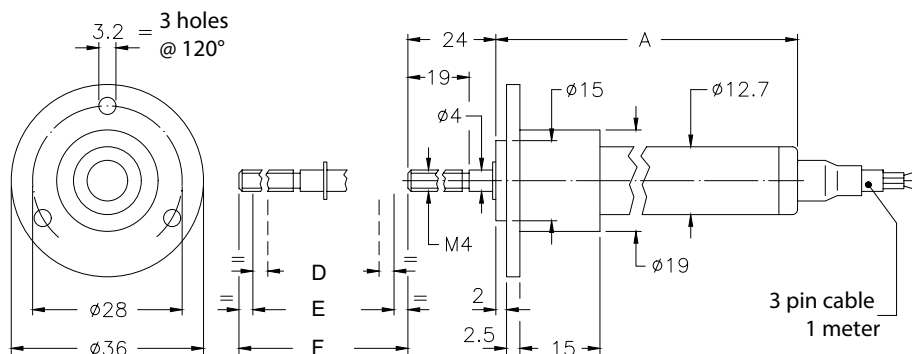


#### Construction G - Ball Joints



#### Construction F - Flange

Dimensions in mm



Dimensions	RC13-25	RC13-50	RC13-75	RC13-100	RC13-125	RC13-150	RC13-200	RC13-250
A [mm] construction M	74.5	99.5	124.5	149.5	174.5	199.5	249.5	299.5
A [mm] construction G	102	127	152	177	202	227	277	327
A [mm] construction F	74.5	99.5	124.5	149.5	174.5	199.5	249.5	299.5
B [mm] mounting brackets	42	67	92	117	142	167	217	267
C [mm] ball joints	153	178	203	228	253	278	328	378
D [+1-0 mm] effective el. travel	25	50	75	100	125	150	200	250
E [±1 mm] total el. travel	26	51	76	101	126	151	201	251
F [+5 mm] mech. travel	25	50	75	100	125	150	200	250

