

# Data Sheet for Linear Sensors

Potentiometric Linear Transducer (Conductive Plastic)

Series CLP21 / CLPR21



The CLP21 series is used in applications where a robust and compact displacement sensor is required.

- Linear potentiometer (conductive plastic) with almost infinite resolution
- Measuring lengths from 15 mm to 100 mm
- Compact dimensions
- Long lifetime (up to 40 million movements)
- With and without spring return

This compact displacement sensor with robust aluminium housing offers many options and covers a wide range of applications. The sensor can be mounted with clamps or by thread holes.

Electrical Data	CLP(R)21-15	CLP(R)21-30	CLP(R)21-50	CLP(R)21-100
Effective electrical travel 1.)	15 ±0.5 mm	30 ±0.5 mm	50 ±0.5 mm	100 ±0.5 mm
Total resistance 1.)	0.5, 1, 2, 5, 10 kOhm			1, 2, 5, 10, 20 kOhm
Resistance tolerance	±10%			
Independent linearity (best straight line) 1.)	±0.7% (±0.5%)		±0.5% (±0.25%)	±0.5% (±0.2%)
Theoretical resolution 1.)	Almost infinite			
Backlash (Hysteresis) 1.)	≤ 0.1 mm			
Max. / recommended wiper current 1.)	1 mA (@ 40°C, 1 min in case of failure) / 2 µA			
Power rating @ 70 °C (0W @ 105 °C)	≤ 0.3 W	≤ 0.6 W	≤ 0.75 W	≤ 1.25 W
Isolation voltage 1.)	1000 VAC, 1min			
Isolation resistance 1.)	1000 MOhm @ 1000 VDC			

Mechanical Data, Environmental Conditions, Miscellaneous	CLP(R)21-15	CLP(R)21-30	CLP(R)21-50	CLP(R)21-100
Mechanical stroke 1.)	15 +2 mm	30 +2 mm	50 +2 mm	100 +2 mm
Lifetime (90% effective electrical travel) 2.)	40 / 20 Mio. movements (CLP21 / CLPR21)			
Max. operational speed	< 5 m/s			
Operational force @ RT 1.) 2.)	< 0.3 N		< 1 N	
End stop force in case of failure	< 90 N			
Operational temperature	-30 °C up to +105 °C*			
Storage temperature	-30 °C up to +105 °C			
Protection grade (IEC60529)	IP40 (optional IP54)			
Vibration (IEC 68-2-6, Test Fc)	15 g (10..2000 Hz, 0.75mm, 12h)			
Shock (IEC 68-2-27, Test Ea)	50 g, halfsine, 11 ms (18x)			
Housing length IP40	50 ±1 mm	65 ±1 mm	85 ±1 mm	135 ±1 mm
Housing length IP54	56 ±1 mm	71 ±1 mm	91 ±1 mm	141 ±1 mm

\*Note: Spring return versions in IP54 have an operating temperature range of 0..+60 °C

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Mechanical Data, Environmental Conditions, Miscellaneous	CLP(R)21-15	CLP(R)21-30	CLP(R)21-50	CLP(R)21-100
Mass	ca. 60 g	ca. 70 g	ca. 100 g	ca. 140 g
Mounting parts (included in delivery)	4 x screws / tooth washer			
Material housing	Aluminium			
Material push rod	Stainless steel			
Connection type	Soldering tail			

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: <b>standard=black/bold</b> , possible <i>options=grey/italic</i>					
<b>Series:</b> Without spring return With spring return outside	<b>CLP21</b> <b>CLPR21</b>					
<b>Effective electrical travel:</b> 15 mm 30 mm 50 mm 100 mm		<b>15</b> <b>30</b> <b>50</b> <b>100</b>			<b>L0,7%</b> (L0,5%) <b>L0,7%</b> (L0,5%) <b>L0,5%</b> (L0,25%) <b>L0,5%</b> (L0,2%)	
<b>Total resistance:</b> <i>Option 500 Ohm (not for 100 mm)</i> 1 kOhm <i>Option 2 kOhm</i> 5 kOhm 10 kOhm <i>Option 20 kOhm (only for 100 mm)</i>			<i>R500</i> <b>R1K</b> <i>R2K</i> <b>R5K</b> <b>R10K</b> <i>R20K</i>			
<b>Resistance tolerance :</b> <b>±10%</b>				<b>W10%</b>		
<b>Independent linearity:</b> Standard depends on electrical travel <i>Option depends on electrical travel</i>					<b>see above</b> <i>see above</i>	
<b>Protection class:</b> Standard IP40 <i>Option IP54 (not available with spring return)</i>						- IP54

### Accessory (not included in delivery):

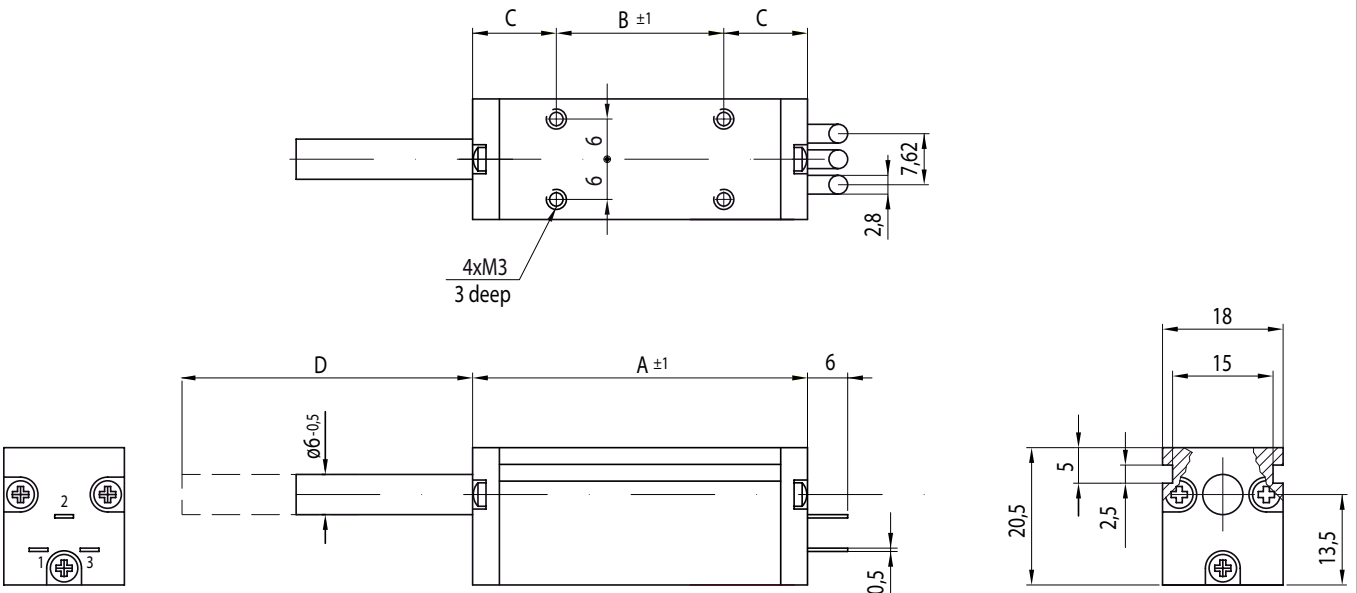
1 set of mounting clamps 4 pcs.

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

For example:

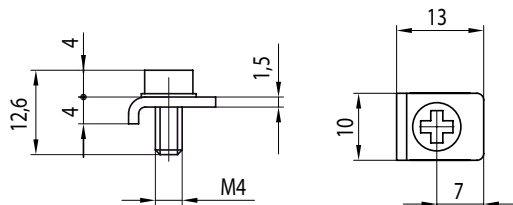
- Assembled leads and cables with / without connector
- Probe, special axis length and much more

### Drawing

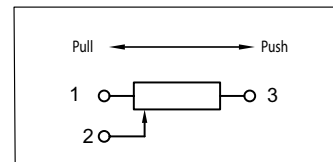


Also version with spring return outside housing available

Servomount clamps (not included in delivery)  
(1 set = 4 pcs.)



### Connection diagram



Dimensions in mm

Dimensions	CLP21-15	CLP21-30	CLP21-50	CLP21-100
A (IP40) [ $\pm 1$ mm]	50	65	85	135
A (IP54) [ $\pm 1$ mm]	56	71	91	141
B [ $\pm 1$ mm]	25	40	50	100
C [ $\pm 1$ mm]	12,5	12,5	17,5	17,5
D min. [+2 mm]	25	25	25	25
D max. [+2 mm]	40	55	75	125