

# Data Sheet for Linear Sensors

## Potentiometric Linear Transducer (Conductive Plastic)

## Series CLP13 / CLPR13



The CLP13 / CLPR13 series is used in applications where a displacement sensor with space saving design is required.

- Linear potentiometer (conductive plastic) with almost infinite resolution
- Measuring lengths from 13 mm to 100 mm
- Compact dimensions
- Long lifespan (up to 40 million movements)
- With and without spring return

The compact displacement sensor has an excellent lifetime due to the Comolded conductive plastic technology. The front guided push rod allows use in applications with limited overall length. The spring return opens up additional fields of application.

| Electrical Data                                | CLP(R)13-13                                    | CLP(R)13-25   | CLP(R)13-50          | CLP(R)13-100  |
|------------------------------------------------|------------------------------------------------|---------------|----------------------|---------------|
| Effective electrical travel 1.)                | 8 ±0,5 mm                                      | 11 ±0,5 mm    | 12,7 ±0,5 mm         | 15 ±0,5 mm    |
| Total resistance 1.)                           | 12,7 ±0,5 mm                                   | 25,4 ±0,5 mm  | 50,8 ±0,5 mm         | 101,6 ±0,5 mm |
| Resistance tolerance                           | 0,5, 1, 2, 5, 10 kOhm                          |               | 1, 2, 5, 10, 20 kOhm |               |
| Independent linearity (best straight line) 1.) | ±1% (±0,5%)                                    | ±0,7% (±0,5%) | ±0,5% (±0,3%)        | ±0,3% (±0,1%) |
| Theoretical resolution 1.)                     | Almost infinite                                |               |                      |               |
| Backlash (Hysteresis) 1.)                      | ≤ 0,1 mm                                       |               |                      |               |
| Max. / recommended wiper current1.)            | 1 mA (@ 40°C, 1 min in case of failure) / 2 µA |               |                      |               |
| Power rating @ 70°C (0W @ 105°C)               | ≤ 0,2 W                                        | ≤ 0,4 W       | ≤ 0,7 W              | ≤ 1,2 W       |
| Isolation voltage 1.)                          | 500 VAC, 1min                                  |               |                      |               |
| Isolation resistance 1.)                       | 1000 MOhm @ 500 VDC                            |               |                      |               |

| Mechanical Data, Environmental Conditions, Miscellaneous | CLP(R)13-13                             | CLP(R)13-25   | CLP(R)13-50 | CLP(R)13-100 |
|----------------------------------------------------------|-----------------------------------------|---------------|-------------|--------------|
| Mechanical stroke 1.)                                    | 12,7 +3 mm                              | 25,4 +3 mm    | 50,8 +3 mm  | 101,6 +3 mm  |
| Lifetime (90% effective electrical travel) 2.)           | 40 / 20 Mio. movements (CLP13 / CLPR13) |               |             |              |
| Max. operational speed                                   | < 5 m/s                                 |               |             |              |
| Operational force @ RT 1.) 2.) (CLP / CLPR)              | < 0,5 N / 3,5 N                         | < 0,5 N / 5 N |             | < 1 N / 5 N  |
| End stop force in case of failure                        | < 20 N                                  |               |             |              |
| Operational temperature                                  | -30..+105°C                             |               |             |              |
| Storage temperature                                      | -30..+105°C                             |               |             |              |
| Protection grade (IEC60529)                              | IP40                                    |               |             |              |
| 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                                           | 38 ±1 mm                                | 51 ±1 mm      | 76 ±1 mm    | 127 ±1 mm    |

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| Mechanical Data, Environmental Conditions, Miscellaneous | CLP(R)13-13     | CLP(R)13-25 | CLP(R)13-50 | CLP(R)13-100 |
|----------------------------------------------------------|-----------------|-------------|-------------|--------------|
| Mass                                                     | ca. 10 g        | ca. 15 g    | ca. 25 g    | ca. 35 g     |
| Mounting parts (included in delivery)                    | None            |             |             |              |
| Material housing                                         | Plastic         |             |             |              |
| Material push rod                                        | Stainless steel |             |             |              |
| Connection type                                          | Soldering pins  |             |             |              |

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>CLP13</b>                                                  |            |             |             |                      |
| <b>Without spring return</b>                       | <b>CLPR13</b>                                                 |            |             |             |                      |
| <b>With spring return</b>                          |                                                               |            |             |             |                      |
| <b>Effective electrical travel:</b>                |                                                               |            |             |             |                      |
| 13 mm                                              |                                                               | <b>13</b>  |             |             | <b>L1%</b> (L0,5%)   |
| 25 mm                                              |                                                               | <b>25</b>  |             |             | <b>L0,7%</b> (L0,5%) |
| 50 mm                                              |                                                               | <b>50</b>  |             |             | <b>L0,5%</b> (L0,3%) |
| 100 mm                                             |                                                               | <b>100</b> |             |             | <b>L0,3%</b> (L0,1%) |
| <b>Total resistance:</b>                           |                                                               |            |             |             |                      |
| <i>Option 500 Ohm only CLP(R)13-13/25</i>          |                                                               |            | <i>R500</i> |             |                      |
| <b>1 kOhm</b>                                      |                                                               |            | <b>R1K</b>  |             |                      |
| <i>Option 2 kOhm</i>                               |                                                               |            | <i>R2K</i>  |             |                      |
| <b>5 kOhm</b>                                      |                                                               |            | <b>R5K</b>  |             |                      |
| <b>10 kOhm</b>                                     |                                                               |            | <b>R10K</b> |             |                      |
| <i>Option 20 kOhm only CLP(R)13-50/100</i>         |                                                               |            | <i>R20K</i> |             |                      |
| <b>Resistance tolerance :</b>                      |                                                               |            |             |             |                      |
| <b>±10%</b>                                        |                                                               |            |             | <b>W10%</b> |                      |
| <b>Independent linearity:</b>                      |                                                               |            |             |             |                      |
| <b>Standard depends on electrical travel Lx,x%</b> |                                                               |            |             |             | <b>see above</b>     |
| <i>Option depends on electrical travel Lx,x%</i>   |                                                               |            |             |             | <i>see above</i>     |

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

For example:

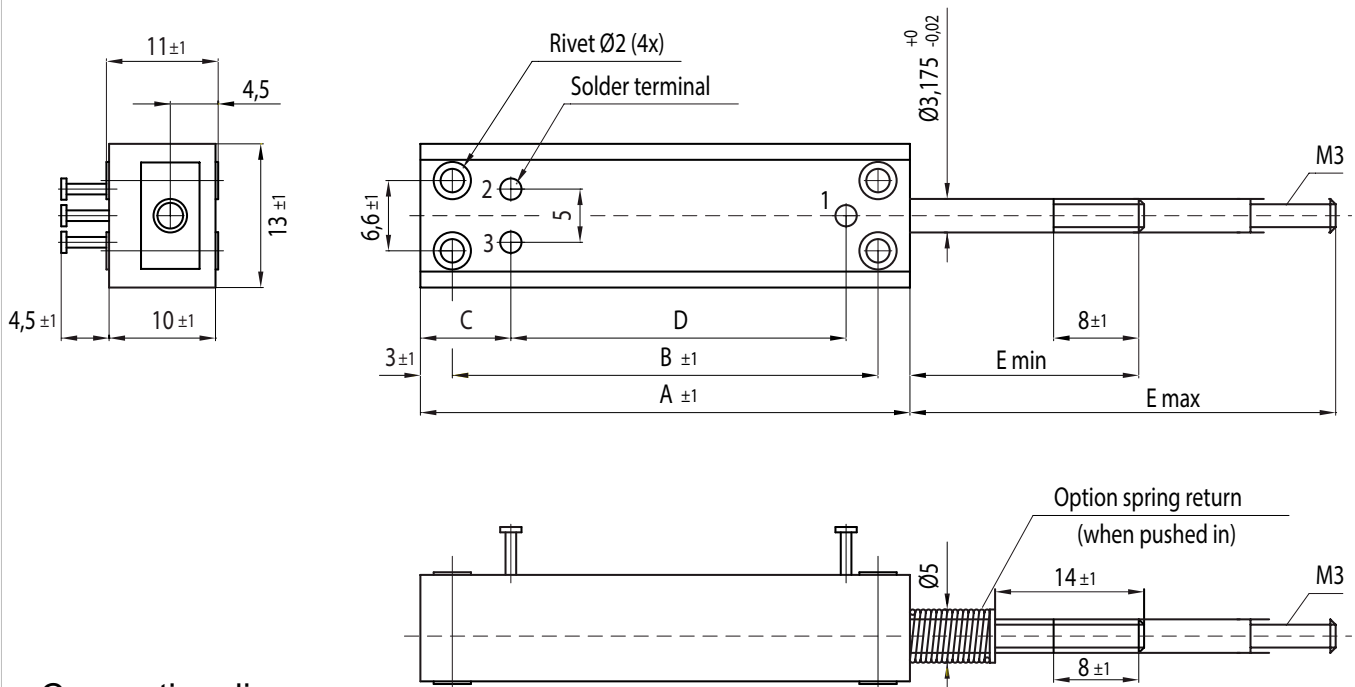
- Assembled leads and cables with / without connector
- Probe, special axis length and much more

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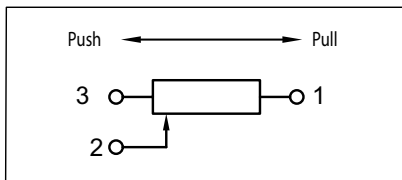
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## Drawing



## Connection diagram



Dimensions in mm

| Dimensions    | CLP13-13  | CLP13-25  | CLP13-50  | CLP13-100  |
|---------------|-----------|-----------|-----------|------------|
| A             | 38        | 51        | 76        | 127        |
| B             | 32        | 45        | 70        | 121        |
| C [±0,1 mm]   | 8,5       | 8,5       | 8,5       | 8,5        |
| D [±0,1 mm]   | 23,5      | 36,5      | 61,5      | 112,5      |
| E min [±1 mm] | 19        | 19        | 19        | 19         |
| E max [+3 mm] | 31,7      | 44,4      | 69,8      | 120,6      |
|               | CLPR13-13 | CLPR13-25 | CLPR13-50 | CLPR13-100 |
| E min [±1 mm] | 30        | 35        | 40        | 50         |
| E max [+3 mm] | 42,7      | 60,4      | 90,8      | 151,6      |