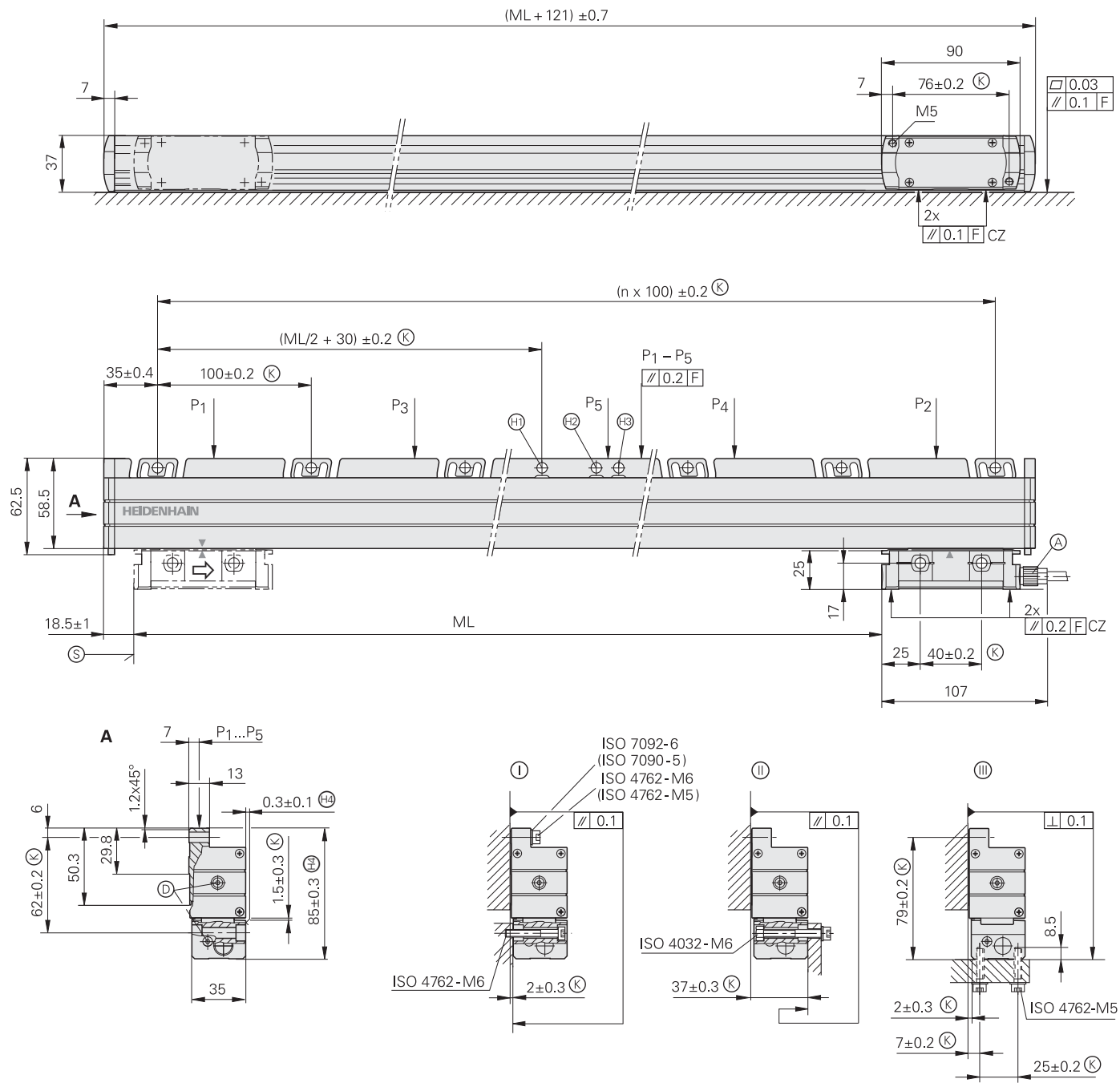


# LC 100 Series

- Absolute linear encoders for measuring steps to 0.1 µm (resolution to 0.005 µm)
- High vibration rating
- Horizontal mounting possible
- Up to two additional scanning units are possible



Dimensions in mm



Tolerancing ISO 8015  
ISO 2768 - m H  
< 6 mm: ±0.2 mm

- ①, ②, ③ = Mounting options
- F = Machine guideway
- P = Gauging points for alignment
- Ⓐ = Cable connection usable at either end
- Ⓚ = Required mating dimensions
- Ⓜ = Compressed air inlet usable at either end
- Ⓢ = Beginning of measuring length ML (= 20 mm absolute)
- Ⓜ = Mechanical fixed point (should be preferred)
- Ⓜ = Mechanical fixed point (coincides with the spacing interval of 100 mm)
- Ⓜ = Mechanical fixed point compatible to predecessor model
- Ⓜ = Alternative mating dimensions
- ⇒ = Direction of scanning unit motion for output signals in accordance with interface description



| Specifications                                                                                                                 | LC 183                                                                                                                                             | LC 193F                                  | LC 193 M                                                     |
|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------------------------------------------------------------|
| <b>Measuring standard</b><br>Expansion coefficient                                                                             | DIADUR glass scale with absolute track and incremental track<br>$\alpha_{\text{therm}} \approx 8 \times 10^{-6} \text{ K}^{-1}$                    |                                          |                                                              |
| <b>Accuracy grade*</b>                                                                                                         | $\pm 3 \text{ }\mu\text{m}$ (up to measuring length 3040); $\pm 5 \text{ }\mu\text{m}$                                                             |                                          |                                                              |
| <b>Measuring length ML*</b> in mm                                                                                              | 140 240 340 440 540 640 740 840 940 1040 1140 1240 1340 1440<br>1540 1640 1740 1840 2040 2240 2440 2640 2840 3040 3240 3440 3640 3840<br>4040 4240 |                                          |                                                              |
| <b>Absolute position values*</b>                                                                                               | EnDat 2.2<br><i>Ordering designation</i> EnDat 02                                                                                                  | Fanuc 02 serial interface                | Mitsubishi high speed serial interface, Mit 02-4 or Mitsu 01 |
| Resolution<br><i>Accuracy <math>\pm 3 \text{ }\mu\text{m}</math></i><br><i>Accuracy <math>\pm 5 \text{ }\mu\text{m}</math></i> | 0.005 $\mu\text{m}$<br>0.01 $\mu\text{m}$                                                                                                          | 0.01 $\mu\text{m}$<br>0.05 $\mu\text{m}$ |                                                              |
| Calculation time $t_{\text{cal}}$<br><i>EnDat 2.1 command set</i><br><i>EnDat 2.2 command set</i>                              | < 1 ms<br>$\leq 5 \text{ }\mu\text{s}$                                                                                                             | –<br>–                                   |                                                              |
| <b>Incremental signals</b>                                                                                                     | $\sim 1 \text{ V}_{\text{PP}}^{1)}$                                                                                                                | –                                        |                                                              |
| Grating period/signal period                                                                                                   | 20 $\mu\text{m}$                                                                                                                                   | –                                        |                                                              |
| Cutoff frequency –3dB                                                                                                          | $\geq 150 \text{ kHz}$                                                                                                                             | –                                        |                                                              |
| <b>Power supply</b><br>without load                                                                                            | 3.6 to 5.25 V/< 300 mA                                                                                                                             |                                          |                                                              |
| <b>Electrical connection</b>                                                                                                   | Separate adapter cable (1 m/3 m/6 m/9 m) connectable to either side of mounting block                                                              |                                          |                                                              |
| <b>Cable length<sup>2)</sup></b>                                                                                               | $\leq 150 \text{ m}$ ; depending on the interface and subsequent electronics                                                                       | $\leq 30 \text{ m}$                      | $\leq 20 \text{ m}$                                          |
| <b>Traversing speed</b>                                                                                                        | $\leq 180 \text{ m/min}$                                                                                                                           |                                          |                                                              |
| <b>Required moving force</b>                                                                                                   | $\leq 4 \text{ N}$                                                                                                                                 |                                          |                                                              |
| <b>Vibration</b> 55 to 2000 Hz<br><b>Shock</b> 11 ms<br><b>Acceleration</b>                                                    | $\leq 200 \text{ m/s}^2$ (IEC 60068-2-6)<br>$\leq 300 \text{ m/s}^2$ (IEC 60068-2-27)<br>$\leq 100 \text{ m/s}^2$ in measuring direction           |                                          |                                                              |
| <b>Operating temperature</b>                                                                                                   | 0 °C to 50 °C (starting from ML 3240 mm, the storage temperature is restricted to –10 °C to +50 °C)                                                |                                          |                                                              |
| <b>Protection</b> IEC 60529                                                                                                    | IP 53 when mounted according to the mounting instructions<br>IP 64 if compressed air is connected via DA 300                                       |                                          |                                                              |
| <b>Weight</b>                                                                                                                  | 0.4 kg + 3.3 kg/m measuring length                                                                                                                 |                                          |                                                              |

\* Please indicate when ordering  
<sup>1)</sup> Depending on the adapter cable  
<sup>2)</sup> With HEIDENHAIN cable