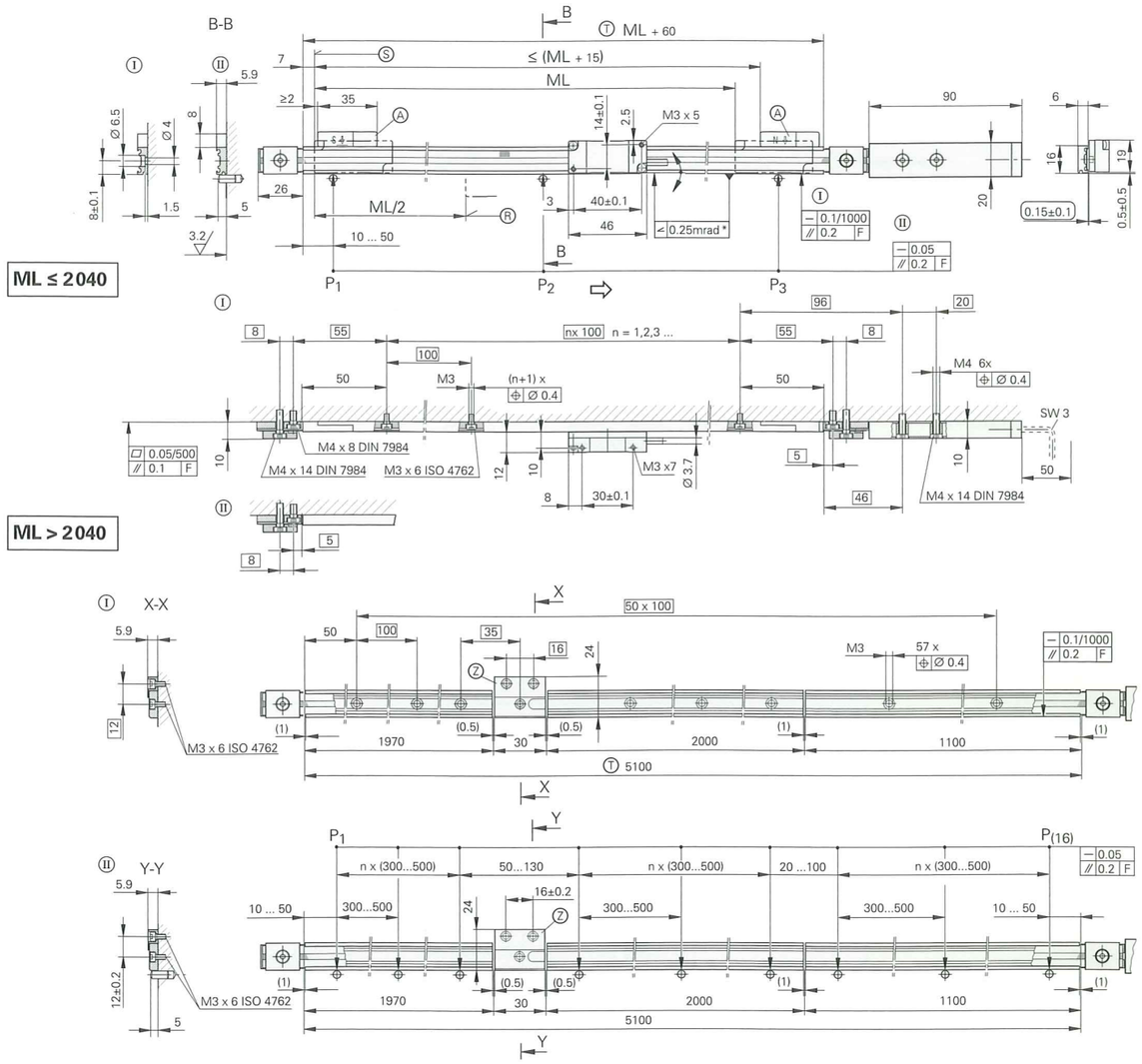
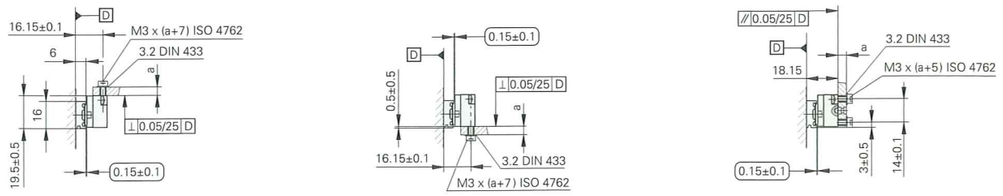
# LIDA 4x5 Series

**Incremental linear encoders for long measuring ranges up to 30 m**

- **For measuring steps of 1 µm to 0.1 µm**
- **Large mounting tolerances**
- **Limit switches**




Possibilities for mounting the scanning head




Dimensions in mm

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

① = Scale carrier sections fixed with screws
② = Scale carrier sections fixed with PRECIMET glue
F = Machine guideway
= Adjust or set
* = Max. change during operation
P = Gauging points for alignment
Ⓡ = Reference mark position
Ⓢ = Beginning of measuring length (ML)
Ⓐ = Selector magnet for limit switch
Ⓣ = Carrier length
Ⓩ = Spacer for measuring lengths from 3040 mm
⇨ = Direction of scanning head motion for output signals in accordance with interface description




| Specifications | LIDA 485 | LIDA 475 |
|---|---|---|
| **Measuring standard**<br>Coefficient of linear expansion | Steel scale-tape with METALLUR graduation<br>Depends on the mounting surface | |
| **Accuracy grade** | ± 5 µm | |
| **Measuring length ML*** in mm | 140 240 340 440 540 640 740 840 940 1040 1140 1240 1340 1440 1540 1640 1740 1840 1940 2040 | |
| | Larger MLs up to 30040 mm with a single-section scale tape and individual scale-carrier sections | |
| Reference marks | One at midpoint of measuring length | |
| **Incremental signals** | ∿ 1 $V_{PP}$ | ⊓⊔ TTL |
| Grating period | 20 µm | |
| Integrated interpolation*<br>Signal period | –<br>20 µm | 5-fold<br>4 µm / 10-fold<br>2 µm / 50-fold<br>0.4 µm / 100-fold<br>0.2 µm |
| Cutoff frequency –3dB | ≥ 400 kHz | – |
| Scanning frequency* | – | ≤ 400 kHz / ≤ 200 kHz / ≤ 100 kHz / ≤ 50 kHz<br>≤ 200 kHz / ≤ 100 kHz / ≤ 50 kHz / ≤ 25 kHz<br>≤ 50 kHz / ≤ 25 kHz / ≤ 12.5 kHz<br>≤ 25 kHz / ≤ 12.5 kHz / ≤ 6.25 kHz |
| Edge separation *a*[1)] | – | ≥ 0.100 µs / ≥ 0.220 µs / ≥ 0.465 µs / ≥ 0.950 µs<br>≥ 0.100 µs / ≥ 0.220 µs / ≥ 0.465 µs / ≥ 0.950 µs<br>≥ 0.080 µs / ≥ 0.175 µs / ≥ 0.370 µs<br>≥ 0.080 µs / ≥ 0.175 µs / ≥ 0.370 µs |
| **Traversing speed**[1)] | 480 m/min | ≤ 480 m/min / ≤ 240 m/min / ≤ 120 m/min / ≤ 60 m/min<br>≤ 240 m/min / ≤ 120 m/min / ≤ 60 m/min / ≤ 30 m/min<br>≤ 60 m/min / ≤ 30 m/min / ≤ 15 m/min<br>≤ 30 m/min / ≤ 15 m/min / ≤ 7.5 m/min |
| **Limit switches** | L1/L2 with two different magnets; *output signals:* TTL (without line driver) | |
| **Power supply**<br>**Current consumption** | 5 V ± 5 %<br>< 100 mA | 5 V ± 5 %<br>< 170 mA (without load) / 5 V ± 5 %<br>< 255 mA (without load) |
| **Electrical connection**<br>Cable length | Cable 3 m with D-sub connector (15-pin), interface electronics for LIDA 475 in the connector<br>≤ 20 m (with HEIDENHAIN cable) | |
| **Vibration** 55 to 2000 Hz<br>**Shock** 11 ms | ≤ 200 m/s² (EN 60068-2-6)<br>≤ 500 m/s² (EN 60068-2-27) | |
| **Operating temperature** | 0 °C to 50 °C | |
| **Weight** Scanning head<br>Connector<br>Scale<br>Connecting cable | 20 g (without connecting cable)<br>*LIDA 485:* 32 g, *LIDA 475:* 140 g<br>115 g + 0.25 g/mm measuring length<br>22 g/m | |

* Please indicate when ordering

[1)] At the corresponding cutoff or scanning frequency