

# LC 181

Absolute linear encoder for measuring steps of 1 µm to 0.1 µm  
(0.00005 in. to 0.000005 in.)

- With defined thermal behavior
- Absolute position values and incremental signals via EnDat interface
- High vibration rating
- Horizontal mounting possible

Specifications	LC 181
<b>Measuring standard</b>	DIADUR glass scale with 7 tracks of different grating periods
Thermal expansion coefficient	$\alpha_{\text{therm}} \approx 8 \text{ ppm/K}$
<b>Accuracy grade</b>	$\pm 5 \text{ } \mu\text{m}$ ( $\pm 0.0002 \text{ in.}$ ) $\pm 3 \text{ } \mu\text{m}$ ( $\pm 0.00012 \text{ in.}$ )
<b>Measuring length ML</b> in mm inches	140, 240, 340, 440, 540, 640, 5.5, 9.5, 13.4, 17.3, 21.3, 25, 740, 840, 940, 1040, 1140, 1240, 29, 33, 37, 41, 44, 48, 1340, 1440, 1540, 1640, 1740, 1840, 52, 56, 60, 64, 68, 72, 2040, 2240, 2440, 2640, 2840, 3040 80, 88, 96, 104, 112, 120
<b>Max. traversing speed (mech.)</b>	120 m/min (4720 ipm)
<b>Vibration</b> (55 to 2000 Hz) <b>Shock</b> (11 ms)	$\leq 200 \text{ m/s}^2$ (IEC 60068-2-6) $\leq 300 \text{ m/s}^2$ (IEC 60068-2-27)
<b>Required moving force</b>	$\leq 4 \text{ N}$
<b>Protection</b> (IEC 60529)	IP 53 when installed as per instructions IP 64 with compressed air
<b>Operating temperature</b>	0 to 50 °C (32 to 122 °F)
<b>Weight</b>	0.3 kg + 3.0 kg/m measuring length
<b>Power supply</b>	5 V $\pm$ 5 % at encoder/ max. 300 mA (with no load)
<b>Interface</b>	<b>EnDat-Interface</b> (bidirectional serial interface)
<b>Absolute position value</b>	According to EIA standard RS-485
<b>Accuracy/max. traversing speed</b> for absolute position value	$\pm 16 \text{ LSB accuracy: } 3 \text{ m/min}$ $\pm 40 \text{ LSB accuracy: } 120 \text{ m/min}$
<b>Incremental signals</b>	$\sim 1 \text{ V}_{\text{PP}}$
<b>Signal period</b>	16 µm
<b>Cutoff frequency (-3 dB)</b>	$\geq 130 \text{ kHz}$
<b>Electrical connection</b>	Sep. adapter cable (1 m/3 m/6 m/9 m) for mounting block (see <i>Electrical Connection</i> )
Cable length to subsequent electronics	150 m (492 ft) max. with remote sensing

## Dimensions

in mm



DIN ISO 8015  
ISO 2768 - m H

- ①, ②
- ③ = Mounting options
- F = Machine guideway
- P = Gauging points for alignment
- Ⓚ = Required mating dimensions
- Ⓞ = Compressed air inlet
- Ⓢ = Beginning of measuring length (ML)  
(at position 20 mm)
- Ⓩ = Does not apply if  $(ML/2 + 30)/100 = \text{integer}$