LF 401
LF 481

Incremental linear encoders for measuring steps of 1 µm to 0.1 µm
(0.000 05 in. to 0.000 005 in.)
- **Thermal behavior similar to steel or cast iron**
- **For limited installation space**

Specifications	LF 401 LF 481
Measuring standard Grating period Thermal expansion coefficient	DIADUR phase grating on glass 8 µm $\alpha_{therm} \approx 8$ ppm/K
Accuracy grade	± 5 µm (± 0.0002 in.) ± 3 µm (± 0.000 12 in.)
Measuring length ML in mm inches	50, 100, 150, 200, 250, 300, 2, 3.94, 5.9, 7.9, 9.8, 11.8, 350, 400, 450, 500, 550, 600, 13.8, 15.7, 17.7, 19.7, 21.6, 23.6, 650, 700, 750, 800, 900, 1000, 25.6, 27.6, 29.5, 31.5, 35.4, 39.4, 1120, 1220 44, 48
Reference marks LF 4x1 LF 4x1 C	ML 50 mm: 1 reference mark at midpoint ML 100 to 1000 mm: 2 reference marks 25 mm (1 in.) from beginning and end of the ML; from ML 1120 mm: 35 mm (1.4 in.) from beginning and end of the ML; Distance-coded; absolute position value available after max. 20 mm traverse
Max. traversing speed	60 m/min (2362 ipm)
Vibration (55 to 2000 Hz) **Shock** (11 ms)	$\leq$ 80 m/s^2 (IEC 68-2-6) $\leq$ 200 m/s^2 (IEC 68-2-27)
Required moving force	$\leq$ 4 N
Protection (EN 60 529 or IEC 529)	IP 53 when installed as per instructions IP 64 with compressed air
Operating temperature	0 to 50 °C (32 to 122 °F)
Weight	0.4 kg + 0.5 kg/m measuring length
Power supply LF 401 LF 481	5 V ± 5%/< 100 mA 5 V ± 5%/< 150 mA (with terminating resistor $Z_0 = 120\Omega$)
Output signals/ Signal period LF 401 LF 481	11 µA$_{PP}$/4 µm 1 V$_{PP}$/4 µm
Electrical connection Cable length to subsequent electronics LF 401 LF 481	Sep. adapter cable (1 m/3 m/6 m/9 m) for mounting block (see *Accessories*) 30 m (98.5 ft) max. 150 m (492 ft) max.

Dimensions

in mm/inches

DIN ISO 8015
ISO 2768 - m H

Mounting spar

ML	m
50 ... 500 (2 ... 19.7")	0
550 ... 900 (21.6 ... 35.4")	1
1000 ... 1220 (39.4 ... 48")	2

Ⅰ = Without mounting spar
Ⅱ = With mounting spar
F = Machine guideway
P = Gauging points for alignment
Ⓚ = Required mating dimensions
Ⓓ = Compressed air inlet
Ⓡ = Reference mark position LF 4x1
Two reference marks for measuring lengths

50 ... 1000 (2" ... 39.4")	1120 ... 1220 (44" ... 48")
z = 25 (.98") z_i = ML – 50 (1.97")	z = 35 (1.38") z_i = ML – 70 (2.76")

Ⓒ = Reference mark position LF 4x1 C
Ⓢ = Beginning of measuring length