

LS 406 LS 476 LS 486

Incremental linear encoders for measuring steps of 1 µm and 0.5 µm
(0.00005 in. to 0.00002 in.)

- Defined thermal behavior
- For limited installation space
- Simple installation with mounting spar

Specifications		LS 406/LS 476/ LS 486
Measuring standard	Grating period Thermal expansion coefficient	Glass scale with DIADUR graduation 20 µm $\alpha_{\text{therm}} \approx 8 \text{ ppm/K}$
Accuracy grade		$\pm 5 \text{ µm}$ or up to ML 1240 mm $\pm 3 \text{ µm}$
Measuring length ML in mm inches		70, 120, 170, 220, 270, 320, 370, 2.7, 4.7, 6.7, 8.6, 10.6, 12.6, 14.5
Mounting spar recommended		420, 470, 520, 570, 620, 720, 770, 16.5, 18.5, 20.5, 22.4, 24.4, 28, 30.5,
Mounting spar required		820, 920, 1020, 1140, 1240, 32, 36, 40, 44, 48,
		1340, 1440, 1540, 1640, 1740, 1840, 52, 56, 60, 64, 68, 72,
		2040 80
Reference marks	LS 4x6	Every 50 mm (2 in.) via selector magnets Standard: ML 70 mm 1 at midpoint; up to 1020 mm: 2, each 35 mm from start/end of ML; from 1140 mm: 2, each 45 mm from start/end of ML
	LS 4x6C	Distance-coded; absolute position value available after max. 20 mm
Max. traversing speed		120 m/min (4720 ipm) LS 476: page 17
Vibration (55 to 2000 Hz)	without mounting spar with mounting spar	$\leq 100 \text{ m/s}^2$ (IEC 68-2-6) $\leq 200 \text{ m/s}^2$ (IEC 68-2-6)
Shock (11 ms)		$\leq 300 \text{ m/s}^2$ (IEC 68-2-27)
Required moving force		$\leq 5 \text{ N}$
Protection (EN 60529 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	LS 406 LS 476 LS 486	5 V $\pm 5\%$ / < 100 mA 5 V $\pm 5\%$ / < 140 mA (with no load) 5 V $\pm 5\%$ / < 150 mA (with $Z_0 = 120\Omega$)
Output signals/ Signal period	LS 406 LS 476 LS 486	\sim 11 $\mu\text{App}/20 \text{ µm}$ \square TTL integr. 5-fold interpolation: 4 µm integr. 10-fold interpolation: 2 µm \sim 1 $V_{\text{pp}}/20 \text{ µm}$
Electrical connection		Sep. adapter cable (1 m/3 m/6 m/9 m) for mounting block (see <i>Accessories</i>)
Cable length to subsequent electronics	LS 406 LS 476 LS 486	30 m (98.5 ft) max. 50 m (164 ft) max. 150 m (492 ft) max.

Dimensions

in mm/inches



DIN ISO 8015
ISO 2768 - m H

Mounting spar

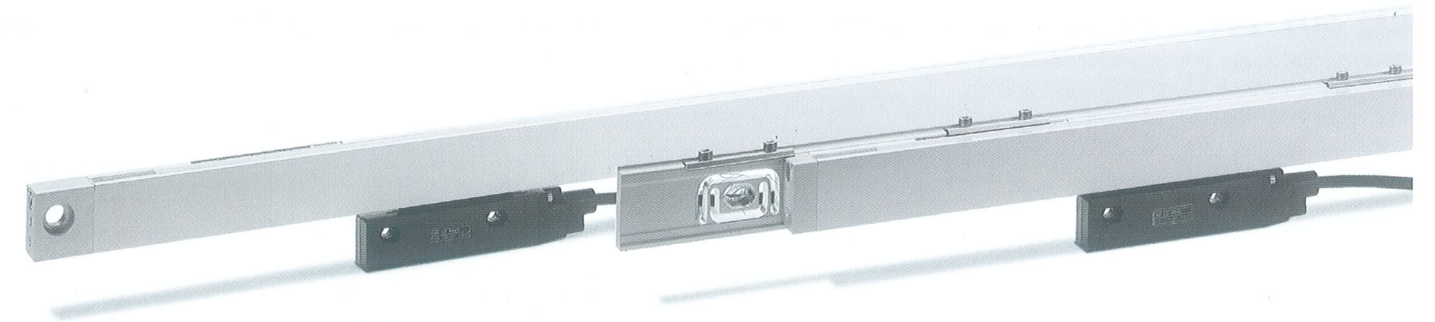
ML	m
70 ... 520 (2.7 ... 20.5')	0
570 ... 920 (22.4 ... 36')	1
1020 ... 1340 (40 ... 52')	2
1440 ... 1740 (56 ... 68')	3
1840 ... 2040 (72 ... 80')	4

- ⓪ = Without mounting spar
- Ⓛ = With mounting spar
- F = Machine guideway
- P = Gauging points for alignment
- ⊗ = Required mating dimensions
- Ⓧ = Compressed air inlet
- Ⓡ = Reference mark position LS 4x6

Two reference marks for measuring lengths

70 ... 1020 (2.7 ... 40')	1140 ... 2040 (44 ... 80')
$z = 35 \text{ mm}$ (1.38')	$z = 45 \text{ mm}$ (1.77')
$z_i = \text{ML} - 70 \text{ mm}$ (2.76')	$z_i = \text{ML} - 90 \text{ mm}$ (3.54')

- Ⓒ = Reference mark position LS 4x6C
- Ⓢ = Beginning of measuring length



LS 486C without mounting spar

LS 486C with mounting spar

