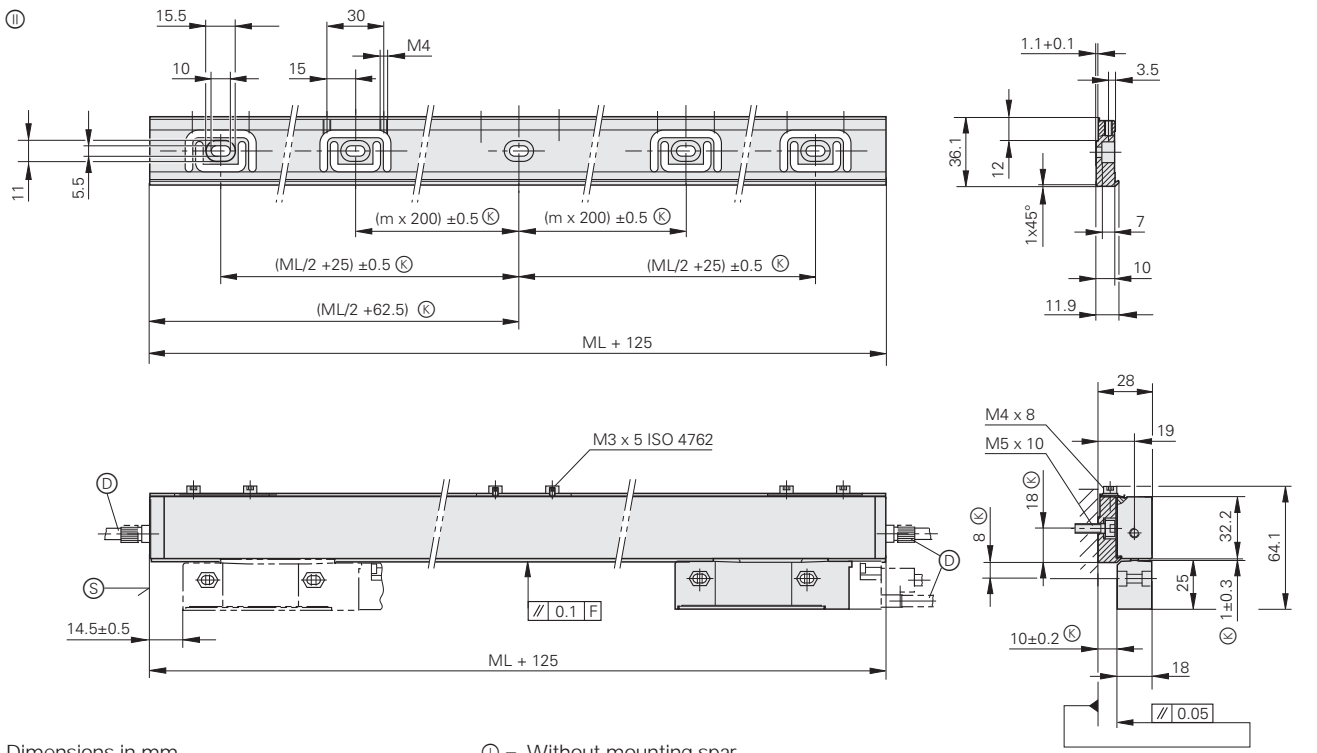
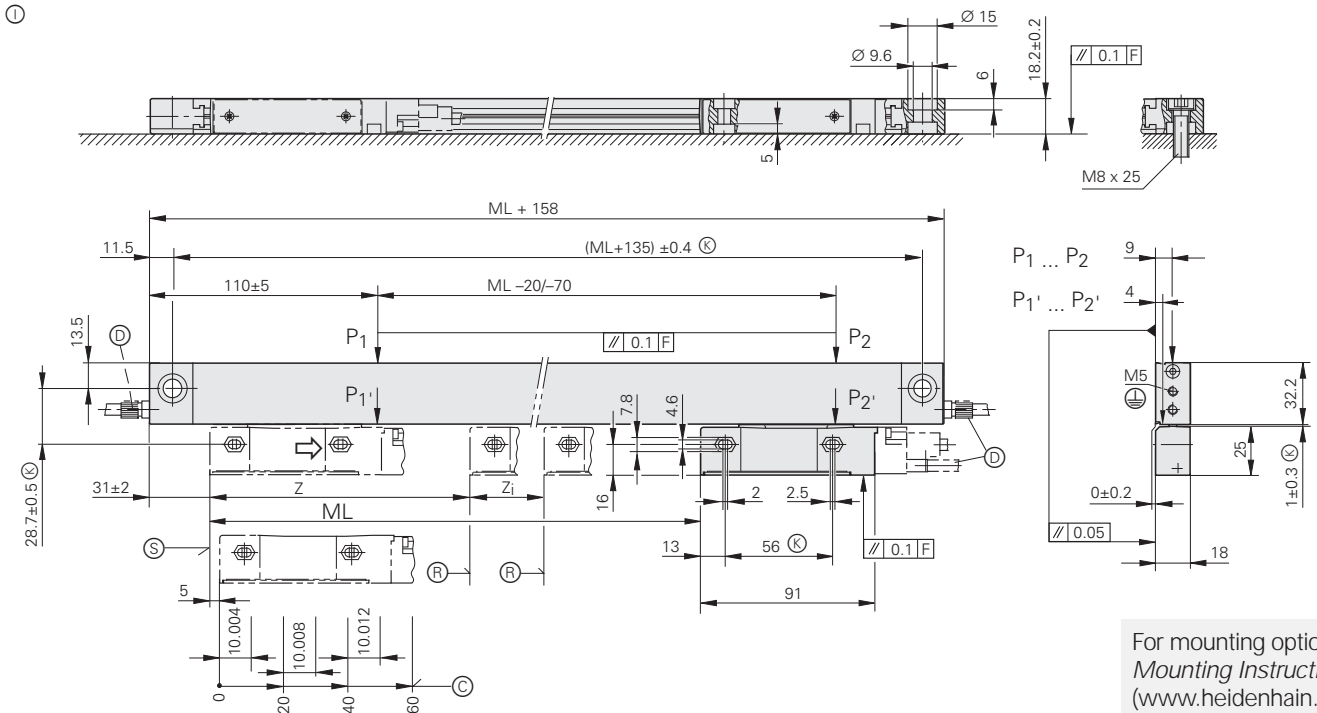


LF 481

- Incremental linear encoder for measuring steps to 0.1 μm
- Thermal behavior similar to steel or cast iron
- For limited installation space



Dimensions in mm



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

- ⊙ = Without mounting spar
 - ⊙ = With mounting spar
 - F = Machine guideway
 - P = Gauging points for alignment
 - ⊙ = Required mating dimensions
 - ⊙ = Compressed air inlet
 - ⊙ = Reference-mark position on LF 481
2 reference marks for measuring lengths
- | | |
|--------------------------|--------------------------|
| 50 ... 1000 | 1120 ... 1220 |
| z = 25 | z = 35 |
| z _i = ML - 50 | z _i = ML - 70 |
- ⊙ = Reference-mark position on LF 481 C
 - ⊙ = Beginning of measuring length (ML)
 - ⇒ = Direction of scanning unit motion for output signals in accordance with interface description

Mounting spar

ML	m
50 ... 500	0
550 ... 900	1
1000 ... 1220	2



LF 481 without mounting spar

LF 481 with mounting spar

Specifications	LF 481
Measuring standard Expansion coefficient	DIADUR phase grating on steel $\alpha_{\text{therm}} \approx 10 \times 10^{-6} \text{ K}^{-1}$
Accuracy grade*	$\pm 3 \mu\text{m}; \pm 5 \mu\text{m}$
Measuring length ML* in mm	Mounting spar* recommended 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 900 1000 1120 1220
Incremental signals	$\sim 1 \text{ V}_{\text{PP}}$
Grating period Signal period	8 μm 4 μm
Reference marks* LF 481 LF 481 C	ML 50 mm: 1 reference mark at midpoint ML 100 to 1000 mm: 2, located 25 mm from the beginning and end of the measuring length From ML 1120 mm: 2, located 35 mm from the beginning and end of the measuring length Distance-coded
Cutoff frequency -3dB	$\geq 200 \text{ kHz}$
Power supply without load	5 V $\pm 5 \%$ < 200 mA
Electrical connection	Separate adapter cable (1 m/3 m/6 m/9 m) connectable to mounting block
Cable length ¹⁾	$\leq 150 \text{ m}$
Traversing speed	$\leq 30 \text{ m/min}$
Required moving force	$\leq 5 \text{ N}$
Vibration 55 to 2000 Hz Shock 11 ms Acceleration	$\leq 80 \text{ m/s}^2$ (IEC 60068-2-6) $\leq 100 \text{ m/s}^2$ (IEC 60068-2-27) $\leq 30 \text{ m/s}^2$ in measuring direction
Operating temperature	0 °C to 50 °C
Protection IEC 60529	IP 53 when mounted according to the mounting instructions IP 64 if compressed air is connected via DA 300
Weight without mounting spar	0.4 kg + 0.5 kg/m measuring length

* Please indicate when ordering

¹⁾ With HEIDENHAIN cable

	Absolute			
	RCN 228 RCN 226		RCN 227F RCN 223F	RCN 227M RCN 223M
Absolute position values	EnDat 2.2	EnDat 2.2	Fanuc serial interface	Mitsubishi High Speed Serial Interface
Ordering designation*	EnDat 22	EnDat 02	Fanuc 02	Mit 02-4
Positions per revolution	RCN 228: 268 435 456 (28 bits) RCN 226: 67 108 864 (26 bits)		RCN 227: 134 217 728 (27 bits) RCN 223: 8 388 608 (23 bits)	
Elec. permissible speed	≤ 1500 min ⁻¹			
Clock frequency	≤ 8 MHz	≤ 2 MHz	–	
Calculation time t _{cal}	5 μs		–	
Incremental signals	–	~ 1 V _{PP}	–	
Line count	–	16 384	–	
Cutoff frequency –3 dB	–	≥ 180 kHz	–	
Recommended measuring step for position measurement	0.0001°			
System accuracy*	RCN 228: ± 2.5" RCN 226: ± 5"		RCN 227F: ± 2.5" RCN 223F: ± 5"	RCN 227M: ± 2.5" RCN 223M: ± 5"
Power supply Without load	3.6 V to 5.25 V at encoder/max. 350 mA			
Electrical connection	Cable 1 m, with coupling M12	Cable 1 m, with M23 coupling	Cable 1 m, with M23 coupling	
Max. cable length¹⁾	150 m		30 m	
Shaft	Hollow through shaft D = 20 mm			
Mech. perm. speed	≤ 3000 min ⁻¹			
Starting torque	≤ 0.08 Nm at 20 °C			
Moment of inertia of rotor	73 · 10 ⁻⁶ kgm ²			
Natural frequency	≥ 1200 Hz			
Permissible axial motion of measured shaft	± 0.1 mm			
Vibration 55 to 2000 Hz Shock 6 ms	≤ 100 m/s ² (EN 60068-2-6) ≤ 1000 m/s ² (EN 60068-2-27)			
Operating temperature	For accuracy of ± 2.5": 0 to 50 °C For accuracy of ± 5": Moving cable –10 to 70 °C Stationary cable: –20 to 70 °C			
Protection EN 60529	IP 64			
Weight	Approx. 0.8 kg			

* Please select when ordering

¹⁾ With HEIDENHAIN cable

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