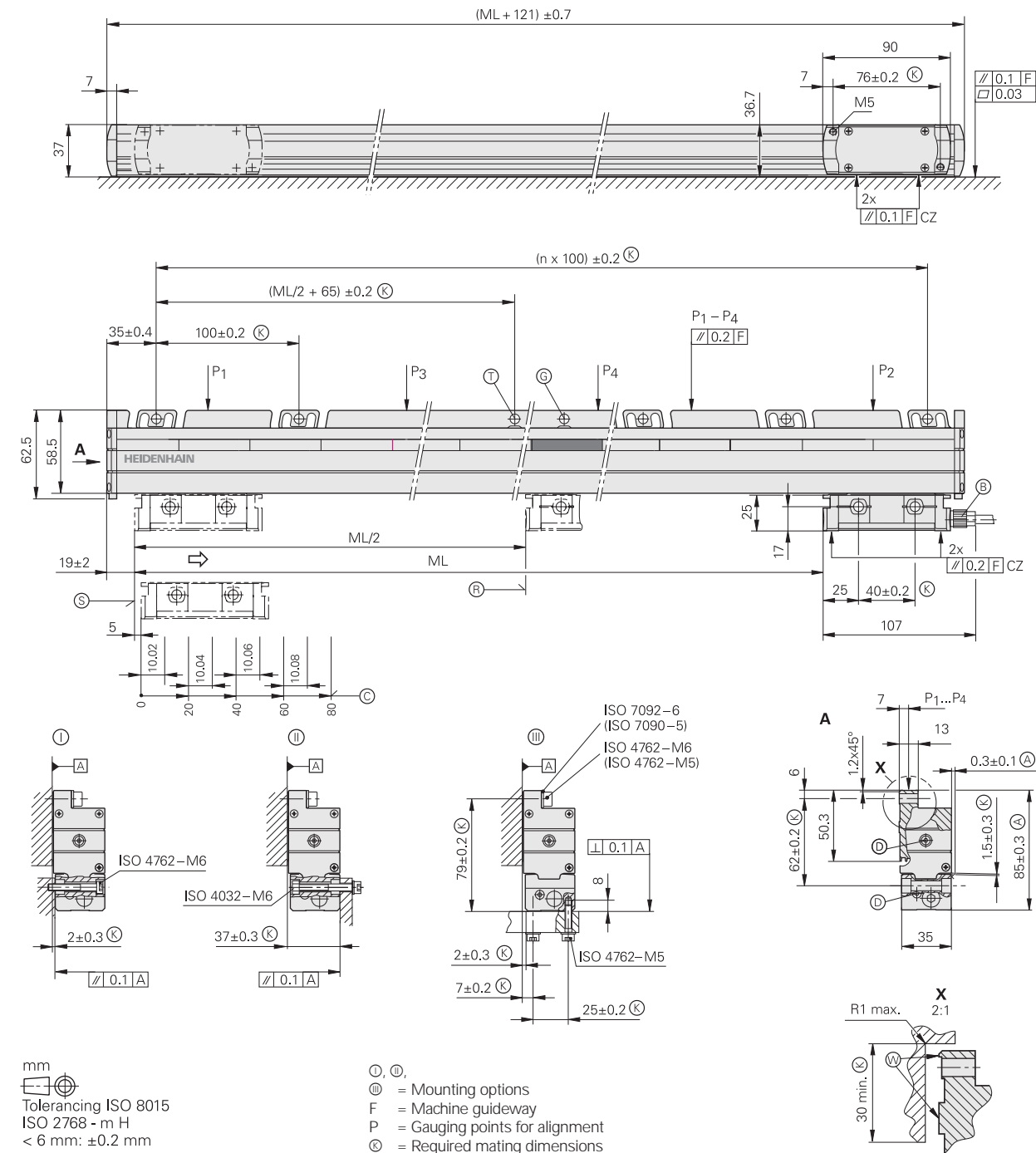


LS 100 series

Incremental linear encoders with full-size scale housing

- High vibration resistance
- Reclining mounting possible



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

- ⊙, ⊖ = Mounting options
- F = Machine guideway
- P = Gauging points for alignment
- ⊕ = Required mating dimensions
- ⊖ = Alternative mating dimensions
- ⊕ = Cable connection usable at either end
- ⊖ = Compressed air inlet usable at either end
- ⊕ = Mechanical fixed point (to be preferred)
- ⊖ = Mechanical fixed point, with spacing interval of 100 mm
- ⊕ = Reference-mark position on LS 1x7
- ⊖ = Reference-mark position on LS 1x7C
- ⊕ = Beginning of measuring length (ML)
- ⊖ = Mating surfaces
- ⇒ = Direction of scanning unit motion for output signals in accordance with interface description

Specifications	LS 187	LS 177														
Measuring standard	Glass scale with DIADUR grating, grating period 20 μm															
Coefficient of linear expansion	$\alpha_{\text{therm}} \approx 8 \times 10^{-6} \text{ K}^{-1}$															
Accuracy grade*	± 5 μm; ± 3 μm															
Measuring length ML* in mm	140	240	340	440	540	640	740	840	940	1040	1140	1240	1340	1440		
Reference marks*	Selectable with magnets every 50 mm, standard setting: 1 reference mark in the center															
	Distance-coded															
Incremental signals	~ 1 V _{pp}		□TTL x 5		□TTL x 10		□TTL x 20									
Integrated interpolation*	-		5-fold		10-fold		20-fold									
Signal period	20 μm		4 μm		2 μm		1 μm									
Cutoff frequency	-3 dB		≥ 160 kHz		-		-									
Scanning frequency*	-		100 kHz		50 kHz		100 kHz		50 kHz		25 kHz		50 kHz		25 kHz	
Edge separation a	-		≥ 0.5 μs		≥ 1 μs		≥ 0.25 μs		≥ 0.5 μs		≥ 1 μs		≥ 0.25 μs		≥ 0.5 μs	
Measuring step	0.5 μm ¹⁾		1 μm ²⁾		0.5 μm ²⁾		0.25 μm ²⁾									
Electrical connection	Separate adapter cable (1 m/3 m/6 m/9 m) connectable to mounting block															
Cable length ³⁾	≤ 150 m				≤ 100 m											
Power supply without load	5 V DC ± 5 % / < 120 mA				5 V DC ± 5 % / < 140 mA											
Traversing speed	≤ 120 m/min		≤ 120 m/min		≤ 60 m/min		≤ 120 m/min		≤ 60 m/min		≤ 30 m/min		≤ 60 m/min		≤ 30 m/min	
Required moving force	≤ 4 N															
Vibration 55 Hz to 2000 Hz	≤ 200 m/s ² (EN 60068-2-6)															
Shock 11 ms	≤ 400 m/s ² (EN 60068-2-27)															
Acceleration	≤ 60 m/s ² in measuring direction															
Operating temperature	0 °C to 50 °C															
Protection EN 60529	IP 53 when mounted according to the instructions and mounting information															
	IP 64 if compressed air is connected via DA 400															
Weight	0.4 kg + 2.3 kg/m measuring length															

* Please indicate when ordering
 1) Recommended for position measurement
 2) After 4-fold evaluation in the subsequent electronics
 3) With HEIDENHAIN cable