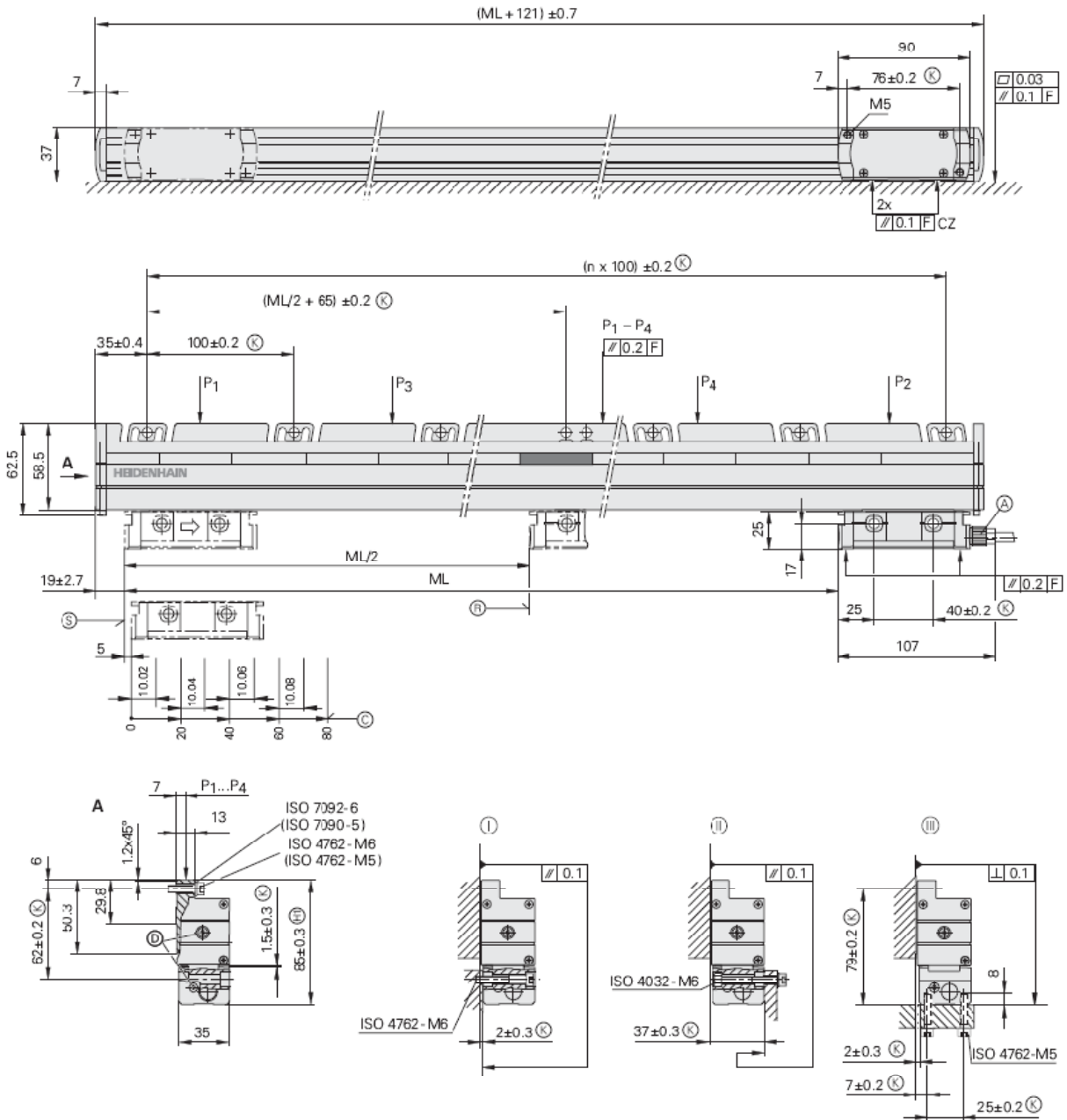


# LS 100 Series

- Incremental linear encoder for measuring steps to 0.5 μm
- High vibration rating
- Horizontal mounting possible



Dimensions in mm



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

Ⓚ, Ⓛ

Ⓜ = Mounting options

F = Machine guideway

P = Gauging points for alignment

Ⓐ = Cable connection usable at either end

Ⓝ = Required mating dimensions

Ⓞ = Compressed air inlet usable at either end

Ⓟ = Reference-mark position on LS 1xx

Ⓠ = Reference-mark position on LS 1xxC

Ⓡ = Beginning of measuring length (ML)

⇨ = Direction of scanning unit motion for output signals in accordance with interface description



Specifications	LS 187	LS 177												
<b>Measuring standard</b> Expansion coefficient	Glass scale with DIADUR graduation $\alpha_{\text{therm}} \approx 8 \times 10^{-6} \text{ K}^{-1}$													
<b>Accuracy grade*</b>	$\pm 5 \mu\text{m}; \pm 3 \mu\text{m}$													
<b>Measuring length ML*</b> in mm	140 1540	240 1640	340 1740	440 1840	540 2040	640 2240	740 2440	840 2640	940 2840	1040 3040	1140	1240	1340	1440
Reference marks* <i>LS 187</i> <i>LS 187C</i>	Selectable with magnets every 50 mm, standard setting: 1 reference mark in the center Distance-coded													
<b>Incremental signals</b>	$\sim 1 \text{ V}_{\text{pp}}$	$\square$ TTL x 5		$\square$ TTL x 10			$\square$ TTL x 20							
Grating period Integrated interpolation* Signal period	20 $\mu\text{m}$ – 20 $\mu\text{m}$	20 $\mu\text{m}$ 5-fold 4 $\mu\text{m}$		20 $\mu\text{m}$ 10-fold 2 $\mu\text{m}$			20 $\mu\text{m}$ 20-fold 1 $\mu\text{m}$							
Cutoff frequency –3dB	$\geq 160 \text{ kHz}$		–		–			–						
Scanning frequency* Edge separation a	–		100 kHz $\geq 0.5 \mu\text{s}$	50 kHz $\geq 1 \mu\text{s}$	100 kHz $\geq 0.25 \mu\text{s}$	50 kHz $\geq 0.5 \mu\text{s}$	25 kHz $\geq 1 \mu\text{s}$	50 kHz $\geq 0.25 \mu\text{s}$	25 kHz $\geq 0.5 \mu\text{s}$					
<b>Measuring step</b>	0.5 $\mu\text{m}^{1)}$		1 $\mu\text{m}^{2)}$		0.5 $\mu\text{m}^{2)}$			0.25 $\mu\text{m}^{2)}$						
<b>Traversing speed</b>	$\leq 120 \text{ m/min}$		$\leq 120 \text{ m/min}$	$\leq 60 \text{ m/min}$	$\leq 120 \text{ m/min}$	$\leq 60 \text{ m/min}$	$\leq 30 \text{ m/min}$	$\leq 60 \text{ m/min}$	$\leq 30 \text{ m/min}$					
<b>Power supply</b> without load	5V $\pm 5 \%$ / < 120 mA		5V $\pm 5 \%$ / < 140 mA											
<b>Electrical connection</b>	Separate adapter cable (1 m/3 m/6 m/9 m) connectable to mounting block													
<b>Cable length<sup>3)</sup></b>	$\leq 150 \text{ m}$		$\leq 100 \text{ m}$											
<b>Required moving force</b>	$\leq 4 \text{ N}$													
<b>Vibration</b> 55 to 2000 Hz <b>Shock</b> 11 ms <b>Acceleration</b>	$\leq 200 \text{ m/s}^2$ (IEC 60068-2-6) $\leq 400 \text{ m/s}^2$ (IEC 60068-2-27) $\leq 60 \text{ m/s}^2$ in measuring direction													
<b>Operating temperature</b>	0 °C to 50 °C													
<b>Protection</b> IEC 60529	IP 53 when mounted according to the mounting instructions IP 64 if compressed air is connected via DA 300													
<b>Weight</b>	0.4 kg + 2.3 kg/m measuring length													

\* Please indicate when ordering

<sup>1)</sup> Recommended for position measurement

<sup>2)</sup> After 4 fold evaluation in the evaluation electronics

<sup>3)</sup> With HEIDENHAIN cable