



# HEIDENHAIN



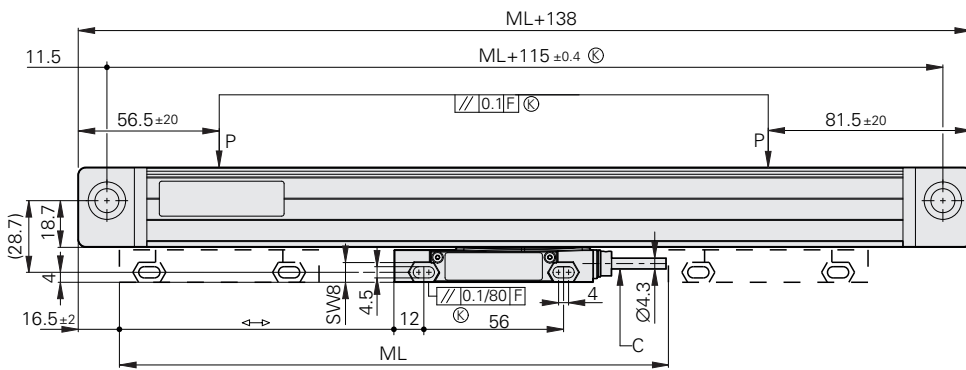
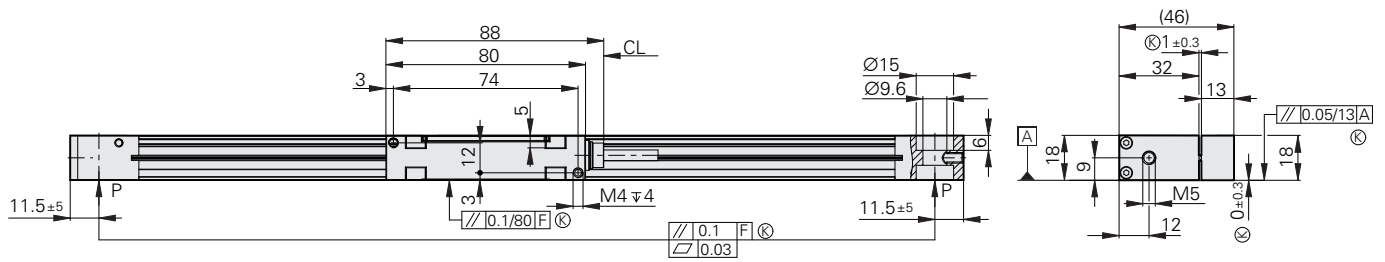
Preliminary  
Product Information

## LS 373

## LS 383

Incremental Linear Encoders

# LS 300 series

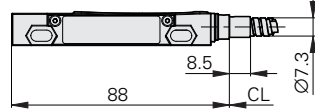


The LS 477 and LS 487 are available as replacement devices on short notice.

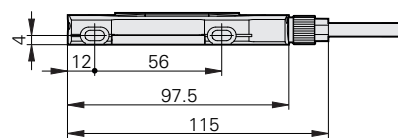
mm  
  
 Tolerancing ISO 8015  
 ISO 2768 - m H  
 < 6 mm: ±0.2 mm

- F = Machine guideway
- ML = Measuring length
- P = Measuring point for mounting
- ↔ = 0 to ML
- C = Cable
- CL = Cable length
- K = Required mating dimensions

Cable with metal armor: LS 383, LS 373



PUR cable: LS 477, LS 487



PUR cable with metal armor: LS 477, LS 487





Specifications	LS 383 <sup>1)</sup>	LS 373 <sup>2)</sup>	
<b>Measuring standard</b> Coefficient of linear expansion	Glass scale $\alpha_{\text{therm}} \approx 8 \cdot 10^{-6} \text{ K}^{-1}$		
<b>Accuracy grade</b>	$\pm 5 \mu\text{m}$		
<b>Measuring length ML*</b> in mm	70 770	120 820	170 870
	220 920	270 970	320 1020
	370 1140	420 1240	470
	520	570	620
	670	720	
Reference marks	LS 3x3: every 50 mm LS 3x3C: distance-coded		
<b>Interface</b>	$\sim 1 V_{\text{PP}}$	LVTTL	
Signal period	20 $\mu\text{m}$		
Integrated interpolation	–	20-fold	50-fold
Measuring step	–	0.25 $\mu\text{m}$	0.1 $\mu\text{m}$
<b>Supply voltage</b> Without load	5 V $\pm 0.25 \text{ V}$ / < 150 mA		
<b>Electrical connection</b>	PUR cable and PUR cable with metal armor; cable outlet to the right on the mounting block		
<b>Cable length</b>	3 m, 6 m		
<b>Connecting element</b>	15-pin D-sub connector (male) 12-pin M23 connector (male)		15-pin D-sub connector (male) 9-pin D-sub connector (male) 12-pin M23 connector (male)
<b>Traversing speed</b>	$\leq 60 \text{ m/min}$		
<b>Required moving force</b>	$\leq 5 \text{ N}$		
<b>Vibration</b> 55 Hz to 2000 Hz <b>Schock</b> 6 ms	$\leq 100 \text{ m/s}^2$ $\leq 200 \text{ m/s}^2$		
<b>Operating temperature</b>	0 °C to 50 °C		
<b>Protection</b> IEC 60529	IP53		
<b>Mass</b> without cable	0.3 kg + 0.57 kg/m of measuring length		

\* Please select when ordering

<sup>1)</sup> The LS 487 is available as a replacement device through the HEIDENHAIN Service department on short notice.

<sup>2)</sup> The LS 477 is available as a replacement device through the HEIDENHAIN Service department on short notice.

# Pin layout

## TTL

	① 9-pin D-sub connector (male)				② 15-pin D-sub connector (male)						③ 12-pin M23 connector (male)			
	Power supply				Incremental signals						Other signals			
①	7	7 <sup>1)</sup>	6	6 <sup>1)</sup>	2	3	4	5	9	8	/	/	/	
②	4	12	2	10	1	9	3	11	14	7	13	5/6/8	15 <sup>2)</sup>	
③	12	2	10	11	5	6	8	1	3	4	7/9	/	/	
	$U_P$	Sensor $U_P$	0V	Sensor 0V	$U_{a1}$	$\overline{U_{a1}}$	$U_{a2}$	$\overline{U_{a2}}$	$U_{a0}$	$\overline{U_{a0}}$	$\overline{U_{aS}}$	Vacant	Reserved, do not assign <sup>3)</sup>	
	Black		White		Green	Yellow	Pink	Red	Brown	Gray	Blue	/	Ecru	

**Cable shield** connected to housing;  $U_P$  = Power supply voltage

**Sensor:** The sense line is connected in the encoder with the corresponding power line.

Vacant pins or wires must not be used!

<sup>1)</sup> Only ID 617513-xx and ID 626015-xx; not with ID 617484-xx, ID 735210-xx

<sup>2)</sup> Unstripped cable end with: ID 298429-xx, ID 309783-xx, ID 309784-xx, ID 310196-xx, ID 310199-xx

<sup>3)</sup> **Exposed linear encoders:** Conversion from TLL to 11  $\mu A_{PP}$  for PWT; otherwise not assigned

## 1 V<sub>PP</sub>

	① 15-pin D-sub connector (male)				② 12-pin M23 connector (male)										
	Power supply				Incremental signals								Other signals		
①	4	12	2	10	1	9	3	11	14	7	5/6/8	13	15 <sup>1)</sup>		
②	12	2	10	11	5	6	8	1	3	4	7/9	/	/		
	$U_P$	Sensor $U_P$	0V	Sensor 0V	A+	A-	B+	B-	R+	R-	Vacant	Vacant	Vacant		
	Black		White		Green	Yellow	Pink	Red	Brown	Gray	/	Blue	Ecru		

<sup>1)</sup> Unstripped cable end with ID 310196-xx

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This Product Information document supersedes all previous editions, which thereby become invalid. The basis for ordering from HEIDENHAIN is always the Product Information document edition valid when the order is placed.

### Further information:

To ensure proper and intended use, comply with the specifications in the following document:

• Brochure: *Digital Readouts / Linear Encoders:*

208864-xx