

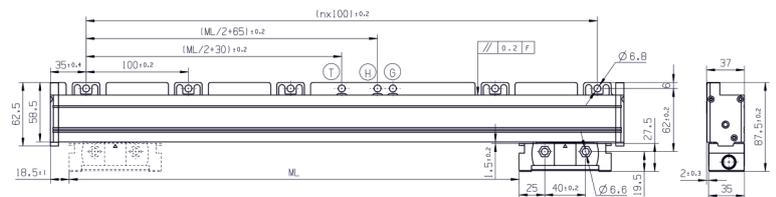
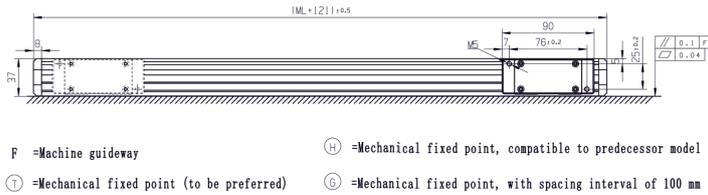
OPTICAL LINER ENCODER

HA100

HA100 Series Optical Linear Encoders offer precise measurements up to 3040 mm, supporting BiSS-C, SSI, Fanuc, and Panasonic protocols for reliable position feedback. Achieving a remarkable accuracy of $\pm 3\mu\text{m}$ and state-of-the-art resolution down to 5nm, these encoders are ideal for precision applications in fine machinery. Experience the future of measurement technology with Havlicek – where motions meets precision.



HA100 installation drawing



GENERAL SPECIFICATIONS

Measurement length (ML), mm		Accuracy grade	
140, 240, 440, 540, 640, 740, 840, 940, 1040, 1140, 1240, 1340, 1440, 1540, 1640, 1740, 1840, 1940, 2040, 2140, 2240, 2340, 2440, 2540, 2640, 2740, 2840, 2940, 3040		$\pm 3\mu\text{m/m}; \pm 5 \mu\text{m/m}$	
Current consumption		Pitch period	
max 340 mA(R= 120Ω)		20 μm	
Protocol			
SSI, BiSS, FANUC, Panasonic			
Resolutions			
5nm, 10nm, 100nm			
Thrust	Maximum speed:	3m/s	Mass
$\leq 2.5\text{N}$	Humidity	20...80%	0.55 kg + 2.9 kg/m
	Standard / maximum cable length		Operating temperature
Power Supply	2.0 / 20.0		0... +50°C
	Sealing (IEC 529)	Ip53	Storage temperature
	- With compressed air-	Ip64	20... +70°C
+5V $\pm 5\%$	Electronic protection	Short circuit prevention	Vibrate (40 to 2000 Hz)
			$\leq 100 \text{ m/s}^2$
			Shock (11 ms)
			$\leq 150 \text{ m/s}^2$

Lectotype

	X1	X2	X3	X4
HA	Protocol (X1): 185-SSI 195F-FANUC 195P-Panasonic 195B-BISS-C.....	ML: (X2): 0140 - 140 mm 0540 - 540 mm 3040 - 3040 mm	Resolution (X3): 5-5nm 10-10nm 100-100nm	3 - $\pm 3\mu\text{m}$ 5 - $\pm 5\mu\text{m}$

*For resolution: SSI, 100nm; Fanuc, 10nm; Panasonic, 10nm; Biss-c, 5nm/50nm.

FI: 1) HA483-1240-100-5

OPTICAL
LINER ENCODER

HA100



OUTPUT SPECIFICATIONS

Version	SSI	BISS-C
Protocol	SSI	BISS -C unidirectional
Interface	EIA RS 485	EIA RS 485
Clock	0.1-1.2 MHz	0.1-4 MHz
Position	Position bit	26 + 2 + 6bit
Tc	10-20µs	12-20µs
Output signal		

STP:	Cross section area: 0.25mm Minimum radius: 35 mm PVC low friction coefficient oil resistant outer protective layer, suitable for continuous and repeated dragging	For extension: the following conditions are needed	Gounded; 5V supply for reading head
		Analog + Serial output:	STP, PUR Cross sectional area supply: 0.35mm Minimum radius 45mm

9 pin Needle D-usb connector						
PIN	1	6	8	4	9	5
SIGNAL	+5V	0V	CLOCK	/CLOCK	DATA	/DATA
COLOR	RED	BLACK	GREEN	WHITE	YELLOW	BLUE

15 pin Needle D-usb connector													
PIN	1	9	2	10	3	11	4	12	14	7	15	8	13
SIGNAL	+5V	+5V SENSOR	0V	0V SENSOR	A	/A	B	/B	CLOCK	/CLOCK	DATA	/DATA	SHIELD
COLOR	RED	LIGHT GREEN	BLACK	BROWN	PURPLE	GREY	ORANGE	PINK	GREEN	WHITE	YELLOW	BLUE	/