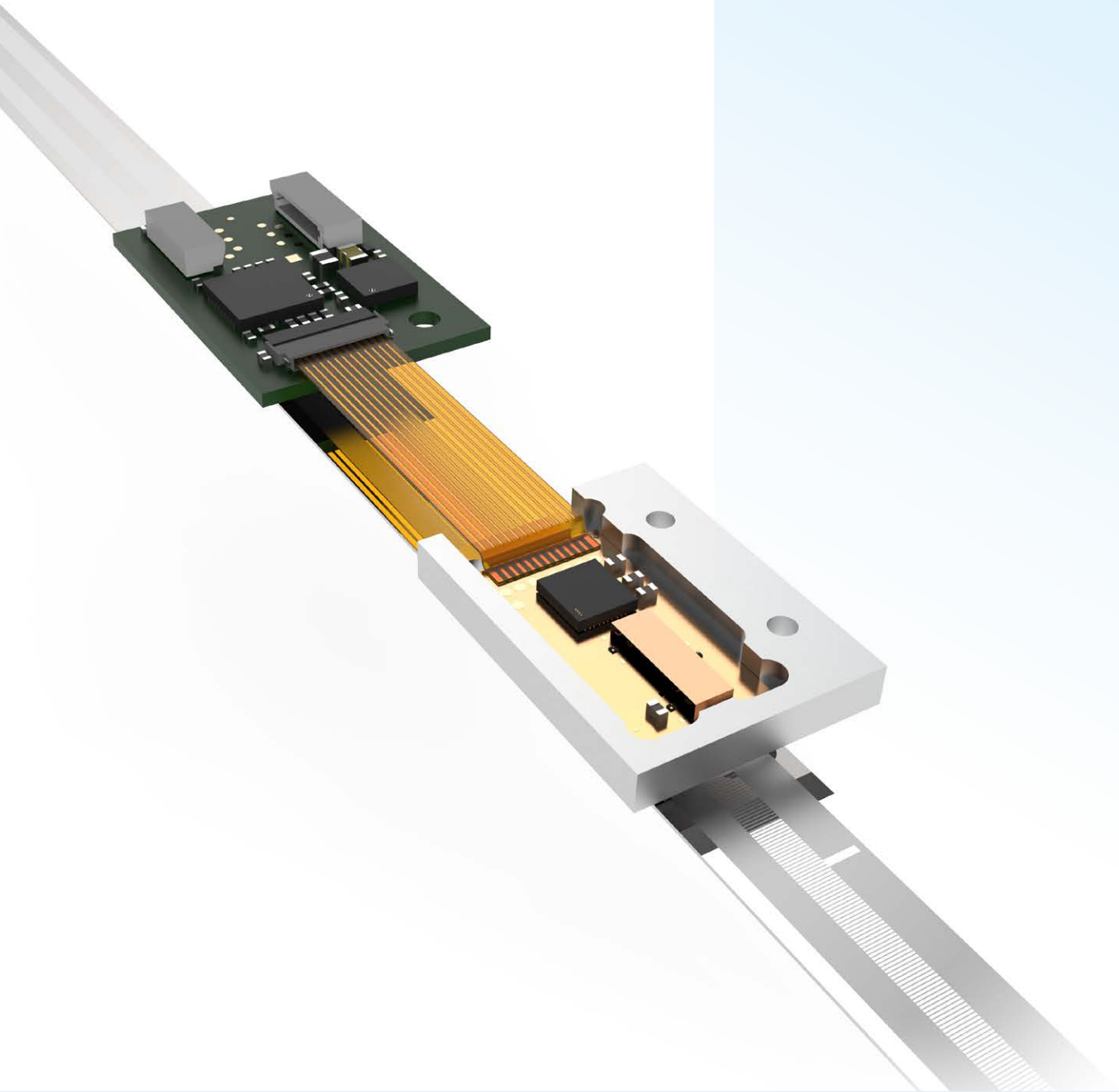


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PRODUCT INFORMATION

 **LIKselect**

Optical Linear Encoder with Online Compensation

Product Information

TECHNICAL DATA

Mechanical Data		
Dimensions of scan head (in mm)	16 x 8 x 2.2 (EPIFLEX Sensor-Module)	
Weight of scan head (w/o cable)	EPIFLEX Sensor only	Sensor with standard frame
	2 g	3 g
Working distance	1.4 mm (air gap between sensor and scale)	
Electrical Data		
Scanning frequency	max. 500 kHz	
Supply voltage	5 V ±10%	
Output interfaces		
Voltage output		1 V _{PP}
Square wave output		RS 422 with interpolation up to 64-times & PCB
		TTL with interpolation up to 64-times
Current consumption		
Voltage output		≤ 50 mA (with 120 Ω load resistance)
Square wave output RS 422/TTL		≤ 150 mA (with 120 Ω load resistance)
Traversing speed		
depending on auxiliary electronic unit	up to 10 m/s	
Ambient Conditions		
Operating temperature range	0° C to +55 °C (+32 °F to +131 °F)	
Storage temperature range	-20 °C to +70 °C (-4 °F to +158 °F)	
Vibration (50 Hz ... 2500 Hz)	≤200 m/s ²	
Shock (11 ms)	≤400 m/s ²	
Humidity (40°C)	93% relative humidity (no condensation forming)	
Cable		
Cable diameter	standard 3.7 mm	
Permissible bending radius	<ul style="list-style-type: none"> Occasional flexing ~8 mm Constant flexing ~40 mm 	
	From scan head to the D-Sub connector	<ul style="list-style-type: none"> 0.3 m 1.0 m 3.0 m

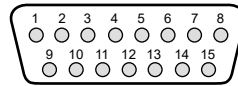
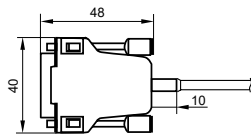
INTERPOLATION ERROR

Interpolation Error (highest resolution - with the 64-times interpolation)	
typical maximum value	± 85 nm

RESOLUTION AND ACCURACY

Grating period of scale tape	Signal period of sinusoidal signals	Interpolation factor	Signal period after interpolation	Resolution after evaluation in counter
				4-times
20µm	20µm	none/1-times	20 µm	5 µm
		5-times	4 µm	1 µm
		10-times	2 µm	0.5 µm
		25-times	0.8 µm	0.2 µm
		50-times	0.4 µm	0.1 µm
		64-times	312.5 nm	78.125 nm

CONNECTOR (15-PIN D-SUB)



PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Housing
1 V _{PP}	-	-	-	U ₀₋	U ₂₋	U ₁₋	-	5V	0V	-	-	U ₀₊	U ₂₊	U ₁₊	n.c.	Outer shield
RS 422	-	-	NAS	Z ₀₋	Z ₂₋	Z ₁₋	-	5V	0V	-	AS	Z ₀₊	Z ₂₊	Z ₁₊	n.c.	Outer shield
Cable Ø 3.7 mm	-	-	VT	PK	RD	BN	-	BU	WH	-	YE	GY	BK	GN	WHGN	-

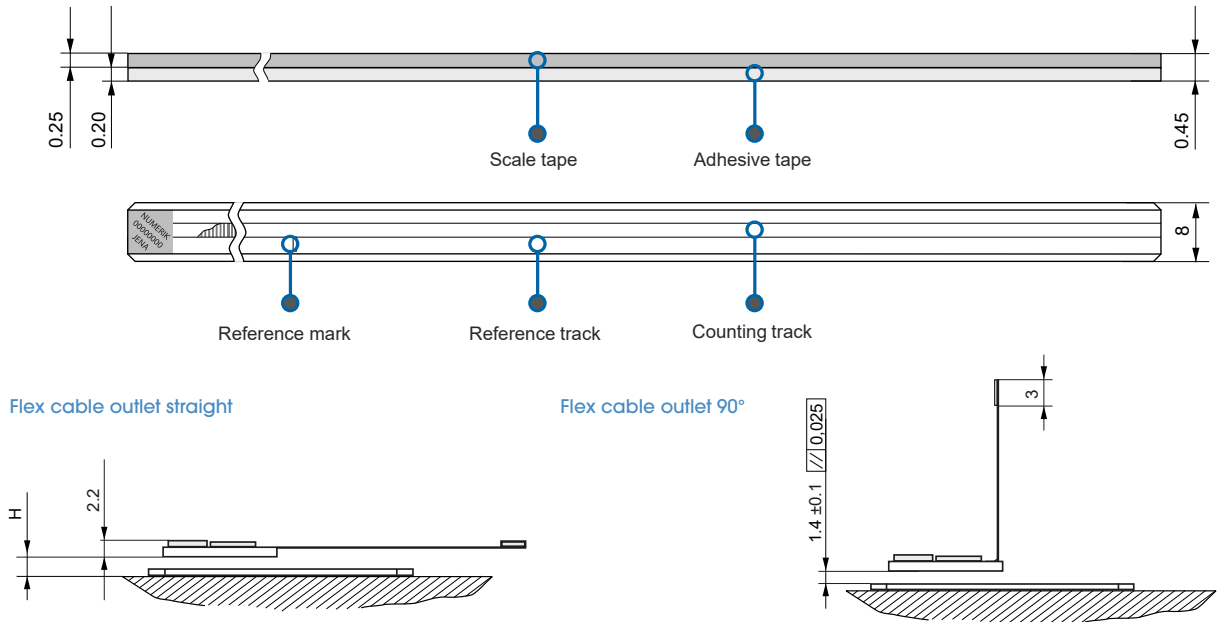
0V Ground (GND)
5V Operating voltage (UB)

AS/NAS Error signal (monitoring signal)
n.c. not connected (must not be connected!)

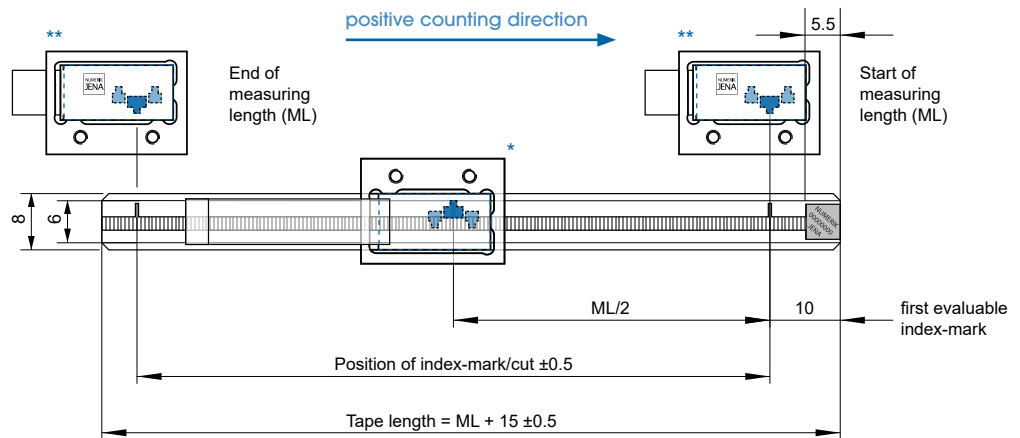
SINGLEFLEX Scale Tape

SINGLEFLEX Scale tape MI	
Material	Stainless Steel
Grating period (TP)	20 µm
Reference marks	<ul style="list-style-type: none"> In the middle of the measuring length (ML) Customer-specific reference mark In 50 mm intervals beginning at midpoint of ML Without reference mark
Measuring length (ML)	up to 2490 mm (others on request)
Linear thermal expansion coefficient	10.5 x 10 ⁻⁶ K ⁻¹ (expansion will be influenced by the mounting surface)
Accuracy classes (a)	<ul style="list-style-type: none"> ±3 µm/m ±5 µm/m
baseline error	±750 nm / 50 mm

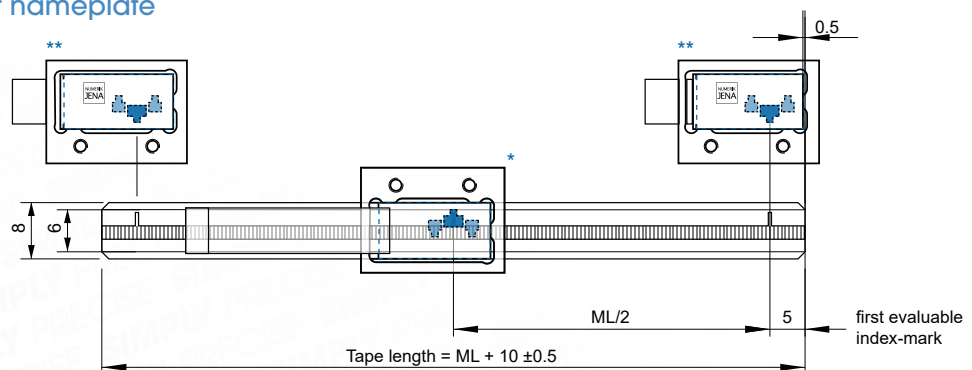
SINGLEFLEX Scale Tape



Scale tape MI with nameplate



Scale tape MI without nameplate



* View of the sensor from above through the housing
 ** View of the sensor top (crome) side

MOUNTING

Permissible Mounting tolerances / Position deviations for LIKselect scanning heads*

$\Delta Z = \pm 0.2 \text{ mm}$
 $\Delta Y = \pm 0.4 \text{ mm}$
 $\varphi Z = \pm 0.2^\circ (\pm 12')$
 $\varphi Y = \pm 1.0^\circ (\pm 60')$
 $\varphi X = \pm 1.0^\circ (\pm 60')$

* These cumulative tolerances include mounting tolerances and guideway errors during operation.

Working distance (distance between sensor and scale tape)

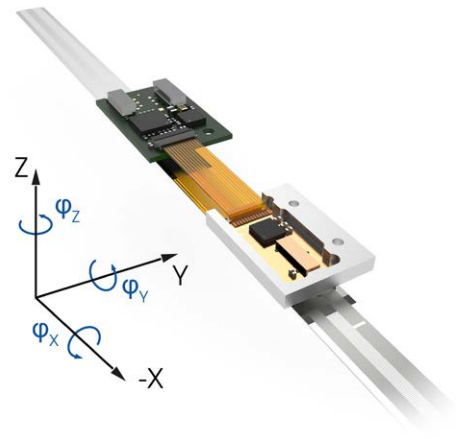
1.4 mm

SINGLEFLEX scale tape height

with double-sided tape	H = 0.45 mm
without double-sided tape	H = 0.25 mm

System height H (H \pm 0.1)

with double-sided tape	H = 1.85 mm
without double-sided tape	H = 1.65 mm



Cable with D-sub connector
 (0.3 m, 1.0 m, 3.0 m, others on request)

B frame, C frame

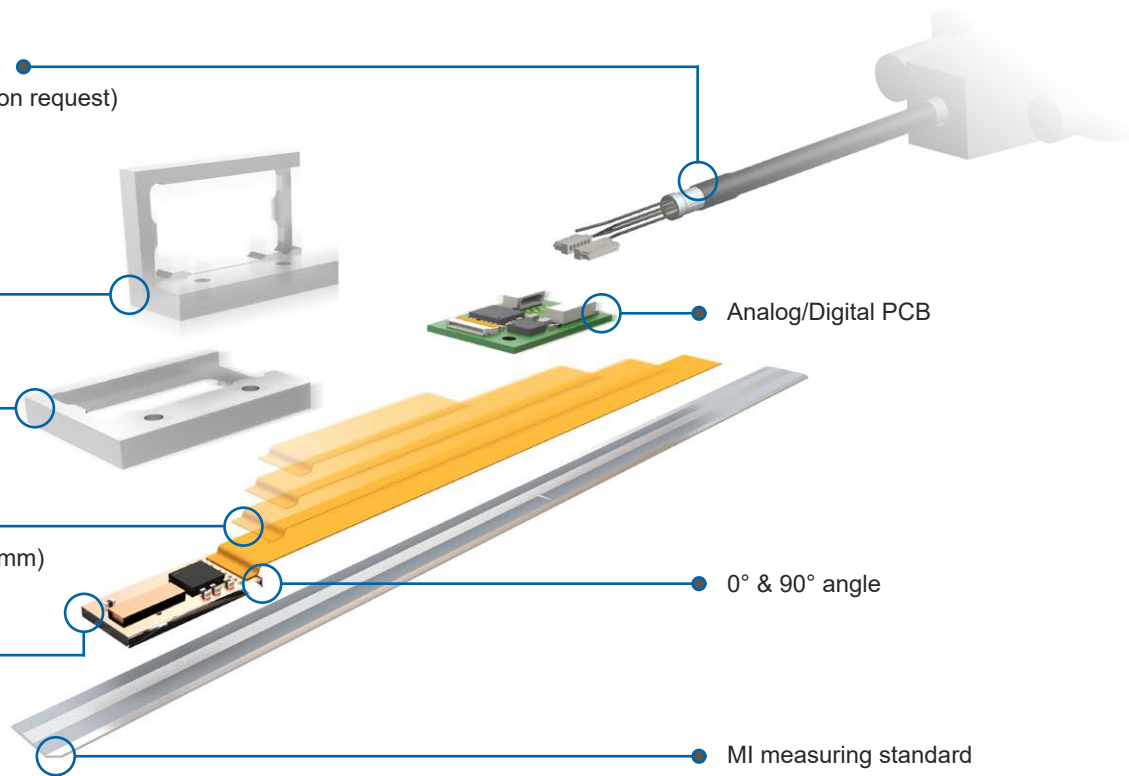
Analog/Digital PCB

Flex tape length
 (25 mm, 55 mm, 75 mm, 95 mm)

0° & 90° angle

EPIFLEX
 sensor module

MI measuring standard



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SIMPLY PRECISE

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