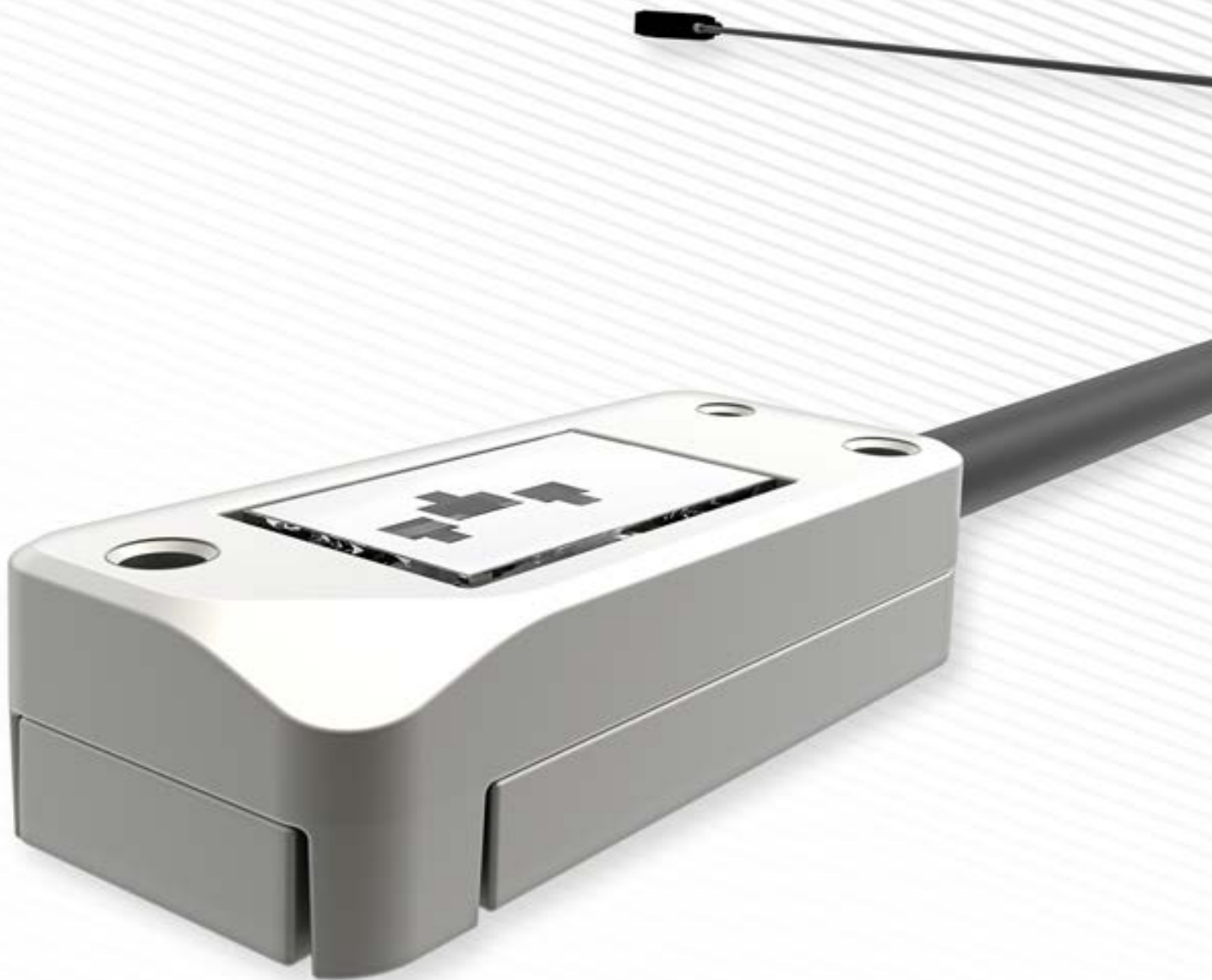


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OPTICAL
ENCODERS

SIMPLY PRECISE







PRODUCT INFORMATION



LIKgo

Optical Linear Encoder with Online Compensation

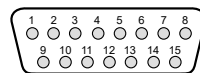
TECHNICAL DATA

Mechanical Data	
Dimensions of scan head (in mm)	28 x 13 x 7.5
Weight of scan head (w/o cable)	10 g
Working distance	1.4 mm (air gap between sensor and scale)
Electrical Data	
Scanning frequency	max. 500 kHz
Supply voltage	5V ±10%
Output interfaces	
Voltage output	 1 V _{PP}
Square wave output	 RS 422 with interpolation up to 64-times
Current consumption	
Voltage output	 ≤50 mA (with 120 Ω load resistance)
Square wave output RS 422	 ≤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 ... 3000 Hz)	≤500 m/s ²
Shock (6 ms)	≤1000 m/s ²
Humidity (40°C)	93% relative humidity (no condensation forming)
Cable	
Cable diameter	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
SINGLEFLEX Scale tape	
Material	Stainless Steel
Grating period (TP)	20 μm
Reference marks	<ul style="list-style-type: none"> In the middle of the measuring length (ML) Others on request
Measuring length (ML)	up to 2480 mm (others on request)
Linear thermal expansion coefficient	10.6 x 10 ⁻⁶ K ⁻¹ (expansion will be influenced by the mounting surface)
Accuracy classes (a)	<ul style="list-style-type: none"> ±3 μm ±5 μm

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	20µm	5µm
		5-times	4µm	1µm
		10-times	2µm	0.5µm
		25-times	0.8µm	0.2µm
		50-times	0.4µm	0.1µm
		64-times	312.5nm	78.125nm

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 _{0L}	U _{2L}	U _{1L}	-	5V	0V	-	-	U ₀₊	U ₂₊	U ₁₊	n.c.	Shield
RS 422	-	-	NAS	Z _{0L}	Z _{2L}	Z _{1L}	-	5V	0V	-	AS	Z ₀₊	Z ₂₊	Z ₁₊	n.c.	Shield

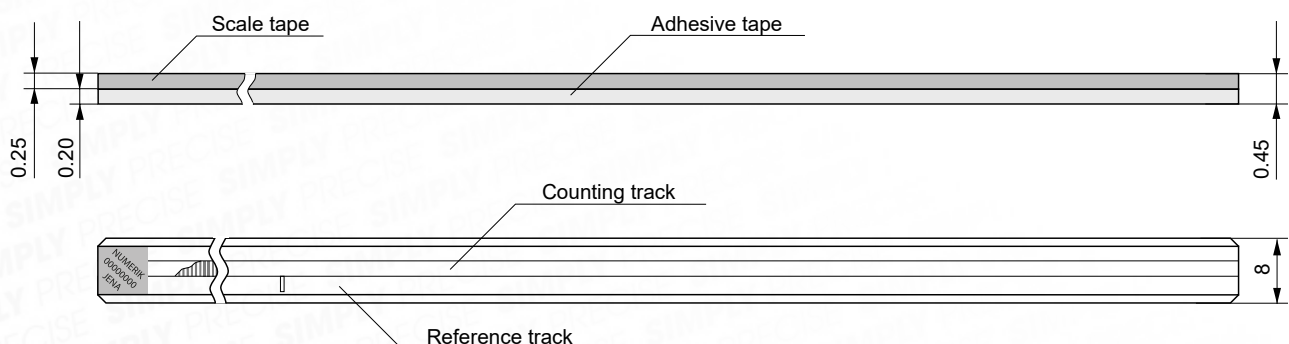
0V Ground (GND) AS/NAS Error signal (monitoring signal)
 5V Operating voltage (UB) n.c. not connected (must not be connected!)

INTERPOLATION ERROR

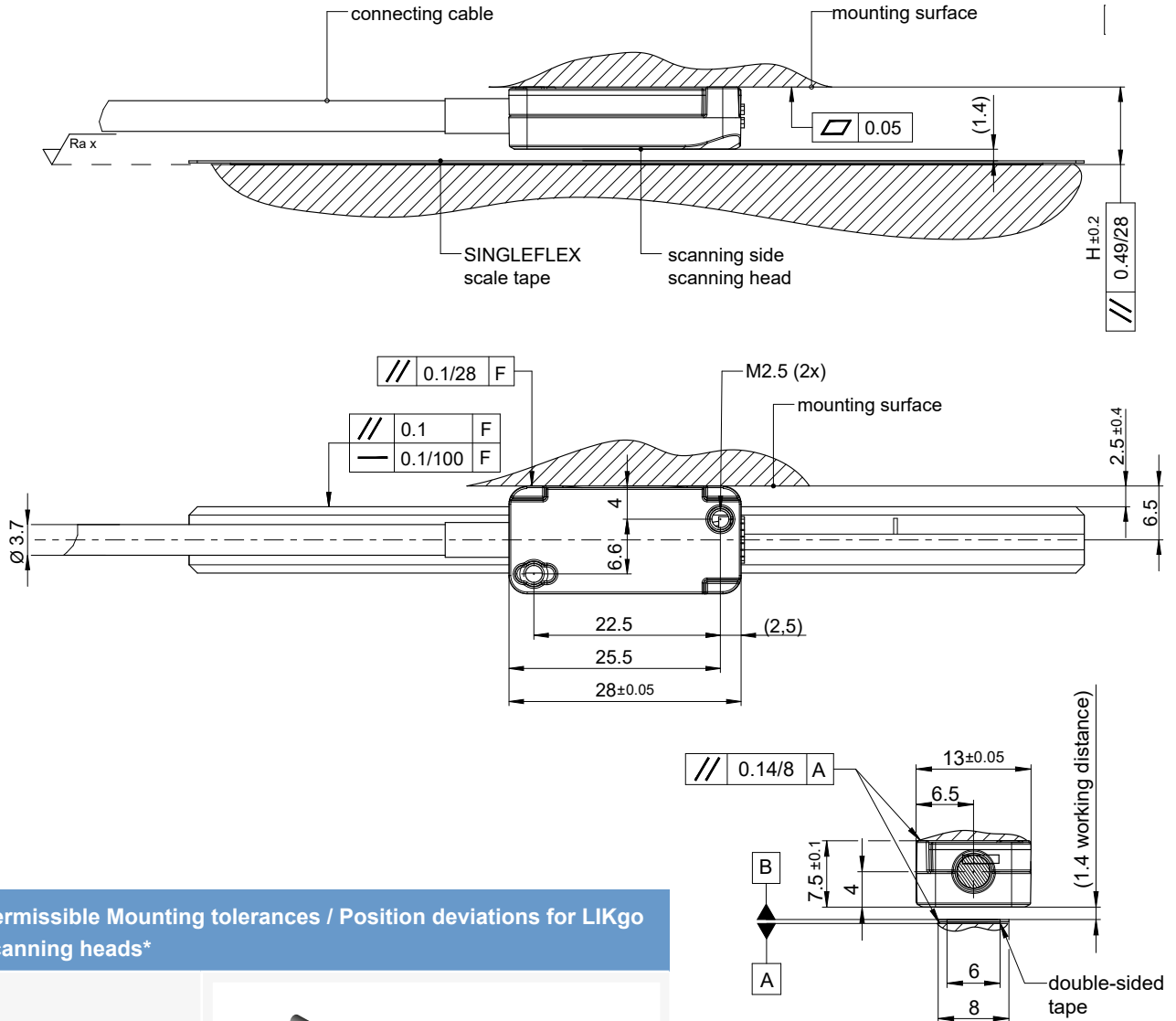
Interpolation Error (highest resolution - with the 64-times interpolation)

typical maximum value ±65 nm

SINGLEFLEX Scale Tape



MOUNTING DRAWING



Permissible Mounting tolerances / Position deviations for LIKgo scanning heads*

$$\Delta Z = \pm 0.2 \text{ mm}$$

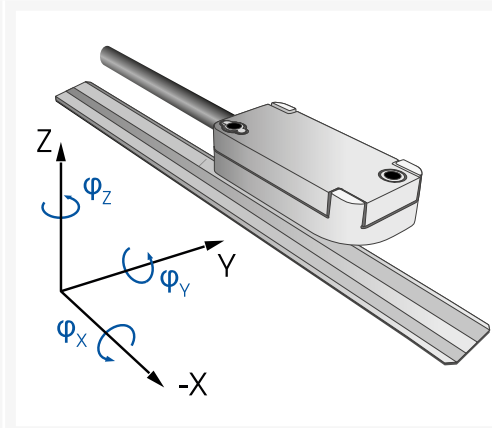
$$\Delta Y = \pm 0.4 \text{ mm}$$

$$\varphi Z = \pm 0.2^\circ (\pm 12')$$

$$\varphi Y = \pm 1.0^\circ (\pm 60')$$

$$\varphi X = \pm 1.0^\circ (\pm 60')$$

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



Scale Tape	H
SINGLEFLEX with double-sided tape	9.35 mm
SINGLEFLEX without double-sided tape	9.15 mm
F	Machine guideway

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