





NUMERIK
JENA



PRO **LIK**_{go} **DUCT INFORMATION**

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		5 V \pm 10%
Output interfaces		
Voltage output		1 V _{PP}
Square wave output		RS 422 with interpolation up to 64-times
Current consumption		
Voltage output		\leq 50 mA (with 120 Ω load resistance)
Square wave output RS 422		\leq 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)		\leq 500 m/s ²
Shock (6 ms)		\leq 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

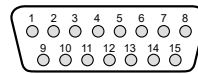
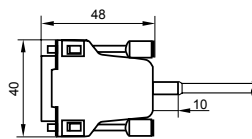
INTERPOLATION ERROR

Interpolation Error (highest resolution - with the 64-times interpolation)	
typical maximum value	\pm 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
20 µm	20 µm	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)



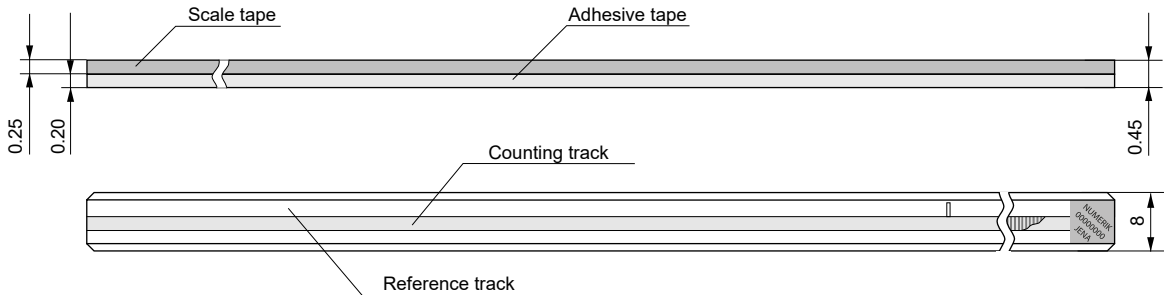
PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Housing
1 V _{PP}	-	-	-	U ₀₋	U ₂₋	U ₁₋	-	5V	0V	-	-	U ₀₊	U ₂₊	U ₁₊	n.c.	Shield
RS 422	-	-	NAS	Z ₀₋	Z ₂₋	Z ₁₋	-	5V	0V	-	AS	Z ₀₊	Z ₂₊	Z ₁₊	n.c.	Shield

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

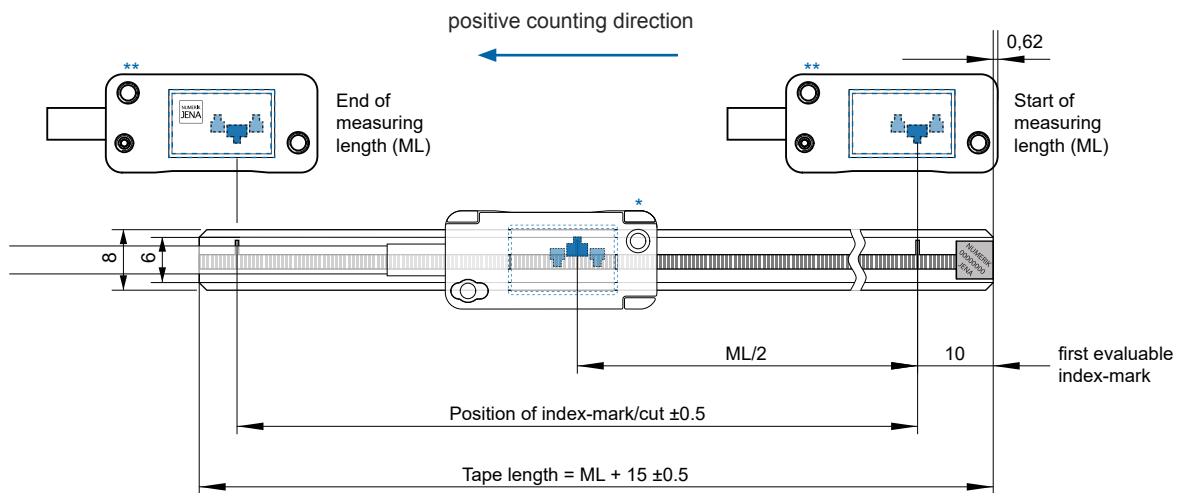
SINGLEFLEX Scale Tape

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) without every 50 mm 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
Baseline error	±750 nm / 50 mm

SINGLEFLEX Scale Tape



MOUNTING DRAWING



* View of the sensor from above through the housing

** View of the sensor top (crome) side

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.

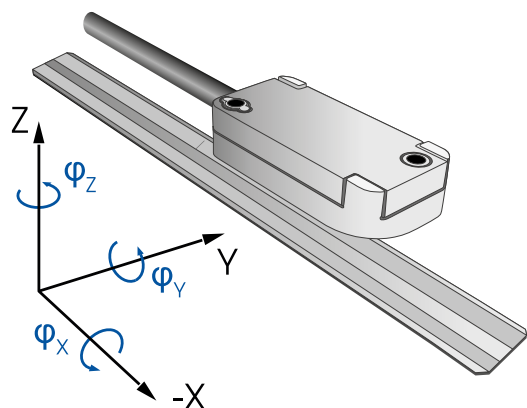
Working distance (distance between sensor and scale tape)

1.4 mm

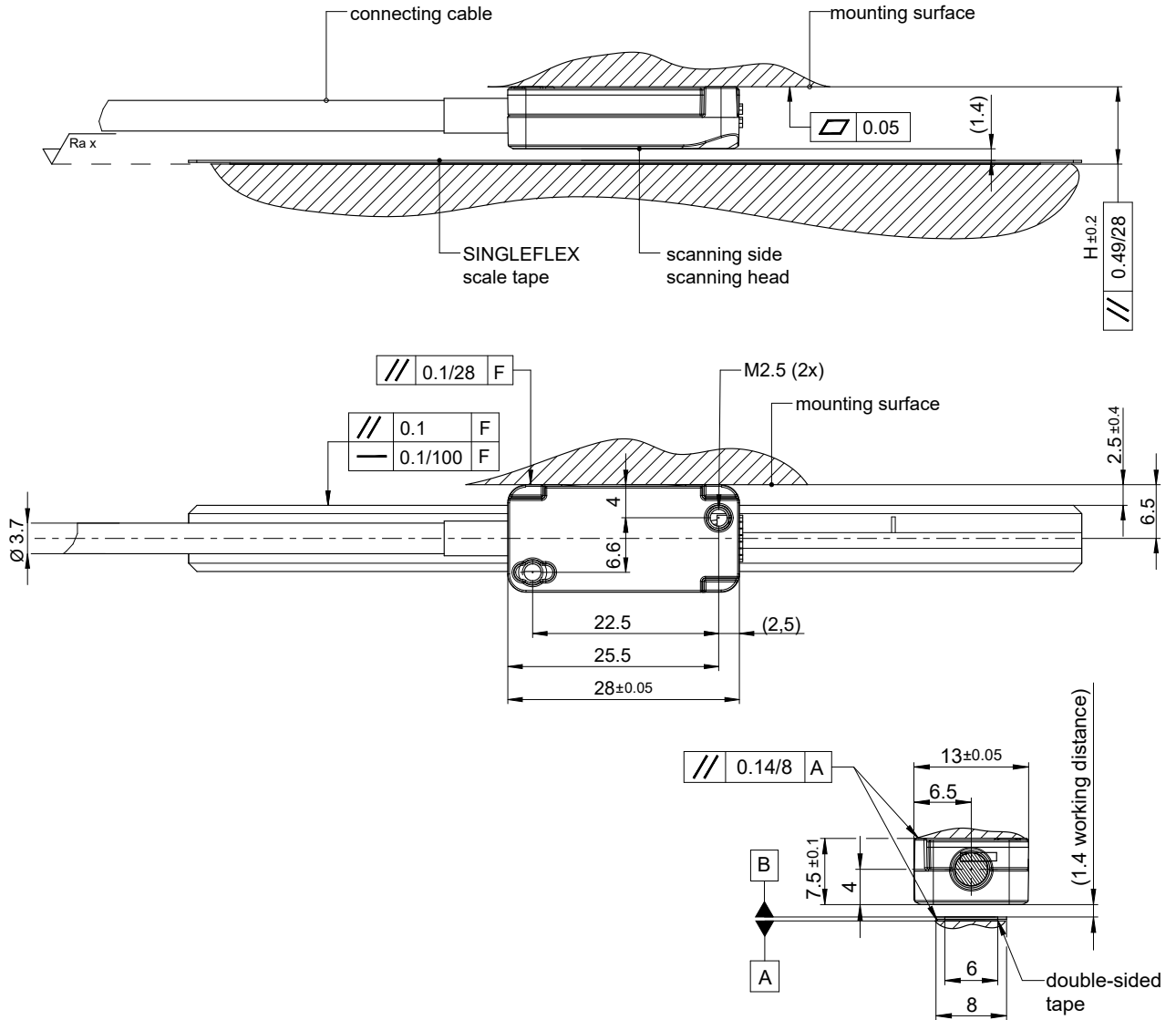
SINGLEFLEX scale tape height H

with double-sided tape H = 9.35 mm

without double-sided tape H = 9.15 mm



MECHANICAL DATA



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