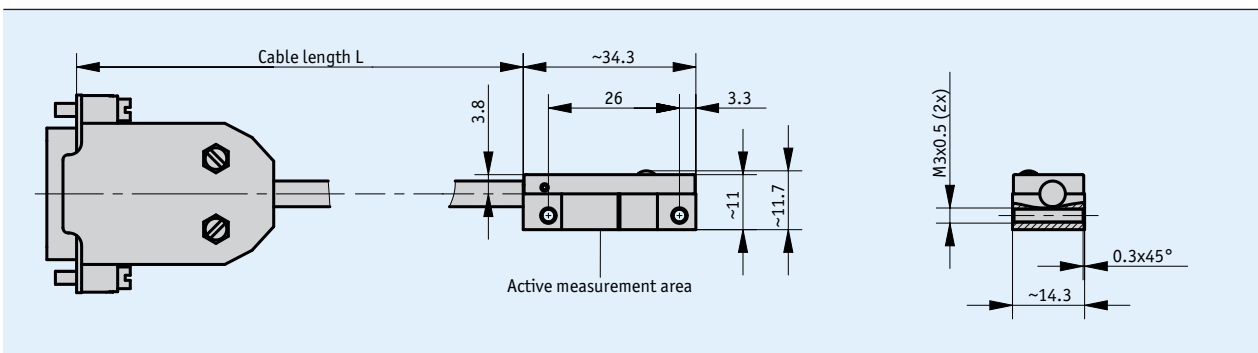
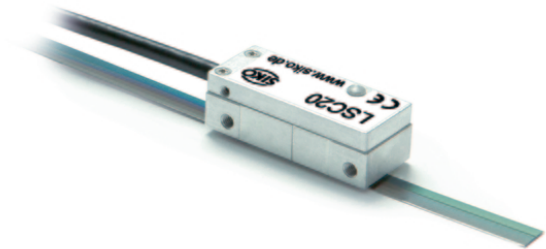


## Profile

- very compact design
- Integrated diagnosis LED for simple assembly
- High band/sensor distance
- Scale length up to 30000 mm
- Reference points can be positioned flexibly
- Optional end marks (metal strip) and a limit switch integrated in the sensor - no additional wiring required
- Use in 10<sup>-8</sup> torr vacuum (on request)



## Mechanical data

Feature	Technical data	Additional information
Housing	Aluminum	
Sensor/band reading distance	1 mm $\pm$ 0.15	
Cable length	1.0, 3.0 and 5.0 m Double-shielded cable, $\phi$ 3.6 mm	bending cycles
Cable sheath	PVC	Sensor
Cable bending radius	$\geq$ 20 mm	static operation, dynamic operation
Weight	$\sim$ 8 g	Sensor without cable
	14 g/m	Cable

## Electrical data

Feature	Technical data	Additional information
Operating voltage	5 V DC $\pm$ 5 %	
Current consumption	$\sim$ 140 mA	with terminating resistor
Output signals	A, /A, B, /B, R, /R left and right limit switches	according to RS422 High/Low active (programmable) PP3.3 Volt max. CVTTL compatible High > 2.4 V DC, Low < 0.4 V DC
output frequency	$\leq$ 7.5 MHz	per channel
Standstill noise	1 increment(s)	1 MHz (per channel)
Signal period	20 $\mu\text{s}$	
Type of connection	D-Sub	15-pole

## Counting frequency of downstream electronics

Resolution ( $\mu\text{m}$ )	Counting frequency of downstream electronics (kHz)								
	0.05	110	550	1100	5500	11000	16500	-	-
0.1	55	275	550	2750	5500	8250	11000	16500	
Travel speed (m/s)	0.01	0.05	0.1	0.5	1	1.5	2	3	

### System data

Feature	Technical data	Additional information
Resolution	0.1 µm, 0.05 µm	
System accuracy	±5 µm /m	
Repeat accuracy	±1 increment(s)	bidirectional
Sensor type	TS20	
Travel speed	3 m/s	at 0.1 µm resolution
	1.5 m/s	at 0.05 µm resolution

### Ambient conditions

Feature	Technical data	Additional information
Ambient temperature	0 ... 70 °C	
Storage temperature	-20 ... 85 °C	
Relative humidity	10 ... 90 %	at 20 °C
EMC	EN 55011	
	EN 61000-4-2, -3, -6	interference resistance / immission
	EN 61000-4-4	emitted interference / emission
Protection category	IP54	EN 60529, only with mating connector or protective cap
Shock resistance	<3000 m/s <sup>2</sup> , 0.5 m/s half shaft	EN 60068-2-27
Vibration resistance	<300 m/s <sup>2</sup> , 17 Hz	EN 60068-2-6 (axial, radial)

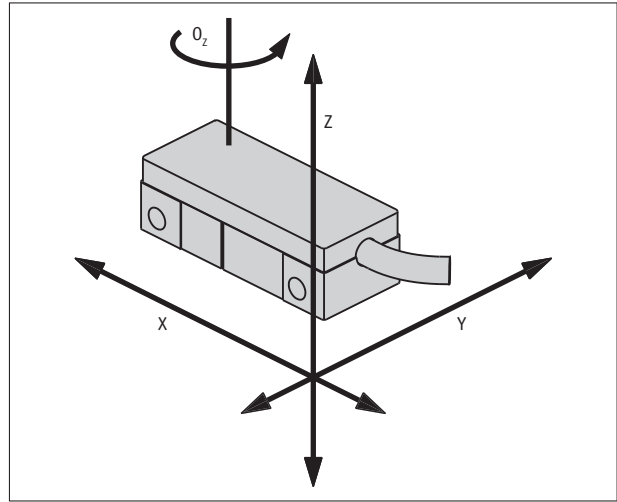
### Pin assignment

Signal	PIN
nc	1
GND	2
nc	3
/R	4
/B	5
/A	6
+5 V	7
+5 V	8
GND	9
L2	10
L1	11
R	12
B	13
A	14
nc	15

### Hint for mounting

Orientation and tolerances of sensor mounting

Axis	Tolerance
X	Sense of motion
Y	$\pm 0.20$ mm
Z	$\pm 0.15$ mm
$\theta_x$	$\pm 1.0^\circ$
$\theta_y$	$\pm 1.0^\circ$
$\theta_z$	$\pm 2.0^\circ$



symbolic representation

### Order

#### ■ ordering information

the following system components are required:

Optical Scale TS20

[www.siko-global.com](http://www.siko-global.com)

#### ■ Ordering table

Feature	Ordering data	Specification	Additional information
Resolution	0.1	0.1 $\mu\text{m}$	
	0.05	0.05 $\mu\text{m}$	
End position	E0	without end position	
	EM	with end position	
Cable length	...	1.0, 3.0, 5.0 m	

#### ■ Order key

LSC20 - **LD** -  -  - **E8X** -

A
B
C

**Scope of delivery:** Mounting instructions, distance gage, D-SUB connector 15-pin

#### Accessories:

Diagnostic Tool DT20  
Sensor Adapter 87173  
Tape Assembling Tool 87206  
Reference Marker 87207  
Limit Marker 87211

[www.siko-global.com](http://www.siko-global.com)  
on request  
on request  
on request  
on request