

# Shaft copying systems

<b>Sensor – Ants Safe</b>	<b>LES02D</b>	<b>Safe position detection – Dual CAN</b>
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The sensor Ants LES02D is an extremely robust, compact and contactless measuring system. With a resolution of 0.5 mm and a travel speed of up to 10.5 m/s, absolute position values of the elevator car are determined slip-free via a non-contact measuring principle.



## Features and benefits

- **Safe position and speed detection**

The SIL3-certified measuring system consisting of sensor and code band provides speed information in addition to the absolute position values.

- **100 % slip-free**

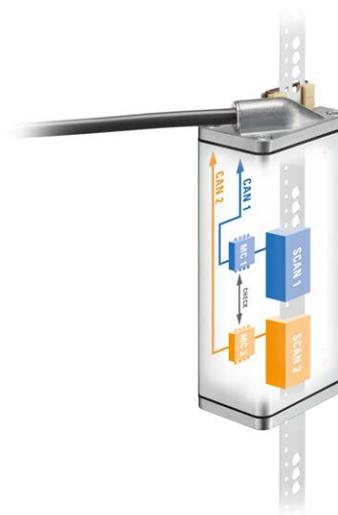
Mounting on, next to or underneath the lift car always provides direct position feedback without the effect of possible slippage of the suspension means.

- **Maximum compactness**

With its compactness, the sensor is not only easy to install, but can also be integrated into the tightest installation spaces. Even in glass elevators, it blends in very well with the overall appearance of the elevator system.

## Functional principle LES02D - Dual CAN

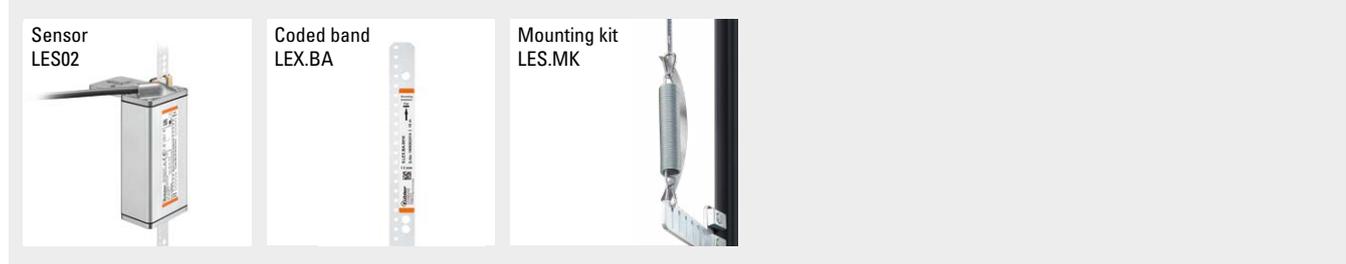
The sensor Ants LES02D consists of two independently operating detection systems. SCAN1 and SCAN2 are measured sections detected via the micro controllers MC1 and MC2. The micro controllers transmit speed data, position data and error information via two independent channels (CAN1 and CAN2) as a proprietary CAN protocol.



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**Required components for the use of the LES02D sensor**



**Order code**      **8.LES02D.X12X.2111**

**Sensor**      Type

**a** *Type of mounting*  
 1 = with mounting plate  
 2 = without mounting plate (T-slot mounting)

**b** *Interface / supply voltage*  
 2 = CAN (2-channel) / 10 ... 30 V

**c** *Type of connection*  
 1 = cable, 3 m [9.84'], shielded, open cable end  
 2 = cable, 3 m [9.84'], shielded, RJ45 connector  
 A = cable, special lengths, shielded, open cable end \*)  
 B = cable, special lengths, shielded, RJ45 connector \*)

\*) Special lengths on request: 5 m, 7 m, 10 m  
 order code expansion .XXXX = length in dm  
 ex.: 8.LES02D.112A.1111.0000.0050 (for cable length 5 m)

**d** *Interface profile*  
 21 = CAN (2-channel), proprietary

**Order code**      **8.LEX.BA.XXXX**

**Coded band, absolute**      Type

**a** *Measuring lengths*  
 XXXX = lengths in meters  
 (max. length = 392 m)

Standard lengths			Stock types	
0010 = 10 m	0040 = 40 m	0090 = 90 m	0010 = 10 m	0030 = 30 m
0015 = 15 m	0050 = 50 m	0100 = 100 m	0015 = 15 m	0040 = 40 m
0020 = 20 m	0060 = 60 m	0392 = 392 m	0020 = 20 m	0392 = 392 m
0025 = 25 m	0070 = 70 m	Intermediate lengths < 100 m as from 5 pieces, > 100 m on request	0025 = 25 m	
0030 = 30 m	0080 = 80 m			

**Mounting kit**      **8.LES.MK.0001**

**LES.MK**

Mounting kit for sensor Ants LES02D

**Accessories**      **Order no.**

**EMC - Shield terminal**      For an EMC-compliant installation of the cable      **8.0000.4G06.0312**

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## Technical data

Mechanical characteristics	
<b>Code</b>	absolute, 16 bit
<b>Max. measuring length</b>	392 m
<b>Speed</b>	certified 8 m/s <sup>1)</sup> functional 10.5 m/s <sup>2)</sup>
<b>Resolution</b>	certified 1 mm functional 0.5 mm
<b>Accuracy</b>	±1 mm
<b>Type of connection</b>	cable 3 m with open end further lengths up to max. 10 m on request
<b>Weight</b>	550 g [19.4 oz]
<b>Housing (material)</b>	aluminum
<b>Dimensions</b>	L x W x H 126 x 55 x 37 mm [4.96 x 2.17 x 1.46"]

Electrical characteristics	
<b>Supply voltage</b>	10 ... 30 V DC
<b>Reverse polarity protection</b>	yes
<b>Power consumption</b>	max. 100 mA
<b>Interfaces</b>	CAN (2-channel), proprietary

Environmental conditions	
<b>Protection acc. to EN 60529</b>	IP54
<b>Humidity</b>	< 90 % (non condensing)
<b>Working temperature</b>	-10 °C ... +70 °C [+14 °F ... +158 °F]
<b>Storage temperature</b>	-15 °C ... +80 °C [+5 °F ... +176 °F]
<b>Air pressure (operating altitude)</b>	800 ... 1013 hPA (up to 2000 m above NN)

Safety characteristics	
<b>Classification</b>	SIL3
<b>PFH<sub>d</sub> value</b>	< 10 <sup>-8</sup> h <sup>-1</sup>
<b>Mission time / Proof test interval</b>	20 years

Technical data coded band LEX.BA	
<b>Material</b>	V2A spring-loaded stainless steel, chamfered edges
<b>Dimensions</b>	16 x 0.4 mm [0.63 x 0.016"]
<b>Max. length</b>	392 m
<b>Weight</b>	50 g / m [1.76 oz/m]
<b>Thermal expansion</b>	16 x 10 <sup>-6</sup> / K between 20 °C ... 100 °C

Standards / Directives / Certificates		
<b>Standards</b>	standards for elevators	EN 81-20/21/50
<b>UL compliant</b>	in accordance with	File no. E498900
<b>CE compliant</b>	in accordance with	
	EMC Directive	2014/30/EU
	RoHS Directive	2011/65/EU
	Elevator Directive	2014/33/EU

### Terminal assignment Ants LES02D

Interface	Type of connection	Cable						
2 CAN (2-channel)	1, A	Signal:	+V	0 V / GND	CAN1_H	CAN1_L	CAN2_H	CAN2_L
		Core color:	BN	WH	GN	YE	GY	PK

Interface	Type of connection	Cable with RJ45 connector								
2 CAN (2-channel)	2, B	Signal:	+V	0 V / GND	CAN1_H	CAN1_L	CAN2_H	CAN2_L	n.c.	n.c.
		Pin:	4	3	2	1	8	7	5	6

+V: Supply voltage +V DC  
0 V: Supply voltage ground GND (0 V)

1) Reference is the rated speed of the elevator system.  
2) At > 12 m/s the sensor changes to error mode.

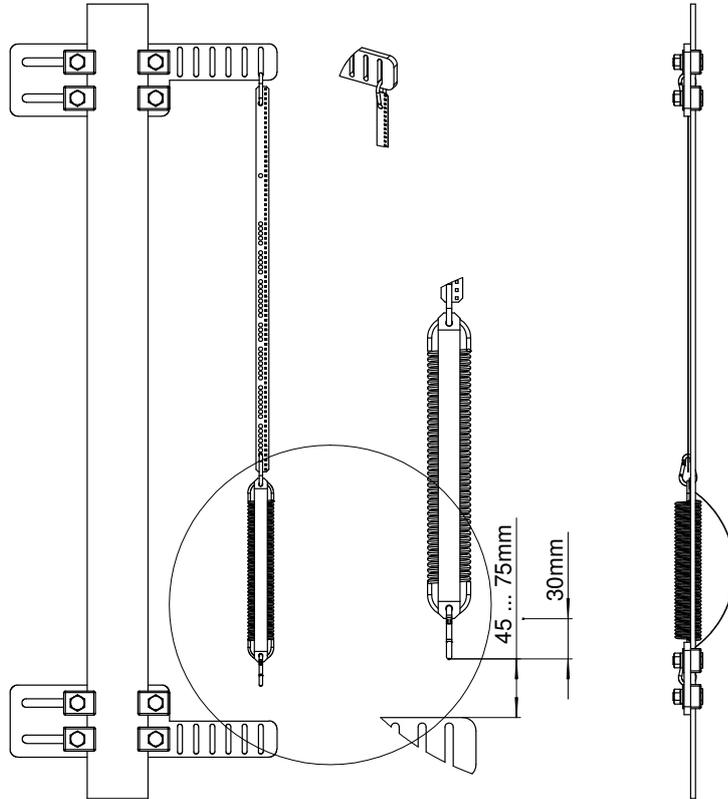
Sensor – Ants Safe

LES02D

Safe position detection – Dual CAN

## Technology in detail

### Coded band fastening with Mounting Kit LES.MK



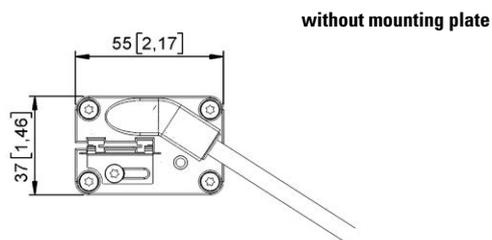
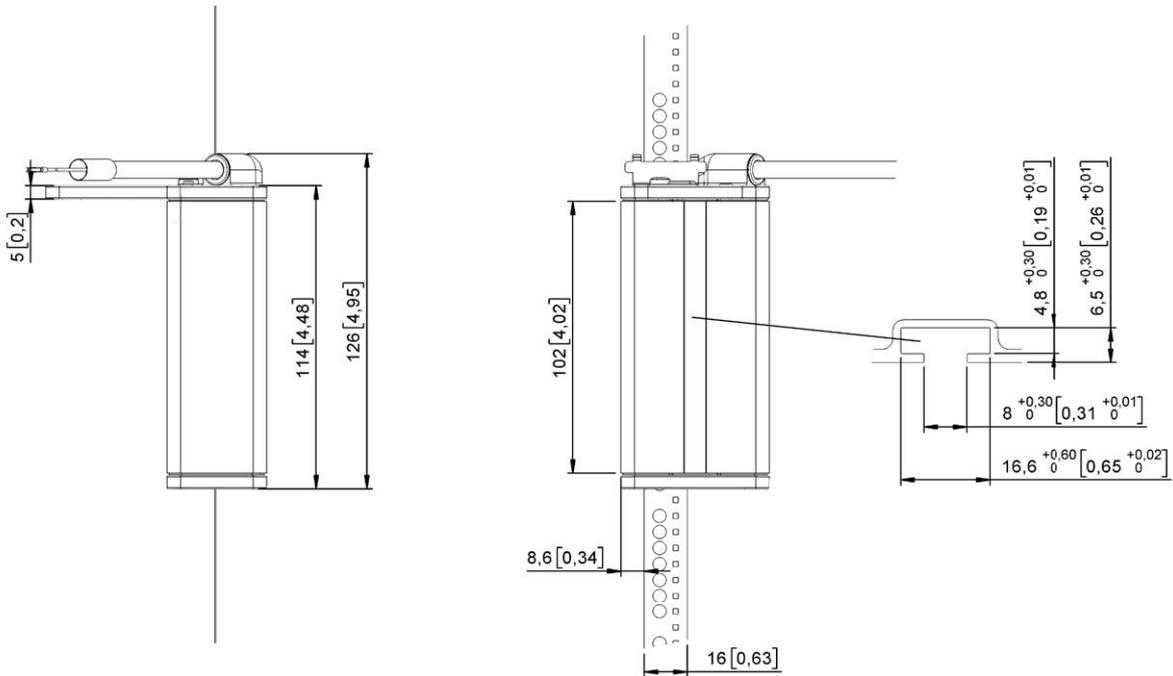
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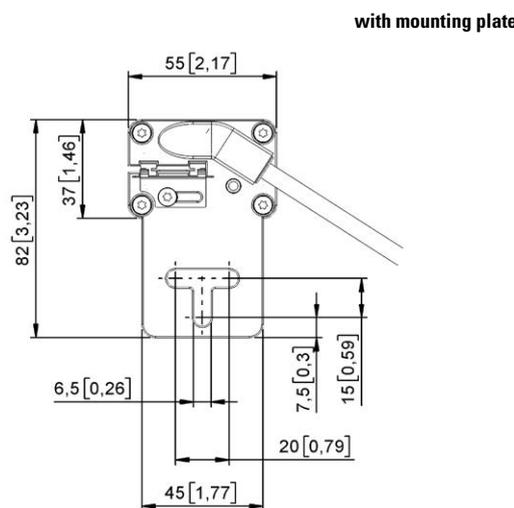
## Dimensions

Dimensions in mm [inch]

### Sensor



without mounting plate



with mounting plate