

# Shaft copying systems

<b>Sensor – Ants Safe</b>	<b>LES02</b>	<b>Safe position detection</b>
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The sensor Ants LES02 is an extremely robust, compact and contactless measuring system. With a resolution of 0.5 mm and a travel speed of up to 8 m/s, absolute position values of the elevator car are determined slip-free via a non-contact measuring principle.

In combination with the PSU02 evaluation unit, numerous elevator and safety functions can be implemented as the **Kübler Safe-System LES02/PSU02**.

[To the Safe-System LES02/PSU02 >](#)



## 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 lifts, it blends in very well with the overall appearance of the lift system.

- Digitization of elevator systems**  
 In combination with the PSU02 evaluation unit, numerous elevator and safety functions can be implemented. The digitization of elevator systems saves time and costs.

## Functional principle LES02

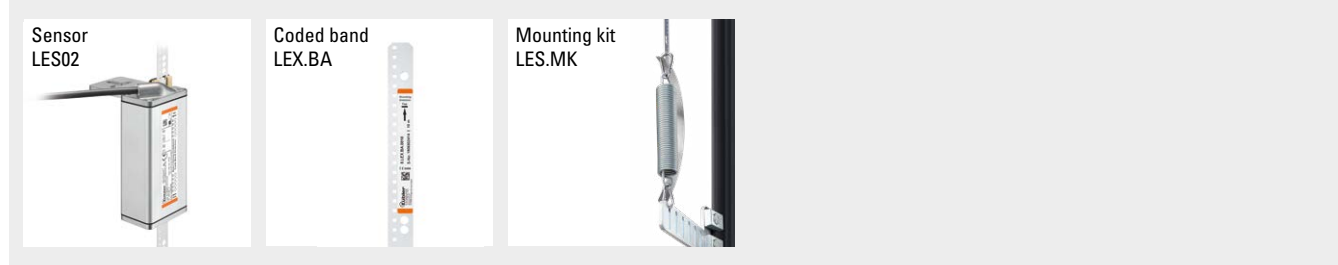
The sensor Ants LES02 consists of two independently operating detection systems. SCAN1 and SCAN2 are measured sections detected via the micro controllers MC1 and MC2. The micro controllers compare the recorded data with each other (internal cross comparison) and then transmit the safe speed data, position data and error information via a common channel as a proprietary CAN protocol.



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**Required components for the use of the LES02 sensor**



**Order code**      **8.LES02.X11X.1111**

- Sensor**      Type
- a** *Type of mounting*  
1 = with mounting plate  
2 = without mounting plate (T-slot mounting)
  - b** *Interface / supply voltage*  
1 = CAN / 10 ... 30 V
  - c** *Type of connection*  
1 = cable, 3 m [9.84'], open cable end  
A = cable, special lengths, shielded, open cable end \*)
  - d** *Interface profile*  
11 = CAN (1-channel), proprietary
- \*) Special lengths on request: 5 m, 7 m, 10 m  
order code expansion .XXXX = length in dm  
ex.: 8.LES02.111A.1111.0050 (for cable length 5 m)

**Order code**      **8.LEX.BA.XXXX**

**Coded band, absolute**      Type

<b>a</b> <i>Measuring lengths</i> XXXX = lengths in meters (max. length = 392 m)	<i>Standard lengths</i>		<i>Stock types</i>
	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,		0025 = 25 m
	0030 = 30 m    0080 = 80 m    > 100 m on request		

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

[To the data sheet >](#)

Mounting kit for sensor Ants LES02

**Accessories**      **EMC - Shield terminal**      For an EMC-compliant installation of the cable      **8.0000.4G06.0312**      Order no.

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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 12 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 proprietär

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 LES02

Interface	Type of connection	Cable				
1 CAN	1, A	Signal:	+V	0 V / GND	CAN_H	CAN_L
		Core color:	BN	WH	GN	YE

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

1) Bezug ist die Nenngeschwindigkeit der Aufzugsanlage.  
2) Bei > 12 m/s geht der Sensor in den Fehlermodus.

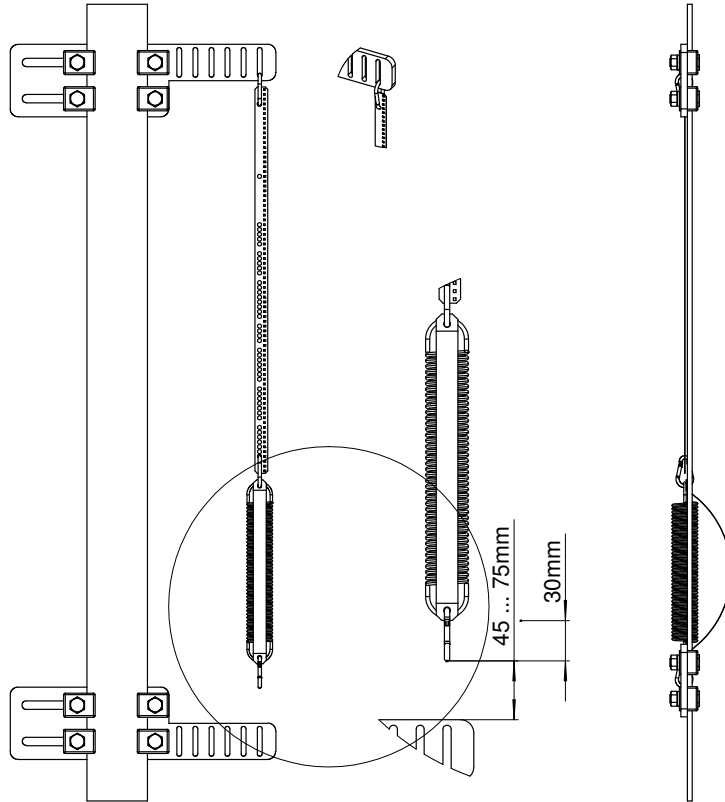
Sensor – Ants Safe

LES02

Safe position detection

## Technology in detail

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



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## Dimensions

Dimensions in mm [inch]

### Sensor

