Sensor – Ants Safe | **LES02D** | **Safe position detection – Dual CAN**

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

Sensor
LES02

Coded band
LEX.BA

Mounting kit
LES.MK

Order code Sensor

8.LES02D	.	X	1	2	X	.	21	11
Type		a		b	c		d	

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 Coded band, absolute

8.LEX.BA	.	XXXX
Type		a

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

Standard lengths
0010 = 10 m
0015 = 15 m
0020 = 20 m
0025 = 25 m
0030 = 30 m
0040 = 40 m
0050 = 50 m
0060 = 60 m
0070 = 70 m
0080 = 80 m
0090 = 90 m
0100 = 100 m
0392 = 392 m

Intermediate lengths
< 100 m as from 5 pieces
> 100 m on request

Stock types
8.LEX.BA.0010 (10 m)
8.LEX.BA.0015 (15 m)
8.LEX.BA.0020 (20 m)
8.LEX.BA.0025 (25 m)
8.LEX.BA.0030 (30 m)
8.LEX.BA.0035 (35 m)
8.LEX.BA.0040 (40 m)
8.LEX.BA.0392 (392 m)

Mounting kit LES.MK

8.LES.MK.0001

To the data sheet >

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

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

Electrical characteristics

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

Environmental conditions

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

Safety characteristics

Classification	SIL3
PFH_d value	< 10^{-8} h^{-1}
Mission time / Proof test interval	20 years

Technical data coded band LEX.BA

Material	V2A spring-loaded stainless steel, chamfered edges
Dimensions	16 x 0.4 mm [0.63 x 0.016"]
Max. length	392 m
Weight	50 g / m [1.76 oz/m]
Thermal expansion	16 x 10^{-6} / K between 20 °C ... 100 °C

Interface characteristics CAN

Bitrate	250 kbit/s
Identifier (ID) channel A	0x0A (11 Bit standard)
Identifier (ID) channel B	0x0B (11 Bit standard)
Transmitting interval channel A and channel B	4 ms
Time offset channel A to channel B	2 ms
Terminated	yes (Both channels are terminated separately)

Standards / Directives / Certificates

Standards	standards for elevators	EN 81-20/21/50
UL compliant	in accordance with	File no. E498900
CE compliant	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.

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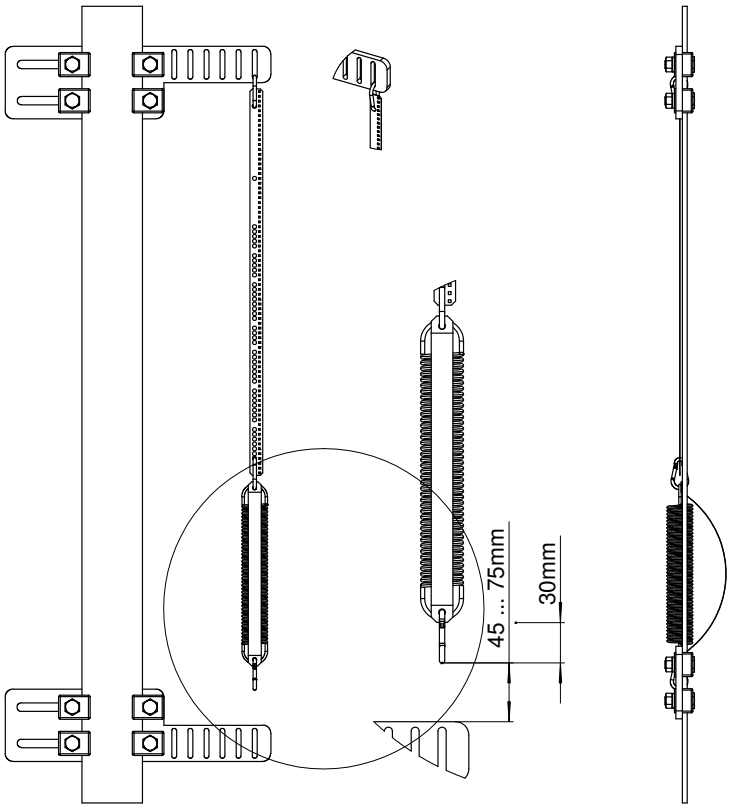
Technology in detail

Coded band fastening with Mounting Kit LES.MK



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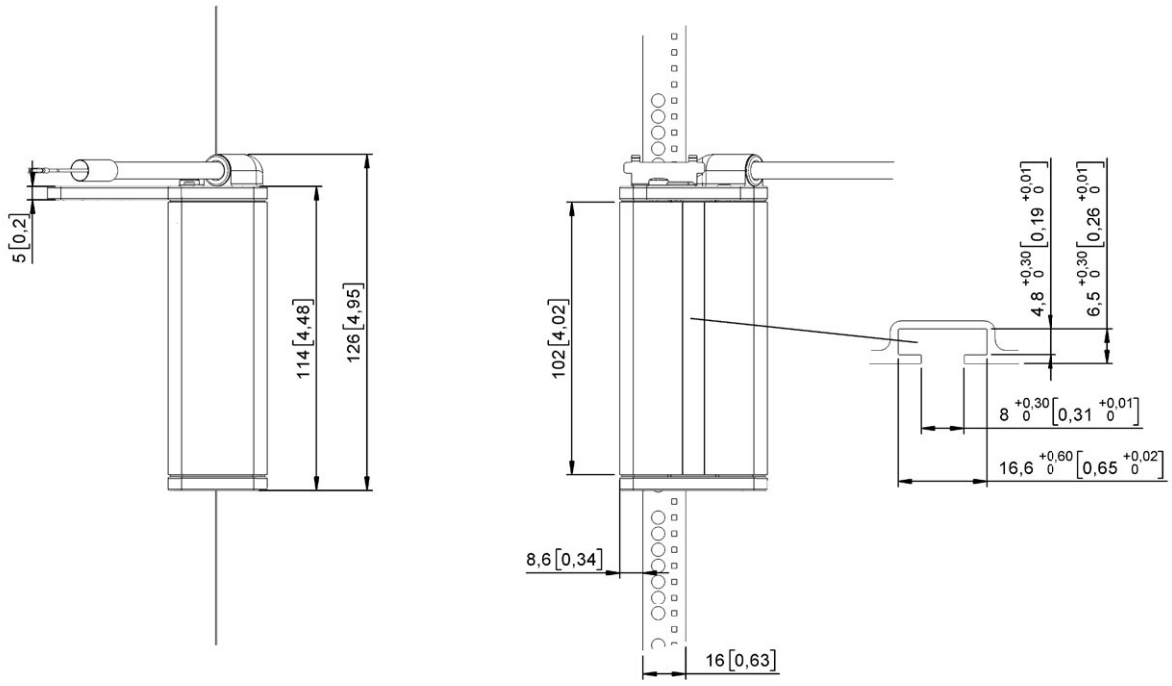
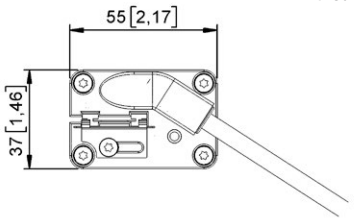
Dimensions

Dimensions in mm [inch]

Sensor



without mounting plate



with mounting plate