

Linear measuring technology

Shaft copying system	Ants LEB02	Absolute position measurement Measuring range up to 392 m
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Ants LEB02 is an extremely robust, compact and contactless measuring system. It uses a contactless measuring principle to measure without any slipping absolute elevator car positions with a resolution of 1 mm and a travel speed of 8 m/s. Additional components such as magnetic switches become superfluous. Especially the easy assembly reduces installation time, thus contributing to overall costs reduction.



 392 m Wide measuring range	 1 mm Resolution	 Easy installation	 Compact	 Robust	 Shock / vibration resistant	 Reverse polarity protection	 -10...+70°C Temperature range
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Characteristics

- Absolute position values.
- Measuring length up to 392 m.
- Status LED.
- Extremely robust and compact.
- Stainless steel coded band.
- Simple mounting.
- Contactless measuring principle.

Benefits

- Highest availability - no referencing required in case of power outage.
- 100 % slip-free – absolute position measurement directly at the elevator car.
- Suitable for tightest installation spaces.
- Reduced installation work.
- Elimination of additional components (magnetic sensors, reference sensors).
- Long service life thanks to its robust design.

Order code	8.LEB02.X1XX.XX11				
Sensor	Type	a	b	c	d
a Type of mounting		1 = with mounting plate	2 = without mounting plate ¹⁾	c Type of connection	d Interface profile
b Interface / power supply		2 = CANopen / 10 ... 30 V	3 = RS485 / 10 ... 30 V	1 = cable, 3 m [9.84'], open cable end	22 = CANopen Lift, DS417 V2.2.8
		4 = SSI / 10 ... 30 V		2 = cable, 3 m [9.84'], shielded, male connector 9-pin ²⁾	31 = RS485, 9 Byte, 24 bit position data
				A = cable, special lengths, shielded, open cable end *)	41 = SSI, Gray, 25 bit
				B = cable, special lengths, shielded, Sub-D male contacts, 9-pin *) ²⁾	
				*) Available special lengths: 4 m, 5 m, 7 m, 10 m order code expansion .XXXX = length in dm ex.: 8.LEB02.112A.2211.0050 (for cable length 5 m)	

Order code	8.LEX.BA.XXXX	
Coded band, absolute	Type	a
a Measuring lengths	Standard lengths	Stock types
XXXX = lengths in meters (max. length = 392 m)	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	0025 = 25 m
	0030 = 30 m 0080 = 80 m	
	Intermediate lengths < 100 m as from 5 pieces, > 100 m on request	

1) T-slot mounting.

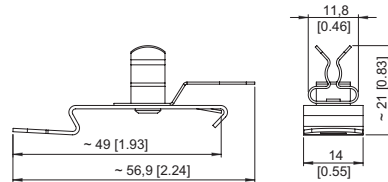
2) With interface RS485 (a = 3) on request.

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Accessories	Order no.
Mounting kit LEB.MK	8.LEB.MK.0001

EMC shield terminal



For an EMC-compliant installation of the cable, top-hat rail mounting

Clamp: spring steel, galvanized
Foot: spring steel

Shield diameter 3.0 ... 12.0 mm

8.0000.4G06.0312

Technical data

Mechanical characteristics sensor Ants LEB02	
Code	absolute, 16 bit
Max. measuring length	392 m
Speed	8 m/s
Resolution	1 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 sensor Ants LEB02	
Power supply	10 ... 30 V DC
Reverse polarity protection	yes
Power consumption	max. 100 mA
Interfaces	CANopen Lift, RS485, SSI

Environmental conditions sensor Ants LEB02	
Protection acc. to EN 60529	IP54
Humidity	< 90 % (non-condensing)
Working temperature	-10°C ... +70°C [+14°F ... +158°F]
Storage temperature	-20°C ... +80°C [-4°F ... +176°F]
Air pressure (operating altitude)	800 ... 1013 hPA (up to 2000 m above NN)

Interface characteristics CANopen Lift (standard factory setting)	
Bitrate	250 kbit/s
Identifier	0x18C
Node ID	0x04
Eventtimer	10 ms
Resolution	1 mm
Heartbeat	500 ms
Terminated	yes

Interface characteristics RS485	
Baud rate	19.200
Number of data bits	8 bit
Number of Start bits	1 bit
Number of Stop bits	1 bit
Parity	none
Repetition	150 Hz
Number of bytes / transmission	9 bytes
Resolution position	1 mm
Resolution speed	10 mm/s
Position value	24 bit, binary
Speed value	16 bit, two's complement

Interface characteristics SSI (standard factory setting)	
Data transfer	in slave mode double data transmission
Resolution	0.25 mm
Data length	25 bit + 1 power failure bit (Low)
MSB	first
Code	gray
Clock rate	max. 200 kHz
Monoflop time	min. 500 µs
A position value must be read by the SSI master over 52 pulses.	
1 ... 25:	MSB first absolute position in gray code
26:	Data low (PFB)
27 ... 51:	Second transmission (see 1-25)
52:	Data Low (PFB)

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Standards / Directives / Certificates		
Standards	standards for elevators	EN81-20 / -50
	EMC emission	EN12015
	EMC immunity	EN12016
	vibration resistance	EN60068-2-6
	shock resistance	EN60068-2-27
	environmental conditions	EN60068-2-14
Directives	EMC directive	2014/30/EU
	elevator directives	2014/33/EU
	RoHs directive	2011/65/EU
CE compliant	Yes	

Technical data coded band	
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

Technical data mounting kit LEB.MK	
Dimensions	see manual R60205
Material	see manual R60205

Elevator functions	Standard	Base Sensor
Referencing / correction trip	-	√
Top & bottom inspection limitation	EN 81-20	√
Direct drive-in – depending on complete drive module	-	√
Stopping point shift	-	√
Overspeed during inspection	EN 81-20	√

Terminal assignment

Interface	Type of connection	Cable							
2 CANopen Lift (DS417)	1, A	Signal:	+V	0 V / GND	CAN_H	CAN_L	n.c.	n.c.	
		Core color:	BN	WH	GN	YE	GY	PK	

Interface	Type of connection	Cable with Sub-D, male connector 9-pin									
2 CANopen Lift (DS417)	2, B	Signal:	n.c.	CAN_L	0 V / GND	n.c.	shield	0 V / GND	CAN_H	n.c.	+V
		Pin:	1	2	3	4	5	6	7	8	9

Interface	Type of connection	Cable							
3 RS485	1, A	Signal:	+V	0 V / GND	D+	D-	n.c.	n.c.	
		Core color:	BN	WH	GN	YE	GY	PK	

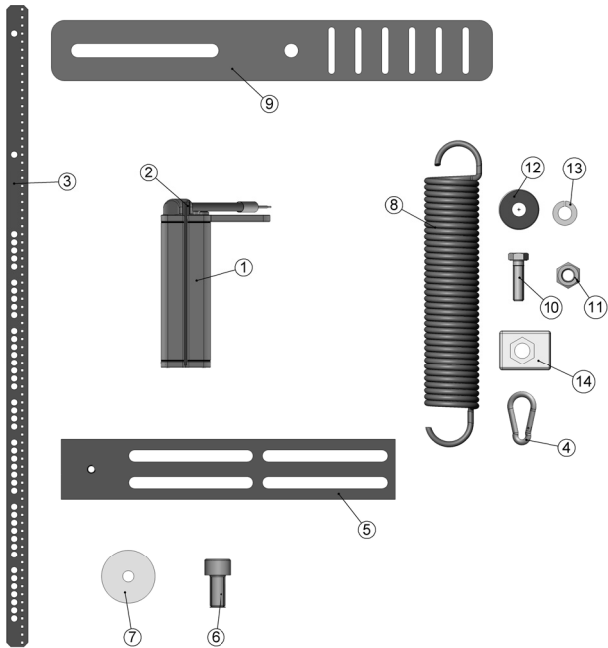
Interface	Type of connection	Cable							
4 SSI	1, A	Signal:	+V	0 V / GND	C+	C-	D+	D-	
		Core color:	BN	WH	GN	YE	GY	PK	

Interface	Type of connection	Cable with Sub-D, male connector 9-pin									
4 SSI	2, B	Signal:	n.c.	C+	shield	D+	0 V / GND	+V	C-	D-	n.c.
		Pin:	1	2	3	4	5	6	7	8	9

+V: Power supply +V DC	C+, C-: Clock signal	n.c. : Do not connect
0 V: Power supply ground GND (0 V)	D+, D-: Data signal	

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Scope of delivery Ants LEB02 with LEX.BA and LEB.MK



Proper operation requires the following components

Ants LEB02 (8.LEB02.xxxx.xxxx)

- 1 1 x sensor
- 2 2 x sliding plates, mounted

Coded band LEX.BA (8.LEX.BA.xxxx)

- 3 1 x stainless steel coded band

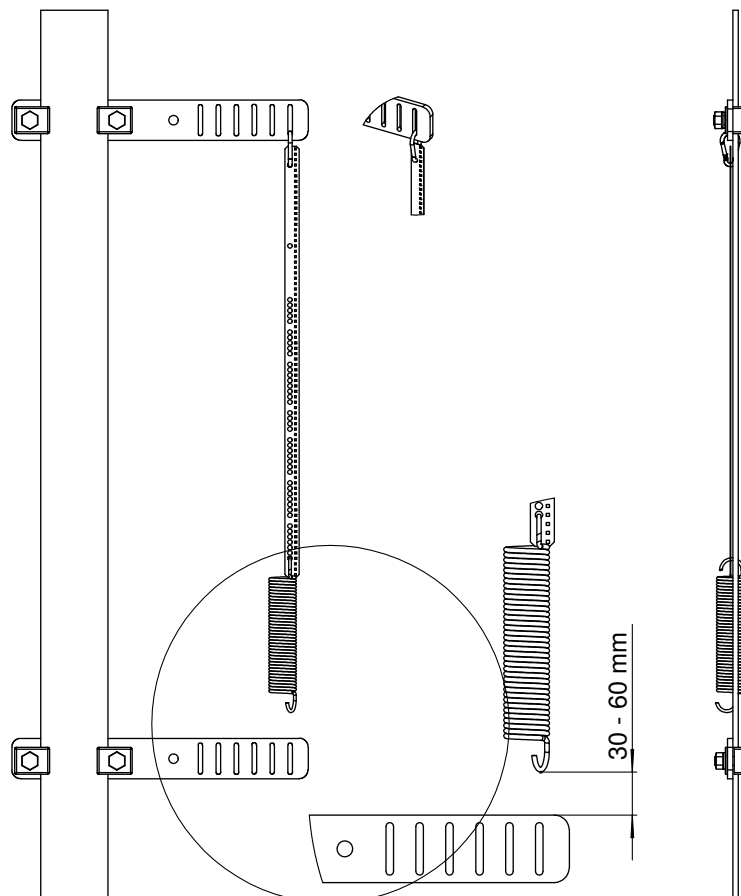
Mounting kit LEB.MK (8.LEB.MK.0001)

- 4 1 x stainless steel snap hooks
- 5 1 x sensor cabin fastening plate
- 6 1 x sensor fastening screw with Polyfleck coating
- 7 1 x washer
- 8 1 x spring
- 9 2 x rail fastening plates
- 10 4 x M10x30 hexagon head screws
- 11 4 x M10 hexagon nuts
- 12 8 x M10 large diameter washers
- 13 8 x M10 retaining rings
- 14 4 x clamping plates

Technology in detail

Coded band fastening

Ants LEB02 stands out in particular for its ease of installation. This saves time and costs.



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Ants LEB02

Absolute position measurement Measuring range up to 392 m

Dimensions

Dimensions in mm [inch]

Sensor

