

Linear measuring technology

Shaft copying system	PSU01	Safe System, SIL3 Measuring range up to 392 m
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The PSU01 includes a sensor (Ants LES01) and an evaluation unit (PSU) for realizing elevator and safety functions in compliance with EN81-20/-21/-50. The Ants LES01 measures the absolute car position 100% slip-free. The PSU evaluates the safe position feedback and triggers by means of safety relays, jointly with the elevator control, the required safety functions. They allow replacing numerous existing components. Therefore, the safe system, besides installation and maintenance time, allows above all saving costs.



CAN

Wide measuring range	Resolution	Easy installation	Compact	Robust	Shock / vibration resistant	Reverse polarity protection	Temperature range

Characteristics

- Safe position measurement and evaluation.
- SIL3-certified by TÜV.
- Integrated UCM function.
- Extremely robust and compact.
- Stainless steel code tape.
- Simple mounting.
- Non-contact measuring system.

Benefits

- Realization of elevator and safety functions in compliance with EN81-20/-21/-50.
- Replaces existing components such as limit switches, inspection limit switches, magnetic sensors and door zone magnets.
- Reduces installation and maintenance time.
- Accurate car positioning.
- 100% slip-free thanks to absolute position measurement directly on the elevator car.
- Suitable for tight installation spaces.
- Highest availability.

Order code PSU01 ¹⁾	8.PSU01	. 1 1 2 1 . 22 11		
	Type	a b c d		
a Type of mounting 1 = top-hat rail mounting	b Sensor 1 = Ants LES01	c Interface / power supply 2 = CANopen / 24 V	d Interface profile 22 = CANopen Lift, DS417 V2.2.8	

Order code Code tape, absolute	8.LEX.BA	. XXXX		
	Type	a		
a Measuring lengths XXXX = lengths in meters (max. length = 392 m)	Standard lengths 0010 = 10 m 0060 = 60 m 0015 = 15 m 0070 = 70 m 0020 = 20 m 0080 = 80 m 0025 = 25 m 0090 = 90 m 0030 = 30 m 0100 = 100 m 0040 = 40 m 0392 = 392 m 0050 = 50 m	Intermediate lengths on request as from 5 pieces	Stock types 0010 = 10 m 0030 = 30 m 0015 = 15 m 0040 = 40 m 0020 = 20 m 0392 = 392 m 0025 = 25 m	

Accessories	Order no.
Mounting kit, absolute shaft copying system	8.LES.MK.0001

1) PSU01 contains the evaluation unit (PSU) and the sensor (Ants LES01, 8.LES01.1112.1111).

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Technical data

Mechanical characteristics evaluation unit PSU

Max. number of floors	200
Connection	picoMAX® eCOM 3.5
Switch-off time / System reaction time	< 25 ms (incl. relay switching time)
Housing (material)	plastic
Dimensions	L x W x H 70 x 95 x 30 mm [2.76 x 3.74 x 1.18"]

Electrical characteristics evaluation unit PSU

Power supply	24 VDC ±10 %, low voltage PELV
Power	< 10 W
Internal interface (between Ants LES01 and PSU)	CAN proprietary, V1.0.0
External interface (between PSU and control)	CANopen Lift, DS417 V2.2.8

Environmental conditions evaluation unit PSU

Protection acc. to EN60529	IP00 (min. IP20 im when mounted in cabinet)
Humidity	< 90 % (non condensing)
Working temperature	-5°C ... +55°C [+23°F ... +131°F]
Storage temperature	-10°C ... +70°C [+14°F ... +158°F]
Air pressure (operating altitude)	800 ... 1013 hPA (up to 2000 m above sea level)

Mechanical characteristics sensor Ants LES01

Code	absolute, 16 bit
Max. measuring length	392 m
Speed	5 m/s
Resolution	1 mm
Accuracy	1 mm
Type of connection	cable 5 m with picoMAX® connector
Max. acceleration	49.1 m/s² (5 G)
Weight	500 g
Housing (material)	aluminum
Dimensions	L x W x H 135 x 45 x 33 mm [5.31 x 1.77 x 1.30"]

Electrical characteristics sensor Ants LES01

Power supply	10 ... 30 V DC
Reverse polarity protection	yes
Power consumption	max. 100 mA
Interfaces	CAN proprietary, V1.0.0

Environmental conditions Ants LES01

Protection acc. to EN60529	IP30
Humidity	< 90 % (non condensing)
Working temperature	-5°C ... +55°C [+23°F ... +131°F]
Storage temperature	-10°C ... +70°C [+14°F ... +158°F]
Air pressure (operating altitude)	800 ... 1013 hPA (up to 2000 m above sea level)

Technical data tape 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

Technical data mounting kit LES.MK

Dimensions	see manual
Material	see manual

Standards / Directives / Certificates

Standards		
elevator standard	EN81-20/-21/-50	
EMC emission	EN12015	
EMC immunity	EN12016	
vibration resistance	EN60068-2-6 / EN81-50, 5.6.3.1	
shock resistance	EN60068-2-27	
environmental conditions	EN60068-2-14	
Directives		
low voltage guideline	2014/35/EU	
EMC directive	2014/30/EU	
elevator directives	2014/33/EU	
RoHs directive	2011/65/EU	
Safety level	SIL3	
CE compliant	Yes	

Terminal assignment Ants LES01

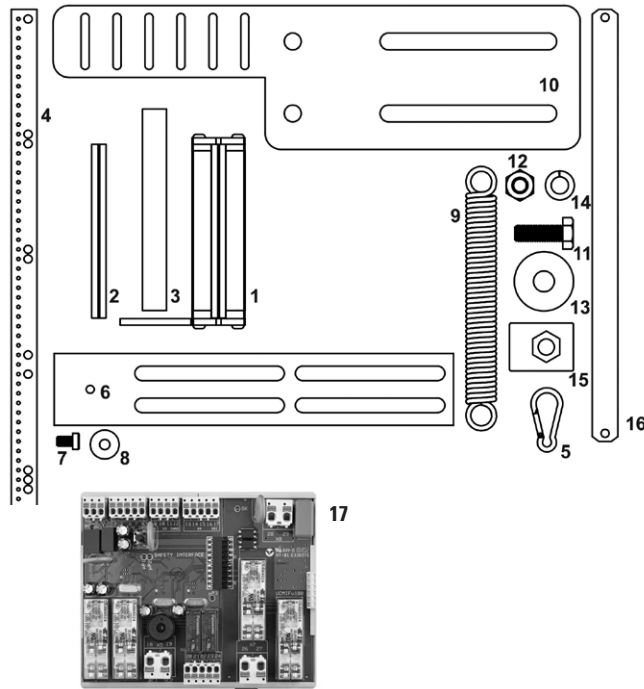
Interface	Type of connection	Cable				
		1	1	Signal:	+V	0 V
CAN		Core color:	BN	WH	GN	YE

+V: Power supply +V DC
0 V: Power supply ground GND (0 V)

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Scope of delivery PSU01 (PSU + Ants LES01) with LEX.BA and LES.MK

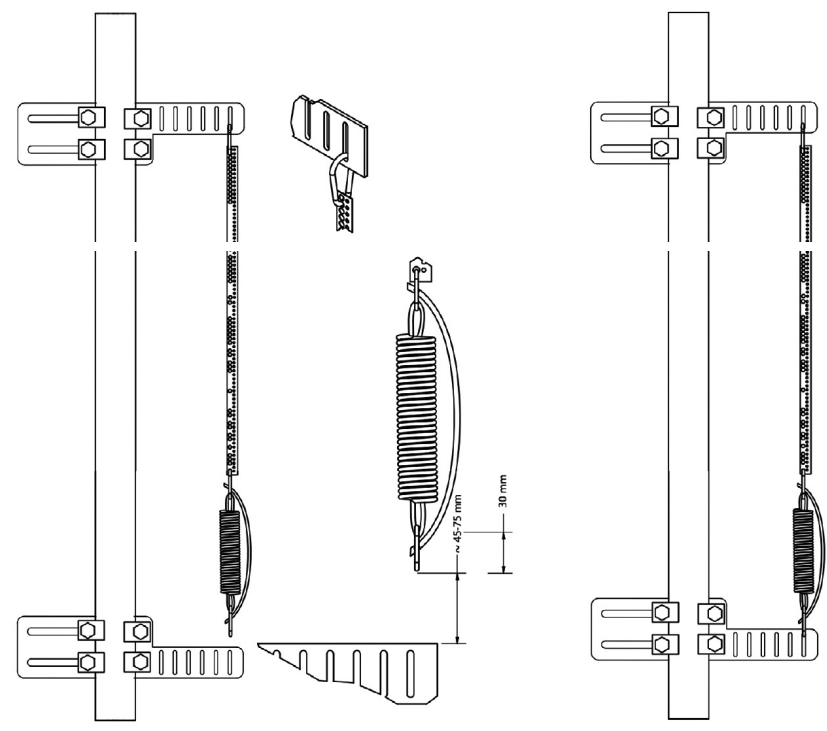


The following components included in the SIL3 certification are required for proper operation.

- Sensor Ants LES01**
- 1** 1 x sensor
- 2** 2 x sliding plates
- 3** 1 x closing strip
- Code tape LEX.BA**
- 4** 1 x tape
- Mounting kit LES.MK**
- 5** 3 x stainless steel snap hook
- 6** 1 x sensor cabin fastening plate
- 7** 1 x sensor fastening screw
- 8** 1 x washer
- 9** 1 x spring
- 10** 2 x rail fastening plates
- 11** 8 x M10x30 screws
- 12** 8 x M10 nuts
- 13** 8 x M10 large diameter washers
- 14** 8 x M10 retaining rings
- 15** 8 x clamping plates
- 16** 1 x securing band
- Evaluation unit PSU**
- 17** 1 x Auswerteeinheit

Technology in detail

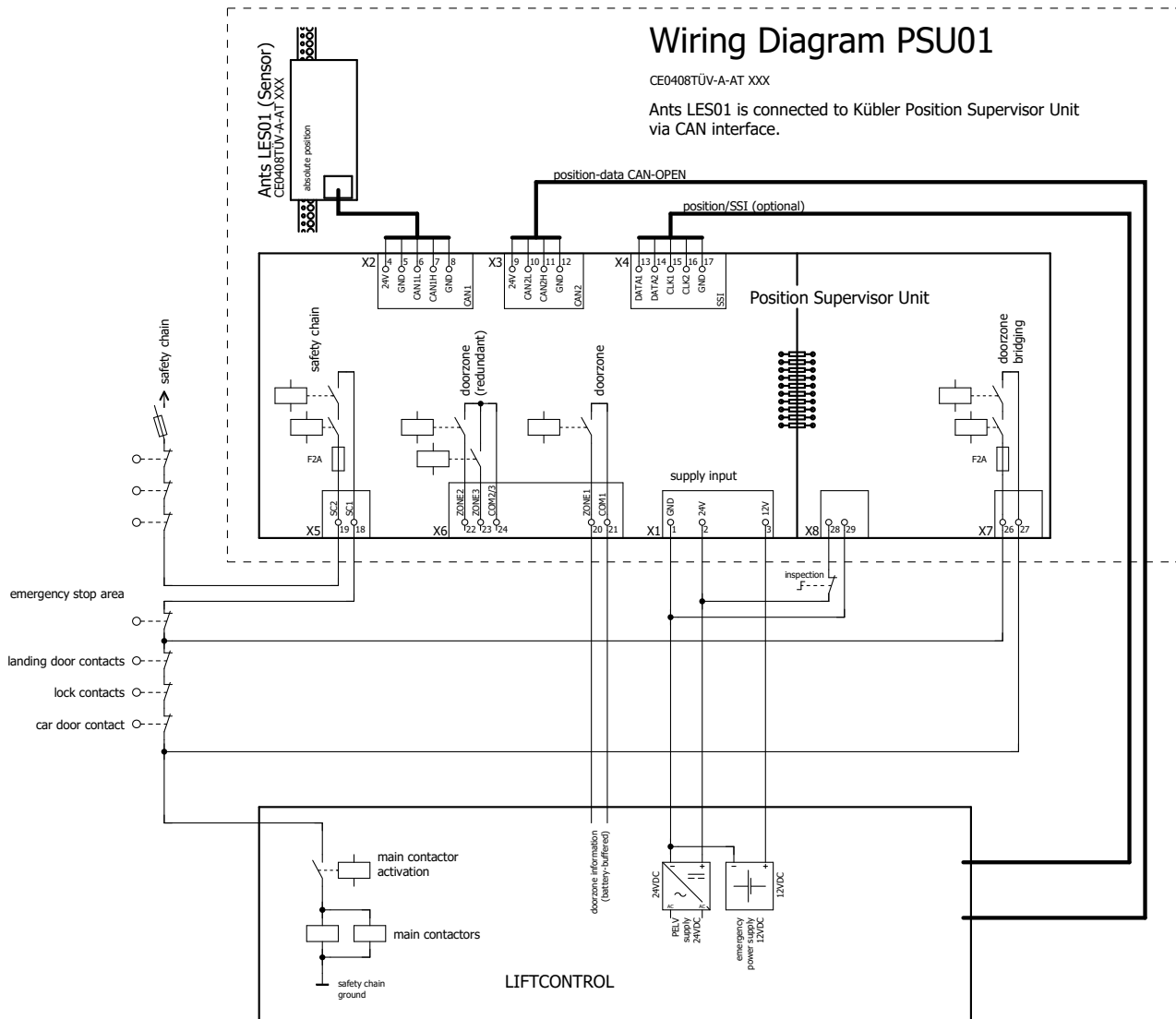
Code tape fastening
Ants LES01 stands out in particular for its ease of installation. This saves time and costs.



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Realizable elevator and safety functions			
No.		Standard notes in the sections of EN 81-20 / EN 81-50 / prEN 81-21	SIL acc. to EN 81-20
1	Emergency limit switch	5.12.2.3.1 b)	1
2	Unintended movement (UCM)	5.6.7.7	2
3	Delay control (pre-tripping)	1 EN 81-20 : 5.12.1.3	3
4	Overspeed teach-in (1.0 m/s)	No standard note	3
5	Inspection limit switch for reduced shaft head and pit	prEN 81-21 : 5.6.3.4, 5.8.3.4	2
6	Overspeed inspection (0.6 m/s)	No standard note	2
7	Overspeed (pre-tripping +15%)	No standard note	Functional
8	Door bypass	EN 81-20 : 5.12.1.4 a), b), c), 2), d)	2
9	Two independent redundant signals for the door zones to drive an additional UCM device	EN 81-20 : 5.11.2.5 EN 81-50 : 5.6.3.1.1	No SIL

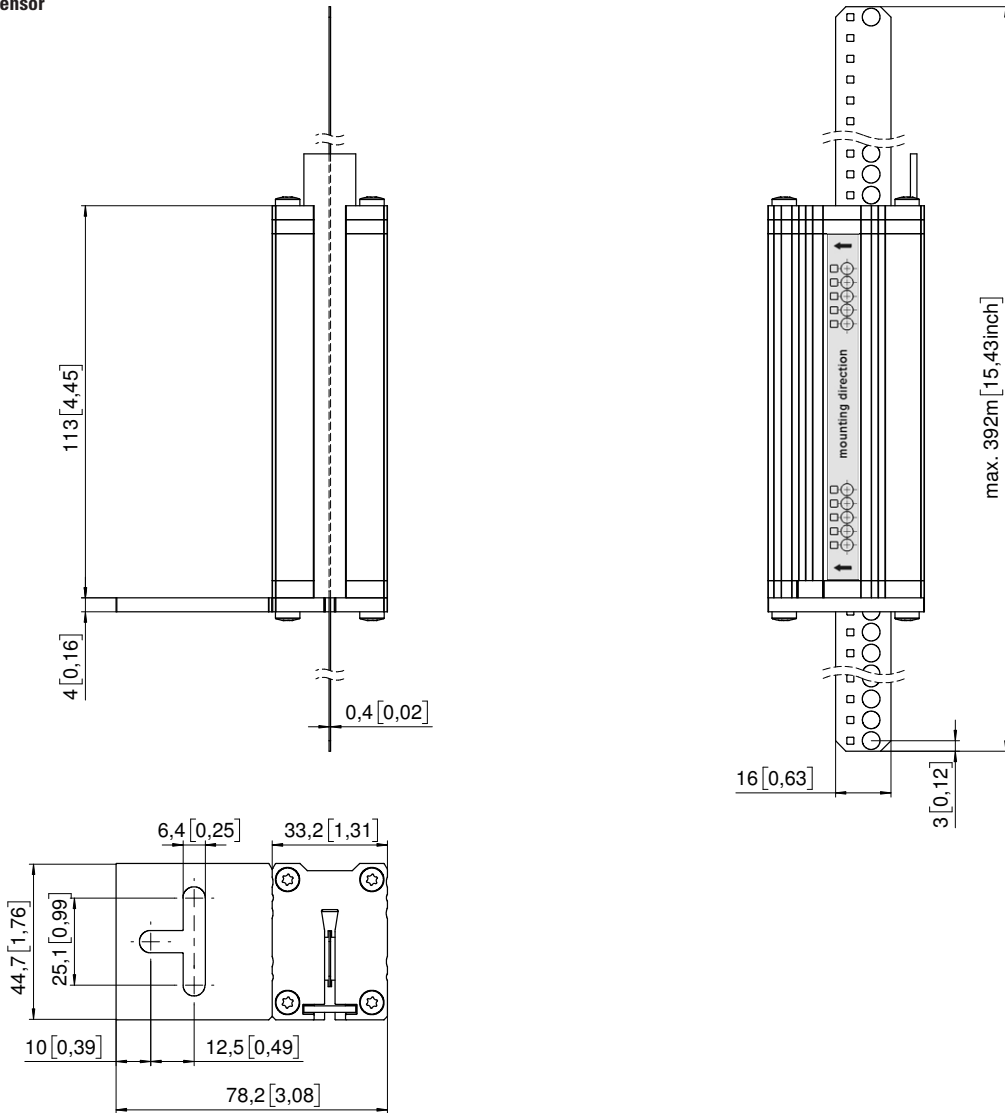


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Dimensions

Dimensions in mm [inch]

Sensor



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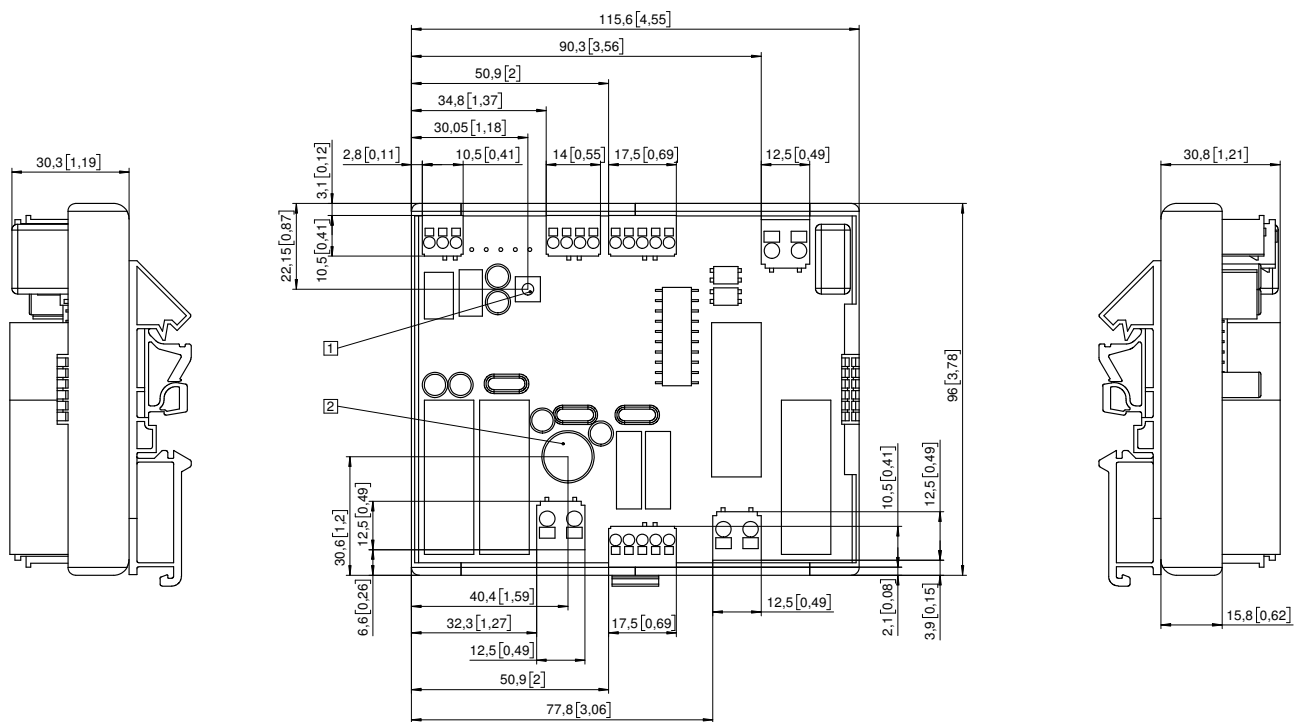
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Dimensions

Dimensions in mm [inch]

Evaluation unit PSU

(Installation on all DIN EN top hat rails)



- 1 Pushbutton
- 2 Signal generator