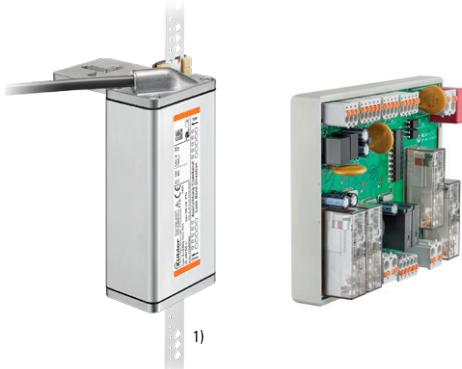


Linear measuring technology

Shaft copying system	PSU02	Safe System, SIL3 Measuring range up to 392 m
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The PSU02 is combined with the Ants LES02 sensor to realize elevator and safety functions in compliance with EN 81-20/-21/-50. The Ants LES02 measures the absolute car position 100% slip-free. The PSU02 evaluates the safe position feedback and triggers by means of safety relays, jointly with the elevator control, the required safety functions. Therefore, the safe system, besides installation and maintenance time, allows above all saving costs.



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

Characteristics

- Safe position values and evaluation.
- SIL3-certified by TÜV.
- Integrated UCM function.
- Extremely robust and compact.
- Stainless steel coded band.
- Simple assembly.
- Contactless measuring principle.

Benefits

- Realization of elevator and safety functions in compliance with EN 81-20/-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 PSU02	8.PSU02	. 1 1 2 1 . 22 11
	Type	a b c d
a Type of mounting 1 = top-hat rail mounting	c Interface / supply voltage 2 = CANopen / 24 V	d Interface profile 22 = CANopen Lift, DS417 V2.2.8
b Sensor 1 = Can be combined with Ants LES02 ¹⁾		

Order code Sensor	8.LES02	. X 1 1 X . XX 11
	Type	a b c d
a Type of mounting 1 = with mounting plate 2 = without mounting plate ¹⁾	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 proprietary, V1.0.0
b Interface / supply voltage 1 = CAN / 10 ... 30 V	*) 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)	

1) The sensor Ants LES02 is not a component of the PSU02 and must be ordered separately.
Each of these two components is SIL3-certified.

2) T-slot mounting.

Linear measuring technology

Shaft copying system	PSU02	Safe System, SIL3 Measuring range up to 392 m
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Order code Coded band, absolute	8.LEX.BA . XXXX Type a																								
a <i>Measuring lengths</i> XXXX = lengths in meters (max. length = 392 m)	<table border="0"> <tr> <td><i>Standard lengths</i></td> <td></td> <td></td> <td></td> </tr> <tr> <td>0010 = 10 m</td> <td>0040 = 40 m</td> <td>0090 = 90 m</td> <td></td> </tr> <tr> <td>0015 = 15 m</td> <td>0050 = 50 m</td> <td>0100 = 100 m</td> <td></td> </tr> <tr> <td>0020 = 20 m</td> <td>0060 = 60 m</td> <td>0392 = 392 m</td> <td></td> </tr> <tr> <td>0025 = 25 m</td> <td>0070 = 70 m</td> <td>Intermediate lengths < 100 m as from 5 pieces,</td> <td></td> </tr> <tr> <td>0030 = 30 m</td> <td>0080 = 80 m</td> <td>> 100 m on request</td> <td></td> </tr> </table>	<i>Standard lengths</i>				0010 = 10 m	0040 = 40 m	0090 = 90 m		0015 = 15 m	0050 = 50 m	0100 = 100 m		0020 = 20 m	0060 = 60 m	0392 = 392 m		0025 = 25 m	0070 = 70 m	Intermediate lengths < 100 m as from 5 pieces,		0030 = 30 m	0080 = 80 m	> 100 m on request	
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Accessories		Order no.
Mounting kit LES.MK	components for installation	8.LES.MK.0001
EMC shield terminal	for an EMC-compliant installation of the cable	8.0000.4G06.0312

Technical data

Mechanical characteristics evaluation unit PSU02	
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	116 x 96 x 31 mm [4.55 x 3.78 x 1.21"]

Electrical characteristics evaluation unit PSU02	
Supply voltage	24 VDC ±10 %, low voltage PELV
Power	< 10 W
Internal interface (between Ants LES02 and PSU02)	CAN proprietary, V1.0.0
External interface (between PSU02 and control)	CANopen Lift, DS417 V2.2.8

Environmental conditions evaluation unit PSU02	
Protection acc. to EN 60529	IP00 (min. IP20 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 LES02	
Code	absolute, 16 bit
Max. measuring length	392 m
Speed	certified 8 m/s ¹⁾ functional 12 m/s ²⁾
Resolution	certified 1 mm functional 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
Housing (material)	Aluminium
Dimensions L x W x H	126 x 55 x 37 mm [4.96 x 2.17 x 1.46"]

Electrical characteristics sensor Ants LES02	
Supply voltage	10 ... 30 V DC
Reverse polarity protection	yes
Power consumption	max. 100 mA
Interfaces	CAN proprietary, V1.0.0

Environmental conditions sensor Ants LES02	
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)

1) Reference is the nominal speed of the elevator facility.
2) The sensor switches to error mode for speeds > 12 m/s.

Linear measuring technology

Shaft copying system	PSU02	Safe System, SIL3 Measuring range up to 392 m
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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

Technical data mounting kit LES.MK	
Dimensions	see data sheet LES.MK
Material	see data sheet LES.MK

Standards / Directives / Certificates		
Standards	elevator standard	EN 81-20/-21/-50
	EMC emission	EN 12015
	EMC immunity	EN 12016
	vibration resistance	EN 60068-2-6 / EN 81-50, 5.6.3.1
	shock resistance	EN 60068-2-27 / EN 81-50, 5.6.3.1
	environmental conditions	EN 60068-2-14 / EN 81-50, 5.6.3.2
Directives	EMC directive	2014/30/EU
	elevator directives	2014/33/EU
	RoHs directive	2011/65/EU
CE compliant	yes	

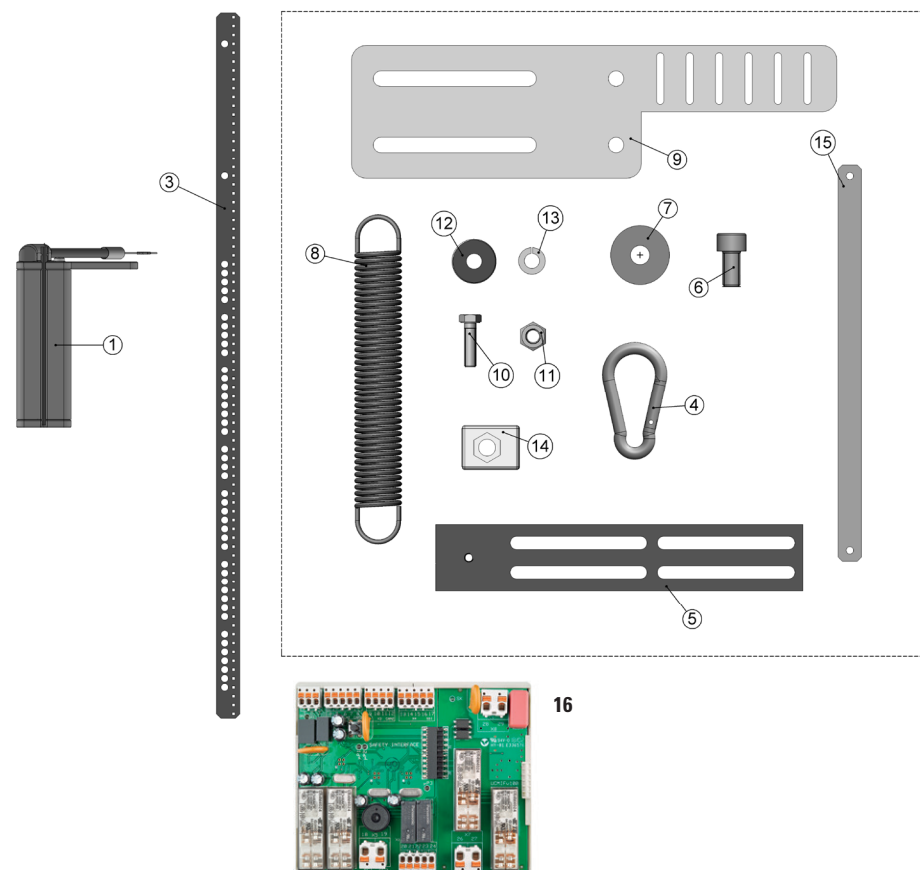
Safety characteristics	
Classification	SIL3
PFH_d value	< 10 ⁻⁸ h ⁻¹
Mission time / Proof test interval	20 years

Terminal assignment Ants LES02

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

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

Scope of delivery PSU02 with Ants LES02, LEX.BA and LES.MK



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

Ants LES02 (8.LES02.xxxx.xxxx)

- 1 1 x sensor Ants LES02

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

- 3 1 x coded stainless steel band

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

- 4 3 x carabiners
- 5 1 x sensor cabin fastening plate
- 6 1 x sensor fastening screw
- 7 1 x washer
- 8 1 x tension spring
- 9 2 x rail fastening plates
- 10 8 x M10x30 hexagon head screws
- 11 8 x M10 hexagon nuts
- 12 8 x M10 large diameter washers
- 13 8 x M10 spring washers
- 14 8 x clamping plates
- 15 1 x securing band

Evaluation unit PSU02

- 16 1 x evaluation unit

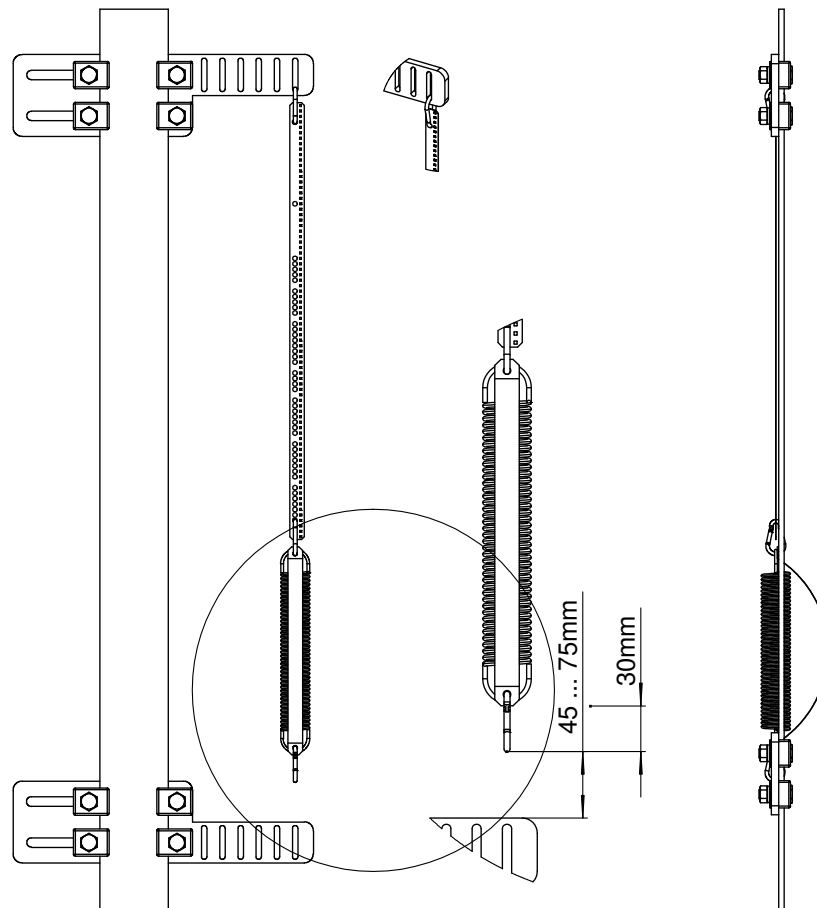
Linear measuring technology

Shaft copying system	PSU02	Safe System, SIL3 Measuring range up to 392 m
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Technology in detail

Coded band fastening

Ants LES02 stands out in particular for its ease of installation. This saves time and costs.

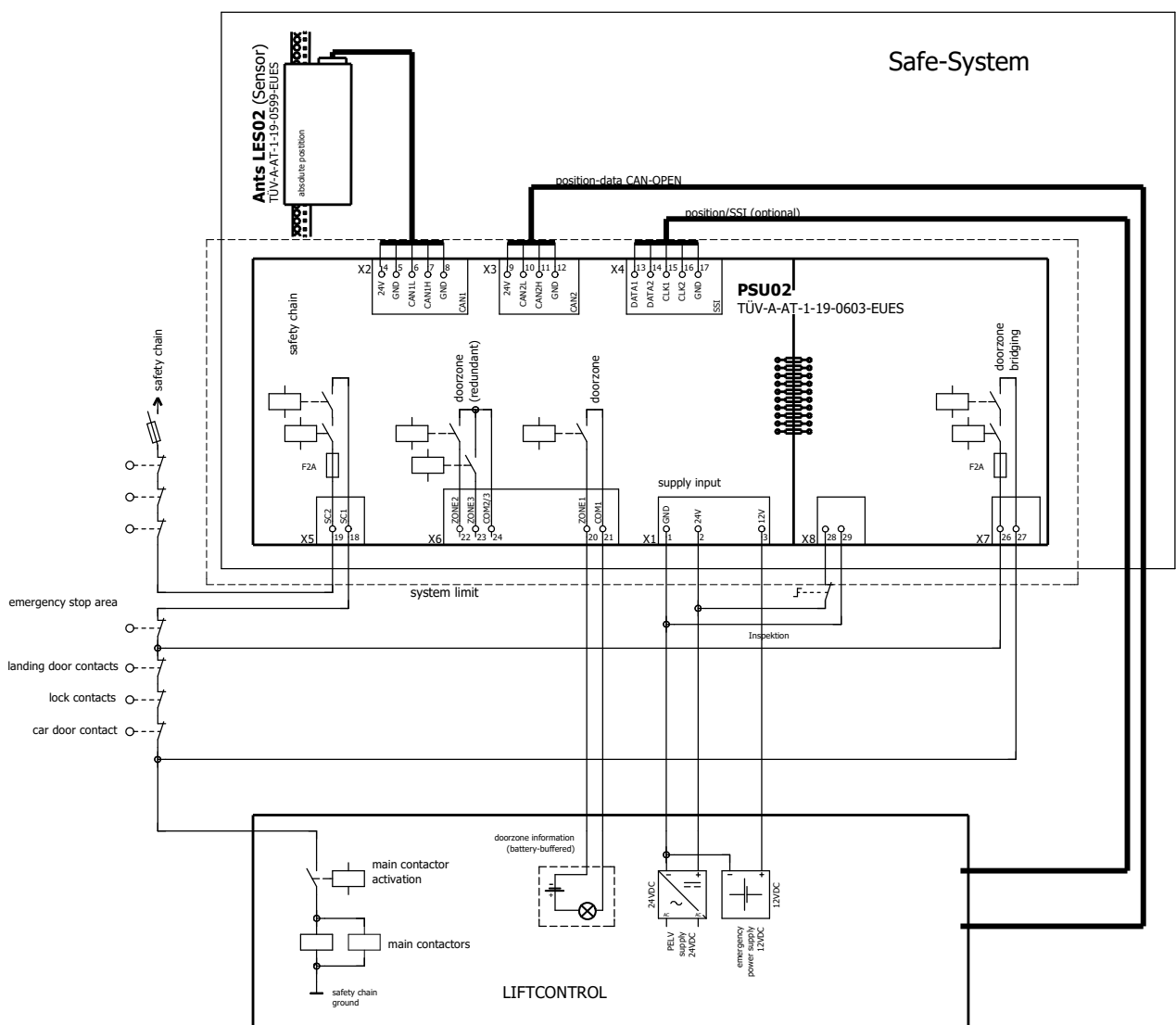


Linear measuring technology

Shaft copying system	PSU02	Safe System, SIL3 Measuring range up to 392 m
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Realizable elevator and safety functions		
No.		
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)	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	EN 81-21 : 5.5.3.4, 5.7.3.4 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

Wiring diagram Safe-System

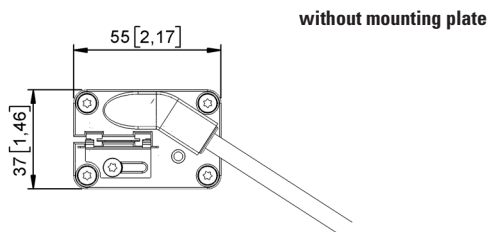
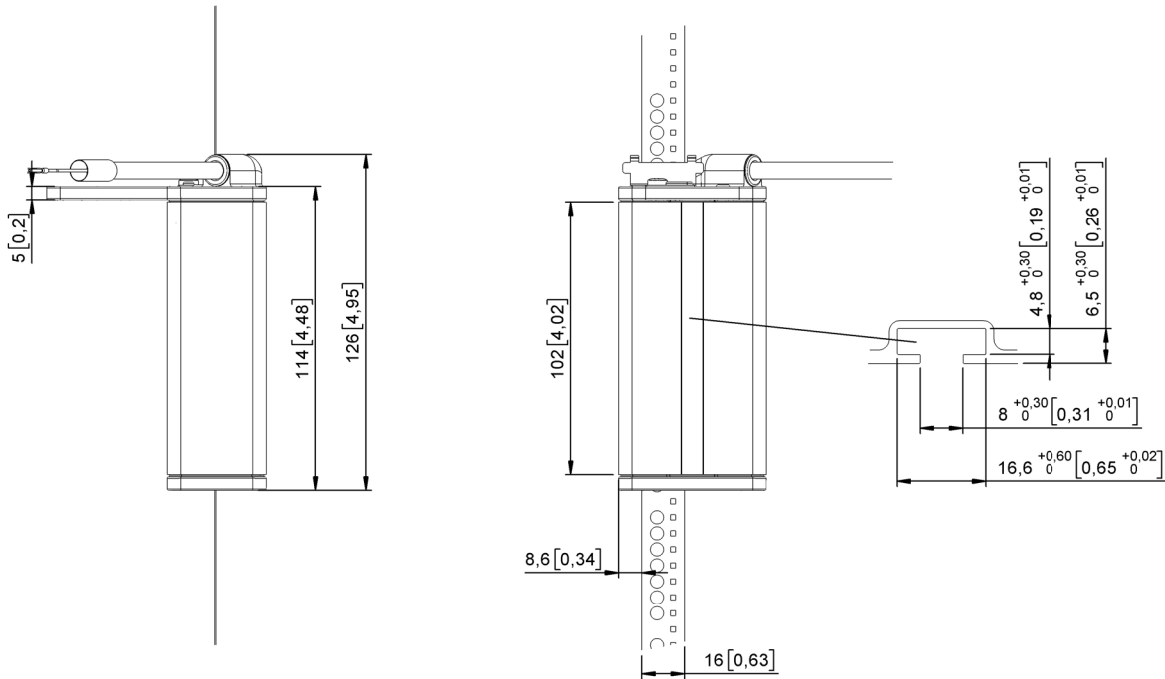


Shaft copying system	PSU02	Safe System, SIL3 Measuring range up to 392 m
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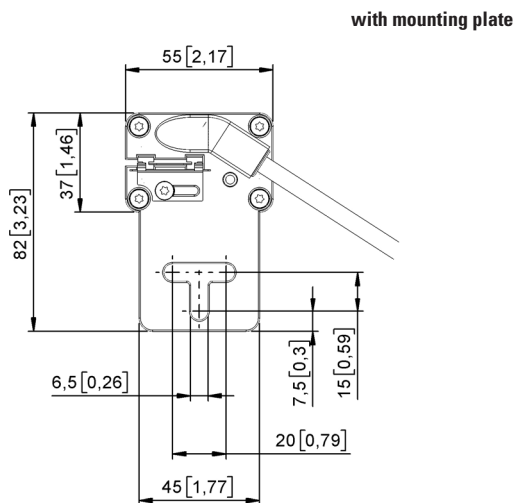
Dimensions

Dimensions in mm [inch]

Sensor Ants LES02



without mounting plate



with mounting plate

Linear measuring technology

Shaft copying system

PSU02

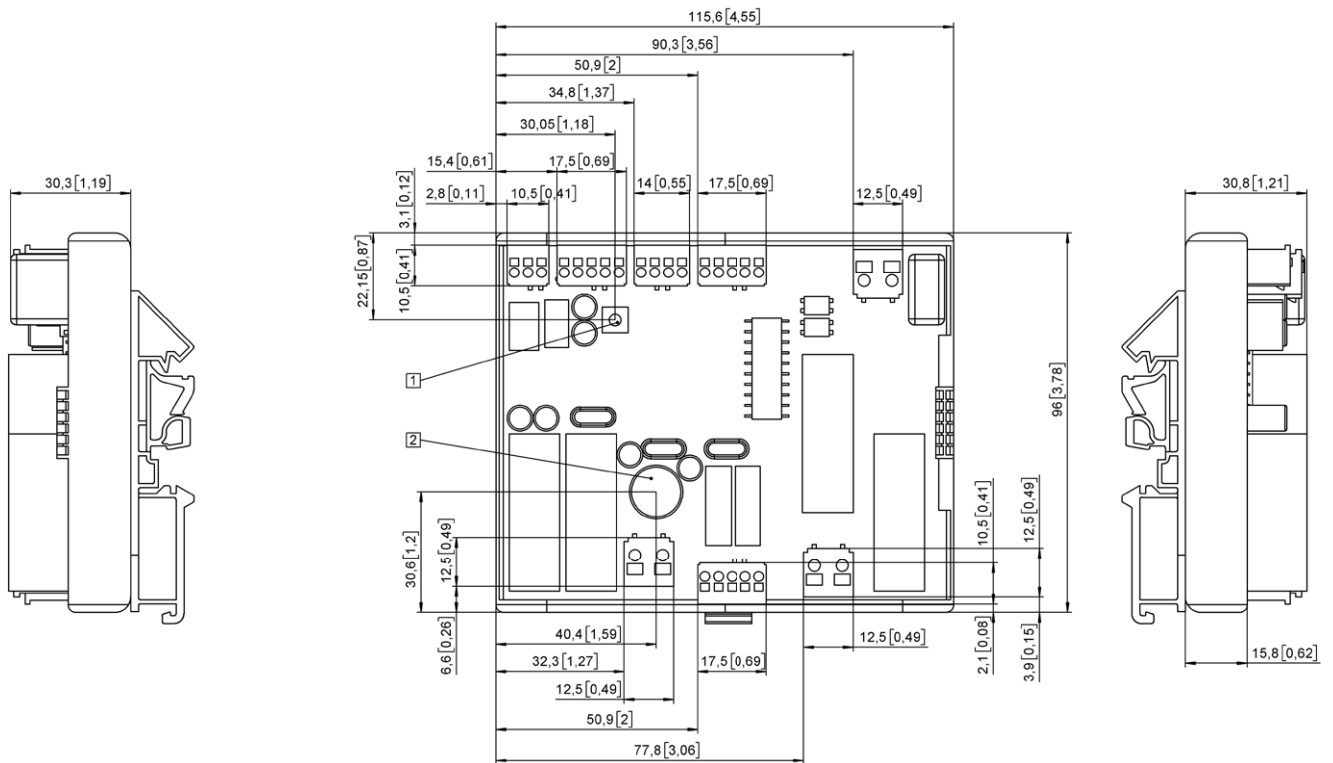
Safe System, SIL3
Measuring range up to 392 m

Dimensions

Dimensions in mm [inch]

Evaluation unit PSU02

(Installation on all DIN EN top hat rails)



- 1 Pushbutton
- 2 Signal generator