

## Technical data sheet

### Safety laser scanner

Part no.: 53800110  
RSL420-L

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- Technical data
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- Operation and display
- Notes
- Accessories



Figure can vary



## Technical data

### Basic data

Series	RSL 400
Application	Mobile danger zone guarding Mobile side guarding Stationary access guarding Stationary danger zone guarding

### Functions

Functions	Dynamic contactor monitoring (EDM), selectable E-stop linkage Four-field mode Resolution, selectable
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### Characteristic parameters

Type	3, IEC/EN 61496
SIL	2, IEC 61508
SILCL	2, IEC/EN 62061
Performance Level (PL)	d, EN ISO 13849-1
PFH <sub>D</sub>	0.00000009 per hour
PFH <sub>D</sub>	9E-08 per hour
Mission time T <sub>M</sub>	20 years, EN ISO 13849-1
Category	3, EN ISO 13849

### Protective field data

Scanning angle	270 °
Minimum adjustable range	50 mm
Number of field pairs, reversible	10
Number of quads, reversible	10
Number of protective functions	1 Piece(s)
Number of independent sensor configurations	1
Diffuse reflection, min.	1.8 %
Operating range	0 ... 6.25 m

### Warning field data

Number of field pairs	10
Operating range	0 ... 20 m
Object size	150 mm x 150 mm
Diffuse reflection, min.	10 %

### Optical data

Light source	Laser, Infrared
Laser light wavelength	905 nm
Laser class	1, IEC/EN 60825-1:2007
Transmitted-signal shape	Pulsed
Repetition frequency	90 kHz

### Measurement data

Distance resolution	1 mm
Detection range	0 ... 50 m
Diffuse reflection	20 %
Angular resolution	0.1 °

### Electrical data

Protective circuit	Overvoltage protection
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### Performance data

Supply voltage U <sub>B</sub>	24 V, DC, -30 ... 20 %
Current consumption (without load), max.	700 mA, (use power supply unit with 3 A)
Power consumption, max.	17 W, For 24 V, plus output load

### Outputs

Number of safety-related switching outputs (OSSDs)	2 Piece(s)
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### Safety-related switching outputs

Type	Safety-related switching output OSSD
Switching voltage high, min.	20.8 V
Switching voltage low, max.	2 V
Voltage type	DC

### Safety-related switching output 1

Switching element	Transistor, PNP
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### Safety-related switching output 2

Switching element	Transistor, PNP
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### Service interface

Type	Bluetooth, USB
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### Bluetooth

Function	Configuration/parametering
Frequency band	2,400 ... 2,483.5 MHz
Radiated transmitting power	Max. 4.5 dBm (2.82 mW), class 2

### USB

Function	Configuration/parametering
Connection	USB 2.0 mini-B, socket
Transmission speed, max.	12 Mbit/s
Cable length	≤ 5m Longer cable lengths are possible using active cables.

### Connection

### Cable properties

Cable resistance, max.	15 Ω
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### Mechanical data

Dimension (W x H x L)	140 mm x 149 mm x 140 mm
Housing material	Metal Plastic
Metal housing	Diecast zinc
Lens cover material	Plastic/PC
Net weight	2,000 g
Housing color	Yellow, RAL 1021
Type of fastening	Mounting plate Through-hole mounting Via optional mounting device

### Operation and display

Type of display	Alphanumeric display LED indicator
Number of LEDs	3 Piece(s)
Type of configuration	Software Sensor Studio
Operational controls	Software Sensor Studio

## Technical data

### Environmental data

Ambient temperature, operation	0 ... 50 °C
Ambient temperature, storage	-20 ... 60 °C
Relative humidity (non-condensing)	15 ... 95 %

### Certifications

Degree of protection	IP 65
Protection class	III, EN 61140
Certifications	c TÜV Süd US
	c UL US
	TÜV Süd
Test procedure for EMC in accordance with standard	DIN 40839-1/3
	EN 61496-1
Test procedure for oscillation in accordance with standard	EN 60068-2-6
Test procedure for continuous shock in accordance with standard	IEC 60068-2-29
US patents	US 10,304,307B
	US 7,656,917 B
	US 7,696,468 B
	US 8,520,221 B

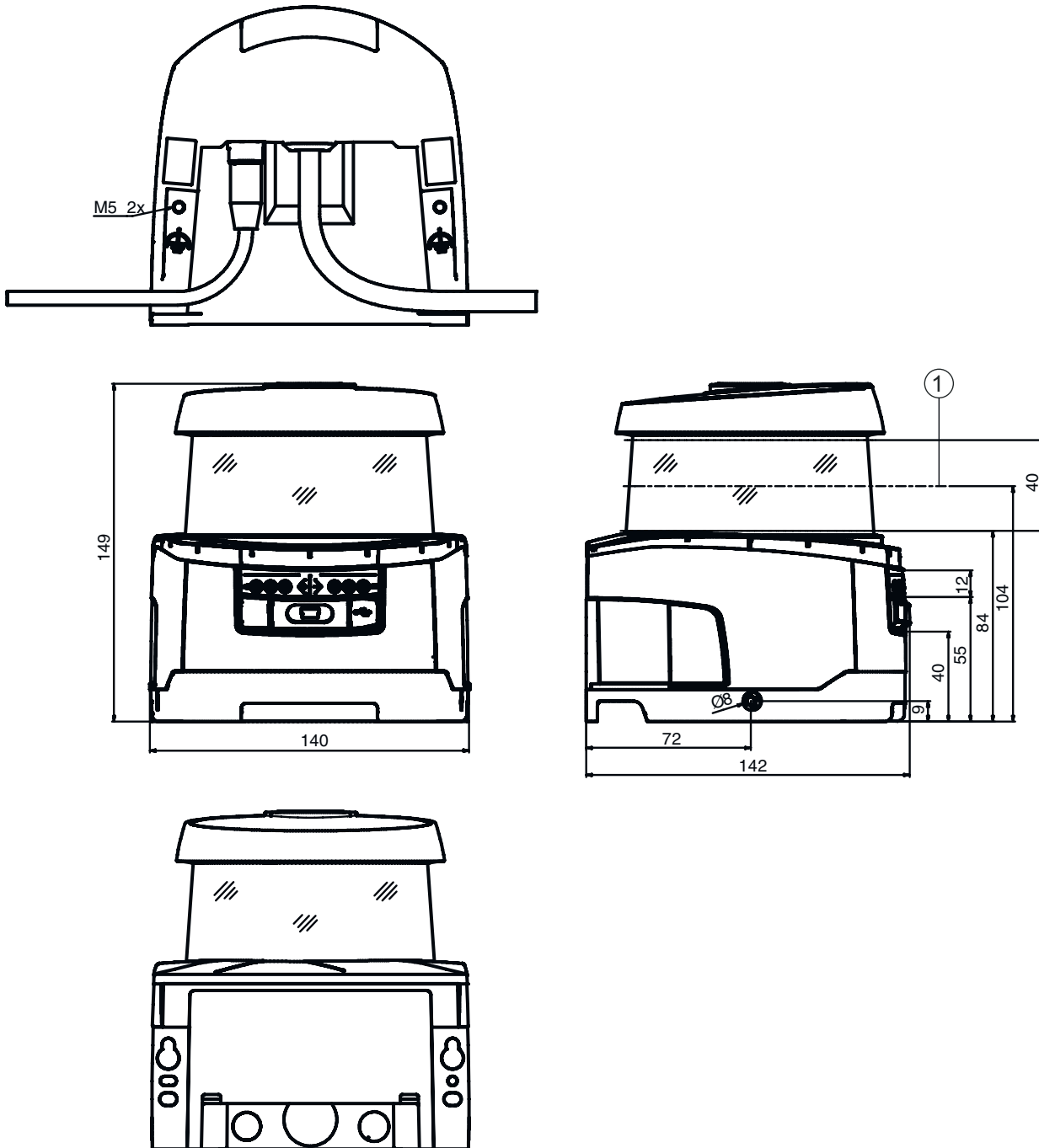
### Classification

Customs tariff number	85365019
eCl@ss 5.1.4	27279290
eCl@ss 8.0	27279290
eCl@ss 9.0	27272705
eCl@ss 10.0	27272791
eCl@ss 11.0	27272791
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550

## Dimensioned drawings

All dimensions in millimeters

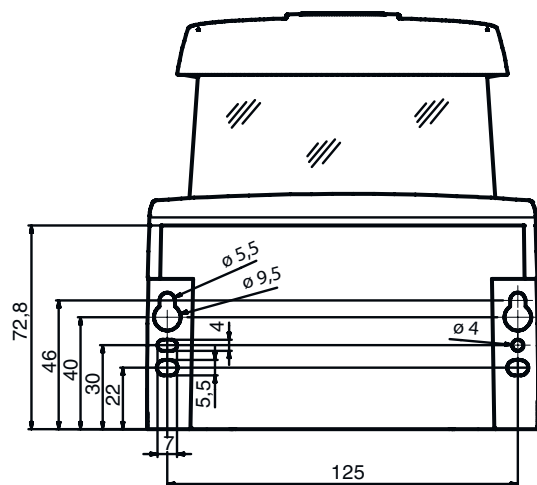
Dimensions safety laser scanner with connection unit



1 Scan level

## Dimensioned drawings

Mounting dimensions safety laser scanner with connection unit

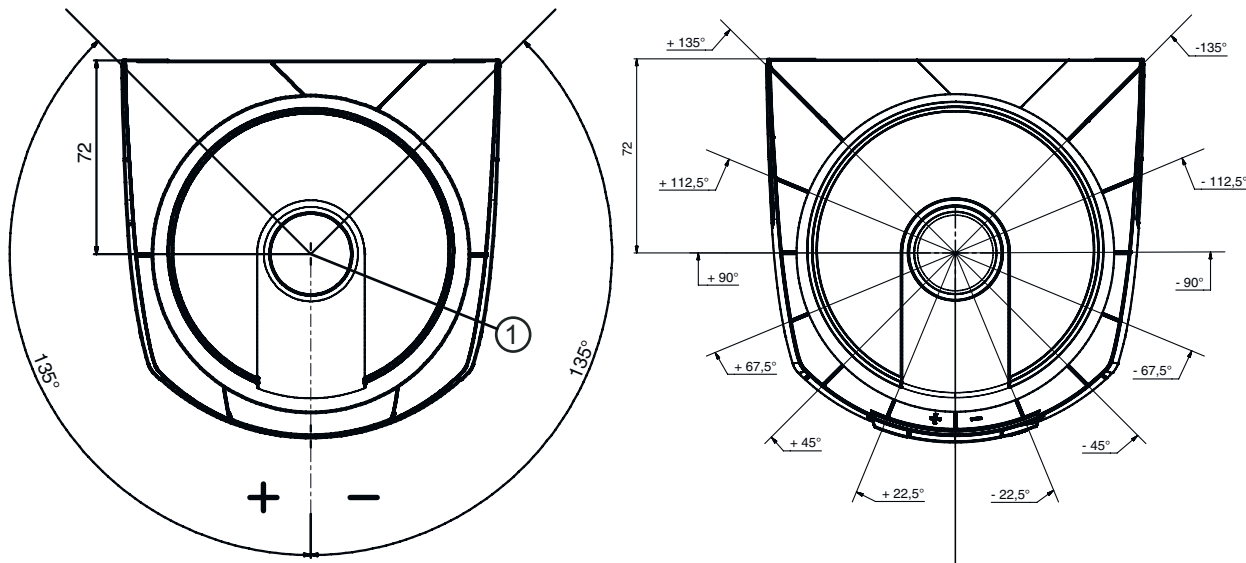


Minimum space requirements for installation and replacement of scanner unit



# Dimensioned drawings

## Dimensions of scanning range



1 Reference point for distance measurement and protective field radius

## Operation and display

LED	Display	Meaning
1	Off	Device switched off
	Red, continuous light	OSSD off
	Red, flashing	Error
2	Green, continuous light	OSSD on
	Off	RES deactivated or RES activated and released
	Yellow, flashing	Protective field occupied
3	Yellow, continuous light	RES activated and blocked but ready to be unlocked - protective field free and linked sensor is enabled if applicable
	Off	Free warning field
	Blue, continuous light	Warning field interrupted

## Notes

**Observe intended use!**

- ↪ The product may only be put into operation by competent persons.
- ↪ Only use the product in accordance with its intended use.

## Notes

<b>WARNING! INVISIBLE LASER RADIATION – CLASS 1 LASER PRODUCT</b>	
	<p>The device satisfies the requirements of IEC 60825-1:2014 (EN 60825-1:2014) safety regulations for a product of <b>laser class 1</b> as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 56" from May 8, 2019.</p> <p>↳ Observe the applicable statutory and local laser protection regulations.</p> <p>↳ The device must not be tampered with and must not be changed in any way. There are no user-serviceable parts inside the device. Repairs must only be performed by Leuze electronic GmbH + Co. KG.</p>

## Accessories

### Connection technology - Connection boxes

	Part no.	Designation	Article	Description
	53800119	CU416-10000	Connection unit	Number of connections: 2 Piece(s) Connection 1: Cable, 10,000 mm, PVC, 16 -wire Connection 2: Connector, M12, D-coded, 5 -pin Dimensions: 140.2 mm x 72.8 mm x 140.3 mm Color: Black Type of fastening: Bayonet system

### Mounting technology - Mounting brackets


	Part no.	Designation	Article	Description
	53800134	BT840M	Mounting bracket	Application: Mounting on chamfered 90° corner Dimensions: 84.9 mm x 72 mm x 205.2 mm Color: Yellow, RAL 1021 Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal
	53800132	BTF815M	Mounting bracket	Application: Mounting bracket for floor mounting Dimensions: 186 mm x 120 mm x 288 mm Scan level height: 150 mm Color: Yellow, RAL 1021 Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal
	53800133	BTF830M	Mounting bracket	Application: Mounting bracket for floor mounting Dimensions: 186 mm x 275 mm x 288 mm Scan level height: 300 mm Color: Yellow, RAL 1021 Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal

### Mounting technology - Other



	Part no.	Designation	Article	Description
	53800130	BTU800M	Mounting system	Dimensions: 54.5 mm x 90 mm x 192 mm Color: Black Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal

# Accessories

## General

	Part no.	Designation	Article	Description
	430400	RS4-clean-Set1	Cleaning set	Number of cleaning cloths: 40 Piece(s) Content of cleaning fluid: 150 ml

## Services

	Part no.	Designation	Article	Description
	S981051	CS40-I-141	Safety inspection "Safety laser scanners"	Details: Checking of a safety laser scanner application in accordance with current standards and guidelines. Inclusion of the device and machine data in a database, production of a test log per application. Conditions: It must be possible to stop the machine, support provided by customer's employees and access to the machine for Leuze employees must be ensured. Restrictions: Travel costs and accommodation expenses charged separately and according to expenditure.
	S981047	CS40-S-141	Start-up support	Details: For safety devices including stopping time measurement and initial inspection. Conditions: Devices and connection cables are already mounted, price not including travel costs and, if applicable, accommodation expenses. Restrictions: Max. 3 h., no mechanical (mounting) and electrical (wiring) work performed, no changes (attachments, wiring, programming) to third-party components in the nearby environment.

### Note



A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.