



**Part no.: 53800248**  
**RSL420-S/CU411-RS4**  
**Safety laser scanner**



Figure can vary

## Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Operation and display
- Accessories
- Notes

## Technical data

<b>Basic data</b>	
Series	RSL 400
<b>Special design</b>	
Special design	RS4 substitute
<b>Functions</b>	
Functions	Resolution, selectable
<b>Characteristic parameters</b>	
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>	9E-08 per hour
Mission time T <sub>M</sub>	20 years, EN ISO 13849-1
Category	3, EN ISO 13849
<b>Protective field data</b>	
Scanning angle	270 °
Minimum adjustable range	200 mm
Number of field pairs, reversible	8
Number of quads, reversible	8
Number of protective functions	1 Piece(s)
Number of independent sensor configurations	1
Diffuse reflection, min.	1.8 %
Operating range	0 ... 3 m
<b>Warning field data</b>	
Number of field pairs	10
Operating range	0 ... 20 m
Object size	150 mm x 150 mm
Diffuse reflection, min.	1.8 %
<b>Optical data</b>	
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
<b>Measurement data</b>	
Radial resolution	5 mm
Detection range	0 ... 50 m
Angular resolution	0.1 °
<b>Electrical data</b>	

Protective circuit	Overvoltage protection
<b>Performance data</b>	
Supply voltage	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
<b>Outputs</b>	
Number of safety-related switching outputs (OSSDs)	2 Piece(s)
<b>Safety-related switching outputs</b>	
Type	Safety-related switching output OSSD
Switching voltage high, min.	20.8 V
Switching voltage low, max.	2 V
Voltage type	DC
<b>Safety-related switching output 1</b>	
Assignment	Connection 1, pin 11
Switching element	Transistor, PNP
<b>Safety-related switching output 2</b>	
Assignment	Connection 1, pin 12
Switching element	Transistor, PNP
<b>Interface</b>	
Type	Bluetooth
<b>Bluetooth</b>	
Function	Configuration/parametering
Frequency band	2,400 ... 2,483.5 MHz
Radiated transmitting power	Max. 4.5 dBm (2.82 mW), class 2
<b>Connection</b>	
Number of connections	2 Piece(s)
<b>Connection 1</b>	
Type of connection	Cable with Sub-D
Function	Machine interface
Cable length	450 mm
Sheathing material	PUR
Cable color	Black
No. of pins	15 -pin
<b>Connection 2</b>	
Type of connection	Connector
Function	Data interface
Thread size	M12
Type	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded
<b>Cable properties</b>	
Cable resistance, max.	15 Ω
<b>Mechanical data</b>	
Dimension (W x H x L)	140 mm x 149 mm x 140 mm
Housing material	Plastic Metal, Diecast zinc,

## Part no.: 53800248 – RSL420-S/CU411-RS4 – Safety laser scanner

Lens cover material	Plastic/PC
Net weight	3,000 g
Housing color	Yellow, RAL 1021 Black
Type of fastening	Via optional mounting device Through-hole mounting Mounting plate

### Operation and display

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

### Environmental data

Ambient temperature, operation	0 ... 50 °C
Ambient temperature, storage	-20 ... 60 °C

### Certifications

Degree of protection	IP 65
Protection class	III, EN 61140
Certifications	TÜV Süd c TÜV Süd US c UL US
US patents	US 2016/0086469 A US 8,520,221 B US 7,696,468 B US 7,656,917 B

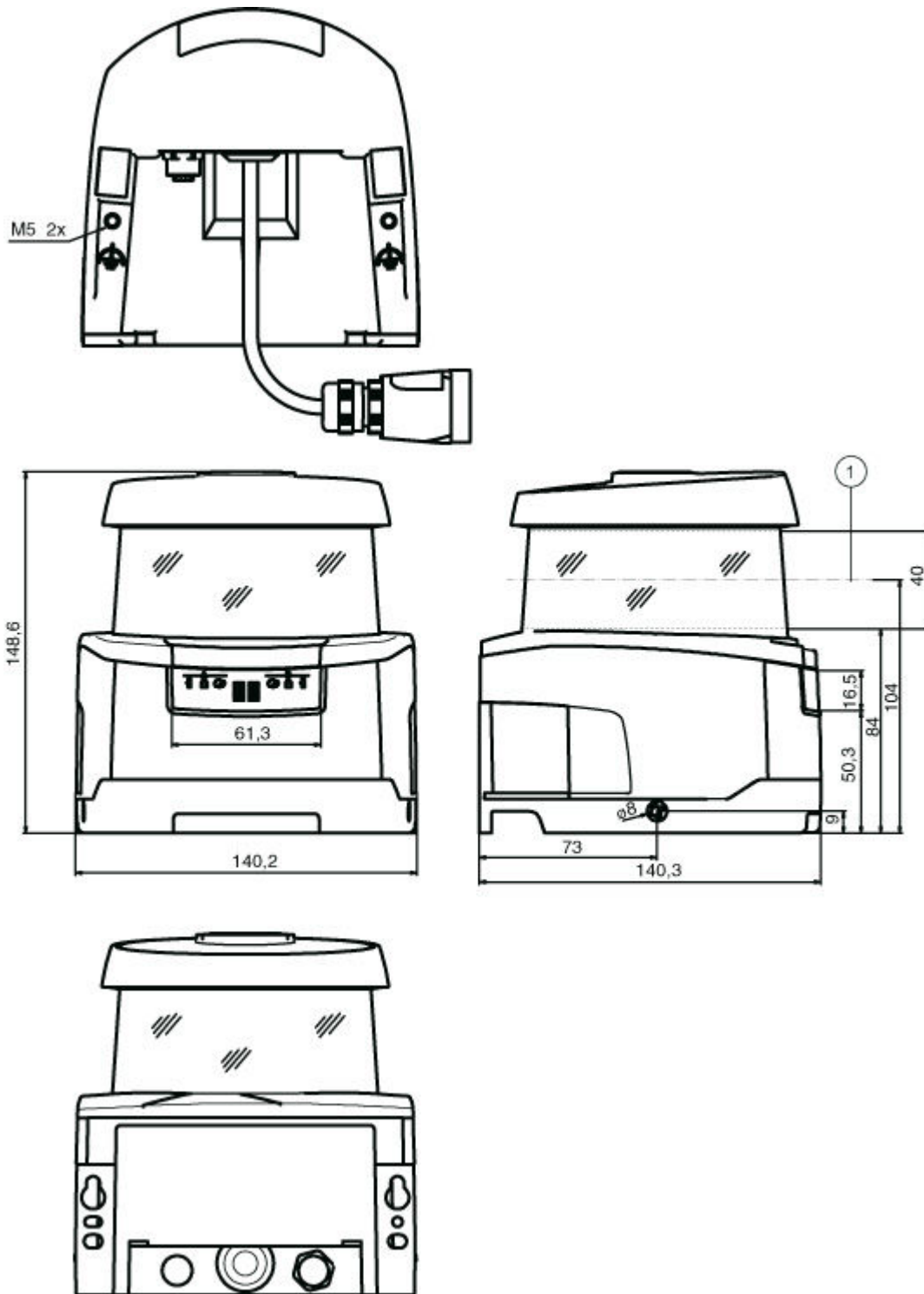
### Classification

eCl@ss 8.0	27272705
eCl@ss 9.0	27272705
ETIM 5.0	EC002550

## Dimensioned drawings

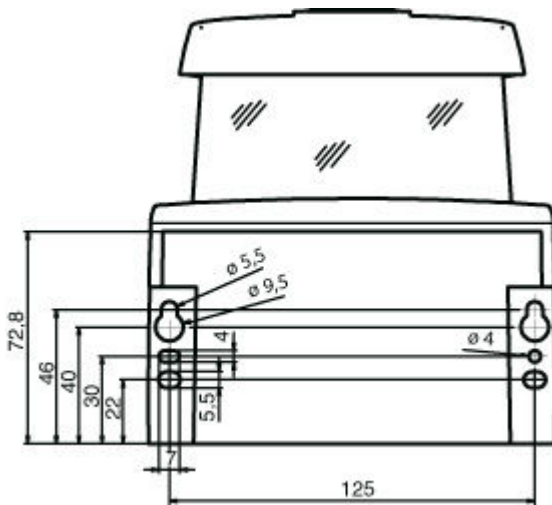
All dimensions in millimeters

Dimensions safety laser scanner with connection unit

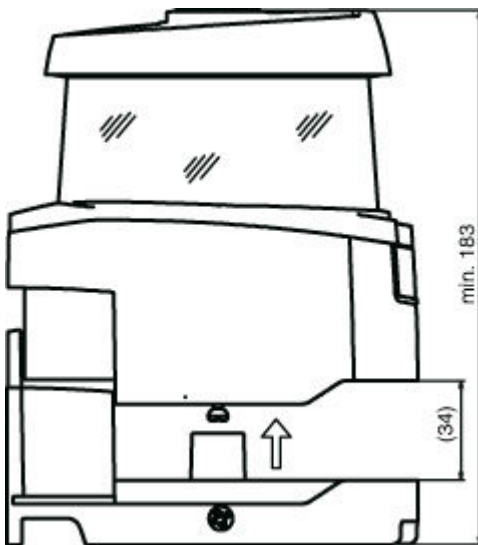


1 Scan level

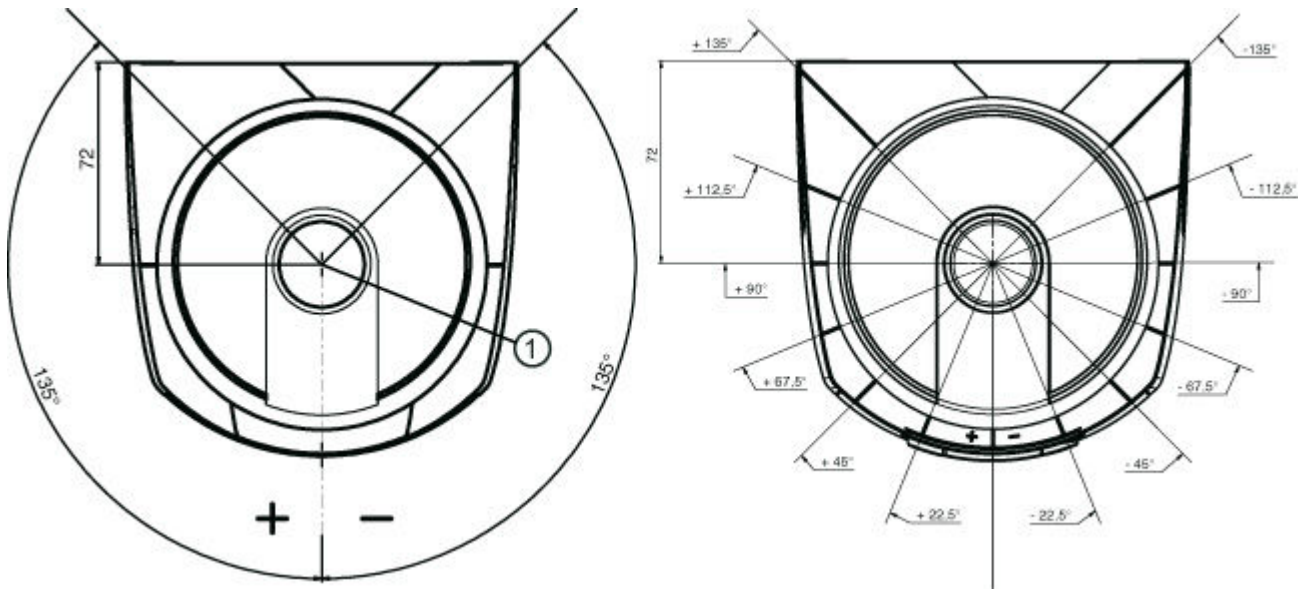
Mounting dimensions safety laser scanner with connection unit



Minimum space requirements for installation and replacement of scanner unit



### Dimensions of scanning range



1 Reference point for distance measurement and protective field radius

### Electrical connection

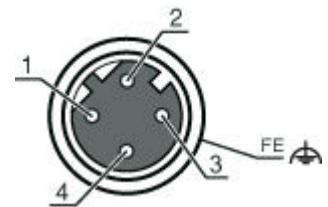
Connection 1	
Type of connection	Cable with Sub-D
Function	Machine interface
Cable length	450 mm
Sheathing material	PUR
Cable color	Black
Wire cross section	
Wire cross section supply	
Wire cross section signals	
Type	Male
No. of pins	15 -pin

Pin	Pin assignment	Conductor color
1	0 V	Blue
2	RES-I	White
3	+24V	Brown
4	F1	Black
5	A1	Yellow
6	F2	Violet
7	F3	Pink Gray
8	F4	Blue Red
9	n.c.	-
10	n.c.	-
11	OSSDA1	Gray
12	OSSDA2	Pink
13	n.c.	-

Pin	Pin assignment	Conductor color
14	n.c.	-
15	MELD	Red

Connection 2	
Type of connection	Connector
Function	Data interface
Thread size	M12
Type	Female
Material	Metal
No. of pins	4 -pin
Encoding	D-coded
Connector housing	FE/SHIELD

Pin	Pin assignment	Conductor color
1	TD+	Yellow
2	RD+	White
3	TD-	Orange
4	RD-	Blue
5		



## Operation and display

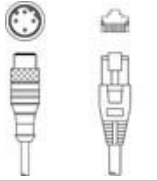
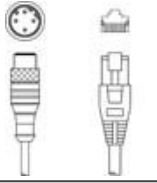
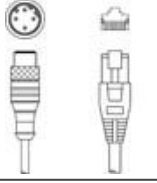
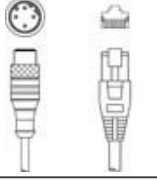
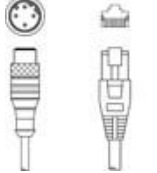
### LEDs

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




## Accessories



### Connection technology - Interconnection cables

	Part no.	Designation	Article	Description
	50135080	KSS ET-M12-4A-RJ45-A-P7-020	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 2,000 mm Sheathing material: PUR
	50135081	KSS ET-M12-4A-RJ45-A-P7-050	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 5,000 mm Sheathing material: PUR
	50135082	KSS ET-M12-4A-RJ45-A-P7-100	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 10,000 mm Sheathing material: PUR
	50135083	KSS ET-M12-4A-RJ45-A-P7-150	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 15,000 mm Sheathing material: PUR
	50135084	KSS ET-M12-4A-RJ45-A-P7-300	Interconnection cable	Suitable for interface: Ethernet Connection 1: Connector, M12, Axial, Male, D-coded, 4 -pin Connection 2: RJ45 Shielded: Yes Cable, crossed: Connection 1, pin 2 <-> connection 2, pin 3 Cable length: 30,000 mm Sheathing material: PUR



### Connection technology - Adapters

	Part no.	Designation	Article	Description
	50134656	RSL400 M12 Adapter		Number of connections: 2 Piece(s) Connection 1: Connector, M12, D-coded, 4 -pin Connection 2: Connector, M12, D-coded, 4 -pin Dimensions: 20 mm x 90.5 mm x 40 mm Color: Black




### Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	53800134	BT840M	Mounting bracket	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
	53800135	BT856M	Mounting bracket	Dimensions: 119 mm x 72 mm x 233.5 mm Color: Yellow, RAL 1021 Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal


**Part no.: 53800248 – RSL420-S/CU411-RS4 – Safety laser scanner**

	Part no.	Designation	Article	Description
	53800132	BTF815M	Mounting bracket	Dimensions: 186 mm x 120 mm x 288 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	Dimensions: 186 mm x 275 mm x 288 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
	53800137	BT800MA	Adapter plate	Dimensions: 90 mm x 22 mm x 157 mm Color: Black Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal
	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
	53800136	BTU804MA	Mounting plate	Dimensions: 142 mm x 7 mm x 154 mm Color: Black Type of fastening, at system: Through-hole mounting Type of fastening, at device: Screw type Material: Metal

**Mounting**

	Part no.	Designation	Article	Description
	53800131	BTP800M	Loop guard	Dimensions: 160 mm x 169 mm Color: Black Material: Metal

**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
	430410	RS4-clean-Set2	Cleaning set	Number of cleaning cloths: 120 Piece(s) Content of cleaning fluid: 1,000 ml

## 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.

### WARNING! INVISIBLE LASER RADIATION – LASER CLASS 1

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of **laser class 1** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24, 2007.

- Observe the applicable statutory and local laser protection regulations.
- 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.