# SMART SENSOR BUSINESS

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Part no.: 53800243 RSL440-L/CU429-25 Safety laser scanner



Figure can vary

# Contents

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

### Part no.: 53800243 – RSL440-L/CU429-25 – Safety laser scanner

#### **Technical data**

Basic data	
Series	RSL 400
Application	Mobile danger zone guarding Mobile side guarding Stationary access guarding Stationary danger zone guarding
Functions	
Functions	Data output, configurable Dynamic contactor monitoring (EDM), selectable E-stop linkage Four-field mode Resolution, selectable Safe time delay, internal
Characteristic parameters	
Туре	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
Protective field data	
Scanning angle	270 °
Minimum adjustable range	50 mm
Number of field pairs, reversible	Up to 100
Number of quads, reversible	50
Number of protective functions	2 Piece(s)
Number of independent sensor configurations	Up to 10
Diffuse reflection, min.	1.8 %
Operating range	0 6.25 m
Warning field data	
Number of field pairs	Up to 100
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

## Part no.: 53800243 – RSL440-L/CU429-25 – Safety laser scanner

Diffuse reflection	20 %
ngular resolution	0.1 °
Electrical data	Query sites and estimate
Protective circuit	Overvoltage protection
Performance data	
Supply voltage UB	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)	4 Piece(s)
Safety-related switching outputs	
Туре	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	
Assignment	Connection 1, gray wire
Switching element	Transistor , PNP
Safety-related switching output 2	
Assignment	Connection 1, pink wire
Switching element	Transistor , PNP
Safety-related switching output 3	
Assignment	Connection 1, yellow/gray wire
Switching element	Transistor, PNP
Safety-related switching output 4	
Assignment	Connection 1, pink/green wire
Switching element	Transistor , PNP
Service interface	Bluetooth
	Bidelootii
Bluetooth Function	Configuration/sorgmotoring
	Configuration/parametering
Frequency band	2,400 2,483.5 MHz
Radiated transmitting power	Max. 4.5 dBm (2.82 mW), class 2
ype	USB
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.

Number of connections

2 Piece(s)

### Part no.: 53800243 – RSL440-L/CU429-25 – Safety laser scanner

Type of connection         Cable           Function         Machine interface           Cable length         25:000 mm           Sheating material         PVC           Cable color         Black           Number of conductors         29 -wire           Wire cross section supply         1 mm²           Oconscion 2         Connector           Type of connector         Connector           Function         Data Interface           Thread size         M12           Type of connectors         Condectors           Material         Metal           No. of pins         4 -pin           Encoding         D-coded           Cable resistance, max.         15 Ω           Cable resistance, max.         15 Ω           Technical dat         Metal           immersion (W x H x L)         140 mm x 140 mm           Cauling color         Yellow, RAL 1021           opperture         Theological           iousing color         Yellow, RAL 1021           wa price intering         Mounting Jate           Theol display         LDP indicator           umber of LEDs         6 Piece(s)           yeef of fastering         Mounting Jate	Connection 1			
Function     Machine interface       Cable length     25.000 mm       Sheathing material     PVC       Cable color     Black       Number of conductors     29 -wire       Wite cross section supply     1 mm²       Wite cross section supply     1 mm²       Connection 2     Connector       Type of connection     Connector       Function     Data Interface       Thread size     M12       Type of premale     Metal       No. of pins     4 - pin       Encoding     Docoded       Cable properties     Cable properties       Cable resistance, max.     15 0       Internation (W x H x L)     140 mm x 149 mm x 140 mm       Could properties     Encoding       Cable resistance, max.     15 0       Internation (W x H x L)     140 mm x 149 mm x 140 mm       Could properties     Encoding       Unumerical data     Plastic.PC       tet weight     3.000 g       Dousing color     Yellow, RAL 1021       Morting plate mounting plate     Morting plate       Unter of LEDs     6 Place(s)       Software Sensor Studio     Software Sensor Studio       Software Sensor Studio     Software Sensor Studio       Software Sensor Studio     Conceles	Type of connection	Cable		
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Sheathing material     PVC       Cable color     Black       Number of conductors     29 -wire       Wire cross section signals     0.14 mm²       Connection     Connector       Type of connection     Connector       Function     Data interface       Thread size     M12       Type     Female       Material     Metal       No. of pins     4 - pin       Encoding     D-coded       Cable resistance, max.     15 Ω       resistance, max.       Veloc.       Veloc.       Resistance, max.       Veloc.       Veloc. <td <="" colspan="2" td=""><td>Cable length</td><td>25,000 mm</td></td>	<td>Cable length</td> <td>25,000 mm</td>		Cable length	25,000 mm
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Wire cross section signals     0.14 mm²       Connection 2     Type of connection       Type of connection     Data interface       Thread size     M12       Type     Female       Material     Metal       No. of pins     4 -pin       Encoding     D-coded       Cable properties     Cable properties       Cable resistance, max.     15 Ω       techanical data     Metal       mension (W x H x L)     140 mm x 149 mm x 140 mm       ousing material     Metal       plastic/PC     action x 149 mm x 140 mm       ousing material     Plastic/PC       et weight     3,000 g       ousing color     Yellow, RAL 1021       type of fastening     Mounting plate       Through-hole mounting via optional mounting device       tiperation and display     Alphanumerical display       LED indicator     Units of the sensor Studio       software Sensor Studio     software Sensor Studio       perational controls     Software Sensor Studio       mibert temperature, operation     0 50 °C       mibert temperature, storage     -20 60 °C       elative humidity (non-condensing)     15 95 %       tertifications     III 65 %       eprece of protection     IP 65       roto				
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EN 60068-2-6

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Test procedure for oscillation in accordance with standard

### Part no.: 53800243 – RSL440-L/CU429-25 – Safety laser scanner

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 8.0	27272705
eCl@ss 9.0	27272705
ETIM 5.0	EC002550

EC002550

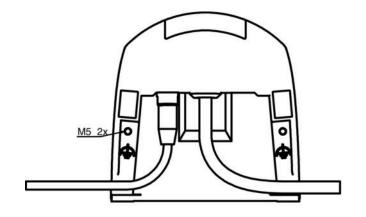
#### **Dimensioned drawings**

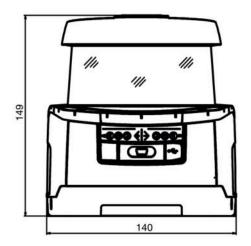
All dimensions in millimeters

ETIM 6.0

### Part no.: 53800243 – RSL440-L/CU429-25 – Safety laser scanner

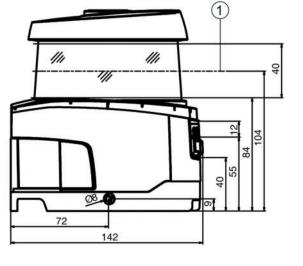
Dimensions safety laser scanner with connection unit





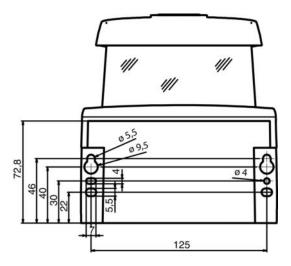




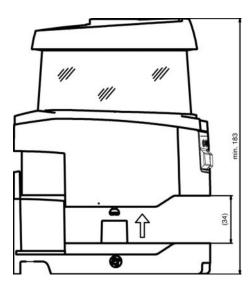


# Part no.: 53800243 – RSL440-L/CU429-25 – Safety laser scanner

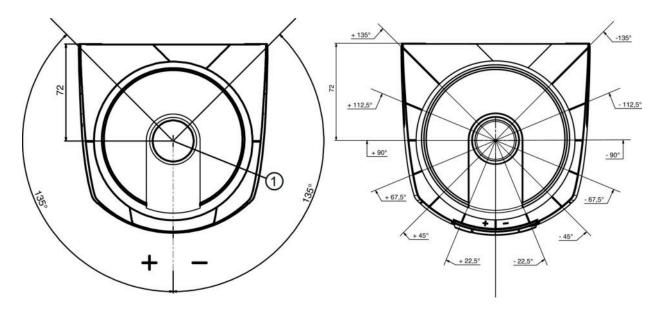
Mounting dimensions safety laser scanner with connection unit



Minimum space requirements for installation and replacement of scanner unit



Dimensions of scanning range



### Part no.: 53800243 – RSL440-L/CU429-25 – Safety laser scanner

1 Reference point for distance measurement and protective field radius

### **Electrical connection**

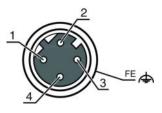
Connection 1		
Type of connection	Cable	
Function	Machine interface	
Cable length	25,000 mm	
Sheathing material	PVC	
Cable color	Black	
Number of conductors	29 -wire	
Wire cross section		
Wire cross section supply	1 mm <sup>2</sup>	
Wire cross section signals	0.14 mm <sup>2</sup>	

Conductor color	Conductor assignment	
White	RES1	
Brown	+24V	
Green	EA1	
Yellow	A1	
Gray	OSSDA1	
Pink	OSSDA2	
Blue	GND / Ground	
Red	MELD	
Black	F1	
Violet	F2	
Gray Pink	F3	
Blue Red	F4	
Green White	F5	
Brown Green	SE1	
White Yellow	SE2	
Brown Yellow	A2	
Gray White	A3	
Brown Gray	A4	
Pink White	EA2	

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

### Part no.: 53800243 – RSL440-L/CU429-25 – Safety laser scanner

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	Free warning field
	Blue, continuous light	Warning field interrupted
5	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
6	Off	Device switched off
	Red, continuous light	OSSD off
	Red, flashing	Error
	Green, continuous light	OSSD on

#### 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.

# Part no.: 53800243 – RSL440-L/CU429-25 – Safety laser scanner

#### Accessories

Connection technology - Interconnection cables

Part no.	Designation	Article	Description
	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 length: 5,000 mm Sheathing material: PUR

# 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

### Mounting

	Part no.	Designation	Article	Description
P	53800131	BTP800M	5 - F 5	Dimensions: 160 mm x 169 mm Color: Black Material: Metal

#### 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 electronic website in the Download tab of the article detailed page