

Technical data sheet Safety laser scanner

Part no.: 53800142

RSL425-S



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- Notes
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Technical data



Basic data

Series	RSL 400
Application	Mobile danger zone guarding
	Mobile side guarding
	Stationary access guarding
	Stationary danger zone guarding
Special version	
Special version	Measurement data output optimized for

vehicle navigation

Start/restart interlock (RES), selectable

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

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 _D	9E-08 per hour
Mission time T _M	20 years, EN ISO 13849-1
Category	3, EN ISO 13849

Protective field data

Minimum adjustable range 50 mm Number of field pairs, switchable 10 Number of quads, switchable 10 Number of protective functions 1 Piece(s) Number of independent sensor configurations 1 8 %	Resolution (adjustable)	30/40/50/60/70/150 mm
Number of quads, switchable 10 Number of protective functions 1 Piece(s) Number of independent sensor configurations 1	Minimum adjustable range	50 mm
Number of protective functions 1 Piece(s) Number of independent sensor configurations 1	Number of field pairs, switchable	10
Number of independent sensor confi- 1 gurations	Number of quads, switchable	10
gurations	Number of protective functions	1 Piece(s)
Diffuse reflection min 18%	·	1
Diffuse reflection, film.	Diffuse reflection, min.	1.8 %
Operating range 0 3 m	Operating range	0 3 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
Wavelength	905 nm
Laser class	1, IEC/EN 60825-1:2014
Transmitted-signal shape	Pulsed
Repetition frequency	90 kHz
Angular resolution	0.1 °
Scanning angle	270 °

Measurement data

Detection range	0 50 m, Diffuse reflection > 90%
Diffuse reflection	90 %
Distance resolution, radial	1 mm
Distance resolution, lateral	0.1 °
Systematic measurement error \mathbf{D}_{meas} - \mathbf{D}_{real}	min.: -20 mm typ.: -10 mm max.: 0 mm br />(Diffuse reflection: 1.8% retro-reflector Measurement range: 0.2 25 m)
Measurement value noise	10 mm, 1 σ (• Diffuse reflection: 1.8% 20% Measurement range: 0 9 m • Diffuse reflection: 20% retroreflector Measurement range: 0 25 m)
Laser spot (H x W), 10 m	60 mm x 13 mm
Laser spot (H x W), 20 m	165 mm x 24 mm
Laser spot (H x W), 30 m	265 mm x 40 mm
Laser spot (H x W), 40 m	285 mm x 57 mm

Electrical data

Р	rotective circuit	Overvoltage protection
	Performance data	
	Supply voltage U _B	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

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

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

	3
Switching element	Transistor, PNP

Safety-related switching output 2

Switching element	Transistor, PNF
Owitching element	manaiatoi, i mi

Time behavior

Response time	80 ms, ≥
Response time	00 IIIS, =

Service interface

0	ervice interface	
T	уре	Bluetooth, Ethernet, USB
	Ethernet	
	Function	Configuration/parametization
		TCP/IP
	Connection	M12 connector, 4-pin, D-coded
	Bluetooth	
	Function	Configuration/parametization
	Frequency band	2,400 2,483.5 MHz
	Radiated transmitting power	Max. 4.5 dBm (2.82 mW), class 2

Technical data



USB	
Function	Configuration/parametization
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

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	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
Relative humidity (non-condensing)	15 95 %

Certifications

Degree of protection	IP 65
Protection class	III, EN 61140
Certifications	TÜV Süd
Test procedure for EMC in accordance	DIN 40839-1/3
with standard	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

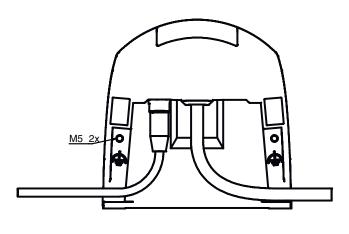
Classification	
Customs tariff number	85365019
ECLASS 5.1.4	27279290
ECLASS 8.0	27279290
ECLASS 9.0	27272705
ECLASS 10.0	27272791
ECLASS 11.0	27272791
ECLASS 12.0	27272791
ECLASS 13.0	27272791
ECLASS 14.0	27272791
ETIM 5.0	EC002550
ETIM 6.0	EC002550
ETIM 7.0	EC002550
ETIM 8.0	EC003015
ETIM 9.0	EC003015

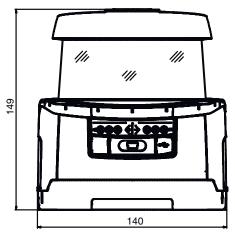
Dimensioned drawings

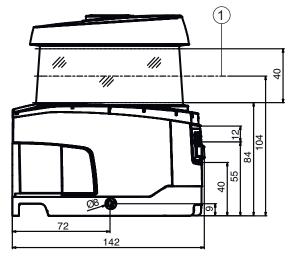


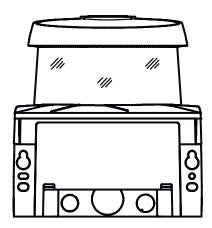
All dimensions in millimeters

Dimensions safety laser scanner with connection unit







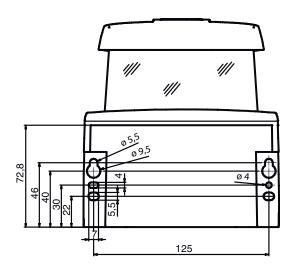


Scan level

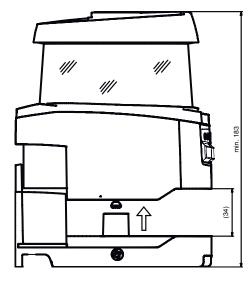
Dimensioned drawings



Mounting dimensions safety laser scanner with connection unit



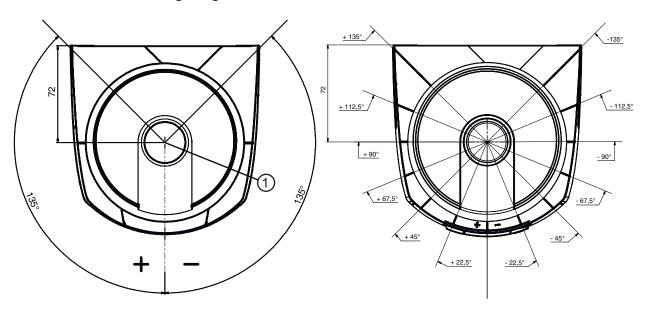
Minimum space requirements for installation and replacement of scanner unit



Dimensioned drawings



Dimensions of scanning range



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
	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

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Notes



Observe intended use!



Solly use the product in accordance with its intended use.

Notes





ATTENTION! INVISIBLE LASER RADIATION - CLASS 1 LASER PRODUCT



The device satisfies the requirements of IEC/EN 60825-1:2014 safety regulations for a product of laser class 1 and complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3., as described in Laser Notice No. 56, dated May 8, 2019.

- because 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.

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, PUR, 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

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	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
2	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
A	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
1.11.3	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

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We reserve the right to make technical changes

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	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.
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.

Note



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